EQUIPMENT BUYING GUIDE
CD PLAYERS, SPEAKERS, AMPLIFIERS, RECEIVERS, AND MORE

BEST RECORDS OF THE YEAR

TEST REPORTS: MAGNAVOX CD PLAYER;
POLK AUDIO SPEAKERS,
GRUNDIG TAPE DECK, KEF SPEAKERS
"They provide smooth, fast and incredibly well detailed sound."
Polk’s RTA Tower Loudspeakers Combine Legendary Polk Performance with Contemporary Style.”

Big speaker performance with an efficient use of space.

RTA 11t
The RTA 11t is the finest conventional (non-SDA) speaker that Polk Audio manufacturers. Its extremely high power handling (250 watts) and high efficiency (90dB) provide remarkable dynamic range from both large and small amplifiers. The RTA 11t utilizes the same technologically advanced fluid-coupled subwoofer design found in Polk’s flagship model. Dual 8” sub-bass radiators are coupled to two 6⅞” mid-bass drivers, resulting in a fast, powerful, deep, and ultra-accurate bass response, without the boomy, undetailed sound of large woofer systems.

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

THE PRINCIPLES OF COINCIDENT RADIATION

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

Positioning the 1” silver-coil dome tweeter between the two 6⅞” trilaminate polymer bass/midrange drivers achieves what is called “coincident radiation.” This means that both the mid- and high-frequencies appear to radiate from the same place on the baffle resulting in perfect blending at the critical crossover point. (See illustration, below).

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

The discriminating listener who seeks state-of-the-art performance and design will find the quintessential combination of both in Polk’s RTA series loudspeakers.
"The best high performance speaker value on the market today." Off The Record
"Polk's Remarkable Monitors Redefine Incredible Sound/Affordable Price"

"At their price, they're simply a steal" Audiogram Magazine

Monitor 10B
Considered one of the world's best sounding loudspeakers and, in the words of Audiogram magazine, "At the price they are simply a steal." The Polk 10B utilizes dual trilaminate polymer drivers coupled to a built-in subwoofer for accurate bass response and superior dynamic range. A 1" dome tweeter perfectly complements the other drivers to insure outstanding reproduction of every type of music.

Monitor 7C
Basically a smaller, less expensive version of the Monitor 10B. By offering superlative performance whether mounted on a shelf or a speaker stand, the 7C is a highly versatile addition to any audio system. How good does it sound? Audio Alternative magazine said, "It is amazing."

Monitor 5B
Similar in design and performance to the Monitor 7C, however it utilizes an 8" subwoofer (rather than 10") and is more compact. The 5B represents one of the best values of the entire Monitor Series.

Monitor 5Jr. +
Called the best sounding speaker of its price in the world regardless of size. It achieves life-like three-dimensional imaging which 10 years ago was not available in any bookshelf speaker at any price.

Monitor 4.5
Shares most of the high technology components and rewarding musical performance of the larger Polk speakers at a surprisingly low price. A critically tuned bass duct insures high efficiency and great bass performance despite its convenient compact design.

Monitor 4A
Identical to the 4.5 in a smaller cabinet. Audio critic Lawrence Johnson called it, "an all around star of great magnitude." The 4A's affordable price means that no matter how small your budget, you can afford the incredible sound of Polk.

Matthew Polk's Vision: Superior Sound for Everyone
Polk Audio is an American company that was founded in 1972 by three Johns Hopkins University graduates who were fanatical audiophiles with a common vision. They believed that it was possible to make speakers that performed as well as the most exotic and expensive systems at a fraction of the price. Starting with only $200, they began by designing and manufacturing the Monitor Series loudspeakers. The Monitor Series combined the advantages of American high technology and durability with European styling and refinement. Over the years an unending stream of rave reviews, industry awards, and thousands of enthusiastic Polk customers have established the Monitor Series as the choice for those looking for both incredible sound and an affordable price. There is no better value in audio equipment today than a Polk Monitor Series loudspeaker.

Uncompromising Standards at Every Price
A limited budget does not mean a limited ability to appreciate fantastic sounding music. That's why we put our best engineering efforts and only the finest materials into every Polk product regardless of price.

Every Polk Monitor Series speaker uses the same trilaminate polymer cone technology as the flagship SDA-SRS 1.2. Every Polk Monitor utilizes a 1" polymer dome tweeter, and most use exactly the same tweeter found in the SRS 1.2. All Polk Monitors employ costly multi-component crossover networks and 3/4" thick high density, non-resonant cabinets. Pick up a Polk Monitor 4A, then pick up a comparably priced but larger speaker from a different manufacturer. You'll notice that the Polk is heavier, more solidly built, and sports a superior fit and finish. Now compare the sound. We are sure you'll agree with Musician magazine, which said Polk Monitors are: "Vastly superior to the competition."

The Thrilling Sound of Polk Monitors
Polk Monitors achieve open, boxless, three-dimensional imaging surpassed only by the SDA's. Their silky smooth frequency response assures natural, non-fatiguing, easy to listen to sound, while their fast transient response results in music that is reproduced with life-like clarity and detail. In addition, dynamic bass performance, ultra-wide dispersion, high efficiency and high power handling are all hallmarks of Monitor Series performance.

There is a Polk Monitor Perfect for You
Each time you advance through the six Monitor Series models, you'll immediately hear a remarkable improvement in efficiency, bass response, and output volume. They are designed so that a smaller Polk played in a small room will sound nearly identical to a larger Polk played in a large room. A larger Polk in a small room will, of course, play that much louder with even better bass. No matter what price range fits your budget, there is a spectacular Polk Monitor Series speaker waiting to fulfill your sonic dreams.

Where to buy Polk Speakers?
For your nearest dealer, see page 160
Toy wonder Francis Goldwyn has a new idea that's 150 million years old.

He also prefers Christian Brothers Brandy.
Vol. 55 No. 2
STEREO REVIEW FEBRUARY 1990 5

Most audiophiles think of CD changers as the station wagons of the digital world. Convenient to be sure. But certainly not exciting.

Until now.

Because Onkyo's new DX-C300 and DX-C500 CD changers will change your mind as well as your discs. And they'll put an end to the risk of sacrificing musical enjoyment for the ease of multi-disc operation.

Optional magazines allow your choice of single disc simplicity or multi-disc convenience.

Onkyo's AccuBit technology is the reason. AccuBit insures that even the quietest musical passages and subtle nuances are reproduced with stunning clarity. How? AccuBit starts with high precision Digital-to-Analog converters. And individually calibrates each one for maximum accuracy. This critical adjustment allows all the music on your discs to reach your ears. And not get lost in the distortions that plague conventional CD changers.

Until the DX-C300 and DX-C500, only the finest single disc players could claim such extraordinary sophistication. But that's just what you expect from Onkyo, the company with an unparalleled reputation for making high end sound affordable.

Onkyo.

The End Of The Compact Risk.

ONKYO
RISING ABOVE THE CD JUNGLE
200 Williams Drive, Ramsey, NJ 07446

In Canada: H. Roy Gray Ltd.
14 Laidlaw Blvd., Markham, Ontario L3P 1W7
by Christie Barter and Rebecca Day

FORD FUTURES
The Ford audio division has introduced new, improved versions of the Ford JBL audio systems available as options for the new Lincoln Town Car, Ford Taurus, and Mercury Sable. A version of the system will also be available for the 1991 Explorer, a light truck described as a “compact sport utility vehicle” due in the spring of 1990. Between 1988 and 1989 sales of the Ford JBL system grew by nearly 70 percent.

PLATINUM ALBUMS
Record sales justifying the Platinum designation have been certified by the Recording Industry Association of America, for, among others, Aerosmith’s “Pump” (Geffen), Tracy Chapman’s “Crossroads” (Elektra), Tears for Fears’ “The Seeds of Love” (Fontana), Don Henley’s “The End of the Innocence” (Geffen), and “New Kids on the Block” (Columbia).

PRODUCT NEWS
Memorex Products, the manufacturer of Memorex tape, plans to market speakers ($300 to $600 per pair) carrying the Memorex brand name in June. Fujitsu Ten is introducing the first digital signal processor for cars. Price: $1,000. Cambridge SoundWorks has introduced an easily portable three-speaker satellite/subwoofer sound system, the Model Eleven, which includes a small integrated amplifier. The carrying case, which can accommodate the owner’s CD or tape player, functions as the subwoofer. Price: $599 by direct mail. TDK, Maxell, and That’s America are among the companies launching high-end metal-particle audio tape cassettes at premium prices ($12 and up) to compete with Sony’s metal line already on the market. All of them feature sophisticated high-quality shells. TDK claims that its MA-XG Pro is the first dual-layered metal tape. The bottom layer is optimized for bass frequencies, and the upper level handles the highs. Price for a C-60, $15; for a C-90, $18. For details of That’s America’s Suono line, see New Products, page 15.

NEEDS OF THE NINETIES
Picture tubes compatible with a variety of high-definition television (HDTV) broadcasting systems will be produced at a new $100-million factory for which North American Philips plans to break ground this spring. The HDTV tubes are for the United States market, and the plant will also produce standard color tubes for domestic use and export. The factory is expected to begin production before the end of 1992, and at press time location had been narrowed down to Kentucky, Michigan, Ohio, or Tennessee.

MUSICAL NOTES
RCA is reissuing its classic-film-score series in Dolby Surround beginning with the January release of Gone with the Wind and Laura (which also includes Forever Amber and The Bad and the Beautiful). The Ramones, back from a world tour stretching from Scotland to Australia, are playing dates in the U.S. with a new bass player: C. J. Ramone. The Academy of St. Martin-in-the-Fields, which claims more recordings than any other orchestra, is celebrating its thirtieth anniversary this season and will play ten concerts in the United States in March and April. Look for March release of a new RCA album recently recorded by Cowboy Junkies in Toronto. Pavarotti Plus!, a recital by operatic tenor Luciano Pavarotti and his colleagues Carol Vaness, Leona Mitchell, and Harolyn Blackwell, will be broadcast in the PBS series Live from Lincoln Center on February 28. The series has a new underwriter, General Motors.

HI-FI GUIDANCE
A guide to home entertainment products, Understanding Audio and Video by Michael Rigg, has been published jointly by Pioneer Electronics and Stereo Review. The book is aimed at both enthusiasts and novice consumers and is designed to help them evaluate products as well as understand technology. The author is an Editor at Large for this magazine. The book is available through Pioneer retailers for $5.95.

Maxell’s Audio Tape Recording Handbook provides information on audio cassettes and recording techniques. To obtain a copy, send 75¢ postage to Maxell Audio Guide Offer, P.O. Box 4623, Monticello, MN 55363-4623.

OPERA ON THE AIR
This year marks the fiftieth anniversary of Texaco’s sponsorship of the Saturday afternoon radio broadcasts of live matinee performances by the Metropolitan Opera. It is the longest continuous sponsorship in broadcasting history, and by the end of this season the total number of Texaco–Metropolitan radio performances will reach 990. The number of seductions, kidnappings, and murders enacted in those performances is not available, but the one star participating in all 990 is the Texaco star.

This month’s performances include La Gioconda (February 3), La Traviata (February 10), Samson et Dalila (February 17), and Rigoletto (February 24). For a free broadcast guide with casts and stories of the operas, call 1-800-MET-1989 or write to the Met, Box 50, New York, NY 10023.
The End of Audio History?

Julian Hirsch's December "Technical Talk" column, about the many irrelevant ideas in the audio industry, was excellent. Mr. Hirsch admitted to discriminating against ideas that don't "make a difference." Although his honesty impressed me, I still found myself asking if there is any point in continuing research on audio technology. It seems now that we have everything. With transistors, digital signal, and acoustic processors, is there any possibility of improvement?

Now that we have achieved perfection (I must admit that I rarely distinguish quality between high-end systems), why continue researching acoustics and high-fidelity electronics? Are we really finished in our quest of the better mousetrap?

JAY KIRSCH
Binghamton, NY

Julian Hirsch replies: It is probably true that specific circuit details have less to do with a component's final performance than formerly, today's real improvements are more likely to come from the creators of the semiconductor devices that are the building blocks of the product designer. But it would be foolish to conclude that because most current hi-fi products perform so well, no further R&D efforts are justified. We are a long way from perfection!

I suspect that the really significant advances to come in audio will arise from acoustic and psychoacoustic research. Despite the efforts of hundreds of designers, which have yielded considerable improvement over the past thirty or so years, there are thousands of talented researchers in the search for the holy grail of high fidelity (or "better mousetrap," if you prefer). I don't think we'll ever quite reach the goal, but let's keep trying.

FOURIER FOOTNOTE

Ironically, Ken Pohlmann conveyed some misleading information in his December "Signals" column, "Just the Facts, Please." If you take the date that Fourier submitted his results on heat diffusion to the Institut de France, December 21, 1807, as the date of his theorem on the Fourier series, then it was published and widely available in the Mémoires de l'Académie Royale des Sciences de l'Institut de France.

The Basic Repertoire

My copy of Richard Freed's "The Basic Repertoire on Compact Disc," which STEREO REVIEW published in 1987, is becoming rather worn. I'm sure it will be of interest to see an updated and expanded edition; reliable, basic criticism is even more important today as CD's continue the expansive phase.

TOM OLIVER
Amarillo, TX

Mr. Freed is currently at work on a 1990 edition of "The Basic Repertoire on Compact Disc," and we expect to announce its availability in the next few months.

CORE Remote Control

In the November "Systen's" article describing the Duncans' house, Rebecca Day mentioned the CL-9 CORE universal remote control. After calling many hi-fi stores in town and nationally, I have been unable to find any that carries it. Can you shed some light?

PIERO FAVRETTI
Atlanta, GA

The inventor of the CORE remote control, Steve Wozniak, decided to sell the rights to the technology, but there has been no buyer to date, and production has ceased. Service on CORE remote units is still being done by the CL-9 Service Center, 120 Beachview Ave., Santa Cruz, CA 95060, which is also selling the few remaining units for $100 each. To obtain one, send a check for $100 to the CL-9 Service Center, to the above address—and be sure to request an instruction manual.

Saint-Saëns's Third

I was surprised to read in William Livingstone's "Going on Record" column in November his description of the Saint-Saëns Third Symphony as "in only two movements." It is true that the symphony is composed of two large parts, a form that Saint-Saëns used, in
In today's world of electronics there is high technology, and there is Optonica—inspired technology.

Optonica televisions, VCRs and audio systems are for the discriminating few who truly appreciate intelligent design, superior engineering, and brilliant innovation. Products for people to use—instead of master.

Take, for example, the award-winning Voice Coach. This remarkable voice-synthesized remote talks you through virtually every programming step of an Optonica VCR.

Optonica televisions have Super VHS inputs for superior picture resolution and clarity. Every VCR features an index search system that makes finding a specific point on a cassette as simple as pressing a button. And the Digital Sound Processing available on our Surround Sound Amplifier simulates an array of acoustic environments, ranging from a concert hall to a stadium.

As you would expect, Optonica products can only be previewed at select dealers. For the Optonica dealer near you call 1-800-BE-SHARP.
Seven years ago, Sony made your turntable obsolete.

Our Digital Signal Processing is about to do the same to the rest of your system.
Sony proudly presents the TA-E1000ESD Preamplifier, incorporating the most advanced Digital Signal Processing in high fidelity.

Seven years ago, Sony engineers astonished the world with the Compact Disc, the first giant step for digital high fidelity. Now, the Sony ES Series is pleased to introduce the second step: bringing the digital technology of the Compact Disc to the rest of your system.

Sony’s new TA-E1000ESD Preamplifier incorporates Digital Signal Processing (DSP) to maintain the integrity of Compact Disc sound from input to output. This incomparable circuitry not only handles digital sources in the digital domain, it even converts analog sources to digital. So all your music can receive the full DSP treatment, including digital expansion, digital compression, digital parametric equalization, digital reverberation, digital delay, and digital surround sound encompassing ten digital soundfield parameters. Now you can heighten sonic performance digitally, obtaining optimum ambience and brilliance without enduring the veil of conventional signal processing.

### Direct the Dynamics.
The numerical prowess of DSP puts you in full digital control of dynamic range, with nine discrete steps of compression or expansion. So you can finally do a proper job of fitting live music within the limitations of analog cassettes. Or use DSP expansion to bring your existing analog sources closer to digital standards.

**Bass and treble controls were never like this.**

Sony’s DSP also accomplishes digital parametric equalization. It’s simple, effective, and free from the distortion, phase shift, and noise of analog EQ. With any of 31 center frequencies and four slope settings, you have a choice of over three trillion EQ curves. Which is more than enough boosting, peaking, shelving and tweaking to overcome even quite severe acoustical deficiencies.

**If you don’t like your listening room, change it.**

Because listening rooms were never designed to contain the Vienna Philharmonic, Sony’s digital surround sound places you in your choice of symphony hall, movie theater, stadium, studio or small club. Unprecedented digital adjustments let you choose room depth, width, wall absorbancy, reflection times—even the row and number of your seat! You get acoustic environments so detailed, so authentic, they have a palpable presence. And for Dolby Stereo™ movies, our six-channel Dolby Pro Logic™ Surround Sound projects a more vivid soundstage than most sound stages.

**For the ultimate in surround sound processing of Dolby Stereo™ movies, the TA-E1000ESD incorporates six-channel Dolby Pro Logic™ circuitry.**

After all these digital attainments, Sony didn’t forget that the TA-E1000ESD is also a preamplifier. So we included five low-noise audio inputs, three digital inputs, seven A/V inputs, a programmable remote control and a three-year limited parts and labor warranty—the same one that covers ES power amps, CD players, cassette decks and receivers.*

All of which leads to one simple conclusion. The company that wrote the book on digital audio has just inaugurated a whole new chapter.
his words, to avoid “interminable repetition.” All the “traditional” movements are accounted for, however. After a brief adagio, an allegro moderato in traditional sonata form (but without exposition repeat) follows, the second slow movement, poco adagio, follows without pause. The third movement, allegro moderato, begins the second part; it is a traditional scherzo in ABA form, with a slow bridge passage to the triumphant fourth-movement finale. Although the third movement is marked “allegro moderato,” the most effective performances of the symphony adopt tempos for it sounding anything but “moderate.”

Incidentally, Saint-Saëns was anticipated by Schubert, who actually combined all four movements into one continuous part in two of his fantasies, the famous Wanderer and the F Minor Fantasy for piano four-hands.

PAUL MADURA
Yonkers, NY

William Livingstone replies: As Mr. Madura points out, Saint-Saëns followed essentially the traditional ground plan of the symphony, and for the reason Mr. Madura cites, he organized it to be played in two movements. There are a few symphonies by other composers that were written to be played as only one continuous movement.

CD Quality

I am getting fed up with the quality of CD’s that are being put on the market. In the last two weeks I have purchased several CD’s, and two have been defective. The first one didn’t play at all, and the second one made sounds as if the CD were not aligned correctly with the spindle or laser. The worst thing is that it only happens on Tracks 1-3. Are there any good CD companies left, or was it all a joke to begin with?

EVAN S. CHAPKIS
Tampa, FL

Your experience is unusual and probably a coincidence rather than evidence of a widespread decline in the quality of compact discs. There may also be a problem with your CD player, especially if it exhibits such symptoms with well-maintained older discs that used to play properly.

Rock Studio Levels

I concur with Craig Patterson’s letter in “Signals” column by Ken Pohlmann. I can assure Mr. Pohlmann that very few engineers in rock studios listen to playback at “very high sound-pressure levels.” And it has been my experience that you are most likely to find compression horn drivers in the studio itself but very rarely in the control booth.

Most near-field monitors use direct-radiator cones or domes for midrange and high-frequency reproduction. Recording engineers recognize that direct-radiator designs offer a smooth response and a wide dispersion pattern. You will find some compression driver/horn combinations in studio monitors, but generally they are used for tweeters in three-way systems. In any case, near-field monitors are seldom used for high sound-pressure levels in any studio. I also sincerely doubt that you will find a rock engineer who listens to his monitors 40 dB louder than home levels.

JAMES R. PIEL
Arcanum, OH

Ken Pohlmann replies: According to a spokesman for JBL, one of the largest makers of professional monitors, “Ninety percent of the main monitors in professional recording-studio control rooms use compression horn drivers because of the extreme sound-pressure levels required.” Yes, near-field monitors in control rooms use cones, but they are loud too because of their proximity.

Alternate Takes

Concerning letters about unannounced “alternate takes” in Columbia jazz and popular-music CD’s: Why not call them what they are? They are rejected takes that did not satisfy the performers.

RICHARD SEBOLT
Springfield, MA

Computerized Cataloging

More than a year ago I offered to share with other Stereo Review readers my computer program that organizes information about a collection of CD’s or other recordings, and hundreds of readers took me up on the offer. I recently revised the program to make it faster and more visually appealing and to add more features. It runs on any computer using MS-DOS.

Once again, I am willing to share my program with other readers. I will also share my updated information base, which includes hundreds of classical CD’s that have been favorably reviewed in Stereo Review (this is not essential to the program, and readers who prefer other types of music can discard my list and create their own). If you’d like a copy, please send me $3 to cover the cost of a computer diskette (5 1/4 inch) and mailing.

MATTHEW M. FRANKIEWICZ
88 Union Ave.
N. Versailles, PA 15137
Starting with the first digital recording of music in 1972, Denon has produced an unbroken string of digital audio breakthroughs.

The LAMBDA Super Linear Converter: Another significant digital audio first from the first company to record music digitally.

Denon's LAMBDA processor bilaterally offsets the digital waveform to eliminate the distortion that occurs when low-level waveforms cross the zero line.

Denon's CD player innovations include the Super Linear Converter, the 20-bit digital filter, the real 20-bit converter and noise-shaping filter circuitry.

Denon’s latest digital advancement is the LAMBDA Real 20-Bit Super Linear Converter in the DCD-1560. The LAMBDA system's digital offset processor and dual 20-bit converters eliminate the most common source of distortion in CD players: the zero crossings of low-level signals.

Denon’s consistent leadership in digital audio technology may explain why earlier generation Denons often sound better than current competitors’ models. And why a leading hi-fi journal found that a moderately-priced Denon equalled or outperformed all others tested, including machines costing over $1800.

What makes Denon CD players better? Perhaps it’s that Denon performs every step in the music chain from recording artists through pressing CDs. And that Denon has concentrated on one thing and only one thing for 80 years. Music.

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DENON

Denon America, Inc., 223 New Road, Parsippany, NJ 07054

CIRCLE NO. 27 ON READER SERVICE CARD
They said it was impossible to build an AM/FM multi-play CD controller and cassette deck with a detachable face.

But Pioneer pulled it off. Introducing the Premier™ KEX-M800.

What's in a name? Everything if it's the new Premier™ KEX-M800.

The world's first car stereo that not only offers you a combination multi-play compact disc player, AM/FM tuner, and cassette deck. It also features an anti-theft detachable face plate to help keep your system safe from prying eyes.

The only thing more exclusive than the KEX-M800 is our dealer network. Premier Installation Specialists are expert craftsmen, so you know your system will be custom installed with the utmost care.

So see your Pioneer Premier dealer. And watch us pull off the impossible.

For your nearest dealer call 1-800-421-1404.
NEW PRODUCTS

QUAD
The Quad Model 66 preamplifier and the Quad CD player are designed for operational simplicity and reliability, with all functions remotely controlled. The preamplifier's accompanying tabletop Model 55 Control Panel operates both components, as well as other Quad equipment; the CD player also comes with its own hand-held remote unit (not shown). The preamplifier has no front-panel controls at all, just a display, and the only controls on the player's chassis are for opening and closing the disc drawer and for starting play.

The Model 66 has seven line-level inputs, one of which can be matched to any phono cartridge by a plug-in circuit board. The audio/video input and one auxiliary input feature floating-ground circuits to eliminate ground loops from connection to a TV set or VCR. Instead of tone controls, there is a "tilt" feature that can be used to slope the entire response curve up or down by various degrees. The "bass step" control cuts response at either 75 or 150 Hz to reduce the effect of room modes.

The CD player has a four-times-over-sampling digital filter and dual 16-bit digital-to-analog converters. Prices: Model 66 preamplifier with Model 55 Control Panel, $1,500; CD player, $1,200. Distributed by Tovil Distributors of America, Dept. SR, 14120-K Sullyfield Circle, Chantilly, VA 22021.

PIONEER
Pioneer's SP-700D sound-field processor is a 50-bit digital signal processor with Dolby Pro Logic circuitry. It has seven programmed surround modes, including two theaters, a stadium, and a studio, as well as two simulated-stereo modes. There are sixteen preprogrammed sound-field parameters and sixteen user-programmable options, including initial delay, room size, liveliness, reverb time, and high-frequency reverb, to customize a listening room's ambience. The SP-700D can be switched between four- and six-channel configurations, and it comes with a fifty-one-key remote control. Price: $700. Pioneer Electronics, Dept. SR, 2265 E. 220th St., P.O. Box 1720, Long Beach, CA 90801-1720.

ADC
The three-piece Soundshaper 3025 speaker system from ADC includes two full-range satellite speakers and a subwoofer. The satellites and subwoofer can also be purchased separately. Frequency response of the system is rated as 45 to 20,000 Hz ± 3 dB and sensitivity as 88 dB sound-pressure level at 1 meter with a 1-watt input. Dimensions are 11 1/4 x 7 x 5 1/2 inches for the satellites and 11 x 7 1/2 x 17 inches for the subwoofer. The subwoofer is available in a charcoal black finish, the satellites in charcoal black or "contemporary white." Prices: $269.95 a pair for the Model 3010 satellite speakers; $229.95 for the Model 3015 subwoofer.

THAT'S AMERICA
Suono is the top brand in That's America's audio cassette tape line. It uses metal tape housed in a special domed shell made of high-density resin; together, the material and design are said to reduce modulation noise and vibration. An improved friction sheet is claimed to insure smoother rotation of the tape and hubs for less wow and flutter. The tape's magnetic material has a homogeneous structure for close, uniform contact with the recorder's heads, and a new binder system is used to improve durability and heat resistance. Suono cassettes are available in 90-, 46-, and 74-minute lengths, priced at $11.99, $8.50, and $9, respectively. That's America, Dept. SR, 1983 Marcus Ave., Suite 201, Lake Success, NY 11042.
NEW PRODUCTS

TEAC
The Teac V-480 cassette deck has an IC logic-controlled transport, a bipolar power supply, two hard permalloy heads, and a DC servomotor. Operating features include Dolby HX Pro headroom extension, Dolby B and Dolby C noise reduction, bias fine-tuning, recording mute, auto tape selection, and a timer for recording and playback. It can be controlled remotely as part of a Teac Unified Remote (UR) system. Price: $199.95. Teac America, Dept. SR, 7733 Telegraph Rd., Montebello, CA 90640. Circle 124 on reader service card

SPARKOMATIC
The Sparkomatic SR600 is an affordably priced car stereo CD receiver. The player uses a three-beam laser pickup and can be programmed for up to twenty tracks of a disc. The amplifier section is rated at 20 watts per channel with 0.1 percent distortion, 25 watts with 10% distortion. Two RCA line-out jacks can connect the unit to external amplifiers for additional speakers. The tuner section has twelve FM and six AM presets. Price: $399. Sparkomatic, Dept. SR, Milford, PA 18337. Circle 125 on reader service card

A/D/S/
The a/d/s/ SW5 powered subwoofer has an electronic crossover network based on Linkwitz-Riley topology, a 350-watt amplifier, and a long-exursion 12-inch driver. Crossover points and output level are variable so that users can match the SW5 to a variety of satellite speakers. It can be used with any amplifier or with a receiver that has preamp-out/main-amp-in jacks, and it can be daisy-chained with additional SW5s. Dimensions are 17 1/2 x 16 1/2 x 14 1/2. Finish is black or gray. Price: $1,000. a/d/s/, Dept. SR, One Progress Way, Wilmington, MA 01887. Circle 126 on reader service card

DAHLQUIST
The Dahlquist DQ-12 is a three-way Phased Array speaker system. Its 8-inch long-throw woofer operates in a sealed enclosure, and the 5-inch cone midrange operates in a separate dual-cylinder structure with aperiodic loading. The 1-inch, aligned-fiber dome tweeter has magnetic fluid in its gap for high power handling. Frequency response is rated as 35 to 20,000 Hz and sensitivity as 86 db. Power handling is given as 40 watts minimum, 125 watts maximum. Nominal impedance is 8 ohms. The DQ-12 is finished in black with a black cloth grille. Dimensions are 42 x 16 x 9 inches. Price: $1,200 a pair. Dahlquist, Dept. SR, 601 Old Willets Path, Hauppauge, NY 11788. Circle 127 on reader service card
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AUDIO RESEARCH

The Audio Research LSI preamplifier features a Direct Gain Path circuit so users can bypass the balance, mode, input, and tape-switching controls for a single input source. It is said to be as close to a "straight wire with gain" as the company has ever produced. There are six normal line-level inputs, including CD, tuner, video, tape, and two auxiliary inputs. The LSI uses oxygen-free-copper Litz wire in critical circuit paths and features Audio Research's hybrid tube/solid-state technology. Power requirements are 50 watts maximum. Price: $1,495 in brushed-aluminum finish. $1,595 in anodized black as shown. Audio Research, Dept. SR, 6801 Shingle Creek Parkway, Minneapolis, MN 55430. Circle 130 on reader service card.

PARADIGM

Paradigm's Control Monitor loudspeaker has a two-way bass-reflex design with a quasi-third-order resistive port. It features the company's LF210 bass/midrange drive unit, which has a die-cast aluminum chassis designed for minimal rear reflection. The 1-inch HF 26 tweeter is a highly damped treated-textile dome. Frequency response is rated as 55 to 20,000 Hz ± 2 dB, sensitivity as 90 dB. Nominal impedance is 8 ohms. The cabinet is finished in natural oak, walnut, or black-ash veneer and measures 20 x 10 x 13½ inches. Stands like those shown are recommended. Price: $700 a pair, stands, $120. Made in Canada, Paradigm speakers are distributed by AudioStream, Dept. SR, Box 2410, Niagara Falls, NY 14302. Circle 129 on reader service card.

OPTONICA BY SHARP

The VC-G99OU Super VHS Hi-Fi VCR is part of Sharp's Optonica line. It includes a Voice Coach remote control, which has a synthesized fifty-phrase, five-hundred-word vocabulary to guide users through programming steps, and an index-search system that permits quick location of particular points in home-recorded tapes. Price: $995.95. Sharp Electronics, Dept. SR, Sharp Plaza, Mahwah, NJ 07430-2135. Circle 131 on reader service card.
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SIGNET

The Signet SL230 three-piece speaker system consists of two 8¾ x 4¾ x 4½-inch satellites and a 21 x 13 x 6½-inch subwoofer. Each satellite has a ¾-inch ferrofluid-cooled, titanium-dome tweeter and a 3½-inch midrange, and the subwoofer has two downward-firing 6-inch, slot-loaded, long-throw drivers. System frequency response is rated as 50 to 20,000 Hz and sensitivity as 88 dB. Crossover frequencies are 200 and 3,000 Hz. The satellites are finished in hand-rubbed, oiled oak veneer, and the subwoofer is matte black on all sides except for the acoustic foam in the loading slot. Price: $700. Signet, Dept. SR, 4701 Hudson Dr., Stow, OH 44224.

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MUSEATEX AUDIO

The Melior Digital Center from Museatex includes separate 19-bit digital-to-analog converters with eight-times oversampling for each channel and switching facilities for as many as four digital source components. The correct sampling frequency and de-emphasis are selected automatically for each source. There are two sets of digital tape outputs for direct digital dubbing, and volume and balance for the analog line outputs can be adjusted digitally, making a separate preamplifier unnecessary. The supplied remote control duplicates all front-panel functions of the Digital Center; it can also be used to program the liquid-crystal display with names for source components and to invert the output signal's absolute phase. Price: $1,995. Museatex Audio, Dept. SR, 6605 Thimens, Ville St. Laurent, Quebec H4S 1W2, Canada.

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PARSECG

Parsec’s Stealth powered FM antenna was designed for optimal performance even when it is placed close to other electronic equipment. Reception is omnidirectional when the antenna is mounted vertically and directional when it is mounted horizontally. Its gallium-arsenide field-effect transistor, which boosts broadcast signals as much as 36 dB, is said to add less noise than silicon transistors. The variable-gain control knob enables users either to increase power so as to pull in weak or distant stations or to reduce power for lower noise from strong local stations. Price: $44.95. Parsec of Delaware, Dept. SR, 400 W. 9th St., Wilmington, DE 19801.

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BY IAN G. MASTERS

An audio system can be put together in a vast number of different ways, depending on what signal sources are chosen, how many and what kinds of output devices (speakers or headphones) are required, and what signal processors, if any, are included. But every system needs a central control unit to choose between the available sources, tailor the signal to individual tastes, and (usually) power the speakers that actually generate the sound.

In some systems, these functions are performed by two separate components. Input selection, level adjustment, equalization, and so forth are the job of a preamplifier, less commonly but perhaps more accurately called a control amplifier. The output of this device, like that of most of the sources feeding it, is at what is loosely termed line level. To increase this very small voltage to something strong enough to drive speakers, a power amplifier is needed. This may also be called a main amplifier or a basic amplifier.

In many systems, the functions of preamp and power amp are combined in a single component called an integrated amplifier.

North Americans are unusual in that most of us prefer to buy our central hi-fi electronics in the form of a receiver, which combines an integrated amplifier with an AM/FM tuner on a single chassis. A tuner is really an input device rather than a part of the central control, and some systems do use free-standing tuners, but because of the receiver's continuing popularity it makes sense to deal with the tuner along with the rest of the electronic core.

Out of the Air

Before we can consider the FM tuner itself, it is important to examine what sort of signal it will have to process; this is a function of the antenna. In many urban areas, where the stations are nearby and have strong signals, a small piece of wire attached to the tuner's antenna terminals is often enough to pull in an adequate signal. But tall buildings or a hilly landscape can make FM signals bounce around, causing duplicate information to arrive at the antenna at slightly different times. This multipath reception can cause very annoying distortion.

Although the effects of multipath can be minimized by a low capture ratio in the tuner—its ability to respond only to the stronger of two signals on the same frequency—the best solution to multipath is usually a good antenna. Sometimes all you need is the T-shaped dipole antenna supplied with most tuners and receivers. A dipole is directional to some extent and can often be positioned in such a way that it favors one of the competing signals over the others. If you listen to stations from several directions, however, the dipole will usually work only for some of them, and you may need to step up to a small indoor antenna that can be aimed at whichever station you wish. If your multipath problem is really severe, or if you live in a "fringe" location, near the reception limits for the strongest stations, a rooftop antenna may be required; sometimes a television aerial can do double duty for FM. In some cases, only a feed from your local cable company will do.

One of the most basic things to consider when you are looking at FM tuners is sensitivity. The weaker an FM signal is, the noisier it will be, so sensitivity is specified as the signal strength required to achieve a particular quieting level. The original standard called for a rating based on the signal strength needed to obtain a signal-to-noise ratio (S/N) of 30 dB, and the much quieter mono figure was always quoted. Few people would want to listen to a signal that poor, however, so measurement standards now call for ratings based on the signal strengths at which total harmonic distortion...
Switches and Knobs

The clearing house of an audio system is its preamplifier. Practically everything is connected to it, either internally (in the case of receivers and integrated amplifiers) or by means of external cables and jacks.

The flexibility of a system—what it will do, as opposed to how well it will do it—is largely determined by the preamp.

A preamplifier’s foremost function is to select which of the various signal sources at your disposal is to be fed to the rest of the system. The input selector is a rotary knob or a series of pushbuttons that simply routes the signal from the source you choose to the next stage in the proceedings. Three distinct types of inputs funnel through this part of the preamp: high-level, phono, and video.

The most common type of input is for high-level signals, usually marked “aux” (for “auxiliary”) or “tuner” or “CD.” These signals need only to pass through the input switch and on to the next step; the positions are labeled for convenience, but there’s no reason a CD player couldn’t be connected to a “tuner” input, for example.

Some recent components—primarily integrated amplifiers—have a special input switch labeled CD Direct that bypasses all the preamplifier circuitry except the volume control and sometimes the balance. The idea is to put as few circuit elements as possible between the CD player’s output and the power amplifier’s input. Usually, however, the CD signal is also available from the normal input selector to enable dubbing CD’s to tape and to permit use of tone controls and the like when that is desirable.

Normally, one or sometimes two inputs are dedicated to the signals from phono cartridges. In this case, not only does the input selector connect the phono input, but the preamp must also process the incoming signal. The output of a typical moving-magnet (MM) cartridge is much lower than that of other components, so the phono section must add a stage of amplification to bring this signal up to line level. In the case of moving-coil (MC) cartridges, the signal is lower still, and many preamplifier sections include either switchable phono gain or yet another stage of amplification to accommodate MC inputs. With both sorts of cartridge, equalization is necessary to reverse the RIAA curve applied in the production of every vinyl record; this is also a function of the phono-preamp section.

Occasionally, input selectors will include positions for tape machines, which are thus treated like any other high-level sources. But since a tape deck can also record, it is more commonly connected to a preamplifier’s tape-monitor loop. One or more of these loops are usually inserted after the input selector but before the rest of the preamp’s circuitry. Whichever input source has been chosen at the main selector is fed to a pair of tape-out jacks connected to the tape deck’s inputs, so the selected program can be recorded at any time. The deck’s outputs are fed to a pair of tape-in (or tape-monitor) jacks.

The tape-monitor circuit’s control is usually a switch marked “source” and “tape.” In the former position, the selected input signal is sent directly to the subsequent stages of the preamplifier for normal listening (although it is still being fed to the tape deck as well). In the monitor (tape) position, the later stages of the preamplifier are connected to whatever signal is coming from the tape deck while the tape deck continues to receive the signal from the main selector. This enables you to monitor the signal passing through the tape deck’s electronics or, in the
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Elton John—Greatest Hits (MCA) 319-547

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case of a three-head deck, the signal coming off the tape (as long as the source/tape switch on the deck is also in the "tape" position). Ordinarily, the tape-monitor switch is also used for regular tape playback, although a few models use the normal input selector for this; in such cases, there is usually a separate record-out switch that duplicates the input selector, enabling you to record one source while listening to another.

Most preamplifier sections provide more than one tape-monitor loop, permitting the use of more than one tape deck. In such cases, provision is also made for copying from one deck to another using the preamp's internal switching. Some models also offer a similar circuit called an external-processor loop for connecting equalizers, surround-sound decoders, and the like, although a tape-monitor loop can be used for that purpose as well.

A few integrated amps and receivers have a set of jacks marked pre-out and main-in, which provide access to the preamp outputs and the power-amplifier inputs. Normally these are connected together, but the jumpers linking them can be removed to permit the insertion of another component. And, naturally, the same thing can be achieved with a separate preamp and power amp.

Increasingly, preamplifier sections provide for the control of video as well as audio components. In most cases this is simply a switching function, although some models include video processing.

Besides switching, the other main function of a preamplifier is to offer a measure of control over the signal itself, both in level and frequency response. Although some high-end models make a point of omitting them, most preamplifier sections include tone controls for bass and treble, and occasionally for the midrange as well. Tone controls are simple equalizers for adjusting minor spectral imbalances in recordings or speakers; in most cases the effects of the tone controls can be eliminated either by turning them to a center-detent position or by switching them out of the circuit altogether. Small left-right level differences caused by equipment or listener positioning can be similarly corrected by means of a balance control, again usually provided with a center detent or some sort of defeat.

Finally, the overall program level is set by a volume control. In systems using separate components, this is occasionally duplicated on the power amplifier, but a power-amp level control is normally provided mainly to match one component to another.

Critical attribute of output power: the amount of work the unit is capable of doing, measured in watts. The way this characteristic is specified is rigorously standardized, at least for home equipment. The basic figure normally given is the amount of power the amplifier can put out continuously over a period of time. Most amplifiers can deliver considerably more power during brief musical peaks—how much more is called dynamic headroom. Power specifications must also include the maximum amount of total harmonic distortion (THD) and the frequency range that apply for the power level specified as well as the impedance, in ohms, of the load being driven. In addition, both channels must be driven simultaneously for stereo amplifiers, because this reflects the capacity of the power supply.

Practically all amplifiers sold today are stereo, although some allow the interconnection of the two channels to produce a higher-power mono signal, a process called bridging or strapping. For the average amplifier, however, a typical specification would be "60 watts per channel into 8 ohms from 20 to 20,000 Hz with no more than 0.01 percent total harmonic distortion, both channels operating." The amount of power required for any specific application is critical.

Another important consideration is the load impedance the amplifier will drive. Too low an impedance will increase the current flow in the amplifier's output stages, possibly to levels that could damage them. Most home speakers have a nominal (rated) impedance of 8 ohms, and virtually all amplifiers are happy with that, but a few are specified at 4 ohms, and the actual impedance of almost any speaker varies considerably with frequency, the rated value representing only an approximation. Using more than one set of speakers in parallel also reduces total impedance. Amplifiers vary widely in their ability to handle low impedances, and this must be considered when choosing both amplifier and speakers.
If you are looking for loudspeakers with the sound, the fit, the finish of German precision technology, Canton is your clear choice.

For fifteen years Canton has been dedicated to the notion that the best sound color is no sound color. So whether it's Brahms or Berry, Miles or Mozart, you can count on Canton to provide the music, the whole music and nothing but the music.

To achieve this our German craftspeople build every component that goes into a Canton loudspeaker. Our engineers investigate every possible technological improvement, but don't innovate merely for innovation's sake. Our designers and cabinet-makers assure that Canton loudspeakers have a look of unparalleled sophistication and timelessness.
Time and again critics have agreed: “The absolute hit of the entire test... is the small Canton GL 260. Everyone who hears it... shakes his head with astonishment...” “(The CA 30) was the sure winner in the newly introduced premium class... (It) stands in the reference class as no super-speaker before it.” “With its Pullman Set 400... Canton has scored a smash hit.”

For a brochure on Canton home and automotive loudspeakers, please contact: Canton North America, Inc., 915 Washington Avenue South, Minneapolis MN 55415-1245, telephone (612) 333-1150.
Variable Output

My CD player has both fixed-level and variable-level output jacks, the latter adjustable either by a front-panel control or by the wireless remote. The manual instructs me to decide whether I prefer the simpler signal path of the fixed output or the convenience of a variable-controlled output. Will the player's signal suffer if I choose convenience over simplicity?

JAMES P. WEBSTER
Newark, DE

It may in theory, but you're unlikely to hear the difference. Direct connections of various sorts are becoming increasingly popular, on the principle that the fewer circuit elements there are between the source and the amplifier, the cleaner the sound, particularly with a signal as good as that provided by a CD player. Many amplifier and preamplifier makers now offer direct CD inputs that bypass most of the control circuitry, for instance. The benefits gained by such a practice may indeed be measurable, but they are rarely audible in normal listening circumstances.

On the other hand, an output level control can be extremely useful, particularly if it can be operated remotely. Because of the wide dynamic range of compact discs, it is not uncommon for potentially damaging musical peaks to catch us unawares. The ability to cut the potentially damaging musical peaks to compact discs, it is not uncommon for measurable, but they are rarely audible

Combined Impedances

I have an amplifier that will accept loads from 1 to 8 ohms, driving several pairs of speakers. How do I figure out the overall load of the speakers when the various units have different impedance ratings?

DENISE ADAMS
Brooklyn, NY

That's an important question, because the more speakers you connect in parallel to an amplifier, the lower the total impedance will be and the more difficulty the amplifier will have driving it. If you are running only two speakers per channel, you can get a close approximation of the total load by multiplying the two impedances together, then dividing the result by their sum. Thus, if you have an 8-ohm speaker and a 4-ohm speaker connected,
In search of sonic perfection, Adcom has taken the path of least resistance.
Introducing the Adcom GFP-565 direct-path preamplifier.
Precision 1% tolerance Roederstein metal-film resistors and polycarbonate-film capacitors - For infinitesimally low distortion and long-term stability.

Low ESR bypass capacitors - Insure purest DC to each stage and eliminates "crosstalk."

All gold-plated input and output jacks - Eliminates corrosion; direct mounting avoids unreliable wiring, hum and noise.

Buffered tape outputs - To prevent any degradation of source signals by tape recorders connected to the recording circuit.

Low-impedance RIAA network with Roederstein capacitors - For minimal noise and distortion; purest sound with highest RIAA accuracy.

Direct, on-chassis switching - Switches audio signals close to their input source eliminating long signal traces and wires.

Separate and switchable tone-control amplifiers - Assures superior signal fidelity and maintains symmetry.

High-current, low-impedance regulated power supply - Uses programmable regulators and low ESR capacitors; avoids voltage drops and current losses.

High-grade potentiometers - For long-term accuracy and ideal channel balance.

Massive bus-bars - Carry DC to each stage without power loss; keeps source impedance low and current capability high.

Glass epoxy board, copper-plated on both sides - Provides a shield/ground plane to block hum and interference.

High-speed linear gain amplifiers - The "heart" of the Adcom preamp, individually selected for low noise and DC offset. Assure peak performance (with no sonic deterioration) over a long period of time.

High current output buffers - For superior dynamic performance and total isolation of circuits.
Audio designers have long known that the fewer circuits and electronic components a musical signal encounters on its way to your loudspeaker system, the greater its musical purity will be when it gets there. Ideally, if a signal could travel directly from its source (CD, tape, record or FM broadcast) through your preamplifier and your power amplifier without the need for amplification or tonal adjustment, it would sound exactly as it did when it was recorded. Now, through obsessive attention to detail and design ingenuity, Adcom creates the GFP-565—the world's first affordably priced preamplifier that boasts direct, linear gain path circuitry.

**Direct Gain Path: Pure And Simple**

From input to output, Adcom has made every effort to make the signal path as direct, pure and simple as possible. Starting by gold plating all input and output jacks, and then directly mounting all jacks, switches, potentiometers and other laboratory grade components on a double copper-plated, glass epoxy printed circuit board, signal losses and noise are greatly reduced. Through a uniquely innovative approach which minimizes the number of components and wiring harnesses, waveform distortion is reduced while dynamic contrasts are preserved. All of this translates into superior, more lifelike sound.

**Design Ingenuity You Can Hear**

Having earned a reputation for providing high performance at reasonable cost with its power amplifiers, preamp/tuners and CD player, Adcom designers set out to establish a new reference standard in value among the very best preamplifiers on the market. In every area of design, a no-compromise approach was taken with respect to quality of components and construction. Its performance-to-cost relationship marks a significant breakthrough into a whole new category of audiophile-grade components: super performance that doesn't cost a king's ransom.

All stages operate in pure Class-A mode. To prevent interaction and maintain absolute signal integrity, each stage is buffered and has its own individually bypassed source of power. This resolute design approach achieves complete decoupling between all stages for extraordinarily low distortion.

A high-current, very low impedance, regulated DC power supply delivers an abundance of reserve current for musical peaks with instantaneous recovery. To keep power supply source-impedances low, heavy bus-bars feed power to each individual stage rather than the usually thin "hook-up" wiring.

Direct coupling, which does not use capacitors in the signal path, eliminates the "veiling" of low-level detail and extends frequency response. To reduce the loading effects of connecting cables and associated equipment, an extraordinarily low impedance was developed for the outputs.

This combination of Class-A operation, linear gain path, very low-impedance power supply, direct coupling, buffered stages and low output impedance all add up to a preamp capable of maintaining absolute signal integrity with full dynamics.

Even the tape outputs are buffered to prevent the impedance of a tape recorder from loading down or otherwise distorting the signal through "diode" effects. Precision 1% Roederstein metal-film resistors and metallized-film capacitors are used throughout.

Perhaps most impressive of all is the application of Adcom's proprietary linear-gain amplifier circuits, which undergo a relentless testing and quality control procedure. Less than 6% of manufactured devices meet Adcom's stringent quality acceptance specifications. As an end result, every Adcom preamplifier produced not only sounds as good as its designers intended, but maintains its uniform standard of excellence.
These high-speed, state-of-the-art linear amplifiers are specially selected for the lowest DC offset voltage and lowest noise of any comparable components currently available. The virtual elimination of DC offset allows the GFP-565 to be direct-coupled, providing superior frequency response from 5 Hz to almost 100,000 Hz! Noise is astonishingly low, with a typical noise floor, even in phono, comparable only to the finest digital studio equipment.

Three Sets Of Outputs For The Perfect Balance Of Performance And Flexibility

Traditionally, audiophiles have had to choose between two opposing preamplifier designs. One offered the flexibility of tone, balance and input controls but with some inherent signal degradation; and the other, more purist approach, offered little more than an on/off switch and volume control. The GFP-565 resolves this dilemma and satisfies the needs of not only the most demanding perfectionists, but all other music lovers as well.

You can choose one or more of three sets of outputs: 1) BYPASS: direct-coupled output before tone controls, filters, etc. This provides the musical signal its most straightforward and direct path to your power amplifier while retaining control of volume and balance. 2) LAB: direct-coupled output with no output-coupling capacitors in the signal path. This mode provides in addition to volume and balance, switchable tone controls, filter, loudness contour and mono modes. 3) NORMAL: identical to LAB output but utilizing the highest quality metallized polycarbonate output-coupling capacitors for operation with amplifiers requiring the extra protection of low-frequency bandwidth limiting. Bi-amplified and tri-amplified systems are easily accommodated with this remarkably flexible arrangement.

Convenience Made Simple

At first glance, the minimalist style of the GFP-565 is deceptive in its simplicity. However, it is this carefully considered lack of complexity which makes the GFP-565 so convenient and user friendly. It will cosmetically and electronically match the rest of your Adcom components whether you’re buying them now, or adding to an Adcom system you’ve started a couple of years ago.

Without unnecessary complications, you may listen to one input (phono, CD, tape, VCR) while recording from another. And for total system integration and control, there are five high level inputs (tuner, CD, tape 1, tape 2, video/aux) as well as a phono input with enough gain for any high-output moving-coil, moving-magnet, or induced-magnet cartridge.

A highly sophisticated loudness contour helps augment the bass range to compensate for perceived aural reduction of these frequencies at low listening levels, while maintaining musical integrity as the volume level is increased. And, when needed, separate bass, treble and hi-filter functions can be activated to provide adjustment for the often less than perfect characteristics of loudspeakers, program material and room acoustics.

To take advantage of today’s new signal processors, a separate front panel switch allows processor in/out operation while leaving both tape circuits free for tape deck use. If you have an equalizer or surround-sound processor, for example, you can switch it into the sound path only when appropriate to the program.

And for optimum performance with today’s superior headphones with impedances of 100 to 2000 ohms, a separate, high quality headphone amplifier has been incorporated into the GFP-565.
Why Is Adcom Clearly Superior To Other Brands?

Adcom stereo components have repeatedly won critical acclaim for offering audibly superior performance even when compared to components costing two and three times more. Indeed, Adcom's reputation has been built by offering exceptional quality at realistic, uninflated prices. How can this achievement of creating so much consumer value, year after year, be possible?

To begin with, Adcom has clearly identified its need to lead the market rather than follow it, concentrating on the development of a small number of highly innovative products, easily differentiated from the vast array of equipment generally offered. By choice, Adcom is not part of a larger multi-national conglomerate, nor does Adcom set out to produce redundant models for every taste and pocketbook. Adcom's designers are free to imaginatively explore new and exciting ways of bringing great sound into the homes of more and more people, unrestricted by any rigid bureaucracy.

Adcom's philosophy that a well-engineered product should remain viable for years to come is common among premium priced manufacturers, yet rare among those companies making affordable components.

While other manufacturers were promoting their third and fourth generation of CD players with “features” which added little or no benefit in terms of musical enjoyment, Adcom painstakingly went about developing the one model which became the critically acclaimed GCD-575. Its Class-A analog circuitry is still unrivalled for sonic perfection.

Specifications

- **Output Impedance**
  - Main Out: 100 ohms
  - Tape Out: 475 ohms
- **Output Level (Rated)**
  - Main Out: 2.0 V
- **Output Level (Maximum)**
  - Main Out: > 100 dB
- **Frequency Response (±0.5 dB)**
  - High Level: 5 Hz - 90 kHz
  - Phone: 5 Hz - 70 kHz
- **THD + Noise (@ Rated Output, 20 Hz - 20 kHz)**
  - High Level: 0.0025%
  - Phone: 0.009%
- **IMD (SMPTE, @ Rated Output)**
  - High Level: 0.0025%
  - Phone: 0.0025%
- **Signal-to-Noise (±0.5 dB, Rated Output, "A" Weighted)**
  - High Level: >100 dB
  - Phone: >95 dB
- **Input Impedance**
  - High Level: 22 kohms
  - Phone: 47 kohms
- **Input Sensitivity**
  - High Level: 205 mV
  - Phone: 23 mV
- **RIAA Accuracy (20 Hz - 20 kHz): ±0.1 dB**
- **Tape Output THD + Noise (@ 2.0 V, 20 Hz - 20 kHz): 0.003%**
- **Tape Output IMD (SMPTE) @ 2.0 V: 0.002%**
- **Tone Controls**
  - Bass (20 Hz): ±10 dB
  - Treble (20 kHz): ±9 dB
- **Loudness (Volume Control @ 9:00 o'clock)**
  - 180 Hz: ±5 dB
  - 20 Hz: ±10 dB
  - Crosstalk (1 kHz): -105 dB
- **Separation (1 kHz, @ Rated Output): >75 dB**
- **Hi Filter (20 kHz): -2.7 dB**

**General**

- **Power:** 120 VAC/50-60 Hz (available in other voltages on special order)
- **Power Consumption:** 10 watts

**Chassis Dimensions:**

- 17" (432 mm) x 11 3/8" (289 mm) x 3 1/4" (83 mm)
- **Maximum Dimensions:**
  - 17" (432 mm) x 12 9/16" (319 mm) x 3 1/4" (83 mm)
- **Weight:** 11 lbs. (5 kg)
- **Weight, Packed:** 14 lbs. (6.4 kg)

Adcom components also available with optional white front panel.

Specifications subject to change without prior notice.

GFP-565/GFA-535 (60 watts/ch)*

GFP-565/GFA-545 (100 watts/ch)*

GFP-565/GFA-555 (200 watts/ch)*

Adcom has also been extremely selective in choosing its dealer network, limiting it to include only the nation's best, most professional audio retail organizations. By relying on the knowledgeable, intelligent presentation of its product and the enormous benefits of positive word-of-mouth advertising from enthusiastic music lovers, Adcom can optimize its marketing expenditures. These savings are important in keeping costs down to the end user of Adcom products.

Listen To The Difference

You are cordially invited to audition the new GFP-565 direct-path preamplifier at your Authorized Adcom Dealer. Don't hesitate to compare it to the most expensive preamp on your dealer's shelves. You'll echo the words of one perfectionist critic who, hearing the GFP-565 through a pair of GFA-565 amplifiers for the first time, said, "I've never heard my speakers 'sing' like this!"

In their search for the optimum preamplifier concept, Adcom took the path of least resistance. Why not do the same? Of course, you could spend more . . . but should you? Consider the new Adcom GFP-565. It's your best choice in preamplifiers. Pure and simple.

*Power output, watts/channel, continuous both channels driven into 8 ohms, 20 Hz - 20 kHz < 0.09% THD.
JAPAN MEETS THE WEST
by William Livingstone

European and American musicians who have performed in Japan have often been surprised to find the Japanese public so enthusiastic and so knowledgeable about the standard classical repertoire. Experts on culture in Japan point out, however, that no one should be surprised, because European instruments were introduced in Japan at about the same time as the samisen in the sixteenth century. After the Meiji Restoration of 1868, the diffusion of Western music was actually encouraged by the government, and by the end of the nineteenth century in such cities as Tokyo and Osaka there were cultivated audiences for the music of the French Impressionists as well as Bach, Beethoven, and Brahms.

Although the Japanese did not produce many world-class performers of Western music until after World War II, they are catching up fast. Among the first to achieve international prominence was the conductor Seiji Ozawa. Trained in Japan, he later studied further with Herbert von Karajan in Germany and Charles Munch in the United States. He was the conductor of orchestras in Toronto and San Francisco before assuming his current post as music director of the Boston Symphony in 1973.

The delicacy, subtlety, and refinement usually associated with Japanese artists have made Ozawa a noted interpreter of French music. But Japanese art is not all moss gardens, miniature poetry, and woodblock prints. There is plenty of emotion in the Kabuki theater and no lack of blood and guts in Japanese films about the feudal warriors known as samurai. Perhaps it is this artistic strain that makes Ozawa also an outstanding interpreter of the big nineteenth- and twentieth-century showpieces of the German repertoire.

Recently Ozawa received raves in this magazine for his very exciting performance of Strauss’s Elektra with the Boston Symphony (Philips 422 574-2, two CD’s) and for his large-gestured, vital reading of Orff’s Carmina Burana (Philips 422 363-2). I recommend both.

In the 1930’s Shinichi Suzuki developed a radically different method for teaching young string players, which may account for the number of Japanese violinists now in symphony orchestras around the world. The Tokyo String Quartet (formed by four Japanese students at the Juilliard School in New York) is celebrating its twentieth anniversary this season. After a number of years on Deutsche Grammophon and CBS, the quartet is now under contract to RCA, recording music of Schubert.

No longer a prodigy, the violinist Midori is now eighteen and well along in a dazzling international career, performing in Europe, America, and the Orient and recording for CBS Masterworks (now, officially, Sony Classical). Her first CBS release was a live performance of Dvořák’s Violin Concerto in A Minor with the New York Philharmonic under Zubin Mehta (CBS MK 44923), which prompted John Rockwell, of the New York Times, to call her “an artist of inspiring gifts.” Her next recording, Paganini’s Twenty-four Caprices for Solo Violin (CBS MK 44944), leaves no doubt about her gifts.

The most prominent of Japanese pianists is Mitsuko Uchida, who won important competitions with her interpretations of Beethoven and Chopin but has become best known as a Mozart specialist. For Philips she is recording a cycle of Mozart’s piano concertos with the English Chamber Orchestra conducted by Jeffrey Tate. All her Mozart recordings deserve serious attention, and I have particularly enjoyed her readings of Concertos Nos. 13 and 14 (Philips 422 359-2).

The guitarist Kazuhito Yamashita shows delicacy and charm in his recordings of Cimarosa and Debussy, and with the bravery of a samurai he has transcribed and recorded Mussorgsky’s Pictures at an Exhibition (RCA AREI-4203, cassette only). It’s an interesting (if not totally successful) venture. More pleasing is “Italian Sere

GOING ON RECORD

Although audiences in Japan love opera, the only singers from that country to perform much abroad have been sopranos who sang the title role in Puccini’s Madama Butterfly. The current one is Yasuko Mayashi, who gives a dramatic and moving portrayal in a performance of Butterfly videotaped in 1986 at La Scala in Milan. Available on videodisc (Pioneer Artists PA 87-203), it is a beautifully effective realization of this opera.

Perhaps the most exotic of Japanese performers of Western music is the mezzo-soprano Mitsuko Shirai, a specialist in French art songs and German lieder. Her warm voice, perfect intonation, and unmannered interpretations are well displayed in an album of Schubert lieder (Capriccio 10 171) in which she is accompanied by her husband, the pianist Hartmut Höff. East and West can meet in artistic collaborations like theirs and in the response of Western audiences to Eastern artists of Shirai’s quality.
Cambridge SoundWorks has created Ensemble, a speaker system that can provide the sound once reserved for the best speakers under laboratory conditions. It virtually disappears in your room. And because we market it directly, Ensemble costs hundreds less than it would in stores.

The best sound comes in four small packages.

Ensemble consists of four speaker units. Two compact low-frequency speakers reproduce the deep bass, while two small satellite units reproduce the rest of the music, making it possible to reproduce just the right amount of energy in each part of the musical range without turning your listening room into a stereo showroom.

No matter how well a speaker performs, at home the listening room takes over. Room acoustics emphasize and de-emphasize various parts of the musical range, depending on where the speaker is placed in the room. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa.

Your listening room works with Ensemble, not against it.

Ensemble, on the other hand, takes advantage of your room's acoustics. The ear can't tell where bass comes from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furniture. The satellites can be hung directly on the wall, or placed on windowsills or shelves. No bulky speaker boxes dominate your living space, yet Ensemble reproduces the deep bass that no mini speakers can.

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

“Cambridge SoundWorks May Have The Best Value In The World. A Winner.”

David Clark—Audio Magazine Sept. '89

“Very much in the Henry Kloss tradition... another hi-fi milestone.”

Henry Kloss, creator of the dominant speaker models of the '50s (Acoustic Research), '60s (KLH) and '70s (Advent), brings you Cambridge SoundWorks, a genuinely new kind of speaker company for the '90s.
Not all the differences are as obvious as our two subwoofers. Unlike seemingly similar three-piece systems, Ensemble uses premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustical performance. We even gold-plate all connectors to prevent corrosion. An even bigger difference is how we sell it.

Thousands agree: the best showroom is your living room.

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

"They were designed to play music—and make it sound like music. This they do very well, in a most unobtrusive way, at a bargain price...it's hard to imagine going wrong with Ensemble."

Stereo Review

You get to listen for hours without a salesman hovering nearby. If after 30 days you're not happy, return Ensemble for a full refund (we'll even reimburse the original UPS shipping charges in the continental U.S.). At only $499—complete with all hardware and 100' of speaker cable—Ensemble is the value on today's speaker market.

"You get a month to play with the speakers before you have to either return them or keep them. But you'll keep them."

Esquire

"A listening test left no doubt that this system ranks with the best in its price range."

The New York Times

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by Julian Hirsch

Boxless Speakers

Home loudspeaker systems can be classified according to their physical structure (as distinct from the specific techniques and materials used in the construction of their drivers or cabinets). The great majority of speakers used in hi-fi systems consist of boxes, either sealed or ported and usually made of wood, in which are several drivers of different sizes that radiate different parts of the audio frequency range.

A relatively small number of speakers are planar or dipole radiators (it is possible for a given speaker to fall into both of those categories) employing either electrostatic or electromagnetic principles. A dipole radiates equally to the front and the rear and not at all from the sides; most full-range electrostatic speakers are dipoles. There is also a category consisting of only one speaker—the Klipschorn. This is a folded-horn system designed for use in a room corner, where the walls and floor form an extension of the complex internal structure of the speaker, resulting in very high efficiency in the bass range.

Within these groupings, there are as many configurations as there are designers. Each has its advantages and disadvantages in respect to acoustic performance and compatibility with the acoustic environment and driving amplifier. There are also trade-offs in size and cost within each category, although full-range dipole speakers are normally both large and expensive. The common box speaker comes in every size and price range, from tiny accessories for portable tape and CD players to huge, multidriver systems that will not fit in an ordinary-size room or in the budgets of any but a few wealthy people.

In the last few years, another category of home speaker has appeared, and its popularity is growing by leaps and bounds. The incentive for its creation was the simple fact that many people who wish to enjoy good music reproduction lack the room for a pair of speakers—let alone two or three pairs in the case of a full-fledged audio/video installation. Also, difficult as it may be for a true audiophile to accept, not everyone finds a pair of wooden boxes, regardless of the quality of their finish, to be an attractive part of a room's décor. Small box speakers can sometimes be hidden successfully, but they cannot produce the caliber of sound that is desired. The three-piece systems currently manufactured by many established hi-fi companies can go a long way toward solving that problem, assuming that the bass module can be concealed successfully. Nevertheless, there are many cases where what is wanted is a speaker that takes up no room space but still sounds reasonably good.

The most promising end to this quest is the in-wall speaker, which takes advantage of the fact that the walls of almost every home or apartment are hollow, divided by 4-inch wooden studs at 16-inch intervals. Generally about 8 feet high, the walls themselves are usually made of plaster or gypsum board about ½ inch thick. Such walls provide, in effect, a large number of potential speaker enclosures at 16-inch intervals, the space between the studs being used to contain and conceal speakers and provide the necessary baffling for them.

Of course, not every speaker is suitable for wall installation. Some are too deep or too wide. The enclosed volume between a typical pair of studs is slightly less than 3 cubic feet, which mitigates against the use of large drivers that require a greater enclosure volume for best results. Also, there is little opportunity to use "cut-and-try" or other experimental methods of installation. Few people would be willing to have their living-room walls fall victim to an unskilled system designer or installer.

The obvious answer is a predesigned and preassembled speaker system, optimized for the known constraints of the inter-stud wall space, that can be installed easily and will give reasonably predictable results. The first such products of which I am aware came from a California company, Sonance, which had specialized in custom installations and developed a line of in-wall speaker systems for more general use. Subsequently a number of companies, including many well-known speaker manufacturers, introduced competitive in-wall speakers.

Because of their specific installation requirements, these products tend to be very similar in their physical design. Typically, they consist of a baffle plate, designed to be installed through a cutout in the wall, containing, at a minimum, a small bass driver (6 to 8 inches in diameter) and a small dome tweeter together with the required crossover components. Since there is no tight constraint on the vertical dimension of the system, some companies provide two woofers that are vertically aligned.

Tested This Month

Magnavox CDB630 Compact Disc Player
KEF C55 Speaker System
Grundig Fine Arts
CCT-903 Dual Cassette Deck
Polk Audio RM-3000 Reference Monitor
Speaker System
I've been a studio drummer for eight years. So, I'm very critical about speakers, mostly because I know what drums are supposed to sound like. Most speakers make a kick drum sound like someone's playing a bowl of oatmeal. I don't even like the way oatmeal tastes, let alone how it sounds.

One day, a friend and I stopped at a hi-fi store to pick up some cassette tapes. Off in one of the listening rooms, I heard some music that sounded live. It was the drums I noticed first. Forget oatmeal, what I heard was a really tight, clean, punchy sound.

We strolled into the room halfway expecting to find a jam going on. But it was a recording. I looked at one of the speakers. It was a KLIPSCH® CHORUS®.

This was a new KLIPSCH speaker. A speaker with professional drivers in a real dressy cabinet. A speaker with a surprisingly good price. A speaker good enough to qualify for the home of a most critical musician. Good enough for me. And that's very, very good.

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TECHNICAL TALK

The speaker is usually provided with a removable grille that can be colored to match the wall or meet any other decorative requirements. Level adjustments for the tweeter, if provided, are located behind the grille. Wiring, of course, is in the wall. Obviously, installation of an in-wall speaker system is no job for an amateur. There is a world of difference between connecting a pair of box speakers to an amplifier (and moving them around for the best sound and imaging) and cutting a pair of highly visible holes in a wall for speakers whose sound qualities must be right the first time!

When the job is done correctly, the results can be highly satisfactory. No doubt a dedicated “high-end” enthusiast would not be satisfied with a system like this, but, almost by definition, he does not approve of 99 percent of the speakers on the market. Probably the most fundamental difference between the sound of a good in-wall system and that of a comparably priced conventional system is the inability to optimize the spatial qualities of the sound by moving the speakers away from the wall, adjusting their height from the floor, or angling them toward the listening area. On the other hand, many conventional systems don’t benefit much from those procedures either.

What about the bass response of an in-wall system, with its limited enclosure volume and cone size, to say nothing of walls that certainly cannot match the rigidity of a well-built wooden cabinet? If you are a bass enthusiast, you will probably need some help from a subwoofer (the same goes for most conventional box speakers). But this compromises the system’s invisibility, doesn’t it?

Not necessarily. Several manufacturers also make subwoofers for their in-wall systems. One interesting design from Polk Audio manages to conceal the subwoofer in the wall, radiating its sound through a covered outlet about the size of a standard wall switch plate. Others use a more conventional approach, offering low-rise, standalone subwoofers that can be located anywhere without drawing attention to the concealed main speakers.

One unarguable limitation of in-wall speakers is that they cannot be tried out in your own home before making a purchase. But any dealer handling these speakers should have a demo room that can give you an idea of their capabilities.

There is no doubt in my mind that in-wall systems are here to stay. They are already very good and will probably get even better. And after all, what can be less conspicuous than no box at all?

... The ‘rear apron?’ Well, you lost me, pal.”

CIRCLE NO. 173 ON READER SERVICE CARD

40 STEREO REVIEW FEBRUARY 1990
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MAGNAVOX CDB630
COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

THE moderate-price Magnavox CDB630, manufactured in Belgium by Philips, is the most feature-laden CD player we have tested. Even a sketchy description of its special capabilities and how they are used would require more space than we have available. Its front panel carries thirty-six buttons, about twice the usual number for a CD player. Nevertheless, its basic operation is, if anything, more straightforward than that of most players today, so that a user need not master more procedures than are actually needed. Moreover, the instruction manual deals with the various features in logical groupings and enough detail that anyone should be able to master them with a little practice.

Basically, the CDB630 is a conventional player with quadruple-oversampling (176.4-kHz) digital filters and dual 16-bit digital-to-analog (D/A) converters. The disc transport accommodates both standard CD's and 3-inch discs. The front panel has a fixed-level headphone jack, and the rear apron contains separate fixed-level and variable-level analog audio outputs, a coaxial digital output, and digital control jacks for interfacing with a compatible Philips cassette recorder.

When the CDB630 is used with a connected tape deck, its Record Sync feature provides precise synchronization for dubbing, including a pause for automatic end-of-tape reverse and continued recording in the reverse direction. The Edit feature automatically fits the maximum number of complete tracks on a cassette side.

The CDB630's operating controls are especially convenient. The play/replay button not only initiates playing the disc, for instance, but a second touch during play returns the laser pickup to the beginning of the current track. The familiar forward and reverse track-skipping controls are marked PREVIOUS and NEXT, logical nomenclature for controls that return the pickup to the beginning of the previous track (not the current track, as most such controls do) and move it to the next track. The stop button is marked STOP/CM, referring to its added function of clearing the program memories on a second operation.

Many of the other control markings are self-explanatory, or at least similar to those on other CD players. The fast-forward and reverse scanning controls, however, marked CURSOR >> and <<CURSOR, are a bit unusual. They operate much like the scanning controls of other players, with audible sound, except that unlike most others they do not increase the rate of scan after a few seconds of operation. Instead, pressing the FAST button between them before pressing one of the scan buttons provides a greatly accelerated scan rate (without sound) that moves the pickup across the disc in a matter of seconds. A keypad provides direct access to any track, and the player can be programmed to play up to thirty tracks in any order.

The display window of the CDB630 provides considerably more information than most, with-
out looking cluttered. Not only does it show the status of every operating mode and feature, the usual track and index numbers, and the elapsed or remaining time on track and disc, but it can show up to twelve alphanumeric characters across the top. This readout serves as an “Active Info” feature that not only describes the player’s operating status but also presents messages to guide the user and warn of incorrect operation of the controls.

The CDB630 also has the Philips FTS (Favorite Track Selection) system, which allows the user to store preferred playback sequences for specific discs. This information remains in the player’s nonvolatile memory, so that if at any later time loading a programmed disc and pressing the FTS button will play the same sequence of tracks. In fact, the CDB630 has two separate FTS memory banks, allowing two different programs to be stored for any given disc. If eight tracks per disc are programmed, the double FTS memory will store dual programs for up to sixty discs.

A Title Memory permits the user to store titles or other information of up to twelve characters for specific discs and tracks on discs so that the titles are displayed automatically during play. Another feature of the CDB630 is a Personal Presets memory that allows the user to customize the player, storing his own preferences in respect to display brightness, starting sound level, fade-in and fade-out times (up to 20 seconds each), and the default start-up playing mode (entire disc, FTS1 or FTS2 programs, or random play). The CDB630 comes with a compact wireless remote control that duplicates virtually all the front-panel controls. In addition, it has up and down volume buttons that control the player’s variable analog outputs and index-stepping buttons as well as the track and search controls. The buttons are grouped by function and identified by different sizes, shapes, and colors.

The Magnavox CDB630 is finished in black with white markings. It measures 16½ inches wide, 11 inches deep, and 4 inches high, and it weighs just under 9 pounds. Price: $400. Magnavox, Dept. SR, One Philips Dr., P.O. Box 14810, Knoxville, TN 37914-1810.

Lab Tests

The playback frequency response of the Magnavox CDB630 varied only 0.05 dB overall from 11 to 20,000 Hz (the variation consisted of cyclic ripples in the output above 1,000 Hz). The maximum level from either analog output was 1.921 volts from a 0-dB recorded track on a test disc; the channel levels differed by only 0.1 dB. The minimum level available from the variable outputs was 0.17 volt. The emphasis error was between 0.01 and 0.07 dB from 1,000 to 16,000 Hz. The channel separation was very good, reading 114 to 124 dB at low frequencies and still an excellent 95 to 100 dB at 20,000 Hz.

The low-level linearity of the D/A converters was good down to -70 dB, with increasing error at lower levels. At -80 dB the output was down about 1 dB from nominal, and the level increased to -4 to -5 dB at -90 dB. The total harmonic distortion (THD) plus noise at a 0-dB level was between 0.006 and 0.002 percent from 20 to 11,000 Hz, rising to 0.18 percent at 20,000 Hz, largely because of nonharmonically related image responses. At 1,000 Hz the distortion ranged from a maximum of 0.0053 percent at 0 dB to 0.00125 percent at -90 dB.

The A-weighted noise output was an excellent -112.3 dB. The dynamic range of the player was about 98.7 dB (EIAJ), and quantization noise while it was playing a 0-dB, 20-Hz test track was -95.3 dB. A

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RX-738 MULI-FUNCTION CONTROLS
KEF C55 SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

KEF refers to its Uni-Q loudspeaker driver as a “coincident drive unit” because its separate bass and treble drivers are mounted coaxially and are time-aligned so that their outputs are generated in the same plane and propagate acoustically in the correct time and phase relationship. The Uni-Q drivers also radiate symmetrically about their common center axis, maintaining the same 90- to 100-degree dispersion angle over their full frequency range. This property is the source of the driver’s name, since “Q” is a measure of loudspeaker directivity.

The Uni-Q design was made possible by the availability of neodymium-iron-boron magnets, which are eight to ten times stronger for a given volume than conventional ferrite magnets. With the help of a computer-designed magnetic structure said to be 50 percent more efficient than conventional structures, KEF was able to create a powerful tweeter magnet in only one-tenth the volume of a ferrite equivalent.

The new tweeter, including its magnetic structure, voice coil, and dome radiator, actually fits within the voice coil of the woofer; the tweeter’s dome and the apex of the woofer cone lie in the same plane. Although the crossover frequency is not specified, it appears to be about 3,000 Hz. A protective mesh grille over the tweeter dome is located where the dust cap of a conventional cone driver is usually found.

Several models in the KEF C Series of speaker systems employ the Uni-Q driver. In respect to size and price, the C55 falls in the middle of the group. It is a bookshelf-size speaker measuring about 19 inches high, 9¾ inches wide, and 10 inches deep. Two 8-inch cones occupy almost all of the front panel, the upper one being the Uni-Q coincident driver. Below it is a passive radiator to extend the bass response and increase the system’s efficiency. The two cones and the tweeter dome are made of polymers, and the supporting frames are die-cast. The tweeter voice coil is cooled by ferrofluid, which conducts heat to the magnet structure and eventually to the air surrounding the drivers.

The basic listening benefit claimed for the Uni-Q design is that the driver’s sound quality is balanced and smooth and essentially independent of the loudspeaker angle or listening position. In addition, the smaller Uni-Q models, including the C55 and the C35, can be placed on their sides without affecting their sound, since the Uni-Q driver radiates symmetrically. Because of this property, they are among the very few bookshelf speakers that can actually be used on a bookshelf without a performance sacrifice.

The C55 has a rated sensitivity of 90 dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts. According to KEF, the tweeter portion actually has a sensitivity of 100 dB, so it is padded down to match the woofer’s sensitivity. The rated frequency range at the −3-dB points is 60 to 20,000 Hz; bass response extends to 48 Hz at −6 dB. The nominal impedance is 4 ohms, and the C55 is recommended for use with amplifiers rated between 20 and 150 watts into 4 ohms.

The KEF C55’s grille of black cloth on a light plastic frame is held in place by an unusual snap design that requires the use of a screwdriver blade or a similar object to pry it off. With the grille removed, however, there are no visible signs of the fasteners, and the speaker’s appearance is exceptionally attractive. The cabinet is available in simulated walnut or black-ash finishes, and a pair of gold-plated binding posts on the rear accepts wires or banana plugs (either single or dual). Each C55 speaker weighs just under 16 pounds. Price: $550 a pair. KEF Electronics of America, Dept. SR, 14120-K Sullyfield Circle, Chantilly, VA 22021.

Lab Tests

We installed the KEF C55’s on a 26-inch stands a couple of feet in front of a wall. Close-miked bass-response measurements (from both cones) were spliced to averaged room-response measurements to form a composite frequency-response curve, which sloped downward gently above 200 Hz, reaching −4 to −6 dB at the top of the audio range. The curve was notably free of
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the usual variations caused by room-boundary effects. The woofer output was flat within 1 dB overall from 70 to 200 Hz, falling off to -3 dB at 51 Hz and -6 dB at 46 Hz referred to the average mid-band level.

Quasi-anechoic FFT response measurements were made at a 2-meter distance from the speaker (the same distance used by KEF for specifying the speaker’s performance). The response on the axis of the tweeter was smooth up to 3,000 or 4,000 Hz, dipped a few decibels at 6,000 Hz, and showed what appeared to be a large resonance with a dip surrounded by two peaks at 11,000 to 12,000 Hz. Alarming as this resonance might seem, we were advised by a KEF representative prior to our testing the speakers that it was normal. The effect results from the change in radiation load on the tweeter because of the proximity of the round edge of the woofer cone to the adjacent square edges of the box, which introduces a comb-filter response above 10,000 Hz. It appears only in anechoic measurements on the axis of the speaker. We were further advised that the effect disappears rapidly a few degrees off-axis, and this was confirmed by our FFT measurements. Since a listener is rarely directly on a speaker’s axis, and never in an anechoic environment, we consider this effect trivial for normal use of the speaker.

Our directivity measurements, both on-axis and 45 degrees off-axis, showed that the two response curves were spaced an almost uniform 6 to 7 dB apart from 1,500 to 9,000 Hz. Above 9,000 Hz there was the comb-filter response explained previously, followed by the usual divergence between the two curves beyond 13,000 to 14,000 Hz. In other words, the subjective frequency response of the system was relatively constant over a wide range of listening angles and across the full musical frequency range.

The group delay between 700 and 10,000 Hz varied less than 0.1 millisecond. Except for a couple of jogs between 10,000 and 13,000 Hz (measured on the tweeter’s axis at 2 meters distance), the same variation tolerance extended to 20,000 Hz. Clearly, the transition from woofer to tweeter took place without any significant time error, as would be expected from the design of the Uni-Q driver.

The system sensitivity was a relatively high 91.5-dB SPL at 1 meter with a 2.83-volt pink-noise input signal. Distortion was measured with a 2.38-volt input, corresponding to a 90-dB SPL. At the driven cone, it was 7.5 percent at 30 Hz, 1 percent at 65 Hz, and between 0.8 and 1.2 percent from 65 to 750 Hz. The passive cone, whose major contribution to the bass output was at frequencies below 100 Hz, produced 1 percent distortion at 36 and 130 Hz and a minimum of 0.55 percent at 60 Hz.

The impedance of the KEF C55 was about 4 ohms from 150 to 700 Hz, 5 ohms at 50 Hz, and a minimum of barely 3 ohms between 10,000 and 20,000 Hz. The maximum readings were 13 ohms at 20 and 80 Hz and 14 ohms at 1,600 Hz. Driven by a 1-cycle burst at 100 Hz, the woofer cone bottomed harshly at 200 watts into its 6.3-ohm impedance. At higher frequencies, however, the amplifier clipped before the C55 distorted, reading 1,100 watts into 6.5 ohms at 1,000 Hz and 2,000 watts into 3 ohms at 10,000 Hz.

In other words, the KEF C55 does essentially what is claimed for it, having a wide range, excellent dispersion, high sensitivity, and low distortion, all with compact dimensions, attractive styling, and a very moderate price. That combination of qualities is not too common and would seem to justify KEF’s efforts in designing the Uni-Q driver and this system. We found it a very easy speaker to listen to.

**Comments**

Although the appearance of the KEF Uni-Q driver is reminiscent of the Tannoy coaxial speakers of thirty years ago, the differences are fundamental. For one thing, the Tannoy driver used a horn-loaded tweeter concentric with the woofer, placing its source several inches behind the woofer’s. By all the tests we could apply, the drivers in KEF’s Uni-Q design are coincident in their point of origin (time alignment) and direction of propagation and have radiation patterns that are symmetrical about their common axis.

The effect of these features on the C55’s sound is hard to confirm, if for no other reason than that no two speakers ever sound identical in any case. Compared with other available speakers, the C55 had an unquestionably smooth sound, without any obvious colorations (the upper bass was notably free of emphasis), and an extended and somewhat forward-sounding upper midrange and high end. The bass was clean and surprisingly deep, although this is not a window-rattling speaker by any means. The spatial qualities of the system’s sound were good but not unusual in any sense.

In other words, the KEF C55 does essentially what is claimed for it, having a wide range, excellent dispersion, high sensitivity, and low distortion, all with compact dimensions, attractive styling, and a very moderate price. That combination of qualities is not too common and would seem to justify KEF’s efforts in designing the Uni-Q driver and this system. We found it a very easy speaker to listen to.

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The cabinet of the 143-lb. TZ-9 is specially constructed, using 1" thick high-density board and a separate inner baffle that isolates the negative influence of low-frequency vibration. Corners are specially rounded to eliminate diffraction and drivers are arranged for optimum sound-field intensity. The result is imaging and clarity that bring performances alive with smooth, true-to-life sound.

But enough conversation. If you're interested in hearing more about Pioneer's new TZ Series speakers, call 1-800-421-1404 for a technical white paper and the Elite dealer nearest you.

And let the speakers do the talking.
GRUNDIG FINE ARTS CCT-903 DUAL CASSETTE DECK

Craig Stark, Hirsch-Houch Laboratories

AUTOVERSE, two-speed tape copying, and both Dolby B and Dolby C noise reduction are the most notable features of the Grundig Fine Arts CCT-903 cassette deck. Designed to make cassette copying as convenient as possible, the CCT-903 houses two separate tape transports in a single case and provides the connections and level setting for deck-to-deck dubbing at the touch of a button. Since both transports are bidirectional, it is not necessary to turn cassettes over for side two.

Deck A in the CCT-903 is a playback-only unit. Deck B provides both recording and playback facilities, although since the same head is used for both functions, it is not possible to make instant comparisons between the signal input and the taped result. In both decks, when the tape direction is reversed the head assembly is physically rotated by 180 degrees. This positions its left- and right-channel head elements properly for the side-two tape tracks, which are, of course, recorded in the opposite direction and along the other tape edge.

Mechanically, the two tape transports are nearly identical. The chief difference between them is that in Deck A the autoreverse mechanism is triggered by the physical end of the tape, whereas Deck B has an optical detector that “sees” through the translucent leader and provides a much more rapid turnaround. Both transports embody a single-capstan drive design and use a belt-coupled DC motor. (There is a second capstan for each transport, but it is engaged only for reverse-direction drive, not to create a dual-capstan, closed-loop system.) A second motor controls the head assembly and brakes.

The tape type in use is sensed when a cassette is loaded, and the bias and equalization are set automatically. The cassette wells are not illuminated and do not provide label visibility, but they have a mirrored back that enables the user to see how much tape remains on a side. The cassette-well door panels are not removable, which makes it awkward to clean and degauss the heads.

Record levels are indicated on an eight-segment-per-channel fluorescent display, which is calibrated from +6 to −20 dB. The indicators read 0 dB with our IEC standard-level tapes, but since the minimum display increment is ±3 dB, precise level setting is not possible. A three-digit fluorescent counter, calibrated in arbitrary units, can be switched to read the tape position in either deck. A MEMO (memory) button permits rapid relocation of a specific place on a tape during fast-forward or rewind. Either deck can be set to play both sides of a cassette sequentially, either once or continuously, and an AUTO position is provided to play both sides of the tape in Deck A followed by both sides of the one in Deck B.

A master control and two individual-channel controls are used to set recording levels, and there’s a rear-mounted playback-level control. Record levels are automatically set in either the single-speed or the double-speed dubbing mode, but to
monitor the tape in Deck A properly the relevant Dolby system should be selected. The front-panel headphone jack has its own level control. Besides Dolby selection, switches are provided for defeating the FM-multiplex filter and for timer-activated operation.

Overall, the Grundig Fine Arts CCT-903 measures 18¼ inches wide, 4½ inches high, and 14 inches deep, and it weighs a little over 18 pounds. Price: $899. Grundig, Dept. SR, 3520 Haven Ave., Redwood City, CA 94063.

Lab Tests

Because of its double transport and bidirectional capabilities, we made many more measurements on the CCT-903 than on most cassette decks. In general, the performance of both decks and in both directions was quite consistent.

We obtained the flattest playback response with both our ferric and CrO₂ IEC-standard BASF tapes in the forward direction using Deck A, where the -3-dB points corresponded to the 31-Hz and 18-kHz limits of the tape. Deck B showed some playback treble loss (a little more than 3 dB at 14 kHz) in both tape directions with the ferric tape; the loss was less pronounced with the CrO₂ test tape.

The overall record-playback responses from our center-line samples of TDK AD (ferric), TDK SA (chrome equivalent), and TDK MA (metal) tapes can be compared in the graph at left. At the bass end, the 3-dB point was approximately 33 kHz throughout our tests. Only the metal tape could reach 18 kHz; the effect of the lower treble equalization used by Dolby C is clearly marked on the 0-dB curve for TDK MA. The -3-dB points for the SA and AD cassettes ranged from 13 to 16 kHz at the usual -20-dB recording level. Top-quality decks routinely exceed this performance, but they also lack the convenience of built-in dubbing facilities and bidirectional operation.

Signal-to-noise ratios were surprisingly high for both the ferric and CrO₂-type tape but somewhat disappointing for the metal-particle formulation. The latter may be unimportant, however, as few users

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- **Fast-forward time (C-60):** Deck A, 95 seconds; Deck B, 96 seconds
- **Rewind time (C-60):** Deck A, 97 seconds; Deck B, 98 seconds
- **Speed error:** Deck A, +1.5% forward, +0.46% reverse; Deck B, -1.1% forward, -0.99% reverse
- **Wow-and-flutter:**
  - Deck A, forward, 0.049% w.r.m.s., 0.095% DIN peak-weighted; Deck A, reverse, 0.045% w.r.m.s., 0.087% DIN peak-weighted; Deck B, forward, 0.048% w.r.m.s., 0.094% DIN peak-weighted; Deck B, reverse, 0.038% w.r.m.s., 0.080% DIN peak-weighted; normal-speed dubbing, 0.079% w.r.m.s., 0.132% DIN peak-weighted
- **Line input for indicated 0 dB:**
  - Deck A, 701 mv; Deck B, 670 mv
- **Line output at indicated 0 dB:**
  - Deck A, 701 mv; Deck B, 670 mv
- **Meter indication at IEC-standard 0 dB:**
  - both decks, +0 dB

- **Tape: TDK AD (Type I, ferric)**
  - IEC 0-dB distortion: 0.85%
  - Meter indication at 3% THD + noise: +6 dB

- **Tape: TDK SA (Type II, chrome-equivalent)**
  - IEC 0-dB distortion: 0.80%
  - Meter indication at 3% THD + noise: +6 dB

- **Tape: TDK MA (Type IV, metal)**
  - IEC 0-dB distortion: 1.8%
  - Meter indication at 3% THD + noise: +3 dB
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TEST REPORTS

will be tempted to use a premium-priced formulation for making tape-to-tape copies.

Wow-and-flutter is traditionally the most serious problem with dubbing decks, and the CCT-903 proved to be no exception. Both on a rms and on a DIN peak-weighted basis the wow-and-flutter, in either direction and in either transport, was approximately twice as high as we would expect from a single-purpose deck in this price class. Mechanics far outweigh electronics in terms of manufacturing cost, and the need to put two bidirectional decks in one affordable package apparently dictated an inexpensive, single-capstan drive system. Basic tape speed accuracy was also only fair.

Comments

The Grundig CCT-903 is the first dubbing deck that we felt performed well enough to be seriously considered as part of a home taping system. It is well equipped with recording and playback features, and it is built extremely well considering all the moving parts it employs.

Listening to prerecorded tapes as well as tapes we recorded and copied on the CCT-903, however, did confirm most of the problems we found in our measurements. Wow-and-flutter, while not audible as distinct pitch variations, produced an overall graininess, a somewhat edgy-sounding quality in the upper midrange, and a lack of focus and depth in the sound image. Although hiss was not a problem, response at the extreme high frequencies was perceptibly lacking when compared with that of our reference deck. We could not judge tapes either recorded or dubbed on this machine to be fully satisfactory sonically.

We were, however, pleasantly surprised to find that the high-speed copying mode lost very little more in the way of high-frequency response than the normal-speed copying mode, and it even added slightly less wow-and-flutter.

If your purpose is copying tapes for use in the car, of course, these considerations may mean very little, but they do, in our judgment, debar the CCT-903 from consideration as an audiophile's main home deck. This is not to say that the CCT-903 is not an adequate music source for noncritical listening; it is a fair performer, better than other dubbing decks we've encountered. But to my mind, in terms of both detailed, high-quality sound and dollars spent, the cost of its conveniences is rather high.

Audiophile-quality dubbing decks are still a dream for many of us, but the Grundig CCT-903 is evidence of how good some of today's decks can be, and it bodes well for the future of this type of product.

Circle 143 on reader service card

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Also ask for a detailed explanation of 3D Bit Stream, or write: Harman Kardon, Engineering Dept., 240 Crossways Park West, Woodbury, NY 11797.
POLK AUDIO RM-3000 REFERENCE MONITOR SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

Polk Audio's three-piece Reference Monitor speaker system, the RM-3000, consists of two small satellite speakers and a subwoofer module. Although this general configuration is currently enjoying increased popularity, Polk's version differs from the others in many of its design details.

Each of the satellite speakers is a miniature two-way system with a 3 1/2-inch "woofer" operating above 200 Hz and crossing over at approximately 4,000 Hz to a 3 1/4-inch dome tweeter. The tweeter is protected against burnout by an internal auto-reset protection device that cuts off its signal until the power has been reduced to a safe level. The tweeter is stepped back about 1 1/4 inches from the plane of the woofer to provide proper time alignment of the outputs of the two drivers.

The satellite enclosure is made of a high-density, nonresonant polymer aggregate similar to the material used for high-quality kitchen countertops. The smooth, glassy exterior is resistant to physical damage, and each of the satellites—which measure only 6 3/4 inches high, 4 1/4 inches wide, and 5 inches deep, including the molded plastic grilles—weighs a surprisingly heavy 4 1/2 pounds. The crossovers contain second-order low-pass and high-pass sections designed to complement the time alignment of the drivers. In addition to its crossover network, each satellite also contains a 200-Hz high-pass filter that protects it from being damaged by high-level low-frequency signals.

The subwoofer, which is based on a ten-year-old Polk Audio patent, contains two 6 1/2-inch cone drivers, each driven by one stereo channel. For each channel, the appropriate satellite, the subwoofer, and the amplifier are simply wired in parallel. The subwoofer enclosure, which measures 20 1/4 inches wide, 13 inches deep, and 10 inches high, is supported 2 inches above the floor on four rubber feet. Its interior is divided into two separate sections of different volumes, with the drivers mounted on the dividing partition. The rear surfaces of the two driver cones face the sealed volume, which provides the necessary stiffness for their proper operation. In the other section, the pressure generated by the drivers is coupled to a 10-inch passive radiator mounted on the bottom of the cabinet, facing the floor.

According to Polk, the passive-radiator coupling reproduces the low frequencies more efficiently than a simple port radiator, while the mass and size of the passive cone (called the "sub-bass" radiator) attenuate the higher frequencies, providing an 18-dB-per-octave rolloff matching the low-frequency rolloff of the satellites. Since each driver is connected to one of the stereo channels, the two channels are acoustically blended throughout the subwoofer's operating frequency range (which contains virtually no directional information). Although the subwoofer's response rolls off naturally above 170 Hz, the unit also contains a first-order low-pass filter to avoid wasting amplifier power above its operating range.

The specifications for the RM-3000 include a frequency response of 42 to 18,000 Hz at the -3-dB points, a nominal impedance of 6 ohms, and a sensitivity of 88 dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts. The system is recommended for use with amplifiers rated for 10 to 125 watts per channel.

Our test system was a prototype, but it is essentially representative of regular production models. The satellites were finished in a dark gray with white speckles and a black grille, but other colors may be offered in the future. The subwoofer is finished in black vinyl. The terminals on all the units are multiway binding posts spaced to accept dual banana plugs. Price: $750. Polk Audio, Dept. SR, 5601 Metro Dr., Baltimore, MD 21215.
Lab Tests

Measuring the frequency response of a three-piece speaker system is somewhat more complicated than measuring that of a conventional single-unit design. Since there is no fixed spatial relationship between the satellites and the subwoofer, it is not practical to specify an overall frequency response that will be realized in all environments. Fortunately, the technique we use to form a composite frequency response—invoking measurement of the room response of the speakers from a few hundred hertz to the limits of audibility along with separate close-miked woofer measurements that are essentially independent of the speaker's surroundings—is well suited to three-piece systems. In fact, a variation of this method is used by Polk for measuring the response of the RM-3000.

We placed the satellites about 8 feet apart on 26-inch stands (not the Polk stands designed for them, which were not yet available), with the subwoofer midway between them and, like the satellites, about 2 feet from the back wall. The averaged room response of the two satellites, with the usual minor irregularities, was an excellent ±3 dB from 350 to 19,000 Hz. At lower frequencies the room's standing-wave patterns produced larger variations.

Polk states that the subwoofer's response must be measured in its normal placement, with the microphone on the floor next to the edge of the box, since the proximity of the floor plays a strong role in determining the final bass response. In addition, to measure the combined satellite/subwoofer response in the crossover region, around 200 Hz, we also placed a satellite on the floor, with the microphone as before but equidistant from the center of the subwoofer's passive radiator and the front edge of the satellite.

This measurement produced a response curve with peaks at 65 and 180 Hz and a 7.5-dB dip at 110 Hz, rolling off at 6 dB per octave from 180 to 400 Hz. Splicing this to our room curve produced a composite response of ±3 dB from 75 to 19,000 Hz, rising an additional 4 dB at 65 Hz and falling off steeply at lower frequencies. The -3-dB response frequencies were 45 and 19,000 Hz, approximately as rated.

Our quasi-anechoic FFT frequency-response measurements (and close-miked swept measurements as well) showed approximately the same pattern of frequency response as the room-response curves. They also revealed a large undamped tweeter resonance at 16,000 Hz that did not appear in the room-response measurement but was present in test curves provided by Polk. The horizontal dispersion of the tweeter was excellent up to 10,000 Hz over a 45-degree angle. The group-delay variation was less than 1 millisecond from 180 to 15,000 Hz and less than 0.1 millisecond over the tweeter's range above 4,000 Hz. In the range of 16,000 to 18,000 Hz, there were a couple of jogs in the group-delay plot corresponding to the tweeter resonance.

The satellite's impedance was a minimum of 5.2 ohms in the 600- to 900-Hz range and rose to a maximum of 18 ohms at 2,800 Hz. Its high-pass filter (a series capacitor) produced a rising impedance below 170 Hz, reaching about 55 ohms at 20 Hz. With the satellite connected to the subwoofer, the combined impedance reached a minimum of 4 ohms at 170 Hz and averaged 5 to 6 ohms from 60 to 1,500 Hz. In addition to the 2,800-Hz peak, the impedance reached 15 ohms at 40 Hz; it returned to 6 ohms at 20 Hz.

The system's sensitivity, with a 2.83-volt pink-noise signal, was 88-dB SPL at 1 meter. With a 3.5-volt input, corresponding to a 90-dB reference SPL, the subwoofer's distortion was 4 percent at 40 Hz, 1 to 2 percent from 45 to 70 Hz, and between 0.5 percent and 1 percent in the octave from 100 to 200 Hz.

Peak-power tests produced a rattle from the subwoofer at 100 Hz with an input of 1,350 watts into its 4.5-ohm impedance. The satellite's woofer and tweeter outputs did not distort significantly up to the clipping point of our amplifier, 1,150 watts at 1,000 Hz and 860 watts at 10,000 Hz.

Comments

The Polk RM-3000 had an open, airy sound that compared very favorably with some much more expensive conventional speakers. Its spectral balance was excellent—smooth and seamless, and giving no hint of its three spatially separated sound sources. There was no audible brightness from the 16,000-Hz peak (much too high a frequency to affect the tonal qualities of music), but the peak was probably responsible for the slight crispness we heard on high-frequency transients, which we generally found to be an enhancement to the overall sound.

The subwoofer was not audible as a separate source with the central placement we used, though moving it completely to one side of the room sometimes produced a lateral shift in the apparent bass origin. For best results it should probably be located somewhere between the satellites. Moreover, although it was exceptionally free of upper-bass emphasis, it could deliver a potent output down to nearly 40 Hz.

Summing up, the Polk Audio RM-3000 is one of the best examples of a three-piece speaker system that we have yet heard. Its satellites are not only very small but are unusually attractive as well. Best of all, they sound excellent, and when you are listening to the system there is no clue that the sound is coming from the two tiny boxes, normally its only visible parts. The subwoofer, however, while not unusually large, is considerably bulkier than most others we've tested.

If you are considering a three-piece speaker system, or lack the space for a conventional system, try listening to the RM-3000. It might eliminate some common misconceptions about how large (and expensive) a speaker has to be to provide plenty of high-quality sound.

Circle 90 on reader service card
This limited edition Reference Series LHH 1000 is a direct descendant of Philips' broadcast-standard CD recording and mastering equipment. In fact, it's the first consumer model with the professional LHH designation.

With this breeding, no wonder the LHH 1000 is of exceptional quality, inside and out. For complete isolation, the transport and D/A converter are housed separately. This dual-chassis design virtually eliminates inter-component interference and thoroughly dampens vibration. And with coaxial or optical fiber cable connectors between the two units, you get virtually error-free transmission. The result is pure sound with absolutely no distortion.

As a fitting complement to this elegant architecture, its construction is uncompromised. No expense was spared in utilizing the materials best suited for sound.

For example, Philips' top CDM-1 transport and all critical chassis components are made of solid diecast aluminum zinc alloy.

Further, the LHH 1000 features Philips' premier creation—16-bit, four times oversampling. And the heart of the separate digital-to-analog converter is Philips' Special Select Grade TDA-1541A-S1 chip, widely regarded as the premier DAC technology.

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PHILIPS
Conceived in total dedication to the pursuit of excellence, the time required to develop the research program for this system has spanned at least two decades. The elusive combination of variables required to yield a uniform field has been tantalizing researchers for many years. Finally, after McIntosh built one of the most advanced and best instrumented acoustical laboratories in the world was it possible to follow the many theoretical leads to their conclusion. Then, after this extensive effort of analyzing so many different approaches to uniformity of field, was it possible to synthesize all of this knowledge and in one flash of intuitive genius the director of our acoustical laboratory saw a seemingly simple solution in the correct matching of diameters, masses and compliances and what evolved is a new measure of accuracy and realism. The intellectual and emotional experience of listening to the XR 1052 is something you simply must enjoy in your own home.
The twelve recordings that the editors and critics of Stereo Review have voted the best of 1989 are announced in the following pages, along with the two dozen runners-up selected for Honorable Mention. As in previous years, we have chosen these Records of the Year for their high degree of musical interest, for integrity of performance, and for exemplary recorded sound.

Only one of the six winners in the pop field is by a new or relatively new artist (Syd Straw, going solo for the first time), which is a switch from last year, when half of them were. The other five 1989 pop winners are seasoned veterans who have clearly earned new stripes with their latest releases. And just about the same can be said for our top classical choices. American soprano Dawn Upshaw and British conductor Roger Norrington are relatively new to record buyers, while the more established artists, who are in the majority, have brought us fresh new insights in the records they produced last year. The six pop albums are available in the usual three formats, but it's a sign of the times that only two of the classical recordings are—the Upshaw and Norrington. The Hanson symphonies and Richard Strauss's Elektra are available on compact disc only.

Christie Barter

Illustration by Liz Pyle
SYD STRAW: Surprise. VIRGIN. "A voice driven by a heart, informed by an attitude of artfulness, and reflecting an intelligent mind."

NEIL YOUNG: Freedom. REPRISE. "A great album, even for Neil Young, who has recast his varied musical talents to say something about the way we are now."

HAYDN: Keyboard Sonatas Nos. 33, 38, 58, 60. Emanuel Ax. CBS. "Interpretations of four remarkable works combining freshness of spirit with an illuminating balance of warmth and humor."


BACH: English Suites. András Schiff. LONDON.

BARTÓK: String Quartets Nos. 1-6. Emerson String Quartet. DEUTSCHE GRAMMOPHON.


TRACY CHAPMAN: Crossroads. ELEKTRA.

CHÁVEZ: Sinfonias. REVUeltas. Caminos; Música para charlar.

VENTANAS. Royal Philharmonic, Mexico City Philharmonic, Enrique Bátiz cond. ASV/HARMONIA MUNDI USA.

ROSEMARY CLOONEY: Show Tunes. CONCORD.

MILES DAVIS: Aura. COLUMBIA.

K.D. LANG AND THE RECLINES: Absolute Torch and Twang. SIRE.

MARTÍNÚ: Piano Sonata; Les Ritournelles; Fantaisie et toccata.

Etudes and Polkas. Rudolf Firkušný. RCA.

BRANFORD MARSDALIS: Trio Jeepy. COLUMBIA.

WYNTON MARSDALIS: Majesty of the Blues. COLUMBIA.

MOZART: Le nozze di Figaro. Hakan Hagegård, Barbara Bonney, Petteri Salomaa, Alicia Nafé; Drottningholm Court Theatre Orchestra, Arnold Östman cond. L'OISEAU-LYRE.
TOM PETTY: *Full Moon Fever*. MCA. “Smart, tuneful, and witty rock-and-roll, the finest record Petty's made in ages, with some brilliant studio touches.”

HOWARD HANSON: *Symphonies*. Delos. “Performances that stand up to the very best, resplendently recorded. A major achievement.”

GEORGE GERSHWIN: *Porgy and Bess*. Willard White, Cynthia Haymon; London Philharmonic, Simon Rattle conducting. EMI/ANGEL. “Porgy and Bess completes its amazing ascent from show-biz to world-class opera.”


RACHMANINOFF: *Piano Concerto No. 2; Etudes-tableaux*. Evgeny Kissin; London Symphony, Valery Gergiev cond. RCA.

RONNIE RAITT: *Nick of Time*. Capitol.

THE REPLACEMENTS: *Don’t Tell a Soul*. Sire.


DIANE SCHUUR: *Talkin’ Bout You*. GRP.

MICHELLE SHOCKED: *Short, Sharp, Shocked*. Mercury.

SHOSTAKOVICH: *Symphony No. 8*. St. Louis Symphony, Leonard Slatkin cond. RCA.


SIBELIUS/NIELSEN: *Violin Concertos*. Cho-Liang Lin; Philharmonia Orchestra, Swedish Radio Symphony, Esa-Pekka Salonen cond. CBS.

TAKE 6: Reprise.
HOW TO CARE FOR CD'S

BY REBECCA DAY

In the early days of the compact disc, the notes included with some discs said that proper handling and storage would make cleaning unnecessary.

If you store your discs safely inside their jewel boxes, away from extreme heat or cold, handle them exactly the right way, and never spill anything on them, you probably won’t ever have to clean them. But we don’t live in a perfect world, and your discs and CD players—especially portable and car players—are bound to attract dust and other impurities that could affect performance.

If a disc skips or won’t play, look for dust on the playing surface. In many cases you can simply blow away any dust that impedes play. If the skipping or other malfunction occurs with many discs, there may be dust or dirt on the player’s lens. Equipment manufacturers recommend using a dust blower such as those used for cameras, and some accessories manufacturers make cleaners specifically designed for a CD player’s lens.

There are times when oily fingers leave their mark on a disc or a splash of Coke somehow lands on one side or the other. When that happens, clean the disc. Left alone, oils and other corrosive substances could eventually eat a hole in the label side’s protective lacquer coating, oxidizing the aluminum data layer and making the CD unplayable. The polycarbonate surface on the playing side is tougher but still not invulnerable.

Do not use LP cleaners, solvents such as benzine or paint thinner, abrasives, or car polish to clean your CD’s. Instead, first use a soft, dry, lint-free cloth to wipe off any contaminants. If that isn’t enough, try mild soap and water or use one of the commercial CD cleaners sold by well-known accessories manufacturers.

If you follow a few guidelines, your CD’s should last a lifetime.

Do not bend the disc when you remove it from the jewel box. Repeated bending could cause the protective lacquer to crack, thus ruining the disc. To get the disc out, put your thumb on the spindle of the jewel box and your index or middle finger on the edge of the disc. Pull gently on the disc until it is free.
If you need to clean a CD, forget, for now, everything you know about cleaning LP’s. Do not wipe in a circular motion; start at the center and move out to the edge in a straight line. Cleaning in a circle could etch a harmful groove in the CD. A player is less likely to be stopped by a radial scratch than by one that follows the spiral of recorded data.

Always handle a disc with your fingers around the edge or through the center hole. When you load a disc, place it gently into the player’s tray, using only the inside hole and outer edges.

If you suspect that the player’s lens needs dusting, use a blower like the one shown and squeeze gently toward the lens. If that doesn’t clean the lens, try one of the commercial lens cleaners.

When placing a disc back in its jewel box, be sure that it fits snugly around the center spindle so that it doesn’t bounce around when you carry the box or fall out when you open the box the next time.

PHOTOS BY DAVID KELLEY
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New Optimus brand audio equipment offers you the very best combination of high technology, innovative features and superb styling—backed by in-depth lab testing and quality control that's second to none.

Flagship of the new Optimus line is our STAV-3200 digital-synthesized stereo receiver with Dolby/Hall Effect Surround*. Its high-power main amplifier is rated 100 watts per channel at 0.05% THD, and there's a separate 25-watt amplifier for the rear channel.

Built-in Dolby Surround brings you thrilling "movie theater" presence from encoded video tapes and discs. Hall Effect adds auditorium-style ambience to nearly any stereo source. You also get wireless remote, 30-station memory, high-tech alphanumeric LCD display and dubbing facilities for two VCRs and two tape decks. For only $549.95. See and hear the new Optimus components today.

Price applies at participating Radio Shack stores and dealers. *TM, Dolby Laboratories Licensing Corp. Receiver power measured per FTC rules.
Some tips from the pros on dealing with the dealers

In audio shopping, as in many other life experiences, there is a critical moment of truth, a time when you must summon knowledge, courage, and good judgment all at once, when you must end deliberation and just act. For the audio shopper, that moment arrives not on the high diving board or the top of the slope but in a stereo store, which is perhaps no less intimidating. Days, even weeks, of anticipation and preparation have passed; the magazines have been read, the friends consulted, the advertisements compared, the bank account checked and rechecked. Now all that remains is to act, finally to say, “I’ll take it.” Simple, right?

Not quite. Those somewhat irretrievable words are too often uttered at the wrong time, in front of the wrong piece of equipment, to the wrong person, perhaps even in the wrong store—and this in spite of all the homework. Face to face with equipment and the people who sell it—in other words, at the moment of truth—even the most well-informed audiophile can collapse under the pressure of having to contend with all those features, all those prices, and all that smooth sales talk.

The solution? The audio shopper must develop in-store survival skills. Such skills—which include knowing what questions to ask, what personal information to share, how to sort through the retail clutter, how to size up a salesman, and how to spot a snow job—could easily be obtained by hanging around

by Warren Berger
an audio store for, say, ten years. But to save some time, we've picked
the brains of a half-dozen people who've been hanging around audio
stores even longer than that.

We asked sales pros from the Tweeter stores of Boston, Audio
Craft of Cleveland, Florida's Absolute Sound, Minneapolis's Best Buy,
Listen Up of Denver, and Oregon's Chelsea Audio/Video—all re-
owned for their quality and serv-
vice—to put themselves in the shoes
of their customers. The dealers did
just that, and they offered STEREO
REVIEW readers some "inside" tips
on what they'd ask and how they'd
shop in their own stores.

The Right Person

Almost all of the dealers agreed
that smart shopping begins with
finding the right salesperson in the
right store. Naturally, these dealers
hold their own operations in high
regard, but they advise you to ask
an impartial source. Ask friends and
co-workers about their audio shop-
ing experiences: Good word of
mouth is the best indicator of a
tougher customer on the sales
floor (they'd have no qualms, for
instance, about asking for compi-
licated special hook-ups during dem-
onstrations or for a salesman's
home phone number), you can also
surmise that they'd never, ever
leave a store with anything less than
precisely the right piece of audio
equipment.

The Right Place

Dealers say that the first
thing to look for is a salesman who
asks you the right questions. "If a
salesman doesn't immediately ask
you detailed questions about your
personal listening needs, that's a
bad sign," said Dana Carlson, a
veteran store manager at Tweeter.
"Sometimes they go right into mak-
ing a recommendation—but a rec-
ommendation doesn't make any
sense if they don't understand your
situation."

Some of the questions a salesper-
son should ask include the follow-
ing: What kind of equipment do you
presently own? What's your listen-
ing room like? What type of music
do you listen to? Which equipment
features do you tend to find useful
or important? What type of com-
plete system do you plan to put
together over the next few years?

Customers can, at times, grow
wary or impatient when asked such
questions—they may be anxious to
start looking at equipment—but
dealers say this "qualification" pro-
cess is essential in enabling the
salesperson to help you make the
right purchase. And the process
doesn't work unless you're fairly
straightforward with the salesman
about such matters as your budget
and your knowledge of audio.

"Far too often, customers feel
they need to be evasive—they try
to hold back certain information
from the salesman," said Charles O'Mea-
ra, president of Absolute Sound.
"This immediately breaks down the
rapport with the salesman. You
have to be honest and tell him what
he needs to know. If he's a good
salesman, you can trust him."

And if he's not a good salesman,
you can identify him by some of the
tell-tale signs. One is a failure to lis-
ten. "If you tell him what you're look-
ing for, and he then recom-
mends something that just doesn't
fit, you may have a problem," said
Ford Montgomery, president of
Chelsea Audio/Video. As Mont-
gomery pointed out, such a sales-
man is probably operating on his
own agenda (he may, for example,
be trying to push certain high-com-
mission items) and cares little about
yours.

Techno-babble from the salesman
should raise a red flag. "If the sales-
man tries to, shall we say, inundate
your aural sensibility with a pletho-
ra of polysyllabic terminology—
watch out!" explained O'Meara.
"Either he's trying to confuse you or
he's a techie who can't relate to oth-
er human beings. The salesman
should talk technical only if the cus-
tomer wants to talk technical—
otherwise, he should be trying to
simplify."

Also, watch out for audio snobs
and gossips. The snobs will tend to
dispense all but the most elite
brands; the point they're missing is
that elite brands aren't for everyone
(if they were, they wouldn't be elite).
The gossips, meanwhile, like to tell
sordid tales about brands that "al-
ways break down" or "are made
with cheap parts." They may even
tell you that the company behind
the brand is discontinuing a certain
line or going out of business. The
aim, of course, is to sour you on a
brand they either don't carry or
don't wish to sell. "A good salesman
will never run down other brands," said Chuck Zelig, product man-
ger for Listen Up. "He'll talk about
the strengths and weaknesses of the
products he has available in the
store, and that's all."

Asking the Right Questions

Once you've latched onto the
right salesperson, it's important to
ask the right questions. It's not easy
coming up with a comprehensive
query list, however; different cus-
tomers' concerns will naturally vary
depending on the type of equipment
they want and their personal needs
and tastes. A sophisticated shopper
in the market for a CD player might
inquire about low-level linearity or
ask for details about the player's
digital-to-analog converters; on the
other hand, the answers to such
questions might serve only to con-
fuse some shoppers.

For the most part, deal-
ers advise ordinary
shoppers—and, indeed,
even experienced audi-
ophiles—to concentrate
more on fundamentals
than technicalities. "A
lot of times, customers
get caught up in jargon," said Wayne Punten, president of Au-
dio Craft. "When they're buying a
CD player, they think they should
ask about 18-bit or 20-bit oversam-
pling, but they ought to concentrate
on their application and needs. For
instance, do they need a CD chang-
er? How would they use random
access? Are they looking for a re-
move capability that's interactive
with the rest of their system?"

Charles O'Meara advises custo-
ers to “make a conscious decision about whether you’re more concerned with sonic integrity or convenience features—you may have to lean toward one or the other. You can get both, but it will be costly.”

O’Meara said he’s found that customers “get too hung up on brand names and specs. If you’re buying from a high-quality dealer, you can be fairly confident that the brands are good. And you know that if there’s a problem, that quality dealer will take care of it—you won’t have to deal with the manufacturer at all. As for specs, they can be almost useless. You’re dealing with music, and it’s hard to qualify that with numbers. It’s much more important to listen.”

That’s why the in-store demonstration is so important. The dealers say you should not feel shy about making special demands when it comes to the demo. “There’s nothing wrong with asking the dealer to hook up the equipment to other components that are similar to what you’ll be using at home,” said O’Meara. “They should even be willing to let you hook up your own amp from home when you want to try out speakers.”

The dealers also advise listening to a variety of music, both familiar and unfamiliar, during the demo. And the salesman “should allow you to get involved in the demo,” according to Tom Mack, corporate trainer for Best Buy. “You should be operating the controls to see if you’re comfortable with the design—after all, you’re the one who’s going to have to live with this equipment.”

Avoid demos involving complicated switching systems and walls of speakers designed to compare ten items at once; with demos, less is more. The dealers say you should never compare more than two pieces of equipment at a time. Do a series of runoffs between two pieces; each time, take the winner and compare it with the next component. But don’t try to compare too many different pieces in one day; “demo overload” comes on quickly.

If you do care about specs, our dealers say that you should ask for proof that the equipment lives up to the manufacturer’s claims. Many high-end stores have test centers on the premises; hooking up an amplifier for a spec test is fairly easy. If you’re buying a turntable, ask the dealer if there’s an in-store calibration center for the tonearm and cartridge.

“The biggest mistake customers make is trying to save a few bucks on a deal. You’re going to have to live with this equipment long after you’ve forgotten you saved thirty bucks on it.”
**SHOPPING CHECKLIST**

- Check out the store's reputation. Ask around, call the Better Business Bureau, or ask the dealer to refer you to customers. Word of mouth is everything in selecting a dealer.
- Make sure the salesman asks you the right questions. If he really cares about selling you the right equipment, he'll take the trouble to find out about your needs. If he's more interested in his own pitch than in your life story, walk away.
- Be honest. Don't try to "outfox" the salesman; give him all the information he needs to help you.
- Watch out for techies (who talk over your head), snobs (who sneer at anything costing less than $3,000), and gossips (who like to tell nasty stories about brands they're not trying to sell).
- Talk features and applications over specifications. Numbers are only part of the story, and they won't tell you whether a component makes sense for you. If you do place emphasis on specs, ask the store to make sure equipment is up to spec before you buy it.
- Don't rush through the demo. This is the most important part of the selection process, so take it slow. Make sure the salesman uses components comparable with what you'll be using at home. Don't try to listen to more than a couple of models at a time. Trust your own ears to decide what's best for you.
- Beware of the "deal of the week." There's nothing wrong with looking for a bargain, but don't let price distract you from the other important issues: quality, compatibility, convenience, and reliability.
- Ask about service. Who'll fix the equipment if it breaks? How long will it take? How much will it cost?
- Think long-term. The component you buy today should fit in with your system of tomorrow. If you don't have a long-range plan, work one out before you buy.

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**Think About the Future**

Our dealers say that audio shoppers often think short-term when they should be looking farther down the road. "The biggest mistake customers make is trying to save a few bucks on a deal of the week," said Ford Montgomery. "You're going to have to live with this equipment for a long time—long after you've forgotten that you saved thirty bucks when you bought it."

Shoppers should be looking for quality equipment that will stand the test of time. "Look for simplicity in design and quality of construction," said Chuck Zelig. "And keep in mind that brands with a solid, long-standing reputation for quality are the ones that are least likely to give you trouble."

To guard further against after-sale woes, make sure that the dealer provides reliable back-up service. As Montgomery cautioned: "If somebody tells you, 'We service everything, don't worry about it,' ask him about their service department. Is the service work done in the store, or is your component shipped to a factory where it may sit for six weeks?" Also, find out about extended-service contracts—they're particularly worthwhile for CD players, which have a relatively high breakdown rate compared with, say, amplifiers and speakers.

Forward-thinking hi-fi shoppers should also consider whether the components they're buying will satisfy future needs. "Don't just think about what you want right now—think about the kind of system you'd like to own a few years from now," O'Meara said. "You might eventually want to create a full surround-sound entertainment system. Make sure your purchase is adaptable to that. The beauty of component stereo is that you can take a building-block approach—as long as all your purchases make sense."

Sensible purchases are, of course, what all shoppers are really seeking, though they sometimes get distracted by fire sales, high-pressure salesmen, or seductive advertising. When the pressure's on, do the right thing: Find a salesman who'll listen, explain your needs (short-term and future), and choose the product that makes sense for you.
Come to where the flavor is.

SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy.

17 mg "tar," 1.1 mg nicotine av. per cigarette by FTC method.
The new Phase Linear PLC2525 Separates System brings astounding applications flexibility to the road. Perfect sound. Precise stereo imaging. Plus the "Graphite Difference."

Two ferrofluid-filled polycarbonate ½" dome tweeters offer you three mounting options. You'll also find installation versatility with two U.S.-made 5½" Graphite mid-woofers thin enough (1½") for door, panel or deck placement. The compact crossovers feature internal, continuously variable tweeter-level control and fuseless tweeter-protection circuitry.

With the "Graphite Difference" you'll enjoy a quicker, more accurate response than you could ever get from paper cones. There's less coloration and distortion—at all power levels. Just the true range of your music.

PLC2525 conquers the barriers to great sound. And that's a major musical victory for you.

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CHOOSING audio components is a juggling act. You must be able to balance the performance level and the features you want with prices you can afford and the size limitations dictated by your listening room. STEREOR REVIEW's buying guide, providing specifications, features, and prices for a wide range of components, should be a helpful starting point for your shopping.

Many new audio components are introduced each month, and our guide is necessarily selective, concentrating on major categories of home audio equipment from companies whose products are generally widely distributed. If a particular model does not appear, that is not a reflection on its quality. Upcoming issues will provide guides to cassette decks, tape, and other categories.

All the information in the guide, including suggested retail prices, was provided by the manufacturers of the equipment. Although we have tried to make sure that models listed are current and that prices were correct as of press time, prices are subject to change because of currency fluctuations. Remember, actual retail prices are usually set by the individual dealer.

For more information about any product, contact an authorized dealer or the manufacturer. For manufacturers' addresses, see page 137.
RECEIVERS

ACOUSTIC RESEARCH
X-67 70-W/ch Receiver
Receiver with infrared remote to control power, volume, tuning, input selection, and AM/CD player functions. Features audio and video dubbing, close-tolerance metal-film resistors and film capacitors; concealed bass, midrange, treble, balance, loudness, monophonic, video, VCR, tuning, and speaker-switching controls. 8 AM/8 FM station presets, gold-plated phone inputs. Inputs for MC phone. 3C phone. Tape. AUX: CD player: video: sound source: VCR 1: VCR 2: optional remote. Amp section: 70 continuous average W/ ch from 20-20000 Hz into 8 ohms with less than 0.03% THD, 80 W into 4 ohms: S/N 100 dB. Tuner section: FM section 50-dB quieting sens stereo 40 µV (37.2 dBf). FM S/N (at ch 10-20,000 Hz into 8 ohms). THD 0.0095%, input 0.025%, FR 20-50,000 Hz ±1±1 dB; S/N: phone 88 dB, FM 82 dB, CD/tuner/tape 98 dB. 5 µA x 17 x 15 x 15 in; 25 lb. $1,098

A/D/S/
K 70-W/ch Receiver
Features alphanumeric display on front panel indicating input source or received radio station. Digital-synthesis tuner with 30 memory presets for AM or FM stations; digital volume and tone controls, optional remote control: RS-229 pot allows control through personal computer; optional remote capable of multi-room control. Amp section: 70 W/ch into 8/4 ohms, <0.07% THD, FR 20-20,000 Hz ±0.3 db. Tuner section: HPF senses 26 dB stereo. signal strength for 50-dB quieting 35 dBf stereo. capture ratio 1.5 dB. alt-ch sel 65 dB. max S/N 75 dB mono. 70 dB stereo. 24 x 17 x 14 in; 23 lb. $1,000

RC 03. Remote control for the above and other a/d/s components $25

BANG & OLUFSEN
Beomaster 6500 50-W/ch Receiver
Includes Master Control (panel remote control); presets for 20 AM/FM stations: Auto Power Handling: Control: double-acting auto gain control in FM: volume, bass, treble, and balance control; from knob on MCR remote: works with other Beosystem 6500 components for multi-room remote control: direct selection of any station by frequency: station search; silver and black finish. Amp section: FR 20-20,000 Hz ±1.5 dB, THD <0.09%; S/N 80 dB. Tuner section: 50-dB quieting sens 40 dBf stereo: FR 20-15,000 Hz ±1.0 dB, S/N 65 dBf, capture ratio 1.7 db. alt-ch sel 65 dB. max S/N 75 dB mono. 70 dB stereo. 24 x 17 x 14 in; 23 lb. $1,000

RC 03 Universal Remote. For use with the above and other a/d/s components $150

DENON
DRA-1025R 120-W/ch Receiver
AM/FM receiver with remote control. Features audio and video dubbing, close-tolerance metal-film resistors and film capacitors; concealed bass, midrange, treble, balance, loudness, monophonic, video, VCR, tuning, and speaker-switching controls. 16 station tuner preset: FL display: preset FM scan, variable loudness EQ, simulcast copy function, simulated stereo circuit. 120 W/ch into 8 ohms. THD 0.006%-3 dB: S/N 80 db. $1,098

DRA-825R. Similar to above, 90 W/ch. $800

HR-722 60-W/ch Receiver
AM/FM receiver with wireless remote and Sonic Holography. Features asymmetrical charge-coupled FM detection circuit; magnetic-field power amplifier section. A/B speaker outputs: B-speaker system matrix surround-sound synthesizer. 20 AM/FM presets with preset scan; 5 audio inputs: CD direct; motorized volume control, 3-band tone controls: dual tape monitors with dubbing: pre-main outputs. 100 W/ch; 47 dB dynamic headroom: 0.5% THD: 85 dB MM phone: S/N 1.5 dB cap ratio; 0.2% FM stereo THD; 52 dB alt-ch sel: 78 dB stereo S/N: 35 lb. $650

HR-752 100-W/ch Receiver
AM/FM receiver with wireless remote and Sonic Holography. Features asymmetrical charge-coupled FM detection circuit; magnetic-field power amplifier section. A/B speaker outputs: B-speaker system matrix surround-sound synthesizer. 20 AM/FM presets with preset scan; 5 audio inputs: CD direct; motorized volume control, 3-band tone controls: dual tape monitors with dubbing: pre-main outputs. 100 W/ch; 47 dB dynamic headroom: 0.5% THD: 85 dB MM phone: S/N 1.5 dB cap ratio; 0.2% FM stereo THD; 52 dB alt-ch sel: 78 dB stereo S/N: 35 lb. $800

HR-772 60-W/ch Receiver
AM/FM receiver with wireless remote and Sonic Holography. Features asymmetrical charge-coupled FM detection circuit; magnetic-field power amplifier section. 20 AM/FM presets with preset scan; 5 audio inputs: CD direct; motorized volume control, A/B speaker outputs: B-speaker system matrix surround-sound synthesizer. 60 W/ch; 47 dB dynamic headroom: 0.5% THD: 85 dB MM phone: S/N 1.5 dB cap ratio; 0.2% FM stereo THD; 52 dB alt-ch sel: 78 dB stereo S/N: 35 lb. $550

HARMAN KARDON
hk590 Xvi 90-W/ch Receiver

hk880 Xvi 60-W/ch Receiver
AM/FM receiver with digital-synthesis quartz-locked tuning and remote. Features high-current/high-voltage design. 6 AM/12 FM presets: seek tuning: LED signal-strength meter: two A/V tape monitors: interactive video switching: high-level CD inputs: external processor jacks: subsonic filter: mono and loudness buttons: tape-copy selector: Amp: 90 W/ch cont avg into 8 ohms from 20-20,000 Hz with <0.08% THD: S/N 98 dB (high-level inputs). Tuner: 50-dB quieting sens 36 dBf: AM rej 55 dB cap ratio 1.0 db. adj-ch sel 30 dB; alt-ch sel 80 dB. $1,099

FISHER
RS627B 100-W/ch Receiver
AM/FM receiver with Class All circuitry. Features quartz PLL synthesizer: 24 station presets: FM mute: source direct switch: CD record switch: remote-controlled motorized volume control: 5-hand graphic equalizer. Includes 36-function wireless remote control: 100 W/ch into 8 ohms: frame 20-15,000 Hz. THD <0.05%; S/N 55 dB. 17 x 5 x 10 in; 20 lb. $500

RS6250 120-W/ch Receiver
AM/FM receiver with 38-function wireless remote control. Features 5-band graphic equalizer: motorized volume control: 24 AM/FM preset stations: autoscane tuning: FM muting: loudness switch: FL display: 120 W/ch rms into 8 ohms: FR 20-20,000 Hz. THD <0.09%. $450

RS6150 60-W/ch Receiver
AM/FM receiver with 37-function wireless remote control. Features 5-hand graphic equalizer: motorized volume control: 24 AM/FM preset stations: autoscane tuning: FM muting: loudness switch: FL display: 60 W/ch rms into 8 ohms: FR 20-20,000 Hz. THD <0.09%. $350

STEREO REVIEW FEBRUARY 1990
RECEIVERS

Harman Kardon hk880 Vxi

hk550 Vxi 45-W/ch Receiver
AM/FM receiver with digital-synthesis quartz-locked tuning. Features high-current/high-voltage design. 6 AM/12 FM presets; seek tuning; Hi-Fi monitor, CD, video, and high-level aux inputs; loudness button. Amp section: 45 W/ch cont avg into 8 ohms from 20-20,000 Hz with <0.08% THD; S/N 98 dB (CD, video). Tuner section: 50-BF quetting sens 37 DB, AM adj 55 DB; cap ratio 1.0 DB, adj-ch sel 5 DB; alt-ch sel 70 DB. 17 in x 5 1/2 x 14 1/2 in; 22 lb $799

Kenwood
KR-9010 130-W/ch Receiver
A/V receiver with 130 W/ch front and 20 W/ch rear, 7-band graphic EQ/spectrum analyzer, and video dubbing. Features Dolby Pro-Logic circuitry with Normal/Wide/Phantom modes, test-tone, center channel, and rear preouts; Thea/Hall surround-sound modes. Adjustable digital delay, programmable remote control; V-ITS connected video inputs, 20 AM/FM station/name presets; 10 EQ presets; on-screen display capability; digital input. FR (line to speaker) 10-20,000 Hz +0, -3 DB; THD 0.008%; S/N 100 DB. 50-BF quetting sens 37.2 DB stereo; AM adj 62 DB, capture ratio 1.0 DB; sel 55 DB at 400 Hz. 17 1/4 x 6 1/4 x 16 3/4 in; 32.3 lb $850

KR-V8010 100-W/ch Receiver
A/V receiver with 100 W/ch front and 20 W/ch rear, 7-band graphic EQ, and video dubbing. Features Dolby Surround, Theater-Hall surround-sound modes. Remote control; 3 video inputs; rear preouts; 20 AM/FM station/name presets; 10 EQ presets; EQ recording switch. Includes remote control. FR (line to speaker) 10-20,000 Hz +0, -3 DB; THD 0.008%; S/N 100 DB. 50-BF quetting sens 37.2 DB stereo; AM adj 62 DB, capture ratio 1.0 DB; sel 55 DB at 400 Hz. 17 1/4 x 6 1/4 x 16 3/4 in; 27.5 lb $650

KR-V7010 80-W/ch Receiver
A/V receiver with 80 W/ch front and 10 W/ch rear, 7-band graphic EQ/spectrum analyzer, and video dubbing. Features Dolby Surround, theater-Hall surround-sound modes. Remote control; 2 video inputs; rear preouts; 10 AM/FM station/name presets; 10 EQ presets; EQ recording switch. Includes remote control. FR (line to speaker) 10-20,000 Hz +0, -3 DB; THD 0.008%; S/N 100 DB. 50-BF quetting sens 37.2 DB stereo; AM adj 62 DB, capture ratio 1.2 DB; sel 53 DB at 400 Hz. 17 1/4 x 5 1/8 x 12 1/8 in; 18.1 lb $499

KR-V6010 70-W/ch Receiver
A/V receiver with 70 W/ch front and 5 W/ch rear, 5-band graphic EQ, and video dubbing. Features Dolby Surround and digital-delay modes. Remote control; 2 video inputs; rear preouts; 20 AM/FM station/name presets; 10 EQ presets; EQ recording switch. Includes remote control. FR (line to speaker) 10-70,000 Hz +0, -3 DB; THD 0.008%; S/N 100 DB. 50-BF quetting sens 41.2 DB stereo; AM adj 70 DB, capture ratio 1.2 DB; sel 53 DB at 400 Hz. 17 1/4 x 5 1/8 x 11 in; 15.9 lb $399

Luxman
R-177 160-W/ch AM/FM Receiver
Receiver with full-function system remote control. Receivers low-impedance drive capability; triple-shielded power transformer; 5-varactor, dual-gate MOSFET FM front end; Duo-Beta dual feedback-loop amp circuitry; STAR circuit topology eliminates feedback and distortion. 20 AM/FM station presets; cable FM fine tuning (25 kHz steps). CD-direct, 3 video, MM/MC-phono inputs; 3-position loudness compensation; signal-strength/multipath indicators: subsonic filter, FM IF bandwidth selector, pre-out/main-in and signal-processor jacks. Amp section: 160 W/ch from 20-20,000 Hz into 8 ohms with 0.03% THD; S/N 100 dB. 50-BF quetting sens 36.6 DB (stereo); cap ratio 1.5 DB; alt-ch sel 75 DB (narrow filter). AM adj 55 DB. 17 1/4 x 5 1/8 x 16 3/4 in; 35 lb $1,200

R-415. Similar to above except 75 W/ch; 2 video inputs; no MC phono input. S/N phono 88 dB; CD/tape/video 98 dB. 25.5 lb $850

R-113. Similar to above except 35 W/ch and no remote control. THD 0.08% $480

 McIntosh
MAC 4300 100-W/ch Receiver
Features MPX filter; 6 AM/FM station presets; signal-strength indicator; LED display of station frequency, 1 unswitched outlet, loudness control; 1, 2, and 1+2 speaker selector; 1-band equalizer; scan, headphone jack. Includes remote control. Amp, 20 AM and 0.02%; S/N 100 DB. FR 20-20,000 Hz +0, -0.5 DB; SN 100 DBA. Tuner S/N 75 dB stereo; FR 20-15,000 Hz +0, -1.0 DB stereo; THD 0.08% at 1000 Hz. 19 7/8 x 6 x 14 in; 34 lb 8 oz $2,995

MAC 4280 75-W/ch Receiver
Features MPX filter; 5 AM/FM station presets; signal-strength indicator; LED display of station frequency, Power Guard circuit; 1 unswitched outlet, loudness control; 1, 2, and 1+2 speaker selector; 3-band equalizer; scan, headphone jack. Amplifier section: total harmonic distortion 0.03%. Intermodulation distortion 0.03%; frequency response 20-20,000 Hz +0, -0.5 DB 100 DB. Tuner section: signal-to-noise ratio 75 DB stereo; frequency response 20-15,000 Hz, +0.5 DB stereo; total harmonic distortion 0.1% at 1000 Hz. 18 1/4 x 5 1/4 x 15 1/2 in $795

MAC 4275. Similar to the above; without remote control $1,798

Marantz
SR3600B1 120-W/ch Receiver
Receiver with Dolby Surround Sound. Features remote control; 40 AM/FM presets; preset scan; VCR-to-VCR dubbing; 3 tone controls; speaker A/B switch; center channel output $879

SR3500B1 110-W/ch Receiver
Receiver with 40 AM/FM station presets. Features remote control; preset scan; VCR-to-VCR dubbing; 3-band tone control; speaker A/B switch; cable FM input; MM/MC phone input selector; matrix sound. $749

TA-100 100-W/ch Receiver
AM/FM receiver with 16 presets. Features remote control; 3-band EQ; inputs for MM phone, tape, CD, 2 video sources; VCR-to-VCR dubbing; 3-band tone control; speaker A/B switch; cable FM input; MM/MC phone input selector; matrix sound. $749

Century Collection
RS. 3559 125-W/ch Receiver
AM/FM receiver with five independent amplifiers and 64-key remote. Features thermal tunnel heat sink; oversized industrial power transformer; Dolby Surround; 6-sector alphanumeric input. TA-100 receiver $500

RS. 3559 125-W/ch Receiver $1,000
**RECEIVERS**

**NAD Monitor Series 7400**

- **Monitor Series 7400 150-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 2 audio outputs; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $1,200

- **NAD Monitor Series 7600 150-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $1,000

- **NAD Monitor Series 7600 100-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $800

- **NAD Monitor Series 7600 55-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $549

- **NAD Monitor Series 7600 40-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $499

- **NAD Monitor Series 7600 30-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $459

- **NAD Monitor Series 7600 20-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $409

- **NAD Monitor Series 7600 10-W/ch Receiver**
  - Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $309

**Monitors Series 7100X 60-W/ch Receiver**

- Bridgeable AM/FM stereo receiver with power envelope circuitry. Features new design; 50 Hz rejection; bass and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $379

- **Monitor Series 7200PE 20-W/ch Receiver**
  - AM/FM receiver featuring clear liquid crystal circuit; high-current output stage; low-noise; high-band power output; preamp output/main in. 60 W/ch rms; +6 dB dynamic headroom. Rack mountable. $329

- **Monitor Series 7225PE 20-W/ch Receiver**
  - AM/FM receiver featuring clear liquid crystal circuit; high-current output stage; low-noise; high-band power output; preamp output/main in. 60 W/ch rms; +6 dB dynamic headroom. Rack mountable. $499

**MITSUBISHI**

- **M-AV 80-W/ch Receiver**
  - 4-channel AM/FM receiver with Dolby Surround and matrix circuitry. Features 25 W/ch front and 25 W/ch rear. Remote control; motorized volume, bass, and treble controls; tone defeat; audio mute; preamp loudness; subsonic/high-cut filters; select receiver; 16 FM presets with scan; and menu switching; FM muting; on-screen display of all functions; adjustable LCD; headphone jack; 4 audio/video, 3 audio outputs; 1 video output; monitor outputs; and preamp loop. 80-W/ch min rms into 8 ohms from 20-20,000 Hz; THD 0.05%. $1,000

- **Monitor Series 730PE 40-W/ch Receiver**
  - AM/FM receiver featuring clear liquid crystal circuit; high-current output stage; low-noise; high-band power output; preamp output/main in. 60 W/ch rms; +6 dB dynamic headroom. Rack mountable. $379

- **Monitor Series 740PE 20-W/ch Receiver**
  - AM/FM receiver featuring clear liquid crystal circuit; high-current output stage; low-noise; high-band power output; preamp output/main in. 60 W/ch rms; +6 dB dynamic headroom. Rack mountable. $329

- **Monitor Series 725PE 20-W/ch Receiver**
  - AM/FM receiver featuring clear liquid crystal circuit; high-current output stage; low-noise; high-band power output; preamp output/main in. 60 W/ch rms; +6 dB dynamic headroom. Rack mountable. $499

**ONKYO**

- **SX-890 125-W/ch Receiver**
  - Receiver with discrete output circuitry and low-impedance drive capability. Features AM/FM tuner with 5-mode APR (Automatic Precision Reception) system; FR bandwidth (wide/narrow), hi-blend (on/off), and stereo/mono. Video dubbing, 20 station preset broadcast; battery-free backup; Selective Tone Control with 30-Hz boost; digital input; simulated-stereo processor; sleep timer; remote compatible. Controller included. 80 W/ch min rms into 8 ohms; dynamic power 155 W/ch into 2 ohms. $380

- **SX-390 105-W/ch Receiver**
  - Receiver with discrete output circuitry and low-impedance drive capability. Features AM/FM tuner with 4-mode APR (Automatic Precision Reception) system; distant/local, IF bandwidth (wide/narrow), hi-blend (on/off), and stereo/mono. Video dubbing, 20 station preset broadcast; battery-free backup; Selective Tone Control with 30-Hz boost; digital input; simulated-stereo processor; sleep timer; remote compatible. Controller included. 80 W/ch min rms into 8 ohms; dynamic power 155 W/ch into 2 ohms. $820

- **TX-SV7**
  - Receiver with discrete output circuitry and low-impedance drive capability. Features AM/FM tuner with 4-mode APR (Automatic Precision Reception) system; distant/local, IF bandwidth (wide/narrow), hi-blend (on/off), and stereo/mono. Video dubbing, 20 station preset broadcast; battery-free backup; Selective Tone Control with 30-Hz boost; digital input; simulated-stereo processor; sleep timer; remote compatible. Controller included. 80 W/ch min rms into 8 ohms; dynamic power 155 W/ch into 2 ohms. $330
Philips FR780

4-channel A/V receiver with Dolby Surround. Features surround mode switch with matrix, spatial, stereo, mono, digital synthesis AM/FM tuner with 19 presets; 7-band graphic EQ with programmable acoustic memory, motor-driven rotary volume control for both channels; video split screen with video noise reduction; record selector with parallel recording capability; and digital delay. Features type II non-switching amp rated at 125 W/ch front, 30 W/ch rear, programmable remote: 6 video inputs; 5 audio inputs; video adapter loop: simulated stereo; split-screen video enhancer; video recording enhancer; VCR noise filter; 30 AM/FM presets; auto-dimmer; 60-30-minute sleep timer.

VSX-7500S 125-W/ch Receiver

A/V receiver with Dolby Surround processor. Features type II non-switching amp rated at 125 W/ch front, 30 W/ch rear, programmable remote; 6 video inputs; 5 audio inputs; audio adapter loop: simulated stereo; split-screen video enhancer, video recording enhancer, VCR noise filter; 30 AM/FM presets; auto-dimmer; 60-30-minute sleep timer.

VSX-5400 100-W/ch Receiver

A/V receiver with Dolby Surround processor and digital delay. Features type II non-switching amp rated at 100 W/ch front, 15 W/ch rear; 4 audio inputs; 3 video outputs; simulated surround sound; FL display; 30 AM/FM presets; video enhancer with split-screen monitoring. Includes programmable remote control.

VSX-3300S 80-W/ch Receiver

A/V receiver with Dolby Surround processor, digital delay, and remote control. Features type III non-switching amp rated at 80 W/ch; 3 audio inputs; 2 video inputs; 5-band graphic EQ; FL display, programmable remote control; 24 AM/FM presets; VSX-3300. As above with normal Pioneer SR remote control.

PROTON

AV-66 60-W/ch Receiver

Receiver with Dynamic Power on Demand circuitry. Features Aphex Aural Exciter circuitry, Schott II tuner: remote control; 18 FM and 9 AM presets, rotary tuning; PLL synthesis; 3-color LCD display. Amplifier section: 60 W/ch into 8 ohms, frequency response 20-20,000 Hz ±3 dB; total harmonic distortion 0.2% at rated power. Tuner section: 30 dB of quieting; signals 32 µV mono; 30 µV stereo; 10 dB, 80 µV stereo; 15 µV stereo at 90 W, 2.5 dB; capture ratio 0.8 dB in 200 kHz. Tuner section: 50-watt quieting; signals 32 dB, 1.52 dB mono; cap ratio 1.0 dB, 17 µV x 2 x 13 in, 25 lb.

FR880 4-Ch Receiver

4-channel A/V receiver with Dolby Surround. Features surround mode switch with matrix, spatial, stereo, mono, digital synthesis AM/FM tuner with 19 presets, motor-driven remote volume control for both channels; 9 audio inputs; 4 audio outputs; 4 video inputs; 3 video outputs; AM and FM antennas; head/phone jack; function display; pre-set scanning function for AM/FM tuner, re-modulator output jack; and optional remote control. Includes forty-four-key universal audio/video remote control with liquid-crystal display. 125 W/ch (front), 15 W/ch (rear); 30 µV stereo; capture ratio 2 dB; AM rej 65 dB. 81/2 x 151/4 x 171/2 x 22 x 13 in; 25 lb. Matte-black finish.

RX885 4-Ch Receiver

AM/FM receiver with two-channel mono power supply. Features direct signal paths, 8 AM and 8 FM presets; inputs for MM and MC phono. CD player, tape, video, tape 1, tape 2. Amp section: 50 W/ch into 8 ohms; FR 20-20,000 Hz; THD <0.03%; S/N 102 dB. Tuner section: 50-W/ch quieting; 37.2 dB stereo, 1.52 dB mono; cap ratio 1.0 dB, 17 µV x 2 x 13 in, 25 lb.

RX850A 30-W/ch Receiver

AM/FM receiver with 16 station presets. Features protection circuitry; remote mounted switches, hard-wired direct speaker terminals; direct signal paths; inputs for MM/MC phono, CD, tuner, video, aux, tape, video, aux, tape. Amp section: 30 W/ch into 8 ohms, FR 20-20,000 Hz; ±3 dB, THD <0.3% S/N 95 dB. Tuner section: 50-W/ch quieting; 37.2 dB stereo, 1.52 dB mono; cap ratio 1.0 dB, 17 µV x 2 x 13 in, 26 lb.

SANSEI

REVOX

RX50 60-W/ch Receiver

Am/FM receiver with quartz-P.LL synthesizer tuner and 3-band graphic EQ with 5 factory-set patterns, VCR and cassette dubbing capability; connections for AM loop and indoor/outdoor FM antennas; inputs for CD, phono, tape, VCR, VCR 2/VPD, and processor, outputs for headphones, A, B, and A + B speakers, motorized volume control, pale-blue FL display. Includes 36-key multi-function integrated system remote control. Amp 70 W/ch into 8 ohms; THD <0.02%; S/N 76 dB. Tuner: FM usable sensitivity 11.2 dB per band, S/N 70 dB; THD <0.2%; S/N 70 dB, FLID <0.2%. 5 x 17 x 13 in, 22 lb. Matte-black finish.

RX7000 70-W/ch Receiver

AM/FM receiver with quartz-P.LL synthesizer tuner and programmable remote control. Features parallel recording capability; MM phono section for MM and MC phono; speaker selector with parallel recording capability; 30 random station presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; subsonic filter; loudness control; programmable output levels for A and B speaker pairs, comprehensive speaker protection circuits, serial data bus for external control devices; wireless infrared remote control (transmitter optional). Inputs for phono, tape, CD player, tape 2, tape 2. Features direct signal paths; 8 AM and 8 FM presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; 22 lb.

RZ-7000 70-W/ch Receiver

AM/FM receiver with quartz-P.LL synthesizer tuner and programmable remote control. Features parallel recording capability; MM phono section for MM and MC phono; speaker selector with parallel recording capability; 30 random station presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; subsonic filter; loudness control; programmable output levels for A and B speaker pairs, comprehensive speaker protection circuits, serial data bus for external control devices; wireless infrared remote control (transmitter optional). Inputs for phono, tape, CD player, tape 2, tape 2. Features direct signal paths; 8 AM and 8 FM presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; 22 lb.

SANSUI

RZ-5060 60-W/ch Receiver

AM/FM receiver with crystal-controlled PLL synthesizer tuner and programmable remote control. Features parallel recording capability; MM phono section for MM and MC phono; speaker selector with parallel recording capability; 30 random station presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; subsonic filter; loudness control; programmable output levels for A and B speaker pairs, comprehensive speaker protection circuits, serial data bus for external control devices; wireless infrared remote control (transmitter optional). Inputs for phono, tape, CD player, tape 2, tape 2. Features direct signal paths; 8 AM and 8 FM presets; level and reception mode (mono/stereo, blend) separately programmable for each preset station, programmable volume limit; -20 dB mute button; 22 lb.
**SHERWOOD**

**RSV55 55-W/ch Receiver**
Receiver with RCA type video input terminal and monitor output. Features 34-key infrared remote control; 30 presets (20 FM/10 AM); matrix surround sound; bass boost; 5-band graphic equalizer; LCD frequency display. 55 W/ch from 20-20,000 Hz; THD 0.08%. 17 x 5 x 11 in $380

**RA-1430R 100 W/ch Receiver**
4-ch A/V receiver with Dolby Surround. Features dual-gate MOSFET; quartz-locked computerized tuning; 5-band graphic EQ; 2 video inputs; video enhancer; direct switch; 30 station presets; preset scan; auto tuning; tape monitor; headphone jack. Includes full-function infrared wireless remote control. Amp specs: 100 W/ch into 8 ohms (front), 20 W/ch into 8 ohms (rear); FR 20-20,000 Hz, THD 0.04%, IMD 0.04%, S/N 79 dB (phone), 100 dB (aux). Tuner section: usable sens 9.8 dB, 50 dB quieting sens 36.1 dB (stereo), 17.2 dB (mono), THD 0.15% (mono), 0.25% (stereo), 50 dB stereo sep at 1 kHz, alt ch sel 70 dB. 5 x 17 x 15 in $499

**SONY**

**STR-D2010 130-W/ch Receiver**
AM/FM receiver with digital signal processing and programmable remote control. Features digital parametric equalizer; Dolby Surround processor with digital delay and digital noise reduction; tuner EQ link; index tuning, direct comparator tuning with direct access tuning; 3 video inputs with 5-video capability; built-in demonstration mode. Tuner section: S/N 84 dB mono, 78 dB stereo; THD 0.2% mono, 0.4% stereo; sel 60 dB; sep 45 dB (at 1,000 Hz). 17 x 5 x 13 1/2 in; 26 lb, 7 oz. $1,100

**STR-AV1010 120-W/ch Receiver**
Audio/video receiver with programmable remote control. Features 120 W/ch into 8 ohms; tuner EQ Link; Dolby Surround-sound processor with digital delay and digital noise reduction; dynamic bass feedback; 7-band electronic graphic equalizer; spectrum analyzer display, index tuning; direct comparator tuning with direct access tuning; tuner EQ link, dynamic bass feedback. Tuner section: S/N 84 dB mono, 78 dB stereo; THD 0.3% mono, 0.5% stereo; sel 60 dB; sep (at 1,000 Hz) 45 dB. 17 x 5 3/4 x 13 1/2 in, 21 lb $480

**STR-AV710 55-W/ch Receiver**
Audio/video receiver with remote control. Features 55 W/ch into 8 ohms; matrix surround sound processor with digital delay; 7-band electronic graphic equalizer; spectrum analyzer display; index tuning, direct comparator tuning with direct access tuning; tuner EQ link, dynamic bass feedback. Tuner section: S/N 80 dB mono, 74 dB stereo; THD 0.3% mono, 0.5% stereo, selectivity 60 dB; separation (at 1,000 Hz) 45 dB. 17 x 5 3/4 x 11 1/2 in; 14 lb, 13 oz. $350

**STR-GX7ESII 120-W/ch Receiver**
Audio/video receiver with programmable remote control. Features 120 W/ch continuous into 8 ohms, 20-20,000 Hz, with 0.008% THD; spontaneous twin drive power supply design, G-chassis design constructed with non-metallic compound; separate power transformers for the system control and audio circuitry; switching for three video sources; S-video terminals, low-noise, negative feedback type tone controls; source-direct switch, quartz frequency-synthesis tuning; 20 station presets. Tuner section: S/N 76 dB, THD 0.2%; sel 65 dB; sep (at 1,000 Hz) 50 dB $750

**STR-GX5ESU 80-W/ch Receiver**
Features 80 W/ch into 8 ohms, 20-20,000 Hz, with 0.08% THD; spontaneous twin drive power supply design; separate power transformers for the system control and audio circuitry; A/V switching capability, source-direct switch, adaptor input/output; 30 station presets. Includes remote control. Tuner section: S/N 74 dB; THD 0.5%; sel 60 dB; sep (at 1,000 Hz) 45 dB. $300

**TEAC**

**AG-75 75-W/ch Receiver**
AM/FM receiver with quartz PLL synthesized tuning. Features high-current discrete circuit. Matrix surround, rec selector; variable loudness control; CD direct; motorized volume; CD/VCR and Tape/DAT inputs, 16-station memory, audio tuning; stereo/mono switch; FL display. Includes 28-key wireless remote control. Amp section: 75 W/ch rms into 8 ohms; FR 40-20,000 Hz, THD 0.05%; S/N 80 dB (phone), 92 dB (CD aux, tuner, tape) FM tuner section usable sens 11.2 dB (mono), AM rec 55 dB, cap ratio 2 dB, image rec 47 dB, THD at 1,000 Hz 0.2% (mono), 0.5% (stereo); stereo sep at 1,000 Hz 40 dB; S/N 78 dB (mono), 72 dB (stereo) $400

**AG-55 55-W/ch Receiver**
AM/FM receiver with 7-band graphic EQ with ±10 dB boost/cut. Features Quartz synthesized PLL tuner. LED power meters; CD, aux and TV/CVR inputs, high cut filter and bass boost EQ switch; dual speaker terminals; 8 AM/FM random access station memory, auto station search; LED frequency display. Amp section: 55 W/ch min continuous into 8 ohms; FR 20- 20,000 Hz, THD 0.5%; S/N 70 dB (phone). Tuner section: FM usable sens 11.2 dB (mono); image rejection 45 dB, THD at 1,000 Hz 0.25% (mono), 0.5% (stereo); stereo sep 40 dB $300

**Scotto**

**RS500 50-W/ch Receiver**
Receiver with remote control. Features 7-band graphic equalizer; electronic volume control; power meter; loudness control, high filter; 8 AM/8 FM station presets. Inputs for MM phono, tape, CD/DAT, video source. Amp section: 50 W/ch into 8 ohms. FM section: usable sens 5.35 V (19.2 dB) $250

**RS250 25-W/ch Receiver**
Quartz digital-synthesizer tuning section, power-output meter; high filter; presets for 8 AM/FM. FM Inputs for MM phono, tape, CD/DAT. Amp section: 25 W/ch into 8 ohms. FM section: usable sens 5 V (19.2 dB) $150

**Sharp**

**SC-RA-55AV 55-W/ch Receiver**
Ra receiver with RCA type video input terminal and monitor output. Features 34-key infrared remote control; 30 presets (20 FM/10 AM); matrix surround sound; bass boost; 5-band graphic equalizer; LCD frequency display. 55 W/ch from 20-20,000 Hz; THD 0.08%. 17 x 5 x 11 in $380

**Teac**

**RA-1240R 70-W/ch Receiver**
A/V receiver with surround sound. Features dual-gate MOSFET; quartz-locked computerized tuning; 5-band graphic EQ; 30 preset stations; video sound input, preset scan; auto tuning; tape monitor; headphone jack. Includes full-function infrared wireless remote control. Amp section: 70 W/ch into 8 ohms; FR 20-20,000 Hz; THD <0.05%; IMD 0.05%; S/N 75 dB (phone), 95 dB (aux). Tuner section: usable sens 10.8 dB, 50 dB quieting sensitivity 19.2 dB (mono), 36.8 dB (stereo); total harmonic distortion 0.2% (mono), stereo sep at 1,000 Hz 45 dB, frequency response 10-15,000 Hz, cap ratio 2 dB. alt ch sel 60 dB. 5 x 17 x 15 in $329
### TECHNICS

**SA-R530 100-W/ch Receiver**

- A/V receiver with quartz digital tuner and Dolby Surround sound.
- Features remote-mounted thermally triggered fan, 7-band graphic EQ/spectrum analyzer with 5 factory preset curves and 5 user assignable curve memories;
- 24 preset channel memory, auto-simulated tuning, motor-driven volume control; 3 A/V inputs;
- 6 audio inputs; video output for monitor, full-function FL display; 6 digital A/V surround modes including Dolby and stereophonic simulated stereo.
- Includes 96-key intelligent remote control.
- 100 W/ch into 8 ohms, THD<0.08%; FR 20-20,000 Hz.

**SA-R477 100-W/ch Receiver**

- A/V receiver with quartz synthesizer tuner, Dolby Surround, digital delay circuit, and 7-band graphic EQ.
- Features 2-color FL display; 4 audio inputs, 2 VCR inputs, internal cooling fan;
- preamp out, main-amp in, A+B speaker terminals; loudness switch.
- Includes 45-key A/V remote control.
- Amp section (front ch): 100 W/ch min rms into 8 ohms; THD 0.008%; FR 20-20,000 Hz, s/n 70 dB. (Rear ch) 5 W/ch into 8 ohms; THD 0.8% at 1,000 Hz. FM tuner section: sens 11.2 dB; 50 dB quieting sens 20.2 dB (mono), 40.2 dB (stereo); THD 0.2% (mono), 0.3% (stereo); S/N 75 dB (mono), 70 dB (stereo);
- FR 20-15,000 Hz +1/-2 dB, alt-ch sel 65 dB, cap ratio 1.0 dB, AM rej 50 dB; stereo rej 40 dB at (1,000 Hz), 30 dB (10,000 Hz). 17 x 5 11/16 in; 18.1 lb.

**SA-R377 80-W/ch Receiver**

- A/V receiver with quartz synthesizer tuner and 7-band graphic EQ/spectrum analyzer.
- Features internal cooling fan; 2-color FL display; remote-controllable rotary type volume; 4 audio inputs;
- 2 VCR inputs; preamp out; main-amp in, A+B speaker terminals; loudness switch.
- Includes 42-key A/V remote control.
- Amp section: 80 W/ch min rms into 8 ohms; THD 0.008%; FR 20-20,000 Hz, s/n 70 dB. FM tuner section: sens 11.2 dB; 50 dB quieting sens 20.2 dB (mono), 40.2 dB (stereo); THD 0.2% (mono), 0.3% (stereo); S/N 75 dB (mono), 70 dB (stereo);
- FR 20-15,000 Hz +1/-2 dB, alt-ch sel 65 dB, cap ratio 1.0 dB, AM rej 50 dB; stereo rej 40 dB at (1,000 Hz), 30 dB (10,000 Hz). 17 x 5 11/16 in; 18.1 lb.

**RX-9200R 120-W/ch Receiver**

- Features 8 discrete output transistors. Pre-out, main-in jacks, video signal routing; A/V processing loop, video monitor output, dedicated SD input, quartz-synthesis tuning, 20 station presets: preset scan, mono/stereo switch; A/B RF antenna inputs; FM autotune, 2 tape monitors with bi-directional dubbing; front head amp, high and subsonic filters; laden rotary volume control;
- Remote control. Amp: FR 15-20,000 Hz, THD 0.3%; IM 0.03%; damping factor 120. Tuner: 50-dB quieting sens 14.6 dB mono, 35.5 dB stereo, cap ratio 1 dB, alt-ch sel 65 dB. 17 x 5 11/16 in, 18 lb.

**Vector Research VRX-5200R**

- 2 A/V monitors with dubbing, MC head amp, high and subsonic filters; parallel speaker switching; surround level, front/rear balance, remote control.
- Amp: FR 10-50,000 Hz, THD 0.03%; IM 0.03%; damping factor 120. Tuner: 50-dB quieting sens 14.6 dB mono, 35.5 dB stereo, cap ratio 1 dB, alt-ch sel 65 dB. 17 x 5 11/16 in, 24 lb.

**VRX-8200R 110-W/ch Receiver**

- Features 8 discrete output transistors. Pre-out, main-in jacks, video signal routing; A/V processing loop, video monitor output, dedicated SD input, quartz-synthesis tuning, 20 station presets: preset scan, mono/stereo switch; A/B RF antenna inputs; FM autotune, 2 tape monitors with bi-directional dubbing; MC head amp, high and subsonic filters; parallel speaker switching;
- Motorized rotary volume control; Remote: FR 10-50,000 Hz, THD 0.03%; IM 0.03%; damping factor 120. Tuner: 50-dB quieting sens 14.6 dB mono, 35.5 dB stereo, cap ratio 1 dB, alt-ch sel 65 dB. 17 x 5 1/2 in, 24 lb.

**RX-5200R 50-W/ch Receiver**

- Features discrete output transistors, quartz synthesis tuning. 20 random AM/FM presets, dedicated CD inputs; A/V processing loop, 2 switched/unswitched outlets, separate FM mute and mono; video monitor output, rotary variety control with LED, pre-out main-in jack, video signal routing; 75-ohm connector, AM/FM autotune. Amp: THD 0.07%; IM 0.07%; FR 20-50,000 Hz; THD 0.07%; IM 0.07%; FR 20-15,000 Hz +1/-2 dB, cap ratio 1.3 dB, alt-ch sel 65 dB, 17 x 4 1/2 x 13 1/2 in, 17 lb.

**RX-930 Ti 4-Ch Receiver**

- 4-ch AM/FM receiver with 3-mode surround sound including Dolby, natural, and simulated surround. Features direct PLL for count synthesis tuning, 16-station random access preset tuning with multi-status memory; 12-segment signal-strength meter; 6-position rec out selector; 6 audio; 2 video inputs; high dynamic power low-impedance drive capability; motor driven volume control with LED indicator, sleep timer; center defeat bass, and treble controls; continuously variable loudness. Includes learning capable multi-function remote control with RS integrated system remote control pre-programmed. Front ch: 85 W/ch min rms into 8 ohms, FR 20-20,000 Hz, THD<0.15%. Rear ch: 25 W/ch into 8 ohms at 1,000 Hz, THD 0.08%. Titanium finish; 26 lb.

**RX-930. As above black**

**Sony RX-1130 Ti**

- 4-ch AM/FM receiver with 5-mode surround including Dolby, natural, hall, simulated stereo, live and continuously variable delay time (10 ms to 30 ms). Features computer servo lock tuning system; 24-segment signal-strength meter, high dynamic power low-impedance drive capability, 8 audio, 3 video inputs; rear level control; front/rear pre-main coupling terminals; banana plug compatible speaker connection terminals; center defeat bass, mid, and treble controls; 8-position rec out selector; 16-station random access preset tuning with multi-status memory; sleep timer; continuously variable loudness. Motor driven volume control with LED indicator.
- Includes learning capable multi-function remote control with RS integrated system remote control pre-programmed. Front ch: 70 W/ch min rms into 8 ohms. FR 20,000 Hz, THD<0.015%. Rear ch: 15 W/ch into 8 ohms at 1,000 Hz, THD 0.1%. Titanium finish; 20 lb.

**RX-830 Ti 4-Ch Receiver**

- 4-ch AM/FM receiver with 3-mode surround sound including Dolby, natural, and simulated surround. Features direct PLL for count synthesis tuning, 16-station random access preset tuning with multi-status memory; 12-segment signal-strength meter; 6-position rec out selector; 6 audio; 2 video inputs; high dynamic power low-impedance drive capability; motor driven volume control with LED indicator, sleep timer; center defeat bass, and treble controls; continuously variable loudness. Includes learning capable multi-function remote control with RS integrated system remote control pre-programmed. Front ch: 85 W/ch min rms into 8 ohms, FR 20-20,000 Hz, THD<0.015%. Rear ch: 25 W/ch into 8 ohms at 1,000 Hz, THD 0.08%. Titanium finish; 26 lb.

**RX-930. As above black**

**RX-730 70-W/ch Receiver**

- AM/FM receiver with RS integrated system remote control. Features high dynamic power low-impedance drive capability, digital tuner, 16-station random access preset tuning, continuously variable loudness. Includes learning capable multi-function remote control.
- Tone bypass switch, CD-direct switch; 12 segment signal-quality meter, high-gain AM loop antenna; 6 position rec out selector; sleep timer, A+B speaker selector; LED indicator on motorized volume control; pre-main coupler. 70 W/ch min rms into 8 ohms, FR 20-20,000 Hz, THD<0.02%. Black; 15.5 lb.
**AMPLIFIERS**

**Power Amplifiers**

**Acuphase by Madrigal**
Model P-102 50-W/ch Amplifier
Features two all-stage push-pull power units in bridged configuration. Class A MOSFET push-pull output stage; cascode push-pull differential input stage; twin mono construction using two mono amplifiers and two separate power supplies for L/R channels; direct-coupled amplifier with DC servo configuration; capable of driving 80 W into 4 ohms and 70 W into 2 ohms. Power meter: 40,000 ohms balanced input and 20,000 ohms unbalanced phone jack. FR 20-20,000 Hz +0, -2; THD <0.01%; SNR 120 dB; IM 0.03%; damping factor 70; 18 lbs x 6½ x 16 in; 48 lb; 6 oz. [$4,400]

**Acoustic Research**
Model A-07 70-W/ch Amplifier
Features switchable side-chain feedback tone control, filters and provision for moving magnet and moving-coil cartridges. Remote controlled when linked to the T-06/R tuner. Frequency response 15-20,000 Hz; 0.3 dB; 1% THD; 0.03%; signal-to-noise ratio 100 dB; IM 0.03%; damping factor 100; 17½ x 3½ x 10½ in; 25 lb; 2 oz. [$500]

**Audio Design Associates**
Model PF-300 100-W/ch Amplifier
MOSFET power amplifier capable of driving 8-ohm loads continuously. Features front panel power switches, indicators and fuses; dual mono design with independent toroidal transformers. 100 W/ch from 20-20,000 Hz with no more than 0.09% THD into 8 ohms; 160 W/ch into 4 ohms; slew rate 15 V/µsec; IM 0.07%; 19 x 5½ x 15½ in; 37 lb. [$1,695]

**Adcom**
Model GFA-555 200-W/ch Amplifier
Able to drive 1-ohm loads. Features low-negative-feedback design; constant damping factor; toroidal transformer; instantaneous distortion alert when distortion produced higher than 1% at speaker outputs; direct-coupled design. 200 W/ch into 8 ohms; 350 W/ch into 4 ohms; THD <0.09% and IM <0.05%; constant damping factor >100; 20-20,000 Hz. [$750]

**GFA-545 100-W/ch Amplifier**
Able to drive 1-ohm load. Features low-negative-feedback design; constant damping factor; toroidal transformer; instantaneous distortion alert when distortion produced higher than 1% at speaker outputs; direct-coupled design. 100 W/ch into 8 ohms; THD <0.09%; 150 W/ch into 4 ohms; IM 0.008%; 3½ x 17 x 12½ in; 25 lb. [$500]

**Audio Research Classic 60**

**Audio Research Classic 150 140-W Amplifier**
Taps for 1, 2, 4, or 8 ohms; front and rear handles. 300 min W cont avg from 16-25,000 Hz with <0.05% THD into 8 ohms, power at clipping 330 W; FR 10-60,000 Hz +3 dB; SN 90 dB; slew rate 25 V/µsec; 10½ x 19 x 16 in; 110 lb. [$5,495]

**Classic 150 140-W Amplifier**
Hybrid mono power amplifier with matched FET in front end and vacuum tubes in triode configuration in output. Features tube protection circuit; crossover circuit; standby switch; auto muting; balanced output. 140 min W cont avg into 1-2-4-8 ohms from FR 7-100,000 Hz +3 dB. [$4,995]

**Classic 60 60-W/ch Amplifier**
Stereo hybrid power amplifier with matched FET in front end and vacuum tubes operating in triode configuration in output. Features auto IR balance servo circuit; driver balance servo; automatic bias correction adjusts for incoming line voltage. Low noise fan; front-panel fusing for line and screen. 60 min W/ch cont avg from FR 13-40,000 Hz +3 dB. 7 x 19 x 15¼ in; 63 lb. [$3,295]

**B&K Components**
Model Pro-600 250-W/ch Amplifier
Dual-monostereo power amplifier with 200 W/ch into 8 ohms and 350 W/ch into 4 ohms. Features Class A pre-driver circuitry driving a Class AB MOSFET output stage; toroidal transformers; digital audio compatibility; balanced inputs. FR 1-100,000 Hz; THD <0.09% at 1,000 Hz; SN 95 dB; IM 0.009% slew rate 24 V/µsec; damping factor 600; dynamic headroom 1.1 dB. [$1,698]

**ST-202 150-W/ch Amplifier**
Power amplifier with gold-plated connectors for driving B- and 4-ohm loads. 150 continuous W/ch from 20-20,000 Hz with no more than 0.09% THD into 8 ohms; frequency response 5-45,000 Hz ±3 dB; signal-to-noise ratio 95 dB; dynamic headroom 1.5 dB; slew rate 11 V/µsec; IM 0.09%; 200 W into 4 ohms. 6½ x 19 x 15 in; 25 lb. [$648]

**Bedini**
Model BA-803 200-W/ch Amplifier
Solid-state stereo amplifier. 200 W/ch rms into 8 ohms and 400 W/ch rms into 4 ohms; THD <0.15%; 8 ohms rated power; IM <0.1%; FR 20-20,000 Hz; SN 105 dB; dynamic headroom 3 dB; damping factor 500 min; slew rate 55 V/µsec; 7½ x 19 x 18 in; 50 lb. [$3,000]

**BA-801**
Similar to above. 100 W/ch rms into 8 ohms; 140 W/ch rms into 4 ohms. [$1,500]

**Belles Research**
Model M-300 MK3 300-W Amplifier
Hybrid mono design with FET (for front end) and vacuum tubes (in output stage); cross-coupled circuit; front-panel replaceable line and screen voltage fuses with LED indicators; 2 integral low-noise cooling fans (switchable for "Hi" or "Lo"); standby switch for warmup or intermittent use; auto muting for silent shutdown; gold-plated inputs connect ground before hot output. 3 x 19 x 16 in; 190 lb. [$4,995]
"BBE made my audio system sound better than I ever dreamed possible!"

"Listening to music has been my vocation and avocation for a lifetime. I've spent countless hours sitting in front of bandstands while some of the world's greatest musicians mesmerized me with their artistry.

"Listening to recorded music, of course, falls short of the delights of listening to a live performance. I was therefore skeptical when told that BBE could make a dramatic improvement to virtually all audio systems and I had to hear it for myself.

"I was amazed at how much better the BBE 1002 made my music system sound! There was a presence, a being there sense of excitement. The rich textures of the instrumental sounds, the subtle nuances and details in the music come through with clarity and authenticity."

"BBE is clearly one of the most important advances in the electronic reproduction of music to come along in my lifetime. Bravo, BBE! Encore!"

The Great Professional Music Magazines Love BBE

"The difference in processed audio and non-processed audio is like the difference between high-fidelity speakers with and without pillows placed in front of them."

—Radio World

"There was no doubt the BBE processor added more spatial quality, more transients and more clean highs. This is the first black box that actually helped make my music sound the way that I knew it should. The effect is shattering!"

—Music Technology

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single circuit board. Features Van den Hul cable wiring, high-quality capacitors and resistors; toroidal power transformer, 200 W/ch from 20-20,000 Hz with <0.01% THD into 8 ohms; FR 0.2-60,000 Hz ±3 dB into 8 ohms; damping factor >200. 3-year warranty. 10 x 17 x 13 in; 55 lb... $1,595

BERNING

EA-2101 100-W/ch Amplifier
All-triode stereo vacuum-tube power amp. Features high-frequency resonant regulated power supply; shielded protection for low-line brown-out and improper bias conditions on tubes. 100 W/ch continuous from 20-20,000 Hz with <2% THD into 8 ohms; four output trans-former output windings per channel. FR 10-60,000 Hz ±1.5 dB; S/N 100 dB. 5½ x 19 x 19 in; 40 lb... $3,500

CARVER

Silver Seven 375-W Amplifier
Mono amplifier with fully balanced circuit topology. Features 14 KT-88 power-output tubes; A-430 Ultra Linear output transformers with oxygen-free primary leads and pure silver sec-ondaries; Wonder Cap capacitors; Van den Hul silver interconnects; pure silver internal wiring with Wonder Solder, polished granite anti-va-ibration base with Simms aluminum machined transformer end bells, 1.4, 8-ohm taps; 375 W into 8 ohms; 20-20,000 Hz with THD <0.5%, peak current output 35 amps. FR 1.5 Hz to 100,000 Hz ±0.15 dB, 150 lb... $8,750

Silver Seven+ 575-W Amplifier
Solid-state mono power amplifier with Transfer Function Calibration. Features magnetic-field power amplifier design; analog power meter. 375 W into 8 ohms; 900 W into 4 ohms; 1000 W into 2 ohms; THD 0.5%; slew rate 300 V/sec; input impedance 100,000. 16 lb... $899

TFM-45 375-W/ch Amplifier
Stereo magnetic-field amplifier with Transfer Function Calibration. Features voltage into 2, 4, 8 ohms; analog power meters. 375 W/ch into 8 ohms; 500 W/ch into 4 ohms; 1000 W/ch bridged mono. THD 0.5%; slew rate 180 V/sec; input impedance 100,000. 20 lb... $839

TFM-25 225-W/ch Amplifier
Stereo magnetic-field amplifier with Transfer Function Calibration. Features voltage into 2, 4, 8 ohms; analog power meters. 225 W/ch into 8 ohms; 350 W/ch into 4 ohms; 500 W/ch bridged mono. THD 0.5%; slew rate 180 V/sec; input impedance 100,000. 20 lb... $650

CELLO

7000-00 200-W/ch Amplifier
Features two mono amps which employ 8 driv-ers, transformers and forty 250-W output devices per amplifier. two mono dual chokes design power supplies; two electrically conductive heat sink tunnels cooled by two fans per chassis... $16,000

Encore 50-W/ch Amplifier
Dual mono amplifiers in independent chassis. Features dual chokes power supply; copper, nickel-plated heat sink. Can be separated with mono kit... $6,000

CONRAD-JOHNSON

Premier One B 150-W/ch Amplifier
Low-noise parts in circuitry; LED bias indica-tors. 150 W/ch into 4, 8, or 16 ohms; S/N 90 dB... $5,750

Evolution 2000 200-W/ch Amplifier
Hybrid stereo amplifier with zero-feedback de-sign. Features tube driver with MOSFET output stage. 125 lb... $4,995

MV100 90-W Amplifier
Low-imp power supplies and extensive use of polystyrene capacitors; LED bias indicators. 90 W into 8 ohms; signal-to-noise ratio 94 dB; 9 x 19 x 11 in; 90 lb... $1,750

MV50. Similar to above. 45-W into 8 ohms; S/N 94 dB; 40 lb... $1,685

COUNTERPOINT

SA-220 220-W/ch Amplifier
Hybrid power amp with tube front end and MOSFET output stage. Features non-audible circuit protection; no overall loop feedback; warm-up and shut-off. 220 continuous average W from 20-20,000 Hz into 8 ohms with no more than 0.5% THD. 420 W into 4 ohms; FR 0.2-30,000 Hz; S/N 84 dB; slew rate 0.6 V/sec; damping factor 60. IMD 0.02%; 19 x 64 x 19 in; 69 lb... $2,795/pr

SA-100 100-W/ch Amplifier
Hybrid power amp with tube front end and MOSFET output stage. Features no overall loop feedback, warm-up and shut-off automatic speaker muting. 100 continuous average W from 20-20,000 Hz with no more than 1% THD into 8 ohms; FR 5-100,000 Hz ±0.2 dB; S/N 92 dB; damping factor >8.9 at 1,000 Hz; dynamic headroom 2 DB; 19 x 4½ x 12½ in;... $1,295

DB SYSTEMS

DB-4A 40-W/ch Amplifier
Stereo power amplifier able to drive 1-ohm loads. Features 12-dB/octave infrasonic filter; peak-clipping LED's, electronic clamp. Output power 20-20,000 Hz at 0.005% THD. THD 0.0008% at 1,000 Hz; IM <0.002%; FR 20-40,000 Hz +/−1 dB; input sens/imp 1 V/50 kilohms; S/N 112 db at 1 V-wd; slew rate 15 V/µs; damping factor >400; 25-1,000 Hz; 4% x 16 x 12½ in... $795

DBX

BX-3MKII 400 W/ch Amplifier
Configurable 2-/3-/4-channel power amplifier able to power 8 speakers at one time. Features 4-channel configuration with a dual-FET input stage; separate volume controls for each channel. Power output into 2 channels: 400 W/ch into 8 ohms, 75 W/ch and 400 W into third channel with subwoofer output; 125 W/ch/4 ohm; 0.003% THD. Dark-cherrywood side panels... $1,299

DIAMOND ELECTROSTATICS

Antares II 75-W/ch Amplifier
75 W/ch into 8 ohms; MOSFET power amp. Fre-quency response 10-100,000 Hz ±1 dB; THD <0.1%; signal-to-noise ratio 90 dB; IM 0.1%; slew rate 30 V/sec; 5¼ x 19 x 8½ in; 30 lb... $595

Orion. As above. 150 W mono... $1,500

DENON

PA-2400 200-W/ch Amplifier
Stereo amplifier with Denon optical design and twin pure current supply. Features high-speed protection circuits. Bar-line multi display; self-diagnostic function: 200 W/ch into 8 ohms; THD <0.01%; IM <0.01%; frequency response 1-300,000 Hz +/−3 dB at 1,000 Hz; signal-to-noise ratio 123 dB. 7½ x 17¾ x 16½ in; 38.5 lb... $750

DENON

SA-100 100-W/ch Amplifier
Hybrid power amp with tube front end and MOSFET output stage. Features non-audible circuit protection; no overall loop feedback; warm-up and shut-off automatic speaker muting. 100 continuous average W from 20-20,000 Hz with no more than 1% THD into 8 ohms; FR 5-100,000 Hz ±0.2 dB; S/N 92 dB; damping factor >8.9 at 1,000 Hz; dynamic headroom 2 DB; 19 x 4½ x 12½ in;... $1,295

DB SYSTEMS

DB-4A 40-W/ch Amplifier
Stereo power amplifier able to drive 1-ohm loads. Features 12-dB/octave infrasonic filter; peak-clipping LED's, electronic clamp. Output power 20-20,000 Hz at 0.005% THD. THD 0.0008% at 1,000 Hz; IM <0.002%; FR 20-40,000 Hz +/−1 dB; input sens/imp 1 V/50 kilohms; S/N 112 db at 1 V-wd; slew rate 15 V/µs; damping factor >400; 25-1,000 Hz; 4% x 16 x 12½ in... $795

DBX

BX-3MKII 400 W/ch Amplifier
Configurable 2-/3-/4-channel power amplifier able to power 8 speakers at one time. Features 4-channel configuration with a dual-FET input stage; separate volume controls for each channel. Power output into 2 channels: 400 W/ch into 8 ohms, 75 W/ch and 400 W into third channel with subwoofer output; 125 W/ch/4 ohm; 0.003% THD. Dark-cherrywood side panels... $1,299

Cello Encore
POA-6500A 250-W Amplifier
Mono power amplifier with Dual Super Non-NFB circuit for high-speed signal transmission. Features pure current power supply; separate power supply block chassis; high-speed reset-type protection circuit. Canmon type balance input/put connector; conventional RCA input jack with selector switch; front-panel level control; extra-large speaker terminals; peak-current protection with switching from DAP-5500/2500 or PRA-1200 preamps. 250 W min rms into 8 ohms; FR 20-20,000 Hz; THD <0.02%; IM 0.002%; S/N 123 dB; slew rate ± 500 V/µsec ........ $750

POA-800 50-W/ch Amplifier
Bridgeable stereo amplifier with discrete MOSFET output transistors. Features 3-way speaker terminals; peak-signal indicator; remote power control from Denon preamps. 50 W/ch into 8 ohms; 80 W into 8 ohms (bridged); THD <0.03% ........................................ $320

Discrete Technology
LS1a 140-W/ch Amplifier
Stereo amplifier with dual tracking, thermal coupled matched front-end transistors. Features cascode voltage section, 1% metal-film resistors; polystyrene and polypropylene capacitors; digital platinum interconnect cable. Power rating 140 W/ch rms into 8 ohms from 20-20,000 Hz >0.09% THD; FR 3-100,000 Hz >3 dB; S/N 90 dB below 10 W output; IM <0.09% using SMITE method at any power level up to 140 W into 8 ohms; slew rate 45 V/µsec; damping factor 100 at 50 Hz, dynamic headroom 3.2 dB at 8 ohms .......................... $1,250

FORTE AUDIO
Model 1a 50-W/ch Amplifier
Dual-channel, non-inverting power amp using FET/bipolar front-end topology and operating in pure Class A throughout front-end and power output stages. Input stage is direct coupled and biased with regulated constant-current sources. Output stage employs 20 high-speed power devices and uses active protection circuits. Custom toroidal power transformer. Rated power 50 W/ch at 0.1% THD into 8 ohms; FR 20-20,000 Hz; bandwidth –3 dB points of 7 and 100,000 Hz; slew rate 40 V/µsec; imp 75,000 ohms. 19 x 7 x 11 in; 36 lb .................. $1,100

FOGATE-AUDIO 
T-100

FOGATE-AUDIO 
T-100 mili W/ch Amplifier
Amplifier designed for use with surround audio systems. Features discrete full complementary circuit. Input level control; defeatable bass filter. 80 W/ch x 3 into 8 ohms; 120 W/ch into 4 ohms; THD and IM <0.2%; FR ± 1 dB from 20-20,000 Hz. 17.4 x 3.4 x 12 in; 17 lb ........ $599

S-100 mili W/ch Amplifier
Stereo amplifier with discrete full complementary circuit. Features input level; defeatable bass filter. 80 W/ch into 8 ohms; 120 W/ch into 4 ohms; THD and IM <0.2%; FR ± 1 dB from 20-20,000 Hz. 17.4 x 2.3 x 12 in; 16 lb ...... $499

HAFFER
XL600 305-W/ch Amplifier
Excelline near-zero-phasel-shift circuit with J-FET double differential push-pull cascaded "tube-like" input and current-mirroring 2nd stage. 16 MOSFET output transistors; direct coupled; stable into all loads. High capacitance (72,000 mfd). Excellent speaker-tweaking adjustment; gold inputs and outputs; mono bridge switching; variable speed DC fan cooling. 305 W/ch into 8 ohms; IM <0.04% THD <1030 W/ch into 4 ohms; 900 W mono into 8 ohms; input sens 0.18 volts for 305 W at 8 ohms; FR 10-50,000 Hz ±0.1 dB; signal-to-noise ratio >100 dB at 305 W; slew rate 100 V/µsec, damping factor >200 at 1,000 Hz. 19 x 7 x 13 in; 51 lb ................ $1,195

XL280 145-W/ch Amplifier
J-FET double differential input and 12 MOSFET output. Excellent speaker-tweaking adjustment; gold inputs: mono bridge switching: speaker protection fuses. 200 W/ch into 4 ohms. 400 W/channel into 8 ohms. FR 10-50,000 Hz ±0.1 dB; total harmonic distortion <0.03%; IM <0.04%; signal-to-noise ratio >100 dB; slew rate 75 V/µsec; damping factor 300 at 1,000 Hz. 17 x 5.8 x 1.02 in; 27 lb; assembled; $675

HARMAN KARDON
Citation Twenty-Two 200-W/ch Amplifier
Amplifier with selectable high-current and high-voltage output. Features dual-voltage gain configurations; gold-plated input jacks and speaker terminals. Eighty 100 W/ch power transistors per channel. Clipping indicators; LED power meters; anodized brushed aluminum heat sink. 200 W/ch into 8 ohms from 20-20,000 Hz with <0.08% THD; S/N 100 dB (at 1 W); slew rate 160 V/µsec; damping factor 120; current capability 120 amps. Bridgeable power 400 W into 8 ohms from 20-20,000 Hz with <0.15% THD; S/N 125 dB; 15 µm input; 45 lb .......... $1,149

Twenty-Four. Similar to above except 100 W/ch; current capability ± 60 amps. four 130 W/ch power transistors per ch; damping factor 75; 33 lb $699

HEATH
AAW-2500 100-W/ch Amplifier
Stereo power amplifier with four dual polarity power supplies and a protection circuit to shield speakers from turn-on transients and prevent short circuit by muting audio when a < 2-ohm load is placed across speaker terminals. Features toroidal power transformer; high-grade capacitors; high instantaneous current capability, up to 60 amps. 100 W/ch continuous into 8 ohms; FR 0.1-170,000 Hz; THD <0.06%; S/N 98 dB; 17 x 4 x 3.4 in; 30 lb .......... $499

AA-2500k. Unassembled kit; 33 lb .................. $449

HEYBROOK by D'ASCANIO AUDIO
P-100 100-W/ch Amplifier
Hand-assembled power amp with toroidal transformer capable of 30-amp output. Features circuits designed with close-tolerance, high-quality components. Thick aluminum chassis acts as a heat sink over entire surface, equalizing temp within the case and maintaining a stable relationship between transistors and inputs. 100 continuous average W/ch from 20-20,000 Hz into 8 ohms with no more than 0.05% THD, 120 W into 4 ohms; S/N 80 dB; IM 0.03%; instanta-
LUXMAN
M-117 200-W/ch Amplifier
Bridgeable amplifier with low-impedance drive capability. Features dual-FET per channel input stage: high-current bipolar output transistors. Dua-Beta dual feedback-loop circuit to widen bandwidth and improve transient response; STAR circuit topology to reduce noise and distortion; high-energy power supply. Peak-clip indicators: gold-plated speaker binding posts and input terminals; adjustable input sensitivity; 50 W/ch from 20-20,000 Hz ± 0.10 dB; S/N 85 dB; sensitivity at rated power 1.5 V; 170 x 79 x 132 in: 50 lb...
$1.995

LINN PRODUCTS
LK280 80-W/ch Amplifier
Class AB mono amplifier with toroidal high current power supply. Features full complementarity circuit design; "music sense" which turns on amplifier when music is detected. 10 W into 8 ohms; 4 x 6/4 x 14 in ea; 13 lb ea...
$1.790/pr

McIntosh
MC-754 80-W/ch Amplifier
Features Power Guard circuitry to eliminate amplifier clipping due to overdrive; Sentry Monitor circuit constantly monitors the output signal and instantly reacts to prevent overload of the output transistors, thermal shut-down, turn-on delay, direct current failure protection; power line transient surge protection; bridgeable to 200 W/ch into 8 ohms; FR 20-20,000 Hz ± 0.25 dB; total harmonic distortion less than 0.05% THD into 8 ohms: FR 20-20,000 Hz ± 1.5 dB; S/N 105 dB; sensitivity at rated power 1.5 V; 17 x 10 x 17 in: 129 lb.
$3,250

MERIDIAN
Monitor Series 2400 150-W/ch Amplifier
Bridgeable amplifier with power envelope circuitry. Features high voltage, high-current capacity, close tracking soft clipping circuit. Speaker impedance selector; input level controls; normal/lab inputs. 150 W/ch rms: +4 dB dynamic headroom. Rack mountable...
$799

Motif
MC-2500 500-W/ch Amplifier
Features Sentry Monitoring circuit which constantly monitors the signal to the output transistors to protect them from damage; bridgeable: 1,000 W mono. Left and right channel gain control; speaker on/off switch; peak-reading; peak-locking power meters; meter range selector; headphone jack. Power output: 500 W/ch both channels driven from 20-20,000 Hz with less than 0.02% THD, in < 0.02% if instantaneous peak power output is less than 1,000 W/ch both channels driven. FR 20-20,000 Hz ± 0.25 dB; S/N 95 dB; damping factor: 30; input imp: 50,000 ohms; input sens switchable: 0.75 or 2.5 V (level control provided for higher input voltages). Power Guard: THD not to exceed 2% with up to 20 dB overdrive at 1 kHz. Standard 19-in rack mounting. 17 x 10 x 17 in: 129 lb...
$3,495

MOTIF BY CONRAD-JOHNSON
Motif MS200 200-W/ch Amplifier
With MOSFET output stage, extensive use of large-value polypropylene capacitors. 200 continuous average W/ch from 20-20,000 Hz with no more than 0.1% THD into 8 ohms: FR 20-20,000 Hz ± 0.10 dB; S/N 100 dB; 7 x 19 x 18½ in: 45 lbs...
$5,000

MOTOROLA
MS100. As above with 100 W/ch...
$3,250

MOTOROLA
MS50. As above with 50 W/ch...
$2,350

NAD
Monitor Series 2600A 150-W/ch Amplifier
Features full complementarity circuit. Input level controls: normal/lab inputs. 150 W/ch rms: +4 dB dynamic headroom. Rack mountable...
$3,999

Nakamichi
PA-7A11 225-W/ch Amplifier
Features Sisstat topology; utilizes two internal amplifiers. 700-W toroidal power transformer; bridge rectifiers; electrolytic filters; 18 transistors per ch. Rib Framework chassis. 225 continuous average W/ch from 20-20,000 Hz with no greater than 0.05% THD into 8 ohms: 140 max W/ch into 8 ohms: FR 20-20,000 Hz ± 0.2 dB; S/N 120 dB; damping factor > 60; dynamic headroom 1.7 db; power bandwidth 5-50,000 Hz (8 ohms) 112.5 W, 0.05% THD...
$2,195

NAC
M-50 50-W Amplifier
Single-channel power amp with 3 switch-selected inputs. Features variable-frequency low-and

MELOS Audio
TM-90 ST 80-W/ch Amplifier
Stereo power amplifier with toroidal power transformer, regulated power supplies using
**AMPLIFIERS**

**NHT**
VA-1 20W/ch Amplifier
Designed to accept audio signals from stereo TV's and drive stereo speakers. Features Class AB output: balanced-line high-level inputs; stereo speaker outs; power and volume switch.-es. Delivers 20W/ch cont avg into 8 ohms, 30-watts per channel continuous average into 4 ohms from 20-25,000 Hz with 0.01% total harmonic distortion. High gloss black cabinet. 31/2 x 17 x 9 3/4 in; 7 lb...
...

**Alpha 5000 330W/ch Amplifier**
Amplifier with XLR cannon connectors for direct connections with mixing boards and to put jacks. 200W/ch into 8 ohms, 400W/ch into 4 ohms from 20-20,000 Hz with <0.01% total harmonic distortion. Features diamond differential circuit with a cas-...}

**ONKYO M-1600 150W/ch Amplifier**
Amplifier with Class AB circuits. Features magnetic-flux-ring; anoxic-copper coils. Frequency response 5-100,000 Hz +/−0 dB, −0.5 dB; total harmonic distortion 0.001% at rated power at 1,000 Hz; signal-to-noise ratio 110 dB; intermodulation distortion <0.03%; damping factor >120 dB; meter sensitivity 300 W/ch min rms; frequency response 20-20,000 Hz ±0 dB; S/N 110 dB: dynamic power 1250 W/ch into 4 ohms; 850 W/ch into 8 ohms; frequency response 20-20,000 Hz; total harmonic distortion 0.003%; signal-to-noise ratio 120 dB; intermodulation distortion 0.003%; damping factor >120; 200W/ch continuity at 1 ohm. 18.5 x 7 x 14 in; 57 lbs...
...

**Onkyo Grand Integra M-508**
Damping factor 200; 19 x 6 x 19 in; 69.9 lb...

**QUAD Model 666 140W/ch Amplifier**
Power amp with feed-forward error correction (current dumping) combines clarity of Class A operation with efficiency of Class B. Protection circuits uses a sensor on AC input side of power supply to integrate current over time. No fuses or relays located in signal path, total harmonic distortion (continuous sine wave in 8 ohm resistive load any level up to 50 W) <0.01% at 20 Hz, <0.01% at 1000 Hz, <0.03% at 20,000 Hz, frequency response 20-20,000 Hz −0.25 dB; 12 x 5 x 9 1/2 in; 27 lbs...
...

**REVOX B-242-S 200W/ch Amplifier**
High-output power amp capable of driving loads from 2-8 ohms at rated levels. Features dual independent power supplies; DC voltage control, electronic short-circuit protection, temperature sensor to activate fan cooling; auto on/off switching responds to signal from preamp; 4/8 ohm speaker output switch; LED bar-graph output meter; heavy-duty output connectors. 200 continuous average W/ch from 20-20,000 Hz with no more than 0.03% total harmonic distortion, 300 W into 4 ohms, frequency response 20-20,000 Hz +0.3 dB, −0.3 dB; complete headroom height 2.5 dB into 8 ohms; signal-to-noise ratio 117 dB unbalanced, 114 dB balanced; damping factor 100 (1,000 Hz into 8 ohms), 560 at 1,000 Hz. 17 x 6 x 14 1/4 in; 3/7 lbs...
...

**Rotel RMB700X 100W/ch Amplifier**
100 W/ch stereo amplifier bridgeable with RA-870 (integrated amp) for 300 watts mono. Frequency response 4-100,000 Hz +0.5 dB, −3.0 dB; total harmonic distortion <0.03% from 20-20,000 Hz; signal-to-noise ratio 110 dB; intermodulation distortion <0.03%; damping factor 180. 17 x 5 1/2 x 13 in; 20 lbs...
...

**SANSUI B-2000 110W/ch Amplifier**
Stereo amplifier with automatic bridging circuit. Features dual-speaker system switching; peak and average LED power display; rack mountable. 200W/ch cont avg into 8 ohms from 20-20,000 Hz with no more than 0.025% total harmonic distortion into 8 ohms; 600 W mono operation; frequency response 20-20,000 Hz +0 dB, −3.0 dB, 118 db; harmonic distortion 1.2 dB; input impedance 10 kΩ; input sensitivity 0.25% at 19 x 4 1/4 in; 48 lbs...
...

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**ALC**

**Onkyo Grand Integra M-508**
Damping factor 200; 19 x 6 x 19 in; 69.9 lb...

**PS Audio**

200CX 200W/ch Amplifier
Features large 5-way binding posts; gold-plated input jacks. 200 W/ch into 8 ohms, 400 W/ch into 4 ohms; total harmonic distortion 0.02%; signal-to-noise ratio = 100 dB; slew rate 250 V/sec;...
code configuration: X-balanced circuitry; MOSFET's; rapid switching speed; pure copper insulators; low output impedance. 5 pair of inputs (3 variable, 2 fixed); speaker A, B. 100 W/ch/min rms into 8 ohms: total harmonic distortion <0.008%; frequency response DC-200,000 Hz ±0/-3 dB; signal-to-noise ratio >100 dB; damping factor 100 at 8 ohms; slew rate >150 V/μsec, rise time 0.5 μsec 17.5 x 6 x 18 inches; 77 lb. Black matte finish. $3,750

B-3000 120-W/ch Amplifier

Features DC servo circuit, separate heat sinks for left and right channels: short detection; zero voltage detection; thermal detection. 2 power meters: range control; headphone jack; outputs for 2 speaker systems. 120 W/ch into 8 ohms; frequency response 20-20,000 Hz; total harmonic distortion 0.05%; signal-to-noise ratio >100 dB; $260

SHERWOOD

AM-7040 200-W/ch Amplifier

Amplifier with high-speed MOSFET output stage with high-instantaneous-current capacity. Features complete relay protection; independent left and right power transformers; variable and fixed input terminals; complementary symmetry input stage with matched transistor pairs; overload protection: heavy gauge conductors. Power-level indicator. 200 W/ch/min rms into 8 ohms; frequency response 20-20,000 Hz; total harmonic distortion <0.025%, into 0.015%, damping factor 170 dB; S/N 125 dB; ch sep at 1,000 Hz 70 dB; 6.5 x 17 x 15 inches $699

SONORAPHE BY CONRAD-JOHNSON

SA120 120-W/ch Amplifier

Features MOSFET output stage; 120 W/ch into 8 ohms; signal-to-noise ratio 100 dB; $955

SONY

TA-N77ES 270-W/ch Amplifier

Features spontaneous twin-drive power supply: low-impedance drive capability; mono operation at 580 W into 8 ohms from 20-20,000 Hz with 0.007% total harmonic distortion; chimney-style heat sinks; fixed and variable input-independent protection circuits; peak-level power meters; 2 sets of speaker terminals. 270 W continuous into 4 ohms, 200,000 Hz with 0.006% THD; damping factor 100; slew rate 150/μsec; 300/μsec (inside) $1,200

TA-N110I 45-W/ch Amplifier

Features 45 W/ch into 8 ohms from 20-20,000 Hz with 0.008% total harmonic distortion: 3-built-in digital delay modes; variable delay times; built-in video switching capability; input attenuator; 3-way input switch; 2 sets of speaker terminals. 100 W continuous into 8 ohms, 200,000 Hz with 0.008% total harmonic distortion $300

SOUNDCRAFTSMEN

AS502 250-W/ch Amplifier

Power amplifier with Class H Vari-Proportional circuitry and autobuffer for continuous operation into 2 ohms, 4 ohms, and 8 ohms. Features auto-crossover-protection circuit for output protection without current limiting, 20 LED/channel indicators; front-panel switching for 2 pairs of speakers; clipping indicators; input level control. Output power 250 watts per channel into 8 ohms, 375 watts per channel into 4 ohms continuous rms, 20-20,000 Hz at <0.09% total harmonic distortion; signal-to-noise ratio >105 dB; slew rate >50 V/μsec, rise time <0.02%; dynamic headroom >2 dB. $949

Pro-Reference Two 100-W/ch Amplifier

MOSFET stereo power amp with 20-LED power meters. Features switching for 2 pairs of speakers; clipping indicators; brushed aluminum with finish that matches mount front panel. Output power 100 W/ch into 8 ohms, 200 W/ch into 4 ohms, continuous rms. 20-20,000 Hz at <0.05% total harmonic distortion; signal-to-noise ratio >105 dB; damping factor 200 $699

Pro-Reference One. Same as above without LED power meters $599

SOUNDSTREAM

DA-1 200-W/ch Amplifier

System 1 component features fully discrete Darlington transistor circuitry to minimize need for current limiting; bridgeable to 600 W mono into 8 ohms. Drives up to 4 pairs of speakers simultaneously: dual front-panel overload indicators; optional RSS-2 speaker selector can be used singly or daisy-chained, allowing up to 4 pairs of speakers to be controlled by the R-1 remote. Frequency response 20-20,000 Hz ±0.1 dB; signal-to-noise ratio >110 dB; total harmonic distortion <0.1%; slew rate >35 V/μsec; 17 x 5 x 14 inches; 35 lb $1,195

SE-1000 170-W/ch Amplifier

Features computer drive to neutralize transient crossover distortion; parallel 3-stage Darlington output; power-linear circuit to compensate for speaker imp variation; power-output meters. 150 W/ch into 8 ohms; frequency response DC-150,000 Hz ±0/-3 dB; intermodulation distortion 0.02%; damping factor >200, 17 x 7 x 16 inches; 40.6 lb $1,100

SOUNDCRAFSSMEN

BA3 50-W/ch Amplifier

Amplifier with 50 W/ch into 8 ohms; 90 W/ch into 4 ohms; frequency response 20-20,000 Hz with <0.1% total harmonic distortion <0.1%, dynamic headroom 2 dB $1,800

SUMIKO

Andromeda II 200-W/ch Amplifier

Class AB MOSFET amp, fully balanced from input to output. Operates as a pure Class A amplifier except at the Class A/AB output stage. 200 W/ch into 8 ohms; THD 0.05% into 8 ohms; <0.005% into 4 ohms; THD 0.05%; rise time 2 μsec; slew rate >115 V/μsec; damping factor >300; 19 x 7 x 16 inches; 55 lb. $1,499

The Nine Plus 65-W/ch Amplifier

Power A class amplifier with no active bias circuits or thermal tracking networks. Features balanced-bridge configuration, push-pull quadrate feedback circuits; discrete Darlington output stage; direct-coupled circuitry from input to output. Power output 65 W/ch into 8 ohms from 20-20,000 Hz with <0.1% total harmonic distortion: 120 W/ch into 4 ohms from 20-20,000 Hz with <0.2% total harmonic distortion; intermodulation distortion 0.05% from 0.25 W to rated output; input sensitivity for rated output 1.0 V rms; damping factor >150. 19 x 8 x 7 inches $1,299

Polaris 100-W/ch Amplifier

Class AB amp that operates in Class A except at the Class AB output stage. 175 W/ch into 4 ohms; total harmonic distortion 0.05% into 8 ohms, 0.1% into 4 ohms; intermodulation distortion 0.05%; rise time 2 μsec; input 47,000 ohms; damping factor >500. 19 x 5 x 8 inches $749

SE-ASMK2 150-W/ch Amplifier

Features dual input selector for pure Class A operation to 20% of rated power; output-stage bias accuracy is maintained through Threshold's proprietary optical-bias technology. DC-coupled front-end gain stages are biased for Class A operation at all signal levels and are subject to closed-loop shielding and two stages of current regulation. Power supply: two, 1,200-W toroidal transformers, 312,000 μF capacitance. Output stage: 64 high-speed 250-W, 200-V, 20-amp rated devices. Inputs are switchable between 50,000 ohms unbalanced through RCA jacks and 600 ohms balanced through locking XLR connectors; thermal-protector circuitry. 200 W/ch into 8 ohms from 5% distortion. Bandwidth: direct current to >3 dB at 100,000 Hz. Slew rate: 100 V/μsec. Current capacity: 120 amperes continuous. 200 amps peak. Noise: <100 dB. Output impedance: <0.1 ohms 20-20,000 Hz. 19 x 8 x 7 inches $2,020

SE-A100 170W-ch Amplifier

Features computer drive to neutralize transient crossover distortion; parallel 3-stage Darlington output; power-linear circuit to compensate for speaker imp variation; power-output meters. 150 W/ch into 8 ohms; frequency response DC-150,000 Hz ±0/-3 dB; intermodulation distortion 0.02%; damping factor >200, 17 x 7 x 16 inches; 40.6 lb $1,100
AMPLIFIERS

meter. 160 W 20-20,000 Hz into 8 ohms with 0.15% distortion. Current capability: 40 amps continuous, 150 amps peak. 19 x 8 3/4 x 17 1/4 in; 79 lb $4,400.

S/500 Stasis 250-W/ch Amplifier
As S/1600e except lower power and no peak-level control. Power supply: single 1,000 toroidal transformer, 120,000 µF capacitance. Output stage: 2 high-speed 250 W, 200 V, 20 amp rated devices/ch. 250 W/ch 20-20,000 Hz both ch driven into 8 ohms with 0.15% distortion; bandwidth ~3 dB at 7 and 100,000 Hz, current capability 12 amps/ch cont, 100 amps/ch peak. Dimensions: 19 x 8 3/4 x 13 3/4 in. Weight: 79 lb $4,200.

SA/2 Stasis 100-W Amplifier
As SA/1 except lower power and no peak and separate voltage regulators for each amplifier. Power supply: single 700 W toroidal transformer, 60,000 µF capacitance. Output stage: 2 high-speed 200 W, 200 V, 20 amp rated devices, 100 W 20-20,000 Hz into 8 ohms with 0.15% distortion; current capability 300 watts/ch cont, 150 watts/ch peak. 19 x 8 x 13 x 5 3/4 in. Weight: 56 lb $3,150.

S/300 Stasis 150-W/ch Amplifier
As S/300 except lower power and power supply with single 700 W toroidal transformer, 30,000 µF capacitance. Output stage: 2 high-speed 250 W, 200 V, 20 amp rated devices/ch. 150 W/ch 20-20,000 Hz both ch driven into 8 ohms with 0.15% distortion; current capability 100 amps/ch cont, 80 amps/ch peak. 19 x 8 x 13 1/2 x 5 3/4 in. Weight: 56 lb $3,150.

SA/200 Stasis 100-W Amplifier
As S/300 except lower power and power supply with single 400 W toroidal transformer, 30,000 µF capacitance. Output stage: 2 high-speed 250 W, 200 V, 20 amp rated devices/ch. 100 W/ch 20-20,000 Hz both ch driven into 8 ohms with 0.15% distortion; current capability 8 currents/ch cont, 500 watts/ch peak. 19 x 8 x 13 1/2 x 5 3/4 in. Weight: 44 lb $2,150.

ADCOM

GFP-555 Preamp
Features two-sided copper-plated circuit board for low noise and hum, switchable phono-input capacitance, switchable gain on phono input; tape dubbing; separate headphone amp; 2 sets of outputs (AC coupled, DC coupled); signal-processing loop; 5 pairs of high-level inputs. Can record from one input while listening to another input. Inputs for MM phono; MC phono; tape; tape 2; CD player; player; video. FR DC-40,000 Hz ±0.5 dB, THD 0.005%, MM phono sensitivity 0.4 mV for 0.5-V output at 1,000 Hz, sens for line-level inputs 40 mV. 17 x 30 x 24 1/2 in. $1,199.

GTP-400 Preamp/Tuner
Preamp with built-in tuner. Phono stages operate in full Class A operation; RIAA equalization circuit is used in high-output moving-coil or MM phono cartridges. Separate recording section allows adjustments to one source while recording another; feedback tone control; eight FM stations and eight AM stations memory. Preamp section: THD <0.01%; IM 0.003%; FR 20-20,000 Hz ±0.1 dB, s/n phono 80 dB, line ±0.5 dB. Tuner section: >30 dB quieting mono 13.5 dB, stereo 37 dB, s/n phono mono 11 dB, cap ratio 1.7 dB; THD stereo 0.1% at 1,000 Hz, s/n mono 80, stereo 75 dB; FR 30-15,000 Hz, ±0.5 dB. 17 x 30 x 24 1/2 in. Weight: 35 lb $4,900.

VECTOR RESEARCH

VA-1450 75-W/ch Amplifier
Features high-current design, 8-output transistors; dual transformers, bridgeable to 200 W mono, phase inverted line-out; 100 continuous average W 20-20,000 Hz <0.08% total harmonic distortion into 4 ohms; frequency response 1-40,000 Hz ±1 dB, dynamic headroom 2.5 dB. IHF intermodulation distortion 0.08%. 17 x 3 x 12 in. Weight: 26 lb $349.

YAMAHA

MX-10000 250-W/ch Amplifier
Power amplifier with dual-amp Class A operation per channel and CD/lp/in, 8 inputs with one balanced and two unbalanced sets of outputs for the CD section; logic control relay signal path; separate power transformer windings and rectifier circuits for L/R channels and separate voltage regulators for each amplifier. FR 20-20,000 Hz ±0.2 dB, THD 0.003%, SM 110 dB. 18 3/4 x 5 3/4 x 14 1/4 in. $4,100.

MX-1000U 250-W/ch Amplifier
Power amplifier with hyperbolic conversion amplification circuit. Features A+B+C speaker switching. 26-segment LED power-meter levels; independent left and right level control. 4-digit numerical power-output display, LED meter, and digital peak-hold display, meter display load selector; compatible with banana plugs. 260 watts per channel into 8 ohms; FR 20-20,000 Hz, THD <0.003%. 600,000 µF x 2 power supply capacitor. Dimensions: 19 x 8 3/4 x 13 3/4 in. Weight: 79 lb $4,400.

MX-55/Ti 35-W/ch x 4 Amplifier
Features independent left and right channel power supplies; vibration-resistant chassis construction. 70 W/ch x 2 into 8 ohms; frequency response 20-20,000 Hz, total harmonic distortion 0.003%, 35 W x 4 into 8 ohms; frequency response 20-20,000 Hz, total harmonic distortion 0.005%. Ch sep 110 dB (2 ch), 90 dB (4 ch); 26 lb. Titanium finish $1,195.

Audio Design Associates

AD-8 Preamp
Preamp with 8-input capability. Features 5 stereo source inputs; 3 stereo tape inputs; 1 stereo signal-processor loop input; input impedance ±47k ohms, max input level ±8 volts; 3 main outputs; 3 tape outputs; 1 processor loop output; input voltage, balance, bass, mid, treble, and source selection controls; 1 switched output. Output impedance >100 ohms; max output level ±12 volts; frequency response 20-20,000 Hz +0.25 dB, THD 0.05%; s/n -85 dB. 3 1/2 x 19 x 13 1/2 in. Weight: 38 lb $995.

Audio Research

SP-9 MKII Preamp
On-board power supply and auto mute circuit for warmup, voltage drop; switchable muting; 2 tape inputs, 2 tape outputs, 2-position tape-monitor switching; gold-plated input/output jacks connect ground before heat, disconnect hot before ground; shielded toroidal power transformer; internally adjustable phono-section impedance, 2 6DJ8 vacuum tubes (1-in phono stage, 1-in line stage); compatible with many MC cartridges. FR (high-level): ±30% 3-50,000 Hz magnetic phono, ±0.3 dB of RIAA, 30-40,000 Hz; max output 2 V rms; distortion <0.01% at 2 V rms out; input imp 50 ohms (all high level); phono 470 ohms (changeable) $1,795.

B&K Components

Sonata Series MC-101 Preamp
MM/MC switchable preamp 2 tape loops; 2 tone controls, mm sens 0.8 mV; MM/SN 80 dB. MC/S N 80 dB, FR 1-150,000 Hz +0.5 dB, THD 0.02%; Tiffany balanced connectors $1,098.

B&K Components Pro-5
Pro-5 Preamp
Preamp features 5 high-level inputs. 1 phantom input with 59 dB gain, balanced or unbalanced input; ±80 dB volume, bass, treble controls, gold-plated RCA connectors; moving-coil capacity. Inputs for MM phono, tape, aux, CD player, tuner, video. FR 1-100,000 Hz ±0.5 dB, SN 100 dB, MM phono sensitivity 0.7 mV for 0.5-V output at 1,000 Hz; MM phono input overload voltage 105 mv at 1,000 Hz; sens for line-level inputs 63 mv $3,100.

Bedini

BC-866 Preamp
Class A flat preamp with inputs for phono, tuner, tape, CD, aux. Balance and volume controls. FR 1-110,000 Hz ±0.3 dB, THD <0.15%; IM <0.05%; RIAA phono deviation 20-25,000 Hz.
BELLES RESEARCH

Belles 55 Preamplifier
Stereo preamplifier with complementary circuitry and Class A power MOSFET outputs. Features phono section with internal DIP switch for MM and MC cartridges; 2 settings for gain; 2 settings for cartridge loading. External high-energy power supply with DIN connector in rear. 5 inputs, 2 tape monitors, volume, balance, subsonic filter. FR 10-100,000 Hz ± 3 dB ... $649

C70 Preamplifier
Stereo preamplifier with connections for 4 input sources plus tape. Features segmented passive RIAA EQ. Passive tone controls with tone by-pass switch and two outputs, one being a passive direct output after the volume control and the other a normal output: MM or MC switchable phono inputs; cartridge capability, circuitry. THD 0.0005%. Sold only as a combination with the A70 power amp, combination price ... $999

C100 Preamplifier
Preamp with inputs for MM/MC phono (switchable), tape, tape. 2 Features dubbing capabilities, straight-line design. FR flat within 0.1 dB 20-80,000 Hz; THD 0.005% from 20-20,000 Hz; max output 12 V: MM input 2.6 mV at 47,000 ohms; MC input 0.3 mV at 47,000 ohms; S/N MM 82 dB, line 96 dB. $699

CARVER

C-19 Preamplifier
Stereo preamplifier with 5 inputs including MM and MC phono and CD direct. Features 6DJ8 tubes, Wonder Caps, wide circuit traces; no ICs in the primary signal path. Dual external processor loops; dual tape monitor loops with dubbing; Spectral Tilt overall frequency balance EQ; individual L/R tone controls with variable turn-over; headphone output with speaker defeat switch; subsonic filter: absolute phase switch. FR 1-60,000 Hz -0.3 dB, THD 0.07%; MM phono sens 1.5 mV. MM phono S/N 86 dB, MC phono S/N max output 7 V, 12 lb ... $1,199

CT-17 Preamplifier/Tuner
Combination Asymmetrical Charge Coupled Detection AM/FM tuner and Sonic Holography preamplifier with remote. Preamplifier features Dolby Pro Logic 5:ch surround-sound processor with rear volume, hall and stadium ambient effects, 7 inputs including CD direct, 2 video sound, simulated-stereo synthesis for mono video, 3-way tone controls; dual tape monitors; high-cut filter, remote with separate input/record selector and extra remote volume control for room-to-room capability. Tuner features 20 AM/FM presets with preset scan; stereo/mono, auto/manual controls. Preamplifier section: Frequency response 1-60,000 Hz ± 0.3 dB, THD 0.01%; max output 7 V. Tuner section: stereo quietness sens 15 dB, stereo sens 20.1 dB; stereo cap ratio 1.4 dB, AM suppression 73 dB; all ch sel 58 dB, FM stereo THD 0.02%; stereo S/N 79 dB, 16 lb ... $800

C-11 Preamplifier
Preamplifier with Sonic Hologram Generator. Features video sound precognition circuit; 5 inputs including MM and MC phono, external processor loop; dual tape monitor loops with dubbing. Individual L/R tone controls with variable turn-over, loudness EQ, headphone output with speaker defeat switch; subsonic filter; adjustable MM phono capacitance. FR 1-60,000 Hz -0.3 dB, THD 0.005%; max output 7 V. 6 lb ... $580

CONRAD-JOHNSON

PV9 Preamplifier
With low-noise precision metal-film resistors; polystyrene capacitors in audio circuitry for max isolation and linearity. Inputs for 2 tape recorders, 2-way dubbing: phono, tuner, AUX inputs; 2 amp outputs; front-panel mute control. FR 20-20,000 Hz ± 0.25 dB phono: S/N 70 dB below 10 mV phono, 84 dB below 2.5 V output high level, THD and IM 0.05%; gain 40 dB phono, 29 dB high level; max output 25 V; phono overload 500 mV at 1 kHz, 48x 14 x 11¼ in ... $2,950

PV8 Preamplifier
With cathode follower outputs and solid-state voltage regulator designed for minimal AC input regulation. Filament supplies virtually eliminate infrasonic noise resulting from AC line fluctuations. Features 1% tolerance, incipied-depopulated tin-oxide audio circuit resistors; audio circuit capacitors are polystyrene dielectric; volume control tracks within 0.5 db; auto mute at turn-on, turn-off, 2-tape-recipe loops with 2-way dubbing; 5-function mode switch; precision tracking volume control. Max output 40 W rms, FR 2-100,000 Hz, <0.5% THD and IMD; hum and noise (20-20,000 Hz) phono 72 dB below 10 mV input; high level 84 dB below 2.5 V output; input impedance 200 ohms, 10 x 16 x 3¼ in; 15 lb ... $1,685

PV10 Preamplifier
Stereo preamplifier with zero-feedback circuits in both line and phono stages. Features 2 triode amplifiers separated by a passive RIAA EQ network, 5 vacuum tubes, discrete regulated power supply with polypropylene and polystyrene capacitors. Phono plus five line inputs, 1 tape loop, balance bypass switch. TR 1 THD or IM, hum and noise (20-20,000 Hz) phono 72 dB below 10 mV output, line stage 84 dB below 2.5 V output; input impedance <500 ohms. 16 x 5 x 5½ in; 12 lb ... $995

CONVERGENT AUDIO

SL-1 Preamplifier
Preamplifier with all vacuum-tube design. Features twelve separate regulators, one for each stage; adjustable loading, external power supply, switched metal film resistors for volume and balance controls. Inputs for MM phono, MC phono; tape, aux, CD, tuner, video. FR 0.1-1 MHz ± 3 dB, S/N 90 dB, THD 0.0003%; MM phono sens 0.125 mV for 0.5 V output at 1,000 Hz; MM phono input overload level 250 mV at 1,000 Hz; sens for line-level inputs 25 mV, 19 x 5 x 5½ in; 111/4 x 4 x 6 in ... $4,500

SA-1000 Preamp
Features three-tube hybrid circuitry. Preamp with inputs for MM/MC phono, tape, CD player, tuner. FR 2-170,000 Hz, ±0.1 dB, THD 0.09%; S/N 83 dB at 10-50,000 Hz; FR 2-50,000 Hz, ±0.1 dB, 12½ lb; 20 lb ... $835

SA-11 Line-Level Preamp
Full-feature line-level control includes industrial-grade stepper motors to control 2 custom-built 41-position attenuators. Features full vacuum-tube power supply and audio circuitry, wireless handheld remote control; isolinear design for max isolation and linearity. Inputs for tape, tape, aux, CD player, tuner, video, FR 1.5-70,000 Hz, THD 0.02% max; S/N 82 dB at 500 mV, 1,000 Hz, 17 x 7 x 20 in; 55 lb/5,995

SA-1000 Preamp
Features three-tube hybrid circuitry. Preamp with inputs for MM/MC phono, tape, CD player, tuner. FR 2-170,000 Hz, ±0.1 dB, THD 0.09%; S/N 83 dB at 10-50,000 Hz; FR 2-50,000 Hz, ±0.1 dB, 12½ lb; 20 lb ... $835

DB SYSTEMS

DB-1A & 2A Preamp System
Stereo preamplifier with separate DB-2A regulated power supply. Features gold-plated jacks: Alps 80 dB tracking volume control: THD ± 0.008%, 20-20,000 Hz; IM ± 0.01%; FR phono 0-40,000 Hz ±0.07 dB, high-level 2-50,000 Hz ±0.1 -1 dB, S/N 90 dB phono, 90 dB line, filters: low-cut flat, 20 Hz, 36 Hz at 6 dB/octave phono only, high-cut flat, 5 kHz, 10,000 Hz at 6 dB/octave; output imp 1 kilohm; max output voltage 6 V into 10 kilohms/3000 pF; input sens for 1 V output: phono 2 mV into 50,000 ohms/100 pF, high-level 120 mV into 50 kilohms. 3-year warranty extension. 8½ x 7 x 3½ in ... $495

DBX

CX-3MIIL Preamp
Control center for a video or audio system with...
DENNESSEN ELECTROSTATIC
Sirius Preamplifier
Straight-line preamp with split passive RIAA and FET input. For MM phono, tape, tape 2, aux. FR 5-100,000 Hz ±0.1 dB; THD 0.01%; max output 10 V; IM 0.01%; sens for line level inputs 125 µV; 19 x 2 x 8 in.; 7 lb. _____ $750

DENON
DAP-5500P Preamplifier
Preamplifier with 4x oversampling D/A converter: Digital section features 4 D/A push-pull Super Linear Converter system; separate digital and analog chassis; 3 digital inputs (one optical, 2 coaxial); coaxial digital tape-monitor loop; optical isolators, D/A converter output jacks. Audio section features Unity Gain Interface amplifier, Cannon-type input/output, 2 RCA line-in; 1 RCA line out; front-panel mounted RCA input/output jacks; two tape-monitor loops; source-direct switch; separate power supplies for digital and analog sections; nonresonant, vibration-resistant chassis. 5¼ x 17½ x 15 in $1,500

PRA-1500 Preamplifier
Stereo preamplifier with MM and MC phono inputs. Features Unity Gain Interface amplifier. 2 tape-monitor loops; source-direct mode; balanced output connections; 2 video inputs. 1 video output; mono wideband and subwoofer output. Includes Denon Integral System remote control for full-system remote and remote power control for connected Denon power amplifiers. _____ $500

DISCRETE TECHNOLOGY
Pre-Reference Preamplifier
Solid-state preamplifier with high-current supply. Features aluminum rack-mountable enclosure; designed to be matched with one of 3 different amplifier modules; direct-coupled circuitry: volume and power controls; switchable cartridge loading; switcheable gain Distech cable; modular construction; low impedance main outputs. With MC amplifier. _____ $2,995

FORTE AUDIO
Model 2 Preamplifier
Dual-channel, non-inverting hybrid circuitry employs low-noise, matched integrated gain devices enhanced with discrete pure Class A biasing, active constant-current sourcing, and imp buffering. Accepts direct input from high- and low-output MC and MM cartridges, 4 high-level sources and tape recorder. Recorder-monitor facilities for recorder allow listening to one source while recording another, internal selection of resistive and capacitive cartridge loading; selectability of cartridge gain of +40, 50, 60 dB. External power supply in separate chassis; gold-plated signal connectors; glass-epoxy circuit boards. THD <0.01%, IM 0.001%; max output 25,000 ohm; output imp 470 ohms. 19 x 14½ x 7 in. _____ $990

HAFFER
Iris Preamplifier
Infrared remote integrated system with pure FET Class A design utilizing CMOS switching and a passive cyber-optic volume/balance control. 5 high-level inputs, 2 tape inputs; external-proc- essor loop, and patented MM/MC phono stage: outputs: record 1, record 2, external-processor out, line; knob control remote. FR 20-20,000 Hz ±0.1 dB; THD 0.0005%; dist 0.0005%; line 0.0008%; MC: S/N MM = -87 dB, MC = -80 dB, 94 dB line, 17 x 3 x 8½ in.; 9 lb. Without remote control. _____ $650

HARMAN KARDON
Citation Twenty-Five Preamplifier
Preamplifier with remote control. Features passive equalization in open-loop mode; moving-coil head amp with resistance trim; moving-magnet capacitance trim. Inputs for CD, aux, VCR, 1, VCR 2, and phono; high-cut filter; subsonic filter; switchable bass and treble turnover; tone defeat; mono switch; headphone jack. FR 0.25-250,000 Hz +0 -3 dB (aux at 0.5 V output); THD 0.002% (aux at 1 V output); slew rate 120 V/sec; rise time 1.4 µsec; S/N 91 dB (CD, video input); RIAA EQ (20-20,000 Hz) ±0.2 Hz. _____ $899

Citation Twenty-One Preamplifier
Preamplifier with fully discrete circuitry. Features low negative feedback; active-passive symmetrical RIAA inputs. For CD, CD-direct, video sound, tuner, phono, 2 tape decks, gold-plated jacks; mono switch; low-noise transis- tors; discrete MC head amp; subsonic filter (6-dB/octave, -3 dB at 15 Hz); phase-correct loudness (+10 dB at 50 Hz, ±3 dB at 250 Hz); 10-dB bass and treble boost/cut; tone defeat. Max output 10 V. _____ $629

HEATH
APW-2510 Preamplifier
Stereo preamplifier with dual RIAA equalization circuitry. Features MM/MC switch; subsonic and high cut filters; tape copy selector for dubbing between two tape decks or recording from another input; tone defeat; switchable bass and treble turnover frequencies; 6 inputs. Frequency response 0.1-180,000 Hz; THD 0.006%; signal-to-noise ratio 83 dB; input phono, 80 dB MC phono, 92 dB aux, 92 dB tape. 17½ x 4 x 13½ in.; 16 lb. _____ $399

HEXBYROOK BY D'ASCANIO AUDIO
C-3 Preamplifier
Hand-assembled preamplifier features special circuitry for CD input to prevent overload. Aluminum chassis; rear-panel power switch. In-puts for moving-magnet and moving-coil phono, tape, aux, CD player, tuner, and video. Frequency response 10-50,000 Hz; ±3 dB; MM phono sens 85 mV for 0.5-V output at 1,000 Hz, line-level sens 160 mV. 17 x 3 x 13 in. _____ $798

JRM
JRM Preamplifier
Stereo preamplifier with MM and MC phono inputs. Features all polypropylene capacitors; electromechanical devices gold-plated; 2-stage RIAA ±0.1 dB conformity. Separate input select for main, record output, inputs for tuner, 2 tapes, aux; 18 dB infrasonic filter. 10 W/ch headphone amplifier. 10 V max output; S/N MM = 87 dB, MC = 76 dB; slew rate ±20 V/sec; THD <0.01%; FR 50-50,000 Hz ±1.2 dB. 2½ x 8½ x 19 in. _____ $450

KENWOOD
Basic-C2 Preamplifier
Preamplifier with MM/MC phono and imped- ance selectors. Features phono EQ amplifier with single negative feedback loop, super-coupled volume control for low noise, 4-way filter system. 2-way tape dubbing with monitoring; source (rec out) tape selector. 2 aux/video inputs: loudness switch; mono/stereo switch; headphone jack with level control; LED indicators. FR 1-350,000 Hz ±0, -3 dB, THD 0.001% at 1 V; S/N 110 dB (MM), 94 dB (MM); 70 dB MC; 17½ x 3 x 12½ in.; 10 lb. _____ $329

KINERGETICS
KFA-2 Preamplifier
Line preamplifier with patented hysteresis distortion canceling circuits. Features dual mono with 2 toroidal transformers; 1 processor loop; servo loop to eliminate DC offset; no capacitors in signal path; 7 audio inputs; 1 tape output; 1 positive and 1 inverted output; Slew rate 60 V/ sec; voltage gain 13 dB. 19 x 3½ x 12½ in.; 12 lb. _____ $895

KLINING A. ARTS
SK-5A Preamplifier
Full-function stereo preamplifier with control to invert absolute phase. Features balanced differ- ential outputs. Inputs for tuner, CD, aux, tape, MM/MC phono. Output imp 600 ohms; input phono 0-47,000 ohms. 2½ x 19 x 12½ in.; 12 lb. _____ $3,250

LUXMAN
TP-17 Preamplifier/Tuner/Remote Controller
Dual preamps in one chassis provide source...
## AMPLIFIERS

**LE-109 Phono Preamplifier**
Features MC/MM inputs; variable gain and impedance switches; MC straight circuit; subsonic filter, 3-step attenuator selector. FR 20-20,000 Hz =0.3 dB, THD 0.005% (2 V at 1,000 Hz), S/N 100 dB. 174 x 24 x 124 in.; 11 lb. $1,250

**MARK LEVINSON BY MADRIGAL**
No. 26 Preamplifier
High-gain preamplifier with matrix-style DC switching. Features relay hermetically sealed bifurcated contacts of silver with gold plating; 6-line level inputs; CD; tuner; aux-1; phono-aux; 2 tapes 1 and 2; 2 tape inputs; non-buffed tape outputs; absolute phase of main outputs or stereo/mono operation selection on front panel; independently switchable gain for each channel; integrated gain adjustment provided through PCB mount switches for each channel providing gain of 6, 12, 18 at the unbalanced output or 12, 18, or 24 dB at the balanced output; custom-made Penny and Giles conductive plastic volume potentiometer; dual mono design with separate circuitry for each channel; two power supplies provide unregulated DC current for 2 audio channels, third power supply separately rectifies and filters power relay control circuit; two toroidal transformers; Faraday shields reduce AC coupled noise: 9 gold-plated contacts for connecting cable; pos, neg, and ground for each audio channel; 4 discrete, independent regulators; 3-pin Neutrik XLR connectors; all aluminum chassis. Output imp 40 ohms; line input imp 14,000 ohms; phono input imp MC 825 ohms; MC 47,000 ohms; line gain: single-ended 6/12/18 dB. Balanced 12/18/24 dB; phono gain: MM 38/44 dB, MC 58/64 dB. 7% x 23 x 13 in.; 32 lb. $4,995

**Mcintosh**
C-34V A/V Preamplifier
A/V control center with computer for controlling sources' dynamic range. Features inputs for: laser, tape 1-3, VCR and 2, TV, tuner and phone, 3 switched, 2 unswitched outlets in rear; provision for 2 sets of speakers; record and listen selectors; 5-band equalizer. Preamp section: FR 20-20,000 Hz ±0.5 dB, THD <0.01%; S/N phono 90 dB, high level 100 dB. Monitor amplifier section: FR 20±0.01% max total harmonic distortion; FR 20-20,000 Hz ±0.2 dB; signal-to-noise ratio 100 dB. 168 x 54 x 13 in.; 26 lb. $2,195

**C-35 A/V Preamplifier**
Features a pair of cascaded FETs to operate the inputs switching system; nine inputs for compact disc, TV, tuner, phone, aux 1, aux 2, VCR/T1, VCR/T2, tape-monitor switches for two audio tape recorders; loudness control; five-hand equalizer; headphone jack. FR 20-20,000 Hz ±0.5 dB, THD <0.007%; S/N phono 90 dB, high level 105 dB. 164 x 51 x 13 in.; 16 lb. 8 oz. $1,995

**MELOS AUDIO**
CD-T/B Preamplifier
Preamplifier with Melos CD-TII/B CD player for systems using CD as the primary music source. Heavy aluminum chassis; transformer: Tiffany connectors; CD input, tuner, video, aux, phone; tape monitor loop; 4 main outputs; remote. FR 20-20,000 ±0.2 dB; THD 0.07%; S/N 90 dB. $1,595

**NAD**
Monitor Series 1700 Preamplifier/Tuner
Features external processor loop. IF wide/narrow: 14 AM/FM random presets; motor-driven volume control; isolation from video circuits total isolation of digital and analog sections; isolated ground technology; acoustical fine-tuning system; motor-driven volume control: inputs for MM and MC phono, 2 tape, 2 aux, CD; 2 outputs; multi-room remote control with RS-7 remote sensor. Frequency response 100,000 Hz +6 –3 dB; S/N >94 dB, THD <0.002% at 20-20,000 Hz. 17 x 20 x 12 in.; 15 lb. $2,595

**Nakamichi**
CA-7A Preamplifier
Preamp with full-system wireless remote control of Nakamichi series 7 or 5 components. Features total isolation of digital and analog sections; isolated ground technology; acoustical fine-tuning system; motor-driven volume control: inputs for MM and MC phono, 2 tape, 2 aux, CD; 2 outputs; multi-room remote control with RS-7 remote sensor. Frequency response 100,000 Hz +6 –3 dB; S/N >94 dB, THD <0.002% at 20-20,000 Hz. 17 x 20 x 12 in.; 15 lb. $2,595

**Motif by Conrad-Johnson**
MC7 Preamplifier
Dual mono-all-FET preamp with remote power supply. Features precision-matched FETs for high frequency balance; exclusive use of polystyrene capacitors throughout audio circuits and power supply regulators. Inputs for MM/MC, tape, tuner: FR 5-100,000 Hz ±0.5 dB, max output 10 V, THD 0.1%, S/N 90 dB; MM phono sens 0.35 mV for 0.5-V output at 1,000 Hz, S/N for line-level inputs 50 mV, MM phono input overload level 150 mV at 1,000 Hz. 3b x 19 x 12 in; 15 lb. $3,500

**MC8 Preamplifier**
Similar to MC7 except stereo with internal power supply. Inputs for MM/MC, tape, 2 CD player; tuner: FR 5-100,000 Hz ±3 dB; THD 0.1%; MM phono sens 0.35 mV for 0.5-V output at 1,000 Hz, S/N for line-level inputs 50 mV, MM phono input overload level 150 mV at 1,000 Hz. 3b x 19 x 12 in; 15 lb. $2,250

**MC9 Stereo Preamplifier.** Line-level only preamp. $1,295

**CA-SAIL Preamplifier**
Line Drive AGT Preamplifier
Passive system control center for line-level sources; advanced grounding topology (AGT) with star-center grounding throughout; non-ferromagnetic chassis. Five line-level inputs and two tape loops; two main outputs wired in parallel for bi-amplification; front panel input selector with mute position; volume and balance controls; switchable chassis shielding. FR DC-200,000 Hz ±0.3 dB, THD 0.001%; input imp 8200 Ohm output imp variable; ch spc 86 dB. 16x x 29 x 104 in.; 3 lb. $1,095

**Monitor Series 1300 Preamplifier**
High-resolution phono preamp. Features MC preamp; external processor loop; infrasonic filter; Bass EQ, null switch; semi-parametric tone controls (bass switchable to 50, 100, 250 Hz; treble switchable to 3,000, 6,000, or 12,000 Hz; ±12 dB boost/cut); 2-way tape dubbing. Max output 12V. Rack mountable. $799

**Monitor Series 1700 Preamplifier/Tuner**
Extensive preamp. Features CD direct circuit isolated from power supply. Inputs for MM/MC/2 tape, 2 CD player; tuner: FR 5-100,000 Hz ±3 dB; THD 0.1%; MM phono sens 0.35 mV for 0.5-V output at 1,000 Hz, S/N for line-level inputs 50 mV, MM phono input overload level 150 mV at 1,000 Hz. 3b x 19 x 12 in; 15 lb. $3,500

**NikkO Audio**
Beta 600 Preamplifier
Stereo preamplifier with two-band parametric equalizer with variable level, variable bandwidth, and selectable frequency turnover controls. Features CD direct circuit isolated from
**ONKYO**

Grand Integra P-304 Preamplifier

Preamp with independent, magnetically shielded power supplies for each amplification block. Features short signal-path routing, subsonic filter and crossover filters; signal in-phase filters to reduce common-mode noise. Defeatable tone controls; switchable Contra/Contra bass control; high-cut sloping filter position on treble control blocks; 8 inputs including MM/MC phono jacks and 2 front-panel jacks for portable components; dual record-outlet selector. THD 0.002%; IM 0.003%; all channels ±0.5 dB; THD <0.01%; IM <0.01%; S/N 94 dB (line input), 75 dB (phono input); MM phono sens 1.6-23 mV for 5-mV output; sens for line-level inputs 160 mV to 2.3 V. 174 x 9 1/2 x 13 in; 15 lb, 7 oz. $1,750

**PARASOUND**

P/FET-900 Class A Preamplifier

Features FET discrete transistors; electronic logic switching; polypropylene capacitors; regulated power supply; gold-plated jacks; muting; delay; variable loudness control; 10-amp power switch; 3 AC outlets; mono switch; 2-tape monitors; 2-direction dubbing; separate CD, video inputs; FR 10-80 kHz; THD <0.03%; IM <0.03%; S/N 95 dB; high, 80 dB phone. 174 x 2 x 9 in. $395

**Pioneer**

Elite C-91 A/V Preamplifier

Features wireless learning remote control; motorized rotary volume control; 5 audio inputs: 2 video inputs; 3 different power supplies for each amplifier block; Delta power supply with Real-Phase signal-path diecast, nonvolatile LDR memory; loudness enhancement; and memory recall. THD 0.05%; IM 0.1%; S/N 93 dB. 17 1/2 x 6 x 13 in. $1,300

**Proton**

AP-1000 Preamplifier

Stereo preamplifier with separate record and listen selectors. Features bass, presence, and treble controls with bypass circuitry; dual-monaural construction with separate power supplies for both channels; two discrete preamplifiers; phono preamp section with FET's; selectable input capacitance for MM cartridges; multiple gain levels for MC cartridges; bass EQ switch; input for phono, tuner, CD, video, tape 1, tape 2; head- phone jack. FR 20-20,000 Hz ± 2 dB; THD 0.003%; IMD 0.003%; video s/n 103 dB; tape play s/n 103 dB; MM phono s/n 91 dB; MC phono s/n 70 dB; 16 x 31 x 13 in. $399

**PS Audio**

5.5 Preamplifier

Full-function preamplifier with all MOSFET circuitry. Features dual-mono power regulation; extra-large transformer; MM and MC phono sections; 5 gain selections for phono cartridge; cartridge loading, high-level bypass; remote power supply. THD <0.01%; IMD <0.01%; MM noise -82 dB; MC noise -78 dB. 19 x 2 x 12 in. $1,195

**Quad**

Quad 44 Control Unit

Preamplifier with liftd/step bass control to boost low-frequency output of small speakers, attenuate bass output when operating as filter to give 5 db drop at 2 frequencies; ±0.1 dB control that shifts tonal balance; variable filter slope control at 5,000, 7,000, 10,000, 100,000 Hz; all tone controls have defeat positions; balance/bass control; radio, aux, tape 1, tape 2 input selectors with optional microphone or MC phono inputs available. Input sens/imp 1 mV at 35 V in/47,000 ohms phono. 100 mV at 5 V in/39,000 ohms tape. 1,000,000 ohms radio and aux. FR 30-20,000 Hz ± 0.5 db phono RIAA, 30-20,000 Hz ± 0.1 db, 1 dB; high-level distortion 0.02%; residual noise -104 dBA, 8 x 3 1/2 x 5 1/2 in. $1,195

**QuickSilver Audio**

Preamplifier

Preamplifier with on/off power switch. Bandwidth 1-650,000 Hz; max input 30 V rms from 20-20,000 Hz; max output 65 V rms from 20-20,000 Hz. 3 year warranty on parts and labor. 17 x 10 x 4 1/2 in. 21 lb. $1,495

**REVOX**

B252 Preamplifier

Microprocessor-controlled preamp with input sensitivities programmable into nonvolatile memory and infrared remote control. Inputs for MM phono, MC phono, tuner, tape, tape 2, aux. phono 2, CD player, external equalizer. FR 20-20,000 Hz ± 0.2; THD <0.01%; S/N 96 dB (line input), 75 dB (phono input); MM phono sens 1.6-23 mV for 5-mV output; sens for line-level inputs 160 mV to 2.3 V. 174 x 6 x 13 in; 15 lb, 7 oz. $1,750

**Rotel**

RTC850 Tuner/Preamplifier

Tuner/ Preamp with dual gate MOSFETs in front end. Features 16 AM/FM station presets; direct signal paths; inputs for MM/MC, CD, tape, and video; full function remote; motorized volume control. Tuner section: 50-db attenuating, 15 db; video inputs for 0.5-V output at 1,000 Hz. Line stage: gain 20 dB, FR 0.2-300,000 Hz ± 3 dB; THD + noise <0.1% at 1 kHz. $4,600

**Jeff Rowland Design Group**

Coherence One Series II Preamplifier

Solid-state FET preamp with companion regulated power supply. Accepts all MM and MC cartridges directly. Direct-coupled design from input to output. Split-passive RIAA EQ. Provides inputs for 1 phono and 3 high-level inputs. Taper-rec outputs selectable from any input. Features phase reversal and full muting from front panel; separate R/L-ch balance controls; master volume; balanced outputs standard; outputs mute on power up or error. THD + noise <0.04% at 1,000 Hz. Line stage: gain 20 dB, FR 0.2-300,000 Hz ± 3 dB; THD + noise <0.1% at 1 kHz. $4,600

**SAE**

P102 Preamp

Computer direct-line preamplifier with 3 digital tone memories, electronic volume and balance controls. Features sequential audio muting for cross-fading between input sources. Inputs for MM phono, MC phono, tape, tape 2, aux. phono 2, CD player, tuner, external processor. FR 20-20,000 Hz ± 0.5 dB; THD 0.025%; IM 0.025%; IHF, max output 7.5 V; MM phono sens 160 mV for 0.5-V output at 1,000 Hz. MM phono input overload level 240 mV. $449

**Sansui**

C-1000 Preamplifier

Preamplifier with full-function remote. Features multiple audio inputs: 2 video inputs: motor-driven volume control; delay-line video enhancer; monitor output; keyboard instrument input: variable loudness: mute. Preamp output 1,000 mV/1.5 kilohms; FR 10-20,000 Hz ± 3% x 9 in. 7 lb. $190

**Sherwood**

AP-7200 Preamplifier

Features discrete pure complementary flat amplifier; switchable MM/MC phono gain amplifier; active high and subsonic filter. Loudness switch; crossover frequency for subwoofer; gold-plated phono jacks; switchable tone control
**Sonicgraphy by Conrad-Johnson**

**SCI FET Preamplifier**

All-FET preamplifier with matched-FET polypropylene and polystyrene capacitors for all audio circuits; discrete power-supply regulation, inputs for phono, tuner, CD, video, tape 1 and 2. FR 5-100,000 Hz ±0.5 dB, max output 10 V; THD 0.1%, IM 0.1%, phono overload 150 mV, 3.5 x 18 x 12 in. $1,000

**SONY**

TA-E77ESD Preamplifier

Preamp with built-in D/A section featuring 4-oversampling filter and dual D/A converters. Features 91-key programmable remote control: full A/V switching capability, 5-video and composite video terminals; source direct switch, passive tone control, independent record/output selector, adapter terminals, phono input selection, Intermodulation distortion 0.001%. THD 0.001%, separation >90 dB; FR 5-20,000 Hz ±0.5 dB. $499

**SOUNDCASTERS**

DX 4200 Preamplifier/Equalizer

Combination preamp/equalizer with digital audio and video inputs. Features in/out balancing to 0.1 dB; phone preamp has variable cartridge loading (50-800 pf, 100-47,000 ohms) adjustable ±20 dB gain; moving coil or moving magnet cartridge inputs; 3-way tape dubbing, 2 external signal-processing loops; conventional line outputs plus separate autodrive line outputs for auto mono bridging of most amps; EQ signal-to-noise ratio 114 dB; passive filter circuits with 15 dB boost or cut for each octave; differential/comparator circuitry for true 0.1 dB unity-gain equalizing. 19-in rack-mount front panel; includes frequency spectrum analyzer test chart and input impedance chart. 9 x 11 x 11 in. $749

Pro-Control Four Preamplifier

Digital C-MOS. Features five tape monitors for audio or video tape. CD, tuner, and phono inputs. Two signal processor loops, subsonic filter, and direct mode to bypass all processing: Headphone jack, auto-bias circuit to trip amplifier output. Frequency response 20-20,000 Hz ±0.1 dB; total harmonic distortion <0.005%; signal-to-noise ratio: phono 97 dB, high-level 116 dB. Rack mount front panel: 19 x 3½ x 10½ in. $699

Pro-PT Two Preamplifier/Tuner

Combination tuner/preamp features C-MOS digital switching for phono, CD, tuner, video/audio, two tape monitors with dubbing; variable loudness control; and high and low filters. FR 10-80,000 Hz ±0.5 dB; THD <0.005%; S/N 95 dB high, 80 dB phono. Tuner section: FM ±10 kHz, 10 dB per octave; AM ±60 kHz, 500 Hz to 20 kHz. $1,249

**SOUNDSTREAM**

C-1 A/V Preamplifier

System 1 component; dual mono Class A circuit features discrete component signal path; each remote-controlled component has a separate power supply for audio and switching circuits to minimize noise in the audio signal; unique digital switching circuitry links Soundstream products. Audio/video dubbing: disc-to-tape or tape-to-tape; separate record and listen circuitry permits simultaneous recording and listening or viewing; audio connections include phono (aux), tape 1, tape 2, CD, tuner; audio/video functions include VCR 1, VCR 2, video-dic, TV (output only); optional accessories: plug-in dual mono phono preamp cards, remote-controlled AC power strip, and infrared remote; includes R-1 remote control; Controls all functions of the C-1, T-1, and DA-1, or control 11 separate components, 8K byte memory directs operation of all components, 6 addition unassigned user-selectable functions. Frequency response 20-20,000 Hz ±0.1 dB; total harmonic distortion <0.005%; signal-to-noise ratio >100 dB; input impedance 30,000 ohms; input sensitivity <100mV for 0.5V out. 17 x 3½ x 11½ in. $1,495

**SU-MARK**

SU-A61MK3 Preamplifier

Stereo DC preamplifier with infasonic filter. Features shelving tone controls, selectable turn-over frequencies; audio muting, inputs for MM/MC phono, tape 1, tape 2, aux 2, phono 2, CD, player, tuner, computer, VCR, DAT recorder, TV. Max output 8 V, 17 x 3½ x 14½ in. $800

**YAMAHA**

CX-1000U Preamplifier

Digital preamplifier with hi-bit 4-times oversampling digital filter and digital-to-analog converter. Features digital direct input/output; integrated surround-sound processor, parametric equalizer, 16 memory presets combining surround-sound processor and/or parametric equalizer. Includes wireless remote control; titanium finish with high luster walnut side panels. 65 lb. $7,500

CX-1000U Preamplifier

Digital preamplifier with built-in 8-bit, 8-times-oversampling digital filter and hi-bit twin digital-to-analog converters. Features 4 digital (coaxial and optical) audio inputs and 4 video inputs, continuously variable loudness control; 5 audio rec outputs and 2 video rec outputs, 12-position rec out selector; provisions for simultaneous A/V recording on 2 VCR'S; 1 optical, 2 coaxial digital audio rec outputs; auto-sampling-frequency switching, 6-position moving-magnet or moving-coil phono cartridge load selector, source-direct switch; audio mute. Includes RS integrated system remote control. Black. 28 lb. $1,199

CX-800U Preamplifier

Preamplifier with 8 audio and 3 video inputs. Features 4 audio and 2 video rec outputs, 9-position rec out selector; provisions for simultaneous A/V recording on 2 VCR'S, source-direct switch; phase invert switch, continuously vari-
ABLABLE LOUDNESS CONTROL; 6-POSITION MOVING-MAGNET AND MOVING-COIL CARTRIDGE LOAD SELECTOR, BASS AND TREBLE CONTROLS; SUBSONIC FILTER; INCLUDES RS INTEGRATED SYSTEM REMOTE CONTROL. BLACK: 15 lb

$8,295

VHISec; IM 0.02%. 0.03% THD; 60 W/ch into 4 ohms; Slew rate 10 um, bass and treble. 40 W/ch cont from 20-

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A/V PREAMPLIFIER

AVC-70Ti Preamp
A/V preamplifier with 4-mode digital surround including Dolby Surround. Features 4-position digital delay (15, 20, 25, 30 ms); 10 audio and video inputs; 2 S-VHS inputs and 2 outputs; video monitor outputs; A/V inputs for cam-
corder; 2 sets of front channel outputs and 1 set of rear channel outputs, bass, midrange, treble, and balance controls, bass extension; separate rear channels volume control; 10 position rear out selector; motorized master volume control; Includes learning-capable 37-key multi-function remote control and RS integrated system re-

INTEGRATED AMPLIFIERS

ACCUPHASE BY MADRIGAL
E-205 80-W/ch Integrated Amplifier
Parallel push-pull output stage driven by MOS-FET devices, direct-coupled circuitry with DC serves; high-gain equalizer; MC input imp selec-
tor, 9 inputs, turnover selector switch; tape monitor and dubbing switches; subsonic filter: outputs for 2 pairs of speakers, mono switch. In-

Audio by Van Alstine
CA-150 Plus 75-W/ch Integrated Amplifier
Stereo integrated amplifier with Van Alstine FET Three Plus hybrid preamplifier circuitry. Fea-
tures 2400 V full complementary power MOSFET amp circuits driven from high-current toroidal power transformer; 2-stage power supply with isolated regulated preamp sections. Volume/balance controls; phone, CD, and tuner inputs; dual tape-to-tape monitoring and dubbing capa-

AUDIODYNAMICS

CA-2000E 100-W/ch Integrated Amplifier
Features CD-direct switch, infrasonic filter, CD, tuner, AUX, and 2 tape inputs; two phone preamps, separate low-noise Class A moving-coil preamp; dubbing capability; separate power-s-input; 20-20,000 Hz into 8 ohms, S/N 107 dB, THD <0.05%. 130 W/ch cont from 20-20,000 Hz into 8 ohms; 40 W/ch cont from 20-20,000 Hz into 8 ohms with TID $1,000.
Linn Products

Intek 50-W/ch Integrated Amplifier
Amplifier with MM and MC phono inputs. Features separate play and record paths; switchable speaker outputs; power amplifier driven headphone output. 50 W/ch into 8 ohms...$995

Luxman

LV-117 110-W/ch Integrated Amplifier
Digital-direct integrated amplifier with dual 16-bit, 38-kHz oversampling converter. Features low-inductance drive capability; 3 differentials FEI input and predriver stages per channel; dual-parallel power transistor output stages; Duo-Dual feedback-loop to widen bandwidth and improve transient response; STAR circuit topology to reduce noise and distortion. Line-switching switch for all source inputs; video switching; signal processor/pre-out jacks; optical and coaxial digital inputs. 110-W/ch min cont avg from 20-20,000 Hz into 8 ohms; dynamic output 300-W/ch into 2 ohms, 250-W/ch into 4 ohms; 160-W/ch into 8 ohms; THD 0.05%; S/N 97 dB (line-switched); IM 0.02% slew rate 12 V/sec; damping factor 50 (50 Hz, 8 ohms)...$1,200

LV-112 55-W/ch Integrated Amplifier
Integrated amplifier with discrete driver-power amp stages and bipolar output devices. Features low-inductance drive capability; high-energy power supply; Duo-Dual feedback-loop to widen bandwidth and improve transient response; STAR circuit topology to reduce noise and distortion. Line-switching switch, mono switch; bass, treble and balance knobs are linked; bass equalizer. Includes full-function remote control. 100 watts/channel rms; +5.7 dB dynamic headroom. Rack mountable...$799

McIntosh

MA-6200 75-W/ch Integrated Amplifier
Features 100 W/ch into 4 ohms. 42 lb...$1,795

Mission Electronics

Cyrus II 60-W/ch Integrated Amplifier
Stereo amplifier with high peak current delivery. Features nonmagnetic, precision-fabricated die-cast aluminum case and chassis; metal-film resistors; polypropylene capacitors; polystyrene capacitors; separate listen and record selectors; inputs for CD, tuner, hi-fi, video, tape recorder, and MM and MC phono cartridges; direct-connected, front-panel-mounted headphone socket without loudspeaker driving; drives any loudspeaker load; fully compatible. 60 W/ch; FR 20-20,000 Hz; THD 0.003% at 1,000 Hz into 8 ohms; S/N 83 dB; slew rate 10 V/sec; damping factor 100. Available in matte black and nextel gray. 8 3/8 x 3 13/16 in; 11 lb...$799

Cyrus PSA External Power Supply
Optional power supply for Cyrus II integrated amplifier. Features VA custom toroidal transformer; 4 x 15,000 µF Cyrus Silk-foil capacitors; electrically-transparent, die-cast magnesium chassis. Available in matte black and nextel gray. 8 3/8 x 3 13/16 in; 19 lb...$699

NAD

Monitor Series 3400 100-W/ch Integrated Amplifier
Bridgeable monaural/bridging amplifier with power envelope circuitry. Features soft clipping circuitry. Preamp out/main in; semi-parametric tone control; bass equalizer. Includes full-function remote control. 100 watts/channel rms. +5.7 dB dynamic headroom. Rack mountable...$399

NEC

AA-565 222-W/ch Integrated Amplifier
Integrated amplifier delivering dynamic output of 222 W, all transistor construction; separate volume controls for left, center, and right inputs; in-built-in speaker protection relay. 5-channel amplification: 30 W x 4 and 60 W x 1 (center). 3-channel BTL-mode amplification: 60 W x 3; 0.03% THD; S/N 90 dB. 17 3/4 x 13 3/4 in; 20 lb; 5 oz...$449

Nikko Audio

IA-600 120-W/ch Integrated Amplifier
Integrated amplifier that permits any source to be routed to all 4 outputs and allow the listening to one source while recording from another. Features Class AB circuitry; gold-plated input jacks; anodic copper coils; magnetic flux ring; RCA connectors for pre-out and main-in; subsonic filter; inputs for CD, tuner, MM or MC phono audio, tapé and 2, video 1 and 2, signal processor. CD direct. 20-dB muting; stereo mono switch; bass, treble and balance knobs are shared. 17 3/4 x 6 x 3 1/4 in; 50-100,000 Hz power bandwidth; THD 0.003%; S/N 94 dB, FR 5-100,000 Hz. +0 -1.5 dB...$660

Onkyo

A-8700

A-8800 100-W/ch Integrated Amplifier
Integrated amplifier with dual 18-bit linear D/A converters, 4x oversampling digital filter. Features oversized power-supply block to drive low-impedance loads; proprietary Opto-Drive D/A converters and current converter in differential amp stage; discrete output section; high-speed switching power supply with split chemical-capacitors. Optical and coaxial digital inputs; 10 inputs, pre-out/main-in terminals. 100 W/ch min rms into 8 ohms; FR 20-20,000 Hz; THD <0.008%; S/N 107 dB (CD); IM <0.005%; damping factor 100; dynamic power 310 W/ch into 2 ohms. 17 1/4 x 6 1/2 x 13 3/4 in; 32 lb...$850

A-8705 105-W/ch Integrated Amplifier
Integrated amplifier with Anti-Electromagnetic Interference (AEI) transformer. Features low-impedance discrete outputs; switching power supply with tri-terminal regulators; proprietary Opto-Drive current converter in differential amp stage; shielded four-block design. Super Servo power and equalizer stages. Source-direct mode to bypass preamp section; MM/MC inputs; switchable subsonic filter. 105 W/ch min rms into 8 ohms; FR 20-20,000 Hz; THD <0.008%; S/N 107 dB (CD); IM <0.005%; damping factor 150; dynamic power 305 W/ch into 2 ohms. 17 1/4 x 6 1/2 x 13 3/4 in; 29.7 lb...$530

A-RV400 100-W/ch Integrated Amplifier
Integrated A/V amplifier featuring discrete output circuitry and switching power supply. Selective Tone Control with 50-Hz boost; 3 video inputs; source-direct mode to bypass preamp section; simulated-stereo switch for video soundtracks; front panel display. 100 W/ch min rms into 8 ohms; FR 20-20,000 Hz; THD <0.008%; S/N 102 dB (CD); IM <0.08%; damping factor 40; dynamic power 190-W/ch into 4 ohms. 17 1/4 x 5 1/4 x 11 1/4 in; 20 lb...$400

Parasound

C/1HD650 65-W/ch Integrated Amplifier
High-current discrete control amplifier. Features variable loudness contour; bass, treble turnover selectors; CMOS switching for input, record out, 2 tape monitors; tone defeat; preamp output jacks; speaker A/B selector. FR 20-40,000 Hz; THD <0.1%; IM <0.1%; S/N >-90 dB; dynamic headroom 1.5 dB; damping factor >12; phone overload 200 mV; 17 3/4 x 6 x 3 1/4 in...$365

Philips

FA960 100-W/ch Amplifier
Integrated amp with high current/low impedance drive capability. Features dynamic power supplies and heat sinks for each channel; high accuracy phono amplifier for either MC or MM phono cartridges; muting/protection circuit. CD direct and 6 other inputs; rec selector for parallel re-
**AMPLIFIERS**

**PIONEER**
Elite A-91D 120-W/ch Integrated Amplifier
Features digital circuit for CD's, line-direct switch, nonswitching type III circuit; separate voltage- and current-amplifying stages. 2 stages, capacity, magnetically-shielded transformers, independent digital conversion circuitry, dual D/A converters, 4x oversampling digital filter; analog low-pass filter; five digital inputs (two optical); three digital outputs (one optical). 150 W/ch into 8 ohms; 190 W/ch into 4 ohms; THD <0.003%. $1,000

A-757 100-W/ch Integrated Amplifier
Nonswitcching integrated amplifier with separate voltage- and output-amplifying stages. Features line direct switch, honeycomb chassis, isolators, and heat sink; separate circuit blocks; nonswitching type III circuit; direct connection II; 6 inputs. 100 W/ch into 8 ohms; 153 W/ch into 4 ohms; FR 20-20,000 Hz; THD 0.003%. $150

**PROTON**
AM-656 60-W/ch Integrated Amplifier
Features Dynamic on Demand Power circuitry: Alpha X-balanced and super bandwidth driver, motorized volume control; 2-color LCD display; remote capability. FR 20-20,000 Hz; ±0.3 dB; distortion <0.003%. 30 W/ch into 8 ohms; 41 W/ch into 4 ohms. $60

DS40 40-W/ch Integrated Amplifier
High-current, high-dynamic-power amplifier with Dynamic on Demand (DOD) circuitry. Features phono section with MM and MC phono selections; active volume control; anti-clipping circuit. 40 continuous W/ch from 20-20,000 Hz; FR 20-20,000 Hz; THD <0.3%. $60

**REVOS**
B250-S 150-W/ch Integrated Amplifier
Preamp section has 2 separate circuits for simultaneous listening and recording from 2 different sources. 6 inputs for tuner tape 1 and 2, aux, CD and phono MM (moving coil input as an option). Each input level adjustable and can be stored in non-volatile memory. Optional video-switcher provides 4 video inputs (2 VCR, video-disc player for both sound and picture, controller via the B208 hand-held I.R. remote, Bright FL display varies in intensity with ambient light.

**SANSUI**
AU-X9111DG 100-W/ch Integrated Amplifier
Integrated amp with LDCS 1-bit D/A converter. Features independent circuitry for the left and right amplifiers, Alpha X-balanced and super bandwidth drive capability. 3 user-programmable modes: source-direct switch; source transformer coil windings; rec. selector; gold-plated headphone output. 80 W/ch min into 8 ohms; FR 20-20,000 Hz; THD <0.04%; distortion (at 1 ohm) 0.05%. $2,000

AU-X611AV 80-W/ch Integrated Amplifier
Features low-impedance drive capability, high gain phono EQ; motor driven volume control; video inputs; signal processor loop; source-direct switch; separate transformer coil windings; rec. selector; gold-plated headphone output. 80 W/ch into 8 ohms; FR 20-20,000 Hz; THD <0.05%. $1,250

**SHERWOOD**
AL-1210R 100-W/ch Integrated Amplifier
Features surround sound; low-noise phono amplifier, subsonic filter. Video sound input; loudness control; direct switch; headphone input jack. $1,000

RA-100 50-W/ch Remote-Room Amplifier
Bridgeable to 100 W mono. Features include built-in remote electronic volume, balance, system on/off, bass and treble, and master level controls, variable line outputs; input for a local audio source. Wall-mounting brackets included. Frequency response 20-20,000 Hz; signal-to-noise ratio >95 dB; THD <0.1%. 9 x 12 x 18 in. $650

**SU-AV55 50-W/ch Integrated Amplifier**
With Dolby Surround-sound. Features digital low-bass synthesis with level control; SVHS input/output terminals; 3 A/V inputs; 7 audio inputs; video out and S-VHS video out; FL display; stereoplex simulated stereo. Includes wireless remote control. Front section: 50 W/ch into 8 ohms; FR 20-20,000 Hz; total harmonic distortion <0.02%. Rear: 10 W/ch into 8 ohms; FR 20-20,000 Hz; THD <0.09%. $800

**TOSIBA**
XB-1000 125-W/ch Integrated Amplifier
Amplifier with A/V digital surround-sound processor and controller. Features 10 audio inputs; 4 video inputs; numerous A/V cross-play options; inputs include 2 tape decks, 2 VCR's. CD player, DAT deck, television, remote control; 12 digital sound effects including concert hall, night club, cathedral, stadium, and theater. 125 W/ch stereo, 50 W/ch Dolby Surround. $999

**YAMAHA**
AX-900U 130-W/ch Integrated Amplifier
Integrated amplifier with independent preamp/ power amp configuration. Features absolute linear ear amplification; high dynamic power; low-impedance drive capability. Continuously variable loudness control; preamp in/main amp out terminals; dual rec-out selectors. 130 W/ch min into 8 ohms; FR 20-20,000 Hz; THD <0.05%. Black: 42 lb. $749

AX-700U 110-W/ch Integrated Amplifier
Features absolute linear amplification; high dynamic power; low-impedance drive capability. CD-direct position, continuously variable loudness control; rec-out selector; accessory output loop 3 tape inputs; 110 W/ch min into 8 ohms; FR 20-20,000 Hz; THD <0.005%. Black: 29 lb. $599
SETTLE FOR MORE!

Speakers are the most important part of your stereo system. It is the speaker that turns amplifier signal into sound and so ultimately determines what you hear. If your speakers do not perform well, your stereo system will simply not sound like music.

The search for musically satisfying speakers, however, can lead to some very expensive products. And if you have already bought those high priced speakers, then you better not listen to Paradigms. But if you haven't, better not miss them. Why? Because from the time they were first introduced, Paradigm's sheer musical ability utterly amazed listeners… but what caused even more amazement was the unprecedented low price.

Now you can settle for more… without more expense. Visit your authorized Paradigm dealer… and listen.

The critics agree:

"… the Paradigm is no more colored than speakers costing up to two or three times its price, and gave a consistently musical performance...
Conclusion: the Paradigm offers excellent performance…"
- Stereophile Magazine

"… natural, open and clear… excellent depth… lots of hall sound… big, expansive soundstage… well defined… a rare achievement for any loudspeaker, but when the price is taken into account the Paradigm's performance must be considered as nothing short of remarkable."
- Sound & Vision Magazine
ACOUSTIC RESEARCH
CD-06 CD Player
16-bit, 4x oversampling CD player. Computer-driven laser swing arm; dual D/A converters (analog circuitry employs a Gaussian filter for minimization of filter delay); random-access programming of up to 20 tracks in any order; scanning, play, pause and volume control can be performed by remote control. Fixed level and remote variable audio outputs as well as separate digital output. Frequency response 4-20,000 Hz, ±0.5 dB; total harmonic distortion 0.007%; signal-to-noise ratio 105 dB; ch sep 92 dB. 17 x 4 1/4 x 14; 11.5 lb. $600

ADCOM
GCD-575 CD Player
Dual digital-to-analog, 4x oversampling, 16-bit linear converters. Selectable analog frequency/phase contouring circuitry; fixed and variable outputs: 3-beam laser; plays 3-in CD's. Programs up to 24 tracks in any sequence; repeats disc, track, program, or any selected sequence or phrase; audible fast scan and fast forward. Displays simultaneously total tracks up to 20. Timer display. Remote transmitter. Frequency response 2-20,000 Hz, ±0.1, -0.5 dB; S/N 105 dB; THD 0.0025%; ch sep >101 dB. 17 x 3 5/8 x 11 1/8 in. 12 lb, 6 oz. $500

AIWA
XC-005 CD Player
8x oversampling and 18-bit D/A converter. 3-beam laser, compatible with CD-3 without adapter. 30-second peak search, or real-time peak search during playback; memo file for 16 discs stores 10 characters/file, playback program, peak level, wireless remote 20-key track selection. 30-selection random programmable memory, index search; auto blank; time counter; optical and coaxial digital output; headphone jack with volume control. FR 4-20,000 Hz ±0.3 dB; THD 0.0025%; S/N 110 dB; ch sep 100 dB. 17 x 4 1/8 x 14; 11.5 lb. $550

ARCAM
Delta 170 CD Transport
For use with outboard D/A converter. Features a fully-floating diecast single-beam laser mechanism mounted on a damped sandwich construction aluminum chassis; full 64-k adaptive-error correction, master oscillator with a separate dedicated transformer and power supply that is optically isolated from the servo and microprocessor circuitry. Includes full-function remote. $1,295

AUDIO BY VAN ALSTINE
FET-Three-Plus CD Player
Drawer-loading CD player with 4x oversampling and dual 16-bit digital-to-analog converters. Features custom hybrid module output stages and film coupling capacitors; filter drivers with 30-amp current drive at 200 V/µsec for advanced equalization and remote control and advanced error-processing circuitry. Features 3-beam laser pickup; 16-track random programming, 16-bit D/A converter with 4x oversampling digital filter; CD single compatible. 16-track programmability. Frequency response 10-20,000 Hz, ±0.5 dB; total harmonic distortion 0.005% at 1,000 Hz; dynamic range 96 dB; ch sep 90 dB. S/N 96 dBA. 17 x 2 x 12 1/2 in.; 9 lb. $850

AUDIO DYNAMICS
CD-2000E CD Player
Slide-drawer-loading CD player with full-function remote control and advanced error-processing circuitry. Features 3-beam laser pickup; 16-track random programming, 16-bit D/A converter with 4x oversampling digital filter; CD single compatible. 16-track programmability. Frequency response 10-20,000 Hz, ±0.5 dB; total harmonic distortion 0.005% at 1,000 Hz; dynamic range 96 dB; ch sep 90 dB. S/N 96 dBA. 17 x 2 x 12 1/2 in.; 9 lb. $850

BANG & OLUFSEN
Beogram 4500 CD Player
Integrates with Beosystem 4500 for full remote control. 16-bit 4x oversampling, Bessel elliptical analog filter, 2 D/A converters, separate power supplies for digital and analog sections. Skip forward and back, direct access by track number; plays 3-in CD without an adapter. Black and silver finish. Frequency response 3-20,000 Hz, ±0.3 dB; signal-to-noise ratio 110 dBA, total harmonic distortion 0.0025%; ch sep >101 dB; dynamic range >96 dB. 16 x 3 x 12 1/2 in.; 9 lb, 14 oz. $800

CAMBRIDGE AUDIO
CD3 CD Player
16x oversampling and 16-bit D/A converter. Features 64k of error correction, power supplies for digital and analog stages, THD 0.0025%; dynamic range >100 dB. $700

CARVER
TL-3000 CD Player
8x oversampling and dual 18-bit D/A converter with Digital Time Lens circuitry for AAD CD's to restore original ambient effects. Features 22-track programming with dedicated keypads on remote and panel; 3-in CD capability; 3-way repeat; skip and scan functions; remote compatible with Carver receivers. FR 5-20,000 Hz ±0.2 dB; 0.002% THD at 1,000 Hz; 100 dB S/N; 90 dB ch sep, 100 dB dynamic range. 8 lb. $1,385

CONRAD-JOHNSON
DF1 CD Player/Preamplifier
CD player with preamplifier and digital filtering. CD player features noise-shaping circuitry that yields 16-bit resolution, dual D/A converters. Preamplifier features discrete FET analog circuits with discrete regulated DC power supplies; level control; aux and tape inputs; tape output. CD player: output 1.1 V; FR 5-19,000 Hz ±0.25% at rated output. Preamp: gain 26 dB; max output 5V; frequency response 5-100,000 Hz; hum and noise better than 85dB below 1.0V. THD <0.25% at rated output. $1,385

DENON
DCD-3520 CD Player
8x oversampling and dual 20-bit super-linear D/A converters. Features MBR, LC-OF channels; filter; optical isolator; 5-independent power supplies; separate digital and analog circuits, bulk molding compound pickup chassis; digital-output terminal, optical digital output terminal. Headphone jack, 20-track random programming, 10-key direct selection; index search; time search; repeat function; auto space; timer play; remote control. $1,749

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**COMPACT DISC PLAYERS**

**Harman Kardon HD7600**
8x oversampling and dual 20-bit super linear D/A converters. Features MSR, ORC analog filters, optical isolation between digital and analog stages, pickup chassis made of non-resonant bulk molding compound, dual-construction chassis. Optical and coaxial digital outputs; 20-track programmability with normal and program random play; remote volume control; headphone jack with level control; direct track access; index/time search; 3-way repeat; auto space/edit; timer play; 8-digit FL display with music calendar; programs the first 3 discs, 4x-oversampling digital filter and dual 16-bit D/A converters. Features 32-selection programmability; 31-function wireless remote; selection memory and title file memory; 3-in CD compatibility; random play; on-screen display, scan, skip, repeat functions; headphone jack with volume control; signal-to-noise ratio > 90 dB; ch sep > 80 dB; total harmonic distortion < 0.07% at 1 kHz. 171/2 x 5 5/8 x 1 13/16 in; 12.1 lb. Black. $400

**JVC XLZ1010TN CD Player**
8x-oversampling digital filter with four 18-bit D/A converters. Features coaxial and optical digital outputs; 32-track programmable. 20-track calendar display; 4-way repeat; remote volume control. Remote control. $700

**DAC-75SW CD Changer**
Twins cartridge CD changer with 2 six-disc magazines. Features 32-bit oversampling digital filter. Digital control program remote with volume; independent magazine disc exchange; 32-program random memory track search; direct, random, scanner, and repeat play; skip/manual search; real-time counter; track time counter; programmable timer; sleep timer; resume play standby; clock; Rosewood end caps. Dynamic range 95 dB; total harmonic distortion 0.004%. $550

**KINERGETICS KCD-40 Gold Series CD Player**
8x oversampling digital filter, 4 D/A converters, and 1-beam laser pickup. Features spring-isolated transport; patented hysterisis distortion cancelling circuit; no capacitor in signal path; external loop used for eliminating DC offset. Program memory from 226 discs; volume and balance.

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**STEREO REVIEW FEBRUARY 1990**

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**FISHER DAC199B CD Changer**
5-disc capacity with 8x oversampling, 18-bit digital filter and dual 16-bit D/A converters. Features 32-selection programmability; 31-function wireless remote; selection memory and title file memory; 3-in CD compatibility; random play; index search; scan, skip, repeat functions; headphone jack with volume control; signal-to-noise ratio > 90 dB; ch sep > 80 dB; total harmonic distortion < 0.07% at 1 kHz. 171/2 x 5 5/8 x 1 13/16 in; 12.1 lb. Black. $400
COMPACT DISC PLAYERS

Krell

MD-1 CD Player
Top-loading CD turntable with custom-designed toroidal transformers and 2-stage regulation limit. Features Philips single-beam CDM-3 swing arm motor drive mechanism and glass lens, 4-point suspension with solid-aluminum components and base play; optical and coaxial outputs...

Luxman

D-105U Hybrid CD Player
8x oversampling and dual 18-bit D/A converters. Features BRID Hybrid-circuit design using twin-tube vacuum tube amplification in analog output stages; Duo-Beta dual feedback-loop amp circuitry to widen bandwidth and improve transient response; optical and coaxial digital outputs; metal chassis and component shielding; high-mass magnetic disc clamp; 3-beam laser pickup; 32-track programming; random play; auto edit/fade-out for CD tapering; auto scan/ pause; timer/power-off memory; 9-key remote control. Frequency response 10-20,000 Hz; ±0.1 dB; total harmonic distortion 0.004%; signal-to-noise ratio 105 dB; ch sep 120 dB; int. 0.006%....

D-113CD CD Player without D/A Converter
CD player with no D/A or analog circuit. Designed for use with digital-direct amplifiers. Features optical and coaxial digital outputs; 3-beam laser pickup; high-density magnetic disc clamping; 16-track overall distortion; 10-key direct access; 9-key remote control; fast-scan, pause, and repeat buttons; multi-function display. Performance specifications depend on amplifier used. 17¼ x 3¼ x 12¾ in; 94 lb. $550...

DZ-111 CD Player
4x oversampling and dual 16-bit D/A converters. Features Duo-Beta dual feedback-loop amp circuitry to widen bandwidth and improve transient response; coaxial digital output; metal cladding and component shielding; high-mass magnetic disc clamp; 3-beam laser pickup; 32-track programming; random play; auto scan/pause; timer play, 9-key remote control. Frequency response 5-20,000 Hz; ±0.5 dB; total harmonic distortion 0.12%; signal-to-noise ratio 120 dB; dynamic range 96 dB; ch sep at 1,000 Hz 100 dB; 206 dB. $1,995...

Mission Electronics

Cyrus PCM II CD Player
4x oversampling, dual 16-bit D/A converters with post-DAC filter. Features 3 separate internal power supplies for analog and digital circuits; analog stages can be driven externally by optional Cyrus PSX power supply, digital output with 100-ohm removable loading plug. 29 function remote with display shut down; absolute phase inverter; low loss 6 x 1 dB stepped volume control; 20 track random programming with recall; 3-speed search; 3-mode time display; scan, program; digital output access: index selection. Frequency response 20-20,000 Hz; S/N 96 dB, total harmonic distortion 0.003% at 0 dB. 17 x 3¾ x 12 in; 14 lb. $999...

Mission Cyrus PCM II

Mitsubishi

DP-311R CD Player
4x oversampling and dual 16-bit D/A converters. Features 3-beam laser pickup. 36-track random-access programming; one-touch skip; forward/reverse search, repeat, wireless remote control...

M-C4100 CD Changer
2x oversampling, dual 16-bit D/A converters, and 5-disc tray. Features single master-clock frequency for all digital circuits, anti- resonant...
chassis. 20-track programming, audible scan; in- troscan; random play, 3-in disc compatibility; headphone jack with level control; remote control. $499

**MOD SQUAD**

**Prism CD Player**

Drawer-loading CD player with Philips 16-bit digital processing. Features internal disc damping system; 4x oversampling, wireless infrared remote control; digital data and clock timing for current synchronization and minimal jitter; fast settling, current summing amplifier stage; proprietary zero-feedback voltage regulators for analog section and for DAC converter voltage reference; all direct-coupled circuits; DC servo amplifier. 20-track random programming; repeats disc, track, program, and phrase (A/B repeat); digital time-domain alignment; fixed line outputs; output level 4 V rms; digital outputs. Frequency response 0.1-20,000 Hz, ±0.05 dB, S/N >104 dBA; ch sep >100 dB; Total harmonic distortion 0.0025% at 1,000 Hz. 17 x 4 1/8 x 13 in; 11 lb, 4 oz. $1,495

**NAD**

**Monitor Series 5300 CD Player**

4x-oversampling digital filter, dual discrete DAC converters, and 3-beam laser pickup. Features ambience circuit. Serial digital output; error display; skip/slow forward and back; displays track number and elapsed/remaining time, repeat; programmability. Includes wireless remote control with variable control. $899

**Monitor Series 5100 CD Player**

Features 16-bit D/A conversion; 4x oversampling; dynamic range circuit; 8 separate analog, digital, and mechanical power supplies. Variable and fixed outputs; normal and delete mode programming. Includes remote control with volume control. Rack mountable. $499

**Monitor Series 5170 CD Changer**

CD changer with 6-disc magazine and single play drawer. Features 16-bit D/A conversion; 4x oversampling. Multiple play, serial digital output; intro scan, random play of all discs; 32-track programmable memory. Includes remote control with volume control. Rack mountable. $699

**Nakamichi**

**OMS-7AI CD Player**

Drawer-loading CD player. Features 3-beam laser; 4x-oversampling digital filter; digital 16-bit, glitch-free D/A converters. Programming of 24 tracks in random order; display of current track number; elapsed time of current track, remaining time on disc, program stored in memory; sound audio during fast forward and fast reverse, skip forward, skip back, fast forward, fast reverse; cancel, repeat disc, program; cue by track number, index number, 7-function remote control; headphone jack with adjustable level. Max line output 2 V, headphone output 35 mW; total harmonic distortion at 1,000 Hz 0.0025%; S/N >100 dB, and cep >100 dB; frequency response 5-20,000 Hz, ±0.5 dB. 17 x 4 1/8 x 13 in; 16 lb, 5 oz. $1,995

**OMS-5AI.** Similar to OMS-7AI without remote and programming functions. $1,650

**CDP-2A CD Player**

Mid-level CD player featuring 16-bit 4x oversampling with digital filtering; dual D/A converters, third order bessel analog filter; multi-regulated isolated-ground power supplies, 24-bit memory programming function; wireless remote control with 24-key transmitter; headphone jack with level control, 3-beam laser pickup; frequency response 20-20,000 Hz ±0.5. 1.0 dB, signal-to-noise ratio >100 dB; total harmonic distortion 0.0025% at 1000 Hz. 16 1/4 x 2 1/8 x 10 in; 11 lb, 4 oz. $549

**CDC-4A CD Changer**

6-disc changer with single-disk tray. Features 8x oversampling, dual 16-bit D/A converters, 3-beam laser, 3rd-order high-cutoff bessel output filters; multi-winding multi-regulated power supply with isolated ground topology; floating disc-drive mechanism; coaxial digital output; fixed and variable analog outputs. 50-program memory; memory/time data backup, 3-way random play of programmed selections; headphone output with adjustable level; gold-plated output and headphone jacks. Includes RM-4CDC 37-key wireless remote. Frequency 5-20,000 Hz, ±0.5 dB, S/N >103 dB; THD 0.002% at 1,000 Hz, 17 x 4 x 13 1/4 in; 15 lb, 10 oz. $1,195

**CDC-3A CD Changer**

6-disc changer with single-disk tray. Features quadruple-oversampling, dual 16-bit D/A converters; 3-beam laser, 3rd-order high-cutoff bessel output filters; multi-winding multi-regulated power supplies with isolated ground topology; floating disc-drive mechanism; coaxial digital output. 50-program memory; memory/time data backup, 3-way random play. Includes RM-3CDC 32-key wireless remote. Frequency response 5-20,000 Hz, ±0.5 dB, S/N >102 dB; THD 0.0025% at 1,000 Hz, 17 x 4 x 13 in; 13 lb, 4 oz. $795

**NEC Renaissance Series**

**CD-830 CD Player**

Features 16x transversal filtering circuit; four uni-polar D/A converters, digital servo-tracking system; optical D/A coupling; A/D separate power supplies; digital output. Disc/tape edit function; auto/manual edit; digital auto fade out; auto space; tape remaining time indication; 24-track random programming; variable scene; two-speed search, wireless remote control and headphone output with volume control. Frequency response 5-20,000 Hz ±0.5 dB, signal-to-noise ratio >105 dB, total harmonic distortion 0.0025% at 1,000 Hz; ch sep >100 dB, at 1,000 Hz, 17 x 4 1/8 x 13 in; 25 lb, 6 oz. $999

**NEC CD-730**

CD-730 CD Player

Features 16x transversal filtering circuit; four uni-polar, 16 bit D/A converter; optical D/A coupling; A/D separate power supplies, two digital outputs; plays 3-in CD without an adaptor; auto/manual edit; digital auto fade out; auto space, 24-track random programming; 3-way repeat; variable into scan; 2-speed search; random play; headphone output with volume control; wireless remote control. Frequency response 5-20,000 Hz, ±0.5 dB, S/N 105 dB; THD 0.0025% at 1,000 Hz, ch sep >103 dB at 1,000 Hz, 17 x 4 1/8 x 12 in; 12 lb, 6 oz. $399

**ONKYO**

**Grand Integra DX-G10 CD Player**

8x oversampling, dual 18-bit Opto-Drive D/A converters with absolute level and 4 MSB calibration. Features five-element opto-coupling; cast-steel anti-vibration chassis, high-speed linear-motor laser transport, 3rd-order GIC-type analog output filters, separate transformers for digital and analog stages. Variable-speed disc scan and cue, 4-mode repeat; 16-track programming; 10-key direct play; time-search function; phase-reverse switch; coaxial and optical digital outputs, fixed and variable analog outputs, variable intensity display, full-function remote control. $2,500

**Integra DX-7500 CD Player**

8x oversampling, dual 18-bit Opto-Drive D/A converters with 4MSB calibration. Features opto-coupling; separate power transformers for digital and analog stages; 3rd-order GIC-type analog output filters; Poly-Sorb spacers for vibration damping; 20-track random music calendar; shuffle/timer play; optical and coaxial digital outputs; fixed and variable analog outputs; remote control. $700

**DX-3500 CD Player**

8x oversampling, dual 16-bit Opto-Drive digital-to-analog converters. Features 3-beam laser pickup; optical D/A converter; 24-track random music calendar; 10-key direct play, shuffle/timer play; 3-in CD compatibility, optical and coaxial digital outputs; remote control. $420

**DX-C500 CD Changer**

18-bit 8x oversampling, dual 16-bit D/A converters with individual MSB calibration, and 6-disc magazine. Features Opto-Coupling; 3-beam laser pickup; 40-track programming with editing capability; Music File memory for up to 340 discs; 3-mode random music calendar; 4 repeat modes; 10-key direct play, 3-in CD compatibility; remote control. $530
COMPACT DISC PLAYERS

**DXC-300 CD Changer**
18-bit 8x oversampling, dual 16-bit D/A converters with individual MSB calibration, and 6-disc magazine. Features 3-beam laser pickup, 40-track programming with editing capability, 3-mode random music calendar, 4-repeat modes, 3-in CD compatibility, remote control... $430

**Pioneer Elite PD-71**
CD player with 8x oversampling digital filter and dual 18-bit D/A converters. Features 3rd-order low-pass analog Butterworth filter, laser pickup with integral buffer amplifier, 24-track random-access programming, music window search, random play, digital fader with variable fading time, auto program edit, time edit, digital output jacks, fixed and variable outputs, headphone jack with adjustable level; FL display; 4 separate power supplies; laminated iron plate coated with polycarbonate and copper-plated honeycomb plate; coil springs with rubber dampers to support subchassis... $1,400

**PANASONIC SL-P3800C CD Changer**
4x oversampling, dual 16-bit D/A converters, and 6-disc magazine. Features high-speed linear access system; Direct access system; 36-track programming, skip and search; 2-way random play, independent disc selection, multifunction 10-key remote control... $380

**SC-SSLPS352 CD Player**
4x oversampling and dual D/A converters. Features high-speed linear access system; large insulation feet. Music matrix; 20-track programming, skip and search; track/disc/program repeat; FL display; 3-in CD compatibility; auto cue; multi-function time mode... $230

**PHILIPS CD960 CD Player**
4x oversampling, 16-bit D/A converter. Features single-beam pickup; optical coupler; diecast aluminum nonmagnetic main- and subchassis. Variable-track selection; fast track access; copy pause; 2-motor front-loading drawer; keypad track selection; 20-track random-access programming; information display; search forward/reverse keys with 3-speed search; repeat key; scan key. Includes infrared full-function remote control. FR 2-20,000 Hz; SNR > 105 dB; dynamic range > 96 dB, ch sep 103 dB, THD 0.001% 4 x 16% x 15% in 21.1 lb. $949

**CD60 CD Player**
4x oversampling, dual 16-bit D/A converters. Features Philips' exclusive Radialinear drive mechanism; motorized volume control; digital audio output terminal; optical digital output terminal; headphone jack with volume control; favorite-track selection; auto music scan. Includes full-function remote control... $429

**CDD875 CD Changer**
Six-disc changer with single-disc tray, 4x oversampling, and 16-bit D/A converter. Features aluminum front, metal chassis. 40-track programming with calendar-type display; favorite track selection; shuffle play; A-B repeat; scan play; remote volume control; headphone jack with volume control. Includes LCD remote. Optional single-disc magazine for 3-in CD's... $499

**Pioneer Elite PD-91 CD Player**
CD player with 8x oversampling digital filter and dual 18-bit D/A converters. Features 3rd-order low-pass analog Butterworth filter, laser pickup with integral buffer amplifier, 24-track random-access programming, music window search, random play, digital fader with variable fading time, auto program edit, time edit, digital output jacks, fixed and variable outputs, headphone jack with adjustable level; FL display; 4 separate power supplies; laminated iron plate coated with polycarbonate and copper-plated honeycomb plate; coil springs with rubber dampers to support subchassis... $1,400

**REALISTIC CD-6000 CD Player**
CD changer with 2x oversampling. Plays up to 6 digital, automatically variable tracks; 3-beam laser; 3x repeat, remote control; dual-mode LED display, autosearch, bi-directional audible search... $360

**CD-1600 CD Player**
CD player with 3-beam laser features skip forward and back; floating disc tray. 2-speed search forward and reverse; programs 16 tracks; 3-repeat, index search; repeat tracks; music calendar to show program contents, wireless remote needs 2 AA batteries... $250

**REVOX B226-S CD Player**
Drawer loading CD player with Revox system-remote compatibility. Features 4x oversampling 16-bit dual D/A converters; display shows track number, time remaining, time elapsed for both track and disc; fixed and variable outputs; 2-digital outputs; 19-step programming by track/index access from 1-99, audible forward/reverse search; locate function; headphone jack with adjustable level. FR 20-20,000 Hz ±0.1 dB, SNR > 100 dB; THD <0.005% ch sep > 90 dB; 17-kHz x 4%; 18-in 11 oz. $1,895

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**SANSUI CD-7711 CD Player**
Features 4 of SANSUI's exclusive LDCS 1-bit D/A converters with third-order noise shaping. Features low display shut-off switch to eliminate any excess electronic noise; free-floating suspension made up of 4 oil-damped coiled-spring isolationers; 1 optical and 1 coaxial digital output; servo processor circuits; remote control; shuffle play; scan; repeat random play; 3 speed search; automatic CD ROM switch; CD-3 compatibility. Frequency response 20-20,000; THD + noise 0.0025% at 1,000 Hz, SNR 100 dB; 17-kHz x 3%; 13% in 15.4 lb. $349

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**PROTON AC-620 CD Player**
Dual-16 bit D/A converters and programming capabilities. Frequency response 20-20,000 Hz +0.3 dB, THD 0.003%, SNR 100 dB; 18% x 15% in 17.2 lb... $700

**AC-300 H CD Player**
4x oversampling with wireless remote control. Features one-beam laser pickup, 20-track programmable memory, 3-speed music search, precise audible cueing at two lower speeds; real-time digital display of total tracks, total playing time, track number, and elapsed time of each track; repeat disc, track, and program; headphone jack with adjustable level. Frequency response 20-20,000 Hz +3 dB; dynamic range 96 dB, S/N >96 dB, ch sep 1 kHz 94 dB, THD 0.001% in 1 kHz 0.003% in 1 kHz 1.6% x 3% in 7.9 lb... $430

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**CD-3311 CD Player**
Features 4 of SANSUI's exclusive LDCS 1-bit D/A converters with third-order noise shaping. Features low display shut-off switch to eliminate any excess electronic noise; free-floating suspension between programs; program edit; time edit that will automatically scan the disc being copied and select... $1,100
COMPACT DISC PLAYERS

CD-AX10M CD Changer
2x oversampling, dual D/A converters, two 6-disc magazines, and a single-play tray. 3-in CD compatibility, random programming, variable music/nitro scan, 3 repeat modes, remote control. Frequency response 5-20,000 Hz; dynamic noise ratio 50 dB; total harmonic distortion 0.006% at 1,000 Hz; 7 x 12 in; 12 lb $500

CDP-770 CD Player
Features 18-bit 8x-oversampling digital filter; noise shaping; dual 18-bit digital-to-analog converters; optical digital outputs; servo stabilizer circuit; 20-key direct access control; 20-selection music calendar. Custom File, variable line output; optical outputs, CD-3 capability $500

CDP-R1 CD Player and DAS-R1 Converter
CD player with twin optical link between the two components. Features 45-bit 8x-oversampling digital filter; noise shaping; 18-bit digital-to-analog converters, optical and coaxial digital outputs; servo stabilizer circuit; frame and beam construction; linear motor; aluminum diecast optical pickup; left/right twin-mono circuit configuration; 6-stage power supply. Custom File; 20-key direct access remote control; 20-selection random music sensor; high-speed search; index search; shuffle play; delete option; music calendar. 17 x 344 in; 12 lb $800

CDP-C900 CD Changer
Ten-disc magazine compact disc changer with DiscJockey cartridge-loading system. Features 18-bit 8x-oversampling digital filter; dual 18-bit digital-to-analog converters; noise shaping; servo stabilizer circuit; optical digital output; ten-key direct access remote control; 5 + 10 key direct access remote control; 32-track programming; full function remote control. 17 x 5 x 154 in; 13 lb, 4 oz $500

CDP-200 CD Player
Features high dynamic range; optional ten-key pad on front panel; memory programming; three-way repeat; program all-the-music sensor; shock resistant disc handling; optical digital output; ten-key pad on front panel; memory programming; three-way repeat; program all-the-music sensor; shock resistant disc handling $599

SHEFFIELD CD-1188R CD Player
8x oversampling with 16-bit digital-to-analog converter. Features 14-bit DAC programmability; random play; disc/track elapsed-time display; four-way repeat; headphone jack with volume control; 20-20,000 Hz ±0.5 dB; signal-to-noise ratio 91 dB; total harmonic distortion 0.004% at 1,000 Hz $630

CDM-1200R CD Changer
6-disc carousel compact disc changer with 6-disc capability. Features 32-track random access programming; memory backup function; single and all repeat function; 2x-oversampling digital filter; FL multi display with music schedule; 3-beam laser pickup; 10-key direct program; search up/down; auto program search; auto program circuit; frame and mode indicator; infrared remote control with 10 keys. $430

SHERWOOD CD-1182R CD Player
8x oversampling with 16-bit digital-to-analog converter. Features 14-bit DAC programmability; random play; disc/track elapsed-time display; four-way repeat; headphone jack with volume control; Digi-Link remote control. Frequency response 2-20,000 Hz ±0.5 dB; signal-to-noise ratio 91 dB; total harmonic distortion 0.004% at 1,000 Hz $299

CDP-808ESD CD Player
Compact disc player with digital sync. Features 45-bit 8x-oversampling digital filter; noise shaping; dual 18-bit linear digital-to-analog converters, optical and coaxial digital outputs; servo stabilizer circuit; frame and beam construction; linear motor; discrete left and right twin-mono circuit; multiple-stage power supply; twenty-selection random music sensor; high-speed search; index search; six repeat modes; shuffle play; delete option; music calendar. Includes 20-key remote control. 18 x 5 x 16 in; 12 lb $2,000

SOUNDCRAFTSMEN CD750 CD Player
CD player with differential/comparator circuitry. Features high dynamic range; optional ten-key pad on front panel; memory programming; three-way repeat; program all-the-music sensor; shock resistant disc handling; optical digital output; ten-key pad on front panel; memory programming; three-way repeat; program all-the-music sensor; shock resistant disc handling $599

TEAC PD-480 CD Player
8-times-oversampling and dual digital-to-analog converters. Features 20-selection random memory programming; three-way repeat, program delete; ten-key pad on front panel; memory program calendar; auto space; multi-function eight-digit display $470
<table>
<thead>
<tr>
<th>Compact Disc Players</th>
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<tr>
<td><strong>SL-P1300 CD Player</strong> 8-times-oversampling digital filter and four 18-bit digital-to-analog converters. Features separate digital and analog power supplies, Class AA sample-and-hold circuitry; high-speed linear-motor access system; 10-button keypad; auto-cue; A/B repeat; ±8% pitch control; optical and coaxial digital outputs; 2-speed search dial; audible pause; rocker switch for mixing; cueing by direct CD time code: balanced outputs; skip keys; 2-speed audible search; repeat track, disc, and program; headphone jack with adjustable level; line out via unbalanced (phono) pin connectors; subcode output; full-function fluorescent display; cue search. Includes remote control. 6 5/8 x 16 1/8 x 14 3/4 in.</td>
</tr>
<tr>
<td><strong>SL-1999 CD Player</strong> Four 20-bit D/A converters and 8x-oversampling digital filter. Features Class AA circuitry, discrete low-noise active servo power supply, anti-vibration/resonance multi-layer chassis construction; high-speed linear motor access system; dual aspheric glass lens; 32-track random access programming; skip and index skip; 20-key direct-access system; auto cue, auto space; optical digital output; sample-and-hold noise suppression; edit guide; random play; search play; window search; peak-level search; FL display; timer play; 3-in CD compatibility. Includes 43-key remote control. Frequency response 2-20,000 Hz ± 0.5 dB; signal-to-noise ratio 93 dB; total harmonic distortion 0.008%; channel separation 98 dB. 17 5/8 x 31/2 x 11 3/4 in; 8.4 lb.</td>
</tr>
<tr>
<td><strong>SL-P770 CD Player</strong> 4x-oversampling digital filter and four 18-bit D/A converters. Features separate digital and analog power supplies; OFC wiring; high-speed linear-motor access system. Optical and electrical digital outputs; auto-cue; signal output meters; full-function FL display; linear matrix track and programming indicator; 20-key direct access; random shuffle play; 24-track random access program; disc window; 2-speed audible search; peak-level search for taping; CD edit; music scan; A/B repeat; track repeat; dimmer switch; gold-plated output jacks; 32-track programmable timer play; remote control</td>
</tr>
<tr>
<td><strong>Yamaha CDX-2020 CD Player</strong> Hi-bit 8x-oversampling digital filter and 4 hi-bit, MSB digital-to-analog converters; this produces 22-bit linearity. Features hi-bit switchable direct output; digital de-emphasis circuitry; current isolation system; built-in regulated power supplies and independent transistors; microcomputer controlled 2-way servo system; heavy-duty chassis with 20-bit digital volume control; optical and coaxial digital output connectors; auto/manual tape edit program; 3-in CD compatibility; 5-way repeat play; 24 track random access programmable; direct track access; 3-way music search; index search; calendar display; random play, gold-plated terminals; RS integrated system remote control compatibility. Includes 47-key wireless remote control. Titanium finish. 22 lb.</td>
</tr>
<tr>
<td><strong>Siemens SL-P260 CD Player</strong> 4x-oversampling digital filter and four 18-bit D/A converters. Frequency response 2-20,000 Hz ± 0.5 dB; signal-to-noise ratio &gt; 100 dB; total harmonic distortion 0.008%; channel separation &gt; 98 dB. 17 5/8 x 31/2 x 11 3/4 in; 8.4 lb.</td>
</tr>
<tr>
<td><strong>Toshiba XR-9037 CD Player</strong> 2x oversampling and remote control with volume. Features digital peak search, 20-program random memory, digital filter.</td>
</tr>
<tr>
<td><strong>Toshiba XR-9068 CD Changer</strong> CD changer with 8x-oversampling capacity and single-play drawer. Features 2x oversampling, 3-beam laser pickup; 32-track random programming. 32-key wireless remote control; intro scan; random play; 9-bit multi-function display; cumulative time display; Auto cue and review; shuffleable search; fast forward and reverse; integrated system remote capabilities.</td>
</tr>
<tr>
<td><strong>Toshiba SL-PC20 CD Changer</strong> 5-disc CD changer with revolving disc platform. Features 4x oversampling digital filter, dual 16-bit D/A converters. Sequential play; 20-step random access programming; direct disc access; repeat play. 2-color FL display. Includes 25-key wireless remote control. Frequency response 2-20,000 Hz ± 1 dB; signal-to-noise ratio 96 dB; THD 0.05%; 17 x 33 x 14 1/4 in; 8 lb...</td>
</tr>
<tr>
<td><strong>Vector Research VCD-420R</strong> Features 4x oversampling, dual D/A converters. Digital filter. Music calendar; CD3 compatible; 3-way cue &amp; review; 4-way repeat; 18-function remote control. Frequency response 20-20,000 Hz ± 0.5 dB; signal-to-noise ratio &gt; 90 dB; THD 0.004%; ch sep &gt; 90 dB; dynamic range &gt; 95 dB; 17 3/4 x 12 in; 9 lb.</td>
</tr>
<tr>
<td><strong>Vector Research VCD-420R CD Changer</strong> Features 4x oversampling, dual D/A converters. Frequency response 20-20,000 Hz ± 0.5 dB; signal-to-noise ratio &gt; 93 dB; total harmonic distortion 0.05%. 17 x 33 x 14 1/4 in; 13 lb.</td>
</tr>
<tr>
<td><strong>Vector Research XR-9058 CD Changer</strong> Features hi-bit 8x oversampling, dual D/A converters. Frequency response 20-20,000 Hz ± 0.5 dB; signal-to-noise ratio &gt; 95 dB. 17 1/4 x 3 1/2 x 11 3/4 in; 8 1/2 lb.</td>
</tr>
<tr>
<td><strong>Vector Research XR-9037 CD Player</strong> 2x oversampling and remote control with volume. Features digital peak search, 20-program random memory, digital filter.</td>
</tr>
<tr>
<td><strong>VCD-420 CD Player</strong> Double-resolution 16-bit digital filter and twin hi-bit D/A converters. Features hi-bit switchable direct output; current isolation system; microcomputer controlled 2-way servo system; glass lens 3-beam laser pickup with built-in head amplifier in high-precision diecast aluminum chassis. Coaxial digital output; auto/manual tape edit program; 3-in CD compatibility; 5-way repeat play; 24 track random access programmable; index search; calendar display; 4-mode program (random, tape edit, delete, manual); 8-digit multi-function fluorescent display; headphone jack with level control; anti-resonance, anti-vibration design; RS integrated system remote control compatibility. Includes 45-key wireless remote control. Titanium finish. 15 lb.</td>
</tr>
<tr>
<td><strong>Yamaha CDX-820Ti CD Player</strong> Hi-bit 8x-oversampling 18-bit digital filter and twin hi-bit D/A converters which produce 22-bit linearity. Features hi-bit switchable direct output; digital de-emphasis circuitry; current isolation system; microcomputer controlled 2-way servo system; heavy-duty chassis with ballpoint damping system; glass lens 3-beam laser pickup with built-in head amplifier in high-precision diecast aluminum chassis. 20-bit digital volume control; optical and coaxial digital output connectors; auto/manual tape edit program; 3-in CD compatibility; 5-way repeat play; 24 track random access programmable; direct track access; 3-way music search; index search; calendar display; random play, gold-plated terminals, RS integrated system remote control compatibility. Includes 47-key wireless remote control. Titanium finish. 22 lb.</td>
</tr>
<tr>
<td><strong>Yamaha CDX-920</strong> CD changer with 10-disc magazine. Features 18-bit, 4x-oversampling digital filter: D/A converter; three-beam laser pickup; microcomputer-controlled 2-way servo system; 3rd-order low-pass analog filter; 32-track random access programming; memory play; random play, disc scan: music scan; three-way repeat; index search; headphone jack with adjustable level; includes wireless remote control. Black...</td>
</tr>
</tbody>
</table>
**TUNERS**

**ACCPHASE BY MADRAGIL**

T-106 AM/FM Tuner

Quartz-locked synthesis; 14-station random memory; pulse tuning; double-tuned front end.

FM stereo demodulator, AM synchronous detector; signal-strength meter; peak-modulation meter; MPX filter, sel switch, muting switch. FM section: 50-DB mono 17 dB, stereo 17 dB. S/N 83 dB stereo, 79 dB mono at 80 dB A-weighted.

TF 10-600,000 Hz +0.5 dB, capture ratio 1.5 dB, sep 50 dB at 1000 Hz, AM sup 80 dB at 65 dB. AM section: sens 20 μV at 20 dB S/N, 176 x 5 x 14 1/4 in. $2,750

**T-107 FM Tuner**

Electronic tuning; 12-station random memory; auto sweep for FM reception; double-tuned front end to reject interference and intermodulation; differential gain linear FM detector; IF filters with flat groupdelay characteristics; resonator-controlled stereo demodulator; multipath and signal-strength meter; MPX filter; muting switch; champagne-gold or anodized-black finishes. FM section: 50-DB quieting sens 17 dB, S/N stereo 85 dB, FR 10-16,000 Hz ±3 dB, capture ratio 1.5 dB, sep 50 dB at 1000 Hz, AM sup 80 dB at 65 dB Adj-ch sel 30 dB, 176 x 4.5 x 13 in. $1,800

**ACOUSTIC RESEARCH**

T-06/RF AM/FM Tuner

Features a built-in infrared receiver which can be linked to the A-07 and/or RD-06. FM section: 50-DB quieting sens mono 14.6 dB, stereo 37.2 dB, AM rej 60 dB, cap ratio 1.5 dB, S/N 78 dB mono, 73 dB stereo (at 65 dB A-weighted). FR 30-15,000 Hz, ±1.0 dB, sep 45 dB. AM section: S/N 50 dB. 176 x 3 x 12 in. $330

T-06/AM/FM Tuner. Same as above, without remote control facility. $400

RC-03. Remote control for the T-06/RF. $25

**ADCOM**

GFT-555 11 AM/FM Tuner

Features microprocessor operating system for remote-control operation, digital volume and tone controls, and alphanumeric display. Remote IR receiver capability for multi-room remote control; digital-synthesis tuning with 30 AM/FM stations, optional remote control via RCA. Preamp section: max output >2 V RMS into 10,000 ohms/1000 pF, volume and balance control range 80 dB in 1-DB steps, bass and treble control range ±10 dB in 2-DB steps, low bass 0 to +6 dB in 1-DB steps. FM section: sens <13 dB mono, 50-DB quieting sens <40 dB stereo, capture ratio <1.5 dB, sel >65 dB; spurious rejection >100 dB. AM section: sens <13 dB mono, 50-DB quieting sens <40 dB stereo, capture ratio <1.5 dB, sel >65 dB; spurious rejection >100 dB. stereo S/N >70 dB, sep at 1,000 Hz >24 dB. AM section: sens for 6 dB S/N <10 μV, I/F rejection >30 dB, S/N 44 dB. 24 x 17 1/2 x 14 1/4 in. $850

**A/D/S/CC4 CAMBRIDGE AUDIO**

T50 AM/FM Tuner

Analog tuner with digital frequency display and 6 AM/FM presets. Features flywheel-assisted rotary knob, 3-color FM tuning indicator and logarithmically-scaled signal strength meter; automatic frequency control (AFC) switch; mono, stereo switch. FM section: sens 1.4V; tuning range 87.5-108 MHz; stereo S/N 70 dB; stereo S/N 68 dB, cap ratio 1.5 dB. AM section: MW, 16,000, 18,000, 1,600-2,700 Hz signal-to-noise ratio 50 dB ref 30% modulation. 17 x 10 1/2 x 2 1/4 in. $449

**ARCAM**

Delta 80 AM/FM Tuner

Analog tuner with digital frequency display and 6 AM/FM presets. Features flywheel-assisted rotary knob, 3-color FM tuning indicator and logarithmically-scaled signal strength meter; automatic frequency control (AFC) switch; mono, stereo switch. FM section: sens 1.4V; tuning range 87.5-108 MHz; stereo S/N 70 dB; stereo S/N 68 dB, cap ratio 1.5 dB. AM section: MW, 16,000, 18,000, 1,600-2,700 Hz signal-to-noise ratio 50 dB ref 30% modulation. 17 x 10 1/2 x 2 1/4 in. $600

**Atelier T2 AM/FM Tuner**

Atelier T2 AM/FM synthesized tuner with 16 station presets and auto FM search circuit. Features flywheel manual tuning; fine-tuning control; switchable muting; high-blend control; LED frequency display, center tuning plus signal-strength displays; AC outlets. FM usable sens stereo 1.0 μV (11.0 dB) stereo 5.5 μV (26.1 dB); stereo 50-DB quieting sens 15 μV (34.8 dB), S/N mono >70 dB, stereo >65 dB, FR 10-14,500 Hz, ±0.1 dB, ch sep >38 dB at 10,000 Hz, capture ratio <1.8 dB, AM quieting sens <5 μV for 6 dB S/N, image rejection >53 dB, S/N (with 1,000-Hz 5-mV signal) >44 dB, 248 x 17 1/2 x 14 1/4 in. $539

**AVIATION BY VANALSTINE**

T-06 AM/FM Tuner

Features birdie filter single glass-fiber printed circuit board, stereo AM/FM antenna included. Stereo sens 18.6 dBf IHF; cap ratio 82 dB, stereo 50-DB quieting sens stereo 34 dBf, mono 13 dBf, THD 0.15% at 1,000 Hz, S/N 65 dB, FR 15-15,000 Hz ± 3 dB, capture ratio 1.4 dB; sep 47 dB at 1000 Hz, adjacent-ch rejection 90 dB. 19 x 3 1/4 x 13 in. $2,395

**AUDIO DYNAMICS**

T2000E AM/FM Tuner

Programmable AM/FM tuner. Features remote-control capability; Schott noise reduction; interference rejection. 10 AM/10 FM station presets. 50-DB quieting sens: mono 16.2 dBf, stereo 40 dBf; S/N stereo 70 dBf, FR 20-15,000 Hz, ± 1 dB, all-ch sel 67 dB, capture ratio 1.5 dB, 17 x 20 x 12 3/4 in. $349

**CARVER**

TX-11b AM/FM Tuner

Digital-quartz-synthesized tuner with asymmetrical charge coupled FM detector circuit to reduce multi-path distortion. Features AM stereo section with separation 35 dB and S/N 77 dB. FM signal-strength meter; 13 random AM/FM presets; wide/narrow bandwidth selector, indoor AM/FM antenna included. Stereo sens 16.3 dBf IHF, cap ratio 1.0 dB, AM suppression 75 dB; stereo all-ch sel 110 dB, stereo THD 0.02% at 1,000 Hz, stereo signal-to-noise ratio 82 dB. 11 lb. $750

**CREEK AUDIO**

T-12 AM/FM Tuner

Quartz-synthesized AM/FM tuner with asymmetrical charge coupled FM detector circuit to reduce multi-path distortion. Features AM stereo section with preset scan, analog signal-strength meter, wireless remote; indoor AM/FM antenna included. Stereo sens 18.6 dBf IHF, cap ratio 1.45 dB, AM suppression 72 dB, all-ch sel 60 dB, THD 0.02% at 1,000 Hz, S/N 76 dB. 10 lb. $400

**CREEK AUDIO**

T-10 AM/FM Tuner

FM tuner with discrete audio stage. Features iso- lated active output circuits; all metal-film resistors and capacitors; Class A current-source precursors: separate shunt-regulated and filtered power supply. Electronic signal seeking; digital readout; nonvolatile station presets; mono/stereo switching; variable tuning between step capability. 17 x 9 x 3 in; 10 lb. $825

**FET THREE**

FM tuner with Overload-Immune FET integrated circuitry in the audio stages. Features film coupling capacitors; optimized power supply decoupling circuits. Electronic signal-seeking; digital readout; nonvolatile station presets; mono/stereo switching; variable 1,000 Hz, headphone jack. 17 x 9 x 3 in; 9 lb. $525

**FREQUENCY RESPONSE**

**REVOLUTION FEBRUARY 1990**

106
Anyway you look at it, or listen to it.

Proton's 600 Series Stands Apart.

Sculpted for dramatic impact, and designed for ease of use, Proton's 600 Series components fit elegantly into any environment. Seldom used controls are concealed, yet revealed at the touch of a button. Cables, hidden by rear panel covers, disappear into the pedestal of this sleek, free-standing unit.

And naturally, the sound is pure Proton. With high performance technologies like Dynamic Power on Demand™ (DPD), the new Schotz II tuner circuitry and the exclusive Aphex® Aural Exciter™, 600 Series components provide absolute clarity and realistic reproduction for incomparable listening pleasure.

The series includes the AM-656 Integrated Amplifier, the AT-670 Tuner, the AV-646 AM/FM Receiver, the AD-630 Auto Reverse Cassette Deck, the AC-620 Compact Disc Player and the matching AC-600 pedestal. Each component can be controlled with the versatile AH-681 remote, which also controls select Proton video products.

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For a free brochure and the Proton retailer nearest you, call (800) 772-0172. In California, (800) 428-1006. Or write to 5630 Cerritos Ave., Cypress, CA 90630.
### TUNERS

**DBX**

11-3M4111 AM/FM Tuner

Tuner with Schott NR for superior reception in difficult conditions. Features 8 AM and 8 FM presets; auto hi-blend eliminates excessive noise; seek. Fr. 20-15,000 Hz ±0.35 dB; 0.07% THD. $599

**DENON**

TU-800 AM/FM Tuner

Features twin-driver PLL circuits; digital-synthesis tuning with low-impedance output. 3-step 1kHz bandwidth selection; 30-station random preset memory; MXP/NR switch; auto-scan tuning; manual tuning; manual tuning; select-channel tuned memory; FL display; FM 50 dB quieting sensitivity 20 μV (37.2 dB) stereo. 1.6 μV (15.3 dB) mono; S/N 96 dB mono, 86 dB stereo; capture ratio 1.2 dB; AM sup 70 dB. 17½ x 2½ x 14½ in; 10 lb. $500

**JVC**

FX1010TN AM/FM Tuner

Computer-controlled quartz-PLL digital-synthesis tuner with Optinalk system for reduced digital noise. Features 40 AM/40 AM/FM station presets; auto memory; preset scan; variable stereo level; digital-signal-strength indicator; 6-column alphanumeric display; 2 antenna inputs; program memory and monitor for recoring off the air unattended; record calibration signal generator; titanium fine-tuning. $540

**KINERGETICS**

KT-990 AM/FM Tuner

Quartz-synthesis AM/FM tuner with Direct Linear Loop Detector (DLLD) to preserve dynamic range. Features Direct Linear Reception Circuit (DLRC) to reduce digital noise; Direct Pure Decoder (DPD) to improve stereo separation; variable power supply; digital rotary tuning; 20 station presets; auto-quieting control; manual/auto FM/FM-bandwidth selectors; RF selector; rec calibrator; 3-station timer programming. FM 50 dB quieting 38.8 dB stereo; AM 76.0 dB; capture ratio 1.0 dB; alt-ch sel 60 dB; AM: sel 30 dB. 17½ x 3 x 13 in; 8.8 lb. $795

**LUXMAN**

T-117 AM/FM Tuner

Digital-synthesis tuner with twin FM detectors: high S/N pulse-count detector for strong signals and PLL detector for weak signals. Features computer-analyzed tuning system that continuously samples radio signal-levels to optimize reception. Dual-gate MOSFET front-end circuit; 24 AM/FM presets; selectable FM/IF bandwidth; record-calibration button; cable FM fine tuning (25 kHz increments); unattended program recording; timer-programmer system; auto-seek/manual tuning button with indicator; IF wide/narrow indicators. FM section: 50 dB quieting sensitivity 36 dB; FM: AM rej 70 dB; cap ratio 1.5 dB; alt-ch sel 80 dB (narrow); S/N 78 dB (stereo). AM section: S/N 48 dB; 17½ x 2½ x 12½ in; 10 lb. $600

**MARANTZ**

ST 54 AM/FM Tuner

Quartz-synthesis digital-synthesis tuner. Features 20 station preset memory (16 FM/8 AM plus wide/narrow bandwidth setting for each preset); retains memories for 2 weeks without AC or battery; switchable wide/narrow bandwidth. $780
MCINTOSH

MR-7082 AM/FM Tuner

AM/FM tuner with Signal Locked Loop tuning system. Features electronic memory for 7 AM and 7 FM stations, digital frequency readout, CVCS-FET RF amplifier, dual-balanced mixer, PLL MPX decoder, audio-output suppression circuits for 19 kHz and 38 kHz carrier: LED tuning meter: electronically regulated power supply: internal ±15 V power supplies/ground wiring for all major sections. Uses 19 kHz and 38 kHz carrier. RF (distant/local), IF band AM; RFI 30-15,000 Hz; ±0.5 dB. 17 1/4 x 4 1/4 x 13 1/4 in; 15.5 lb. $990

NAD Monitor Series 4300

ST 54 BL. As above, black with rosewood side panels $500

NIKKO AUDIO

Gamma-600 AM/FM Tuner

Tuner with if detection changing circuitry to assure minimum tuning deviation. Features MPX hold circuitry: oversized display, ceramic filter, differential if amplifier circuitry. Variable high blend, memory can: stereo muting switch; if band selector. 50 dB quieting settings, mono 13.5 dBf; stereo 38.2 dBf. AM freq 70 dB: ratio wide 1.0 dB; wide 2.0 dB: alt-ch sel: wide 40 dB, narrow 80 dB; S/N 79 dB stereo. 86 dB mono. FR 30-15,000 Hz +1 dB, 19x 3 1/4 x 13 1/4 in. 9 lb. $440

Gamma-400. Similar to above. 17x 3 9/16 x 13 1/2 in. $420

ONKO

Grand Integra T-G10 FM Tuner

FM tuner with 5-mode APR (Automatic Precision Reception) system that can be operated automatically or manually to optimize reception: A/B antenna, RF (distant/local), IF bandwidth (wide/narrow/S-narrow), hi-biend (on/off), and stereo/mono. Battery-free memory backup, high sensitivity and selectivity, chassis damping. Dual antenna inputs; 20 station presets with cable FM fine tuning; timer preset programming; remote compatible. Controller included. Wood side panels... $850

Grand Integra T-90901 FM Tuner

FM tuner with dual-mode PLL circuit and SFR (Sonic Filter Circuit) to improve tuning accuracy. Features same APR reception system offered in T-G10 tuner: power-supply filter: Dual antenna inputs, 31-key remote control; 20 station presets with: auto strong-station memory; multi-function bar-graph meter. 32-0, mono, 30-0V stereo: AM reject 65 dB; mono 50 dB; stereo 50 dB quieting settings. 16 station presets, output level controls (R + L independently). FM IF has 170 µV (10 dBf), stereo 3.9 µV (17 dBf), FM usable settings 1.7 µV (10 dBf), stereo 3.9 µV (17 dBf), 50-dB quieting settings 2.7 µV (14 dBf), stereo 4.7 µV (28 dBf). THD stereo 0.08%; mono 0.09% at 1 kHz 80 dB mono, FR 20-15,000 Hz ±1 dB. capture ratio 1.9 dB, sep 55 dB at 1 kHz; AM suppression better than 60 dB, all-ch rejection >60 dB. 17x 3 1/4 x 13 1/4 in. 10.3 lb. $795

MISSION ELECTRONICS

Cyris AM/FM Tuner

Digital-synthesis, quartz-PLL tuner with 59 AM and 59 FM presets. Features magnesium diecast chassis: aluminum diecast cover and front: toroidal transformer. Full-function remote: programmable 15 dB volume control; display off direct station accessing: scan: handset disable: 2-mode operation: automatic storing: flip and browse facility. 8 3/4 x 1 3/4 x 13 1/2 in. $649

NAD Model Monitor Series 4300 AM/FM Tuner

Features digital frequency synthesis tuning, 8 AM/FM presets: IF wide/narrow; FM NR. Stereo separation 55 dB, selectivity 80 dB; image rej 120 dB; S/N >80 dB. Rack mountable... $499

Model 4225 AM/FM Tuner

Features ultralink IF filters: switchable blend circuit. 14 AM/FM presets: S/N 75 dB. $75... $249

Nakamichi

ST-7 AM/FM Tuner

Tuner with Schott noise reduction. Features 5-segment signal/multipath meter, PLL circuitry. $420

Pioneer

Elite F-91 AM/FM Tuner

Digital-synthesis/PLL tuner. Features ARTS (Active Real-Time Tracking System) with active IF filter, digital decoding, 4-gang tuning capacitor: MOSFET circuits, 24 AM/FM station presets; 3-position muting level: remote compatible: honeycomb chassis. THD 0.02%; alt ch sel 85 dB, S/N 92 dB... $600

F-656 AM/FM Tuner

FM section: 50-dB quieting settings. 15 0.9 dBf; stereo 37.3 dBf, cap ratio 1.0 dB; S/N (at 80 dB) mono, 86 dB, stereo, 81 dB, FR 20-15,000 Hz +0.4, -1 dB. 16 3/4 x 3 1/2 x 12 in... $325

Proton

AT-870 AM/FM Tuner

PLL synthesis AM/FM tuner with Schott II tuning. Features rotary knob: 2-color display; 18 FM and 9 AM presets, remote capability: 50 dB sans 32-µV mono, 30-µV stereo; AM rejection 65 dB; cap ratio 1.0 dB, S/N 83 dB mono, 74 dB stereo. 18 lb x 4 1/4 x 15 1/2 in; 15.5 lb... $400

Quad FM4 FM Tuner

FM stereo tuner designed to be used with Quad 44 preamp. Features 8 & pushbuttons: direct station presets, tuning knob, power switch, bar-graph meter to indicate signal strength, center-channel tuning: dedicated microprocessor that recalls desired station from memory, tunes it, automatically sets proper frequency for non-volatile memory. allows simultaneous tuning of multiple stations: stereo separation remains for up to 3 years. THD 0.05% 1 kHz, mono 0.09% 1 kHz, mono stereo 0.05% stereo/distortion >10 kHz, mono 0.09% stereo/distortion >10 kHz, mono stereo 0.05% stereo/distortion >10 kHz. Mono stereo 2.5 dB; sel 53 dB, image/rejection 80/100 dB, frequency response 20-15,000 Hz +0.4, -1 dB; croakel 40 dB at I kHz, pilot-tone suppression 60 dB, de-emphasis switchable: 50/75 Hz. 8 x 1 9/16 x 5 in... $695

Revox B260-S

FM stereo tuner stores 60 preset stations with reception modes in non-volatile memory. Allows user to arrange stored stations into separate groups for scanning. Maximum S/N >80 dB; THD 0.07%; alternate-channel selectivity: FR 20-15,000 Hz ±0.5 dB. 17 1/4 x 4 1/4 x 13 in; 15.5 lb... $2,500

B160 FM Tuner. Similar to B260-S but stores up to 30 preset stations... $990

Rotel

RT870 AM/FM Tuner

Quartz-PLL tuner with 16 AM or FM presets. Fea-
**SAE**

**T-102 AM/FM Tuner**

Computer direct-line digital tuner with 16 station presets. Features auto and manual tuning, IF narrow, high blend. FM section: 50 dB quieting sensitivity 12.6 dB (mono); total harmonic distortion at 60 Hz: 0.12% mono; 0.2% stereo. AM section: 75 dB (stereo), 55 dB (mono). 17 x 3 x 12 in. 15 lb. $329

**SANSUI**

**TU-X711 AM/FM Tuner**

Quartz PLL synthesis tuner with Super Linear Digital decoder. Features RF-mode selector, IF-bandwidth selector, record calibrator, 2 separate antenna inputs; 30 station presets and a numeric keypad for instant station recall; preset scan. Usable sensitivity 10.8 dBf; 50 dB quieting sensitivity 16.2 dB (mono); total harmonic distortion at 85 dBf <0.009% (mono), 0.15% (stereo); 17 x 3 x 12 in. 11.2 lb. Black finish... $625

**TX-301i AM/FM Tuner**

Quartz PLL digital synthesis tuner with 30 AM/FM station presets. Features numeric keypad for instant recall; 5-scene preset station scan, pale blue indicators. FM section: 50 dB quieting sensitivity 18.0 dBf (mono), 38.0 dBf (stereo); signal-to-noise ratio 79 dB (mono), 73 dB (stereo); total harmonic distortion 0.1% (mono), 0.15% (stereo); 7 x 3 x 9 in. 4 lb. Black matte finish... $250

**SHERWOOD**

**TD-7010R AM/FM Tuner**

Quartz PLL synthesis tuning system. Features 3 pairs of IF ceramic filters; MOSFET front end. Digi-Link remote system; digital display; auto/manual scan; 30 station presets; preset scan switch; 10-segment signal-strength meter; high random access; auto-scan; FM signal-strength display... $380

**SHURE**

**SONY**

**ST-S300ES AM/FM Tuner**

Features radial power-supply design, automatic microprocessor exclusion circuit master clock, SST Super Sound Tracking. Wave Optimized IF steps for tuning off frequency stations. Separate audio and switching power supplies. Flywheel-assisted manual tuning knob for fine reception adjustment; 16 presets and complete station scan; search, strength indicator. Remote control includes DC circuit construction; DC linear IF filters; Wave Optimized direct detector; Wave Optimized digital stereo decoder; direct comparator circuitry. Signal-to-noise ratio 92 dB (stereo). 100 dB mono; total harmonic distortion 0.007% stereo, 0.004% mono; sensitivity 10.5 dBf (stereo), 9.0 dBf (mono); signal-to-noise ratio (at 400 kHz) 70 dB; stereo separation 70 dB at 1,000 Hz. 3 x 18 x 14 in.; 12 lb. 6 oz. $550

**SOUND CRAFTSMEN**

**Pro-Tuner Four AM/FM Tuner**

Digital quartz-PLL tuner with 16 station presets. Features auto seek forward/reverse; 8 presets for AM/FM; tunes FM in 4 increments (50.000 Hz spacing), allowing fine tuning; dynamic impulse noise reduction system; linear-phase IF filters. Auto seek forward/reverse; 8 presets for AM/FM; gold-plated output jacks. 50 dB quieting mono 16 dBf; stereo 34 dBf; usable sensitivity 11 dBf mono, alternate-channel selectivity 75 dB; capture ratio 1.0 dB; signal-to-noise ratio mono 85 dBf, stereo 82 dBf. 19 x 8 x 14 in. $729

**SUMO**

**Audio AM/FM Tuner**

Digital synthesis AM/FM tuner with rotary tuning. Features auto seek forward/reverse; 8 presets for both AM/FM; tunes FM in 4 increments (50.000 Hz spacing), allowing fine tuning; dynamic impulse noise reduction system; linear-phase IF filters. Auto seek forward/reverse; 8 presets for both AM/FM; gold-plated output jacks. 50 dB quieting mono 16 dBf; stereo 34 dBf; usable sensitivity 11 dBf mono, alternate-channel selectivity 75 dB; capture ratio 1.0 dB; signal-to-noise ratio mono 85 dBf, stereo 82 dBf. 19 x 8 x 14 in. $729

**TECHNICS**

**ST-670 AM/FM Tuner**

Stereo tuner with 39 AM/FM station presets. Features class A circuitry, DC twin quartz circuitry; DC linear switching mixer filter; auto IF-bandwidth selection; twin tuner design. 10-key random access; auto-scan; FM signal-strength display... $380

**ST-G400 AM/FM Tuner**

Quartz-synthesis tuner with 39 AM station presets. Features optimized digital stereo decoder; direct component features full frequency detection; record calibrator; 2 separate ground noise by 9 dB; knob moves in 50,000 Hz steps for tuning off frequency stations: separate audio and switching power supplies. Flywheel-assisted manual tuning knob for fine reception adjustment; 16 presets and complete station scan; search, strength indicator. Remote control includes DC circuit construction; DC linear IF filters; Wave Optimized direct detector; Wave Optimized digital stereo decoder; direct comparator circuitry. Signal-to-noise ratio 92 dB (stereo). 100 dB mono; total harmonic distortion 0.007% stereo, 0.004% mono; sensitivity 10.5 dBf (stereo), 9.0 dBf (mono); signal-to-noise ratio (at 400 kHz) 70 dB; stereo separation 70 dB at 1,000 Hz. 3 x 18 x 14 in.; 12 lb. 6 oz. $550

**TOSHIBA**

**ST-5528 AM/FM Tuner**

Features 16 presets; digital display; preset memory recall; preset scan; automatic digital tuning lock-in for each available station; system remote control... $170

**YAMAHA**

**TX-2000 AM/FM Tuner**

Digital AM/FM stereo tuner with computer-servo lock tuning; digital fine tuning; multi-status station memory; stereo/side channel display; RS remote control compatibility, four tuning modes, 2-position IF-mode selector. Includes remote control. Titanium finish with side panels. Channel selectivity 90 dB... $749

**TX-1000U AM/FM Tuner**

Digital AM/FM stereo tuner with computer-servo lock tuning. Features absolute linear phase IF amplifier "Alpha" circuitry. Digital fine tuning, 2-position IF-mode selector; 4 tuning modes, antenna-selector switch; 24-station random access memory presets; multi-status memory, 4-letter station name display, 24-segment signal quality meter; remote control; RS optical integrated system remote compatible. Channel selectivity 90 dB. 14 lb... $549

**TX-530Ti AM/FM Tuner**

Features 20-station presets. Features integrated system remote compatibility; digital fine tuning; 3-position auto/manual IF-mode selector; 4-way station memory, high blend; integrated multi-function LCD display. Black finish... 9 lb... $399

**TX-530Ti AM/FM Tuner**

AM/FM tuner with PLL IF count synthesis tuning. Features 20 station presets; 4-way multi-status station recall; preset scan; automatic digital tuning lock-in... $329

**TX-530 Ti AM/FM Tuner**

AM/FM tuner with PLL IF count synthesis tuning. Features 20 station presets; 4-way multi-status station recall; preset scan; automatic digital tuning lock-in... $329

Stereo Review February 1990
TURNTABLES

ACOUSTIC RESEARCH

ES -1 Manual Turntable
Manual belt-drive turntable with 24-pole synchronous motor. Features 33 and 45 rpm speeds. W&F 0.04% wrms; rumble -78 dB; effective tonearm length 229 mm; max tracking error 2.6°; 7 x 18½ x 15¼ in (disco cover down); 18 lb. Natural cherry finish, with tonearm $725
Natural cherry, without tonearm $550

EB-101 Manual Turntable
Manual belt-drive pivoted-arm turntable with fully isolated 3-point suspension. Arm and platter on subchassis formed by pressed-steel T-bar spring-suspended and damped at 3 points. 33½ and 45 rpm. Features 12-pole synchronous motor (500 rpm at 50 Hz, 600 rpm at 60 Hz). 3.9 lb platter, detachable carbon-fiber headshell with clamping screw on arm. Base finished in oiled walnut veneer. W&F 0.05% DIN; rumble -72 dB DIN; effective tonearm mass without cartridge 14.5 g; effective tonearm length 229 mm; overhang 16 mm; vertical and horizontal friction <100 mg; 18¼ x 15¼ in (disco cover down); 13½ lb $500

A/D/S/

Atelier P4 Automatic Turntable
Features quartz-crystal-controlled direct drive; pivoted arm; ultra-low-mass tonearm; 33½ and 45 rpm; variable speed control with strobe; holds platter and tonearm on a subchassis that floats on 4 tuned mounts. Optional remote control if connected to a/d/s R4 receiver or CC4 tuner/preamp. W&F ± 0.025% wrms; ± 0.035% DIN; rumble -75 dB DIN B; 53 dB DIN A; effective tonearm length 8½ in; max tracking error 2.2° $600

BANG & OLUFSEN

Beogram 6500 Automatic Turntable
Short tangential tonearm, 33½ and 45 rpm, silver and black; remote controlled by B&O Master Control Panel; built-in phone preamp; leafspring suspension; compatible with B&O Microcross cartridges; auto record-size sensing; auto interior light. Black and silver finish. Wow & flutter no more than 0.006% DIN; ±0.03% wrms; tracking error no more than ±0.03%. DIN-weighted rumble >80 dB; 1½ x 3 x 12¼ in; 11 lb, 12 oz. $499

Beogram 4500 Automatic Turntable
Integrates with Beosystem 4500 for full remote control: built-in phone preamp; 3-point leafspring suspension; tangential tracking; accepts B&O MMC-15 cartridges. Black and silver finish. W&F 0.06% DIN; weighted rumble >80 dB; 1½ x 3 x 12¼ in; 11 lb, 11 oz. $499

DENON

All Denon turntables employ servo speed control and are noncontact, microprocessor controlled. Motor servo by magnetic speed detection.

DP-591, SemiAutomatic Turntable
Features massive wood base with isolation; 5.5-lb platter with high-torque direct-drive DC motor. Lift only $695

DP-47F, SemiAutomatic Turntable
Features dynamic servo tracer; flat-twin direct drive design; fully-automotive locate function; thick wood base $450

DP-23F, Automatic Turntable
Full-size automatic turntable with dynamic servo tracer. Black $275

DP-7F, Automatic Turntable
P-mount automatic turntable with dynamic servo tracer. Black $200

DUAL BY ORTOFON

CS 7000 SemiAutomatic Turntable
Belt-drive turntable with 24k gold-plated finish.

Heybrook by D'Ascanio Audio

TT-3 Series II Manual Turntable
Hand-assembled belt-drive 33½ and 45 rpm arm-less manual turntable with removable armboard. Features on-board electronic power supply; low-speed synchronous motor to drive large 2-piece platter; adjustable 3-point spring-suspension subchassis of cast aluminum; laminated armboard; large wood base. Finished in real walnut or gloss black. Wow & flutter <0.1% DIN peak wtd; rumble <73 dB wtd DIN-B. Dimensions: 6¼ x 17¾ x 14¼ in; 26 lb $898

JVC

ALFQ555BK Automatic Turntable
Direct-drive turntable with coreless DC servo direct-drive motor. Features automatic record size and speed selector; low-mass straight tonearm, high-stability cabinet support system; large insulators; arm cueing control; double-servo quartz control; illuminated strobe on platter perimeter; plug-in cartridge connector system. $240

ALF353BK Automatic Turntable
Turntable with automatic record size and speed selector. Features DC servo motor; arm cueing control; plug-in cartridge connector system; low-mass straight tonearm $175

KENWOOD

KD-5010 Automatic Turntable
Automatic quartz PLL direct-drive turntable

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with plug-in phono cartridge. 33⅜ and 45 rpm; straight tonearm. Wow & flutter no more than 0.05%. Rumble 75 dB (DIN-weighted); effective tonearm length 84 mm; tracking error 0.3%. Cartridge: frequency response 20-20,000 Hz, output 2.5 mV. 17¾ x 5 x 14½ in; 10.8 lb...

**Linn Products**

Linn Sondek LP12 Manual Turntable
Bell-drive 33⅜-rpm turntable with manual tonearm; 24-pole synchronous motor; 12-in zinc-aluminum alloy die-cast platter with felt mat; hardened tool-steel spindle; adjustable 3-point spring-suspension subchassis; heavy-gauge stainless-steel base plate; solid hardwood mat; hardened tool-steel spindle; adjustable 3-tonearm; 24-pole synchronous motor; Belt-drive Linn Sondek LPI2 Manual Turntable

2.5 mV. 17¾ x 5 x 14½ in; 10.8 lb...

**Axis Manual Turntable**

Belt-drive manual turntable with pivoted arm. Plays 33⅜-rpm LP's and 45 rpm singles. Speed accuracy 0.1%, wow & flutter 0.05%; rumble 75 dB DIN; effective tonearm length 284 mm; 16 lb...

**Basic Turntable**

Two-speed turntable with tonearm...

**Marantz**

TT-25CTCL Automatic Turntable
Belt-drive fully automatic turntable features linear tracking; P-mount cartridge...

TT 25CTCL SemiAutomatic Turntable
DC-servo direct-drive semi-automatic turntable with P-mount cartridge...

TT-185CTCL SemiAutomatic Turntable
Belt-drive turntable features semi-automatic DC-servo motor; damped cueing; P-mount cartridge; straight low-mass tonearm; front panel controls. 3¾ x 16½ x 13½ in; 9.5 lb...

**Numark**

TT 3000 Manual Turntable
Direct-drive DC motor with S-shaped, 4-way hall-bearing tonearm. 17¾ x 5⅜ x 14½; 27 lb...

**Onkyo**

Integra CP-1057/FB Automatic Turntable
Computer-controlled, direct-drive turntable with quartz-locked PLL motor. Features single-band stroboscope for 33⅜ and 45 rpm speeds; Triple-Stage Isolation system with shock-absorbent feet, floating chassis, and dense cabinet; separate tonearm motor, gimbal tonearm suspension; P-mount cartridge for original cartridge, Dubbing level tape or aux inputs. Features Realistic/Audio-Technica cartridge; straight tonearm; belt drive; neon strobe. Pitch control; damped cueing; rubber mat; auto changer stacks 4 records; 45 adaptor; 33⅜ and 45 rpm. Rumble 0.018%. 8¼ x 23½ x 17 in...

**Oracle Audio**

Premiere Mark IV Manual Turntable
Belt-drive turntable without tonearm. Remote control power drive module, 33⅜ and 45 rpm; variable-speed control; strobe; high-torque AC motor; adjustable spring-suspension system; record-coupling system; tonearm cartridge protractor; strobe disc included. 20 x 6¾ x 15 in; 33 lb...

Gold Plated. Premiere Mark III aluminum and 24k gold plating. 43 lb...

Delphi MK IV Manual Turntable
Belt-drive turntable without tonearm. Available in dual speed (33⅜ and 45 rpm) and single speed (33⅜ rpm only); high-torque AC motor; adjustable spring-suspension system; record-coupling system; tonearm/cartridge protractor and strobe disc included. 19 x 6 x 14½ in; 28 lb...

Single speed...

Delphi Black. 24k gold plating. Dual speed...

Alexandria Mark III Manual Turntable
Belt-drive turntable without tonearm. Features 33⅜ and 45 rpm play speeds; AC type motor; tri-point suspension. White finish. 15 lb...

**Pioneer**

Elite PL-90 Automatic Turntable
Direct-drive turntable with coreless, quartz PLL AC servo motor with stable hanging rotor. Features straight aluminum/ceramic tonearm 33⅜ and 45 rpm play speeds; 14¾-inch platter. W & F 0.018%. 8¼ x 23½ x 17 in...

**PL-910 Automatic Turntable**

Belt-drive turntable with AC servo-motor. Features static 'balanced linear tracking tonearm with DRA; 33⅜ and 45 rpm play speeds; 0.6 mm diamond stylus. Wow & flutter 0.05%. 16½ x 4 x 14 in; 6.2 lb...

**PL-L500 Automatic Turntable**

Direct-drive turntable with stable hanging rotor. Features dynamic resonance absorber; T4P-mount plug-in cartridge connector; linear tracking; 8-times repeat. Wow & flutter 0.025%. 16½ x 4⅞ x 14½ in; 10.5 lb...

**Realistic**

LAB-89 Turntable with Phonograph Preamp
Semiautomatic turntable with switchable stereo preamplifier for compatibility with moving-magnet inputs, ceramic phono inputs, or high-level tape or aux inputs. Features Realistic/Audio-Technica cartridge; straight tonearm; belt drive, neon strobe; pitch control; damped cueing; rubber mat; auto changer stacks 4 records; 45 adaptor; 33⅜ and 45 rpm. Rumble 0.018%. 8¼ x 23½ x 17 in; 10.8 lb...

**Revolver by Music Hall**

Revolver Turntable
Split-plinth belt-drive turntable with plinth and platter of medium-density fiberboard and self-damping material. Features AC synchronous motor with 2-speed stepped pulley; ethylene propylene drive belt; 3 molded non-adjustable feet. Includes Precision Instant Grip clamp, Starmat, lubricating oil; Revolver tonearm. Redwood high-gloss finish...

Black-ash veneer...

**Revox**

B 701 Automatic Turntable
Quartz-controlled direct-drive turntable with patented Revox LinearTrack system. Features short linear-tracking tonearm; pitch control regulation of ±9.9% in precise 0.1% steps, with LED display showing the variation; P-mount cartridge adaptor; channel balance; automatic start; front-panel-mounted controls. W & F...
### TURNTABLES

<table>
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<tr>
<th>Model</th>
<th>Description</th>
<th>Features</th>
<th>Dimensions</th>
<th>Weight</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-2000 Automatic Turntable</td>
<td>Cartridge stylus 0.6 mil diamond. Features direct drive, P-mount quartz-lock operation. P-mount compatibility</td>
<td>33⅓ and 45 rpm; remote control capability</td>
<td>17 x 3½ x 13/16 in</td>
<td>22 lb</td>
<td>$180</td>
</tr>
<tr>
<td>P-900E Semiomatic Turntable</td>
<td>Belt-drive turntable with low-mass straight tonearm. Features auto return and power on/off; cue; pitch control and strobeoscope. No cartridge.</td>
<td>w/F 0.01% w-rms; s/N 75 dB; effective tonearm length 3⅛ inches; max tracking error ±0.1°.</td>
<td>17 x 3½ x 13/16 in</td>
<td>8 lb</td>
<td>$180</td>
</tr>
<tr>
<td>PS-LX50 Automatic Turntable</td>
<td>Fully automatic linear-tracking turntable. Features direct drive, P.LI quartz-lock operation; P-mount compatibility; 33⅓ and 45 rpm; gel-filled feet; remote control capable.</td>
<td>w/F 0.035%; s/N 75 dB; effective tonearm length 3⅛ inches; max tracking error ±0.1°.</td>
<td>17 x 3½ x 13/16 in</td>
<td>11 lb</td>
<td>$200</td>
</tr>
<tr>
<td>SL-333 Automatic Turntable</td>
<td>Direct-drive linear tracking turntable with P-mount cartridge. Allows up to 8 tracks to be played in any order. Indicates number of tracks on album side and which track is playing.</td>
<td>Features programmable phase-locked loop quartz-lock front-panel feather-touch controls; cueing; auto stylus muting. Remote controlled through some Technics receivers.</td>
<td>33 ⅓ and 45 rpm: wow &amp; flutter 0.013%; rumble ± 78 dB; effective tonearm length 105 mm; max tracking error ±0.1°.</td>
<td>12⅛ x 4 x 12⅛ in (dustcover down)</td>
<td>9 lb</td>
</tr>
<tr>
<td>PS-FL7II Automatic Turntable</td>
<td>Semiautomatic belt-drive turntable with low-mass P-mount tonearm.</td>
<td>w/F 0.004%; s/N 82 dB; speed accuracy ± 0.02%; speed adjustment 5%.</td>
<td>20¼ x 16½ x 7½ in</td>
<td>44 lb</td>
<td>$270</td>
</tr>
<tr>
<td>SL-133 Automatic Turntable</td>
<td>Direct-drive linear tracking turntable with P-mount cartridge. Features auto return and power on/off; cue; pitch control and strobeoscope. No cartridge.</td>
<td>w/F 0.025%; s/N 75 dB; effective tonearm length 105 mm; max tracking error ±0.1°.</td>
<td>12¼ x 4 x 12¼ in (dustcover down)</td>
<td>9 lb</td>
<td>$250</td>
</tr>
<tr>
<td>PS-1171 Automatic Turntable</td>
<td>Front-loading linear-tracking automatic turntable. Features direct drive, P.LI quartz-lock operation; P-mount compatibility.</td>
<td>33⅓ and 45 rpm; remote control capability; stackable top.</td>
<td>17 x 3½ x 13/16 in</td>
<td>6 lb</td>
<td>$900</td>
</tr>
<tr>
<td>SL-15 Turntable</td>
<td>Quartz-synthesis direct-drive turntable that reaches full speed in 0.4 sec (40° of rotation) and stops in 0.4 sec (40° of rotation) at 33⅓ rpm. Features ± 9.9% quartz-locked pitch control (0.1% steps to ±9.9% all speeds); separate power supply in remote-control unit with numeric LED speed, pitch displays: soft-touch switches (start/stop duplicated on turntable).</td>
<td>33/45/78-rpm w/F 0.0015% w-rms ± 0.001% speed accuracy</td>
<td>14½ x 14½ x 4½ in</td>
<td>32 lb</td>
<td>$900</td>
</tr>
<tr>
<td>SI-1087. Optional turntable base</td>
<td>Quartz-synthesis direct-drive turntable with high torque for full speed in 30 of rotation. Features electronic, mechanical braking for speed change in 0.3 sec; high-precision integral rotor-platter quartz motor; quartz-locked pitch control (0.1% steps to ±9.9% all speeds); separate power supply in remote-control unit with numeric LED speed, pitch displays: soft-touch switches (start/stop duplicated on turntable).</td>
<td>33/45/78-rpm w/F 0.0015% w-rms ± 0.001% speed accuracy</td>
<td>14½ x 14½ x 4½ in</td>
<td>Turntable weight: 40 lb.</td>
<td>$2,700</td>
</tr>
</tbody>
</table>

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**SONOGRAFIE BY CONRAD-JOHNSON**

*SG-3A Manual Turntable*

Belt-drive turntable with Sumiko tonearm. Tuned suspension, resonance-free polymer platter. W/F 0.002% w-rms; s/N 65 db; 67.5 x 18.75 x 14.5-⅛ in (dustcover down): 23 lb. $795

*SG-3. Same as above without tonearm.* $595

**SONY**

*PS-F1TH 1 Automatic Turntable* | Features direct drive, P.LI quartz-lock operation, P-mount compatibility | 33⅓ and 45 rpm; remote control capability; stackable top. W/F 0.03%; s/N 75 dB; effective tonearm length 3⅛ inches; max tracking error ±0.1°. | 17 x 3½ x 13½ in | 16 lb | $350

**THORENS BY EPI**

*SL-1200MKII Manual Disco Turntable* | Direct-drive turntable featuring direct drive, P.LI quartz-lock operation; P-mount compatibility. Features ± 9.9% quartz-locked pitch control (0.1% steps to ±9.9% all speeds); separate power supply in remote-control unit with numeric LED speed, pitch displays: soft-touch switches (start/stop duplicated on turntable). | 33/45/78-rpm w/F 0.0015% w-rms ± 0.001% speed accuracy | 14½ x 14½ x 4½ in | Turntable weight: 40 lb. | $2,700

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### TURNTABLES

<table>
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<th>Model</th>
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<tbody>
<tr>
<td>TD 280</td>
<td>Semi-automatic Turntable. Belt-drive 33½ and 45 rpm with 24-pole synchronous motor. Features 1-piece solid-core chassis and spring damping elements in feet: frictionless velocity-sensing auto shut-off trigger. Wow &amp; flutter 0.045%, rumble -48 dB unweighted, -70 dB weighted, 5.3 x 17 x 14 in... $275</td>
</tr>
<tr>
<td>TD 329</td>
<td>Semi-automatic Turntable. Belt-drive 33½ and 45 rpm turntable with solid-core chassis. Features 16-pole synchronous motor; twin solid-core chassis and 3-point leaf-spring suspension; frictionless velocity-sensing auto shut-off trigger. Wow &amp; flutter 0.035%, rumble -72 dB unweighted... $1,000</td>
</tr>
<tr>
<td>TD 320</td>
<td>Semi-automatic Turntable. Belt-drive 33½ and 45 rpm turntable with solid-core chassis. Features 16-pole synchronous motor; twin solid-core chassis and 3-point leaf-spring suspension; frictionless velocity-sensing auto shut-off trigger. Wow &amp; flutter 0.035%, rumble -72 dB unweighted... $1,000</td>
</tr>
<tr>
<td>TD 318</td>
<td>Semi-automatic Turntable. Belt-drive 33½ and 45 rpm turntable with solid-core chassis. Features 16-pole synchronous motor; twin solid-core chassis and 3-point leaf-spring suspension; frictionless velocity-sensing auto shut-off trigger. Wow &amp; flutter 0.04%, rumble -50 dB unweighted, -70 dB weighted, 6 x 17 x 14 in... $450</td>
</tr>
</tbody>
</table>

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SPEAKERS

ACOUSTAT
Spectra 33 Electrostatic Speaker
Speaker utilizing three electrostatic elements and Symmetric Pair Electrically Curved Transducer (SPECTRA); each speaker contains a narrow-line source sector operating at all frequencies, adjacent sectors handle midrange and low frequencies, and the remaining panel area reproduces bass only. Compatible with the SPW-1 woofer, crossover at 100 Hz. Recommended amplifier power > 100 W/cm², nom imp 4 ohms. Dark oak finish and black, beige, or gray grille; natural oak or black oak finish at additional cost. 33 ¹/₄ x 66 x 17 in. $2,250/pr

Spectra 22 Electrostatic Speaker
Speaker utilizing two electrostatic elements and Symmetric Pair Electrically Curved Transducer (SPECTRA); each speaker contains a narrow-line source sector operating at all frequencies, adjacent sectors handle midrange and low frequencies. Compatible with the SPW-1 woofer, crossover at 100 Hz. Recommended power > 100 W/cm², nom imp 4 ohms. Dark oak finish and black, beige, or gray grille; natural oak or black oak finish at additional cost. 23 x 66 x 17 in. $1,850/pr

ACOUSTIC RESEARCH
TSW 3 Series
TSW 710-A 3-Way Speaker
Floor-standing acoustic-suspension column speaker with Tetra-Helix tweeter mounting plate. Features two 8-in filled polypropylene cone long-throw woofers, 6-in filled polypropylene cone midrange in its own sub enclosure, 4-in titanium-dome liquid-cooled tweeter. Power range 15-175 W, imp 4 ohms. FR 40-40,000 Hz, -3 dB; sens 91 dB; imp 4 ohms. 33 ¹/₄ x 9 ¹/₄ x 11 ¹/₂ in. $1,600/pr

TSW 510-A 3-Way Speaker
Floor-standing acoustic-suspension speaker with Tetra-Helix tweeter mounting plate. Features 10-in woofer, 6-in midrange, 4-in titanium-dome liquid-cooled tweeter with acoustic lens. Power range 15-150 W, imp 4 ohms. FR 44-40,000 Hz, -3 dB; sens 90 dB with 2.83 V rms input at 1 meter on axis. Solid walnut or oak top and bottom with black-vinyl-veneer cabinet and black cloth space frame grille. 39 ¹/₄ x 14 x 1 ³/₄ in. 49 lb. $800/pr

TSW 315-A 3-Way Bookshelf Speaker
Bookshelf acoustic-suspension speaker with Tetra-Helix tweeter mounting plate. Features 6-in woofer; 6-in midrange; 4-in titanium-dome liquid-cooled tweeter with Tetra-Helix mounting plate. Power range 10-100 W, imp 4 ohms. FR 48-40,000 Hz, -3 dB; crossover point 450, 3,800 Hz; sens 92 dB with 2.83 V rms input at 1 meter on axis. Solid walnut or oak top and bottom with black-vinyl-veneer cabinet and black cloth grille. 22 ¹/₂ x 12 x 11 ³/₄ in. 30 lb. 8 oz. $550/pr

Spirit Series
Model 162 3-Way Speaker
Acoustic-suspension, three-way with dual coupled woofers. Features carbon-loaded polypropylene woofer and 1-in treated-cloth dome liquid-cooled tweeter; dual-density baffle; laminated iron-core crossovers to minimize distortion and DC resistance; frameless grille; walnut or black-ash woodgrain vinyl finish. Power handling 10-175 W, FR 45-22,000 Hz, -3 dB; sens 91 dB; imp 4 ohms. 36 ³/₄ x 9 ¹/₄ x 11 in. $2,000/pr

Model 142 3-Way Speaker
Features carbon-loaded polypropylene woofer and liquid-cooled tweeter, direct-coupled woofer and midwoofer, dual-density baffle; frameless grille; acoustic-suspension enclosure. Walnut or black-ash woodgrain vinyl finish. Power handling 10-100 W, FR 52-25,000 Hz, -3 dB; sens 90 dB; imp 4 ohms. 25 ³/₄ x 9 ¹/₄ x 11 in. 23 lb, 5 oz. $1,200/pr

Model 122 2-Way Speaker
Features carbon-loaded polypropylene woofer and liquid-cooled tweeter, direct-coupled woofer; dual-density baffle; frameless grille; acoustic-suspension enclosure. Walnut or black-ash woodgrain vinyl finish. Power handling 10-80 W, FR 62-25,000 Hz, -3 dB; sens 90 dB; imp 8 ohms. 13 ³/₄ x 7 ¹/₂ x 8 in. 11 lb, 4 oz. $350/pr

STC 660 Subwoofer/Satellite System
New STC Series (Tuned Cavity) system. The STC subwoofer is small enough to be hidden leaving only the satellites visible. AR's proprietary enclosure uses two tuned cavities in a series configuration. Uses a newly developed set of enclosure parameters to eliminate unwanted high frequencies that would allow the ear to pinpoint the position of the subwoofer. The first cavity works to increase efficiency of the loudspeaker in the bass frequencies and minimizes distortion by limiting woofer excursion near resonance. The second cavity acts as a high-frequency output from the two 6-in woofers. The satellites feature a black cabinet with a choice of oak or walnut wood trim. Satellites are shielded for use in video systems. $580/system

ADC
Soundshaper 3025 Subwoofer/Satellite System
2-way model 3010 bookshelf size speaker and model 3015 subwoofer. Model 3010 features 4-in woofer and 1½-in dome tweeter. Ferrofluid-cooled tweeter, wall-mounted bracket. FR 85-24,000 Hz, ± 3 dB; sens 88 dB ± 1 dB SPL/W/m; imp 6 ohms; power handling 50 W rms. 150 W max; crossover point 5000 Hz. Model 3015 subwoofer features 8-in bass enhancement. FR 41-165 Hz, ± 3 dB; sens 88 dB ± 1 dB SPL/W/m; imp 4 ohms ± 10%; power handling 50 W rms. 150 W max; crossover point 110 Hz. Satellites 11 x 7½ in. 5½ lb; subwoofer 11 x 7½ x 17 in. 15½ lb. $500

A/D/S/
M15 3-Way Speaker
Vertically aligned "unison" drivers (two 10-in woofers and 5¾-in midrange in separate sub enclosure; 1-in dome tweeter), woofers near floor, midrange at top, to control boundary effects; co-polymer diaphragms; 4th-order (24 dB per octave) Linkwitz-Riley crossovers at 200 and 20 kHz, stainless-steel voice-coil formers, magnetic cooling fluid in midrange and tweeter for high power handling and linearity; frameless perforated-steel grilles, walnut veneer or black finish. Power handling 300 W max; FR 26-22,000 Hz, ± 3 dB; sens 87 DB SPL/W/m; imp 4 ohms. 47 ¼ x 11 ¼ x 15 in. $2,600/pr

M12. Similar to M15 except 8½-in woofers. Power handling 250 W max; FR 34-22,000 Hz, ± 3 dB; sens 87 DB SPL/W/m; imp 4 ohms. 43 ¼ x 10 ¼ x 14 ¼ in. 83 lb. $1,600/pr

M9. Similar to M12 except 1½-in midrange and one 8½-in woofer; crossover at 700 Hz and 6,000 Hz. Power handling 150 W max; FR 28-22,000 Hz, ± 3 dB; sens 88 DB SPL/W/m; 33 ¼ x 11 ¼ x 13 in. 40 lb. $1,100/pr

CM7 3-Way Speaker
Features 7½-in woofer, 1½-in dome midrange, 1½-in dome tweeter; copolymer diaphragms; 4th-order Linkwitz-Riley crossovers at 700 and 2,000 Hz; voice-coil formers of stainless steel for woofer and kapton for midrange and tweeter, magnetic cooling fluid in midrange and tweeter for high power handling and dynamic linearity; enclosure molded from polymer resin filled with metallic mineral for high density and inertness; frameless perforated steel grille; black or grey finish. Power handling 150 W max; FR 40-22,000 Hz, ± 3 dB; sens 88 DB SPL/W/m; imp 4 ohms; 16 ½ x 8 ½ x 10 ½ in. $1,400/pr

CM6. Similar to CM7 except 2-way with 6,000 Hz crossover. Power handling 100 W max; FR 28-22,000 Hz, ± 3 dB; sens 88 DB SPL/W/m; 33 ¼ x 11 ¼ x 13 in. 40 lb. $1,000/pr

9-15 3-Way Bookshelf Speaker
Features 7½-in woofer, 1½-in dome midrange, 1½-in dome tweeter; copolymer diaphragms; 4th-order Linkwitz-Riley crossovers at 700 and 2,000 Hz; voice-coil formers of stainless steel for woofer and kapton for midrange and tweeter; magnetic cooling fluid in midrange and tweeter for high power handling and dynamic linearity; enclosure molded from polymer resin filled with metallic mineral for high density and inertness; frameless perforated steel grille; black or grey finish. Power handling 150 W max; FR 40-22,000 Hz, ± 3 dB; sens 88 DB SPL/W/m; imp 4 ohms; 16 ½ x 8 ½ x 10 ½ in. $1,400/pr

CM6. Similar to CM7 except 2-way with 6,000 Hz crossover. Power handling 100 W max; FR 28-22,000 Hz, ± 3 dB; sens 88 DB SPL/W/m; 33 ¼ x 11 ¼ x 13 in. 40 lb. $1,000/pr

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Kapton former, high magnetic cooling fluid for efficient thermal transfer. Linkwitz-Riley crossover at 2,000 Hz. Glass fiber damping, acoustic suspension enclosure with diffraction-corrected front baffle and flush driver mounting construction: black fabric ABS grille; walnut veneer or matte black laminate finish. Power handling 125 W max; frequency response 38,000 Hz, ± 3 dB; sens 88.5 dB SPL/W/m; imp 4 ohms; crossover frequencies 200 and 4,000 Hz; crossovers 350 and 3,750 Hz; efficiency 0.7%; power range 30-200 W; response -3 dB at 39 Hz; 28 m 10 Hz; 10 m in.

ALISON ACOUSTICS

116 x 11 x 6 1/4 in; 13 lb

American Acoustics

Acoustic suspension speaker with bi-amp capability and adjustable crossover with two 10-in carbon-fiber woofers. 2-in midrange, 1-in dome tweeter; each with polyimide vacuum-deposited titanium. Power range 150 W nom. 300 W max; sens 93 dB SPL/W/m; imp 4 ohms; 46 x 12 x 13 1/2 in.

Model 510 3-Way Speaker

Acoustic suspension speaker with bi-amp capability and adjustable crossover with two 10-in carbon-fiber woofers. 2-in midrange, 1-in dome tweeter; each with polyimide vacuum-deposited titanium. Power range 150 W nom. 300 W max; sens 93 dB SPL/W/m; imp 4 ohms; 46 x 12 x 13 1/2 in.

SPEAKERS

CD8 3-Way Speaker

Stabilized-radiation-loading speaker with 8-in woofer, 3 1/2-in convex-diaphragm midrange, 1-in fabric diaphragm tweeter. Power handling 100 W max; frequency response 80-22,000 Hz; sens 90 dB SPL/W/m; imp 4 ohms; crossover points at 100 Hz, 1,000 Hz, 6,000 Hz; efficiency 0.7% at floor/wall intersection; power range 30-120 W; FR 43-22,000 Hz; sens 90 dB SPL/W/m; imp 6 ohms; crossover points at 100 Hz, 1,000 Hz, 6,000 Hz; sensitivity 96.5 dB.

Diva 3-Way Ribbon Speaker

Acoustic suspension speaker with 8-in woofer, 3 1/2-in convex-diaphragm midrange, 1-in fabric diaphragm tweeter. Power handling 100 W max; frequency response 80-22,000 Hz; sens 90 dB SPL/W/m; imp 4 ohms; crossover points at 100 Hz, 1,000 Hz, 6,000 Hz; sensitivity 96.5 dB.

ALTO LANSING

Model 511 4-Way Speaker

Acoustic suspension speaker with 2-in long-throw carbon-fiber woofers, 6-in woven carbon-fiber mid-bass, 2-in polyimide/diamond-coated dome midrange, and 1-in diamond-coated dome tweeter with ferrofluid cooling. Features single/bi/tri/quad amplifier capa-

ALPHEGE ACOUSTICS

Divas 3-Way Ribbon Speaker

Full-range ribbon speaker with adjustable seamless crossover. Features tranzeoidal woofer ribbon; separate midrange and tweeter ribbons. Anthracite, taupe or custom finishes. Frequency response 20-20,000 Hz; efficiency 0.7%; power handling 200 W.; FR 43-22,000 Hz; sens 93 dB SPL/W/m; imp 4 ohms; crossover points at 100 Hz, 1,000 Hz, 6,000 Hz; sensitivity 96.5 dB.
response 30-25,000 Hz; impedance 4 ohms. $8,250/pr

Duettia Signature 2-Way Ribbon Speaker
Midsize 2-way full-range ribbon speaker. Utilizes ribbon transducers for both midrange/tweeter and woofer. Trapezoidal woofer ribbon; combination midrange/tweeter ribbon; internal seamless crossovers. Anthracite, taupe or custom finishes. Frequency response 30-20,000 Hz; imp 4 ohms. $3,750/pr

Caliber Signature 2-Way Ribbon Speaker
Midsize 2-way full-range ribbon speaker. Features trapezoidal woofer ribbon; narrow-canted combination midrange/tweeter ribbon; seamless crossover circuitry. Anthracite, taupe or custom finishes. Frequency response 30-20,000 Hz; impedance 8 ohms. $3,750/pr

ARCAM
One+ 2-Way Speaker
Refllex-loaded cabinets with midline front baffles. Features genuine wood veneers; polymer coated midbass drivers; proprietary dome tweeters. Element crossover may be biwired using separate cable runs from the amplifier to the bass/midrange and treble sections to improve imaging. FR 35-20,000 Hz; 100 W power handling; imp 8 ohms. Optional walnut or black finish. 10% x 12% x 20% in. $800

Two+ 2-Way Speaker
Refllex-loaded cabinets with midline front baffles. Features genuine wood veneers; polymer coated midbass drivers; proprietary dome tweeters. Element crossover may be biwired using separate cable runs from the amplifier to the bass/midrange and treble sections to improve imaging. FR 42-20,000 Hz; 70 W power handling; imp 8 ohms. Optional walnut or black finish. 8% x 11 x 14% in. $600

AudioSource
LS-Twelve 2-Way Speaker
Floor-standing bookshelf speaker with 6½-in polypropylene woofer and 1-in soft-dome ferro-fluid-cooled tweeter. FR 40-20,000 Hz, sen 91 dB SPL/W/m, imp 4 ohms; power handling 90 W. Crossover frequency 3,000 Hz. Available in oak, walnut, veneer, black or white enamel over high-density particle board with metal grill. 8½ x 22½ x 7½ in; 17 lb. 8 oz. $360/pr

LS-Eleven 3-Way Shielded Speaker
Compact acoustic-suspension speaker with 4-in polypropylene woofers and 1-in ferrofluid-cooled soft-dome tweeter. Video shielding for hi-fi video applications. FR 60-20,000 Hz; sen 89 dB SPL/W/m, imp 4 ohms; power handling 80 W. Crossover frequency 600/3,000 Hz. Available in oak or walnut veneer, or black or white enamel over high-density particle board with metal grill. 5 x 14½ x 5¼ in; 8½ lb. $230/pr

Axiom Audio
AX 5 2-Way Speaker
Dual-enclosure speaker with 10- and 5-in woofers, and 1-in dome tweeter. FR 29-22,000 Hz ±3 dB; sen 87 dB; imp 6 ohms; crossover at 1,000 Hz. Dark, natural, or black oak finish with black knit grille. 12 x 36 x 12 in. 80 lb/ea. $1,699/pr

AX Sub Center-Channel 4-Way Speaker
Subwoofer and center channel speaker with two 10- and one 5-in woofers, and 1-in dome tweeter. FR 29-22,000 Hz ±3 dB; sen 87 dB; imp 6 ohms. $1,449/ca

SPEAKERS

FR 29-22,000 Hz ±3 dB; sen 87 dB; imp 6 ohms; crossover at 120, 250, and 3,000 Hz. Dark, natural, or black, oak finish with black knit grille. 33 x 15 x 16 in; 90 lb/ea. $1,449/ca

AX 3 2-Way Speaker
Dual-enclosure speaker with 8- and 5-in woofers, and 1-in dome tweeter. FR 36-22,000 Hz ±3 dB; sen 88 dB; imp 6 ohms. Crossover at 3,000 Hz. Dark, natural, or black oak finish with black knit grille. 10 x 36 x 10 in; 66 lb/pr. $849/pr

AX 1 2-Way Speaker
Tuned port speaker with 5-in woofer, and 1-in dome tweeter. FR 70-22,000 Hz ±2 dB; sen 87 dB; imp 6 ohms. Crossover at 3,000 Hz. Dark, natural, or black oak finish with black knit grille. 6 x 11 x 6 in. 30 lb/pr. $599/pr

AX 1.5 In-Wall 2-Way Speaker
Wall-mounted speaker with 6½-in woofer, and 8-in dome tweeter. FR 45-22,000 Hz ±2 dB; sen 89 dB; imp 8 ohms. Crossover at 3,500 Hz. Black knit grille. 19 x 14 x 1 in. $339/pr

AX 5 2-Way Speaker

FR 20-20,000 Hz; sen 88 dB; imp 8 ohms; crossover at 3,000 Hz. Dark, natural, or black finish. Frequency response 30-20,000 Hz; impedance 8 ohms. Optional walnut or black-finish. 10½ x 12½ x 20% in. $800

AX 6 2-Way Speaker

FR 20-20,000 Hz; sen 88 dB; imp 8 ohms; crossover at 3,000 Hz. Dark, natural, or black finish. Frequency response 30-25,000 Hz; impedance 4 ohms. $394 x 6½ x 8½ in; base 10 in wide. 9½ in deep. $1,750/pr

Matrix 2 2-Way Speaker
Bookshelf speaker with 8-in cone woofer; 1-in polymide-dome tweeter. Walnut and black ash finishes. No upper power limit due to overload protection. FR 80-25,000 Hz ±2 dB. Sens 87 dB SPL/W/m, imp 4 ohms. 23½ x 10½ x 12½ in. 35 lbs. $1,600/pr

Matrix 1 2-Way Speaker
Bookshelf speaker with 6½-in cone woofer; 1-in polymide-dome tweeter. Walnut and black ash finishes. No upper power limit due to overload protection. FR 80-25,000 Hz ±2 dB. Sens 85 dB SPL/W/m, imp 4 ohms. 16 x 9½ x 12½ in. 35 lbs. $1,200/pr

BANG & OLUFSEN
Beovox Penta 3-Way Speaker
Five -sided bass reflex speaker. Features four 5-in woofers, four 3-in midranges, one 1-in dome tweeter (vertically aligned). Finished in brushed stainless steel with black grille. FR 40-20,000 Hz +4, -8 dB. 5 x 59 x 38 in. 317 lbs. $2,200/pr

Beolab 3000 2-Way Wall-Hanging Speaker
Bass-reflex speaker with 55-W amplifier in each cabinet. Features one 5-in woofer and one 1-in dome tweeter. Automatic bass-level switching; auto turn on and off when use with B&W flex-link system; digital display shows source, volume, recording status. Finished in brushed stainless steel and blue or gray grille cloth. Speaker section: power handling 45 W cont. FR 75-20,000 Hz. Sens 87 dB SPL/W/m; crossover frequency 3,500 Hz. Imp 8 ohms. Amp section: FR 20-20,000 Hz. THD <0.1%. S/N >97 dBA. 17¼ x 21½ x 4½ in; 20 lb/ea. $1,695/pr

RL 140 3-Way Speaker
Floor-standing bass-reflex speaker with two 6½-in woofers, 5-in midrange, 1-in dome tweeter in gray plastic enclosure with black grille. FR 4½-20,000 Hz +4, -8 dB. Sens 93 dB SPL/W/m; power handling 140 W cont; imp 8 ohms. Crossover frequency 800/3,000 Hz. FR 20 x 20 x 9½ in. 33 lbs/ea. $1,750/pr

RL 69 2.2 2-Way Speaker
Floor-standing speaker with 1-in dome tweeter. Two 5-in cone woofers, tuned port; charcoal black finish. Frequency response 45-20,000 Hz +4, -8 dB; power handling 60 W cont; sens 93 dB SPL/W/m; imp 4 ohms; crossover frequency 2,500 Hz. 21½ x 16 x 7½ in. 19½ lb. $550/pr

BOSE
Model 901 Series 6 Speaker
Direct/Reflecting acoustic-matrix speaker with active EQ and rear-facing, 1 front-facing 4½-in full-range drivers. Features pentagon-shaped cabinet with multi-cell injection-molded core panels of hardwood veneer and walnut finish; active equalizer with fixed EQ; mid bass and midtreble shelf control; tape monitor switch; five-year warranty. Power handling unlimited; imp 8 ohms. Range 100 Hz. EQ: 13 x 29 x 4½ in; Speaker: 21 x 12½ x 13½ in. 35 lbs/ea. Price includes EQ. $1,499/pr

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The most powerful expression of unique technology.

The Bose® 10.2™ Series II Direct/Reflecting® system with Acoustimass® speaker technology.

Inside and out, it's a speaker unlike any other. The Bose 10.2 Series II speaker successfully harnesses a series of audio technologies, taking the listener one step closer to the goal for all speakers: the realism of live music. The 10.2 Series II speaker combines the most powerful Acoustimass speaker designed for the home with the proven, critically-acclaimed benefits of a Bose Direct/Reflecting® system. The result: a musical listening system with no compromises—one that's at home in any environment.

Technology in harmony with home aesthetics.
The 10.2 Series II system brings lifelike sound into the living environment without overwhelming it. Each speaker's genuine wood veneer, hand-crafted enclosure produces the bass necessary to make even the most demanding music come to life, yet requires just one square foot of floor space. The system's Stereo Targeting® arrays precisely shape and control sound, providing listeners—regardless of where they stand or sit—with full, balanced stereo sound from both speakers. Where the speakers look best is also where they sound best.

Greater musical realism with any sound source.
Like all Bose Direct/Reflecting® speakers, the 10.2 Series II system is designed to accurately reproduce much of the clarity and spaciousness of live music. This strict attention to sonic detail is carried through to the lowest notes, where Acoustimass speaker technology provides much of the realism and impact normally experienced only in the concert hall. The system provides the dynamic range and high power capability required for optimum results with any audio or video system and software—especially digital.

Judge for yourself.
Ask your authorized Bose dealer to demonstrate the Bose 10.2 system with Acoustimass speaker technology against any other speaker—and hear the difference for yourself. For more information or a product brochure, call 1-800-444-2673 between 9 AM and 5 PM EST.

"If music is important in your life, sooner or later you will own a Bose system."
**SPEAKERS**

**Model 10.2 3-Way Speaker**
Floor-standing ported speaker with an 8-in midrange driver, 2-1/2 in tweeter and an 8-in subwoofer. Features Acoustimass system technology. Stereo Everywhere. Stereo Targeting, automatic system protection. System II computer quality control. Hardwood veneer finish. Five-year warranty. Recommended power 10-360 W/ch; sens 88 dB; imp 8 ohms. 38 x 11 x 11/4 in; 46 lb/cu. $1,299/pr

**Model 601 Series III 3-Way Speaker**
Floor-standing Direct/Reflecting speaker system with all tweeters and one woofer mounted above main enclosure in free-space-array configuration for lifelike stereo imaging. Features two 8-in Digital Dynamic Range cone woofers, four 3-in cone tweeters: subport enclosure system with slotted port. Hardwood veneer with walnut finish; five-year warranty. Crossover points at 1,500 and 2,500 Hz. Recommended power 10-400 W/ch; imp 4 ohms. 12 x 30 x 12 in; 45 lb/cu. $999/pr

**Model 401 3-Way Speaker**
Floor-standing Direct/Reflecting speaker system with two 61/2-in woofers and a 2-in magnetic liquid-cooled tweeter. Features Stereo Space array design: column-design enclosure; thermal system protection circuitry. Vinyl veneer with walnut or black finish; five-year warranty. Recommended power 10-200 W/ch; nominal imp 4 ohms. 12 x 12 x 30 in; 31 lb/cu. $599/pr

**Model 6.2 2-Way Speaker**
Bookshelf speaker with controlled-dispersion-pattern design with Direct/Reflecting speaker technology. Features 8-in woofer; two 1-in tweeters. Stereo Targeting system; dual-chamber sub-ported bass venting system; interactive crossover network. Hardwood veneer with teak finish; five-year warranty. Recommended power 10-20W/ch, imp 4 ohms. 20 x 10 x 9 in; 19 lb. 8 oz ea. Optional speaker stand (AS-1) available at extra cost. $599/pr

**Acoustimass 5 Subwoofer/Satellite System**
Compact modular system with Acoustimass bass module and Direct/Reflecting cube speaker arrays. Each array features 2 separate cube enclosures that can be adjusted for direct or reflecting configuration. The bass module has two 61/2-in drivers and a patented Acoustimass enclosure. Features positive-temperature-coefficient efficienct resistor to compress overloading input signals. Scratch-resistant black satin finish for the acoustimass module, black polymer finish for the cube speaker arrays; five-year warranty. Power handling 200 W max rms. Cube speaker array: 31/2-in per side plus grille. Bass module 12 x 20 x 8 in; 33 lb. $799

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**BASE 901 SERIES VI**

**T930 3-Way Speaker**
Floor-standing acoustic suspension speaker with 10-in copolymer cone woofer. 6-in copolymer cone midrange, and 1-in CFT5 dome tweeter. Features genuine walnut veneer; hand finished on 5 sides. Woodgrain vinyl or black-ash vinyl. Power range 15-150 W/ch rms; FR 40-20,000 Hz ±3 dB; sens 89 dB sp/w/m; imp 8 ohms; crossovers at 250 and 2,500 Hz. 10 x 36 x 12 in. $800/pr. $700/pr

**T830 3-Way Speaker**
Floor-standing acoustic suspension speaker with 8-in copolymer cone woofer. 31/2-in copolymer cone midrange, and 1-in dome tweeter. Features woodgrain or black-ash vinyl finishes. Power range 15-100 W rms; FR 45-20,000 Hz ±3 dB; sens 88 dB sp/w/m; imp 8 ohms; crossovers 800 and 4,000 Hz. 9 x 32 x 10 in. $500/pr

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**CAMBRIDGE SOUNDWORKS**

**Cambridge 901 Series 11**
Ensemble by Henry Kloss Subwoofer/Satellite Five-speaker system consisting of 2 subwoofers and 2 satellite units. Each satellite features 6-1/2-in ferrofluid-cooled cone midrange (170 Hz to 2,300 Hz) and 1-1/4-in direct radiator with an integral 6-1/2-in ferrofluid-cooled dome tweeter (2,300 Hz to 20,000 Hz). Cabinet is high-density particle board finished in dark gray Nextel: metal grilles. Each low-frequency unit features 8-in long-throw acoustic suspension driver; GR 15-200 Hz to 1,000 Hz. Black and white ash, matte mahogany, oak or walnut finish. 12 x 4 1/2 x 13 1/8 in; 79 lb. 6 oz. $3,500/pr

**Ambiance by Henry Kloss 2-Way Speaker**
Acoustic suspension speaker with 6-1/2-in long-throw woofer and a 1-in ferrofluid-cooled tweeter; crossover at 1,800 Hz. Full speaker system consisting of 2 subwoofers and 2 satellite units. Each satellite features 6-1/2-in ferrofluid-cooled cone midrange (170 Hz to 2,300 Hz) and 1-1/4-in direct radiator with an integral 6-1/2-in ferrofluid-cooled dome tweeter (2,300 Hz to 20,000 Hz). Cabinet is high-density particle board finished in dark gray Nextel; metal grilles. Each low-frequency unit features 8-in long-throw acoustic suspension driver; GR 15-200 Hz to 1,000 Hz. Black and white ash, matte mahogany, oak or walnut finish. 12 x 4 1/2 x 13 1/8 in; 79 lb. 6 oz. $3,500/pr

**CANTON CT 100 4-Way Speaker**
Bass-reflex speaker features 10-in woofer, 6-in bass/midrange, 1-in aluminum/manganese-dome tweeter. Power handling 180 W continuous/300 W peak; imp 4 ohms. FR 24-30,000 Hz; sens 94.8 dB sp/w/m; crossover frequencies 250/1,100/4,600 Hz. Black and white ash, matte mahogany, oak or walnut finish. 12 x 4 1/2 x 13 1/8 in; 79 lb. 6 oz. $3,500/pr

**CT 80 3-Way Speaker**
Bass-reflex speaker features 8 1/2-in woofer, 5-in midrange, 1-in aluminum/manganese-dome tweeter. Power handling 100 W continuous/150 W peak; imp 4 ohms. FR 24-30,000 Hz; sens 93.9 dB sp/w/m; crossover frequencies 450/4,000 Hz. Black and white ash, matte mahogany, oak or walnut finish. 12 x 22 x 11 1/4 in; 41 lb. 14 oz. $1,650/pr

**Karat 60 3-Way Bookshelf Speaker**
Bass-reflex speaker featuring 10-in woofer. 5-in midrange, 1-in aluminum/manganese-dome tweeter. Power handling 100 W continuous/150 W peak; imp 4 ohms. FR 24-30,000 Hz; sens 93.9 dB sp/w/m; crossover frequency 450/4,000 Hz. Oak, walnut, mahogany, white or black finish. 12 x 22 x 11 1/4 in; 36 lb. 6 oz. $1,990/pr

**Karat 40 3-Way Bookshelf Speaker**
Bass-reflex speaker featuring 9-in woofer, 5-in midrange, 1-in aluminum/manganese-dome tweeter. Power handling 90 W continuous/130 W peak; imp 4 ohms. FR 24-30,000 Hz; sens 92.6 dB sp/w/m; crossover frequency 450/4,000 Hz. Oak, walnut, mahogany, white or black finish. 10 x 20 x 10 in; 38 lb. 11 oz. $1,290/pr

**Karat 29 2-Way Bookshelf Speaker**
Bass-reflex speaker featuring 8-in woofer. 6-in bass/midrange; 1-in aluminum/manganese-dome tweeter. Power handling 50 W continuous/80 W peak; imp 4...
CARVER
The Amazing Loudspeaker, Platinum Edition
1/4-in-thick planar design speaker with 60-in full-range ribbon driver and integral subwoofer section consisting of 4 long-throw 12-in cone woofers. FR 23-40,000 Hz ± 3 dB; sens 89 dB; max SPL 119 dB; power handling 600 W. Available in piano-lacquer black and genuine oak finishes. 30 x 66 x 10 in (at base), 110 lb/ea. $2,195/pr

CELESTION
DLQ-2 3-Way Speaker
Vertical-phase-array speaker intended for floor placement with 10-in cone woofer, 6-in cone midrange, 3-in dome tweeter. Min power 70 W rms; imp 4 ohms. Oak with black or white grille $2,000/pr

DANA AUDIO
Model 1 Bookshelf Speaker
Acoustic-suspension speaker with 6½-in woofers, 4½-in titanium tweeter. Features gold binding posts; Power handling 80 W; FR 40-20,000 Hz; sens 96 dB; imp 8 ohms. Woodgrain vinyl fabric grilles. Satellites 9½ x 12½ x 9½ in, woofer 17 x 17 x 17 in. $850/pr

DASHQUST
DQ-20 3-Way Speaker
Vertical-phase-array speaker intended for floor placement with 10-in cone woofer, 8¼-in cone midrange, 4-in dome tweeter. Min power 70 W rms; imp 4 ohms. Oak with black or white grille $2,000/pr

M-909 3-Way Speaker
Floor-standing speaker with dual cast-frame woofer, 3-in midrange, and 1-in dome tweeter. Features quasi-phase array, genuine wood enclosure, spaced grille with solid wood trim. Flocked anti-diffraction baffle. Sens 92 dB, power range 20-250 W; FR 30-24,000 Hz. $1,575 Hz. Real wood walnut or oak enclosure, spaced grille with solid walnut trim. 28 x 14½ x 12½ in. $1,000/pr

M-907 3-Way Speaker
Acoustic-suspension speaker with 10-in woofer, 5-in cone midrange, and 1-in aligned-fiber dome tweeter. Features woofer operating in sealed enclosure and midrange operating in aperiodic cylinder. Min power 40 W rms; imp 8 ohms. Black grille. $1,200/pr

M-905 2-Way Speaker
Front-firing tuned-port speaker with cast frame 8-in woofer and 1-in dome tweeter. Sens 88 dB; power range 40-150 W; FR 30-24,000 Hz. Real wood walnut or oak enclosure, spaced grille with solid walnut trim. 28 x 14½ x 12½ in. $1,000/pr

SPEAKERS
ohms. FR 36-30,000 Hz; sens 91.9 dB SPL/W/m; crossover frequency 2,500 Hz. Oak, walnut, mahogany, white or black finish. 8¼ x 13½ x 7½ in, 12 lb, 2 oz. $690/pr

SL700 2-Way Speaker
Scaled-box design speaker with metal-dome tweeter and 2-part roll surround on the woofer. Features Aerolam cabinet with integral stand; 12-liter volume. Power handling 120 W. 8 x 15 x 9 in; 14 lb. $2,195/pr

SL600Si 2-Way Speaker
Speaker with metal-dome tweeter and 6-in plastic bass unit. Features cabinet made from Aerolam, an aluminum honeycomb construction. 8 x 14 x 9 in. $2,000/pr

SL12SI 3-Way Speaker
Speaker with metal-dome tweeter, 6½-in cone woofer, 6-in cone midrange, 1-in horn tweeter. Features circuit protection; tweeter level controls. Max power 150 W; frequency response 20,000 Hz ± 3 dB; crossovers 700 and 3,500 Hz; sensitivity 96 dB SPL/W/m; imp 8 ohms. $690/pr

M-915 2-Way Speaker
Floor/shelf 3-way speaker with 12-in woofer, 6-in cone midrange, 1-in horn tweeter. Features circuit protection; tweeter level controls. Max power 150 W; frequency response 20,000 Hz ± 3 dB; crossovers 700 and 3,500 Hz; sensitivity 96 dB SPL/W/m; imp 8 ohms. $690/pr

Sat-6 Subwoofer/Satellite System
6½-in 2-way satellites, with a 10-in dual voice-coil bass driver. CT3 dome tweeter. 6½-in cone midrange. Power handling 200 W; FR 40-20,000 Hz; fabric grilles. Satellites 9½ x 12½ x 9½ in, woofer 17 x 17 x 17 in. $850/pr

DANA AUDIO
Model 1 Bookshelf Speaker
Acoustic-suspension speaker with 6½-in woofers, 4½-in titanium tweeter. Features gold binding posts; Power handling 80 W cont; FR 63-20,000 Hz ± 3 dB; sens 88 dB SPL/W/m; crossover at 3,150 Hz. Finished in black, scratch-resistant vinyl. Three-year warranty. 8¼ x 14½ x 7½ in. $135/pr

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**DBX**

**Soundfield 50 5-Way Speaker**
Two vented, floor-standing enclosures each with 10-in woofer, 6½-in midrange, 4-in upper midrange, and 3-wide dispersion 1½-in tweeters. Phased arrangement produces a flat response (34,200 Hz ± 2.5 dB) and consistent stereo imaging throughout room. Sens 91 dB ± 2.5 dB; crosstalk 70 dB; power range 40-400 W. Phased arrangement produces a flat response (34,200 Hz ± 2.5 dB) and consistent stereo imaging throughout room. Sens 91 dB ± 2.5 dB; crosstalk 70 dB; power range 40-400 W.

FR 39-20,000 Hz ±3 dB; power range 30-250 W; 20 ft x 16½ x 39½ in; 60 lb. Available in gray/black or beige/walnut. $2,000/pr.

**Soundfield 150 3-Way Speaker**
Vented, floor-standing speaker with 10-in woofer; 4½-in midrange; 2½-in tweeters. Features phased arrangement; FR 360° imaging, wrap-around speaker grilles; crossover at 200 Hz. Sens 89 dB SPL/W/m; imp 8 ohms; 4 x 13½ x 11½ in; 60 lb. Available in gray/black or beige/walnut. $1,000/pr.

**Soundfield 2500 3-Way Speaker**
Vented, floor-standing speaker with 6½-in woofer; 2½-in midrange; two ½-in tweeters. Features phased arrangement; 360° imaging, wrap-around speaker grilles; crossover at 200 Hz. Sens 91 dB; nom imp 4 ohms; power range 30-250 W/ch. $1,500/pr.

**Dennsen Electrostats**

**Dennsen Nine 3-Way Speaker**
Floor-standing bass-reflex/electrostatic hybrid speaker with 8-in bextrene woofer, 6½-in midrange; six 3-inch electrostatic tweeters. Phase corrected and time aligned. Electrostatic tweeter for 190 Hz. Power handling 20-200 W; FR 39-20,000 Hz ± 3 dB; sens 89 dB SPL/W/m; 8 lb. Oiled walnut finish: 35 x 11 x 15 in; 60 lb. $1,800/pr.

**Design Acoustics**

**PS-3 Subwoofer/Satellite System**
Consists of 2 oak veneer satellites and a slot-loaded bass module. Satellite has 6½-in polycarbonate dome tweeter and 3½-in midrange. Bass module has two downfiring 6½-in high-compliance, long-throw woofers. Crossovers are housed in each cabinet with frequencies at 200 Hz and 3000 Hz. Sens 88 dB SPL/W/m; FR 50-20,000 Hz; power handling 20-100 W. $600

**Time Frame TF250 2-Way Speaker**
Mirror-imaged floor-standing loudspeaker with 6½-in cone woofer, 2½-in soft-dome tweeter with acoustic lens. Features folded, tapered transmission-line bass loading. FR 34-20,000 Hz; power range 10-100 W; sens 90 dB SPL/W/m; imp 8 ohms; 12½ x 8 x 21 in; 21 lb. Dark oak finish: 21½ x 4½ x 14 in; 42 lb. $649/pr.

**Time Frame TF275 2-Way Speaker**
Floor-standing coaxially mounted speaker with 6½-in cone woofer and 8-in dome tweeter. FR 50-20,000 Hz; power handling 10-100 W; sens 91 dB SPL/W/m; imp 8 ohms. 34 x 13 x 6 in. $399/pr.

**Dennsen Electrostats**

**Dennsen Nine 3-Way Speaker**
Floor-standing bass-reflex/electrostatic hybrid speaker with 8-in bextrene woofer, 6½-in midrange; six 3-inch electrostatic tweeters. Phase corrected and time aligned. Electrostatic tweeter for 190 Hz. Power handling 20-200 W; FR 39-20,000 Hz ± 3 dB; sens 89 dB SPL/W/m; 8 lb. Oiled walnut finish: 35 x 11 x 15 in; 60 lb. $1,800/pr.

**Design Acoustics**

**PS-3 Subwoofer/Satellite System**
Consists of 2 oak veneer satellites and a slot-loaded bass module. Satellite has 6½-in polycarbonate dome tweeter and 3½-in midrange. Bass module has two downfiring 6½-in high-compliance, long-throw woofers. Crossovers are housed in each cabinet with frequencies at 200 Hz and 3000 Hz. Sens 88 dB SPL/W/m; FR 50-20,000 Hz; power handling 20-100 W. $600

**Time Frame TF250 2-Way Speaker**
Mirror-imaged floor-standing loudspeaker with 6½-in cone woofer, 2½-in soft-dome tweeter with acoustic lens. Features folded, tapered transmission-line bass loading. FR 34-20,000 Hz; power range 10-100 W; sens 90 dB SPL/W/m; imp 8 ohms; 12½ x 8 x 21 in; 21 lb. Dark oak finish: 21½ x 4½ x 14 in; 42 lb. $649/pr.

**Time Frame TF275 2-Way Speaker**
Floor-standing coaxially mounted speaker with 6½-in cone woofer and 8-in dome tweeter. FR 50-20,000 Hz; power handling 10-100 W; sens 91 dB SPL/W/m; imp 8 ohms. 34 x 13 x 6 in. $399/pr.
AMT 1D 2-Way Speaker
Floor-standing passive-radiator 2-way speaker with 12-in polypropylene woofer, 12-in passive radiator. Features 21 1/2 x 21 1/2-in Heil air-motion transformer with mylar articulated diaphragm; brilliance controls; maximum power handling 400 watts; frequency response 35-23,000 Hz ± 3 dB; crossover 800 Hz; impedance 6 ohms; sensitivity 91 dB SPL/W/m. Oiled-walnut finish; dark-brown grille. $1,040/pr

PS-1220 3-Way Speaker
Floor-standing passive radiator speaker with 12-in woofer. Heil air-motion transformer tweeter with 10 1/2 x 10 1/2-in radiating area, 4-inch midrange with hi-temp voice coil. Power handling 10-200 watts, frequency response 28-23,000 Hz ± 1 dB; sensitivity 93 dB SPL/W/m; impedance 4 ohms. Solid walnut finish. $1,400/pr

FISHER
STV-440M 3-Way Shielded Speaker
Bass-reflex with 15-in woofer, 3-in rolled-rim midrange, 3-in rolled-rim tweeter. Magnetic-field compensated. 150 W/ohm rms into 8 ohms, sens 93 dB SPL/W/m, FR 38-20,000 Hz. Baldwin oak vinyl veneer finish. $600/pr

STV-410M 3-Way Shielded Speaker
Bass-reflex with 10-in woofer, 4-in midrange, 3-in tweeter. Magnetic-field compensated. 60 W/ohm rms into 8 ohms, sens 90 dB SPL/W/m, FR 50-20,000 Hz. Baldwin oak vinyl veneer finish. $200/pr

FOCUS SPEAKER SYSTEMS
High-Definition 2-Way Speaker
Floor-standing speakers 8-in woofer, 1 1/4-in dome tweeter. Features cabinets constructed from 14-layer Populax sleeve braced inside, wrapped with 1/8-in foam on outside and capped with solid-oak end pieces; phase-aligned drivers in separate subenclosures to improve imaging; adjustable and removable screwing speaker cabinets to any type of floor. FR 32-20,000 Hz ± 3 dB; sens 89 dB SPL/W/m; imp 8 ohms; amp power 30-200 W/ohm, 47 x 12 x 12 in. $1,450/pr

Model 7 2-Way Speaker
Contoured-port speaker with 8-in woofer and 1-in dome tweeter. Features computer-matched time-alignment; Populax internally braced cabinet; hard-wired crossovers. FR 37-9,000 Hz ± 2 dB, nominal imp 8 ohms; power range 30-150 W/ohm, sens 90 dB SPL/W/m, 12 x 28 x 12 in. 37 lb $880/pr

FOSGATE-AUDIOINC
AS-802 2-Way In-Wall Speaker
Sealed, flush-mount speaker with 8-in polypropylene woofer and 1-in ferrofluid-coupled soft-dome tweeter. Features 18 dB/octave crossover with air-core inductor; 250 V low-loss film capacitors. Variable tweeter control. FR 40-22,000 Hz, imp 8 ohms; sens 89 dB SPL/W/m $995/pr

LF-212 Subwoofer
Subwoofer with dual-voice coil 12-in polypropylene woofer. Features direct input or crossover, internal crossover for use with AS-602.

FOSTEX
H-3 3-Way Speaker
Bookshelf speaker system with patented regular phase (RP) tweeter which operates in piston motion and two 8-in woofers. 30 x 11 x 10. $499

FRIED PRODUCTS
G/3 3-Way Speaker
Floor-standing transmission-line speaker with 10-in polypropylene-dualcone woofer. 60-in midrange: 3-in dome tweeter. Features series crossover networks and duocone drivers; full free-flow transmission-line loading of midrange and aperiodic-design principles for linearity and dynamic range. FR 23,270 kHz ± 1 dB; power range 10-200 W rms; sens 91 dB SPL/W/m; imp 8 ohms. Walnut and oak finishes. 16 x 44 x 18 in; 100 lb. $2,400/pr

STUDIO IV 2-Way Speaker
"Flow-resistance" floor-standing speaker with 8-in dualcone woofer; 2-in duocone midrange. 14-in dome tweeter. Features series network. FR 26-22,000 Hz ± 3 dB; power range 0-1,000 W; sens 91 dB SPL/W/m; imp 8 ohms. Walnut finish. 12 x 39 x 18 in; 75 lb. $1,400/pr

A/3 2-Way Speaker
Speaker with 8-in polypropylene woofer, 1-in soft-dome tweeter. Features edge-on free-flow filters; line tunnel. FR 45-20,000 Hz ± 3 dB; power range 25-100 W; imp 8 ohms; crossover frequency 2,000 Hz; sens 96 dB SPL/W/m; 23 x 13 x 10 1/2 in $650/pr

GOODMANS OF ENGLAND
H.L.M. 800 3-Way Speaker
Bass-reflex speaker with 15-in woofer, 8-in midrange and 1-in soft-dome tweeter. Features an infinite baffle, separate level controls for the woofer and midrange. Min power 10 W; FR 30-20,000 Hz; sens 98 dB SPL/W/m; crossover at 1,000 Hz; Italian black walnut vinyl. Power handling 70 W. Matte-black finish. 40 x 18 x 17 in. $1,149/pr

H.L.M. 440 3-Way Speaker
Bass-reflex speaker with 12-in woofer, 4-in midrange, and 1-in tweeter. Features an infinite baffle; separate level controls for the midrange and tweeter. Min power 10 W; FR 30-20,000 Hz; sens 98 dB SPL/W/m; imp 8 ohms; crossover at 1,000 and 4,000 Hz. Black finish. 40 x 18 x 17 in. $749/pr

The Maxamp Remote 2-Way Powered Speaker
Bass-reflex, 25 W powered speaker with 5-in woofer and 3-in dome tweeter. FR 65-20,000 Hz; sens 86 dB SPL/W/m; imp 8 ohms. Black. 10 x 7 x 7 in. $475/pr

B-Xt Subwoofer
Subwoofer with two 6-in drivers. FR 30-150 Hz; impedance 8 ohms; crossover 150 Hz. 24 x 8 x 9 in; 22 lb/ea $225/ea

HAFFER
Model 400 3-Way Speaker
Floor-standing speaker with tuned transmission line design; mirror image array consisting of 1-in soft-dome tweeter, two 6 1/2-in midrange woofers, and 8-in rear mounted woofer; sloping baffle; rear mounted ports; pedestal base; gold 5-way input jacks; spike feet. FR 30-20,000 Hz, sens 92 dB SPL/W/m, nom imp 8 ohm; min power 20 W/ohm. Dark oak veneer, black grille. 10 1/2 x 40 1/2 x 12 in; 38 lb. $1,095/pr

Model 300 2-Way Speaker
Floor-standing speaker with tuned transmission line design; mirror image array consisting of 1-in soft-dome tweeter, and two 6 1/2-in midrange woofers; sloping baffle; rear mounted port; pedestal base. Gold 5-way input jacks; spike feet included. FR 35-20,000 Hz; sens 91 dB SPL/W/m; nom imp 8 ohm, min power 20 W/ohm. Dark oak veneer w/black grille. 9 1/2 x 36 x 11 1/2 in; 45 lb ea. $795/pr

Heybrook by D'ASCANIO AUDIO
HIB-290 2-Way Speaker
Dual-reflex-tuned speaker with 6 1/2-in woofer and metal-dome tweeter. Black ash or walnut finish. FR 34-22,000 Hz; sens 88 dB; imp 8 ohms; power range 15-100 W. 18 x 11 x 9 in. $999/pr

HR-100 2-Way Speaker
Infinite-baffle speaker with 8-in woofer and metal-dome tweeter. Features black or wood-grain finish. FR 50-20,000 Hz; sens 89 dB; nom imp 8 ohms; power range 15-200 W. 19 x 11 x 10 in. $599/pr

HITACHI
HSW50 3-Way Speaker
3-way slimline acoustic-suspension speaker with 8-in woofer, 5-in midrange, and 4 1/2-in dome tweeter. Power handling 70 W. Matte-black finish. 30 x 9 1/2 x 9 1/2 in. $300/pr

IMAGE
Concept 200 2-Way Speaker
Ported speaker with two 6 1/2-in woofers; 3 1/2-in damped hyperbolic cotton-dome tweeter; crossover at 2,100 Hz; Italian black-walnut vinyl. Power range 35-200 W. FR 30-23,000 Hz ± 2 dB; sens 87 dB SPL/W/m. 43 x 10 x 15 in; 66 lb each. $1,000/pr

Concept 100 2-Way Speaker
Ported speaker with 6 1/2-in woofer; 3 1/2-in damped hyperbolic cotton-dome tweeter; crossover at 2,100 Hz, Italian black walnut vinyl. Power handling 60 W.
INFINITY

IRS Beta 5-Way Speaker

Includes (per side) four 12-in woofers with servo-controlled polypropylene/graphite fiber injection molded cones. 2 upper bass/midrange planar push-pull drivers which act as a dipole low-mass EMIT with neodymium magnets for upper midrange; low mass/neoodynam EMIT's from IRS V (in a dipole configuration) for the lower treble; SEMIT (a smaller aperture EMIT) which extends response beyond 44 kHz. The system operates in a bi-amp mode and includes the IRS V servo control unit; active and passive crossover control. Monster Cable for all internal wiring. Power handling 5-100 W cont (mid/tweeter), 150-500 W cont (Bass); imp 4 ohms; FR 15-45,000 Hz, ±2 dB; crossover frequencies 150/4,500 Hz. Rosewood or black ash, fabric grille, neutral-black and white lacquer finish. 16 x 12 x 10 in; 29 lb ea. $1,198/pr.

IRS Gamma. Similar to Gamma with accelerometers, and I bass driver, accelerometer, and servo system. FR 12-45,000 Hz, ±3 dB; sensitivity 88 dB sPL/W/m; imp 6 ohms. 21-1/2 x 59-1/2 x 8 in; 31 lb each. $450/pr.

IRS Delta. Similar to Gamma with accelerometer, can be updated to Gamma with addition of servo unit (below) $3,500/system. IRS Servo Control Unit. $1,450.

9 Kappa Reference Standard 5-Way Speaker

Features two 12-in cast frame U/C tuned woofers; SEMIT k tweeter. Rear-ported EMIT k tweeter: 3-in polydome rear radiator; polygraph k composite polypropylene/graphite 5-in mid-bass dome. 3-in edgewound polydome k midrange; internal crossovers; bi-ampable. Monster Cable for all internal wiring. Oak solids and veneer with high-density particle board with a furniture-grade lacquer finish. FR 29-45,000 Hz, ±3 dB, crossover frequencies 80, 800 and 4,500 Hz; power rating 60-340 W/rms; sens 89 dB sPL/W/m; imp 4 ohms. 21-1/4 x 59-1/4 x 8-3/4 in; base footprint: 18 x 17 x 21-1/2 lb. $11,950/system. IRS Gamma. As above, but only two woofers and bass driver, accelerometer, and servo system. FR 29-45,000 Hz, ±3 dB; sensitivity 86 dB sPL/W/m; imp 6 ohms; crossover frequency 4000 Hz. Chatsworth oak vinyl or black oak vinyl. 11-1/2 x 20-3/4 x 9-3/4 in; $398/pr.

ERS 800 2-Way In-Wall Speaker

Features 8-in graphite woofer and EMIT k tweeter, independent tweeter control. $552/pr.

Art 2-Way Wall Speaker

2-way, flat panel, wall-hanging loudspeaker which works as full-range or satellite unit. Features 5-in woofer, 1-in dome tweeter, peak power 90 W; continuous power 60 W; sens 88 dB/ W/m. FR 40-20,000 Hz, ±3 dB; crossover frequencies 3,000 Hz; imp 8 ohms; overload protection. Neutral-black and white lacquer finishes. 13 x 15-3/4 x 3/4 in; 10.6 lb. $500/pr.

SW-3 Subwoofer Satellite System

Features 4-in midrange and includes 3-motion, crossover frequency 200/4500 Hz; imp 8 ohms. 13 x 8 x 19 in. $499.

SW-3. Without S-3 satellites. $349.

JBL

L100.3 3-Way Speaker

Floor-standing speaker with 12-in aquaplas-laminate woofer, 5-in high-polymer-laminate midrange, and 1-in pure-titanium-diaphragm tweeter. Power handling 400 W cont; FR 35-27,000 Hz; crossovers 800 and 4,500 Hz; sens 91 dB SPL/W/m; imp 8 ohms. Oak or walnut veneer finish. 141/2 x 36-3/4 x 15-1/4 in; 58 lb/ea. $1,398/pr.

L120.3 3-Way Speaker

Floor-standing speaker with 12-in aquaplas-laminate woofer, 5-in poly-vinyl-laminate midrange, 1-in pure-titanium-diaphragm tweeter. Power handling 300 W cont; FR 40-27,000 Hz; crossovers 800 and 4,500 Hz; sens 90 dB SPL/W/m; imp 8 ohms. Oak or walnut veneer finish. 12 x 36 x 14-1/4 in; 44 lb ea. $1,098/pr.

JAMO

Concert III 3-Way Speaker

3-way speaker with 1-in dome tweeter. FR 24-33,000 Hz; ±3 dB; impedance 8 ohms. 11 x 36 x 12 in; 62 lb. $1,698/pr.

Concert V 3-Way Speaker

3-way bass reflex speaker with 6-1/2-in woofer and 1-in dome tweeter. Continuous power 110 W; peak power 160 W; sens 93 dB SPL/W/m; FR 30-22,000 Hz; ±3 dB; crossover frequencies 150/3,500 Hz; imp 6 ohms; overload protection. 24K gold-plated binding posts. Mahogany or stained black ash. 11-1/8 x 14 x 11 in; $1,198/pr.

Concert II 2-Way Bookshelf Speaker

2-way bass-reflex speaker with 6-1/2-in woofer and 1-in dome tweeter. Continuous power 80 watts; peak power 120 watts; sensitivity 91 dB SPL/W/m; frequency response 40-20,000 Hz; ±3 dB; crossover frequency 2,000 Hz; impedance 8 ohms; overload protection; 24K gold-plated binding posts. Mahogany or stained black ash. 16 x 9 x 10 in; 20 lb. $750/pr.

JBL L 40.3

L180.3 3-Way Speaker

Floor-standing speaker with 10-in aquaplas-laminate woofer, 5-in poly-vinyl-laminate midrange, 1-in pure-titanium-diaphragm tweeter. Power handling 300 W cont; FR 40-27,000 Hz; crossovers 800 and 4,500 Hz; sens 90 dB SPL/W/m; imp 8 ohms. Oak or walnut veneer finish. 12 x 32 x 14-1/4 in; 44 lb ea. $1,098/pr.
JENSEN
Model 3150 Concert Series 3-Way Speaker
Speaker with 15-in woofer, 3-in midrange, and 3-in cone tweeter. FR 33-21,000 Hz; imp 8 ohms, 32 x 18 1/2 x 11 in $350/pr

Model 3120 L-Way Speaker
Features 12-in cone midrange, and 3-in tweeter. FR 48-21,000 Hz; max power 150 W, 60 W continuous; imp 8 ohms. 29 x 15 1/2 x 10 1/2 in $280/pr

JBL LOUDSPEAKERS
AP3 2-Way Speaker
Features a 12-in dome tweeter and 6-in titanium dome woofer. Power handling 100 W cont; FR 48-21,000 Hz; sens 89 dB sm/W/m, imp 8 ohms. 7 x 13 1/4 x 10 1/2 in $499/pr

AP4 2-Way Wall-Mount Speaker
Features 1-in titanium dome woofer and 6-in high-polymer-laminate woofer. Can be flush-mounted; designed for use with an external subwoofer. Power handling 100 W cont; imp 8 ohms: sens 88 dB SPL/W/m; FR 120-22,000 Hz. 7 x 13 1/2 x 10 1/2 in $599/pr

AP5 2-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; fr 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP6 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP7 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP8 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP9 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP10 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP11 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP12 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP13 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP14 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP15 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP16 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP17 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP18 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP19 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP20 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP21 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP22 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP23 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP24 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP25 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

AP26 3-Way Wall-Mount Speaker
Features a 12-in dome tweeter and a 1-in full-range tweeter. Power handling 100 W cont; FR 120-22,000 Hz; sens 90 dB SPL/W/m; imp 8 ohms. 7 x 13 1/2 x 10 1/2 in $599/pr

JVC
SX911/WD 3-Way Speaker
Floor-standing speaker with 12-in cone woofer, 48-w cross-carbon midrange, 12-in amorphous-diamond-coated tweeter. Features 3-part crossover network. low-resonance/vibration diecast aluminum speaker frame, high-density particle-board enclosure, round-cornered front baffle. 300 W max power handling. $970 ea

KEF
Reference Series
Model 107 3-Way Speaker
Floor-standing coupled-cavity bass-loading speaker uses 2 woofers operating into a resonant chamber vented at top of enclosure to combine sensitivity of bass reflex with accuracy and bass extension of acoustic suspension. Features two 10-in cone woofers, 4-in polypropylene-cone midrange, 1-in ferrofluid-cooled soft-dome tweeter, pivoting midrange/tweeter head assembly with individual contoured enclosures for minimum diffraction, reduced off-axis coloration, and optimum stereo imaging. Hybrid crossover network with built-in passive crossover and onboard active bass EQ with controls for contour damping, and extension. Conjugate load-matched passive crossover presents amp with uniform imp at all frequencies. Power handling 300 W cont; FR 20-20,000 Hz, ±3 dB; sens 90 dB SPL/W/m; imp 4 ohms. Walnut, black ash, or rosewood finish. 13 x 46 x 17 1/2 in; 99 lb ea $4,800/pr

Model 104/2 3-Way Speaker
Floor-standing speaker with cone woofers vertically aligned. Coupled-cavity bass loading technique, chassis-less drivers, conjugate load matching. Two 8-in cone woofers, two 48-w cone midranges and 1-in ferrofluid-cooled dome tweeter. Power handling 200 W max. FR 35-20,000 Hz, ±2 dB; sens 90 dB SPL/W/m; imp 4 ohms. Walnut, black gloss, or rosewood finish. 13 x 46 x 17 1/2 in; 99 lb ea $2,300/pr

KEF C95
### SPEAKERS

**Model 102 2-Way Bookshelf Speaker**
Features 6-in polypropylene-cone woofer and 1-in ferrofluid-cooled soft-dome tweeter. Hybrid crossover network with built-in passive crossover and onboard active bass EQ with controls for crossover and extension. Conjugate load-matched passive crossover presents amp with uniform imp at all frequencies. Power handling 200 W cont; FR 65-20,000 Hz, ± 2 dB, sens 92 dB spl/W/m; imp 4 ohms. Walnut, black-ash, or rosewood finish available. 13 x 10 3/4 in; 15 lb/ea.

$990/pr

**KINELD AUDIO**

**Purist LT 2-Way Speaker**
Floor-standing speaker using a 2 pair piston configuration with two 6-in polypropylene cone woofers and 1-in dome tweeter. Features bass loading via an 8-in passive radiator in a loaded-line configuration. FR 35-20,000 Hz ± 2 dB, imp 4 ohms, 13 x 43 x 6 1/2 in; 60 lb.

$895/pr

**Model 1500 3-Way Speaker**
Tuned-port speaker with 12-in woofer, 3-in midrange, and 3-in tweeter. Power range 5-85 W rms; frequency response 22-22,000 Hz, ± 2 dB; sensitivity 91 dB spl/W/m. impedance 8 ohms. Crossover points 900 and 4,000 Hz. Oak vinyl finish. 31 x 15 3/4 x 10 1/4 in.

$438/pr

**C Series**

**C95 3-Way Speaker**
Floor-standing speaker features KEF Uni-Q 2-way driver: 8-in woofer and 1-in polymer-dome tweeter; coupled cavity bass loading; 8-in unit mounted vertically inside cabinet is loaded at the front by a tuned cavity; conjugate load matching; separate set of connecting terminals allows to bi-amplify driving the bass unit separately. Power handling 250 W cont; frequency response 40-20,000 Hz, ± 3 dB; sensitivity 93 dB spl/W/m; imped 4 ohms. Grain-match real walnut or black ash finish. 9 1/4 x 28 1/2 x 10 1/2 in; 28 lb, 10 oz ea.

$1,290/pr

**C75 3-Way Speaker**
Floor-standing loudspeaker using half a square foot uses the same KEF Uni-Q driver as C95; second 8-in bass unit on matching diecast chassis, enclosed enclosure. Power handling 150 W cont; FR 57-20,000 Hz, ± 3 dB; sens 91 dB spl/W/m; imp 4 ohms. Simulated walnut or simulated black ash finish. 9 1/4 x 28 1/2 x 10 1/2 in; 28 lb, 7 oz ea.

$750/pr

**Custom Series**

**CR250SW In-Wall Subwoofer**
Features 10-in subwoofer extended bass response of CR200 or CR160 by 1 octave. Power handling 150 W cont; FR 32-150 Hz, ± 2 dB; sens 90 dB spl/W/m; imp 4 ohms. 13 x 13 x 3 1/4 in.

Price not including installation.

$550

**CR280F 2-Way In-Wall Speaker**
Features 8-in bass driver mounted to 1-in soft-dome tweeter with fluid cooling; self-resetting tweeter protection circuit; power handling 100 watts continuous. Frequency response 55-22,000 Hz; sensitivity 90 dB spl/W/m, imped 4 ohms. 13 x 10 x 3 1/2 in. Price not including installation.

$450/pr

**CR160R**
As above but round frame.

$400/pr

**KENWOOD**

**LS-97010 4-Way Speaker**
Floor-standing 5-way system with 1-in passive radiator. Features 10-in polypropylene woofer; 4-in polypropylene midrange; 1 1/2-in flat-leaf-diaphragm super tweeter; 2 cone tweeters; Max power handling 230 W; FR 20-48,000 Hz; sens 97 dB 1/2 W/m; imp 8 ohms; crossover points 900. 5,500, 10,000 Hz. Woodgrain finish. 17 1/4 x 44 1/4 x 13 7/8 in; 62 lb ea.

$700/pr

**TAPERED 4-WAY Speaker**
Floor-standing, bowed speaker with 12-in polypropylene woofer; 4-in polypropylene cone midrange. 1 1/2-in synthetic-dome tweeter with magnetic-liquid cooling/damping; 3-in synthetic-dome tweeter with magnetic-liquid cooling/damping. Features interconnecting harness of color-coded high-performance speaker cables; 5-way heavy-duty binding posts. Linear-phase driver arrangement in mirror-image pairs; front-mounted fuse and noninductive level controls. Crossover points 90, 2,000, 7,000 Hz. FR 18-22,000 Hz ± 1.5 dB; min power 20 W, max 200 W; sens 92 dB spl/W/m; imp 8 ohms: Mirror matched high-grade walnut veneer. Black grille with non-resonant frame. 16 x 40 x 14 in. 115 lb.

$2,000/pr

**KIRKSAETER**

**Monitor 141 3-Way Bookshelf Speaker**
Acoustic-suspension speaker with a 10-in long-throw polypropylene woofer, 5-in polypropylene midrange in an acoustic-suspended aluminum chamber, and 3-in titanium-dome tweeter with ferrofluid. Power handling 10-140 W; sens 88 dB spl/W/m, imp 4 ohms. 17 1/4 x 10 x 21 1/2 in; 30 lb. 4 wood finish.

$1,290/pr

**Omega Satellite/Subwoofer System**
Includes 2 lacquered acoustic-suspension speakers each with a 5 1/2-in polypropylene woofer/midrange and 2 1/2-in tweeters; powered subwoofer has two 7-in polypropylene (lower bass drivers) made of fiberglass. Power handling 20-100 W; sens 89 dB spl/W/m. Subwoofer frequency range 40-180 Hz. Satellites 180-20,000 Hz. Satellites 5 1/2 x 8 1/2 x 3 1/2 in. Subwoofer 11 1/4 x 19 x 8 1/4 in; 21 lb. Black or white finish.

$799/system

**Concept 100 2-Way Bookshelf Speaker**
Ported enclosure speaker with a 7-in long-throw polypropylene woofer and 1-in textile-dome tweeter. High-class fiberglass with front trim panels of black oak, walnut, or antique oak. Power handling 10-100 W; sens 90 dB spl/W/m. 8-65 W rms; FR 24-22,000 Hz ± 6 dB; sensitivity 94 dB spl/W/m; imp 8 ohms. 16 1/4 x 14 x 7 1/2 in.

$599/pr

**KINDEL AUDIO**

**Purist LT 2-Way Speaker**
Floor-standing speaker using a 2 pair piston configuration with two 6-in polypropylene cone woofers and 1-in dome tweeter. Features bass loading via an 8-in passive radiator in a loaded-line configuration. FR 35-20,000 Hz ± 2 dB, imp 4 ohms. 13 x 43 x 6 1/2 in; 60 lb.

$895/pr

**Model 602 3-Way Speaker**
Tuned-port speaker with 6-in polypropylene woofer and 3-in ferrofluid-cooled tweeter. Features shielded magnets for positioning next to a TV without disrupting the picture. Power range 8-65 W rms; FR 50-22,000 Hz ± 6 dB; sens 90 dB spl/W/m; imp 8 ohms; crossover point at 4,000 Hz. 9 x 16 1/2 x 9 3/4 in.

$258/pr

**KILPSCH**

**Klipschorn 3-Way Speaker**
Fully horn-loaded floor-standing speaker features K-33-E woofer, K-55-M midrange and K-77-M tweeter. Power handling 100 W cont; FR 35-17,000 Hz; ± 3 dB; sens 104 dB spl/W/m; imp 8 ohms; crossover 31 1/2 x 28 1/4 x 16 1/2 in; 167 lb. Priced depending on finish, from approx. $3,598/pr.

**Chorus 3-Way Speaker**
Floor-standing speaker featuring 15-in woofer (K-48-E), horn-loaded compression drivers for midrange (K-57-K) and tweeter (K-79-K). Ventilated box enclosure: built-in rear port. Power handling 100 W cont; FR 45-20,000 Hz ± 3 dB; sens 101 dB spl/W/m; imp 8 ohms. Walnut or oak finish. 18 1/2 x 39 x 15 1/2 in; 89 lb ea. Priced according to finish from approx. $1,630/pr.

**Forti 11-Way Speaker**
Floor-standing speaker featuring horn-loaded compression drivers for midrange (K-61-K) and tweeter (K-75-K). 12-in woofer (K-35-K). 17-in passive radiator (K-15-K) mounted on rear of cabinet. Vented box enclosure: built-in rear port. Power handling 100 W cont; FR 32-20,000 Hz ± 3 dB; sens 99 dB spl/W/m; imp 8 ohms. 16 1/2 x 35 1/8 x 12 in. 56 lb ea. Priced accordingly to finish, from approx. $1,180/pr.
SPEAKERS

Heresy II 3-Way Speaker
Features 12-in woofer (K-24-K), horn-loaded compression midrange (K-53-K) and tweeter (K-76-K). Sealed enclosure. Power handling 100 W continuous. FR 50-20,000 Hz ± 3 dB; sensitivity 96 dB SpI/W/m; impedance 8 ohms. Available in exotic woods. 15.6 x 21.4 x 13.4 in; 37 lb ea. Priced depending on finish, from approximately $930/pr.

Kost 2-Way Speaker
Floor-standing speaker with 12-in rear-mounted passive radiator (K-D-12), two 8-in polymer-core woofers (K-8), and horn-loaded tweeter (K-74). Vented box enclosure; built-in iser base. Power handling 100 W cont; FR 38-20,000 Hz ± 3 dB; sens 94 dB SpI/W/m; imp 6 ohms. Oak or walnut finish. 15.4 x 24.4 x 10 in; 40 lb ea. From approx $672/pr.

Koss M/100 Plus Powered Speaker
Built-in 20-watt amp allows amplification from the headphone jack of TV, portable tape, or CD player. FR 50-30,000 Hz; s/n 80 dB. THD <5% at 1 kHz; 4 ohm imp. 27 lb/pr ... $260/pr.

M/90 Plus 2-Way Speaker
Features two 4.5-in woofers and 1-in dome tweeter. FR 50-30,000 Hz; sens 88 dB SpI/W/m; imp 4-6 ohm max; power 30 W continuous. 100 W peak. 13.2 x 54 x 5.5 in; 30 lb/pr ... $220/pr.

Linn Products

DMS-305hark 3-Way Speaker
Isohant-loading 3-way floor-standing speaker with 12-in, 9-in woofers. 5-in midrange. two 1-in dome tweeters. Can be tri-am ped. FR 25-20,000 Hz ± 1.5 dB, crossovers at 375 and 3 kHz. Instantaneous dynamic range 54 dB; imp 4 ohms; power range 50-500 W. 30 x 15 x 16.5 in ... $3,585.55.

Kaliber 2-Way Speaker
Floor-standing tower speaker with two 5-in woofers and 1-in tweeter. Woofers operate at different enclosure resonance and crossover points. Can be tri-amped or passively tri-amped. Nothing integrated. Walnut or black ash finish ... $1,995.99.

Nexus LS 250 2-Way Speaker
Ported 2-way system. 8-in carbon-loaded polypropylene woofer. 3-in soft-dome tweeter. Molded front baffle and port of structural foam polymer. Built-in 14-in pedestal stand. 4th order Linkwitz-Riley crossover. Phase aligned, at 2.5 kHz. Frameless grill. Can be bi-wired/sens 88 dB SpI/W/m. 10 x 22 x 12 in ... $1,095-$1,295/pr.

Helix 2-Way Speaker
Bookshelf or floor mounting, powered speaker with 8-in woofer and 1-in dome tweeter. Can be bi-wired or passively tri-amped. 20 x 10 x 11 in. Simulated black ash finish ... $795/pr.

Luxman

S-505 2-Way In-Wall Speaker
Flush-mount system designed for custom installation in walls or ceilings. Features 8-in woofer with long-throw 1-in voice coil and graphite/polypropylene cone. 1-in soft-dome tweeter with auto-resetting overload protector. Tweeter-level control; mounting provision for optional stand for large monitor television sets. 26 x 28 x 22 in; 115 lb ... $1,495.

Satellite 1B 2-Way Speaker
2-way acoustic-suspension speaker with two 5-in polypropylene woofers and two 1-in soft-dome tweeters. Features 36 tonal balances through midrange; tweeter character switches. FR 70-22,000 Hz ± 3 dB; power range 70-400 W; imp 4 ohms. Walnut or oak finish with black grille. 21 x 7.4 x 7 in; 19 lb ... $725/pr.

Satellite 2B 2-Way Speaker
Acoustic-suspension speaker with 6½-in polypropylene woofer and 1-in soft-dome tweeter. Features selection for 36 tonal balances; midrange, treble character switches. FR 65-20,000 Hz ± 3 dB; power range 15-100 W. Walnut or oak finish with black grille. 10½ x 6¾ x 7 in; 9 lb ... $550/pr.

Marantz

SP 1513 3-Way Speaker
Ported, floor-standing speaker with 15-in woofer; 5-in ferrofluid cone midrange; 3-in ferrofluid cone tweeter; sculptured furniture-style cabinet. Max power 165 W; sens 92 dB SpI/W/m; imp 8 ohms. Bannorwood vinyl finish. 18 x 32½ x 16½ in; 47 lb ... $400/pr.

Martin-Logan

Monolith III Hybrid Electrostatic Speaker
Floor-standing curvilinear electrostatic panel speaker mounted atop a tuned subwoofer box. Designed for wide dispersion without the use of delay lines of lenses. Features 2-fl x 4-fl electrostatic cell for 100-24,000 Hz and a 12-in high-speed subwoofer with 2-in voice coil that is down 3 dB at 16 Hz. Power handling 250 W cont. FR 28-24,000 Hz ± 2½ dB, 20 ohms. Available in a variety of finishes. 25 x 75 x 135 in ... $6,500/pr.

With electronic crossover ... $7,000.

CLS II Electrostatic Speaker
Floor-standing curved electrostatic speaker. Features wide-dispersion format for full-range reproduction; 2-fl x 4-fl electrostatic cell to reproduce all frequencies from 50-22,000 Hz. 30 degrees seamless horizontal dispersion; 4-fl linesource vertical; arc-free diaphragm; see-through appearance. Power handling 150 W cont. FR 35-22,000 Hz ± 2 dB; sens 85 dB SpI/W/m; imp 4 ohms. Available in a variety of finishes. 26 x 48 x 3 in; 75 lb ea ... $3,500/pr.

Martin-Logan Sequel II

M&K

MIX-1000 Pedestal Powered Subwoofer
Magnetic-shunt powered pedestal acoustic-suspension with two 12-in drivers. Magnetically shielded design and pedestal shape allow use as

LINE NEXUS LS 250
RC-501 remote control sensor; integral clamps and mounting brackets. FR 50-22,000 Hz ± 2½ dB; sens 89 dB SpI/W/m; non imp 8 ohms. Outside frame: 14½ x 10½ x 3½ in ... $9,030

Magneplanar

Tribran-1VA 3-Way Speaker
Combination planar-magnetic and ribbon tweeter with bi-amplification option. FR 30-40,000 Hz ± 3 dB; power handling 300 W max; sens 87 dB SpI/W/m; imp 4 ohms bass, 3 ohms midrange/tweeter; crossover frequency 400/3,000 Hz. Off-white, black, or brown panel with oak trim. Bass section, 125½ sq; in planar magnetic/midrange section. 168 sq; in planar magnetic/tweeter section; ¾ x 5½ in ribbon; 260 lb/pr ... $3,800/pr.

Magneplanar MG-11A 3-Way Speaker
Combination planar-magnetic and ribbon tweeter with bi-amp option. FR 37-40,000 Hz ± 3 dB; power handling 200 W max; sens 85 dB SpI/W/m; imp 4 ohms bass, 3.4 ohms midrange/tweeter; crossover pts 500-3,000 Hz. Off-white, black, or brown panel with oak trim. Bass section, 620 sq; in planar magnetic/midrange section, 170 sq; in planar magnetic/tweeter section; ¾ x 5½ in ribbon ... $2,195/pr.

Magneplanar MG-14 2-Way Speaker
Floor-standing 2-way speaker with planar magnetic woofer and tweeter. Features oak side rails, off white fabric grille. Power handling 200 W cont. FR 40-18,000 Hz ± 3 dB; crossover frequency 1,000 Hz; sens 87 dB SpI/W/m; imp 5 ohms purely resistance. 22 x 60 x 2 in ... $980/pr.

Magneplanar SMG-2 2-Way Speaker
Full-range speaker with 0.5-in diaphragm driven by Magneplanar magnetic field. Power handling 100 W cont. FR 50-18,000 Hz ± 4 dB; sens 85 dB SpI/W/m; imp 4 ohms; crossover 2,400 Hz. Bass, midrange section, 370 sq; in; tweeter section, 58 sq; in. 19½ x 48½ x 13½ in ... $495/pr.

M&K

Mix-1000 Pedestal Powered Subwoofer
Magnetic-shunt powered pedestal acoustic-suspension with two 12-in drivers. Magnetically shielded design and pedestal shape allow use as...
Sequio II Hybrid Electrostatic Speaker

Floor-standing electrostatic/subwoofer system. Features visually transparent electrostatic transducers that operate from 200-24,000 Hz, 30° seamless horizontal dispersion in a vertical line-source format. 1-in x 4-ft electrostatic cell; supermass 10-in subwoofer; crossover 200 W. $3,100. FR 26-24,000 Hz ± 3 dB; sens 89 dB SPL/W/m; imp 6 ohms. Oak and black finish. 14 1/2 x 74 x 13 1/2 in; 110 lb ea $2,500/pr

MB QUART

MB 650 3-Way Speaker

3-way acoustic-suspension column loudspeakers. Features 1-in multilayered, compressed wood/soft-magnetic fluid-cooled tweeter; computer optimized bass response; 1-in titanium-dome tweeter, 2-in polypropylene midrange, 8-in butyl woofer, power handling 100 W max; FR 39-32,000 Hz; sens 88 dB SPL/W/m; crossover frequency 400/2,900 Hz; imp 4 ohms. 10 lb x 33 x 10 in; 38 lb 10 oz ea. Genuine walnut or oak, white, black or gray lacquer $1,499/pr

MERIDIAN

D600 3-Way Powered Speaker

Tri-amplified vented-box active loudspeaker with 6½-in woofer, 6½-in bass/midrange and 1-in metal-dome tweeter. Features select between digital and analog inputs, 2 analog, 2 digital, and 1 digital/optical input. Display gives information about source and volume number. and when connected to Meridian 200 series components, also shows CD track number and FM preset and frequency. Includes infrared remote control that controls D600 loudspeakers and other Meridian components. Remote unit controls functions and tilts controls to optimize loudspeaker response. 70 W x 3, FR 36-20,000 Hz; sens 110 dB SPL/W/m, Oak and black finish. 19 x 25 x 8 in; 37 lb ea. Rosewood, walnut, or black ash finishes $3,490/pr

MISSION ELECTRONICS

Mission 762 3-Way Speaker

Reflex speaker with 2-in polypropylene midbass drivers and 1-in super-elliptical imp transformer tweeter with ferrofluid cooling. Features bass-reflex loading, flared tuned port, bi-ampling and bi-wiring connectors. 5-way terminal posts. Power handling 200 W rms; FR 38-20,000 Hz ± 3 dB; nom imp 8 ohms; crossover frequency 3200 Hz. Available in natural walnut and black ash wood veneers. 9 1/2 x 33 1/4 x 13 1/4 in; 44 lb ea. $999/pr

Cyrus 782 2-Way Speaker

Sealed speaker with two 6½-in mineral-loaded polypropylene midbass drivers and 4-in ferrofluid-cooled fabric-dome tweeter. Features flared reflex-port; 1-in medium-density fiber board; floor spikes; 5-way binding posts; bi-amping and bi-wiring. Power handling 25-150 W rms; FR 49-20,000 Hz ± 3 dB; sens 91.5 dB SPL/W/m; nom imp 4 ohms; crossover frequency 3200 Hz. Walnut, black ash, and rosewood finishes. 10 x 20 3/4 x 13 in; 31 lb ea. $799/pr

Monitor Audio

MA952 Gold 2-Way Speaker

Floor-standing, tuned cabinet speaker with two 6½-in polypropylene woofers and 1-in gold metal-dome tweeter. Features infinite baffle. FR 45-30,000 Hz ± 3 dB; imp 8 ohms. sens 89 dB SPL/W/m; power range 15-120 W. Black ash, Kenyan black oak, and walnut finishes available. 9 x 31 x 13 in. $1,599/pr

R352/MD 2-Way Speaker

Reflex speakers with 8-in woofer and 4-in metal-dome tweeter. Feature foam-lined cabinet. FR 50-20,000 Hz ± 3 dB; imp 8 ohms. sens 91 dB SPL/W/m; power range 100-400 W. Black ash, gold laminate, and other Meridian components._remote unit provides control over volume and source, and 14 controls over speaker position. 17 x 11 in; 20 lb ea. $499/pr

McIntosh

MR 1052 4-Way Speaker

Features 10-in woofer with copper voice coil; 5-in midrange isolated from woofer; 1-in dome tweeter with copper-wire voice coil centered and suspended with custom surround; 15-in passive radiator with accurately adjusted moving mass; built-in crossover with points at 55, 450, and 1300 Hz. cabinet made of high density particle board; imp 8 ohms. FR 30-20,000 Hz, power handling 250 W max. Walnut finish. 16 x 47 1/4 x 11 1/2 in; 94 lb $2,504/pr

XD 717 3-Way Speaker

3-way speaker with 12-in woofer, 6½-in midrange and 1-in dome tweeter. Sens 87 dB SPL/W/m; power handling 100 W max; imp 8 ohms. $2,504/pr

Mission Cyrus 782 (left) and 781

50-20,000 Hz ± 3 dB; imp 8 ohms. sens 91 dB SPL/W/m; power range 15-120 W. Walnut, black ash, and rosewood finishes. 25 x 10 x 11 in; 32 lb ea. $660/pr

R100 2-Way Speaker

Sealed-enclosure speakers with 8-in woofer and 1½-in soft-dome tweeter. FR 60-20,000 Hz ± 3 dB; imp 8 ohms; sens 89 dB SPL/W/m, amp power 15-60 W.

XL 10 3-Way Speaker

Features 1-in dome tweeter, 8-in woofer, and a 10-in controlled-mass passive radiator. Tweeter is protected by an 0.6-amp fuse. Power handling 100 W max; imp 8 ohms: FR 45-20,000 Hz; sens 89 dB SPL/W/m. $858/pr
HELP US HELP YOU!

PARTICIPATE IN
THE STEREO REVIEW BUYER POLL

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

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

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

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

For example:

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

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

Car Stereo
- Tuner
- Cassette Deck
- Speakers

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

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

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Look for the Buyer Poll every month

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

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

Thanks for helping us out!

Stereo Review
**MOREDAUNT-SHORT**

System 442 3-Way Speaker

Reflex speaker with two 7-in woofers and a 1-in titanium-dome tweeter. Power range 40-300; FR 50-20,000 Hz ± 5 dB; sens 87 dB SPL/W/m; imp 6 ohms; crossover points at 250 and 5,000 Hz. Black ash, mahogany, walnut or light ash finishes. 37 x 10 x 15 in; 55 lb/ea. $2,900/pr

**MS 3.50 2-Way Speaker**

Transmission-line speaker with 8-in woofer and 1-in aluminum-dome tweeter. Min power 15 W; FR 45-22,000 Hz ± 5 dB; sens 90 dB SPL/W/m; imp 8 ohms; crossover point at 4,000 Hz. Black ash finish. 35 x 9 x 15 in; 40 lb/ea. $899/pr

**MS 300G 2-Way Speaker**

Sealed speaker with two 6½-in woofer/midranges and a 1½-in ferrofluid-cooled and damped titanium-dome/cone tweeter. Features a 1½-in high-density board cabinet with full circumference brace. Power range 25-150 W; FR 77-20,000 Hz ± 3 dB; sens 89 dB SPL/W/m; imp 8 ohms; crossover point at 5,000 Hz. Mahogany, black ash, walnut or white grilles. 37 x 10 x 15 in; 20 lb/ea. $425/pr

**Series 2**

**MS 55TI 2-Way Speaker**

Sealed speaker with two 7¼-in woofer/midranges and a 1½-in ferrofluid-cooled and damped titanium-dome/cone tweeter. Features a 1½-in high-density board cabinet with full circumference brace. Power range 25-150 W; FR 50-20,000 Hz ± 3 dB; sens 90 dB SPL/W/m; imp 8 ohms; crossover point at 4,000 Hz. Black ash/walnut finishes. 10½ x 32½ x 11¼ in. $769/pr

**MS 45TI 2-Way Speaker**

Sealed speaker with two 7¼-in woofer/midranges and a 1½-in ferrofluid-cooled and damped titanium-dome/cone tweeter. Features a 1½-in high-density board cabinet with full circumference brace. Power range 25-150 W; FR 55-20,000 Hz ± 3 dB; sens 90 dB SPL/W/m; imp 8 ohms; crossover point at 4,000 Hz. Black ash or walnut finishes. 10½ x 25¼ x 11¼ in. $569/pr

**MOREL ACOUSTICS**

**Duet 2-Way Speaker**

Speaker with 6-in woofer and 1½-in ferrofluid cooled soft-dome tweeter. Features the Hexatech technique winding in tweeter; double-magnet systems, crossover using the Hexatech voice coil. Power handling 150 W rms; frequency response 40-22,000 Hz ± 12 dB. 8 x 15 x 15 in; 20 lb. $995/pr

**MLP 40-31 3-Way Speaker**

Floor-standing speaker with 9-in free-edge paper-cone woofer, 3-in dome midrange, and 1½-in dome tweeter. Power range 10-125 W rms; FR 38-25,000 Hz ± 3 dB; sens 88 dB SRT/
SPEAKERS

**Phase Technology 435-ES**

**Paradigm**

**Studio Monitor 3-Way Speaker**
Features dual 8-in woofers, 6-in midrange, 1-in ferrofluid-cooled tweeter. FR 28-20,000 Hz ±2 dB; sens 93.5 dB. Triampable. Walnut, oak, or black-ash wood finish. 11 1/2 x 42 1/2 x 16 1/2; 90 lb. $1,900/pr

**Export Monitor 2-Way Speaker**
Features 8-in woofer, 1-in ferrofluid-cooled tweeter. FR 28-20,000 Hz ±2 dB; sens 88.5 dB. Biampable. Walnut, oak, or black-ash wood finish. 10 1/4 x 24 x 14; 35 lb. $840/pr

**Central Monitor 2-Way Speaker**
Features 8-in woofer, 1-in ferrofluid-cooled tweeter. FR 39-20,000 Hz ±2 dB; sens 90 dB. Biampable. Walnut, oak, or black-ash wood finish. 10 x 20 x 13 3/4; 28 lb. $700/pr

**Model 5se 2-Way Speaker**
Features 8-in woofer, 6-in midrange, 1-in ferrofluid-cooled polyimide-dome tweeter. FR 38-20,000 Hz ±2 dB; sens 90 dB. Walnut or black-ash vinyl. 10 1/2 x 20 3/4 x 11 1/2; 24 lb. $360/pr

**Model 3se 2-Way Speaker**
Features 8-in woofer, 6-in midrange, 1-in ferrofluid-cooled polyimide-dome tweeter. FR 45-20,000 Hz ±2 dB; sens 91 dB. Walnut or black-ash vinyl finish. 9 1/4 x 19 1/4 x 10 1/2; 22 lb. $300/pr

**Phase Technology**

**PC-60/50 Subwoofer/Satellite System**
3-piece satellite/subwoofer system consists of 1/2-piece satellite and PC50 subwoofer. Power handling 25-150 watts; frequency response 30-20,000 ±3 dB; sensitivity 87.5 dB SPL/W/m; impedance 8 ohms; crossover points 150 and 1,200 Hz. $300/system

**730-ES 3-Way Tower Speaker**
Tower speaker with 10-in bass/midrange driver, 5 1/2-in cone midrange, 1-in ferrofluid-cooled soft-dome tweeter. Features asymmetrically mounted tweeter and midrange. Power handling 120 watts; frequency response 30-20,000 Hz ±3 dB; sensitivity 93 dB SPL/W/m; nominal impedance 8 ohms; crossover points at 250 and 3,000 Hz. Black, walnut, or dark-oak vinyl veneer. 51 1/4 x 10 1/4 x 13 1/2; 26 lb. $630/pr

**PC-40 2-Way Speaker**
BooksheLF acoustic-suspension phase-coherent speaker with 5 1/2-in solid-piston woofer; 1-in soft-dome tweeter. Accepts banana plugs. Power range 15-80 W; FR 70-20,000 Hz ±3 dB; sens 89 dB SPL/W/m; imp 4 ohms. Walnut, stained-oak, and light-oak finishes. 6 1/2 x 9 1/4 x 5 1/4 in; 10 lb. $380/pr

**435-ES 2-Way Bookshelf Speaker**
BooksheLF speaker with 8-in bass/midrange and 1-in ferrofluid-cooled soft-dome tweeter. Features asymmetrically mounted tweeter. Power handling 80 watts; frequency response 45-20,000 Hz ±3 dB; sensitivity 92 dB SPL/W/m; nominal impedance 8 ohms; crossover point 2,500 Hz. Black-ash or dark-oak vinyl veneer. 22 1/2 x 12 x 10 1/4 in. $300/pr

**Pinnacle**

**PN 8+ 2-Way Bookshelf Speaker**
Acoustic-suspension bookshelf speaker with dual patented front-mounted Diaduct ports; 8-in black polypropylene woofer, and 1-in high gloss polypropylene double-chamber, liquid-cooled dome tweeter. Power handling 10-125 W rms cont, 375 W peak; FR 30-21,000 Hz; sens 90 dB SPL/W/m; imp 6 ohms; crossover points 120 and 6,000 Hz. Black-ash veneer with contrasting solid oak wood trim. 19 1/4 x 11 1/4 x 11 1/4 in; 35 lb/pr. $399/pr

**PN 7+ 2-Way Bookshelf Speaker**
Vented bookshelf speaker with dual patented front-mounted Diaduct ports, 6 1/2-in black polypropylene woofer, and 1-in polymer-dome, liquid-cooled tweeter. Power handling 10-80 W rms cont, 240 W peak; FR 38-21,000 Hz; sens 91 dB SPL/W/m; imp 6 ohms; crossover frequency 3,300 Hz. Black-ash veneer with solid oak trim. 15 1/4 x 9 1/4 x 8 3/4 in; 35 lb/pr. $309/pr

**Sub + Subwoofer**
Tuned-passive subwoofer with patented Diaduct port, two 6 1/4-in down-firing woofers. Features rigidly braced, partitioned enclosure with nonparallel internal walls; switchable first-order crossover; compatibility with 4-ohm bookshelf speakers. Power handling 100 W rms, 2 year warranty. 13 3/4 x 19 x 11 1/4 in. $229/ea

**Pioneer**

**Elite TZ-9 Speaker**
Integrated twin-bass drive system with horizontally opposite-mounted twin woofers. Features ceramic graphite diaphragm in dome midrange and dome tweeter. $2,000 ea

**PN-7 Speaker**
 Integrated twin-bass drive system with horizontally opposite-mounted twin woofers. $1,800/pr

**SPEAKERS**

**Polk Audio**

**SDA-SRS 2.1.2 3-Way Speaker**
Floor-standing smaller-version SRS 1.2tl. Features Polk's proprietary Stereo Dimension Array technology for 3-dimensional imaging. Features 15-in planar sub-bass radiator; six 6 1/2-in trilaminate polymer bass/midrange drivers; three SL3000 1-in trilaminate polymer dome tweeters. Power handling 150 W cont, 375 W peak; FR 12-26,000 Hz; nom imp 6 ohms. Oiled oak or walnut finish. 20 3/4 x 55 x 13 1/4 in; 155 lb $2,500/pr

**SDA-IC 3-Way Speaker**
Floor-standing feature. Features four 6 1/2-in trilaminate polymer bass/midrange drivers; two 1-in silver-coil polymer-dome tweeters; 12-in planar sub-bass radiator. Power handling 500 W cont, FR 15-26,000 Hz; nom imp 6 ohms. Oiled walnut or oak cabinet. Black studio version at lower cost. 16 x 43 x 12 in, 95 lb $1,800/pr

**SDA-2B 3-Way Speaker**
Similar to SDA-1B except two 6 1/2-in trilaminate polymer bass/midrange drivers; 1-in silver-coil polymer-dome tweeter; 12-in planar sub-bass radiator. Power handling 350 W cont; FR 20-26,000 Hz; nom imp 6 ohms. Oiled walnut or oak cabinet. Black studio version at lower cost. 16 x 39 1/2 x 12 in; 87 lb $1,300/pr

**SRT RLX Monitor 3-Way Speaker**
Real-Time Array speakers with two 8-in low-resonance subwoofer, two 6 1/2-in trilaminate polymer bass/midrange drivers; 1-in polymer-dome tweeters; 12-in planar sub-bass radiator. Power handling 350 W cont; FR 22-26,000 Hz; nom imp 6 ohms. Black-ash, walnut, and oak vinyl finish. Genuine walnut and oak veneer finish available at extra cost. 10 1/4 x 39 1/2 x 12; 58 lb. $950/pr

**Monitor 10B 3-Way Speaker**
Sub-bass radiator/sealed floor-standing speaker with 10-in fluid-coupled subwoofer, two 6 1/2-in trilaminate polymer bass/midrange drivers, and 1-in polymer dome tweeter. Power handling 250 W cont; FR 23-26,000 Hz; nom imp 6 ohms.
**S P E A K E R S**

Black-ash, walnut, and oak vinyl finish. Genuine walnut and oak finish available at extra cost. 16 x 28 x 11 1/2 in. $740/pr

**RTA 8t Monitor 2-Way Speaker**

Real-Time-Array floor-standing speaker with two 6½-in trilaminate polymer bass/midrange drivers, and 1-in silver-coil polymer-dome tweeter. Power handling 250 W cont; FR 30-26,000 Hz, nom imp 6 ohms. Black-ash, walnut, and oak vinyl finish. Genuine walnut and oak veneer finish available at extra cost. 16 x 28 x 9 1/4 in, 48 lb. $650/pr

**Monitor 7C 3-Way Speaker**

Sub-woofer/sealed bookshelf speaker with 10-in fluid coupled subwoofer, 6½-in trilaminated polymer bass/midrange driver, and 1-in polymer dome tweeter. Power handling 150 W cont; FR 25-26,000 Hz, nom imp 6 ohms. 14 x 24 x 9 1/4 in. $580/pr

**AB-800 Architectural Reference 2-Way Speaker**

In-wall speaker features two 6½-in trilaminate polymer bass/midrange drivers, and 1-in silver-coil polymer dome-tweeter. Power handling 150 W cont; FR 28-26,000 Hz, nom imp 6 ohms. 14 x 24 x 9 1/4 in. $400/pr

**AB-700 Architectural Reference 2-Way Speaker**

In-wall speaker features 6½-in trilaminated polymer bass/midrange driver, and 1-in silver-coil polymer dome-tweeter. Power handling 125 W cont; FR 30-26,000 Hz, nom imp 6 ohms. Off-white finish. 6 3/4 x 15 5/8 x 3 in. $550/pr

**PSB**

**Stratus Tower 2-Way Speaker**

2-way speaker with 8-in woofer and 1-in tweeter. FR 28-35,000 Hz; power handling 100 W max; sens 91 dB SPL/W/m, nom imp 6 ohms. $500/pr

**Monitor 7 Speaker 2-Way Speaker**

Bass-reflex speaker with 8-in woofer and 1-in tweeter. FR 28-35,000 Hz; power handling 100 W max; sens 91 dB SPL/W/m, nom imp 6 ohms. $700/pr

**50 MKII 2-Way Speaker**

2-way speaker with 8-in polypropylene woofer and 1-in treated cloth-dome tweeter. FR 40-20,000 Hz ± 1.5 dB. Black or dark oak finish. $800/pr

**QUAD**

**ESL-63 US Monitor Electrostatic Speaker**

Full-range electrostatic double speaker with dipole source. Features 2 protection circuits. Power handling 150 W; sensitivity 86 dB SPL/W/m; impedance 8 ohms, axes band limits ±6 dB at 35 Hz, third-order. -6 dB at 20,000 Hz. Black finish. 28 x 36 x 11 in; 46.5 lb. $3,995/pr

**REALISTIC**

**Mach Two 3-Way Speaker**

Vented ferrofluid-cooled speaker with 15-in woofer, 3-in cone midrange, 4-in dual-radial superhorn tweeter. Level controls for midrange and tweeter. Max power 160 W; sens 84 dB SPL/W/m. $520/pr

**RECEPTON**

**Wireless 100 Powered Speaker System**

System consisting of transmitter and 2 powered speakers enabling listening to stereo in any room in house. Transmitter plugs into any audio component or A/C outlet, speakers plug into that room's AC outlet. Features 4½-in full-range driver, volume control; FR 60-15,000 Hz, sep 90 dB, s/n 80 dB, 12 W/ch amp. Available in black or white. $270

**REVOX Duoeto**

Single-enclosure speaker with two sets of three drivers mounted on either side of wedge shape enclosure. May be used with Power Cube or Piccolo Bass. Features two 4-in midranges; 1-in dome tweeter. Frequency response 90-22,000 Hz; sensitivity 91 dB SPL/W/m; nominal impedance 4 ohms. Black lacquer finish. 14 x 14 x 14 in. $1,095. Black or white matte finish. $795

**Piccolo Satellite/Subwoofer System**

Satellite speakers may be used with or without companion subwoofer. Satellites feature 4½-in midrange driver, 1-in dome tweeter. Subwoofer features 10¼-in subwoofer. Power handling 70 dB; sensitivity 89 dB, S/N 83 dB; 20 W/ch; lbs 25. $325/pr

**REALISTIC**

**IS7t 2-Way Speaker**

Features titanium-dome tweeter and bi-wireable crossover. Power handling 150 W; FR 50-20,000 Hz ± 2 dB, imp 8 ohms; sens 88 dB SPL/W/m. 23 x 10 x 11 in; 45 lb. Walnut, teak, or black. $594/pr

**LS7t 2-Way Speaker**

Features titanium-dome tweeter and bi-wireable crossover. Power handling 200 W; FR 55-22,000 Hz ± 3 dB; sens 92 dB SPL/W/m; 30 x 18 x 15 in; 78 lb. Walnut, teak, or black. $3,495/pr

**LS5a 2-Way Speaker**

Features bi-wireable crossover. Power handling 150 W; FR 50-20,000 Hz ± 2 dB, imp 8 ohms; sens 89 dB SPL/W/m. 20 x 10 x 11 in; 45 lb. Walnut, teak, or black. $699/pr

**LS5a 2-Way Bookshelf Speaker**

Power handling 100 W; FR 60-20,000 Hz ± 2 dB; imp 8 ohms; sens 87 dB SPL/W/m. 29 1/4 lb x 9 1/4 in. Black/walnut vinyl. $399/pr

**SANSUI**

**SP-5XU 3-Way Speaker**

6½-in low woofer, 5¼-in midbass with a carbon-filled polypropylene cone with butyl rubber surround and an aluminum diecast frame, and a 1-in liquid-cooled tweeter with a silk diaphragm dome. Features rounded baffle edges, gold-plated 5-way binding posts. FR 45-23,000 Hz ± 3 dB; power handling 75 W/ch; rms; sens 88 dB SPL/W/m. $500/pr

**SW-S7.7U 3-Way Subwoofer/Satellite System**

2 SP-XO 7U acoustic-suspension satellites and 1 SP-W7U vented acoustic post subwoofer. The subwoofer (SP-W7U) is a 6½-in twin drive mechanism mounted in a cabinet with a tuneable port. The 5-in midrange in the satellites has a carbon-filled polypropylene cone. The satellite tweeter is a ½-in ferrofluid cooled polycarbonate soft-dome. Power handling 60 W/ch rms
**SCOTT**

Model 10.3a 3-Way Bookshelf Speaker
Acoustic-suspension speaker with 10-in woofer, ferrofluid-cooled 41/2-in midrange; 1-in center-mounted ferrofluid-cooled tweeter; hickory vinyl finish. FR 45-20,000 ± 4 dB; power range 100-1000 W rms; sens 92 dB S/P/W/m; imp 8 ohms; 23½ x 12½ x 8½ in; 20 lb ea. .......... $260/pr

**SHAHIANIN ACOUSTICS**

Oehlisch 3-Way Speaker
3-way folded double-prism 81/2-in hybrid transmission line speaker with 8-in asymmetrically placed high-temperature voice-coil polypropylene woofer, 10-in mass-loaded-membrane viscous-damped polypropylene passive radiator, 1-in cambered ultra-light exposed dome midranges, four 41/4-in W-shaped polymid-dome tweeters. Minimum power handling 50 watts; maximum power handling 500 watts; impedance 8 ohms; crossover values for specific drivers assures accurate room response. Hand-adjusted crossover frequency 275/2,700/10,000 Hz. Satellites: oak grain or black wood grain. 7 x 13½ x 4½ in; 7 lb. .......... $990/pr

**SHURE**

HTS50CF Center-Channel Speaker System
Acoustic suspension speaker for use as center front speaker in surround system setup with two 61/2-in woofers and 1-inch dome tweeter. Features curved polymer diaphragm; magnetically shielded, polypropylene drivers; fluid-cooled, fused tweeter. Frequency response 55-18,000 Hz; sensitivity 88 dB S/P/W/m; impedance 5.6 ohms. Walnut-veneer finish; molded plastic grille. 20 x 13½ x 8 in; 37 lb. .......... $750

HTS50SW Subwoofer
Subwoofer for use in surround system setup with heavy damped cone, shielded double magnet structure, and 12-in transducer. Features curved polymer diaphragm; polypropylene drivers. Frequency response 33-80 Hz; sensitivity 91 dB SPL/W/m; impedance 8 ohms. Walnut veneer finish. . 18 x 23 x 14 in; 65 lb. .......... $625

HTS50LS Surround-Sound Speaker
Acoustic suspension speaker for use as front left, right, and/or surround speaker in surround system setup with 6½-in woofer and 1-inch dome tweeter. Features curved polymer diaphragm; magnetically shielded, polypropylene drivers; fluid-cooled, fused tweeter. Frequency response 60-18,000 Hz; sensitivity 85 dB SPL/W/m; imp 5.6 ohms. Walnut-veneer finish; molded plastic grille. 13½ x 10 x 8½ in; 24.2 lb. .......... $500

**SIGNET**

SL230 3-Way Subwoofer/Satellite System
Satellite contains a 3½-in injection-molded midrange driver and a 4½-in ferrofluid-cooled dome tweeter; subwoofer utilizes two down-firing, slot-loaded 6-in drivers. Power handling 100 watts continuous; frequency response 50-20,000 Hz; sensitivity 88 dB SPL/W/m; crossover frequency 200/3,000 Hz. Satellites are finished in oak veneer and the subwoofer in black walnut. 18 x 23 x 14 in; 20 lb. .......... $1,990/pr

**SNEILL ACOUSTICS**

Type A-Ill 3-Way Speaker
Acoustic suspension speaker with curved baffle to eliminate diffraction, mechanically isolated midrange enclosure, floor-loaded woofer, and rear-loaded supertweeter for accurate room response. Hand-adjustment of crossover values for specific drivers assures acoustic performance virtually identical to reference speaker. Features 12½-in high-power long-exursion mass-loaded mechanically-isolated cone midrange; 1-inch individually adjusted dome tweeter; 4½-in low-mass ferrofluid-cooled dome supertweeter. Dual gold-plated inputs allow bi-wiring or bi-amping with or without electronic crossover. Power handling 250 watts rms; frequency response 24-26,000 Hz ± 3 dB; 38-18,000 Hz ± 1 dB; nominal impedance 8 ohms; crossover frequency 275/2,700/10,000 Hz. Satellites: oak, walnut, or black-finished veneers. 23½ x 50½ x 14 in; 160 lb each. .......... $4,680/pr

**SHURE**

HTS50SW Subwoofer
Subwoofer for use in surround system setup with heavy damped cone, shielded double magnet structure, and 12-in transducer. Features curved polymer diaphragm; polypropylene drivers. Frequency response 33-80 Hz; sensitivity 91 dB SPL/W/m; impedance 8 ohms. Walnut veneer finish. . 18 x 23 x 14 in; 65 lb. .......... $625

HTS50LVLS Surround-Sound Speaker
Acoustic suspension speaker for use as front left, right, and/or surround speaker in surround system setup with 6½-in woofer and 1-inch dome tweeter. Features curved polymer diaphragm; magnetically shielded, polypropylene drivers; fluid-cooled, fused tweeter. Frequency response 60-18,000 Hz; sensitivity 85 dB SPL/W/m; imp 5.6 ohms. Walnut-veneer finish; molded plastic grille. 13½ x 10 x 8½ in; 24.2 lb. .......... $500

**SNELL TYPE E/III**

Type C-Ill 3-Way Speaker
Floor-standing bass-reflex speaker system. Features 10-in long-throw woofer; 5½-in midrange; 1-inch ferrofluid-cooled metal dome tweeter; 4½-in switchable rear tweeter; 4th-order 24 dB/octave filters; bi-wirable or bi-ampliable. Power handling 250 watts rms; frequency response 34-22,000 Hz ± 3 dB; sensitivity 88.5 dB SPL/W/m; nominal impedance 8 ohms; crossover frequency 275/2,700 Hz. Hand-sanded hand-rubbing matching oak, dark oak, walnut, or black-finished veneers. Includes tweeter level control. 14½ x 46 x 11¼ in; 95 lb each. .......... $1,990/pr

Type E/III 2-Way Speaker
Floor-standing bass-reflex speaker system with 8-inch polymer-treated woofer, 1½-in soft-dome tweeter, and ultra-low-mass 4½-in ferrofluid-cooled rear-loaded dome tweeter designed for flat early-arrival of sound and accuracy of listening-room response. Hand-adjusted crossover for specific drivers assures acoustic performance virtually identical to reference speaker. Dual gold-plated inputs allows bi-wiring or bi-amping. Features rear-loaded port for optimum low-frequency room loading. Power handling 150 watts rms; frequency response 39-20,000 Hz ± 1.75 dB; sensitivity 91 dB SPL/W/m; nominal 6 ohms; crossover frequency 2,700 Hz. Hand-sanded hand-rubbing matching oak, dark oak, walnut, and black-finish veneer. Includes tweeter level control. 13 x 35 x 11 in; 50 lb/ea. .......... $990/pr

**SNELL TYPE K-Ill**

Type K-Ill 2-Way Speaker
Bookshelf acoustic-suspension speaker with 8½-in polypropylene cone woofer and 1-inch ferrofluid-cooled soft-dome tweeter. Hand-adjusted crossover values for specific drivers assures acoustic performance virtually identical to reference speaker. Dual inputs for optional bi-wiring or bi-amping. Power handling 100 watts rms; frequency response 70-20,000 Hz ± 2 dB; sensitivity 90 dB SPL/W/m; nominal impedance 8 ohms; crossover frequency 2,700 Hz. Oak, dark oak, walnut, or black-finish veneer. Includes tweeter level control. 11½ x 18½ x 9 in; 26 lb each. .......... $465/pr

**SPEAK ERS**

Shure HTS50CF Center-Channel Speaker System
Acoustic suspension speaker for use as center front speaker in surround system setup with two 6½-in woofers and 1-inch dome tweeter. Frequency response 55-18,000 Hz; sensitivity 88 dB S/P/W/m; maximum power 150 watts; impedance 6 ohms nominal. Natural medium or dark oak finish. 12½ x 6½ x 7½ in; 26 lb/pr. ........ $450/pr

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*Speakers and their specifications are from various manufacturers as of the publication date.*
SONANCE

S442 In-Wall Speaker
Speaker with 8-inch polypropylene cone woofer and 1-inch polypropylene dome tweeter. Features woofer with butyl rubber surround and special compliant dust cap; tweeter with acoustic chamber and bored pole piece, crossover with solid capacitors, polypropylene bypasses, and heavy-gauge chokes. Power handling 5-100 watts; frequency response 35-22,000 Hz ± 2 dB; sensitivity 90 dB SPL/W/m; nominal impedance 8 ohms; crossover point at 4,500 Hz. Available in white with cloth or metal grille. 16 x 12 x 3½ in; 11 lb $675/pr

PSW2 In-Wall Subwoofer
Subwoofer with 2-channel dual-voice coil 8-inch driver. Features crossover with 3 position level control. Frequency response 20-125 ± 3 dB; sensitivity 87 dB SPL/W/m; nominal impedance 8 ohms; crossover point 2,500 Hz. Available in white with cloth or metal grilles. 16 x 12 x 3½ in; 14 lb $450 ea

SXC 2-Way In-Wall Speaker
Speaker with 6½-inch polypropylene cone woofer and 1-inch soft dome tweeter. Features woofer with treated urethane surround and protective screens on basket windows; tweeter with two positions: flat and 2+3 dB; crossover with solid dielectric capacitors, air core choke on Hz and ferrite core on Lp circuit. Power handling 5-75 watts; frequency response 45-20,000 Hz ± 2 dB; sensitivity 89 dB SPL/W/m; nominal impedance 8 ohms; crossover point 2,500 Hz. Available in white with cloth or metal grilles. 12 x 9 x 3½ in; 9 lb $375/pr

M30 2-Way In-Wall Speaker
Speaker with 4-inch polypropylene cone woofer and 1-inch polypropylene dome tweeter. Features woofer with treated urethane surround and protective screens on basket windows; tweeter with two positions: flat and 2+3 dB; crossover with solid dielectric capacitors, air core choke on Hz and ferrite core on Lp circuit. Power handling 5-75 watts; frequency response 70-20,000 Hz ± 2 dB; sensitivity 86 dB SPL/W/m; nominal impedance 8 ohms; crossover point at 4,500 Hz. Available in white with cloth or metal grilles. 9½ x 6½ x 3½ in $300/pr

SONOGRAPHY by CONRAD-JOHNSON

SW 1000 Stereo Subwoofer
Two side-firing magnetically shielded 10-inch woofers in golden oak cabinet. FR 25-110 Hz ± 2 dB; power range 10-200 watts; sensitivity 90 dB SPL/W/m; impedance 8 ohms; 19½ x 36 x 18 in $849 each

SL 21 Mini-Monitor Satellite Speaker
Vented; 6½-inch polypropylene woofer; 1-inch dome tweeter; golden oak cabinet with brown grille. Frequency response 52-20,000 Hz ± 2 dB; power range 10-80 watts; sensitivity 90 dB SPL/W/m; impedance 8 ohms; 14½ x 10½ x 10½ in $695/pr

SONY

APM-22ES 2-Way Speaker
Bass-reflex speaker with APM (Accurate Pistonic Motion) driver technology that incorporates a light, rigid, flat-diaphragm design. Features 45 sq-inch APM woofer; 1.4 sq-inch APM tweeter; built-in circuit breaker for tweeter protection; heavy-duty cabinet construction with rounded edges. Includes speaker cord. Frequency response 40-20,000 Hz, sensitivity 88 dB SPL/W/m; power capacity 50 watts nominal; 119½ x 20½ x 12½ in $500/pr

M50 2-Way In-Wall Speaker
Speaker with 4½-inch polypropylene cone woofer and 1-inch soft dome tweeter. Features woofer with treated urethane surround and protective screens on basket windows; tweeter with two positions: flat and 2+3 dB; crossover with solid dielectric capacitors, air core choke on Hz and ferrite core on Lp circuit. Power handling 5-75 watts; frequency response 70-20,000 Hz ± 2 dB; sensitivity 86 dB SPL/W/m; nominal impedance 8 ohms; crossover point at 4,500 Hz. Available in white with cloth or metal grilles. 12 x 9 x 3½ in; 9 lb $375/pr

Model 2000 2-Way Speaker
Passive-radiator speaker with 8-inch woofer; 1-inch tweeter; crossover at 2,200 Hz. Power range 10-100 watts; frequency response 35-22,000 Hz ± 3 dB; sensitivity 95 dB SPL/W/m, 33 x 12 x 9¼ in; 33 lb each $500/pr

Model 1000 2-Way Speaker
Bass-reflex speaker with two 5½-inch woofers; 4-inch tweeter; crossover at 3,000 Hz. Power range 15-100 W; FR 40-20,000 Hz ± 3 dB; sensitivity 90 dB SPL/W/m; nominal impedance 8 ohms; 21 x 10 x 12 in; 21 lb each $350/pr

SUNO

Aria Planar Speaker
Floor-standing panel speaker. Full-range, dipole, single-element, point-source design; utilizes tensioned mylar as the membrane; no crossover components; no equalization; no delay lines. Power handling 500 watts continuous average; frequency response 40-20,000 Hz ± 3 dB; sensitivity 86 dB SPL/W/m; nominal impedance 4 ohms. Medite construction. 30 x 60 x 3½ in; 65 lb $3,000/pr

Samson Bass-Reflex Subwoofer
Floor-standing subwoofer with 15-inch composite cone woofer. 18½-lb magnet assembly, 4-inch edgewound copper voice coil; symmetrical magnetic-field motor structure. Solid 1-inch butcher-block oak top. Frequency response 20-120 Hz ±1 dB; power handling 1,000 watts continuous; sensitivity 91 dB SPL/W/m; nominal impedance 8 ohms. 29 x 22 x 19 in; 140 lb $749 each

SYNTHESIS BY CONRAD-JOHNSON

Reference Speaker System
Five-piece speaker system with two subwoofer columns (each with two 10-inch woofers), two midrange/high-frequency units (with 7-inch midranges, 1-inch dome tweeters, leaf suspensions); golden oak finish with radiused solid-hardwood edges; active electronic crossover supplied. Frequency response 22-32,000 Hz ± 2 dB; power handling 10-250 watts; sensitivity 91 dB sound pressure level/W/m; nominal impedance 8 ohms. Dimension: subwoofer columns 69 x 14 x 14 inches; satellite speakers 44 x 10 x 10 inches $6,800/system

LM 310 3-Way Speaker
10-inch woofer; 7½-inch midrange; 1-inch dome tweeter. Light or dark oak cabinet with radiused solid hardwood edges. Frequency response 25-20,000 Hz ± 2 dB; power range 10-200 watts; sensitivity 91 dB SPL/W/m; impedance 8 ohms; 45½ x 13½ x 14½ in; 70 lb $3,250/pr

LM 260 2-Way Speaker
Portable; 8-inch polypropylene woofer; 1-inch dome tweeter. Light or dark oak cabinet with radiused solid-hardwood edges. Frequency response 40-20,000 Hz ± 2 dB; power range 10-80 watts; sensitivity 90 dB SPL/W/m; impedance 8 ohms 35½ x 12 x 11½ in; 50 lb $1,695/pr

LM 210 2-Way Speaker
Portable speaker with 6½-inch polypropylene polypropylene woofer; 1-inch dome tweeter. Light or dark oak cabinet with radiused solid-hardwood edges. Frequency response 46-20,000 Hz ± 2 dB; power range 10-80 watts; sensitivity 90 dB SPL/W/m; impedance 8 ohms; 33½ x 10½ x 10½ in $1,195/pr
### SPEAKERS

#### TANNOY
DC3000 3-Way Speaker
Floor-standing speaker with coupling spikes. Features 8-inch dual concentric DMT driver; 8-inch bass unit, driven below 400 Hz; slotted-port system. Bi-wired, gold terminals; cross-braced driver and cabinet; wired with Van den Hul cable. Power handling 150 watts rms; frequency response 44-25,000 Hz ±3 dB; sensitivity 89 dB SPL/W/m; nominal 8 ohms; crossover frequency 400/2,300 Hz. Black-ash or rosewood veneers. 64 x 22 1/4 x 7 1/2 in; 58 lb, 14 oz ea. $1,995/pr each

DC2000 3-Way Speaker
Floor-standing speaker with coupling spikes. Features 8-inch dual concentric DMT driver; 8-inch bass unit, driven below 400 Hz; closed box system. Bi-wired, gold terminals; cross-braced driver and cabinet. Power handling 100 watts rms; frequency response 44-20,000 Hz ±3 dB; sensitivity 89 dB SPL/W/m; nominal 8 ohms; crossover frequency 400/2,300 Hz. Black-ash veneers. 64 x 17 1/2 x 6 1/4 in; 43 lb. $1,300/pr each

M20 2-Way Speaker
Floor-standing speaker with 8-inch polyolefin co-polymer bass driver, and 1-inch DMT aluminum-dome tweeter; ducted-port system. Bi-wired, gold terminals; cross-braced drivers and cabinet; wired with Van den Hul cable. Power handling 100 watts rms; frequency response 44-20,000 Hz ±3 dB; sensitivity 89 dB SPL/W/m; nominal 8 ohms; crossover frequency 3,300 Hz. Black-ash or rosewood veneers. 64 x 12 x 5 1/4 in; 18 lb. $900/pr each

C-10 2-Way Speaker
Features 10-inch polycone woofer; 1-inch dome tweeter; high-density particle-board cabinet. Power handling 125 watts rms; frequency response 47-20,000 Hz ±3 dB; nominal impedance 8 ohms; sensitivity 91 dB SPL/W/m; crossover frequency 2,300 Hz. 12 x 24 x 11 1/2 in; 27 lb each. $569/pr each

TDL
Studio 3 2-Way Speaker
Transmission-line speakers. Feature two doped Cobex cone, 8-inch vented pole woofers; 1-inch magnesium alloy, suspended metal-dome, ferro-fluid tweeter with separate rear chamber. Frequency response 2-20,000 Hz; minimum power 80 watts; nominal impedance 8 ohms; sensitivity 87 dB SPL/W/m; crossover frequency 3,000 Hz. Walnut or black finish. 70 x 24 9/10 in; 59 lb, 9 oz each. $1,995/pr each

CS 1.2 Coherent Source 2-Way Speaker
Floor-standing ported speaker with 8-inch cone woofer, 3-inch cone midrange, and 1-inch dome tweeter. Completely time coherent and phase coherent. Time coherence achieved with sloping baffle; phase coherence achieved with synthesized first-order crossover networks. Features anti-diffraction grille; cast magnesium driver baskets; polypropylene crossover capacitors. Power handling 250 watts rms; frequency response 32-20,000 Hz; sensitivity 87 dB SPL/W/m; impedance 4 ohms. Walnut, oak, black, rosewood, teak finishes. Dimensions: 13 x 42 x 13 in; Weight: 75 lb each. $2,450/pr each

CS 3.5 Coherent Source 3-Way Speaker
Floor-standing electronic-bass-equalized speaker with 10-inch cone woofer; 4-inch cone midrange, and 1-inch dome tweeter. Features complete time coherence by sloping baffle; complete phase coherence by synthesized first-order crossover system; 3-dimensional shaped anti-diffraction baffle; electronic bass system: magnet-distorion-reducing drivers; cast-magnesium driver chassis; polypropylene crossover capacitors; 30-mm thick cabinet panels. Real wood veneer. Power handling 350 watts rms; frequency response 32-20,000 Hz; sensitivity 87 dB SPL/W/m; impedance 4 ohms. Walnut, oak, black, rosewood, teak finishes. Dimensions: 13 x 42 x 13 in; Weight: 75 lb each. $2,250/pr each

CS 1 Coherent Source 3-Way Speaker
Floor-standing ported speaker with 8-inch cone woofer, 3-inch cone midrange, and 1-inch dome tweeter. Completely time and phase coherent. Time coherence achieved with sloping baffle; phase coherence achieved with synthesized first-order crossover networks. Features anti-diffraction grille; cast magnesium driver baskets; polypropylene crossover capacitors. Power handling 250 watts rms; frequency response 32-20,000 Hz; sensitivity 87 dB SPL/W/m; impedance 4 ohms. Oak, walnut, black, rosewood, teak finishes. Dimensions: 13 x 39 x 12 in; 62 lb each. $1,650/pr each

### THIEL
CS 5 Coherent Source 5-Way Speaker
Floor-standing speaker incorporates the coher-

#### TEAC
ST-V5 3-Way Speaker
3-way floor-standing acoustic-suspension speaker with 10-inch polypropylene, carbon-filled cone woofer, 5-inch polypropylene, carbon-filled cone midrange, and 3-inch titanium dome ferrofluid-cooled tweeter. Power handling 90 watts; impedance 6 ohms; SPL 90 dB/W/m; crossover frequencies at 1,200 and 6,000 Hz; frequency response 45-22,000 Hz ±3 dB. 13 3/4 x 29 1/2 x 8 5/8 in; 29 lb. $480/pr each

TECHNICS
SB-CX700 3-Way Speaker
3-way speaker with composite Mica cone-type 12-inch woofer, pure Mica cone-type 4-inch midrange, pure Mica 1-inch dome tweeter, and 8-inch dual concentric DMT drivers. Features magnetic shielding for placement near TV's. Power handling 120 watts; frequency response 4-30,000 Hz ±2 dB; sensitivity 88 dB SPL/W/m; impedance 6 ohms; crossover frequencies at 1,200 and 6,000 Hz; nominal impedance 8 ohms; crossover frequency 3,000 Hz. Black-ash or rosewood finishes. 7 1/2 x 24 1/4 x 11 1/2 in; 16.5 lb. $1,090/pr each

SB-CX500 3-Way Speaker
3-way speaker with composite Mica cone-type 10-inch woofer, pure Mica cone-type 4-inch midrange, pure Mica 1-inch dome tweeter, and 8-inch dual concentric DMT drivers. Features vertical in-line speaker unit alignment. Power handling 150 watts, 75 watts DIN; sensitivity 89 dB SPL/W/m; frequency response 24-45,000 Hz (at 16 dB below average level); impedance 6 ohms; crossover frequencies 500 Hz and 3,500 Hz. 14 3/4 x 35 1/2 x 12 1/4 in; 51.8 lb. $700/pr each

SB-RX30 2-Way Bookshelf Speaker
Bass-reflex speaker with 9-inch flat-diaphragm woofer and 1-inch flat-diaphragm coaxial tweeter. Features magnetic shielding for placement near TV's. Power handling 120 watts; frequency response 4-30,000 Hz ±2 dB; sensitivity 88 dB SPL/W/m; impedance 6 ohms; crossover frequencies 500 Hz and 3,500 Hz. 12 1/2 x 12 x 24 3/4 in; 21 lb. $600/pr each

### TRIAD DESIGN
System Four Woofer/Satellite System
System consisting of two System Four satellite source design, utilizes a sloping baffle and electronic correction to achieve proper time alignment and a synthesized first-order acoustic crossover system; three 8-inch woofers, 3-inch cone midrange, and 1-inch dome tweeter; featuring thermal relay protection for the tweeter. Power handling 150 watts rms; frequency response 24-20,000 Hz; ±2 dB; sensitivity 87 dB SPL/W/m; impedance 6 ohms; crossover frequencies at 1,200 and 6,000 Hz; nominal impedance 8 ohms. Oak, walnut, black laminate. Dimensions: 13 x 42 x 13 in; Weight: 75 lb each. $2,450/pr each

CS 3.5 Coherent Source 3-Way Speaker
Floor-standing electronic-bass-equalized speaker with 10-inch cone woofer. 4-inch cone midrange, and 1-inch dome tweeter. Features complete time coherence by sloping baffle; complete phase coherence by synthesized first-order crossover system; 3-dimensional shaped anti-diffraction baffle; electronic bass system; magnet-distortion-reducing drivers; cast-magnesium driver chassis; polypropylene crossover capacitors; 30-mm thick cabinet panels. Real wood veneer. Power handling 350 watts rms; frequency response 32-20,000 Hz; ±2 dB; sensitivity 87 dB SPL/W/m; impedance 4 ohms. Oak, walnut, black, rosewood, teak finishes. Dimensions: 13 x 42 x 13 in; Weight: 75 lb each. $2,250/pr each

CS 2 Coherent Source 3-Way Speaker
Floor-standing ported speaker with 8-inch cone woofer, 3-inch cone midrange, and 1-inch dome tweeter. Completely time and phase coherent. Time coherence achieved with sloping baffle; phase coherence achieved with synthesized first-order crossover networks. Features anti-diffraction grille; cast magnesium driver baskets; polypropylene crossover capacitors. Power handling 250 watts rms; frequency response 32-20,000 Hz; ±2 dB; sensitivity 87 dB SPL/W/m; impedance 4 ohms. Oak, walnut, black, rosewood, teak finishes. Dimensions: 13 x 49 x 15 in; 62 lb each. $1,650/pr each

CS 1.2 Coherent Source 2-Way Speaker
2-way floor-standing speaker with sloping baffle. Features metal dome tweeter. Woofer features cast magnesium chassis; polypropylene diaphragm; sculpted speaker grille. Power handling 150 watts rms; frequency response 52-18,000 Hz; ±2 dB; sensitivity 87 dB sound pressure level/W/m; impedance 8 ohms; heavy internal bracing. Finished with teak, walnut, oak, rosewood, or black laminate. Dimensions: 11 x 37 x 11 in. Weight: 47 lb each. $1,090/pr each

### Triad System Six

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**STEREO REVIEW FEBRUARY 1990**
VELODYNE ACOUSTICS

**VELODYNE 12inch powered subwoofer**

- Features a 12-inch ferrofluid-cooled dome tweeter and 8-inch polypropylene-cone woofer for each satellite, two 8-inch polypropylene-cone drivers and a built-in 100-watt (into 4 ohms) amplifier for each woofer unit.
- Satellite units: power handling 100 watts continuous; frequency response 70-18,000 Hz ±3 dB; sensitivity 90 dB SPL/W/m; impedance 8 ohms.
- Black ash and real wood veneers: 10 x 18" x 10" in.

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**VENTURI V300 3-Way Speaker**

- Bookshelf speaker with 7-inch single-sheet white-cone woofer and 13g-inch soft-dome tweeter.
- Features Active Servo Technology.

**WHARFEDALE**

**MODEL 512 2-WAY SPEAKER**

- Features two 8-inch woofers, 4-inch midrange, and 4½-inch metal-dome tweeter.
- Tuned-port enclosure. Power handling 100 watts continuous; frequency response 45-20,000 Hz; sensitivity 89 dB SPL/W/m; nom impedance 8 ohms.

**WHARFEDALE Model 505.2**

- Features two 8-inch woofers, and 4½-inch polyimide, soft-dome tweeter: tuned-enclosure. Power handling 100 watts continuous; frequency response 45-20,000 Hz; sensitivity 89 dB SPL/W/m; crossover points 1,000 and 5,000 Hz; nom impedance 8 ohms.

**YAMAHA**

**NS-1 2-WAY SPEAKER**

- 2-way acoustic-suspension speaker with aluminum, nickel, cobalt magnets used in both woofer and tweeter. 6½-inch mica impregnated polypropylene woofer and 1½-inch soft, resin-coated, coated-dome tweeter.

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**ZENITH**

**ZS-1 2-WAY SPEAKER**

- Two-way field-isolation system with 6-inch polypropylene multirange driver. 1-inch soft-dome tweeter: features Active Servo Technology. Frequency response 28-20,000 Hz.

**ZETRON**

**ZT-1 2-WAY SPEAKER**

- Features 8-inch woofer, and 4½-inch polyimide, soft-dome tweeter: infinite-impedance, infinite-impedance design. Power handling 100 watts continuous; frequency response 45-20,000 Hz; sensitivity 89 dB SPL/W/m; crossover at 5,000 Hz; impedance 8 ohms.

**ZENITH**

**ZS-1 2-WAY SPEAKER**

- Two-way field-isolation system with 6-inch polypropylene multirange driver. 1-inch soft-dome tweeter: features Active Servo Technology. Frequency response 28-20,000 Hz.

**ZETRON**

**ZT-1 2-WAY SPEAKER**

- Features 8-inch woofer, and 4½-inch polyimide, soft-dome tweeter: infinite-impedance, infinite-impedance design. Power handling 100 watts continuous; frequency response 45-20,000 Hz; sensitivity 89 dB SPL/W/m; crossover at 5,000 Hz; impedance 8 ohms.
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(602) 967-3565

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AIC, 707 E. Evelyn, Sunnyvale, CA 94086
(408) 720-9800

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A/d/s/, One Progress Way, Wilmington, MA 01887
(508) 368-5100

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(800) 323-0707

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(201) 440-5220

Alison Acoustics, 1590 Concord Highway, Framingham, MA 01701
(508) 679-3000

Americal Acoustics, 15 Park West, Woodbury, NY 11797
(516) 496-3400

Analog One, P.O. Box 7202, St. Paul, MN 55107
(612) 649-0632

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(612) 890-3517

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Audio Dynamics, 707 E. Evelyn, Sunnyvale, CA 94086
(408) 720-9835

Audio Research, 6801 Shingle Creek Parkway, Minneapolis, MN 55430
(612) 566-7570

AudioSource, 1327 N. Carolan Ave., Burnsville, MN 55337
(612) 963-0124

Arcam, P.O. Box 381, Highland Lakes, NJ 07422
(201) 764-8958

Audiol. Box 82, Hwy #60, Dwight, Ontario P0A 110
(705) 653-2222

B&K Components, 1971 Abbott Rd., LaCassaway, NY 14218
(716) 822-8488

B&G of America, P.O. Box 653, Buffalo, NY 14240
(716) 571-4520

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(312) 299-9380

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(818) 367-7922

Belles Research, 1237 E. Main St., Rochester, NY 14607
(716) 482-8850

Berrning, 11007 Candlelight Lane, Portomac, MD 20854
(301) 299-8970

BIC America, 895-E Hampshire Rd., Stow, OH 44224
(216) 928-2011

Bose, The Mountain, Framingham, MA 01701
(508) 879-7330

Boston Acoustics, 70 Broadway, Lynnfield, MA 01940
(617) 592-9000

Boulder Amplifiers, 4850 Sterling Dr., Boulder, CO 80301
(303) 449-8220

Bryston, 57 Westmore Dr., Rexdale, ON T9A 2J2
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(816) 231-1983

Discrete Technology, 3395 Long Beach Rd., Oceanside, NY 11572
(516) 764-1121

Dual (see Ortofon)

Eminent Technology, 225 E. Palmer St., Tallahassee, FL 32307
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Energy, 3641 McNicol Ave., Scarborough, Ontario M1X 1G5
(416) 321-1800

Epicure Products/EPI, 25 Hale St., Newburyport, MA 01950
(508) 462-1000

ESS, 2575 El Presidio St., Long Beach, CA 90808
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(203) 643-2160

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Kef, 14120-K Sullfby Circle, Chantilly, VA 22021
(703) 818-3028

Kenwood, P.O. Box 22745, Long Beach, CA 90801
(213) 639-7000

Kindel Audio, 3292 Calle Perfecto, San Juan Capistrano, CA 92675
(714) 661-7321

Kinergetics, 6029 Reseda Blvd., Tarzana, CA 91356
(818) 345-2851

Kinetic Audio, P.O. Box 31075, Chicago, IL 60631
(312) 625-9322

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(703) 680-5548

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(206) 943-5420

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(716) 822-8488

Larsen, 4648 Evansdale Rd., Wallingford, CT 06492
(203) 294-1213
Stereo Review's critics choose the outstanding current releases

MICHELLE SHOCKED COMES OUT SWinging

Anyone familiar with Michelle Shocked's first two Mercury albums knows that the Texas feminist-anarchist-piker-poet is anything but predictable and that each new record from her is likely to be an Olympic-size broad jump from the last one. And yet, I came away from her latest record, "Captain Swing," wide-eyed and a bit unsteady on the feet: Who would have thought she would move so quickly away from her roots in folk and oral tradition and electric roadhouse rock? And who would have guessed that underneath her spiky haircut Shocked was a jazz baby after all?

But, of course, jazz takes many forms, from the swing bands of the 1930's to the fusion performers of the past several decades. In Shocked's vocabulary, "swing" incorporates both pre-World War II jazz—with the ambience of an old 78 recording—and the beatnik folk of Maria Muldaur and Rickie Lee Jones. And when things run the risk of sounding camp, Shocked employs a modern turn on Fifties rock-and-roll and country/Delta blues (augmented by Bonnie Raitt's old tuba player, Freebo) to frazzle up the edges.

Even within these stylistic confines, Shocked, working again with imaginative producer Pete Anderson and his reliable, elastic rhythm section, remains her joyously eccentric self, floating along in free-form creativity and projecting with ease. If "Captain Swing" is yet another attempt to explore the roots of native American music, it is in some ways her most diffuse album to date, yet clearly her most ambitious and important one.

Still, those early fans who were mesmerized by Shocked's Southern story songs, political conscience, and plaintive folkie acoustic-guitar framework will be surprised here to find big-band horns and clarinets and full-bodied arrangements fleshing out her songs, as well as a lyrical sidestep from her usual personal mythology and her favorite themes of racism, the environment, and housing. In an upbeat album of unabashedly romantic emotions and comic lyric and instrumental flourishes, only one song, Streetcorner Ambassador, which offers a modern-jazz, peephole view of the community of the homeless, inflames an angry heart.

Instead, Shocked busies herself with a variety of pastimes, from the whimsical musings of God Is a Real Estate Developer to a psychoanalysis of the Mona Lisa (in Looks Like Mona Lisa)—who, in Shocked's view, would let it be a photograph with a wide grin, and not a painting with a strange smile, if she had it to do over again. But as amusing as these lyrical portraits may be, Shocked is more compelling musically in songs like Sleep Keeps Me Awake, The Cement Lament, and (Don't You Mess Around with) My Little Sister.

In a sense, of course, Shocked is concerned with eradicating musical dividing lines, or at least the kind that pigeonhole an artist as many-sided and starkly original as she. If
BEST RECORDINGS OF THE MONTH

A PASSIONATE, DRAMATIC NEW "TANNHÄUSER"

The new Deutsche Grammophon recording of Wagner's Tannhäuser conducted by Giuseppe Sinopoli is his most successful opera recording to date. He brings to the score his usual high degree of preparation, attention to detail, and emotional involvement, but in allowing Wagner's lyrical drama to sing for itself he eschews the overdriven intensity that mars some of his other opera recordings. The result is that the opera moves with passion and drama and at the same time with pointed musical effect.

Sinopoli is aided in this accomplishment by a fine cast of artists who sing with both beauty and accuracy. They perform, too, as if they have given uncommon attention to the dramatic facets of their roles—something that's not always true of Wagner performances, in which the very length of individual passages tends to obscure for listener and performer alike the personality of the "speaker."

To the role of Tannhäuser, Placido Domingo brings a free and seemingly well-rested tenor, musical authority, and a rounded characterization, at once sensual and devout, caught between physical demand and idealistic quest. His performance makes Wagner's difficult and self-contradictory creation believable, and while his handling of the German text is not totally idiomatic, it is expressive, well articulated, and readily understandable.

Cheryl Studer's Elisabeth is youthful and noble, deeply caring and affectingly vulnerable. The heroine is here delineated by a soprano whose instrument is right for the part—neither too small for Wagner's scoring nor too large to convey convincingly a maiden-like quality. It is a clear and expressive voice. As Studer sings it, the joy of Elisabeth's entrance is in poignant contrast to her disillusionment following Tannhäuser's paean to physical love, and her Prayer in Act III is equally moving. As Venus, Agnes Baltsa, too, achieves a high level of performance, one that is musically secure, vocally limpid, and dramatically telling, from her opening passages as amorous siren through her scenes as jealous and imperious goddess to her final defeat and womanly sorrow as she feels herself abandoned. Matti Salminen is sonorously noble-voiced as the Landgraf, and he brings to his role a warm humanity that contributes materially to the effectiveness of the drama. Andreas Schmidt delivers Wolfram's celebrated apostrophe to the evening star with telling simplicity and beauty of tone. The other members of the accomplished cast acquit themselves handsomely.

A word must be added in praise of the Chorus of the Royal Opera House. Its singing throughout, but especially in Act II, is no less than thrilling, as is the sensitive, glowing performance of London's Philharmonia Orchestra. Bravi tutti! This is a Tannhäuser recording that opera enthusiasts will long esteem.

Robert Ackart

WAGNER: Tannhäuser. Placido Domingo (tenor), Tannhäuser; Cheryl Studer (soprano), Elisabeth; Agnes Baltsa (mezzo-soprano), Venus; Matti Salminen (bass), Landgraf Hermann; Andreas Schmidt (barytone), Wolfram; Kurt Rydl (bass), Biterolf; Barbara Bonney (soprano), Junger Hirt; others. Chorus of the Royal Opera House, Covent Garden; Philharmonia Orchestra, Giuseppe Sinopoli cond. DEUTSCHE GRAMMOPHON © 427 625-2 three CD's (206 min).

PROGRESSIVE ROCK FROM IT BITES

Progressive rock, that maligned stepchild of the Seventies, gets a face lift from a British foursome called It Bites. Think positive (as in Yes, the most obvious comparison), and you will find their "Eat Me in St. Louis"
as thrilling and as much fun as a bobsled ride down an icy mountain. The operatic concept in progressive rock is instrumental reach. For some reason, well-thought-out guitar solos, bracing keyboard chases, and impeccably coordinated meter changes annoy many critics, who seem to prefer word play to instrumental fire, but It Bites has such a fine melodic touch that there's no reason not to sit back and enjoy the fireworks.

There's a powerful emotional undercurrent to the music, from the pulsating sense of longing and desire coursing through Underneath Your Pillow to the raw-throated outrage of Murder of the Planet Earth. Such songs as Calling All Heroes and Still Too Young to Remember have a fabulistic quality, unfolding in suite-like sections that build to rich instrumental crescendos. Midnight imagines the terror of a kid drafted into battle with the repeated chant "living on the edge of my nerves."

Leader Francis Dunnery speaks commandingly through his guitar; vocally, he recalls Peter Gabriel in Genesis's early days, with a touch of Steely Dan's Donald Fagen. As an instrumental ensemble, It Bites shines like chromium and dazzles with the fire of a cut diamond.

"Eat Me in St. Louis," incidentally, reprises four songs from two earlier records—probably because no one was paying attention the first time around. Here's your chance to redress that oversight.

Parke Puterbaugh

IT BITES: Eat Me in St. Louis. It Bites (vocals and instrumentals). Calling All Heroes; All in Red; Kiss Like Judas; Midnight; Positively Animal; Underneath Your Pillow; Sister Sarah; The Ice Melts into Water; Still Too Young to Remember; Murder of the Planet Earth.

Geffen GHS-24261. © MSG-24261, © 24261-2 (47 min).

VERNON HANDLEY'S WALTON

O

ver the past decade or so, the conductor Vernon Handley, recording with a variety of British orchestras and labels, has created a solid reputation as one of the foremost interpreters of his country's mainstream twentieth-century repertoire—notably the works of Vaughan Williams, Elgar, Bax, Walton, and, among the more recent names, Robert Simpson. The latest Handley offering is again top drawer in terms of both repertoire and interpretation, not to mention sonic splendor.

In his new EMI recording of William Walton's richly Neo-romantic First Symphony of 1935, Handley not only far surpasses his own previous recording of the work (issued here by Nonesuch in 1981), but he fully measures up to the wonderful recording made in 1967 by André Previn. The response of the Bournemouth Symphony players is alert and passionate, and the warm and spacious recorded sound benefits from an acoustic surround that comfortably accommodates the huge climaxes of the symphony's first and last movements. (The engineers used a medium-distant microphone pickup in a hall that provides finely focused orchestral detail together with a sense of space for the blockbuster climaxes.)

Handley's reading particularly excels in the two central movements—the con malizia scherzo, which communicates all the spite and savagery one could wish for, and the deeply poignant con malenconia slow movement. In the expansive outer movements, which can seem too much of a good thing at times, the conductor keeps everything under unerring rhythmic and dynamic control while letting the melodies sing out in strong, unsentimental fashion.

Fine as the symphony is, my greatest pleasure in this disc came from the coupler piece, Walton's seldom-heard Variations on a Theme by Hindemith, a 1963 tribute to the fellow composer who in 1929 played the world première of Walton's early masterpiece, the Viola Concerto. The stately theme comes from the slow movement of Hindemith's 1940 Cello Concerto, and around it Walton has woven a set of nine variations and a finale that are sparkling, solemn, tender, and majestic by turns. That the theme also shares elements with the "St. Anthony" movement of Hindemith's Mathis der Maler Symphony is subtly exploited by Walton. A high point is the moving lento molto variation, which echoes a bit of the Britten War Requiem as well as the slow-movement dirge of Hindemith's Symphony in E-flat. Walton's finale, with its elaborate fugue, sounds as though it might end in a blaze of fireworks, but instead we get an exquisite valedictory coda. The orchestral texture and coloration represent Walton at the top of his form. In short, the piece is a gem—and would in itself be ample justification for purchase of the disc. But the whole recording is a splendid musical, interpretive, and sonic achievement. David Hall

WALTON: Symphony No. 1, in B-flat Minor; Variations on a Theme by Hindemith. Bournemouth Symphony Orchestra, Vernon Handley cond. EMI/Angel © CDC 49671 (66 min).
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CIRCLE NO. 168 ON READER SERVICE CARD
Warren Zevon is a splendid rocker, but you cannot appreciate the guy fully on strictly musical terms. His songs go far beyond the traditional subject matter of rock: falling in and out of love. His songs even go far beyond the traditional subject matter of smart rock—how bad things have become and what we can do about it. Warren Zevon writes about this world, and alternative worlds, with savage humor, fed-up wit, a crooked smile. He is a visionary who can kick out the jams. If Jonathan Swift were alive today, and musically inclined and inclined to an informed backbeat, he might be nearly this good.

The new "Transverse City" is, to my mind, Zevon's best album since "Excitable Boy." Its lyrics plunge into such diverse territory as cyberpunk, evolutionary dissolution, Russian imperialism, computer heads, gridlock, and love. And his music has the snap and crackle to make his narratives pop. Take the title cut. Zevon evokes a techno-nightmare, a not-very-distant world in which artificial ingredients have taken over. In a headlong rush, he slams through one excruciating detail after another: "Here's the hum of desperation/Here's the test-tube mating call/Here's the latest carbon cycle/Here's the clergy of the mall." The description goes on and on, past the point where you'd think even Zevon must run out of breath. He is proclaiming the end of humanity and the new era of technocracy—and he's not happy about it. Pushing him further into the rant is the insistent noodling of Jerry Garcia's guitar, a sweet sound that replicates like a synthesized double helix out of control. On other tracks, the guitars of David Gilmour, Neil Young, and Waddy Wachtel punch out the lights.

But they never overpower the words. Who else but Zevon looks at the world from such a sardonic perspective? Turbulence gives us the viewpoint of a Soviet soldier in Afghanistan: "Well, you can talk about perestroika/And that's all right for you/But, Comrade Schevardnadze, tell me/What's a poor boy like me to do?" Zevon takes networking to its ultimate bit-byte extreme and rails against gridlocked traffic. He uses the word "entropy," and it doesn't sound a bit forced. You get the feeling that Warren Zevon could produce good short stories or riveting novels if he wanted to. Instead, he writes good songs and sings them. Rock-and-roll needs more people like him. Ron Givens

**ANIMAL LOGIC.** Animal Logic (vocals and instrumentals); instrumental accompaniment. There's a Spy (in the House of Love); Someday We'll Understand; Winds of Santa Ana; I'm Through with Love; As Soon as the Sun Goes Down; and five others. I.R.S./MCA IRS-82020, © IRSC-82020, © IRSD-82020 (39 min).

**Performance:** Irresistible  
**Recording:** Excellent

Animal Logic is further proof that you cannot create a rock band according to a formula—musical chemistry doesn't follow textbook logic. Who would have thought to combine a reggae-rocking drummer, a jazz-fusion bassist, and an unknown country-folk singer-songwriter? Whoever it was, I'd like to thank him. "Animal Logic" is a terrific debut, full of great energy and fresh ideas.

Two members of the trio have impeccable credentials. Stewart Copeland was the relentless drummer for the Police, and since that group dissolved, he has written movie and TV scores as well as an opera, Holy Blood and Crescent Moon, that had its premiere at the Cleveland Opera last fall. Stanley Clarke was the revolutionary bassist of the fusion supergroup Return to Forever and has made a number of solo albums while also performing regularly with keyboardist George Duke.

But who is Deborah Holland? Well, she's a former piano teacher and club singer who has a bell-clear voice and a crisp vision of life and love. Imagine Loretta Lynn singing the thoughts of Edie Brickell, and you'll have a rough approximation. Holland, who is also the band's songwriter, has a tough, melodramatic way of phrasing her vividly sketched lyrics. She may be the least-known member of the band, but she is the one most on display here. Holland makes it clear, in I'm Through with Love and I Still Feel for You, that she can't live with romance but can't live without it. In Someday We'll Understand she sings, "Love is not a constant state/It has to ebb and flow/One

**EXPLANATION OF SYMBOLS:**  
○ = DIGITALLY RECORDED LP  
♀ = TAPE CASSETTE  
CD = COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)
All of this might have been maudlin if not for Copeland and Clarke. They make a splendid rhythm section: Copeland’s straight-ahead pounding and Clarke’s dazzling pointillism gallop together with abandon. Playing on all of the tracks, but not officially a member of the band, is Michael Thompson, whose silvery guitar and clucking banjo provide a needed release from some of the tension created between Holland’s ennui and the dynamism of Copeland and Clarke.

R.G.

KATE BUSH: The Sensual World.
Kate Bush (vocals, piano, keyboards); Trio Bulgarka (background vocals); Dave Gilmour (guitar); Davey Spillane (uilleann pipes); vocal and instrumental accompaniment. The Sensual World; Love and Anger; The Fog; Reaching Out; Heads We’re Dancing; Deeper Understanding; and five others. COLUMBIA OC 44164, © OCT 44164, © Ck. 44164 (46 min).

Performance: Histrionic
Recording: Excellent

On the cover of her sixth studio album, Kate Bush, wide-eyed as a waif and with naked shoulders, peers out from behind a flowering rose to find a world that is clearly more confusing than sensual. Neither New Wave nor art rock, the thirty-one-year-old English songstress has been confounding and enthralling audiences since her first album, in 1977, and “The Sensual World,” with eleven songs that alternately shimmer with invention and sink with pretension, follows that pattern. Bush, who wrote and produced the album with the same unrestrained license that leads her to combine music, dance, mime, and magic in concert, could have used a more disciplined hand at the wheel. It is one thing to write a seductive, if sexually explicit song (The Sensual World) based on James Joyce’s Ulysses. But it is quite another to record a lonely-hearts love song to a computer (Deeper Understanding), and still another to chronicle dressing up as a rocket (“with my tail on fire”) to please your boyfriend. With a host of ear-tweaking foreign instruments, the otherworldly Trio Bulgarka chanting in the background, and at least two songs that seem to start in the middle of a confrontation—the listener’s nose pressed against the window—Bush knows how to seek and keep our attention. Whether she knows how to communicate, in what she calls “my most personal and female album so far,” is yet another question.

A.N.

DAVID BYRNE: Rei Momo.
David Byrne (vocals, guitars); vocal and instrumental accompaniment. Independence Day; Make Believe Mambo; The Call of the Wild; Dirty Old Town; The

Rose Tattoo; The Dream Police; and six others. SIRE 25990-1, © 25990-4, © 25990-2 (52 min).

Performance: Schizoid
Recording: Very good

David Byrne plays tourist in “Rei Momo,” and the vacation is one of those do-it-all excursions. From the Caribbean to South America, Byrne covers a lot of ground musically and stylistically, including a loping merengue, a soft cha-cha, and an effervescent samba. Over these relaxed, exotic instrumental tracks, Byrne sings his usual discursive lyrics in a tight, squeaky voice, close to the chirpy vocal style of “Talking Heads ’77,” that clashes with the sweet-and-easy music behind him. In a couple of instances, Make Believe Mambo and The Call of the Wild, he sings in English, and a chorus responds in Spanish—a kind of Pan-American antiphony in which the vocals do mesh with the syncopation behind them. But elsewhere Byrne seems at odds with his musicians. That may have been intentional; he may have thought it aesthetically dishonest to pretend to be a Latin musician. If so, he’s succeeded too well. “Rei Momo” sounds like the work of a man on holiday who can’t wait to get home.

R.G.

IT BITES: Eat Me in St. Louis (see Best of the Month, page 140)

JEFFERSON AIRPLANE. Marty Balin, Grace Slick (vocals); Jorma Kaukonen (vocals, guitar); Paul Kantner (vocals, guitar); other musicians. Planes; Freedom; Solidarity; Madeleine Street; Ice Age; Summer of Love; The Wheel; and six others. EPIC OE 45271, © OET 45271, © Ek. 45271 (55 min).

Performance: Not so hot
Recording: Okay

According to usually reliable sources, the recently reunited Jefferson Airplane gave the most interesting performances of any of the veteran rock acts that hit
the road in 1989. Speaking as somebody who frequently saw God during late-Seventies Airplane shows, that wouldn’t surprise me particularly. But on the other hand, however heartening it may be to have them back, their new album is pretty lame. Superficially, at least, these oldsters still sound like the Airplane of yore, with their signature three-lead-vocals-in-search-of-a-harmony apparently unscathed by time. But the rest of what made the band unique and exciting—the interplay of a thundering rhythm section, stinging psychedelic guitar leads, and ominous twelve-string—has been smothered here beneath a host of faceless guest musicians and a production job tailored to somebody’s idea of what’s acceptable for radio play. Meanwhile, the songs are in equal measure generic and mediocre: With few exceptions—the self-consciously soaring Planes and Jorma Kaukonen’s bluesy Ice Age—they inhabit an aesthetic space somewhere between obvious throwaways and clumsy agitprop. A major disappointment.

S.S.

JETHRO TULL: Rock Island. Jethro Tull (vocals and instrumentals). Kissing Willie; The Rattlesnake Trail; Ears of Tin; Undressed to Kill; Rock Island; and five others. CHRYSALIS F1-21708, © F4-21708, © F2-21708 (50 min).

Performance: Sui generis
Recording: Exemplary

Tull honcho Ian Anderson claims not to have understood the fuss over his band’s beating out Metallica for last year’s Heavy Metal Grammy. “Tull has always been a sort of heavy-metal band with mandolins,” he’s said, and he’s got a point, although he might have been more accurate if he’d said “heavy metal with flute.” “Rock Island,” the band’s first post-Grammy album, finds them still dispensing their inimitable mixture of Teutonic guitars and Celtic folk styles, with the usual vague smuttiness (Kissing Willie) and pseudomysticism (everything else) thrown in for good measure. For what it is, it’s very skillfully done (kudos, as usual, to bassist Dave Pegg), and to give Anderson and company their due, they sound as if they mean the music they’re making. Most likely, though, this is fodder for “classic rock” stations that want to play something current without throwing their listeners too big a curve.

S.S.

BILLY JOEL: Storm Front. Billy Joel (vocals, keyboards); vocal and instrumental accompaniment. That’s Not Her Style; We Didn’t Start the Fire; The Downeaster “Alexa”; I Go to Extremes; Shameless; and five others. COLUMBIA OC 44366, © OCT 44366, © CK 44366 (45 min).

Performance: Has its moments
Recording: Good

For years, Billy Joel has been a sort of musical equivalent of Woody Allen’s Zelig, changing styles from album to album as an actor changes wardrobe. This time, it seems, he wants to rock. For “Storm Front,” he chose Mick Jones, Foreigner’s guitarist, as his producer, and they’ve come up with a hard-edged set, the subtitles of Joel’s Tin Pan Alley songwriting often yielding to a big, beefy backbeat. The drums have never been louder or the beat more metronomic in a Billy Joel album.

Not surprisingly, the rocking mannerisms seem a mite strained, particularly when Joel growls like Jagger in That’s Not Her Style or inserts swaggering brass into the title track. As a whole, “Storm Front” is less unified than a typical Joel album; taken song by song, though, it has its moments. One of the best is the hit We Didn’t Start the Fire, which effectively uses an accumulation of headline-making buzzwords from 1949 to the present to illustrate that the world has always been a messed-up place.

When Joel drops the rock mask, he...
MICHAEL PENN

MICHAEL PENN is a thinking person's pop musician who has seemingly digested all that's good about the music of the past twenty-five years and processed it through his own very interesting perceptive filters. In his debut album, "March," on RCA, there are echoes of the adventurous but tontrolled spin the Beatles put on conventional forms in "Revolver" and "Rubber Soul," along with a dash of fun-house-mirror pop a la Big Star.

Penn writes elliptically of love and loss, couching his fatalistic thoughts in tantalizingly obscure metaphors that scan well even when the meanings aren't exactly clear. He is part of a generation that never had a shot at innocence, the way the baby boomers of the Baby Boom generation that never had a shot at innovation. "March" is full of disillusionment and yearning. As he sings in Brave New World, a driving track whose lyrics hit with Costello-esque bile, "This may not be my best day/But this ain't no golden age/You looked pretty on the freeway/Let's drive into the brave new world."

In other words, get it when you can, while you can.

"March" is a musical treat, with mint-fresh melodies and nifty, limber arrangements that surprise at every crooked turn. Half Harvest has the open, bluesy feel of vintage Traffic (compare it with Feelin' Alright), but it's given a baroque turn through the use of marimba, stumbly rhythms, and some delightfully off-the-wall guitar. Bedlam Boys sounds like a Bowie/T. Rex glam-rock homage, and Evenfall celebrates and laments nighttime's call of the wild with a Fifties jukebox groove. Yes, Michael Penn is in control of what he's doing, but his technical mastery is supported by real soul and enlivened by real daring.

Parke Paterbaugh
CYNDI LAUPER: A Night to Remember. Cyndi Lauper (vocals); vocal and instrumental accompaniment. I Drove All Night; Primitive; My First Night Without You; Like a Cat; Heading West; A Night to Remember; and five others. EPIC OE 44318, © OET 44318. © EK 44318 (40 min).

Performance: Iconoclastic
Recoding: Very good

Back in 1983, Cyndi Lauper hit the music scene like a thrift-shop dynamo. Singles from her album "She's So Unusual" took MTV and the charts by storm. The album was one of the best-selling debuts ever, and it made Lauper an overnight icon. But three years later her follow-up, "True Colors," was greeted with less enthusiasm. Maybe people were tired of Lauper after the media onslaught for "She's So Unusual," or maybe "True Colors" was a little too different, a little too subtle. Or maybe it simply didn't have another Girls Just Want to Have Fun.

Well, "A Night to Remember" may not have a megahit either, but it has the same quirky mix of rock riffs, dance rhythms, and vocal mannerisms that made Lauper a success the first time out. For an iconoclast, Lauper seems perversely consistent, always drawing from the same well of influences. A little hard rock here, a little drum machine there, a few heart-on-sleeve lyrics here, a few skewed observations there. Nevertheless, she puts everything together in a way that no one else has. You won't mistake Cyndi Lauper for another singer. "A Night to Remember" offers a mix of moods and a modest variety of different sounds but all within a certain narrow range. Even while you enjoy what you're hearing, you get a mild sense of déjà vu.

Sailing above it all is that voice. In Primitive, her Kewpie-doll vocals swoop along to a steady rocking groove. In Like a Cat, her offbeat delivery fits neatly into a crazy-quilt arrangement. The fever-pitch singing in A Night to Remember cuts like a razor. Of course, Lauper occasionally pushes her instrument too far—she goes too quickly from a whisper to a scream in My First Night Without You—but few other performers in pop music can do what she does so well.

MICHELLE SHOCKED: Captain Swing (see Best of the Month, page 139)

WESLIA WHITFIELD: Nobody Else But Me. Weslia Whitfield (vocals); Mike Greensill Quartet. If I Had You; Give Me the Simple Life; But Beautiful; Not a Care in the World; In the Wee Small Hours of the Morning; I'm Shooting High; This Could Be the Start of Something Big; Confessin'; and six others. MYOHO WW 3797, © WW 3797, © WW 3797 (53 min). From Myoho Records, 128 Bayview Circle, San Francisco, CA 94124.

Performance: Stardom-bound
Recording: Bright and clean

Weslia Whitfield has been building a fiercely devoted following on the West Coast, and it's easy to see why. The generous fourteen tracks here showcase Whitfield's warm, clear voice in intimate ballads as well as swinging, up-tempo songs. This is a lady who clearly means every word she sings and who (unlike some other young, so-called jazz singers) won't sacrifice any of them for the sake of a dubious stylistic effect. She gets right to the heart of such goodies as Fats Waller's Confessin', the Van Heusen-Burke But Beautiful, the Duke-LaTouche Not a Care in the World, and, best of all, the Kern-Hammerstein song that gives the album its title and sums up Whitfield's winning style.

R.G.
Thelonious Monk's affinity for non-Western music has been known for his unpredictability and revolutionary thirty years ago when he helped turn him toward jazz. Although the trombone played an important role in traditional jazz bands and fostered its share of Swing Era heroes, as a solo instrument it seems to have been relegated to a kind of twilight zone since the late Fifties and early Sixties. But for the past three years, Steve Turre and Robin Eubanks (brother of guitarist Kevin) have been, as they put it, working to "help improve the perception of the trombone in contemporary music." Turre, who just turned forty, owes his flexible style to a career that has taken him through a wide range of musical experiences, ranging from sprints with Van Morrison and Ray Charles to Art Blakey and the Thad Jones–Mel Lewis orchestra. Eubanks also played in Blakey's Jazz Messengers group, but he grew up listening to rock; groups like the Mahavishnu Orchestra and individuals like McCoy Tyner also played in Blakey's group, but he grew up listening to rock; groups like the Mahavishnu Orchestra and individuals like McCoy Tyner also played in Blakey's Jazz Messengers group, and if their tasteful efforts don't bring the jazz trombone back into proper perspective, nothing will.

The New Breed; V.0.; HP, Pip, Billy Higgins (drums). Performance: Excellent Recording: Very good

Although Don Cherry was a musical revolutionary thirty years ago when he helped Ornette Coleman introduce "free jazz," this new album presents him in a comfortably mainstream quartet setting. While Cherry has always been known for his unpredictability and his affinity for non-Western musical concepts, his respect for traditional jazz comes through clearly in his treatment of selections ranging from the standard 'I've Grown Accustomed to Your Face to Thelonious Monk's classic Bemsha Swing and modified versions of Coleman's Compute and When Will the Blues Leave. Playing his tiny, high-pitched pocket trumpet, Cherry punches out whimsical solos that sometimes state the melody explicitly but more often toy with it in keeping with the tradition. Similarly, bassist Charlie Haden and drummer Billy Higgins, who are also known for their venturesome natures, restrain themselves, holding to the straight line but with no sacrifice of imagination. Tenor saxophonist James Clay, however, all but steals the show with his inspired and sensitive interpretation of the unforgettable Body and Soul. It takes courage for any tenorman to tackle this anthem of his instrument given the definitive treatments of the past, but Clay is fully up to the challenge. This is a very satisfying set.

C. A.

JAZZ

THE KINGDOM OF SWING & THE REPUBLIC OF OPP BOP SH'BAM

Warren Vaché (cornet); Joe Wilder (trumpet); Urbie Green (trombone); Buddy Tate (clarinet and tenor saxophone); Derek Smith, Dick Hyman (piano); Milt Hinton (bass); Butch Miles (drums). Performance: Superb Recording: Fine remote

The idea of pitting Swing against Bop is not new. The "hot versus cool" concept was considered a novelty a few decades ago, but it was then, and remains, a gimmick. With this new album, however, pianist Dick Hyman brings the idea successfully into the Nineties, even though time has all but obliterated the vast differences that once seemed to divide the two jazz styles. This concert set, organized by Hyman, is not so much a battle as it is an affirmation of compatibility, and if the title is somewhat contrived, the music is the real thing—a thoroughly delightful, swinging romp.

Against a solid rhythmic foundation laid down by veteran bassist Milt Hinton and drummer Butch Miles, such star soloists as saxophonist Buddy Tate, trombonist Urbie Green, and trumpeter Joe Wilder make individual statements that stunningly reflect the beauty and fervor that is inherent in all good jazz. Pianist Derek Smith and cornetist Warren Vaché are two relative newcomers whose stylistic flexibility underlines the folly of placing jazz in little boxes. Hyman also performs here, with characteristic skill and taste, but it's his work as organizer that deserves the highest praise. Don't miss this loving tribute to Swing and Bop.

C. A.
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BEETHOVEN Symphony No. 9, in D Minor, Op. 125 ("Choral"). Josephine Barstow (soprano); Linda Finnie (contralto); David Rendall (tenor); John Tomlinson (bass); City of Birmingham Symphony Chorus and Orchestra, Walter Weller cond. CHANDOS GABRD 1389, @ ABTD 1389, @ CHAN 8750 (66 min).

Performance: Solid
Recording: Full-blooded

Viennese-born Walter Weller, whose career as chamber musician and conductor has been divided between England and the Continent, hews closely in this Beethoven Ninth to the traditions of his native city. It is a solid and well-considered reading—a big-orchestra affair more in the mold of Bruno Walter than Herbert von Karajan. The soloists are well matched, and if John Tomlinson's rendition of the famous bass solo in the final movement lacks the magisterial quality of a Matti Salminen or Richard Mayr, he does a thoroughly creditable job, as do the other soloists. The chorus projects the Schiller text with will and vitality, and the Birmingham orchestral players respond particularly well to the lyrical aspects of the score. The full-bodied recording in the ample acoustics of the Birmingham Town Hall is a major asset.

BOCCHERINI: Cello Concerto in G Major (G. 480); Sinfonia in B-flat Major (G. 497); Cello Concerto in D Major (G. 483); Sinfonia in D Minor ("La casa del diavola," G. 506). Anner Bylsma (cello); Tafelmusik, Jean Lamon cond. DEUTSCHE HARMONIA Mundi/BMG © 7867-2-RC (67 min).

Performance: Splendid
Recording: Lovely

Here is a particularly well-chosen mixture of Boccherini symphonies and concertos that are exquisitely performed on authentic period instruments by a group of musicians who know how to render the delicate little details so essential to a full realization of this composer's frag-
Evidence of the sense of proportion and regard for clarity that contribute so much to his effectiveness in the preludes. The sonic focus itself is very much attuned to these qualities and is indeed ideally judged to set them off to best advantage—almost as if the recording engineer were a chamber-music partner to the performer. R.F.


**Performance:** Excellent. **Recording:** Big and bold.

This somewhat belated follow-up to the Raphael Trio's outstanding Nonesuch LP of Dvořák's great Op. 65 Piano Trio fulfills all the expectations that recording created. The two early trios here are performed splendidly; there is passion, there is commitment, there is absolute immersion in the style, and there is (by no means incidentally) first-rate playing throughout in terms of both individual performance and interaction among the three players. It is just the sort of spirit one wants in chamber music, and in Dvořák's in particular.

In the Denon CD of the same two works performed by the Suk Trio, vintage 1977 (when Jan Panenka was that group's pianist), the Czechs take the big first-movement repeat in Op. 21; the Americans do not. Apart from that, the performances are very much in the same style and on the same level, with perhaps a slightly higher degree of vitality and tension from the Raphael Trio, an arguably higher degree of subtlety from the Suk—impressions that may have to do with sonic considerations.

The Newport disc has a bigger, bolder sonic frame, rather close-up, while the Denon has a somewhat more discreet focus; both are realistic and comfortable. For the listener, choosing between them is a no-lose situation; if pressed, I would incline ever so slightly toward the Raphael.

R.F.


**Performance:** Expansive. **Recording:** Rich.

For the last two or three years I've been enjoying these three works on an especially economical Pantheon CD that also includes Mendelssohn's Rondo brillant. Op. 29, all in bright-eyed, vivacious performances by Cristina Ortiz with the Stuttgart Radio Orchestra under Moslih Atzmon. Sergei Edelmann and Claus Peter Flor benefit here from conspicuously richer sound, but their more expansive approach tends to sound just a little underanimated—and a little more so on the second hearing than the first. Both the Kalichstein/Laredo performances on Nimbus and the Perahia/Mariner on CBS are more persuasive in that respect, and the Nimbus CD is even more impressive sonically than the new RCA. But Ortiz and Atzmon work together so beautifully, exude such a sense of spontaneity and joyous involvement with the music, that theirs is the disc I'd want.

R.F.

MESSA PER ROSSINI. Gabriela Beňačková-Čápová (soprano); Florence Quivar (mezzo-soprano); James Wagner (tenor); Alexandru Agache (baritone); Aage Haugland (bass); Gächinger Kantorei; Prague Philharmonic Choir, Stuttgart Radio Symphony Orchestra, Helmut Rilling cond. HANSSLER/KÖCH IMPORT SERVICE © 98.949 two CDs (110 min).

**Performance:** Excellent. **Recording:** Very good.

Program notes for Verdi's Requiem of 1874 frequently tell us that the "Libera me" in that grand work in memory of Alessandro Manzoni is an adaptation of the concluding section Verdi had composed a few years earlier as his contribution to a composite Requiem for Rossini, a work that was never performed. No matter how often that information was presented, it seems to have created very little curiosity on anyone's part, and it was less than two years ago, nearly 120 years after the work was composed, that the *Messa per Rossini* was actually performed for the first time—and recorded.

Verdi initiated the idea for this work four days after Rossini's death in 1868; he wrote to his publisher, Tito Ricordi, proposing that several of "Italy's most eminent composers should write a Requiem Mass to be performed on the anniversary of his death." He proposed further that there should be a single performance in Bologna, following which the score should be sealed away except for later Rossini commemorative occasions. In addition to Verdi himself, a dozen other composers took part, and the composite score was ready in time for the anniversary in 1869, but, for various reasons (not entirely musical ones), the performance never took place.

The musicologists David Rosen came across the original manuscript of the *Messa per Rossini* in 1970, but it was not until 1986, in the course of an International Bach Academy in Stuttgart, that further scholarly activity was initiated that led at last to the first performance of the work, under the direction of Helmut Rilling, at a festival in that city in September 1988. Rilling and his Stuttgart forces actually taped the work for television a few weeks before the public première; he has since performed it in Parma and, last October, with the New York Philharmonic. It is a long work, nearly two hours, but it does sustain interest. Antonio Buzzolla's "Introitus"
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Terry Riley's Salome Dances for Peace, a two-hour, five-part, twenty-three-movement string quartet with references both to the Biblical legend of Salome and to Native American mythology, has just been released by Nonesuch in a performance by the Kronos Quartet. It consolidates Riley's return to notated music after a decade of (mostly) improvisation. He did write some pieces for the Kronos back in the early Eighties, but they often seemed like postminimalist trifles most suitable for New Age music listeners. Salome firmly establishes Riley as an important, imposing talent who has clearly given a counter-revolutionary new identity to the string quartet with his tonal but completely revolutionary new music after a decade of (mostly) improvisation. He did write some pieces for the Kronos back in the early Eighties, but they often seemed like postminimalist trifles most suitable for New Age music listeners. Salome Dances for Peace may eventually be counted among the great works composed in the Eighties.

RILEY'S COUNTERREVOLUTION

It has more than length in common with Mahler, with whom Riley shares a strong narrative sense. The music depicts Salome's being called by the Great Spirit to combat the war demons, who have stolen peace from the world. Though Riley's scenario may sound silly, he has translated it into music that is as convincing as a Stravinsky ballet. Indeed, the infectiously rhythmic Salome often sounds like a ballet score, but it needs no choreography—it is complete in itself.

Structurally, the work lacks the integrity of a Mahler symphony, but there's such a strong sense of motivic development among its many movements that it never seems to sprawl. Aside from the motif representing the Great Spirit, which appears in amazingly diverse forms throughout the piece, Riley rarely develops anything in a logical, fluid style; his writing is more sporadic and freewheeling, almost Brucknerian in the mercurial way he splinters and juxtaposes musical ideas.

That style perfectly suits the composer's highly pictorial, sometimes phantasmagorical imagination, the force of which carries the listener through even the later parts of the quartet, where the narrative thread threatens to unravel completely. By then, programmatic details cease to matter much. Riley has created a sound world so full of entrancing effects, so vividly realized by the Kronos Quartet, that it's a highly enjoyable place to spend two hours.

David Patrick Stearns

The Kronos Quartet


gets it off to a very good start, Antonio Bazzini's "Dies irae" turns out to be strikingly similar to the more concise and forceful one Verdi himself created for his own Requiem; Alessandro Nini's "Ingenioso," like Verdi's later setting, gives the spotlight to the solo tenor, but it is an utterly and intriguingly different sort of piece; Carlo Coccia's a cappella setting of the "Lacrimosa" impresses with its sense of Quartet, that it's a highly enjoyable place to spend two hours.

R.F.

Performance: Brilliant
Recording: Bright, clean

There are no fewer than four Carl Nielsen orchestral cycles currently under way, and these two discs represent generous samplings of the RCA and CBS projects. Paavo Berglund's reading of the Second Symphony, The FourTemperaments, is in the classic mold of such Danish conductors as Thomas Jensen, for whom Nielsen in the flesh was living memory and whose 1947 recording of the work was the first of the composer's symphonies to be commercially released. The approach is strong and sinewy in the outer movements, and the performance achieves special eloquence and intensity in the "Melancholic" slow movement. The dramatic points in the "Choleric" and "Phlegmatic" movements are tellingly made. The Fifth Symphony under Berglund lacks the sheer dynamism of the recordings by Blomstedt and Bernstein, but again the performance is in the classic Danish tra-
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dation. The 1,500-seat Odd Fellow Hall in Copenhagen, essentially a converted Baroque ballroom, yields a very bright sound, but there's also a midrange resonance that tends to slow down the highest frequencies. Having attended many concerts there in the mid-Fifties, I feel that large orchestras are a bit much for the space.

Not so Stockholm's Berwald Hall, which is clean and brilliant to a fault, tending to emphasize the ferocious qualities of Esa-Pekka Salonen's treatment of The Four Temperaments. But compared with Berglund, the young Finnish conductor seems to be skating on the surface rather than getting to the musical heart of the matter. He certainly doesn't make his dramatic points as effectively as his senior compatriot. In the colorful Aladdin suite, on the other hand, Salonen is very much in his element. And the brief Pan and Syrinx, a kind of Scandinavian "afternoon of a faun," is a real charmer in Salonen's hands.


Performance: Superb
Recording: Stunning

This last of the Shostakovich symphonies, dating from 1971, is a haunted and haunting work, inhabited by ghosts of music past, including Rossini's William Tell Overture and Wagner's Ring, not to mention fleeting wraiths from Shostakovich's own extensive oeuvre. The opening movement, full of sass and wit, is followed by a profound in memoriam adagio. An aching scherzo paves the way for a variation finale in which the Fate motive and timpani figure drawn from Siegfried's Funeral Music play a major role. The heart of the movement is the passacaglia built around a spectral variant of the march tune in Shostakovich's own Leningrad Symphony, leading to a gut-wrenching climax that subsides into a coda of reminiscences, full of clicking, clucking, chiming sounds evocative of the remorseless passage of time.

Maxim Shostakovich (the composer's son), Eugene Ormandy, and Bernard Haitink all made memorable early recordings of this score. Now Neeme Järvi, with the Gothenburg Symphony, has given us the first digital recording, and it is on an equally high interpretive level. Complementing an orchestral performance of superb power and finesse is the recording itself, made at Gothenburg's famous concert hall; it does the music and the players proud. Most of the symphony's scoring is of the utmost transparency, drawing on the full range of the instrumental spectrum, from highest to deepest, including metaphones, wood percussion, and snare drum. The dynamics range from deathly stillness punctuated by eerie woodwind chords to floor-shaking tuttis. In short, one could hardly ask for a more ideal demonstration vehicle for the CD medium.

I only wish that more interesting filler material had been chosen. October is more substantial than a lot of civic Shostakovich but veers toward being a patriotic rhapsody with its quote of a partisan song from one of the composer's early film scores. The Overture on Folk Themes is an entertaining pops-concert affair. Järvi and his Swedish players nonetheless give their all, and the level of music-making throughout reinforces the fine impression that this conductor has made with his previous Shostakovich recordings. D.H.

STRAVINSKY: Le Sacre du printemps; Apollo. City of Birmingham Symphony Orchestra. Simon Rattle cond. EMI/ANGEL 4DS-49636, @ CDC-49636 (65 min).

Performance: Bursting, exploding
Recording: Brilliant

STRAVINSKY: Le Sacre du printemps; Petrouchka. Royal Philharmonic, Yuri Temirkanov cond. RCA @ 7985-4-RC, @ 7985-2-RC (71 min).

Performance: Stately
Recording: Colorful

Being Russian doesn't mean that you were born to conduct Stravinsky. I'll take the "provincial" English version led by Simon Rattle, not only over its Russian-led competitor here but over a lot of other recent Stravinsky. Timing will do it every time. Both of these are well-made English recordings with lots of color. But in Le Sacre, the rhythm pace of all time, timing is everything, and Rattle nearly always has it right. As he conducts it, the piece is bursting at its seams, exploding at its edges. But it is also a subtle music drama full of suspense and surprise, and he catches all that too. Listen to the drama of the "Sacrificial Dance"—not just dissonant, disconnected modern music but real music theater. And then he turns around and delivers a finely tuned Neoclassical performance of the ballet Apollo, almost a trifle next to the Sacre but engaging nevertheless.

It takes some effort to turn Le Sacre and Petrouchka into stuffy, conservative enterprises, but Yuri Temirkanov manages it. Just because Stravinsky later turned from Russian "barbarism" to Francophile Neoclassicism doesn't mean you can Neoclassicize the Sacre and get away with it!

WAGNER: Tannhäuser (see Best of the Month, page 140)

WALTON: Symphony No. 1; Hindemith Variations (see Best of the Month, page 141)
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Kodo: on tour

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A

LSO touring is the Australian rock group Midnight Oil, known for their successful mixture of political statements with rock in such best-selling albums as "10, 9, 8, 7, 6, 5, 4, 3, 2, 1" and "Diesels and Dust." Recorded last summer in Sydney, their newest album is "Blue Sky Mining" on CBS. The band's 1990 tour, which begins early this spring in England, will take them to Continental Europe, the United States, and Australia and bring them back to the U.S. in the fall.

The Oils have shown their support for the environment in a nonmusical way. Last year the group's very tall lead singer, Peter Garrett, became president of the Australian Conservation Foundation, a major lobby group, and he has been busy with a series of lectures and political appearances.

W

hen the singer Basia made her debut in 1987, it was decided that her last name was too difficult for record buyers outside her native Poland. The album was "Time and Tide," on Epic, which sold a million copies and made the singer a star, billed simply as Basia.

Born and raised in Poland, Basia spent some time in the United States and now lives in London. Her new Epic album, "London, Warsaw, New York," reflects her multinational life and her multinational approach to music. One of the album's ten songs is "Astrud," a tribute to the Brazilian singer Astrud Gilberto. Another, Until You Come Back To Me, is a bow to Aretha Franklin, who had a hit with it in 1973.

Basia's last name, by the way, is Trzetrzelewksa.

A

mong American artists active in support of environmental issues is Chip Davis, president of American Gramaphone. Best known for its Fresh Aire series of recordings by Mannheim Steamroller, American Gramaphone released "Saving the Wildlife" in 1986. The company's newest release, "Yellowstone, the Music of Nature," is the latest of Davis's efforts to help repair the damage done to Yellowstone National Park by extensive forest fires last summer.

In addition to compositions by Davis, "Yellowstone" includes pieces by Debussy, Ferde Grofé, Respighi, and Vivaldi. Performers are Mannheim Steamroller, the Yellowstone Symphony, the London Symphony, and the Cambridge Singers.

Davis says, "After all the success I've had with Fresh Aire, which is based on nature, I felt I should give some energy back to nature." A portion of the proceeds of sales of the new recording on CD and cassette will go toward fire recovery in Yellowstone.

I

n support of wildlife conservation, Whitney Houston, whose new (as yet untitled) album is due for release by Arista in May, has paid for two lion cubs acquired by the Bronx Zoo in New York City. The cubs, a male and a female, were born last May and have been named George and Gracie. Their care and feeding have also been underwritten by the singer for a year's time.

A

man who likes to take his time is Billy Idol. His new Chrysalis album, "Charmed Life," comes three years after "Whiplash Smile." And that best seller came three years after "Rebel Yell." Speaking of his activities between albums, Idol said, "Around the time of 'Whiplash Smile,' I got caught up in being a rock star in America. Being that heady took me out of reality. There has to be a place to come home to, and that's oneself. Now, I just want to be me."

A

mong the first compact discs being released this month on the new Koch International Classics label is Leonard Bernstein's "Airs and Barcarolles," which received its concert premières in New York last fall. Producer Michael Fine recorded the new song cycle immediately following that first performance by soprano Judy Kaye and tenor William Sharp with Michael Barrett and Steven Blier as the duo-piano accompanists.

Koch will also occasionally
Bill Cosby has signed on for a series of albums for PolyGram Jazz called “Bill Cosby Presents.” The first release, “Where You Lay Your Head,” features five compositions by Cosby (who does not perform) and his regular musical collaborator, Stu Gardner. Among the big-name jazz artists playing on various tracks are John Scofield, David Murray, Jack DeJohnette, and Al Foster.

THE end of the 1980's was marked by the loss of such towering musical giants as the conductor Herbert von Karajan and the pianist Vladimir Horowitz. Appropriately, the start of the new decade brings a crop of musicians at the beginning of promising recording careers.

Among them is the young Italian violinist Rodolfo Bonucci, who is featured in a new ASV recording of music by Faure. The highlight of the new ASV recording of music by Faure began by Faure. The highlight of the new ASV recording of music by Faure began by Faure. The highlight of the new ASV recording of music by Faure begun by Faure begun by Faure begun by Faure begun by Faure begun by Faure begun byFaure begun byFaure begun byFaure begun byFaure begun byFaure begun by

Bonucci performs with the New York Chamber Symphony conducted by Gerard Schwarz.

Koko Taylor, who has been called the Queen of the Blues, maintains such a busy schedule of performances that she has difficulty finding time for recordings. She interrupted sessions for her sixth Alligator release to film a cameo appearance in a movie starring Nicolas Cage, Willem Dafoe, Isabella Rossellini, and Harry Dean Stanton. Called Wild at Heart, the picture is scheduled for release later this year. After shooting her scene in Los Angeles, Taylor embarked on a West Coast tour before finishing her new album. Tentatively titled “Jump for Joy,” it includes a duet with Lonnie Brooks. It's Bonucci: Nineties newcomer.

 silicone productions

a Dirty Job (But Somebody's Got to Do It). Also included is Taylor's version of Ted Nugent's Hey Baby. Six of Taylor's last seven albums have been nominated for Grammy awards.

Janet Jackson's “Rhythm Nation 1814,” “Blind Man's Zoo” by 10,000 Maniacs, and the all-star “Rainbow Warriors” album were winners of the annual Parents' Choice Awards in the category of rock-and-roll.

For a mail-order catalog of children's records, tapes, and videos on both major and minor labels, write to Music for Little People, P.O. Box 1460, Redway, CA 95560. You can also request the catalog by calling a toll-free number, 1-800-346-4445.

G RACENOTES. Virgin has released “Lake Wobegon Loyalty Days,” a live recording by author and radio personality Garrison Keillor and the Minnesota Orchestra. Taped last July 4, it's subtitled “A Recital for Mixed Baritone and Orchestra.” . . .

Jive/RCA has released three albums of jazz by South African musicians Ezra Ncukana, Barney Rachabane, and McCoy Mrubata. They were produced by Kolo Lebona, who played on Paul Simon's “Graceland” album. . . . RCA and Pioneer LDCA are working on a long-form video special starring jazz pianist Marcus Roberts. . . . The one American album reportedly most sought after when East Berliners breached the Wall and had their first crack at West Berlin record bins in November was RCA's hit soundtrack album of 1987, Dirty Dancing.
IMPROVING ROOM ACOUSTICS

Reflection, absorption, and diffusion are the three characteristics of a listening environment and its furnishings that govern its influence on sound produced and reproduced in it. As audio equipment continues to become more accurate and accessible, it is increasingly these three factors that separate a merely competent sonic presentation from a vividly exceptional one.

For most audiophiles, reflections are the bane of the small-room environment, accounting for everything from standing waves to amorphous stereo imaging to migraine-inducing glare and shriek in the upper midrange. Reflections are normally single or double bounces of sound energy from a room’s walls or ceiling to opposing surfaces (in the case of standing-wave formation) or to the listener (in the cases of stereoimage confusion and midrange harshness). As with light reflections, a sound wave’s angle of reflection tends to equal its angle of incidence. Thus, for higher frequencies at least, geometrical analysis can reveal where a bounce is occurring and where it’s going to go. In a good concert hall, sonic reflections are beneficial, because the path lengths are long enough to delay the bounces so that they reinforce desired aural cues rather than interfere with them. In a small, sparsely furnished room, however, reflections are too early, too dense, and too little modified by a spacious, flattering acoustic to enhance listening pleasure. Usually they degrade it.

The direct antidote to reflection is absorption: At identified bounce points, place or hang something that soaks up sound—at least that is one frequently mentioned cure. For higher frequencies you could use panels of acoustical fiberglass of the sort sold for lining speaker cabinets or a decorative rug hung on the wall, perhaps with a lining of fiberglass or hair felt to increase its efficacy.

For lower frequencies the choices are less plentiful and attractive. Gone are the days of the really heavy overstuffed sofa with quantities of lovely absorptive wadding. Today’s substitute is a framework of a few sticks topped with lightweight foam pillows, and that accomplishes very little in the low-frequency region. Mark Levinson of Cello recommends futons, the Japanese floor mattresses, as something that could conceivably be hung on a (sturdy) wall for this application. Futons are thick, heavy, inexpensive, and widely available.

Full-band absorption is another thing, however. Any absorber imaginable is frequency selective to some degree, and the acoustics texts in your local library will reveal just how selective most materials are. Sometimes it’s possible to clean up a room with just high-frequency absorption, addressing low-frequency problems with speaker placement. But luck has to be with you for this to work, so people have begun looking quite seriously into the technique of diffusion instead. Diffusion puts an irregular room surface where there was formerly a smooth one, which scatters reflections so that their energy is much less concentrated (and therefore much less apparent) than before. It also converts a single reflection into multiple ones spread over a broader time base; subjectively, this more closely simulates a live music experience in a good, if small, auditorium.

The superior acoustics of many older concert halls are often attributed in part to the baroque detailing of their interiors, which afford many opportunities for diffusion. Economic realities tend to make the modern hall a sparer, leaner place, and the usual apartment dweller’s listening room is sparer and leaner still. Diffusion can be added with bookcases (which afford some worthwhile lower-frequency absorption as well), open bric-a-brac shelving, and room dividers. Still, an optimum amount of diffusion may be difficult to get without clutter.

Acoustics experts have two main reasons for approving diffusion over absorption in some home settings. First, although practical diffuser devices for living rooms cannot be equally effective at all audio frequencies, they tend to be less frequency selective than absorbers. Second, whereas absorption sufficient to treat specific problems may ultimately make the room too dead, diffusion does not soak up sound energy, just redirects it. In the end, a good-sounding room will probably be found to have significant components of both diffusion and absorption. Achieving the right mix is the trick.

Commercially available devices for home room-acoustics treatment have been proliferating recently. In absorbers, the Sonex foam panels are well established and known to most audio dealers, as are both passive and active “tube traps.” A company called RPG Diffusor Systems is now marketing surface-mounting and free-standing modules created by Peter D’Antonio and John Konnett. Many of the modules provide both diffusion and absorption, and they have considerable visual appeal for those who appreciate handsomely finished utilitarian architecture. The products have won the virtually unreserved recommendations of such audio luminaries as Dan D’Agostino (Krell), Jack Renner (Telarc), and Mark Levinson. Details can be had from RPG’s home office at 12003 Wimbeldon St., Largo, MD 20772. Unfortunately, the minimum factory order is $1,200 worth. Fortunately, some dealers willing to break up a set are beginning to stock the modules.

by Ralph Hodges

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