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The Nakamichi The End of the Single-vs.



Choosing a CD player isn't as easy as it used to be. The best single-disc players are often very expensive and unnecessarily complicated. Changers offer multi-disc convenience. But because they're generally not designed for the serious listener, they cut corners off performance. They make it difficult to play just one CD. And their mechanisms are slow and clunky.

You could partially solve this dilemma by buying both a single-disc player *and* a changer. But now, thanks to Nakamichi, there's a much better solution.

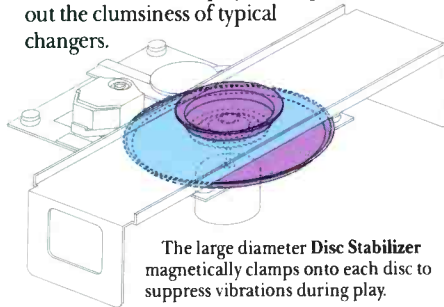


The MusicBank System™ lets you load up to six discs for multi-play yet always accommodates a seventh single-play disc. You can easily load or eject discs via a familiar single-disc tray.

Take a close look at Nakamichi's new CDPlayer2, for example. On the surface, it looks like a conventional single-disc player (only less cluttered and generally more pleasing to the eye of most beholders). Look inside, however, and you'll find something totally

unique: the Nakamichi MusicBank System™.

The MusicBank System employs an ingenious "1+6" stocker mechanism that provides advanced multi-disc playback capability without the clumsiness of typical changers.

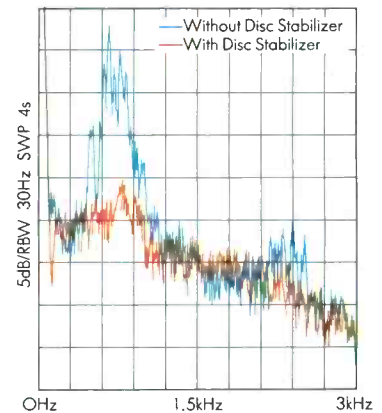


The large diameter Disc Stabilizer magnetically clamps onto each disc to suppress vibrations during play.

You can store up to six CDs in the MusicBank System, loading and unloading discs just as you would with a single-disc player. You can play a single CD at any time without juggling discs. And you don't even have to remove the single disc to play any of the stored discs.

You also get a full complement of easy-to-use single- and multi-disc programming capabilities, including delete play, 3-way random play, 3-way repeat play, and a 50-program memory. There's even Nakamichi's convenient **Synchro Recording** feature that automates CD dubbing with virtually any Nakamichi remote-controlled cassette or DAT deck. And whatever you ask of the MusicBank System, you'll find it responds quickly, smoothly, and quietly.

But forget about CDPlayer2's multi-disc capability for a moment. When it comes to sonic performance, CDPlayer2 must be com-



Measurements of focus servo error with and without the Disc Stabilizer reveal a dramatic improvement.

pared to the most ambitious, high-end single-disc players—the ones that typically cost hundreds, and even thousands, of dollars more.



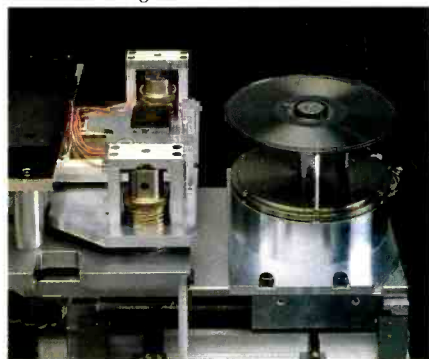
CDPlayer2 uses Nakamichi's newly developed **Enhanced Linearity 20-bit D/A Converters**. Unlike other so-called high-resolution systems, it is an innovative and real solution to the problem of converter precision. With this new technology—plus an 8-times oversampling digital filter, improved linear-phase 3rd-order

CDPlayer2 comes with a full-function wireless remote control.

MusicBank System:TM Multi-Disc Player Dilemma.

Bessel-type active analog filtering, and numerous other Nakamichi refinements—CDPlayer2 sets a new standard for musical accuracy. You'll hear musical detail, soundstage precision, and ambience you never knew existed on your CDs.

To further assure even the finest musical subtleties are preserved, CDPlayer2 has a large-diameter, magnetically chucked **Disc Stabilizer**. It suppresses the effects of external vibrations and dampens disc resonances that can lead to excessive focus servo activity and sonic smearing.



The OMS-2000's optical transport mechanism provides absolute positioning with unrivaled precision.

As impressive as CDPlayer2's internal features may be, the full story goes considerably beyond what lies behind its front panel. After all, advanced CD player technology of this kind is not developed overnight. CDPlayer2 and, for that matter, all other Nakamichi CD players and digital audio products, benefit from years of fundamental research that has put Nakamichi at the forefront of optical disk and digital signal processing technologies.

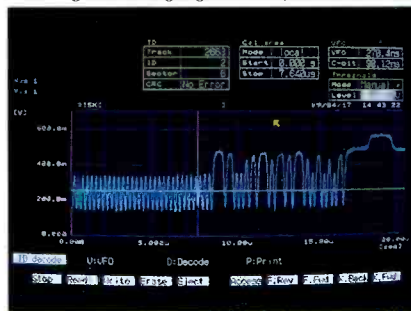
Just to put things into perspective, for a few hundred thousand dollars more than CDPlayer2 you can own a Nakamichi OMS-2000 optical disk analysis system. This remarkable read/write instrument can handle virtually every type of optical disk medium that has been or will be developed. The optical transport and disk drive mechanism are designed and manufactured by Nakamichi to unheard-of levels of precision—many orders of magnitude greater than that required for CD players. And through a sophisticated computer interface, the system permits a vast array of revealing measurements to be made. The list of companies using the OMS-2000 reads like a *Who's Who* of data industry giants.



The Nakamichi OMS-2000 optical disk analysis system has become the *de facto* standard in the data storage industry.

In fact, Nakamichi can rightfully claim a 95 per cent market share in optical disk analysis equipment of this type.

It was Nakamichi's experience in developing the OMS-2000 that revealed, for example, the importance of keeping the signal path between the laser and the signal processing circuitry as short as possible. Accordingly, the RF amplifier in CDPlayer2 is mounted right at the optical transport rather than remotely on the main circuit board as it is with conventional players. This, together with a new high-stability servo circuit developed with the aid of the OMS-2000, delivers much improved CD tracking and imaging accuracy.



The OMS-2000's computer interface enables measurements that have yielded invaluable data and insights on optical disk technology.

But Nakamichi also knows that fine audio components cannot be developed in the laboratory alone. That's why the Nakamichi headquarters research and development facility includes a lavish concert hall and special listening room. They provide a "live vs. reproduced" reference standard against which Nakamichi engineers can continually judge the success of their designs.

You can be the judge when you visit your Nakamichi dealer. Audition CDPlayer2 or CDPlayer3, both featuring the MusicBank System. If you don't need multi-disc capability, ask about CDPlayer4. Compare them to other players for musical accuracy, ease of use,

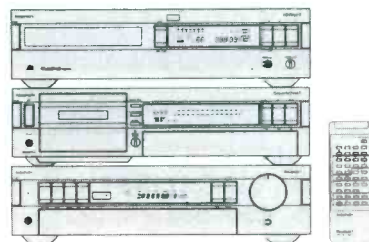
smoothness of operation, construction quality, versatility, and value. After that, the choice will be easy.



The ultimate reference standard: the Nakamichi Concert Hall and Listening Room are extravagant, yet essential, "test equipment" in the Nakamichi product development cycle.



Write or call for complete information on Nakamichi's new line of CD players, cassette decks, and receivers.



MusicBank SystemTM is a trademark of Nakamichi.

Nakamichi

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The Cover Equipment (from top): First Sound Reference II preamp, Sony DTC-75ES DAT recorder, Oracle Premiere MKIV turntable with Oracle/SME 345 tonearm and Signet OC9 cartridge, Carver CT17 tuner/preamp, Conrad-Johnson Evolution 2000 amp. Also shown are Talwar custom cabinets, painting by Daniel McDonald, and Max the Weimaraner.

The Cover Photographer: Bill Ashe.

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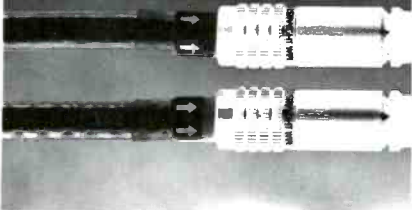
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PRODUCT LITERATURE GUIDE

To make this year's Annual Equipment Directory as authoritative as possible, the following manufacturers have provided comprehensive information on their products.

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The New York Times



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The Big Picture

Dear Editor:

I would like to say how much I enjoyed reading James C. Davies' "Forum" article on high-definition television (March).

I have been doing research on the Japanese consumer electronics industry for the last five years and have followed very closely the development of HDTV as well as the increasingly political discussions on standardization. I am regularly amazed at the lack of consideration of the broader picture in this very major issue, including potential profitability, the ability to offer the best service and products to consumers, and making good use of available resources in both hardware and software. Davies' article is the first I have read which takes a sensible approach to all these points and rises above hysteria in considering the development of a system that is going to play a major part in people's lives as we go into the next millennium. It is all too easy to approach HDTV as just an ego boosting tool that is relevant only to the picture on our television screens rather than an important technology which will improve the quality of our lives in ways most people have not considered to date.

Congratulations again to Davies on a brilliant, insightful article. I look forward to reading many more in future issues.

Virginia Kouyoumdjian
Senior Analyst
Baring Securities (Japan) Ltd.
Tokyo, Japan

What Spins Around . . .

Dear Editor:

Having retired after some 35 years in the audio field, including 20 with a manufacturer, I have drifted away from audio. I now spend most of my spare time on photography and reading.

The other day, I thought I'd see how the old audio field is doing, and picked up your current issue. I had to look at the date to see for sure that I had not picked up an ancient copy. It was almost like moving through a time warp! Maybe I've been around too long. Maybe the industry is now run by yuppies who don't remember the heyday of audio, with the Audio Fairs and the New York City Hi-Fi Shows. Or maybe the old adage that nothing is new under

the sun applies. Whatever—I was flooded by your current issue.

I flipped through it, and an ad popped off the page announcing the merits of tubes versus transistors. *Tubes???* Do you mean that there are really people who are ready to admit that maybe tube equipment does have a better sound than solid state, with its obvious coldness? Are you planning an article on the Williamson circuit?!

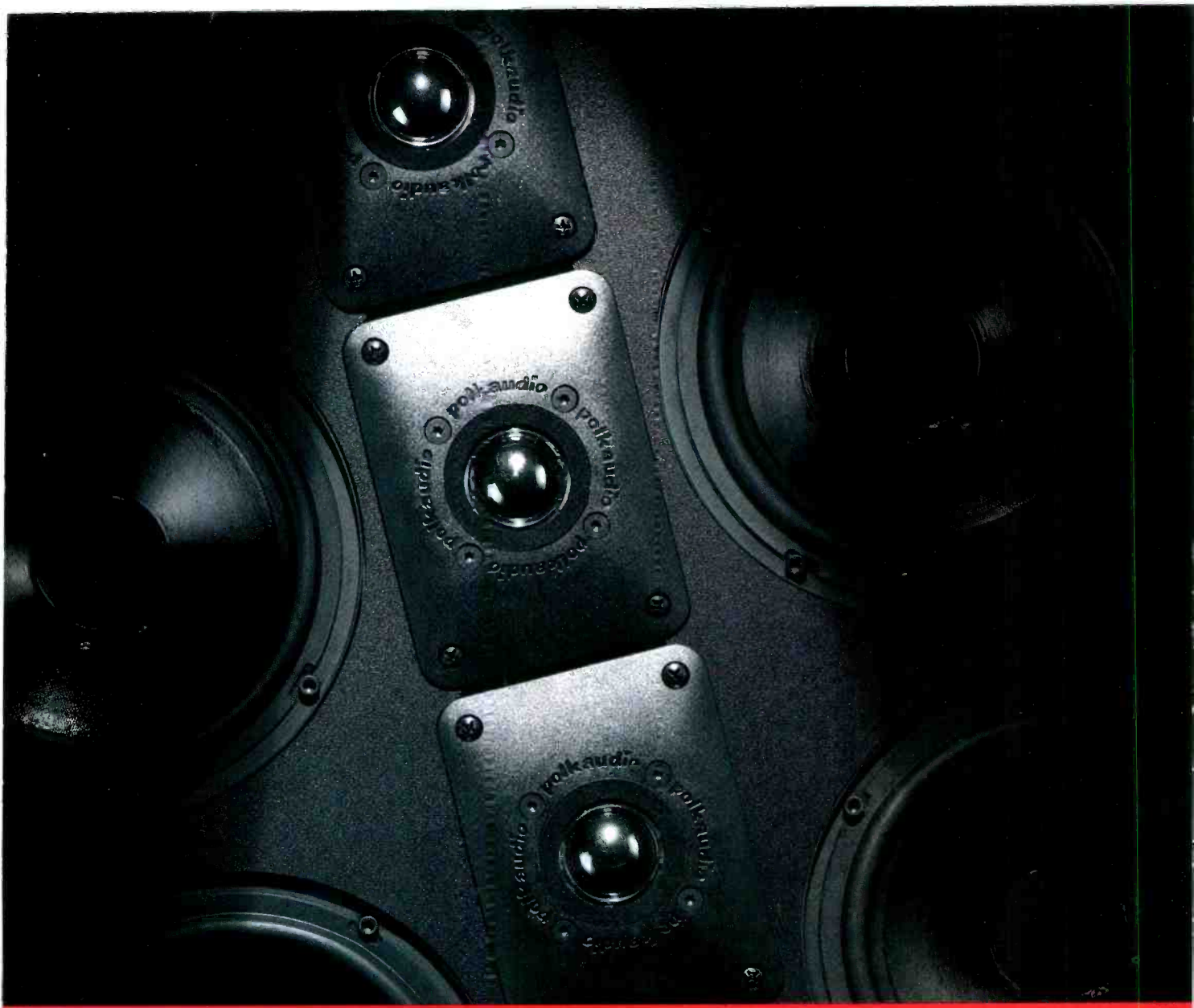
Then I encountered a whole raft of ads and articles on three-speaker systems. We are suddenly inundated with subwoofers in the middle and two main units on either side. My God—I've used that approach for several decades, but even I wasn't new at it. Remember Motorola? Well, back in the days of stereo consoles (you *do* remember them?), Motorola decided to combine bass from left and right into a common woofer. Now, all of a sudden, all the audio yuppies are coming out with three-speaker systems. Maybe in the near future, JBL will bring back their Paragon system!

And then I came across the latest gimmick: Surround sound. Call it what you will, it is nothing but a variation on four-channel sound—whether SQ, QS, Dolby Surround, CD-4, you name it. The approach is the same. Now all the guys who said 20 years ago that their wives wouldn't allow four (or six? or eight?) speakers in their living rooms are suddenly saying we should put four (or six or eight) speakers in our living rooms. We who never gave up on surround sound are amazed at how the new breed is about to find out how great the sound is that we've been living with for several decades. The industry has only some new words for it—ambience processors, digital signal processors, environmental processors, dynamic logic, et al.

We won't get into a recent article I read on binaural. I still have some LPs cut by Emory Cook in the binaural process. Maybe they will be worth something if the time warp continues, and the present-day experts continue to reinvent what we seniors have long had the pleasure of experiencing.

Keep up the good reading material. I may resubscribe. I may even reinvent the air coupler or the R-J enclosure!

Jack Hartley
Lakehurst, N.J.



Listen carefully...

Signature Reference Series: The Very Best of the Best

The legendary sound of Polk loudspeakers has for years been exemplified by its flagship Signature Reference Series (SRS), the speakers that carry Matthew Polk's signature. Indeed, the SRS loudspeakers have been largely responsible for Polk's reputation among audiophiles as a true innovator in sound reproduction.

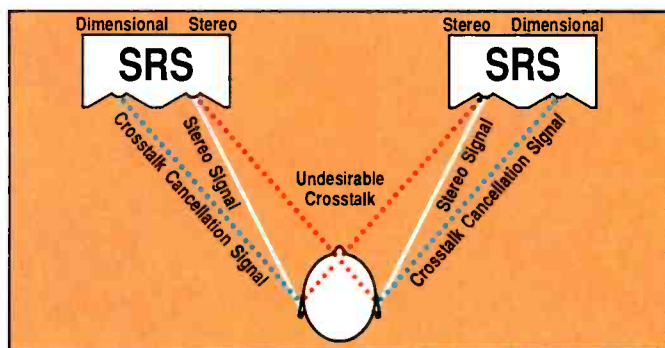
Polk now introduces its SRS 1.2TL, 2.3TL and 3.1TL, each featuring the latest breakthroughs in loudspeaker technology. Following is a technical brief of why the SRS speakers sound so remarkably like a live performance. After reading this information, it is hoped that you listen carefully to the SRS loudspeakers at your Polk Audio dealer. While you will probably hear things you have never heard from a stereo system, you can be assured that everything you hear is true.

It All Begins With the Sonic Excitement of Polk's Stereo Dimension Array (SDA)

Years ago Polk Audio recognized the importance of more absolute separation of information reaching

Polk's "True Stereo" SDA technology delivers left signal information to your left ear and right signal information to your right ear. Each ear only hears its proper signal, thereby maintaining full stereo separation. The resulting soundstage is dramatic. Closing your eyes, you can imagine the entire orchestra in front of you, pinpointing the location of instruments with incredible accuracy and depth.

Experts have called the Polk SRS Series featuring the revolutionary Stereo Dimensional Array (SDA) technology "mindboggling...astounding...flabbergasting...a new dimension in sound." Others, after hearing the remarkable wide sound stage created by this technology, have discovered new life in their favorite musical selections. It is "True Stereo" by Polk.



Each Polk SDA incorporates a special extra set of drivers which radiate a difference signal that cancels the undesirable signal going from the wrong speaker to the wrong ear (interaural crosstalk distortion). The result is True Stereo reproduction.

...everything you hear is true.

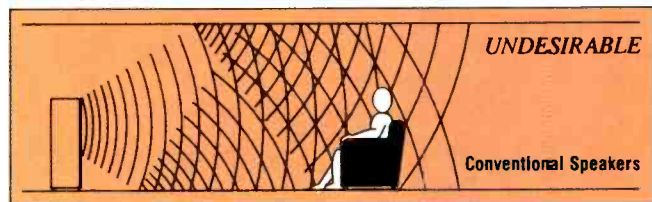
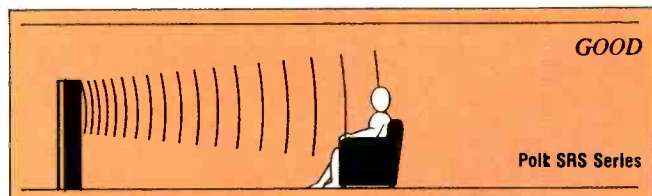
each ear. Of course, the fundamental concept of stereo reproduction is that there are two separate channels of information, each intended for one ear only (i.e. "true stereo").

To more accurately reproduce sound as it was originally created, it is vital that the integrity of this separation of information be maintained. With conventional speaker systems, each ear hears both speakers, and the separation is minimized. The resulting soundstage is reduced to the small space between the speakers. A large symphony orchestra is reduced to only a few feet wide and a few inches deep.

The Crystal Clear Imaging of Polk's Line Source Array

Even the best of conventional loudspeakers suffer from blurred imaging and tonal coloration caused by unwanted floor and ceiling reflections of midrange frequencies. Reflections reaching the listener even within 5 milliseconds of the original signal will "smear" the image. Polk, however, minimizes the damaging effects of undesired reflections with its Line Source Array technology.

The Full Impact of Polk's Mid and Low Frequency Performance



By precisely positioning high frequency and midbass drivers according to their dispersion characteristics and by controlling the radiating area of the system as a function of acoustic wavelength, Polk's Line Source Array produces stable, crystal clear imaging.

By controlling the vertical dispersion of these frequencies, a much higher level of imaging purity is achieved. The sound becomes more "open" by reducing the effects of undesired room interactions. Consequently, the listener is given a wider range of optimum listening positions in the room.

Additionally, the SRS 1.2TL and 2.3 TL utilize Polk's Progressive Point Source technology to maintain a Constant Vertical Directivity of mid and high frequencies, which prevents undesirable beaming. As frequencies increase, the tweeter array adjusts its radiation area and eventually becomes

a single point source at the very highest of frequencies, eliminating high frequency interactions between multiple drivers.

Even the smallest SRS, the 3.1TL, delivers the kind of bass that will give you goosebumps. Each SRS model features an array of Polk's exclusive Trilaminate Polymer 6 1/2" midbass drivers that exemplify today's state-of-the-art loudspeaker technology. By combining three complementary materials, each with a specific beneficial property, a performance level is attained that is beyond the reach of conventional drivers that use simple paper or vacuum-formed plastic cones.

One of the laminates is very light, yet structurally strong. Another is extremely stiff with an unusually high speed of sonic wave transmission, and the other has a uniquely effective damping property that removes sonic coloration.



Contributing to the deep, tight bass response of these drivers are the costly butyl rubber surrounds that offer more accurate cone movement.

Additionally, these surrounds will not deteriorate over time as do the foam surrounds found on many drivers. And, high temperature aluminum voice coils are used to assure long term reliability even with extended playing at maximum output.

These drivers are light and fast, providing superior transient response and detail. No other speaker system available today can boast the uncompromising technical superiority of these Polk designed and engineered drivers.

The 3.1TL features five active Trilaminate 6 1/2" drivers that are acoustically coupled to a 12" critically tuned bass radiator. In total, the low frequency driver system has a surface area of 178 square inches, more than enough to create an emotional, if not physical, reaction to the thunderous, yet clean, tight bass.

The SRS 2.3TL and 1.2TL, each with a bass



Fast, light Polk Trilaminate 6 1/2" Drivers, using the best of materials technology, provide superior transient response and detail.

included. Indeed, listening to either of these loudspeakers with Polk's "Bass Brace" or "Spiked Feet" in place, will prove to be a new, exhilarating experience.

An Engineering Breakthrough: The Remarkable SL 3000 Tweeter

Three years ago, Matthew Polk and his team of engineers set out to develop the world's finest 1-inch dome tweeter to be used in his flagship SRS speaker systems. The objectives of this design project were to:

- 1) Set a new standard for flat frequency response
- 2) Extend frequency response, free of peaks, to beyond 26 kHz
- 3) Increase power handling capacity
- 4) Maintain high efficiency.

Polk engineers, in conjunction with the Johns Hopkins University Center for Non-Destructive Testing, utilized Laser Interferometry to test a vast number of tweeter designs and materials in their search for high frequency perfection. This advanced

radiating area exceeding that of a 40" woofer, have the ability to produce powerful, deep bass with virtually no distortion. Indeed their low frequency reproduction may be unsurpassed in the history of loudspeaker design. While bass distortion is typically a function of the loudspeaker in any music system, the SRS 2.3TL and 1.2TL actually yield less distortion at 25 Hz than many audiophile quality tube amplifiers.

To enhance the full impact and dimension of Polk's low frequency performance, both the 2.3 TL and 1.2TL may be physically coupled to the listening room wall or floor with the appropriate hardware

application of laser technology allowed Polk to study digital holograms of tweeters in operation.

Exhaustive tests were conducted in developing a revolutionary dome which would produce perfect motion without the sonic degradation caused by standing waves. Ultimately, it was found that by vapor depositing stainless steel and aluminum on a polyamide surface,



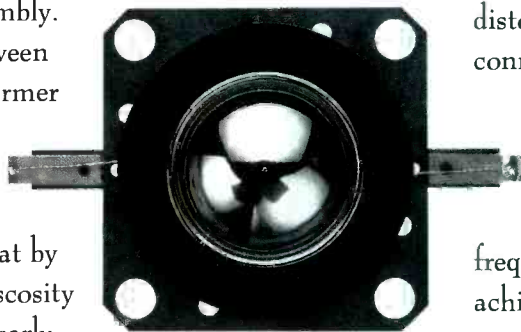
The Polk SL 3000 Trilaminate Dome Tweeter sets new standards for bandwidth, flatness of response, phase linearity and power handling.

the new SL 3000 dome was stiff enough to push standing wave resonance to beyond audible range (20 kHz), yet light enough for high efficiency and superior transient response.

It was also discovered that standing waves created in conventional tweeters were the result of a "hinging" effect at the tiny surface where the voice coil meets the dome. The situation is analogous to your wrist cracking a whip. Your wrist, acting as a hinge, causes a standing wave to travel down the length of the whip.

Polk's solution to this problem was to develop a voice coil former pre-formed to follow the exact contour of the dome. This Polk high efficiency drive system provides a surface contact area 10 times that of a typical voice coil assembly. This rigid connection between the dome and voice coil former eliminates the "whip" action and resulting standing waves.

Polk also discovered that by using a rare Ultra Low Viscosity (ULV) Magnetic Fluid, nearly as thin as water, to cool the SL 3000's voice coil, the tweeter's efficiency, power handling capacity and transient response would be improved.



Ultimately, by vapor depositing stainless steel and aluminum to a polyamide surface, the benefits of both soft and hard domes were achieved.

2.3TL and the SRS 3.1TL benefit from this technology. "TL," in fact, stands for Tri-Laminate.

Amplifier Compatibility and Bi-Amp Capability

Each of the SRS Loudspeakers is quite efficient and presents an "easy load" for almost all available receivers and amplifiers. It is recommended that a high quality amplifier or receiver of at least 50 watts per channel be used for the best performance. If you are using separate mono amplifiers without a common ground, Polk's AI-1 interface is available for proper connection.

For even greater dynamic range and lower distortion, the SRS loudspeakers may be connected for Bi-Amplification using the two sets of inputs provided on each loudspeaker. No electronic crossover is necessary. By permitting different amplifiers to reproduce the high and low frequencies separately, the SRS loudspeakers achieve their greatest sonic potential.

Yes, Everything You Hear Is True

Listen to what the critics say: "Mindboggling... astounding...flabbergasting." Listen to what other

After developing this innovative new driver, further research and careful listening tests concluded that Polk's original goals were achieved. In addition, it was discovered that there was an audible improvement at frequencies below those produced by the SL 3000. It was concluded that unwanted high frequency peaks actually mask and deteriorate midrange detail. Eliminating these peaks audibly enhanced midrange reproduction.

The pure, high end performance of the SL 3000 thereby makes a significant contribution to the overall sound of the SRS loudspeakers. Each of the new SRS loudspeakers, the SRS 1.2TL, the SRS

Polk owners say: "I've never heard anything like it... It's a whole new world..."

But no number of written accolades will prepare you for the experience of listening to the SRS loudspeakers at your authorized Polk Audio dealer. Because everything you hear is true.

You will hear the next generation of loudspeakers.

polk audio

The Speaker Specialist®

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SRS 1.2TL

Driver Complement

Four 1" (25 mm) SL 3000 trilaminate dome tweeters

Eight 6½" (166 mm) drivers

One 15" (381 mm) sub bass radiator

Size (Inches)

63½ H × 21¾ W × 13¼ D
(159 cm × 55 cm × 33 cm)

Overall Frequency Response

10 Hz-26 kHz
- 3dB Limits

27 Hz-25 kHz

Recommended Amplification

50-1000 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

91 dB

Shipping Weight

185 lbs./cabinet (82 kg.)



SRS 2.3TL

Driver Complement

Three 1" (25 mm) SL 3000 trilaminate dome tweeters

Six 6½" (166 mm) drivers

One 15" (381 mm) sub bass radiator

Size (Inches)

55 H × 20¾ W × 13¼ D
(138 cm H × 52 cm W × 33 cm D)

Overall Frequency Response

12 Hz-26 kHz
- 3dB Limits

30 Hz-25 kHz

Recommended Amplification

50-750 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

141 lbs./cabinet (70 kg.)



SRS 3.1TL

Driver Complement

One 1" (25 mm) SL 3000 trilaminate dome tweeter

Five 6½" (166 mm) drivers

One 12" (305 mm) sub bass radiator

Size (Inches)

48 H × 15¾ W × 13¾ D
(122 cm H × 40 cm W × 34 cm D)

Overall Frequency Response

15 Hz-26 kHz
- 3dB Limits

32 Hz-25 kHz

Recommended Amplification

50-500 watts/channel

Impedance

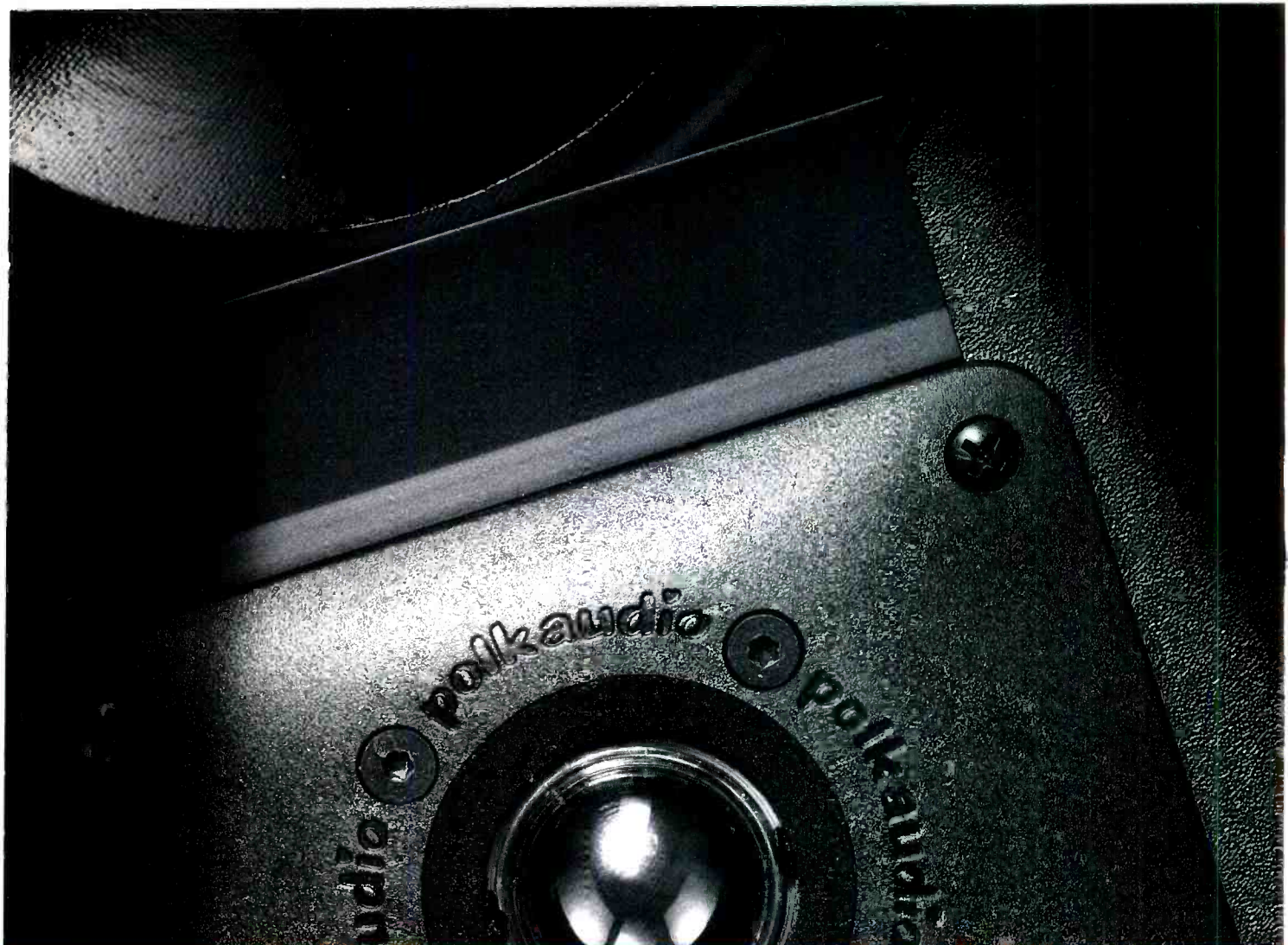
Compatible with 8 ohm outputs

Efficiency

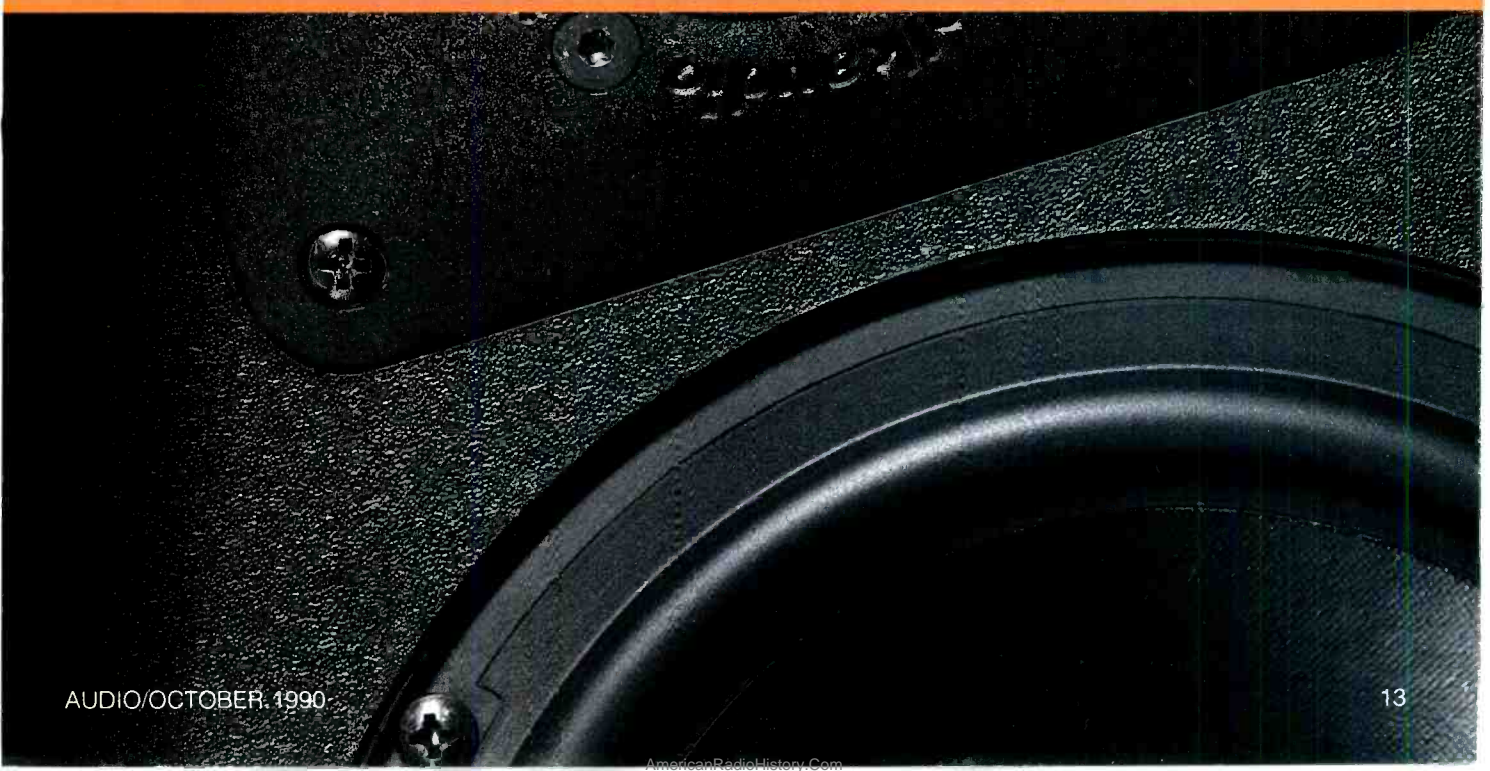
90 dB

Shipping Weight

101 lbs./cabinet (46 kg.)



Sound that astonishes the ear...

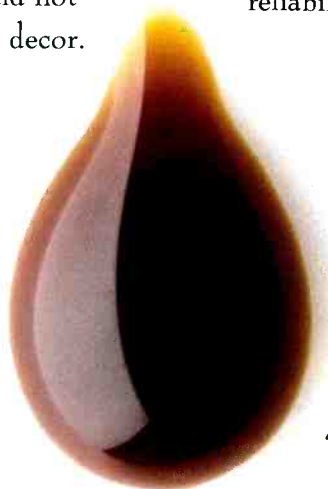


Today's Generation Of Music Lovers

Years ago, it didn't matter what speakers looked like as long as they sounded good. Admittedly, some of the best sounding speakers did not always blend perfectly into everyone's decor.

Today, those of us who consider music an important part of our life and who demand the highest performance possible from our stereo components prefer that our loudspeakers reflect our lifestyle by complementing our taste in home furnishings.

The new RTA 15TL, representing over 18 years of Polk's research and development, is already setting new standards of sonic excellence. And its elegant cabinet is a beautiful visual addition to any environment or listening room.



By using a rare ULV Magnetic Fluid to cool a tweeter's voice coil, both performance and reliability are vastly increased.

Low Viscosity Magnetic Fluid, nearly as thin as water, to cool the SL 3000's voice coil, power handling capacity would increase. Indeed, the SL 3000 tweeter can significantly exceed normal listening levels without loss of performance or reliability.

The Clear Imaging of Polk's Line Source Array

By arranging its four 6 1/2" drivers in a vertical line source along with the SL 3000 tweeter, superior imaging and midrange purity is achieved. This line source technology is the same advanced principal used in Polk's flagship "Signature Reference Series."

By clearly focusing midrange frequencies and avoiding floor and ceiling reflections, Polk's Line Source delivers a wide open, natural sound without tonal coloration. Consequently, the RTA 15TL performs superbly in a wide variety of room sizes and placements.

...from speakers that seduce the

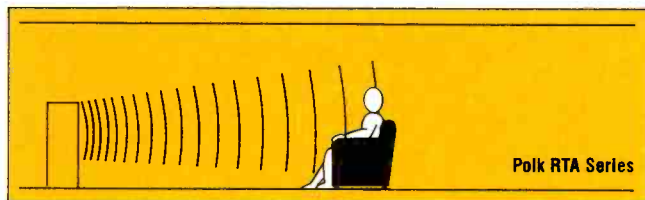
It All Begins With The Remarkable SL 3000 Trilaminare Tweeter

Working with the Johns Hopkins University Center for Non-Destructive Testing, Polk engineers utilized Laser Interferometry to test tweeter designs and materials. They found that ultimately, by vapor-depositing stainless steel and aluminum to a polyamide dome surface, an



extended, very flat frequency response, out to 26 kHz, was achieved.

Polk also discovered that by using a rare Ultra



Polk's Line Source Technology reduces floor and ceiling reflections by focusing the vertical dispersion of midrange frequencies.

Controlling Diffraction To Create A Lifelike Stage

The grille of the RTA 15TL has been specially designed to eliminate mid and high frequency diffraction and to actually enhance dispersion. In fact, the RTA 15TL sounds better with the grille on than off.

And to eliminate any possibility of phase anomalies and other colorations, Polk developed a unique "diffraction spoiler" which dramatically improves audible frequency response and imaging.

By controlling diffraction, "smearing" of the sonic image and "peaky" characteristics are eliminated.

Polk Bass: Deep, Powerful & Tight

Two independently tuned, 10 inch bass radiators, one facing front, one facing rear, deliver the impressive bass for which Polk is known. These two radiators move a significant amount of air and at the same time produce a more accurate reproduction of an instrument's timbre and transience than a single conventional woofer. This configuration provides the tight, well defined bass normally associated with small systems combined with the deep, powerful performance found in large systems.

eye.

Listen To The Next Generation Of Loudspeakers

The new RTA 15TL is both a sonic and aesthetic breakthrough. It is also priced to create a new standard in value. Ask for a demonstration at your authorized Polk dealer. You'll hear the detail, depth and excitement of a live performance.

You'll hear...and see... the next generation of loudspeakers.

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Enter No. 77 on Reader Service Card



The RTA 15TL is available in natural oak, natural walnut and black oak wood veneer finishes.



RTA 15TL

Driver Complement

One 1 inch (25 mm) Polk SL3000 dome tweeter
 Four 6½ inch (165 mm) Polk trilaminate polymer
 bass-midrange drivers (6503)
 Two 10 inch (254 mm) sub-bass radiators,
 one high-resonance, one low-resonance

Size (Inches)

43 H (109.2 cm) × 12½ W (31.7 cm) × 15½ D
 (39.4 cm)

Overall Frequency Response

20 Hz-26 kHz
 – 3dB limits

35 Hz-25 kHz

Recommended Amplification

30-250 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

77 lbs. (34.9 kg.)



RTA 11TL

Driver Complement

One 1 inch (25 mm) Polk SL3000 dome tweeter
 Two 6½ inch (165 mm) Polk trilaminate polymer
 bass-midrange drivers (6510)
 Two 8 inch (203 mm) sub-bass radiators,
 one high-resonance, one low-resonance

Size (Inches)

38 H (96.5 cm) × 10½ W (26.7 cm) × 14½ D
 (36.8 cm)

Overall Frequency Response

22 Hz-26 kHz
 – 3dB limits

36 Hz-25 kHz

Recommended Amplification

30-250 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

58 lbs. (26.3 kg.)



RTA 8TL

Driver Complement

One 1 inch (25 mm) Polk SL2500 dome tweeter
 Two 6½ inch (165 mm) Polk trilaminate polymer
 bass-midrange drivers (6516)

Size (Inches)

32½ H (82.5 cm) × 9 W (22.9 cm) × 11½ D
 (29.2 cm)

Overall Frequency Response

30 Hz-25 kHz
 – 3dB limits

42 Hz-23 kHz

Recommended Amplification

20-250 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

89 dB

Shipping Weight

39 lbs. (17.7 kg.)

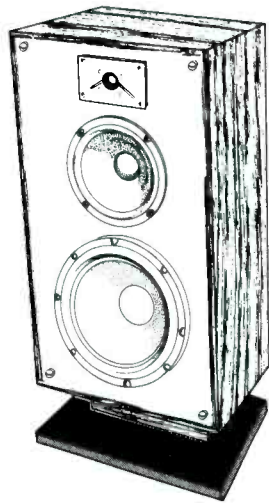


Our speakers sound expensive...



The Expensive Sound of the Affordable Monitor Series

In 1972, Polk Audio created a new standard for high performance and affordability with the introduction of its original Monitor 7 loudspeaker. Audiogram Magazine said, "we were so impressed we could not believe the prices...they're a steal." Also referring to the Monitors, Musician Magazine said, "If you're shopping for stereo, our advice is not to buy speakers until you've heard the Polks."



The original Polk Monitor 7 that started a sound revolution in 1972.

Today, Polk Audio furthers this tradition of offering state-of-the-art sound at affordable prices with its new Monitor Series 2 Loudspeakers. Seven models, from the compact Monitor 4 to the awesome sounding Monitor 12, provide the music lover with a variety of sizes, power outputs and performance levels

- 3) reproduce transients that translate into crisp, lifelike clarity
- 4) deliver exceptionally deep, tight bass that could be felt as well as heard
- 5) attain a wide dispersion of high and mid frequencies for non-critical placement within the listening room
- 6) maintain high efficiency
- 7) be able to handle significant amounts of power
- 8) utilize the highest quality components for a long life of reliability.

These fundamental design objectives guided the team of Polk engineers in its evolutionary search for sonic perfection of the famed Monitor series. Only through the sophisticated research resources at Polk, were these objectives so decisively attained.

Polk's High Performance at High Frequencies

Featured in the Monitor 4.6, 5jr+, 5, 7, 10 and 12, the SL 2500 tweeter makes a major contribution to the improved performance of the Monitor Series 2. Sharing much of the technology of the incomparable

...until you hear their price.

that will match any sonic or physical requirement, each within a modest budget.

All of these affordable speakers have one thing in common—the unmistakable, exciting sound of Polk.

Polk's Eight Parameters of High Performance

Polk established eight clearly defined performance objectives for its new Monitor series. They would, in varying degrees,

- 1) achieve an open, boxless, three dimensional sound
- 2) produce a flat frequency response that would be pleasing even during extended listening

SL 3000 tweeter used in the Polk flagship SRS series, the SL 2500 is a highly refined, technically advanced driver.

The voice coil, wound around an aluminum voice coil former with nomex-core, is cooled by an exotic ULV (ultra-low viscosity)



The new, wide dispersion Polk SL 2500 Tweeter used in all but the smallest Monitor has phenomenal power handling capability for dramatic dynamic range and long term reliability.



magnetic fluid. This material, which has a viscosity close to that of water, enables the SL 2500 to play at power outputs far exceeding its rating without loss of performance or reliability. The resulting dynamic range is dramatic, indeed unique for speakers in this price range.

The compact Monitor 4 also features an all new tweeter, the SL 1500 hemispherical, 1" soft dome driver. It delivers superb definition and smooth extended response, all resulting from Polk's exhaustive testing and computer-aided design analysis.

The performance of all the Monitor Series 2 loudspeakers at high frequencies results in a sound

that is easy to listen to, hour after hour, without fatigue. And their extremely wide dispersion characteristics greatly reduce the need for critical placement within your listening room.

Better Bass Than Ever Before

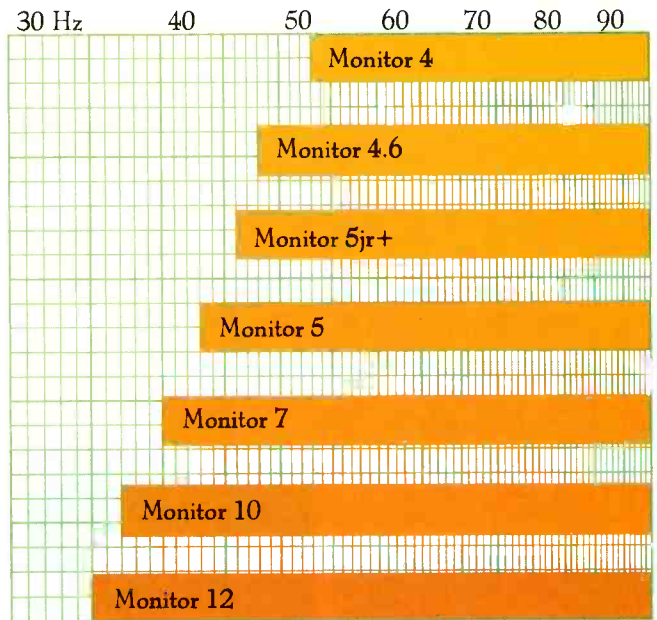
The Polk Monitors have always been recognized for their exciting bass performance. The Series 2 loudspeakers sound even better. Each low frequency system was redesigned to provide deeper, more realistic bass. The 4, 4.6 and 5jr+ have greater internal cabinet volumes that clearly make them the biggest sounding bookshelf speakers available.

Moving up to the Monitors 5, 7, 10 and 12, the bass gets deeper and fuller, each being more capable of filling larger rooms with bass energy that you can feel as well as hear.

There's a Polk Monitor That's Right For You

Polk offers seven Monitor Series 2 loudspeakers ranging in size, performance and price. All feature Polk's proprietary trilaminate polymer diaphragm midbass driver for excellent transient response and reduced midrange coloration. The Monitor 4 and 4.6 are ported designs to make the best use of their cabinet size for low frequency performance, while the larger Monitors feature sub-bass radiators for fast, tight bass response.

Starting with the Model 4, each subsequent Monitor Series 2 speaker gets larger, more efficient, handles more power, has greater dynamic range and delivers better bass response. Designed so that a small Monitor played in a small room will sound similar to a large Monitor in a large room, they are an excellent choice for multiple speaker systems throughout your home.



Low Frequency Limit at -3 dB for each Monitor shows increased bass performance as you move up in size.

Listen to the Next Generation of Monitors

Polk Audio started a sound revolution in the early 70s with its first Monitor 7 by offering state-of-the-art sound at a reasonable price. Today, after

The Polk difference is R&D.



Polk's high performance 6 1/2" midbass driver is used in each Monitor Series 2 Loudspeaker. Its proprietary trilaminate polymer diaphragm structure offers excellent transient response and near absence of midrange coloration.

nearly two decades of refinement, research and development, Polk has introduced an entirely new series...the Monitor Series 2.

You are invited to your nearest Polk Audio dealer for a demonstration of these remarkable new loudspeakers. You will hear the expensive sound of Polk...at very affordable prices.

You will hear the next generation of loudspeakers.

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Monitor 12
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
Four 6½ inch (165 mm) drivers
One 12 inch (305 mm) sub bass radiator

Size (Inches)

37¾ H (95.5 cm) × 15¼ W (40 cm) × 12 D (30.5 cm)

Overall Frequency Response

25 Hz-25 kHz
- 3dB Limits

35 Hz-23 kHz

Recommended Amplification

20-400 watts/channel

Impedance

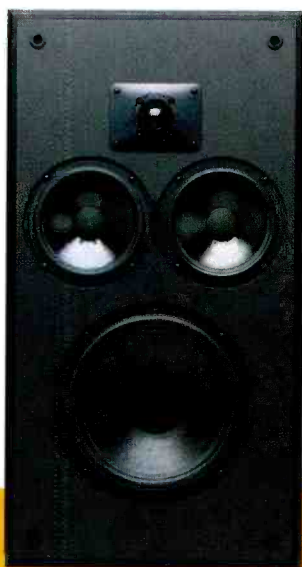
Compatible with 8 ohm outputs

Efficiency

91 dB

Shipping Weight

60 lbs. (27 kg.)



Monitor 10
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
Two 6½ inch (165 mm) drivers
One 10 inch (254 mm) sub bass radiator

Size (Inches)

28 H (71.1 cm) × 15 W (38.1 cm) × 12 D (30.5 cm)

Overall Frequency Response

25 Hz-25 kHz
- 3dB Limits

37 Hz-23 kHz

Recommended Amplification

20-250 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

89 dB

Shipping Weight

46 lbs. (20.7 kg.)



Monitor 7
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
One 6½ inch (165 mm) driver
One 10 inch (254 mm) sub bass radiator

Size (Inches)

24 H (61 cm) × 13 W (33 cm) × 10 D (25.4 cm)

Overall Frequency Response

25 Hz-25 kHz
- 3dB Limits

40 Hz-23 kHz

Recommended Amplification

20-150 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

89 dB

Shipping Weight

33 lbs. (14.9 kg.)



Monitor 5
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
One 6½ inch (165 mm) driver
One 8 inch (203 mm) sub bass radiator

Size (Inches)

22 H (55.9 cm) × 10 W (25.4 cm) × 10 D (25.4 cm)

Overall Frequency Response

30 Hz-25 kHz
- 3dB Limits

43 Hz-23 kHz

Recommended Amplification

20-125 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

48 lbs./pair (21.6 kg./pair)



Monitor 5jr +
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
One 6½ inch (165 mm) driver
One 6½ inch (165 mm) sub bass radiator

Size (Inches)

19½ H (49.5 cm) × 9 W (22.9 cm) × 10 D (25.4 cm)

Overall Frequency Response

30 Hz-25 kHz
- 3dB Limits

46 Hz-23 kHz

Recommended Amplification

20-125 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

40 lbs./pair (18 kg./pair)



Monitor 4.6
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 2500)
One 6½ inch (165 mm) driver
Size (Inches)

17 H (43.2 cm) × 8½ W (21.6 cm) × 10 D (25.4 cm)

Overall Frequency Response

30 Hz-25 kHz
- 3dB Limits

48 Hz-23 kHz

Recommended Amplification

20-100 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

34 lbs./pair (14.3 kg.)



Monitor 4
Series 2

Driver Complement

One 1 inch (25 mm) dome tweeter (Polk SL 1500)
One 6½ inch (165 mm) driver
Size (Inches)

14¾ H (36.8 cm) × 8½ W (21.6 cm) × 7½ D (19.2 cm)

Overall Frequency Response

35 Hz-24 kHz
- 3dB Limits

53 Hz-20 kHz

Recommended Amplification

20-100 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

91 dB

Shipping Weight

24 lbs./pair (10.8 kg./pair)



Sound as big as life...

Listening in the 90's

Today people have become more and more space conscious. Many apartment dwellers don't want to give up valuable floor space for large speaker systems. Others who are planning a surround sound or home theatre system simply don't have the room for more speakers in their listening rooms or hesitate to commit the floor or wall space to a good sounding pair of speakers.

Until now, serious music lovers have had little, if anything, to choose from that would produce a large, bigger-than-life sound in a small, compact size. Systems that fit one's space requirements have been woefully disappointing in sound quality.

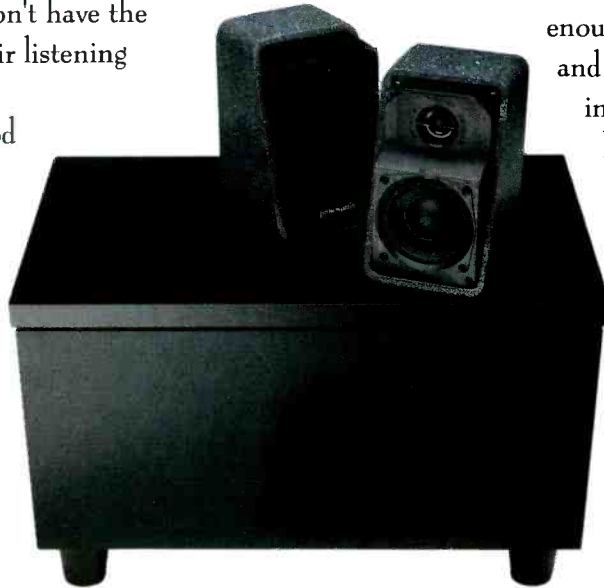
The RM 3000 Three Piece System

Polk's engineers had determined long ago that there were indeed certain technical advantages in

sonic performance.

The small satellites can be located on shelves, mounted on a wall or placed on their own floor stands. They are very attractive and yet small enough to be hidden from view if desired.

The RM 3000 subwoofer is also small enough to sit behind your furniture and can be used on its side to fit into tight spaces. And since it is beautifully finished, it can be used as a piece of furniture.



The RM 3000's satellites measure 7"H x 4 1/4"W x 5 3/8"D and are available in black matrix, gloss black piano or paintable white. The subwoofer is 12 1/2"H x 20"W x 12 1/2"D and is available with black wood grain sides and a black, mar-resistant top.

The Legendary Sound of Polk

In the tradition of Polk Audio, Matthew Polk and his team of engineers were determined to make the RM 3000 sound better than any other speaker of its type.

Initial reactions have been filled with superlatives including Julian Hirsch of

Stereo Review magazine who says, "...they sound excellent...spectral balance was excellent—smooth and seamless."

...from speakers small enough

small speaker systems. Both high and mid frequencies could be faithfully reproduced with superior transient response and dispersion characteristics, and the convenient, more flexible placement of small enclosures within the listening area could create an ideal sound stage. Unfortunately, reproducing the life-like, full body of the lower frequencies could not be achieved in a truly compact enclosure.

Polk's RM 3000 replaces the traditional pair of speakers with three elements, two compact midrange/tweeter satellites and one low frequency subwoofer system. This configuration makes it easy to properly and inconspicuously place the system within your listening room while offering superior

Behind all these accolades is an impressive technical story.

The Technical Side

The big sound of the RM 3000 is due, in part, to the unique arrangement of the tweeter and midrange elements. This "time aligned system" delivers the high and mid frequencies at precisely the same instant. The result is a clear, lifelike and expansive presentation.

The cabinet materials selected for the satellites are over four times as dense as typical enclosures. The black matrix finish is a non-resonant polymer aggregate (FOUNTAINHEAD®). The gloss black piano and paintable white finishes are rigid ABS

AUDIO/OCTOBER 1990

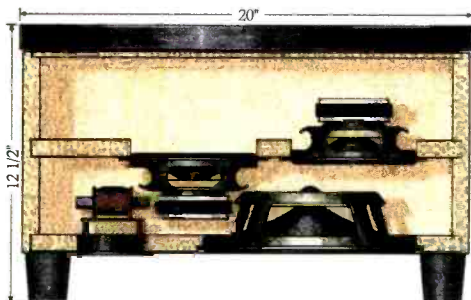


Polk's RA 3000 Three Piece Speaker System eas-ly fits into today's home decor.

to live with.

surrounding a mineral filled polypropylene inner cabinet. Polk engineers have all but eliminated any "singing" or resonating of the satellite enclosure. You hear the effortless, free sound of a much larger system.

Most subwoofer systems look alike on the outside, but the Polk is worlds apart on the inside. Utilizing twin 6 1/2" drivers coupled to a 10 inch sub-bass



For deep, well defined bass, Polk uses twin drivers coupled to a sub-bass radiator. Normally, one sub-woofer system is used for both channels. For those desiring even greater low frequency performance, a second subwoofer can be added, one fed by the left channel, the other by the right channel.

radiator, the bass is tight and well defined. There is no tuned port to create "whistling" or "boominess" of the bass frequencies.

You Have To Hear It To Believe It

You really won't believe how good the RM 3000 sounds until you hear it. We invite you to your nearest authorized Polk dealer for a demonstration. You'll hear sound as big as life...from a speaker you can live with.

You'll hear the next generation of loudspeakers.

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The Speaker Specialist®

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RM 3000

Driver Complement

Satellite

One 3½ inch (89 mm) driver
One ¾ inch (19 mm) tweeter

Subwoofer

Two 6½ inch (166 mm) drivers
One 10 inch (255 mm) sub-bass radiators

Size (Inches)

Satellite

7 H × 4¾ W × 5½ D
(18 cm H × 11 cm W × 14 cm D)

Subwoofer

12½ H × 20¼ W × 13 D
(32 cm H × 52 cm W × 33 cm D)

Overall Frequency Response of System

25 Hz-20.5 kHz

- 3dB Limits

42 Hz-18 kHz

Recommended Amplification

10-125 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

88 dB

Shipping Weight

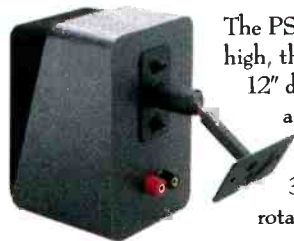
46 lbs. total (21 kg.)



Available cabinet finishes: paintable white, gloss piano black, and black matrix.



PS 3000



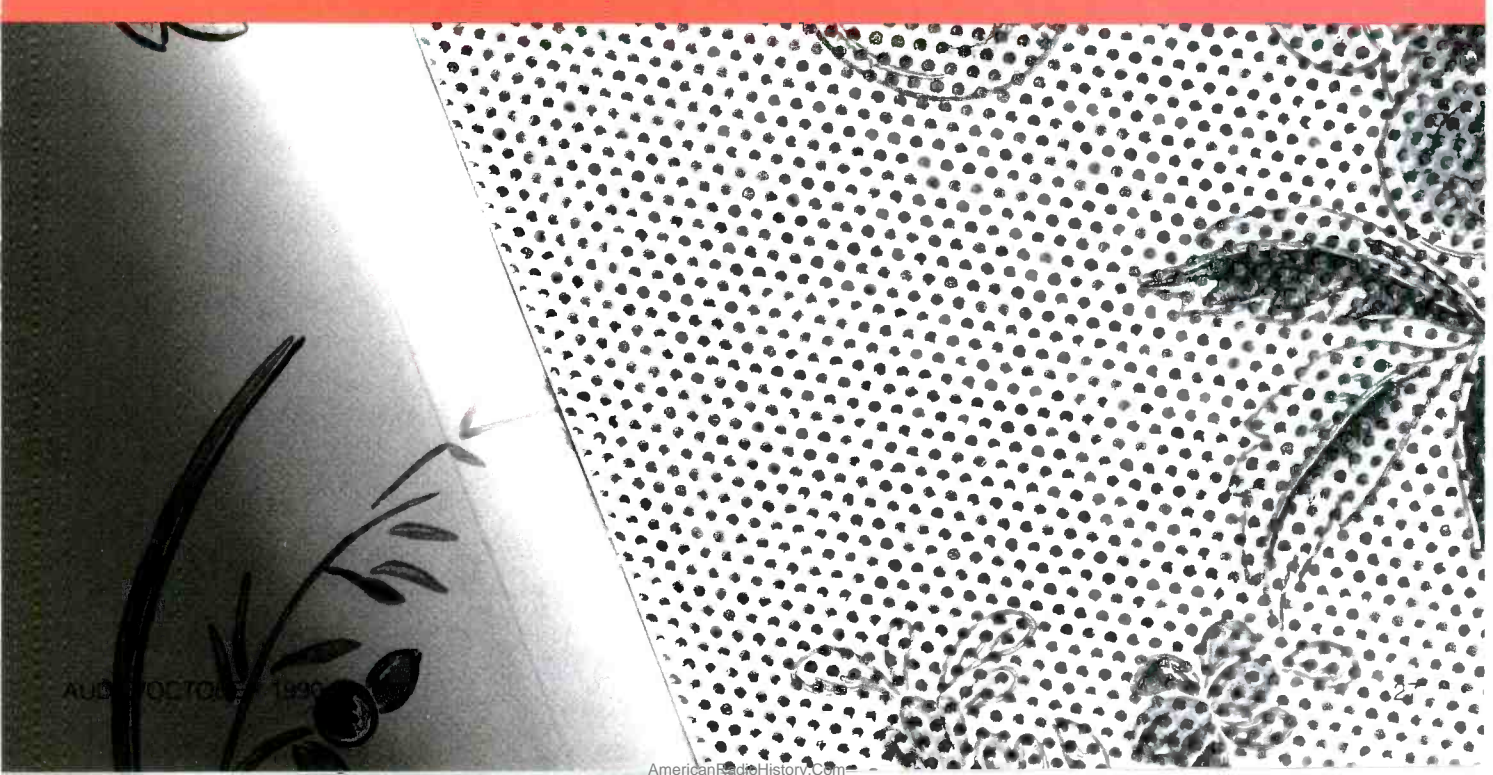
WB 3000

The PS 3000, Polkstand 3000, is 40" high, the base measuring 11" wide by 12" deep. The PS 3000 is available in a satin black finish.

The WB 3000, Wall Bracket 3000, measures 4½" high and rotates to any angle to provide numerous placement options, including wall and ceiling mounts. The brackets are available in white and satin black finishes.



Sound so big you can feel it...



AUGUST 1990

Today's New World of Home Entertainment

In just the past couple of years, there has been a remarkable number of new products that have heightened the quality and widened the variety of home entertainment. The development of the compact disc has led to a significant improvement in overall sound quality and convenience to the music lover. Amplifiers have become more powerful and pure. And, of course, Polk Audio has been setting new standards for loudspeaker performance with a wide range of innovative products.

Recently, bringing video and audio together as a total entertainment concept has become an exciting reality. Surround sound systems and sophisticated home theater systems rival the experience of a live concert or a night out at the movies.

High quality music systems and now in many cases video systems are becoming an important part of one's home environment. More and more people are installing sound systems throughout several rooms in their homes, in some cases creating one centralized entertainment room from which other rooms are supplied with music.



...from speakers you can barely

To take full advantage of all these entertaining offerings, an entirely new kind of high performance loudspeaker system was developed by Polk Audio.

The Legendary Sound of Polk Can Now Be Heard, Not Seen.



Polk Audio has introduced a new generation of loudspeakers. Loudspeakers that, as always, live up to Polk's reputation for sounding remarkably like a live performance. But this new generation of loudspeakers is

designed to be heard, not seen.

Polk's new Architectural Reference Built-In Loudspeakers (AB Series), delivers superior sonic performance without intruding on your living space. Designed to be built-in to your walls and, if desired, painted to match or complement any color of your decor, the AB Series is the perfect solution to delivering high quality sound throughout your home.

The Speakers May Be Hidden, But You'll Recognize the Sound as Pure Polk.

Polk engineers set out to create a series of loudspeakers that, while hidden from view, would reproduce a dramatic sound stage with the energy and depth of concert hall realism.

The AB 900 subwoofer can be mounted almost invisibly in new or existing construction. Only the small (3 1/4"W x 4 1/4"H) decorative grille is seen.



Polk's AB 700 Speaker System built into this listening area, delivers astonishing realism without physically intruding on the living space.

see.

For each AB system, ambitious performance goals were achieved. The open, 3-dimensional sound that has become a hallmark of Polk is recognized instantly, even in the smallest of systems. Nearly perfect high-frequency dispersion makes speaker placement less critical, and a flat frequency response provides endless listening without psychoacoustic fatigue.

Polk's superior components, including midbass drivers featuring trilaminate polymer diaphragms and hemispherical soft dome tweeters, set the AB systems apart from any other built-in speakers currently available. In the tradition of Polk Audio, each driver benefits from extensive research and development using the most sophisticated computer testing programs. As always only the finest grade components and materials are used to insure long term, trouble free operation.

Even in the most basic of systems, the AB Series provides quality bass reproduction. By choosing models with additional midbass drivers or by adding one or more subwoofer systems, one can achieve a truly remarkable sound that dramatically recreates the excitement of a live performance.

Ask Your Polk Dealer/Installer for More Details

Polk's Architectural Reference Built-In Loudspeakers have been designed for easy installation into existing structures as well as new construction. Many Polk dealers have created home environment listening areas to demonstrate the superior sound of the AB Series. Ask to listen to these remarkable new loudspeakers.

You'll hear but
may not see...the
next generation of
loudspeakers.



The AB 700 requires a 9 3/4" H x 6 1/4" W x 3" D cutout. The AB 800, with two midbass drivers, requires a 15 1/2" H x 6 1/4" W x 3" D cutout.

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Driver Complement Satellites

One 2½ inch (64 mm) driver
One ¾ inch (19 mm) tweeter

Subwoofer

Two 6½ inch (165 mm) drivers

Overall Size (Inches) Satellites

6½ H × 4 W × 3¾ D
(165 mm H × 102 mm W × 95 mm D)

Subwoofer

21¼ H × 14½ W × 3¾ D
(552 mm H × 368 mm W × 98 mm D)

Cut Out Size (Inches) Satellites

6 H × 3½ W (152 mm H × 89 mm W)

Subwoofer: Surface Mount

20¾ H × 13½ W (519 mm H × 333 mm W)

Flush Mount (Rough in Frame)

21⅞ H × 14½ W (553 mm H × 368 mm W)

Overall Frequency Response of System

25 Hz-20.5 kHz
- 3dB Limits

40 Hz-20 kHz

Recommended Amplification

10-150 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

88 dB

System Shipping Weight

45 lbs. (20.3 kg.)

Driver Complement

One 1" (25 mm) Polk SL2000T silver coil dome tweeter

Two 6½" (165 mm) Polk MW 6512 trilaminate polymer bass-midrange driver

Size

16¾" H × 7⅞" W (43 cm H × 18 cm W)

Cutout Size

15½" H × 6¼" W (39 cm H × 16 cm W)

Overall Frequency Response

26 Hz-26 kHz
- 3dB Limits

43 Hz-20 kHz

Recommended Amplification

10-150 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

91 dB

Shipping Weight

21 lbs./pair (5.5 kg.)

Driver Complement

One 1" (25 mm) Polk SL2000T silver coil dome tweeter

One 6½" (165 mm) Polk MW 6512 trilaminate polymer bass-midrange driver

Size

10¾" H × 7⅞" W (27 cm H × 18 cm W)

Cutout Size

9¾" H × 6¼" W (25 cm H × 16 cm W)

Overall Frequency Response

30 Hz-26 kHz
- 3dB Limits

55 Hz-20 kHz

Recommended Amplification

10-125 watts/channel

Impedance

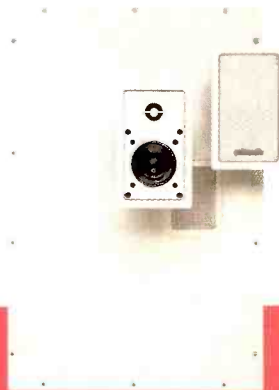
Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

13 lbs./pair (6 kg.)



AB 900



AB 800



AB 700



AB 500



AB 600



AB 820

Driver Complement

One 5¼" (133 mm) trilaminate polymer bass/midrange driver

One ¾" (19 mm) polymer dome tweeter

Size

6½" W × 9¾" H (17 cm W × 25 cm H)

Cutout Size

5⅞" W × 8⅜" H (14 cm W × 22 cm H)

Overall Frequency Response

56 Hz-20 kHz
- 3dB Limits

70 Hz-18 kHz

Recommended Amplification

10-100 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

89 dB

Shipping Weight

6 lbs. (2.7 kg.)

Driver Complement

One 6½" (165 mm) Polk bilaminate bass-midrange driver

One coaxial ¾" (19 mm) polymer dome tweeter

Size

10¾" H × 7⅞" W (27 cm H × 18 cm W)

Cutout Size

9¾" H × 6¼" W (25 cm H × 16 cm W)

Overall Frequency Response

45 Hz-20 kHz
- 3dB Limits

65 Hz-18 kHz

Recommended Amplification

10-100 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

90 dB

Shipping Weight

8½ lbs./pair (3.9 kg.)

Driver Complement

Two 6½" (165 mm) Polk trilaminate polymer bass drivers

Size

16¾" H × 7⅞" W
(43 cm H × 18 cm W)

Cutout Size

15½" H × 6¼" W (39 cm H × 16 cm W)

Overall Frequency Response

20 Hz-25 kHz
- 3dB Limits

35 Hz-15 kHz

Recommended Amplification

10-150 watts/channel

Impedance

Compatible with 8 ohm outputs

Efficiency

91 dB

Shipping Weight

15 lbs./pair (6.8 kg.)

AUDIOCLINIC

JOSEPH GIOVANELLI

More on "Older Is Better"

Q. I was intrigued to read so much about old recordings being better than new ones and old equipment sounding better than new equipment. Now I wonder about other "old" technology. The first radios were crystal sets. From time to time, we find these sets available as "educational kits." If such a radio were to be connected to a modern high-fidelity system, just how well would it work? —Name withheld

A. Assuming that certain conditions were met, the crystal set would produce excellent fidelity. The AM sections of many tuners and receivers lack extreme highs because of the restricted bandwidth of their i.f. systems.

Some AM tuners or AM sections of tuners and receivers have been produced with wide i.f. bandwidths. Such equipment produces results which often rival FM in terms of frequency response. However, a wider bandwidth results in poorer selectivity—the ability of the equipment to separate stations.

Crystal sets found in most kits typically have very poor selectivity, so you may hear several stations at once, but this corresponds to a wide audio bandwidth. Thus, if such a device is fed into a high-fidelity system, its frequency response will be excellent.

Unless the received signal is strong, considerable distortion will be present because of nonlinearities in the crystal diode. A good ground and a long antenna will produce signal strengths good enough to set the diode to a more linear portion of its operating curve, and fidelity will be excellent.

Some years ago, I investigated the possibilities of a "hi-fi" crystal set, one which would sound good and still have sufficient selectivity to permit me to receive most local signals. What I came up with was a set having two tuned circuits, rather than just one. They were tuned by a two-section variable capacitor, rather than the slider used in many designs. Also, each coil was made of Litz wire and employed a ferrite "slug" for proper tracking at the low end of the tuning dial. I link-coupled the antenna to the first tuned circuit and found that it was best to link-couple the first tuned circuit to the second one, and have some inductive coupling.

The headphones were replaced by a 10-kilohm resistor. Output was fed into

the high-fidelity system via a d.c. blocking capacitor. I did not use any r.f. bypass capacitors, although a small value may not have hurt.

I needed a long antenna to provide sufficient signal strength to overcome nonlinearities. I also had to control coupling to widen out the bandwidth because my circuits were efficient enough to reduce the audio frequency response unless I "overcoupled" the tuned circuits.

The signal was strong enough to maintain good diode linearity on local signals, but the overall audio output from my receiver was sufficiently low that I had to feed it into a mike input whose impedance was 50 kilohms. Too low an impedance here would reduce audio output and would load down the second tuned circuit too much.

DJ Sound Problem

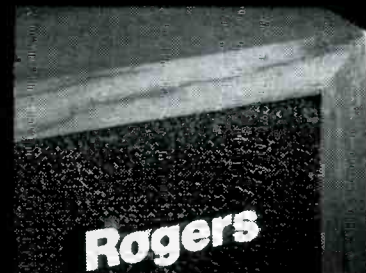
Q. I have been hearing a fuzziness from my speakers which has been difficult to resolve. I should start by saying that I work as a mobile DJ. My system consists of two turntables, a mixing board with its own preamplifier, a power amp, and a pair of speakers. I have had my speakers checked out, and they are not the problem. I replaced my cartridges and styli. I have cleaned all mixer pots and switches with a suitable contact cleaner, and I cleaned the rotary pots of the power amp. I am hoping you can shed some light on this annoyance.—William F. Dwyer, Shutesbury, Mass.

A. There is nothing I can point to in your letter which would lead me to a definite answer regarding the fuzziness you hear. Still, by making a few checks, I believe you will eventually locate the annoying sound.

First, obtain another power amplifier which you know to be in good condition; if it's an integrated amplifier or a receiver, which would have a phono preamp of its own, so much the better. Connect the amp to your speakers and listen to some signal source which you also know is good (such as a tape

If you have a problem or question about audio, write to Mr. Joseph Giovanelli at AUDIO Magazine, 1633 Broadway, New York, N.Y. 10019. All letters are answered. Please enclose a stamped, self-addressed envelope.

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After all, DJ use is hard on speakers because they are often called upon to handle all the power they are designed for, and more.

deck or the receiver's built-in tuner). Are the speakers "clean"? I know you said that you checked them, but I want to make sure they are not the cause of the problem. After all, DJ use is hard on speakers because they are often called upon to handle all the power they are designed for, and more.

You don't say whether the problem is heard with both turntables or only with one. A problem that's only heard with one turntable is likely to be caused by that component, whereas problems heard with both turntables are likely to be caused elsewhere in the system. To check this out, connect the turntable to

your borrowed amplifier (adding a preamp if the amplifier lacks one), and play some of the records you normally use on the job. If all sounds fine, great. If not, you've still located the problem: It's either in the cartridge or stylus or, possibly, is a tracking problem. Such problems can be caused by dirty styli, by misadjusted anti-skating or tracking force, or more rarely, by arm problems such as bearing friction.

You said that your mixer has its own phono preamplifier. If this preamplifier has separate outputs, connect them to the high-level inputs of the borrowed amplifier. Connect the preamplifier's inputs to the cartridge, just as you would normally do. Play a record, and if the fuzziness is present, you know it's the preamplifier.

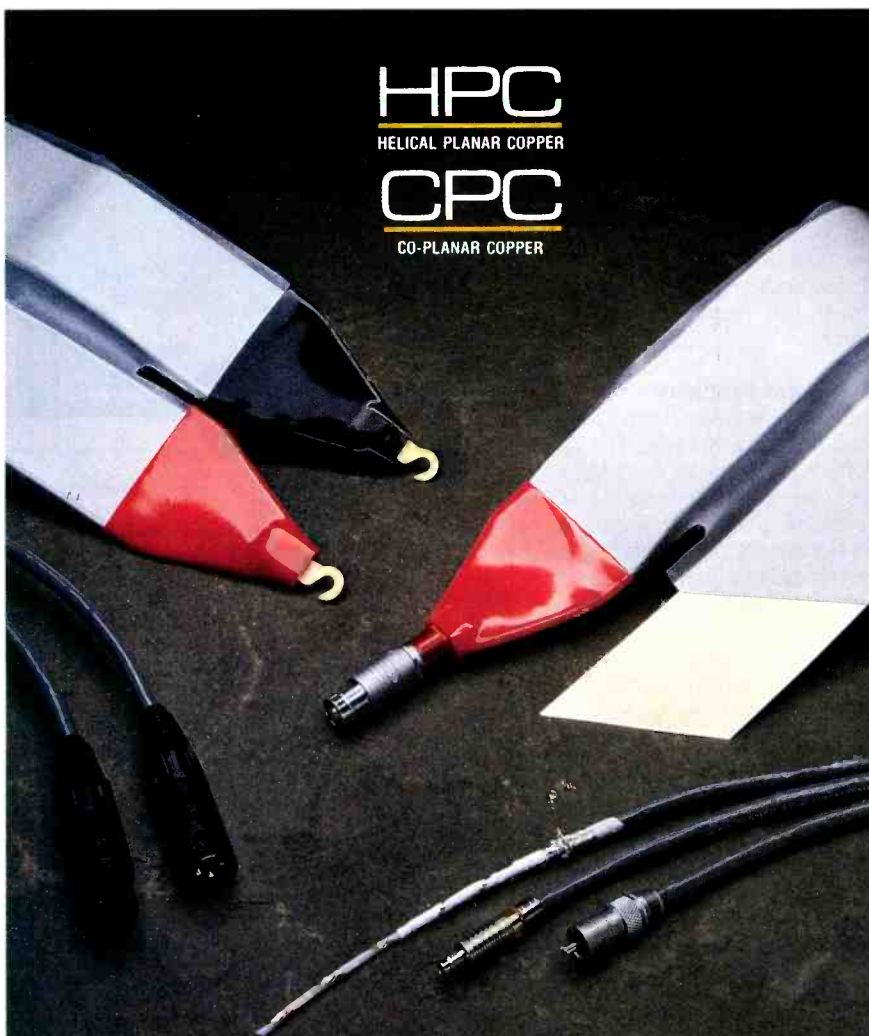
Assuming all is still working right, reconnect the preamplifier as it would normally be found in your setup. Connect the mixer's outputs to high-level inputs of the borrowed amplifier. Again, play some records and listen for the problem. If you don't hear the fuzziness, we have pretty well narrowed the condition to a defect in the power amplifier. Let's assume, however, that the mixer produces the fuzziness. It is at least possible that, in reality, the mixer is *not* the problem. It may be that you are running the master gain too low and running the "positions," or channels, at control settings that are too high. Try running the system with the master gain control about halfway up.

Best Reproduction Of Recorded Sound

Q. An elementary understanding of the process of hearing has long caused me to believe that the final external determinant of what is perceived by the listener must be simply the time-dependent function of a single variable: The instantaneous value of sound pressure at the entrance to the ear.

This value is the product of the complex interplay of phases, amplitudes, reflections, refractions, nonlinear absorption, resonances, constructive and destructive interference, etc. between the sound source and the ear. But because all this takes place before the sound pressure, at any given instant, is determined at the ear, the result at any given moment in time is simply and

Continued on page 92



Over two years ago the staff at Madrigal Audio Laboratories began accumulating convincing evidence that solid conductors of rectangular cross-section would do a better job of carrying musical signals. Years of listening and engineering tests making use of ribbons of specially processed, high-purity copper with teflon insulation and the highest quality terminations, have resulted in the new Madrigal HPC and CPC cables.

Visit your Madrigal dealer and hear what these original designs can do to improve your music system.

HPC and CPC cables are designed by, and manufactured exclusively for
Madrigal Audio Laboratories, P.O. Box 781, Middletown, CT 06457 ITT TLX 4942158

Pioneer introduces Home Theater without the usual paperwork.



 **PIONEER**[®]
The Art of Entertainment

Home Theater for the '90s



Who can forget their first glimpse of a sizzling red sports car flashing down the highway? Or the experience of a full-blown surround sound system in their favorite movie palace? Road rockets that top \$100,000 are truly for the lucky few. Fortunately, the dramatic impact of a-roaring Star Wars spaceship can be enjoyed by almost every enthusiast in their very own cutting-edge home theater—without having to break the bank, tap into a home equity loan or get an advanced degree in electrical engineering. Let Pioneer show you the way...

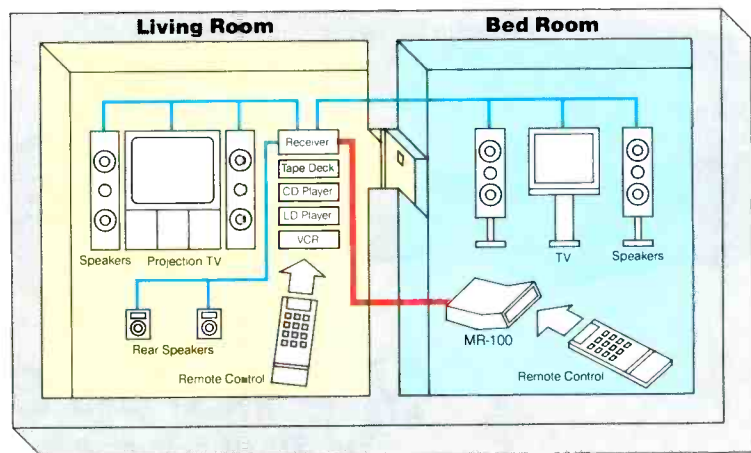
Some think if they turn up the volume on their old 19-inch TV sets, they can re-create the incredible experience of a Steven Spielberg or George Lucas epic. That's truly science fiction. The reality is even better. The Home Theater components of 1990

can magically transport you light years ahead of your current equipment's capabilities—and at a reasonable price. Many people have the mistaken impression that they have to toss out all of their equipment and spend \$50,000 for a great home theater experience. However, all that is really required is a love of music, movies and

concerts. A few key components will do the rest.

Affordable Family Entertainment

Pioneer's goal is a simple one—to maximize your audio/video experience within the confines of your budget. Pioneer wants to rock your walls, shake your chandeliers



High-powered multi-room home entertainment from Pioneer.

(without bothering the neighbors!) and deliver a Home Theater experience that will keep you and your family riveted with outstanding entertainment. Although Pioneer equipment is eminently suited for the media rooms of the rich and famous and is used by custom installers everywhere, the company knows most consumers can't spend lavishly on a \$10,000 CD player or mono block amplifiers.

"For a relatively small investment, families can get close to experiencing a Madonna concert or a Hollywood blockbuster in their homes," said Mike Fidler, Pioneer's senior vice president of home entertainment. "Today's affordable technology can re-create those experiences in your living room," Mr. Fidler added. "Millions can now enjoy movies with Dolby Surround soundtracks, superior Laser Disc video quality, dramatic big screen TV performance and crystal clear digital sound."

Best In Sight And Sound

Although price increases have impacted many products, quality home entertainment equipment continues to be a Best Buy. Pioneer now has a combination CD-Laser Disc player priced under \$500 (the CLD-980). This new model is really two super-charged components in one as it can play 3- or 5-inch compact discs as well as 8- and 12-inch Laser Discs. The ubiquitous VCR still has its place in a Home Theater sys-



Pioneer CLD-980

tem, especially for taping TV shows. But with over 5,000 laser titles now available, LD's unsurpassed picture and sound quality, and the popularity of the compact disc, the '90s are quickly becoming the Decade of the Disc.

Pioneer, an unquestioned leader in projection television, continues to improve home video quality. The latest models offer brightness and resolution levels that were unheard of just a few years ago. Images are much more life-like, with radiant colors that put ordinary TV sets to shame. Complementing excellent picture performance are advances that make the 40-, 45- and 50-inch PTVs truly state of the art. And anyone cramped for space will be impressed with how much quality Pioneer engineers designed into TVs with attractive cabinets that take up very little floor space.

Power At Your Fingertips

Although audio and video components are key concerns, the heart of the new Home Theater of the '90s is the A/V receiver. A/V receivers not only tie your entire collection of compo-

nents into one powerful command center, they have built-in decoders so you can experience Dolby Surround sound effects at home. Simply add a pair of speakers in the back of the room, connect them to the VSX-9700S, play a Laser Disc, and you and your family will be approaching Home Entertainment Heaven. And with its multi-room capability, superb A/V quality can be enjoyed throughout the house.

"All of this technology is easy to use, cutting edge and affordable," remarked Mr. Fidler. "And you can upgrade step-by-step, using components that are part of your current system." Pioneer has introduced a Home Theater without the usual paperwork. Get ready to experience the best in sight and sound in your own livingroom.



Pioneer SD-P4543K



AV Receivers

A/V receivers have come a long way. From low-powered components with a few sets of audio and video inputs, 1990 models can control the most advanced home theater systems—or the most basic. Not only can they accommodate almost any equipment config-

Dolby Stereo has been thrilling moviegoers for over 15 years. With the Dolby system, four channels of sound are compressed onto a film soundtrack—front left/right, center and surround. In order to re-create the dramatic impact of the flashing “Top

ceiling while the spoken word comes from the TV screen. In fact, Pioneer was the first company to design advanced Dolby Pro Logic circuitry into their A/V receivers (the VSX-9300S) in 1988. Today, Pioneer is a leader in the field and has four



Pioneer VSX-9700S

uration with power to spare—TVs, VCRs, tape decks, CD/Laser Disc players—advanced receivers offer multi-room, multi-source capability so you can control your system anywhere in the house. And to transport you and your family to different worlds (thanks to Hollywood hits), top A/V receivers incorporate Dolby Surround decoders and amplifiers.

“In order to truly bring the movie theater experience home, a receiver with built-in Dolby Surround is an absolute must,” said Mike Fidler. “Almost every top Hollywood film has a Dolby Stereo soundtrack. The sound effects can come to life in your livingroom simply by using an A/V receiver and two pairs of speakers.”

Gun” F-14s at the home in the early '80s, you needed a separate Dolby Stereo decoder/amplifier that was more suited for a rocket scientist than a movie lover. Manufacturers such as Pioneer then designed powerful receivers that incorporated Dolby Stereo decoders and enough amplification to power all of the speakers required for a top-notch home theater.

Hollywood's Finest

The first A/V receivers with Dolby used the passive matrix system that created a “phantom” center dialog channel. With an active matrix system—Dolby Pro Logic—the sound effects are more accurately placed in your livingroom. Rumbling boulders and roaring jets soar across the

A/V receivers with Dolby Pro Logic and four with Dolby Surround at prices that fit every budget and system.

To see what the new generation of receivers can do, look at the new VSX-9700S. It delivers 125 watts to the front channels, 40 watts to the rear speakers and 40 to the center dialog channel. Simply hook up the speakers and you're ready to sit back and enjoy the best Hollywood has to offer.

Pioneer A/V receivers also bring multi-room capability to your home theater system. By adding optional MR-100 or MR-101 remote control adaptors, you'll be able to listen to the FM tuner, play a cassette or watch a movie in rooms other than your media center. The only limit is your imagination.

Projection TVs

Impact. It can be the crashing sound of a sonic boom or the overwhelming images projected in a movie theater. Pioneer big-screen projection TVs are on the cutting edge of video and audio quality for today's home theaters—like yours. Any thoughts of holding out until High Definition TV (HDTV) reaches stores later in the decade will vanish once you see Pioneer's latest 40-, 45- or 50-inch monitor/receivers in action.

Two key criteria for top-quality rear projection sets are brightness and resolution. When a TV picture gets larger, it tends to dim, making the brightness level (measured in foot lamberts) critical for optimum viewing under different light conditions. The higher the rating, the better. Resolution determines the amount of detail you will see on a single scanning line (measured in horizontal and vertical lines). Again, the higher the number, the finer the picture you will see. For example, the new 1990 Pioneer 40-inch projection

monitor receiver (SD-P404K) has a brightness rating of 550 foot lamberts and horizontal resolution of 720 lines. Resolution jumps to 750 lines with the 45-inch SD-P454-K which has a 460 foot-lambert brightness level. The top-of-the-line SD-P5047-Q—with an impressive 50-inch screen—has a brightness rating of 400 foot lamberts and super-sharp horizontal resolution of

800 lines. These specifications equal a picture that comes close to the goal of true-to-life video in your home, making the investment in a Pioneer projection TV pay off in years of state-of-the-art viewing.

While maximum A/V quality and conveniences were key Pioneer projection TV goals, so were cabinet design and overall size. Not everyone has an infinite amount of space for a rear projection TV and their growing home theater. For these consumers, Pioneer introduced the Slim Design Cabinet concept. This attractive shape (in black or oak) is less than 30 inches deep—even with our largest 50-inch set.

The impact of Pioneer big-screen TVs is dramatic. It is the difference between the *best* and second place... a difference you will see every time you turn on your set.



Pioneer SD-P5047-Q

Pioneer SD-P4543K



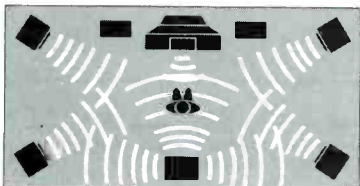
Speakers

Pioneer *knows* speakers. As one of the world's largest and oldest manufacturers of loudspeakers, Pioneer understands just how important this often overlooked component can be to your growing home theater system.

"Upgrading your system with a new TV, combination player and an advanced A/V receiver is terrific," remarked Mike Fidler. "Not spending the same amount of attention to your speakers—whether you use two, five, or more—is like listening to a concert with ear muffs on."

Pioneer has won plaudits for its world-class TAD (Technical Audio Devices) studio monitor speakers. That same professional engineering know-how can be enjoyed in your home with the internationally-designed and American-built S-T series.

The highly efficient loudspeaker systems of the S-T500, S-T300 and S-T100 can reproduce a wide frequency range, from booming basses to the highest highs. The latest advances in space-age driver materials, cabinet design and crossover technology combine to produce loudspeakers that deliver exceptionally accurate response. Our least expensive S-T edition (S-T100) has a frequency response of 30-40,000 Hz—and can fit almost anywhere.



Dolby Stereo is actually four channels of information encoded onto a film soundtrack (front left and right, dialog or center, surround). While the S-T Series are

As if five speakers weren't enough, some Home Theater enthusiasts want to add more booming bass to the experience. For them, nothing less than a powered subwoofer that shakes the floor will do.

Pioneer S-T500



Pioneer CS-X5Q

excellent building blocks for a home theater system, additional *smaller* speakers are required for the full Dolby Surround effect. With the decoding and amplification provided by a Dolby Surround A/V receiver, a pair of our CS-X5Q speakers will be more than adequate for the rear channels. If you decide to buy an A/V receiver with Dolby Pro Logic, another CS-X5Q would be appropriate as well for the center or dialog channel.



Pioneer S-W1000

The Pioneer S-W1000 will make you feel as though boulders were rumbling through your livingroom, chasing after you and Indiana Jones!

Pioneer has the speakers you need, with superior sonic quality and prices that won't break the bank.

All Together Now

As we stated at the outset, turning your living room into a sophisticated Home Theater does not require a degree in electrical engineering or a magic touch on Wall Street. You can build your system component by component at the pace and price of your choosing. And although you can continue to use some of your old equipment—even from different makers—after a quick walk through your dealer's showroom to see real-life demonstrations of what we've just described, you'll only need to know one brand when you shop—Pioneer.

Pioneer is a leader in those key components required to dramatically alter the way you watch movies and listen to music. And Pioneer is *the* name to know with combination compact disc and Laser Disc players. Pioneer has maintained its high quality standards while lowering the cost for the high-powered machines. For a price just a bit more than a quality CD

player, you now can get a component that delivers superb digital sound *and* laser video—the best prerecorded video medium available.

Performance Leaders

Once you've added a high-powered source component, upgrading your playback equipment can be next. Pioneer 1990 Slim Design cabinets let almost everyone enjoy a big-screen TV in their home—no matter how limited their space. Picture quality and brightness levels are dazzling. Add advanced audio capabilities, built-in amplification, and extensive hook-up capability and you'll understand why Pioneer is the performance leader in big-screen projection monitor receivers.

Pioneer also leads the way in variety, technology and price with the heart of the new Home Theater—the A/V receiver. Pioneer was the first to incorporate Dolby Pro Logic into this key component and now has a full lineup of

A/V receivers with Dolby decoding capability—including our top-of-the-line VSX-D1S with built-in Dolby Pro Logic *and* Digital Signal Processing, another industry first. Couple all of these advanced and reasonably priced components with cutting edge loudspeaker systems and you'll be able to surround yourself with vivid sound. In fact, Pioneer is one of the oldest and largest manufacturers of speakers in the world. Add optional multi-room, multi-source capability and you'll know why Pioneer and Home Theater are now synonymous.

You don't have to change your financial lifestyle to have a Pioneer Home Theater but there is no doubt you and your family will be changed. Movies enjoyed in your living room will look and sound as good as they do at your favorite cinema. And music will feel like you're front row center at a jamming concert. That's why it can be said: Pioneer is The Art of Entertainment.



The Art of Entertainment

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Chick Corea Electric Band · Belinda Carlisle · La Boheme
Aerosmith—Things that go Pump · Jody Watley

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PARADIGM

AUDIO/OCTOBER 1990

R E V I E W S
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ACCURATE MUSIC REPRODUCTION

The only component in your audio system expected to reproduce the sound of a violin, voice, or symphony orchestra is your speaker system. To do so it must perform many complex electrical and mechanical functions without adding any character or "colouration" of its own. Added colourations may sound impressive at first, but before long they become irritating and much of the enjoyment of listening to music is lost. Musically accurate speakers, however, provide a very satisfying listening experience.

THE CRITICS AGREE



CRITICAL ACCLAIM

In a very short period of time, better audio retailers, the audio press and many thousands of customers have discovered that PARADIGM speakers offer a level of performance unmatched at the price. Magazine reviews confirm this with consistent praise and recommendation.

PARADIGM brings this performance/value objective to every speaker design. Exhaustive R&D is undertaken. This involves both subjective evaluations and detailed anechoic measurements utilizing computerized digital data acquisition. The result is PARADIGM Performance and Monitor Series speakers - landmarks in musical performance and value.

Moving past merely acceptable levels of performance, PARADIGM speakers provide a window to the music. They reveal the musical and spatial dimension of the live event.

So read the reviews, and listen. Like the critics, you too will agree.

Sound & Vision

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PRODUCT ANALYSIS



Paradigm 3se-mini

SOUND QUALITY
Clarity
UNCLEAR VERY CLEAR

Spaciousness
DRY CLOSED OPEN AIRY

Brightness
DULL AVG BRIGHT

Fidelity
BAD FAIR EXCELLENT

Pleasantness
UNPLEASANT PLEASANT

SPATIAL QUALITY
Imaging, Definition
POOR GOOD

Width of Soundstage
NARROW VERY WIDE

Depth Impression
POOR FAIR GOOD

Ambiance, Reverberation
POOR GOOD

CONSTRUCTION QUALITY
Structure
POOR GOOD EXCELLENT

Cosmetics
POOR GOOD EXCELLENT

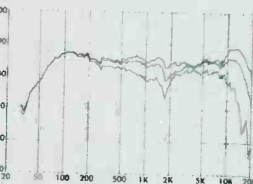


FIGURE 1: Paradigm 3se-mini. Frequency response curves. Top to bottom, average 0-15 degrees, average 30-45 degrees, average 60-75 degrees.

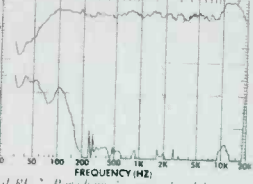


FIGURE 2: Paradigm 3se-mini. Total harmonic distortion. Lower curves, 90dB at 2V and frequencies 112 Watts inputs. Upper curve on average, 90dB SPL.

"AMAZING PERFORMANCE..."

IN RECENT YEARS, PARADIGM HAS BEEN the source of some of the finest speakers made in this country, as earlier reviews in these pages will attest. For this issue, we decided to have a look at the bottom of the company's line to see whether or not audiophiles on a budget could expect the same level of performance as those with a few more bucks in their pockets. There are two Paradigms that carry the

3se designation: a smallish bookshelf unit and the even smaller Mini, which we tested.

The 3se Mini is a two-way vented system, consisting of a 1-inch dome tweeter and a 6.5-inch woofer. The small box contains a port in the rear panel, along with spring-loaded speaker connectors. The enclosure is finished in black wood-grain vinyl, except for the front panel, which is covered in the company's distinctive silver material, black fabric grille cloth is mounted on a removable wood frame.

Measurements

Our first measurements were of frequency response (Figure 1). The curves shown are averages of a large number of anechoic measurements, and together represent how a speaker will perform in a typical room. One element of this is the direct response, indicated here by the top curve, made up of the speaker's output in the "listening window" (0-to-15 degrees off axis). The spectral balance of sound reflected from floor and ceiling is suggested by the middle curve, measured 30-to-45 degrees off-axis, and early reflections from surface near the speaker are indicated by the bottom curve, measured from 60-to-75 degrees off-axis.

Because the enclosure of the 3se Mini is very small, one would expect that bass response would be somewhat weak, and the curves here do show a fairly steep rolloff below 100Hz. This is deceptive to a degree, however, as these curves were measured in an anechoic chamber, and therefore represent only radiation at the angles mentioned. The port of the 3se is mounted in the rear, however, and it radiates low-frequency energy as well. In measurements of total radiated Power (not shown), the low frequency energy is shown to be somewhat greater—a bit bottom

heavy, in fact—although it doesn't extend much farther down the scale. Still, the point at which the bass output is 10dB below average output is 39 Hz; this is a reliable indication of the perceived bass of the speaker, and in this case shows the 3se to be superior to some larger units.

At the high end, there is a peak above

"Very open, uncolored, neutral..."

"...the Paradigm hung in there, outscoring some larger competitors many times its price."

"For sheer performance for your audio buck, this Paradigm's no 'mini.' Call this one a 'maxi.'"

10kHz, and this might be heard on some material, but the off-axis curves compensate for this. Some raggedness is also apparent in the midrange, although only the sharp dip below 2kHz shows up in all three curves.

Figure 2 shows total harmonic distortion, measured using a broadband noise signal of 12.5 watts, which produced an output of 90dB SPL. This speaker exhibited extremely low distortion above 200 Hz; at lower frequencies THD does rise, and this did provoke some criticism of "muddiness" in the bass. Sensitivity was measured as 85dB, somewhat lower than the spec, but understandable in a speaker this size.

Listening Tests

Our sharp eared listeners did notice some mid bass prominence ("tubby bass") visible more on the total power curves than in Figure 1. But that caveat aside, the little 3se Mini accumulated an impressive string of compliments over the two days listening tests - amazing performance, its diminutive size and budget price not withstanding. "Very open," "uncolored, neutral," "fine cymbals," "good rock punch," "fine jazz piano," "lovely choral balance" and so on. True, that bit of midrange raggedness was noted - "horns a bit brash" - but the Paradigm hung in there, outscoring some larger competitors many times its price. For sheer performance for your audio buck, this Paradigm's no "mini." Call this one a "maxi." - Ian G. Masters

Hifi Heretic

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Paradigm 3se

Utilizing similar drivers as in the more expensive Paradigm 5se, the 3se differs primarily in that its cabinet volume is some 10% smaller than its larger and more expensive sibling. Both utilizing bass reflex configurations the 3se carries its port high on the rear baffle, while the 5se positions its port low on the front baffle.

A two-way design, the 3se sports an 8" polypropylene bass/midrange driver and a 1" polyamide soft dome tweeter, ferrofluid cooled and damped. Rated sensitivity is a fairly high 88dB/1W/1m. Cable termination is via spring clips. We really do wish Paradigm would switch to five-way binding posts, but given the 3se's modest cost we can't complain too much.

The 3se's substantial cabinet is available with either a black ash or walnut vinyl-veneer finish (the front baffle is covered in grey vinyl with either choice). Our review samples came in walnut, and were very attractive. Overall finish was exceptionally good considering the price. The grille is a particleboard frame covered in black cloth, the inside edges surrounding the tweeter bevelled to reduce diffraction.

We auditioned the Paradigms on Linn Sara stands, approximately 19" tall. After experimentation with room placement, we arrived at a siting about 18" out from the back wall, which represented the best compromise between bass power and depth of image.

Once auditioning began, the 3se proved to be an exceptionally good loudspeaker for this price range. Perhaps its greatest strength is its overall sense of balance, the 3se being a solid performer with no serious deficiencies or weaknesses.

Beginning with "James Newton Howard and Friends", we were struck by the 3se's bass power and depth, as kick drum and bass synth came across with great impact and solidly, if perhaps just slightly blurred. Synthesizers and piano were crisp and clear, but sounded somewhat thin and pinched, though this was not a gross effect. Dynamic tracks like "Gone With the Wind" and "L'Daddy" displayed excellent pace and drive. The 3se also managed to provide a good sense of the acoustic environment in which the recording was made, which contributed to this album's sense of immediacy and aliveness.

Our impression of a slight thinness was confirmed on the Carol Kidd album, as her vocals were somewhat hard and cold, though very detailed. Uptempo cuts like "It Isn't So Bad" had real spirit and bounce, the 3se conveying its pace and momentum nicely. We were again impressed with the Paradigm's bass performance, as kick drum showed exceptional power and snap.

The Miles Davis and Keith Jarrett albums were also enjoyable, the Paradigm doing a fine job of capturing the performances' pace and rhythmic progression. Double bass on "So What" was deep and well defined, which helped convey this cut's subtle momentum and drive. Trumpet and saxes were crisp and open, with excellent note attack, but slightly thin and strident. A similar lack of body was noted in Keith Jarrett's piano, the instrument sounding a bit cold and hard. There was an abundance of detail and ambience, enhancing the recording's intimacy and realism. Sharply-struck chords had excellent definition and power, their impact well preserved. Rhythmic coherence and progression were excellent, making the performance far more interesting and stimulating.

Michael Newman's guitar was equally well served by the 3se, coming across with excellent detail and clarity. That said, the instrument slightly lacked body and resonance, displaying a degree of thinness and coolness. Note definition was outstanding, with crisply-struck strings possessing real snap and impact. Finally, the Shostakovich symphonies neatly-highlighted the Paradigm's strengths and weaknesses. Tympani and bass drum were very deep and powerful, adding substance and body to the orchestra. Brass and strings came across with clarity and vividness, but with some thinness and stridency apparent. Brass got a touch coarse and strained on climactic passages. Rhythmic progression and coherence were excellent, the martial section of the

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**"...EXCEPTIONAL VALUE...
 SHOULD BE AT THE TOP OF
 ANYONE'S LIST OF BUDGET
 MODELS TO AUDITION..."**

**"STRONGLY
 RECOMMENDED."**

...birth movement, Symphony #11 conveyed with force and intensity. The sense of width and depth on this recording were well portrayed.

The Paradigm registered a solid performance, particularly given its very modest price. To be sure, there is a tendency towards thinness, but this was a relatively minor flaw in an otherwise outstanding showing. Bass

**"an abundance of detail and
 ambience, enhancing the
 recording's intimacy and realism...
 excellent definition and power..."**

**Rhythmic coherence and
 progression were excellent..."**

**"Bass power and coherence are
 particularly fine, and this, combined
 with the 3se's excellent detail and
 clarity, makes music more real and
 affecting."**

**"We can't think of another speaker
 at or below this price that manages
 to match the Paradigm's overall
 sense of balance and competence."**

...power and coherence are particularly fine, and this, combined with the 3se's excellent detail and clarity, makes music more real and affecting. We can't think of another speaker at or below this price that manages to match the Paradigm's overall sense of balance and competence. The Paradigm 3se represents exceptional value, and should be at the top of anyone's list of budget models to audition.

STRONGLY RECOMMENDED FOR AUDITION.

Manufacturers' Remarks:

We are pleased with your review of the Paradigm 3se, and especially so because you have confirmed what so many others are quickly discovering: that the 3se is an exceptionally good loudspeaker for its price range. What Paradigm has strived for with the 3se is to provide an articulate, well-balanced loudspeaker at a price point where no real high-performance speakers exist. Judging by your review and the reactions of retailers and consumers to date, Paradigm has more than succeeded in doing this.

The small point you make with regard to an "impression of slight thinness" is perhaps related to ancillary equipment or room match. The 3se does have superb natural balance that allows for considerable upgrading of other system components to achieve optimal performance.

As you indicated in your review, one cannot help but be tremendously impressed by the exceptional value of the 3se, and this is especially significant in the highly competitive loudspeaker market. For Paradigm to be in the position of offering a product which offers such exceptional performance and value makes quite a statement for their design and engineering capabilities.

Paradigm loudspeakers are completely designed by Paradigm. Co-engineered tweeters are carefully selected and matched with Paradigm precision crossovers to Paradigm woofers. Production consistency is $\pm 1/2$ dB. This level of control ensures that Paradigm loudspeakers will sound consistent and accurate for many years of listening enjoyment.

-W.A VanderMarel, AudioStream

LAB TEST



PARADIGM 3SE

Paradigm's 3se is just about their smallest model. As with the rest of the Canadian company's loudspeaker designs, the 3se is the outcome an exhaustive design process: a process that includes making use of National Research Council of Canada facilities.

The 3se is a two-way bass-reflex system. The enclosure is made of medium density particle board, finished with an industrial standard vinyl wrap (black ash or walnut). Bass/midrange duties are the responsibility of the polypropylene cone driver. Described as a 200mm unit, the textured, translucent diaphragm has a diameter of 155mm. If you include the roll surround, the diameter is 180mm. According to the specifications, the diaphragm is matched to a 25mm, high temperature voice coil. The coil operates in the flux environment created by a 350g barium-ferrite magnet.

Above the specified crossover point of 2.5kHz, a 25mm dome tweeter takes over. The diaphragm is made of a soft, low mass material called polyamide. This is attached to a ferrofluid damped 25mm voice coil. The magnet is a 280g unit.

The bass-reflex port is located on the rear baffle. Paradigm describes it as "critically tuned", which doubtless means that both the diameter and placement of the port are the result of complex calculations.

Performance

Paradigm's frequency response specifications for

the 3se speakers might, at first glance, seem a trifle optimistic for an entry level system. Specifically they claim a response of 45Hz-20kHz ± 2 dB (on-axis) and 45Hz-15kHz ± 2 dB 30° off-axis. They rate system sensitivity at 88dB anechoic and 91dB 'room'. The minimum recommended amplifier power is 15 watts RMS per channel.

Nominal impedance is said to be 6 ohms.

How does the Paradigm stack up? Rather well as it happens. Turning to the pink noise frequency response first, we can see that from below 100Hz to the limits of audibility, the response is exceptionally linear for a loudspeaker at this price point. More to the point, the case of this difficult test (the sample speaker is being asked to reproduce all frequencies at once), the response is very close to the specification - varying by no more than ± 2.5 dB from reference.

The swept sine wave responses are very close to the pink noise result. In this instance, the sample's response is confined to a 6dB envelope across the sound spectrum. In the final octave, the 30° off-axis trace diverges from the on-axis result, but the degree to which it does so is slight and it is in keeping with the system specifications.

All loudspeaker tests are conducted in non-anechoic circumstances and under these conditions the sample system yielded a sensitivity of 88.5dB SPL for 1 watt of pink noise measured at 1 metre. As you can see from the bar

chart, this places the Paradigm 3se in the moderate efficiency

**"...the
 [frequency]
 response is
 exceptionally
 linear..."**

**"Paradigm's
 loudspeakers
 have an excellent
 track record
 where listening
 tests are
 concerned..."**

**"The soundstage
 was unusually
 broad and
 showed excellent
 continuity."**

**"Access to the
 acoustic...was of
 a standard one
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 open sound...
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**"They have a free
 and uncoloured
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**"The bass is
 surprisingly big...
 but the mids and
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 Vocals especially
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**"These would be
 a good value at
 considerably
 more money; at
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 they are brilliant."**

category. Power handling was not exceptional for speakers in general, but about average for a small speaker. Considering the

efficiency of the system, we would suggest using the speakers with an amplifier specified to produce 60 watts RMS per channel.

The distortion spectrograms both show a system rather better than average for the price. A 500 Hz fundamental results in a second harmonic at -46dB and a third at -44dB. Translated into percentage terms these represent 0.50% and 0.60% distortion respectively. At 1kHz the results are less clear cut, mainly because the more prominent third harmonic is, at 3kHz, past the crossover point. The second, appearing at -55dB (0.17%), is a good result.

Paradigm's loudspeakers have an excellent track record where listening tests are concerned and the 3se did nothing to diminish the company's standing. Listeners were quite surprised to discover the price (and it has to be admitted, the apparent simplicity of the design) of the 3se speakers.

The test samples did very well in the spacial quality assessment.

Sound images were as well defined as any we've heard from a speaker in this price. The soundstage was unusually broad and showed excellent continuity. Access to the acoustic in recordings such as The Tallis Scholars marvelous reading of Josquin's 'Missa Ponge liegua' (Gimmiel CDGIM009).

was of a standard one rarely encounters even in loudspeakers costing considerably more. As one listener put it, 'they have a nice open sound, they are very involving'.

Sound quality also chalked up the sort of scores one encounters in the assessment of speakers costing twice as much. They have a free and uncoloured character wholly out of keeping with their humble price. The bass is surprisingly big for such small speakers, but the mids and mid-treble really steel the show. Vocals especially are a treat. A word of advice: audition (and use) the 3se's on good stands of at least 50cm height.

These would be a good value at considerably more money; at their selling price they are brilliant. **S&G**

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THE QUEST CONTINUES!

John Atkinson reviews more affordable loudspeakers

Paradigm 5se: two-way, reflex-loaded, stand-mounted loudspeaker (16" stands required). Drive-units: 1" (25mm) polyamide-dome tweeter, 8" (200mm) polypropylene-cone, bass/midrange driver. Crossover frequency: 2.5kHz. Frequency response: 60Hz–20kHz \pm 3dB. Sensitivity: 87dB/W/m. Nominal impedance: 8 ohms. Amplifier requirements: 15–100W at 10% clipping. Dimensions: 20.4" (520mm) H by 10" (250mm) W by 11.75" (300mm) D. Weight: 48 lbs (22kg) per pair. Finishes available: walnut/black ash vinyl. Price: \$329/pair. Approximate number of dealers: 100. Warranty: 5 years, repair and replacement of parts, provided that the product has not been abused, tampered with, or used for "professional" applications. Manufacturer: Paradigm Electronics Inc., 457 Fenmar Drive, Weston, Ontario M9L 2R6. Tel: (416) 749-2889. US office: Audiostream, MPO Box 2410, Niagara Falls, New York 14302. Tel: (416) 632-0180.

So far, as part of my quest to find good affordable box loudspeakers, I have reviewed 16 models, in the August, October, and November 1987 issues of *Stereophile* (Vol.10 Nos. 5, 7, & 8). This fourth group of loudspeakers expands the price range covered, down to \$329/pair and up to \$1349, and includes one model from California (Nelson-Reed), one from Canada (Paradigm), and one, Monitor Audio's "flagship," the R952MD, from the UK.

As can be seen in "Letters" this month, some readers take exception to this series of reviews: "I know of no-one... who really gives a damn about \$400 loudspeakers" writes Thom Lieb of Riverdale, MD. Well, while I would not disagree that dipole speakers, in the shape of ribbon, Magneplanar, or electrostatic systems, can give sonic results that are undoubtedly high-end, the fact remains that most audiophiles use dynamic loudspeakers of some kind, for reasons of cost, taste, domestic acceptability, and the minimizing of the room interaction problems endemic to panel designs. And when you examine box speakers *en masse*, apart from a rough rule that a \$3000 system will be probably better than one costing \$300, in that it will go louder and deeper and give a better-focused stereo image, there is little correlation between purchase price and the degree of musical enjoyment to be obtained. A designer of genius can produce an excellent, simple, well-balanced two-way design intended to sell at \$500, which will sound better than a \$1000 three-way design produced by an engineer who is merely talented, which in turn will give more musical enjoyment than a multiway loudspeaker selling for \$2000 produced by an entrepreneur who has no idea how to design a speaker other than to throw a number of drive-units into a big box, the whole being held together by a text-

book crossover which makes no allowance for such matters as the real, complex, and complicated impedances of the drive-units. (Thankfully, such speakers don't last long in the marketplace.)

I make no apologies, therefore, for letting the focus of my attention roam where it will. The end result, I hope, will be that readers of *Stereophile* will be able to find loudspeakers which offer a taste of high-end performance for a price somewhat lower than they expected to pay.

The test procedure followed, with minor changes, that established for my previous loudspeaker reviews: each pair was used both with Audio Research SP-10 II/Motif MS-100 and Krell KRS2/KSA-50 amplification. A Mission Cyrus 2 integrated amplifier was also used, being more representative of the kind of hardware to be found driving speakers at this price level. Source components included a Mission PCM 7000 CD player, and both a 1987 Linn Sondek/Ittok/Troika combination sitting on a Sound Organization table and an LP12/SME V/Koetsu Red player sitting on a RATA Torlyte stand. An alternative system consisted of a Stax Quattro CD player used straight into the Motif amplifier via the PAS-01 passive preamplifier to be described in Vol.11 No.2, to obtain the most musically transparent sound from silver disc. Interconnect was Monster Interlink M1000; speaker cable was Monster M1. The loudspeakers were carefully positioned for optimum performance, and coupled to the tile-on-concrete floor beneath the rug with screw-in spikes. As well as a rigorous listening test, with no other speakers in the room, each pair of speakers was used for an extended period of everyday use.

The frequency response of each speaker was

measured in the room—spatially averaged across the listening window in order to minimize the effects of low-frequency standing waves—using $\frac{1}{3}$ -octave pink noise; this also gives an idea of a speaker's dispersion characteristic in the upper midrange and treble. In addition, the nearfield low-frequency response was measured with a sine wave sweep to get an idea of the true bass extension relative to the level at 100Hz. The change of impedance with frequency and voltage sensitivity (using $\frac{1}{3}$ -octave pink noise centered on 1kHz and referenced to the sensitivity of Celestion's SL600) were also assessed.

Paradigm 5se: \$329/pair *

Observers of the audio scene will no doubt be aware that Canada has become a hotbed of loudspeaker development in the last five years. Part of the reason is the resources made available to the industry by Canada's National Research Council, the Acoustics Department of which is headed by Floyd Toole. Dr. Toole has published a considerable body of work on loudspeaker sound in the *Journal of the AES* and elsewhere, and has probably performed and organized more subjective testwork on more loudspeakers than any other worker in the field.

Among the correlations between what is heard and what is measured that have been unearthed by Dr. Toole and his team is that flatness and neutrality of midrange response are rated highly by listeners—as might be expected by readers of *Stereophile*, given J. Gordon Holt's long-rooted insistence on natural mid-band reproduction. In addition, it would appear that evenly controlling the off-axis sound across the whole audio band up to $\pm 45^\circ$ either side of the direct axis is also important

*Prices have changed.

to good sound; a loudspeaker that has severe peaks and dips either side of what appears to be a flat axial response will not sound particularly neutral in a typical listening room with side walls not too distant from the speaker.

Paradigm is a Canadian company that has been in existence for around four years. Their brochure states that their engineers utilize the Canadian NRC facilities to evaluate their prototype loudspeakers, so it is no surprise that their design aims are in accordance with the criteria listed above. In addition, Paradigm tries to keep the prices of their systems competitive; the 5se selected for this review is no exception, offering good construction and the potential for good performance for just \$329/pair.* A two-way design, the 5se uses what appears to be a version of the ubiquitous Vifa 1" soft-dome tweeter, crossing over below 2.5kHz to a polypropylene-cone midrange/bass unit with an aluminum voice-coil former. Unusually at this price level, this is built upon a diecast basket, and secured to the front baffle with no less than eight bolts.

The bass tuning is reflex, the 2"-diameter port being located just below the woofer, and has a molded lip to minimize air-turbulence noise. The cabinet itself is filled with treated and spun cotton and has an internal brace just above the reflex port. Top, bottom, and sides are finished in "black ash" vinyl, the front baffle being colored a smart gray. The simple crossover network is glued to the rear of the terminal panel; the terminals themselves are my least-favored spring-clip type, but these do have a large enough hole to take thick cable (and even 4mm plugs, though this would not be a recommended method as it would introduce yet another metal/metal junction to the signal path.) The grille frame is contoured so as not to present the drivers with sharp, diffractive edges. Nevertheless, Paradigm suggests that it be removed for the best sound, so this is how the 5ses were auditioned.

The sound: Paradigm strongly recommends that the 5se be used on a stand, and supplied their 16" M40 stands for the review, these a

*Prices have changed.

MANUFACTURERS' COMMENTS

Paradigm 5se loudspeaker

Editor:

Thank you for a favorable review of the Paradigm 5se loudspeaker in Vol.11 No.1 of *Stereophile*. We are pleased that JA found the 5se to be the high-quality, musical performer that it is. Through its complete product range, Paradigm strives to provide balanced, musical loudspeakers that compare well with much more expensive product. Judging by JA's comments, along with those from many retailers and consumers, Paradigm has indeed succeeded in this goal.

We would like to reiterate the point made in the review regarding speaker colorations. As you are aware, speaker design is a very complex task, and no matter how exceptional the engineering, colorations continue to persist. No speaker, at this time, is perfectly true to the original music. The Paradigm 5se has very low levels of coloration that easily allow it to fall

metal, four-pillar type with the base tapped for floor-locking spikes. This places the listener's ears on the tweeter axis. Above that position, the upper midrange response becomes a little uneven, so users of the 5se must ensure that they do not sit too high. Free-space placement is mandatory, Paradigm recommending that the 5se be located at least 12" from the rear wall; I placed them around 30" from the rear wall and over six feet from the side walls, toed-in to the listening seat.

First impressions were favorable. There was an excellent feeling of depth to the stereo image, with a good sense of the recorded acoustic. On *Trottin' to the Fair*, a Hyperion collection of Stanford songs (A66049), for example, the tenor was unambiguously placed in front of the piano. This is excellent stereo performance at the price. Laterally, too, the imaging was marked by precision and a lack of ambiguity in positioning. The tonal balance was light and airy through the treble. Bass extension seemed good for the relatively modest box size, though a rather warm midbass lent bass instruments a soft quality.

Prolonged listening revealed some problems. Though adding suitable weight to cello and double-bass, that soft midbass ultimately resulted in the bass region sounding just a little disconnected from the rest of the range—something common with maximally flat, reflex designs—with a little added gruffness to the lower range of the harp. Not unpleasant, but a departure from neutrality, nevertheless. Levels of coloration were relatively low, considering the price, but a persistent "eee" character in the upper midrange lent a reedy, somewhat coarse quality to strings. Pipe-organ aficionados would regard this coloration as rendering the voicing of an organ more "French." Record ticks took on a slight "quack." The lower treble was slightly hard in quality, while the upper treble was, as is so often the case with these soft-dome tweeters, rather lispy. Recorded clarinet, for example, was too "fffy," with too much reed and not enough body to the tone.

Putting these criticisms into perspective, the 5se is no more colored than speakers costing

up to two or three times its price, and gave a consistently musical presentation.

Measurement: Measured in-room and spatially averaged, the 5se's bass looks nicely tuned, with a basically flat response from 400Hz down to 100Hz, only a slight rise in the 80Hz region, and a sharp rolloff below 40Hz—not enough indication of underdamping to correlate with my feeling of a soft midbass, I would have thought, though some doubling was noticeable at and below the "knee" of the rolloff. Main features of the response were excellent control off-axis, indicating a wide, even dispersion, and a gently rising trend across the audio band on the tweeter axis, peaking at 6.3kHz. Slight excesses of energy could be seen around 500–630Hz, which may correlate with the coloration noted in the midrange, and in the high treble. There also appeared to be some cabinet resonant problems in the midrange, around the note G above middle C.

The impedance was benign, not dropping below 5.5 ohms across the audio band and averaging 8, while the measured sensitivity at 1kHz was reasonably high at around 88dB/W/m.

It is unlikely that the Paradigm 5se will have drive problems with any amplifier with which it will be used.

Conclusion: The Paradigm 5se offers excellent performance at a very competitive price, even if the cost of a good pair of stands has to be figured into the equation. The designer has obviously saved money in places where, sonically, it doesn't matter. In order to spend it where it does matter—the drive-units. The compromise between bass extension and sensitivity has been well-managed, levels of coloration are not particularly high, and although I was not totally enamored of the tweeter, I am comparing its performance with the standards set by the metal-dome units featured by very much more expensive models. I can confidently recommend the Paradigm 5se as sounding better than it should at the price. **S**

into the high-performance category. This level of performance is so unexpectedly good that the 5se is consistently compared with much more expensive products which, in many cases, have considerably higher levels of coloration. This fact alone would make the 5se a speaker worthy of serious consideration by audiophiles. However, when the price is considered, the high level of musical precision that the Paradigm 5se achieves is indeed very remarkable, as JA discovered.

Paradigm speakers are completely designed by Paradigm. Co-engineered tweeters are carefully selected and matched with Paradigm precision crossovers to Paradigm woofers. Production consistency is ± 0.5 dB. This level of control ensures that Paradigm loudspeakers will sound consistent and accurate for many years of listening pleasure.

W.A. Vandermaer
Audiostream



CD

Review

"THE PARADIGM 7SE WOULD BE A GOOD SPEAKER AT TWICE ITS SUGG. RETAIL PRICE..."

"...A "MUST HEAR" BEFORE YOU BUY YOUR NEXT PAIR OF SPEAKERS."

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PARADIGM 7SE LOUDSPEAKERS

If you're the sort of person who needs to know the bottom line right away, read no further. The Paradigm 7se would be a good speaker at twice its sugg. retail price. These babies deliver full, well-balanced, and clearly defined sound. They're a "must hear" before you buy your next pair of speakers.

Now, if you're the sort of person who requires hard facts to support superlatives, read on.

The 7se is a two-way, bass reflex system contained in an elegant black box. Two feet tall by 10 1/2 inches wide by 11 3/4 inches deep, the cabinet contains two drivers - a 200 mm woofer and a 25 mm ferro-fluid damped tweeter. Removing the grill cloth exposes a grey laminate front panel containing the two elements and a conductive port beneath the woofer. The port undoubtedly aids the 7se's ample low-frequency response.

The box is nicely finished, making it an unobjectionable addition to any room. The manufacturer recommends placing the 7se on a speaker stand rather than on a bookshelf or directly on the floor.

The manufacturer also recommends that the 7se be powered by no less than a 15-W-per-channel amplifier. Our anechoic measurements showed an 85.9 dB sensitivity, 3 dB less than the manufacturer's claims. Sensitivity measurements depict how efficiently the speaker converts the power sent to it into sound. Measurements typically range from 80 to 95dB. In our listening tests, our system provided 280 W per channel.

How It Sounds

Listening to the Paradigm 7se is an unusually pleasant experience because the speaker doesn't get in the way of the music. The soundstage is broad without being overly spacious. Performances become very present. These speakers are ready to deliver sound as pure as the source recording. They titillate the ears as a full, fruity wine does the palate. The frequency balance is good. Lows are present but not boomy; highs are clear but not overly bright. The midrange is pleasant, if a little resonant.

That isn't to say the 7se makes singers sound as if the reverb is cranked up. Not at all. The resonance is a very slight coloration.

Although it is not a huge speaker, careful engineering has made the 7se a unit that produces a good, full bass. It's perfect in a typically sized (22 feet by 13 1/2 feet by 9 feet) living room.

High frequencies are clearly articulated by the 7se. Cymbals zing, snares snap, and pianos sound wonderful. Absent is the "tizz" - that overly sibilant sound many speakers make in place of true high frequencies.

A Look at the Chart

From measurements taken in the anechoic chamber, we were able to graph the 7se's frequency response on and off axis. Measurements were made at 200 frequencies between 20 Hz and 20 kHz with the microphone placed in 35 different positions. (See Fig. 1.)

Listening window measurements, the top line, describe the sound as it comes from the speaker to

"...full, well-balanced, and clearly defined..."

"Listening is an unusually pleasant experience because the speaker doesn't get in the way of the music... soundstage is broad... very present..."

"...these speakers are ready to deliver sound as pure as the source recording."

"...good, full bass... cymbals zing, snares snap, and pianos sound wonderful. Absent is the "tizz" - that overly sibilant sound many speakers make in place of true high frequencies."

"That the speaker's response is virtually the same on and off axis displays some fine engineering."

"...You'll have to pay a lot more for speakers to get much better sound than the Paradigm 7se."

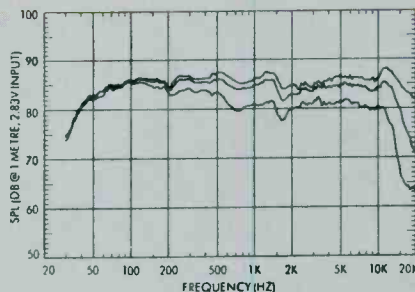


Fig. 1. The 7se's frequency response on and off axis. Top line - measurements of the sound as heard by someone sitting in front of the speaker (from 0-15 degrees to right or left of the speaker). Second line - sound measured with the microphone positioned from 30 to 45 degrees left or right of the speaker. Bottom line - sound measured from 60-75 degrees to right or left of the speaker.



the ears of listeners sitting in front of the speaker. Off axis measurements were made with the microphone located from 30 to 75 degrees to the left or right of the speaker. The second line on the graph (measured from 30 to 45 degrees to left or right of the speaker) describes what people in the "cheap seats" will hear, while the bottom line (measured from 60 to 75 degrees to left or right of the speaker) describes which sounds are bouncing off the walls.

Gross inspection of Fig. 1 shows two things: the Paradigm has a broad frequency response (from 30 Hz to 20 kHz), and within those frequencies, its response is fairly smooth. Work at the NRC proves a direct correlation between listener preference and increasingly smoother frequency response curves.

Figure 1, in fact, physically describes the features we heard as we listened. The rolloff beginning at 15 kHz is audible as mellow and round high frequencies. The dip and rise around 200 Hz is audible as resonance in the midrange. The peak and dip around 2 kHz were less audible.

That the speaker's response is virtually the same on and off axis displays some fine engineering. For the listener, it means people sitting in different parts of the room will still get a fairly accurate "picture" of the music.

A Final Note

What price do you put on great sound? You'll have to pay a lot more for speakers to get much better sound than the Paradigm 7se. This is an ideal high-fidelity speaker for a medium-sized room.

As with many bargains, there is a hidden cost. Bringing home a pair of the Paradigms may force you to upgrade the rest of your system.

Sound & Vision

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PRODUCT ANALYSIS



Paradigm 7se Loudspeaker

SOUND QUALITY

Clarity
 UNCLEAR ————— VERY CLEAR

Spaciousness
 CLOSED ————— OPEN, AIRY

Brightness
 DULL ——— AVG. ——— BRIGHT

Fidelity
 BAD ——— FAIR ——— GOOD

Pleasantness
 UNPLEASANT ————— PLEASANT

SPATIAL QUALITY

Imaging, Definition
 POOR ————— GOOD

Width of Soundstage
 NARROW ————— VERY WIDE

Depth Impression
 POOR ——— FAIR ——— GOOD

Ambience, Reverberation
 POOR ————— GOOD

CONSTRUCTION QUALITY

Structure
 POOR ——— GOOD ——— EXCELLENT

Cosmetics
 POOR ——— GOOD ——— EXCELLENT

"...PARADIGM'S PERFORMANCE MUST BE CONSIDERED AS NOTHING SHORT OF REMARKABLE."

"...A RARE ACHIEVEMENT"

THE CELEBRATED ARCHITECT Mies van der Rohe, asked to describe his approach to design, said "Less is more." This is especially relevant to the Paradigm 7se, for, as we shall see, the 7se delivers performance that belies its modest design and appearance.

It's a straightforward two-way, bass-reflex system, employing an 8-inch polypropylene woofer and 1-inch dome tweeter, with a 2-inch port positioned below the woofer. The black-finished enclosure measures about two feet tall by one foot square, and with the translucent woofer cone and grey front baffle, conveys an understated, rather hi-tech appearance.

Measurements

We ran 34 different anechoic frequency response curves, measured at 200 points across the spectrum, from positions above, below, and all around the loudspeaker to determine the Paradigm's probable output in a variety of listening locations. The curves were spatially averaged and three of the most informative plots are shown in Figure 1: a 0-15 degree curve that indicates the sound a centrally seated listener in the "listening window" might hear; and 30-45 and 60-75 degree curves, which describe the early reflected and reverberant sounds likely to be bounced toward listeners from room surfaces nearest the loudspeaker. All three curves are basically smooth and extended, which suggests the Paradigm sound should be quite natural and free of nasty colorations. The only notable departures from smoothness are a slight rise in response at 500 Hz, a bump at 1.5 kHz, and a slight peak at 12 kHz, the latter indicating there might be a hint of stridency audible on strings or perhaps brasses. The consistent similarity of the off-axis curves to the listening window curve to beyond 10 kHz argues well for the spatial character of the 7se, indicating a wide smooth dispersion of sound into the listening room. The bass is nicely extended, with the -10 dB cutoff at a very good 32.4 Hz, showing authentic deep bass response.

Using broadband noise (weighted, IEC 268-1) as a test signal, harmonic distortion at 90 dB at 2 metres and at the 95 dB level was a little higher than we're used to seeing, hovering in the -20 to -25 dB region below 500 Hz. (This probably explains some listener criticisms of "constriction" or distortion on the occasional loud peak or tympani transient.) Probably best then to use the Paradigms in an average-sized rather than large living room.

Assuming an 8-ohm impedance, the measured IEC sensitivity of 86 dB at 1 watt, 1 metre, is moderate (the 7se needed 10.1 watts to produce 90 dB @ 2 metres); for loud listening levels in an average-sized room, a 50- to 75-watt-per-channel amp should suffice.

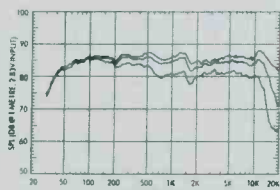


FIGURE 1. PARADIGM 7se frequency response, top to bottom: avg. 0-15 degrees, avg. 30-45 deg., avg. 60-75 degrees.

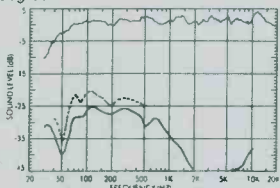


FIGURE 2. PARADIGM 7se total harmonic distortion. Bottom curve: 10.1 watts input (90dB @ 2M @ mid-frequencies; dashed curve: 32 watts input (95 dB @ 2M @ mid-frequencies).

"...the 7se delivers performance that belies its modest design and appearance."

"The consistent similarity of the off-axis curves to the listening window curve to beyond 10 kHz argues well for the spatial character of the 7se, indicating a wide smooth dispersion of sound into the listening room."

"The bass is nicely extended, with the -10 db cutoff at a very good 32.4 Hz, showing authentic deep bass response."

"...natural, open and clear... excellent depth... lots of hall sound... big, expansive soundstage... well-defined images... smooth, detailed, wideband... nice 3-D image... glorious bass drum..."

Listening Tests

In the blind listening tests, conducted in stereo using our digital masters of classical, rock and jazz, the Paradigm was compared to several other speakers of widely varying design and price. The results, apparent in the listeners' comments, generally confirm the technical anechoic measurements: "natural, open and clear...excellent depth...lots of hall sound...big, expansive soundstage...well-defined images...smooth, detailed, wideband...nice 3-D image...glorious bass drum," and so on. Panelists did note an occasional harshness or brashness on strings and brasses, but overall the Paradigm was ranked high on pleasantness and fidelity, earning scores that matched some of our all-time favorites. This is a rare achievement for any loudspeaker, of course, but when the 7se's price is taken into account, the Paradigm's performance must be considered as nothing short of remarkable. - Alan Loffi

Audio

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PARADIGM 7se LOUDSPEAKER ACCURATE AND REVEALING

EQUIPMENT PROFILE

"Paradigm (par' a dim), noun: Serving as an example or model of how something should be done." Thus start a number of ads for AudioStream, the American distributor of the Canadian "Paradigm" line of loudspeakers. This definition is a lofty goal indeed for a company to strive for in any product they make. This review describes the Paradigm Model 7se, a moderate-size, relatively low-cost, two-way vented system with an 8-inch woofer and 1-inch dome tweeter. Read on to find out how well the 7se matched the goal stated in the definition.

The 7se is the middle member of a line of 10 moderately priced two- and three-way systems from Paradigm Electronics. Paradigm, formed in 1982, is one of a number of Canadian manufacturers that have taken advantage of research and test facilities made available by the Canadian government through its National Research Council (NRC).

The NRC is the Canadian equivalent of our National Bureau of Standards but with the added mandate of performing research that helps Canada be competitive in world markets. The research results are made freely available to anyone through a national information network, technical journal articles, and NRC research publications.

The NRC also provides facilities for hire that any company in the audio industry would be proud to call their own. These facilities include anechoic and reverberation chambers with sophisticated computer-controlled measurement equipment and an IEC (International Electrotechnical Commission) Standard listening room for conducting listening tests.

The NRC Acoustics Department is headed by Dr. Floyd Toole, who is well known in the U.S. audio community because of his involvement in the Audio Engineering Society and the Acoustical Society of America. Dr. Toole has written a number of AES papers describing the results of his research in the area of subjective loudspeaker testing and the correlation of a speaker's measured performance with listener preferences.

Paradigm has drawn heavily on the work of Dr. Toole and the facilities of the NRC to optimize the 7se. The design objective was to come up with a moderately priced system that emphasized those loudspeaker design features which directly improve its subjective sound as verified by extensive double-blind listening tests.

Dr. Toole's research has found that experienced listeners prefer a loudspeaker that has wide bandwidth, flat and smooth amplitude response, and uniformly wide dispersion. These were just the areas concentrated on in designing the 7se.

The 7se is a rather conventional-looking, two-way vented system of modest appearance. The one striking feature is made evident when the grille is removed: The front panel is light gray and looks somewhat metallic in nature. The outside of the box is walnut vinyl covered with the 3/4-inch (19-mm) particle board used in all of this box's construction. An internal brace connects the front and rear of the box to minimize front and rear panel vibration. Good workmanship was evident throughout.

The rear is painted flat black and contains recessed, double-banana, five-way binding-post connectors. No tweeter level control is provided. (I personally don't like driver level controls because they change the system's frequency/time-directional characteristics in a nonlinear manner. It's best to change the tonal balance with a good line-level minimum-phase equalizer in the feed to the power amplifier.)

The flush-mounted tweeter, woofer, and port are centered horizontally in the cabinet, with the tweeter over the woofer and the port below. The port is roughly 1.8 inches (48-mm) in diameter by 3 inches (76-mm) long and tunes the 1.2 cubic-foot (34-liter) box to approximately 35 Hz (see the "Measurements" section of this review).

Paradigm completely designs and manufactures their own woofer and midrange drivers, including all crossover networks. The tweeter is custom-manufactured for Paradigm by an unnamed European maker. The woofer has a die-cast aluminum frame with a forged, single-unit, backplate pole-piece assembly. The cone is clear polypropylene with a butyl surround. A Kapton voice-coil former is used in the 1-inch (25.4-mm) diameter, long-excursion voice-coil. The tweeter uses a 1-inch polyamide soft dome with ferrofluid cooling and damping. Both drivers have sizable ferrite magnet assemblies.

The internal passive crossover is of quasi-Butterworth design (in the manufacturer's words) with a second-order high-pass filter (shunt inductor and series capacitor) feeding the tweeter and a first-order filter (single inductor) feeding the woofer.

Measurements

Most of the measurements were made using the Techtron TEF System 12 Plus analyzer, which uses the Time Delay Spectrometry (TDS) technique. The measurements were mostly done inside my employer's (Crown International) large microphone-production test facility, using elevated free-field measurements and near-field measurements. Some of the tests were done outdoors, using ground-plane measurements.

The system's on-axis frequency response was measured at a distance of two meters, directly on axis of the tweeter. The input level was 2.83 V rms, which corresponds to a level of 1 watt into 8 ohms. The on-axis response was corrected to the standard distance of 1 meter for display of the data. The parameters of the measurement were set so that the data was essentially



The 7se was very accurate and revealing—a pleasure to listen to. At its low price, I might consider buying a pair myself.

smoothed with a tenth-octave filter.

Figure 1 shows the on-axis l-watt, l-meter frequency response of the 7se with the grille off. The speaker exhibits a commendably flat response (± 2 dB) from roughly 60 Hz to 10 kHz, with a moderate rise of about 4 dB covering roughly two-thirds of an octave between 10 and 16 kHz. In the important bass-midrange region between 100 Hz and 1 kHz, the system is even flatter, staying within about ± 1 dB. This measurement reveals a sensitivity of approximately 87.5 dB SPL over the range from 100 Hz to 10 kHz, which essentially confirms the manufacturer's rating. A separate test, comparing the axial response of both the right and left speakers, yielded a commendable match of ± 0.5 dB over the frequency range from 50 Hz to 15 kHz.

Note that this on-axis frequency response represents a free-space measurement taken without the effects of any reflective boundaries. It represents essentially the frequency spectrum of the first arrivals you hear when listening to the system in its normal listening environment. The balance between low and high frequencies will change when the system is placed near reflective boundaries in an actual listening situation.

"...I was impressed with how well the system did overall..."

"Reproduction of female vocalists was quite realistic, with no sign of harshness on vocal peaks."

Figure 2 shows the on-axis phase response of the system, corrected for the time arrival of the tweeter. Figure 3 shows the related group delay versus frequency for the phase curve of Fig. 2. This group delay indicates that the woofer follows the tweeter by about 0.17 mS (170 μ S) which corresponds to a relatively low offset distance of 2.3 inches (58 mm). At the crossover (2.3 kHz), this offset represents approximately 0.4 wavelengths, or 140° of phase. Although this is not a linear-phase system, most available research indicates that this amount of mid-high frequency all-pass (flat frequency response) delay is not readily audible. The increase in delay below 500 Hz is due to the normal minimum-phase delay caused by the high-pass characteristic of the speaker's low-frequency response.

The 1-meter on-axis energy/time response (ETC) is shown in Fig. 4 for a test signal swept over the range of 200 Hz to 10 kHz. In general, the ETC looks good, except for a broadening of the response at levels greater than 20 dB below the first arrival peak. Be aware that this ETC represents essentially the tweeter's response only, due to the specific frequency range swept.

Figure 5 reveals the grille's effect on the on-axis frequency response. The grille produces moderate frequency response anomalies of about ± 3 dB in the range above 2 kHz. I suggest removing the grille for serious listening; most of my own listening was done with the grille off.

The system's off-axis frequency response was measured in two different ways. The first method displays the data in a three-dimensional format similar to the one seen in Audio equipment reviews for the last few years. The second method essentially follows the way the on- and off-axis response curves were measured and derived at the Canadian NRC's test facilities, which were used extensively in the design and development of the 7se.

Figures 6 and 7, respectively, show the 3-D horizontal and vertical off-axis frequency response curves of the 7se in the frontal hemisphere. These curves were derived from frequency-response measurements made at 5° increments along the major horizontal and vertical planes in the front of the system. No additional smoothing was done on these curves except for the fairly high resolution, 200-Hz, constant-bandwidth smoothing that results from the TDS data-gathering process.

Note that these plots differ from the usual Audio format, in that the frequency scale is logarithmic rather than linear and that all curves have been referenced (normalized) to the on-axis frequency response. The on-axis response curve in each of the displays is easy to find because it is a straight line. The normalized format is beneficial in that it clearly depicts the differences between the on- and off-axis curves. The same display would result if the system's on-axis frequency response were carefully equalized flat over the range from 200 Hz to 20 kHz.

The 3-D horizontal off-axis curves in Fig. 6 indicate a fairly well behaved off-axis response, with extension up to 10 kHz out to about 30° off axis. Beyond 10 kHz, the response rolls off quite rapidly with increasing off-axis angle. The response ripple which appears in many of the off-axis curves above 4 kHz is actually a localized aberration of the near on-axis response. The normalization of the response curves displaces this ripple to the off-axis curves, making it more noticeable than if normalization were not used.

The vertical off-axis curves in Fig. 7 denote clearly the effects of the crossover in the domain from 1.5 to 3.5 kHz. Off-axis null regions exist at angles about 30° up and down. The 6.5-inch (165-mm) center-to-center separation of the tweeter and woofer corresponds to about 1.1 wavelengths at the 2.3-kHz crossover frequency. The symmetrical up and down positions of the vertical off-axis nulls indicate that the woofer and tweeter are approximately acoustically in phase throughout the important crossover frequency area. This very desirable behavior minimizes the "lobing error" of the system. An independent confirmation of the driver acoustic phasing was done by running a response curve on the system with the connections of the tweeter reversed. This resulted in a sharp 15-dB dip in the frequency response at the 2.3-kHz crossover frequency.

The curves also show that the response is significantly rougher off axis vertically than horizontally. I suggest listening to the system no farther than about 10° vertically off axis, for best results.

Figures 8 and 9, respectively, show the mean horizontal and vertical on- and off-axis response curves of the system, measured and derived in the manner of the NRC tests. These response curves were derived from the previous 3-D data by calculating response averages of several adjacent curves in specific on- and off-axis angular regions. This spatial averaging, rather than frequency averaging or smoothing, tends to suppress the effects of localized response aberrations due to diffractive effects, without minimizing overall frequency response problems exhibited over

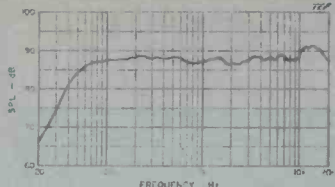


Fig. 1 - One-meter on-axis frequency response, with an input of 2.83 V rms (equivalent to 1 watt into the rated 8-ohm impedance).

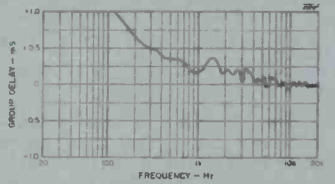


Fig. 3 - Group delay corresponding to phase response of Fig. 2. The woofer lags the tweeter by about .17ms, an equivalent of 2.3 inches.

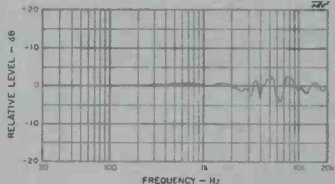


Fig. 5 - Effect of grille on axial 1-meter frequency response. (The graph is normalized to show only differences from grille-off response of Fig. 1.) The grille adds fairly severe response aberrations in the range from 3 to 10kHz.

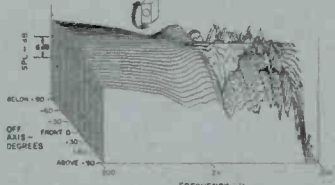


Fig. 7 - Vertical off-axis plots taken from above to below the system. Note log frequency scale and normalization of all curves to the on-axis response. Also note crossover response irregularities between 1.5 and 3 kHz, at roughly 20° to 40° off axis up and down.

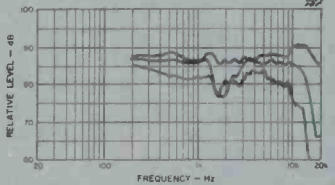


Fig. 9 - Mean vertical on- and off-axis frequency response curves. Top curve is mean on-axis curve, and average of response measurements made within ±15° of vertical and horizontal axes. Middle curve is average of measurements between 30° and 45° above and below axis; bottom curve is average of measurements 60° to 75° above and below axis. Note the off axis response dips in the crossover region (1.5 to 2.5kHz); see text

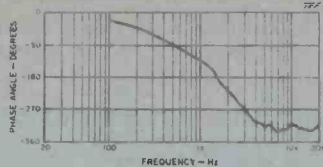


Fig. 2 - One meter on-axis phase response, with delay adjusted for the tweeter. An additional 0.17 ms was required to achieve a flat phase curve in the woofer's upper range.

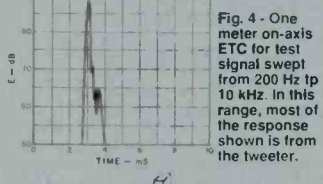


Fig. 4 - One meter on-axis ETC for test signal swept from 200 Hz to 10 kHz. In this range, most of the response shown is from the tweeter.



Fig. 6 - Horizontal off-axis response plots taken from the left side, around the front, to the right side of the system. Note that frequencies are shown on a log scale and that all curves are normalized to show differences from the on-axis response.

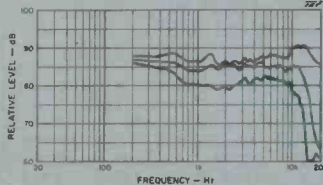


Fig. 8 - Mean horizontal on- and off-axis frequency response curves above 200 Hz; see text. Top curve is mean on-axis curve, an average of response measurements made within ±15° of vertical and horizontal axes. Middle curve is average of measurements between 30° and 45° either side of axis; bottom curve is average of measurements 60° to 75° either side of axis. Note the very smooth off-axis response even at angles out to ±75°.

The Paradigm's good vocal separation and clarity on choral music shows smooth response in the upper-bass and midrange regions.

curves indicate how much harmonic distortion is generated by the system with the application of a single-frequency sine wave at power levels covering the range of 0.1 to 50 watts (-10 to +17 dBw, a 27-dB dynamic range). The power levels were computed assuming the rated impedance of 8 ohms. The curves show the second to fifth harmonics of the input sine wave—except at E1 (41.2 Hz), where the sixth harmonic is also shown.

The curves were run by successively increasing the sine-wave input level in 1-dB increments (each step about 26% higher in power than the previous level). At each power level, a swept spectrum analysis was done over a frequency range covering the desired harmonics. Two precision, 1-dB-per-step attenuators were used in the setup—one in the send path and one in the receive path—to ensure that the power level steps were accurate. The receive attenuator provides a constant fundamental level to the spectrum analyzer so that distortion percentages can be read directly from the plotted data scales.

Figure 12 shows the E1 (41.2-Hz) harmonic data. Data collection was stopped at a power level of 50 watts (20 V rms into the rated 8-ohm impedance) because the distortion levels were getting excessive (35% third harmonic at 50 watts). The actual power accepted at this voltage and power level was about 70 watts, due to the measured 6-ohm impedance. At most power levels, the third harmonic was found to predominate. At this frequency, most of the distortion was generated by the high excursion of the system's woofer. Third-harmonic distortion is generated from a symmetrical nonlinearity, which, in this situation, corresponds to the woofer's running out of excursion capability in both directions equally. The distortion levels reached in this E1 test, although quite high, are not unreasonable for an 8-inch (200-mm) woofer when it is operated at these fairly high acoustic levels.

"The reproduction of male vocalists with acoustic guitar was also quite good, with no upper-bass or lower-midrange tubbiness."

"A capella choral music was also reproduced well, with good clarity and vocal separation. ... a good sense of space and realism."

The 7se speaker's vented-box tuning provided only a moderate amount of cone-excursion reduction at 41.2 Hz. This was due primarily to two factors. First, the test frequency did not coincide with the box resonance frequency of the vented enclosure; at the box resonance frequency, the loading of the tuned box provides the maximum cone-motion reduction. Second, the Q factor of the vented box was not very high, which limited the amount of reduction available.

As stated previously, the manufacturer describes the 7se loudspeaker's vented-box enclosure as having a "critically tuned resistive port." In the context of the 7se, this means that a relatively large amount of damping material was used inside the box (none was found in the port). This increases the internal box losses and, hence, decreases the box Q.

Considering only low-frequency behavior, the vented-box enclosure works best with a minimal amount of internal damping material. However, in the case of the 7se, a two-way design, the low-frequency loudspeaker is used all the way up into the midrange. In this range, standing waves and reflections inside the box can potentially color the midrange reproduction through radiation or re-radiation via the port and cone. Using a relatively large amount of damping material inside the enclosure will decrease the effect of these internal waves and, hence, their effect on the midrange response. In most vented-box enclosure designs, deciding how much damping material to add to the inside of the box involves a real engineering trade-off. It is quite clear that the designers of the 7se put more weight on smooth midrange response than on attempting to achieve the absolute lowest low-frequency distortion.

Even though this system's enclosure Q was somewhat lower than it could have been, separate tests revealed that this vented-box enclosure provided a very usable reduction of cone motion in the frequency range from 23 to 58 Hz. In the range from 30 to 40 Hz, the reduction was approximately 50%. This test was accomplished by alternately covering and uncovering the port while driving the system with a 10- to 20-V rms sine-wave signal. Above 10 V rms (12 watts), in the range from 30 to 40 Hz, windage (air movement) noises were quite noticeable from the port. This type of noise is usually not very audible with normal wide-range program material.

The A2 (110-Hz) harmonic data is given in Fig. 13. The data essentially shows that only the second and third harmonics were significant. The nonharmonically related spikes in the graph are byproducts of the measurement setup environment and are not generated by the loudspeaker. The third harmonic was found to increase gradually with power level, reaching only 1.5% at 50 watts. The second harmonic was very low, up to a power level of about 10 watts where it quickly increased to 7% at 50 watts. The significance of this sharp increase in second-harmonic distortion just about slipped by me until I removed the system's woofer and ran an excursion test on it.

Second-harmonic distortion is caused by a one-sided, asymmetrical nonlinearity. The specific cause of this nonlinearity in the 7se speaker's woofer was found to be an effect that occurs quite commonly in long-excursion, overhung-motor (voice-coil longer than top-plate thickness), woofers. The effect is called "dynamic offset," "oil canning," or sometimes "self-rectification." It occurs only in specific low-frequency ranges where the motional impedance (back EMF due to the movement of the voice-coil/cone assembly) is a significant part of the total impedance and only where the impedance is falling rapidly with increasing frequency.

The effect causes the cone to actually displace outward or inward at high drive levels. In the case of the 7se woofer, the cone always moved out of the motor assembly in the range from 50 to 115 Hz, at drive levels above approximately 12 V rms (10 watts). At 20 V rms (50 watts) at 100 Hz, the net outward displacement actually exceeded the peak-to-peak alternating displacement. This sudden outward shift in cone displacement caused the sudden increase in second-harmonic distortion exhibited in Fig. 13. Research has shown that dynamic offset also increases transient distortion and hangover for short-term, low-frequency signals. Research also indicates that vented-box (bass-reflex) systems are more susceptible to transient distortion from dynamic-offset effects than are closed-box (acoustic-suspension) systems.

Figure 14 shows the A4 (440-Hz) harmonic measurements. Again, the predominant distortion is a moderate amount of second- and third- with only small amounts of fourth- and fifth-harmonic distortion. The third-harmonic distortion is seen to stay at roughly the same distortion percentage, a low 1%, over a fairly broad range of input powers.

Figure 15 shows the IM distortion on a 440-Hz (A4) tone created by an equal-level (input power, not output acoustic level) 41.2-Hz (E1) tone. Again, power levels in the range from 0.1 to 50 watts were measured. The IM distortion gradually rises with power, reaching a level of about 10% at 20 watts and 14% at 50 watts. Only intermodulation products out to the third order (f2±3f1) were significant in these measurements. These IM levels are fairly low for a woofer of this size at these power levels. At 440 Hz, 50 watts generates a respectable 105 dB SPL at 1 meter, measured on the system's axis.

Swept sine-wave second- and third-harmonic distortion tests were also made on the system at axial 1-meter levels of 90 and 100 dB SPL (Figs. 16 and 17). The purpose of running these

broad angles. The mean axial response was calculated by averaging all the individual responses in a ±15° window, both horizontally and vertically. The mean off-axis responses were computed separately, in both the horizontal and vertical directions, from the ±30° to ±45° and the ±60° to ±75° off-axis curves.

The mean horizontal response curves are shown in Fig. 8. The mean axial response curve is quite flat and extended, within a ±2 dB envelope out to 19 kHz. Surprisingly, except for a roll-off above 10 kHz, the off-axis curves over the range from 800 Hz to about 11 kHz are actually flatter than the on-axis curve. This smooth, wide-angle response trait implies that the 7se speakers should image quite well over a broad horizontal listening area.

The mean vertical responses are shown in Fig. 9. These curves are somewhat similar to the horizontal curves, except for a 2-kHz, octave-wide hole in the response at the crossover frequency in the 30° to 45° angle range.

Figure 10 shows the input impedance of the 7se, plotted over the range from 20 Hz to 20 kHz, with a logarithmic vertical scale covering 1 to 100 ohms. A minimum impedance of 50 ohms at 150 Hz and a maximum of 28 ohms at 1.5 kHz were measured in the operating range of the speakers. Though this system is rated at 8 ohms, the 5-ohm minimum reached in the upper bass range makes paralleling two sets of these speakers a possible hazard for some amplifiers—especially at high levels.

The double-humped impedance characteristic of the vented-box (bass-reflex) cabinet was apparent at low frequencies. The Helmholtz-resonance tuning frequency of the box occurs at the impedance dip—about 32 Hz. At this frequency, most of the acoustic energy is radiated by the port, with the displacement of the woofer cone minimized.

The complex magnitude-phase (Nyquist) polar plot of the impedance is shown in Fig. 11. The curve nicely rotates clockwise with increasing frequency, which it ought to, as pointed out by the late Richard Heyser, Audio's former senior loudspeaker reviewer. The polar curve is quite well behaved, with no minor loops exhibited; this indicates that there are no spurious higher order resonances in the cabinet or woofer moving system. When looking at polar impedance plots, remember that simple second-order resonant humps show up as circles on the display. The circular, looping nature of the three impedance humps is clearly shown in the plot.

The distortion characteristics of the 7se were measured in several different ways. These included three single-frequency distortion spectra versus power level, IM distortion versus power level, and swept second- and third-harmonic distortion measurements versus frequency.

Figures 12, 13, and 14, respectively, show the single-frequency harmonic-distortion spectra versus power level at the musical notes E1 (41.2 Hz), A2 (110 Hz), and A4 (440 Hz). These

The delivery of high level upper-frequency transients, such as explosive sound effects, was good enough to clean your ears out!

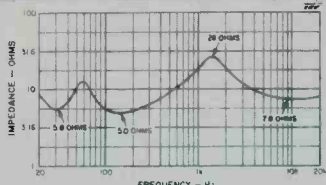


Fig. 10 - Magnitude of impedance. Note the logarithmic impedance scale

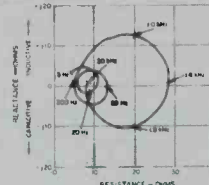


Fig. 11 - Complex Impedance. The system is quite well behaved; see text!

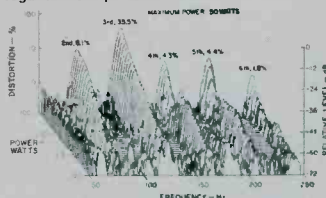


Fig. 12 - Harmonic distortion for the musical tone E1 (41.2Hz). Note relatively high third-harmonic level at high powers; see text

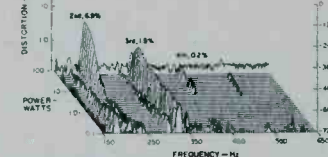


Fig. 13 - Harmonic distortion for the musical tone A2 (110Hz). The second and third harmonics were the only significant ones in this power range. Note the rapid increase in second harmonic at power levels above 10 watts; see text.

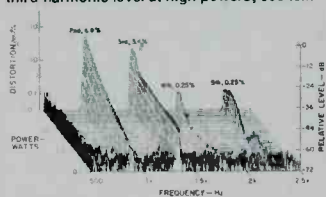


Fig. 14 - Harmonic distortion for the musical tone A4(440Hz). Only moderate amounts of second and third harmonics are evident.

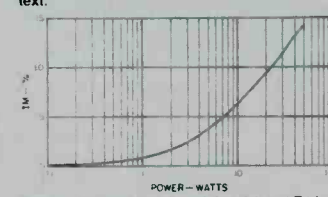


Fig. 15 - IM produced by mixing A4 and E1 in equal proportion.

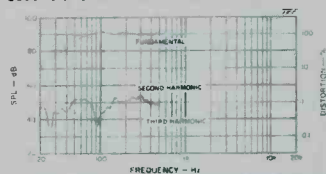


Fig. 16 - Second- and third-harmonic distortion levels vs. frequency for 90 dB SPL mid-band output at 1 meter on axis; input signal is 3.6 V rms (1.5 watts into 8 ohms)

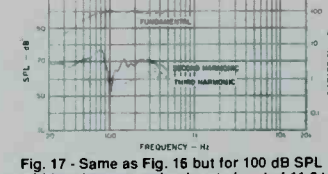


Fig. 17 - Same as Fig. 16 but for 100 dB SPL mid-band output, using input signal of 11.3 V rms (16 watts into 8 ohms).

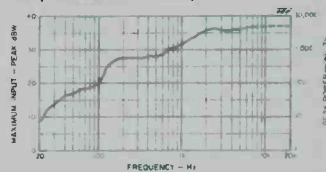


Fig. 18 - Maximum peak-input power for moderately clean output. Above about 6 kHz (dashed portion of curve), limitations are imposed by clipping of 5.5-kilowatt amplifier, not by the speaker. Input signal was a shaped tone burst; see text.

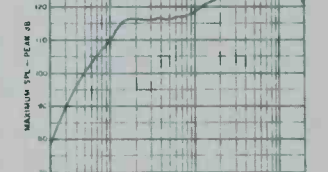


Fig. 19 - Maximum peak SPL output at 1 meter on axis, for input levels shown in Fig. 18. The system can generate peak levels in excess of 115 dB SPL above 150 Hz.

curves, in addition to the previous measurements, was to show the harmonic content at a fixed-output mid-band sound pressure level and to display the second and third-harmonic levels over a continuous interval in the low-frequency range. Using fixed sound levels of 90 and 100 dB SPL facilitates comparison with measurements made on previous systems. Note that in the low-frequency range below 60 Hz, where the system starts to roll off, the actual distortion percentage is higher than shown on the scale to the right of the graph because the fundamental is lower in level.

The swept harmonic tests at a level of 90 dB SPL are shown in Fig. 16. The distortion stayed below 2% at frequencies above 60 Hz and rose to about 5% at 35 Hz (mostly third harmonic). The corresponding measurements at 100 dB SPL are plotted in Fig. 17. The distortion above 60 Hz stays below 3% except for a second-harmonic peak of 8% at 85 Hz. The input level of 16 watts (11.3 V rms), required for the 100-dB midband level, is just below the point where the cone starts to move out due to the dynamic-offset effects noted earlier. The second harmonic is seen to predominate between 50 and 90 Hz. At 20 Hz, third-harmonic distortion actually rises to 100%, primarily due to the suspension's running out of excursion capability to the same degree in both directions.

Overall, the distortion measurements on the 7se are quite low for a system of this size. The windage noises in the vent at high power levels in the low-frequency range will fortunately be masked by most program material. The dynamic-offset problems observed could potentially be a problem with program material such as loud rock music, which contains high-power narrow-band material in the region of 50 to 100 Hz. However, the added second-harmonic levels may make some types of program material sound better rather than worse. (It ain't high fidelity though!)

Figures 18 and 19 show the short-term peak-power input and output capabilities of the system, plotted as a function of frequency. The tests were run by applying a shaped toneburst test signal consisting of 6 1/2 cycles of a sine wave shaped using a Hamming raised-cosine envelope. The resultant test signal covers a one-third-octave bandwidth with a time duration that increases as the frequency goes down. The burst is presented at such a low duty cycle that the long-term thermal characteristics of the speaker under test are not exercised. The test consisted of evaluating the maximum peak-input power-handling capacity and maximum peak-output sound pressure levels, at all the one-third octave center frequencies, in the range from 20 Hz to 20 kHz. A very powerful amplifier that can generate 5,500 peak watts (+37 dBW, or ±210 V into an 8-ohm load) was used to drive the system.

The test sequence began with determining how much of the special test signal could be handled by the speaker, at each frequency, before either the output sounded audibly distorted or the

acoustic output waveform appeared distorted, whichever occurred first. At each frequency, the maximum peak-input voltage and the corresponding generated peak-output sound pressure level at 1 meter were recorded.

Figure 18 shows the maximum peak-input electrical power-handling capacity of the 7se. The peak-input power-handling capacity is seen to rise with frequency until 6.3 kHz, where the amplifier's power capacity of 5.5 kilowatts was reached! Above 125 Hz, the system can handle more than 600 peak watts. From 40 to 100 Hz, the peak power handling is limited to the range of 50 to 100 watts. Below 25 Hz, the power should be limited to 10 watts or less, so as not to cause any intermodulation of the higher frequencies. The 7se can actually handle more power than the curves show but at the expense of much greater distortion.

Figure 19 illustrates the maximum peak sound pressure levels generated at a distance of 1 meter on axis for the levels shown in Fig. 18. The graph shows that the 7se can generate very respectable levels in excess of 110 dB SPL at frequencies above 100 Hz. Between 20 and 100 Hz, the maximum output rises at about 15 dB per octave. Of course, two of these systems operating in a typical listening room will be able to generate much higher levels in this critical low-frequency range, due to mutual coupling and boundary effects. The room will provide some 5 to 10 dB of low-frequency gain, while a pair of speakers increases the level some 3 to 6 dB.

"The smooth bass-midrange response contributed to a very accurate and revealing system that was a pleasure to listen to."

"I am quite pleased with the overall performance attained by these speakers..."

"I would recommend the 7se loudspeakers for anyone who wants a very cost-effective speaker..."

Use and Listening Tests

The listening tests were conducted in my basement listening room, which is somewhat small with a volume of about 1,500 cubic feet (43 cubic meters). The systems were located 20 inches (0.5 m) away from the rear wall and separated by about 8 feet (2.5 m), with most near reflective objects removed. The 7se speakers were placed on the supplied stands, which elevated them about 13 inches (0.33 m) off the floor, placing the tweeter 33 inches (0.84 m) high. At my seated listening position, my ears were within 2' of the tweeter axis. Most of my listening evaluation was done before the measurements were made.

My first listening impressions of the 7se were quite positive. I was impressed with how well the system did overall, in comparison to my reference. Later, more serious, evaluations did not change this impression. My listening tests conducted after the measurements revealed no perceptible changes in the sound, even though by then the system had been subjected to some rather abusive power testing!

The supplied speaker stands were made of 1/8-inch (3-mm) thick metal sheet stock, with 1-inch (25-mm) long spikes on the bottom of a 13 1/2-inch (340-mm) square base. The 10-inch (250-mm) square speaker mounting surface was separated from the base by four 1-inch (25-mm) square by 12-inch (305-mm) long metal tubes. My initial impression of the stands was somewhat negative, due to some high-Q resonances in the metal structure. After the speakers were set up in the normal configuration, with the systems in place and the base (with spikes) on the carpet, the resonances were much diminished and did not cause any discernible effects during the listening tests.

Input connection was made at the rear of the system, through double-banana red/black, five-way binding posts separated by the standard 3/4-inch (19-mm) distance. However, the wire insertion hole in the post was not large enough to handle any reasonable-sized stranded speaker cable. I suggest that you use spade lugs or solid wire extensions (that will fit the hole) and solder these to your cables.

Listening to some poprock material (The Nightfly, Donald Fagen, Warner Bros. 23696-2) revealed a somewhat bright high end that emphasized instruments such as top-hat cymbal and tambourine. The emphasis was not at all objectionable, however.

Reproduction of female vocalists was quite realistic, with no sign of harshness on vocal peaks (Love Songs, soprano Arleen Auger and pianist Dalton Baldwin, Deios DCD-3029). The reproduction of male vocalists with acoustic guitar was also quite good, with no upper-bass or lower-midrange tubbiness (Folk Era's Live Sampler, Folk Era FE2066CD and Depth of Image, Opus 3 Test Record 1, Track 7).

A capella choral music was also reproduced well, with good clarity and vocal separation (Depth of Image, Track 10). Smooth response through the upper-bass and midrange response regions is required for good results on choral music. Mozart's Piano Concerto No. 13 (Midsummer Mozart Festival, Bainbridge BCD-6273) was reproduced with a good sense of space and realism.

Off-axis vertical and horizontal high-frequency coverage was subjectively quite adequate, with good response out to about ±40°. The system's delivery of high-level mid-high frequency transients, such as explosive sound effects, was very effective. (You can clean your ears out on Track 4 of Eln Straussfest, Telarc 60-80098!)

Program material containing high-level bass transients played at high levels, such as rock kick drum, was reproduced with a moderate amount of muddiness when compared to my reference system (Sheffield Drum and Track Record, Sheffield Labs). After making the measurements, I attributed this muddiness to the dynamic-offset problems exhibited by the woofer in the 7se. To check this out, I searched for program material containing low-frequency information that would cause the cone assembly to travel appreciably out of the gap, in one direction, on loud passages. (This movement was determined by viewing the cone at close range while playing the material.) One disc that did this consistently contained the cannons on Beethoven's "Wellington's Victory" (Telarc 60-80079). An outward deflection of the cone resulted even when the speaker leads were reversed, because dynamic-offset problems relate only to the amplitude, not the polarity, of the low-frequency signal. Even with appreciable offset, the cannon reproduction was still quite impressive. (I made sure my wife was out of the house when I listened at the levels required to generate the offset effects!) Reproduction of other types of low-end material, such as pipe organ pedal tones and concert bass drum, was quite adequate and was consistent with the system's size.

To sum up, I am quite pleased with the overall performance attained by these speakers, considering their relatively low price and moderate size. The smooth bass-midrange response contributed to a very accurate and revealing system that was a pleasure to listen to. Except for some low-end muddiness exhibited infrequently on very high level bass passages, the system did a very good job. I would recommend the 7se loudspeakers for anyone who wants a very cost-effective speaker for use as a main system or for use in a secondary situation. At their price, in fact, I might even consider buying a pair for myself!

D. B. Keele, Jr.

Paradigm 9se Loudspeaker

HIGH FIDELITY

AUDIO • VIDEO • TEST REPORTS • MUSIC

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"A NO-COMPROMISE TWO-WAY DESIGN CAPABLE OF OUTPERFORMING SYSTEMS COSTING SEVERAL TIMES A MUCH."

stands that bring the tweeter to approximate ear level are essential." However, Paradigm's screw-together M-20 metal stands elevate the speaker only 8 inches above the floor, whereas bringing the tweeters up to ear level requires a stand about 15 inches high.

Diversified Science Laboratories obtained its test results with the speaker on an 8-inch stand located 35 inches from the wall behind. The on-axis frequency response is a very respectable ± 2 dB

impedance curve also has peaks of 7.2 ohms at 70 Hz and 18 ohms at 1.4 kHz. The measured sensitivity is, as claimed, relatively high at 92.3 dB sound pressure level (SPL) with a 2.8-volt pink-noise input. The speaker, providing the dynamic range the data sheet promises, accepted a full output (67-volt) signal from the test amplifier during DSL's 300-Hz pulse test. With this signal - equivalent to a 561-watt (27.5-dBW) input - the speaker delivered a deafening calculated peak SPL of 119.9 dB.

Distortion at more sensible levels remained quite low. For frequencies above 60 Hz, it averaged well below 0.6 percent at an 85 dB SPL test level and well below 0.8 percent at 90 dB SPL. At the highest test level (100 dB SPL), distortion above 60 Hz was at worst 3.5 percent at 250 Hz. Even at 50 Hz distortion was only 5.9 percent, and above 500 Hz, it was still less than 0.7 percent.

All this backs up our listening-session evaluation of the 9se as a speaker that plays plenty loud and yet manages to avoid any sense of strain or diminution of clarity in loud, complex music. The only time we heard the effects of the measured low-bass roll-off was when the music had substantial amounts of signal in the lowest octave (say, 20 to 40 Hz), but these frequencies are difficult even for larger and costlier systems, in addition to being somewhat rare in music.

When the speakers were placed in our listening room as DSL had them in its lab, we detected a hint of upper-bass heaviness on male vocals (probably due to the combined effects of the slight 160-Hz peak and the 300-Hz floor-reflection dip). But this disappeared when we raised the speakers up to the recommended ear-level height and moved them a foot closer to the wall. The 9se then passed all of our standard frequency-balance music tests with flying colors (including massed orchestral strings and female vocals). The overall frequency balance in that position proved excellent, as did the precision and depth of the stereo image.

Considering the relative youth of the company, the conventionality of the design, the fine frequency balance, the very reasonable price, and the fact that the Paradigm 9se can be driven to levels of more than 100 dB SPL with a 20-watt (13-dBW) amplifier, there is no contradiction in saying that the 9se is both a "sleeper" and a speaker that will make you sit up and take notice.

"...[the 9se] manages to avoid any sense of strain or diminution of clarity in loud, complex music."

"The 9se passed all of our standard frequency-balance music tests with flying colors (including massed orchestral strings and female vocals)."

"The overall frequency balance... proved excellent, as did the precision and depth of the stereo image."

"Considering... the fine frequency balance, the very reasonable price, and the fact that the Paradigm 9se can be driven to levels of more than 100 dB SPL with a 20-watt amplifier,... the 9se is both a "sleeper" and a speaker that will make you sit up and take notice."

from about 100 Hz up to about 20 kHz. Off axis, the response is not quite so flat, with a distinct dropoff in response above 10 kHz and with slight dips in the crossover region and around 300 Hz (a floor-reflection aberration that does not show up in the close-miked woofer or port responses). The latter dip tends to make the slight rise centered at 160 Hz more prominent, both on the graph and to the ear. At DSL, response rolled off at a comparatively gentle 6 dB per octave below 125 Hz.

The average measured impedance over the audio band is 8.1 ohms. But because the impedance curves dips to 3.8 ohms at 30 Hz and 200 Hz, the 9se's rated impedance of 4 ohms is justified. The

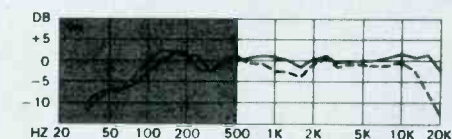
AS A RELATIVELY YOUNG LOUDSPEAKER company, Paradigm has not had time to establish a reputation, at least in the U.S. But if our reaction to the Model 9se loudspeaker is any indication, a good reputation should not be long in coming. For once, we wholeheartedly agree with the conventional puffery on the data sheet: The Paradigm 9se is most definitely a no-compromise two-way design capable of outperforming systems costing several times a much."

Actually, in electroacoustical design, the Model 9se is a rather conventional vented system. The tweeter is a Ferrofluid-damped, 1-inch, polyamide-dome unit with a high-temperature voice coil wound on an aluminum former. The tweeter diaphragm is said by the data sheet to be "replaceable," although we cannot fathom any reason that you'd need this feature in normal use. Perhaps the most unusual aspect of the speaker is its use of two woofers driven in parallel to increase speaker sensitivity and power-handling ability and to reduce low-frequency distortion at high sound levels. Each is 8-inches in diameter and has a polypropylene diaphragm with a high-compliance synthetic ABS Butyl suspension. The crossover is a Butterworth network using aircore inductors and Mylar capacitors. Crossover frequency is 2 kHz.

The two ports for the woofers are located on the back panel, which on our samples was painted black to match the black-ash vinyl veneer of the rest of the enclosure. A natural walnut vinyl finish is available as well. Also on the back panel are the two binding-post connectors accepting bare wire, lugs, and dual or single banana plugs.

Although it is tall enough to provide acceptable results when sitting directly on the floor, the 9se's instruction sheet recommends placing the speakers so that they are totally freestanding - away from walls and the floor. It also says that "speaker

ROOM RESPONSE CHARACTERICS



— boundary-dependent region on-axis response
 - - - off-axis (30°) response
 . . . off-axis (90°) response
 SENSITIVITY (at 1 meter; 2.83-volt pink noise)
 AVERAGE IMPEDANCE (250Hz to 6 kHz)

92.3 dB SPL
 9.8 ohms

Paradigm[®]

Sound & Vision

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PRODUCT ANALYSIS



Paradigm 11se MkII Loudspeaker

SOUND QUALITY

Clarity
 ●●●●●●●●○○○○○
 UNCLEAR VERY CLEAR

Spaciousness
 ●●●●●●●○○○○○
 CLOSED OPEN, AIRY

Brightness
 ●●●●●○○○○○
 DULL AVG. BRIGHT

Fidelity
 ●●●●●○○○○○
 BAD FAIR GOOD

Pleasantness
 ●●●●●○○○○○
 UNPLEASANT PLEASANT

SPATIAL QUALITY

Imaging, Definition
 ●●●●●○○○○○
 POOR GOOD

Width of Soundstage
 ●●●●●○○○○○
 NARROW VERY WIDE

Depth Impression
 ●●●●●○○○○○
 POOR FAIR GOOD

Ambience, Reverberation
 ●●●●●○○○○○
 POOR GOOD

CONSTRUCTION QUALITY

Structure
 ●●●●●○○○○○
 POOR GOOD EXCELLENT

Cosmetics
 ●●●●●○○○○○
 POOR GOOD EXCELLENT

“...A VERY GOOD SPEAKER INDEED... A WORTHY ADDITION TO ANY HIGH QUALITY AUDIO SYSTEM.”

“...the curve in the “listening window” is well balanced, ...this speaker can reproduce the very lowest musical notes.”

“the 11se MkII is not especially directional, and should allow good imaging.”

“Our listening panel found little to complain of, and much to praise... great low bass... good balance... open... great jazz... great pop... very clear... natural, wide-band, all parts present... lots of detail...”

Paradigm is one company that seems to have lived up to its name, which means an example or model. It has made considerable inroads in the domestic

market and is beginning to make its mark among audiophiles worldwide. And it has made extensive use of the facilities of the National Research Council in Ottawa in the design of its products.

The new model 11se MkII is a redesign of a former top-of-the-line model (the Studio Monitor now tops the line). It's a floor-standing ported two-way using a 1-inch soft-dome tweeter and a pair of 8-inch polypropylene woofers.

The upper frequency-response curve (Figure 1), an average of several measurements taken on-axis and up to 15 degrees off-axis, shows the balance a listener in the prime “stereo seat” might hear. The middle curve, made up of measurements between 30 and 45 degrees off-axis, represents the balance in other listening positions. The character of the early reflections, and thus the energy in a room's reverberant field, is indicated by the off-axis 60-to-75-degree lower curve.

Overall, the curve in the “listening window” is well balanced, with only a few flaws. The slight hump centered on 100 Hz might give an impression of “fat” bass-and it did, according to our listening panel-but the extension below that means that this speaker can reproduce the very lowest musical notes (the -10 dB cutoff measured a very low 33 Hz).

The modest peak at the upper end might be expected to lend a slightly sibilant quality to the sound with recordings containing such frequencies. More serious, perhaps, is the midrange dip between about 1.5 and 2.5 kHz, which showed up in the listeners' comments in a number of ways; it was particularly noticeable when listening to pink noise. Otherwise, however, this is a very respectable set of curves, and their closeness speaks well for the unit's dispersion.

All of these characteristics are evident in Figure 2, the total radiated power of the speaker, which approximates the spectral balance that would be heard in a moderately live listening room. The bottom curve indicates that the 11se MkII is not especially directional, and should allow good imaging.

Figure 3 illustrates total harmonic distortion at speaker output levels of 90 and 95 dB SPL. Distortion is generally low across the board, and particularly so in the very low end. The fact that THD levels rise only slightly when the output level is raised indicates that this speaker should have little trouble at higher levels. Our sensitivity measurements show that the 11se MkII produces 88.8 dB for a 1-watt input measured anechoically at a distance of 1 metre-quite efficient.

The impedance curve (Figure 4) shows that this speaker presents a load that reaches down to about 5 ohms several places on the spectrum, compared to the nominal spec of 8 ohms.

Listening Tests

Our listening panel found little to complain of, and much to praise. The midrange anomaly was identified throughout as, a bit of hardness or coloration: “a hint of nasality” “not neutral but not bad.” Similarly all listeners found the slight hump in the upper bass to produce a “fat,” or “punchy” sound on one or two musical selections (particularly ones that emphasized that part of the spectrum). Conversely our listeners frequently praised the “great low bass.” The majority of comments, however, were such things as “good balance,” “bright, open,” “great jazz,” “great pop,” “very clear,” “natural, wide-band, all parts present,” and “lots of detail.”

In the end, the small criticisms were outweighed by the favorable comments. In truth, the Paradigm 11se MkII is a very good speaker indeed, a good value and a worthy addition to any high-quality audio system.

-I.G.M.

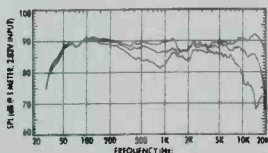


FIGURE 1. Paradigm 11seMkII. Frequency response curves. Top to bottom: average 0-15 degrees (listening window), avg. 30-45 deg., avg. 60-75 degrees.

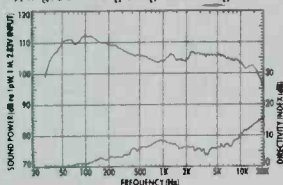


FIGURE 2. Paradigm 11seMkII. Total radiated power (top); Directivity index (bottom)

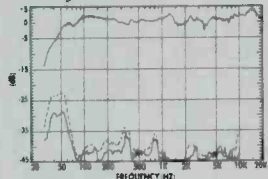


FIGURE 3. Paradigm 11seMkII. Total harmonic distortion (lower curves). Solid: 90dB @ 2M @ mid-frequencies (4.8 watts input); Dashed: 95 dB @ 2M (14.6 watts input). Upper curves: Power compression. Solid: on-axis response at 90 dB SPL; Dashed: on-axis response at 95 dB SPL.

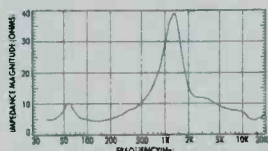


FIGURE 4. Paradigm 11seMkII. Impedance curve (ohms). 20-20kHz.

"...PARADIGM'S ALREADY STRONG REPUTATION IS ABOUT TO BE FURTHER BOLSTERED BY THE COMPACT MONITORS.

AUDITION THESE."

L A B T E S T



PARADIGM COMPACT MONITOR

Paradigm's latest small speaker system, the Compact Monitor lobbed onto our doorstep, clad in a very attractive oak veneer and boasting some impressive specifications. We understand that by the time the Compact Monitor is available in any numbers it will be wearing the more popular all-black finish.

The Compact Monitor is a two-way bass reflex system. Its bass/midrange driver is Paradigm's own LF165.

A 165mm unit (with an effective cone diameter of 112mm), the diaphragm is made of 'mineral filled, copolymer polypropylene'. This terminates at a very rigid cast basket via a urethane surround and features a 25mm voice coil working in a 350gm barium ferrite magnet.

Above the 2kHz crossover point, a 26mm laminated textile dome tweeter takes over.

Inside the cabinet one finds that the substantial enclosure is further strengthened with an H-brace and that the interior is packed with two different damping materials.

It is clear that Paradigm is not interested in spurious resonance modes developing.

Each speaker has two pairs of 4-way binding post terminals to permit bi-wiring or bi-amping.

Performance

Let's go straight to the pink noise frequency response spectrogram. And what a strong result it is. From 60Hz to 20kHz the response fits easily within a range of 8dB. Excluding the room induced suckout in the region of 200 Hz, the response is largely confined to a range of ± 3 dB. There is a slight upward trend in output across the final octaves, but the anomaly was not detected by listeners.

If anything, the swept sine wave plot was even more linear than the pink noise response. Above 200Hz the on-axis response varied little more than ± 2 dB and that is an exceptionally strong outcome.

When measured from 30° off-axis, the test samples do show a small amount of roll-off across the final octave. The Compact Monitors are perhaps slightly more sensitive to positioning than the average small speaker but this can hardly be counted as a sin. We did not detect any significant beaming.

Harmonic distortion levels were satisfactorily low. A 500Hz fundamental produced harmonics out to the 5th. However the last two harmonics are at relatively insignificant levels. In any event, the third at -49dB dominates the

second at -54dB. Put into percentage terms, the -54 second represents 0.19% distortion, whilst the figure for the third is equivalent to 0.35% distortion.

"Above 200Hz the on-axis response varied little more than ± 2 dB and that is an exceptionally strong outcome."

"Spatial quality ratings were consistently high with particular kudos being earned for the definition of sound images and the depth of the soundstage."

"The Compact Monitors have a breezy, open character... [with the] ability to plausibly recreate an acoustic..."

"...well-defined upper mids and treble... free from any sense of boxiness."

"Female or male, solo or chorus, the human voice is very well served by the Paradigms."

Turning to the corresponding figures for a 1kHz fundamental, we encounter much the same pattern. That is to say there is a higher order odd harmonic (but at a very low level) and the third harmonic dominates the second. To put some numbers to the results, the second appears at -53dB (0.22%) and the third falls at -44dB (0.63%).

The impedance plot shows the usual double hump for a vented system. As you can see, impedance never falls below 4 ohms and from 500Hz on is maintained above 8 ohms. This is a very amplifier-friendly system.

At one metre, we measured 86.5dB SPL for an input of 2.83 volts of pink noise. This is about halfway between Paradigm's anechoic specification of 85dB and their 'room' spec. of 88dB. Not astonishingly efficient perhaps, but not unusual for a small loudspeaker either.

The test bench performance turned out to be an accurate predictor for the listening tests. Spatial quality ratings were consistently high, with particular kudos being earned for the definition of sound images and the depth of the soundstage. The Compact Monitors have a breezy, open character that is very pleasant on the ear and their ability to plausibly recreate an acoustic, suggests that Paradigm maintains very tight tolerances on the production line. On spatial performance alone, we gave the Compact Monitors seven out of 10.

Asked to judge the sound quality of the sample speakers, our listeners were even more enthusiastic about the little Canadians. Despite their generally well-defined upper mids and treble, we found the sample speakers to lean more toward softness than sharpness. Unlike many small speakers, they did not suffer from overbrightness. Instead their character was free from any sense of boxiness (no doubt a direct result of Paradigm's efforts inside the cabinet).

While the Compact Monitors are suitable for just about all types of music, there was general agreement that they were at their best with vocals. Female or male, solo or chorus, the human voice is very well served by the Paradigms. The slight warmth and the precision of the mids (combined with a downright refusal to 'megaphone') made listening to our various vocal selections a genuine pleasure.

We have no doubt that Paradigm's already strong reputation is about to be further bolstered by the Compact Monitors.

Audition these. 

stereophile

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A TWO-WAY STREET?

John Atkinson reviews two-way loudspeakers

Paradigm Control Monitor: two-way, reflex-loaded, stand-mounted loudspeaker. Drive units: 1" (26mm) textile-dome tweeter, 8" (210mm) copolymer polypropylene-cone woofer. Crossover frequency: 2kHz. Crossover slopes: third-order (acoustic slope), quasi-Butterworth. Frequency response: 55Hz–20kHz –2dB. Sensitivity: 89dB/W/m. Nominal impedance: 8 ohms. Amplifier requirements: 15–100W. Dimensions: 20" (510mm) H by 10" (255mm) W by 13.5" (345mm) D. Internal volume: 32 liters. Shipping weight: 55 lbs (25kg)/pair. Finishes available: Natural Oak, North American Walnut, Black Ash wood veneers. Price: \$680/pair (matching m-40 stands cost \$120/pair). Approximate number of dealers: 180. Manufacturer: Paradigm Electronics Inc., 457 Fenmar Drive, Weston, Ontario M9L 2R6, Canada. US Distributor: Audiostream, P.O. Box 2410, Niagara Falls, NY 14302. Tel: (416) 632-0180.

If speakers were cars, the Infinity IRS Beta and B&W 801 Matrix would represent the luxury end of the mass market, with perhaps the Celestion SL700, Quad ESL-63, and Martin-Logan Sequel II analogous to rather hairy, temperamental sports cars—the Porsche 911, for example. But most people don't buy Porsches, or even Lincoln Town Cars; they buy Hyundai Excels and Ford Escorts. In the same way, when the car is garaged for the night, they don't sit down in front of IRS Betas; in all likelihood they listen to their records with a compact two-way design. If competently designed, a small two-way can give a great deal of musical satisfaction, and, to take a current hobbyhorse of mine out for a trot, if a designer can't produce an at least competent two-way loudspeaker, he or she has no business trying to design larger, more ambitious models—there's nowhere to hide your lack of talent if all you have to play with is a tweeter, a woofer, a rectangular enclosure, and a handful of crossover components.

This reminds me of my musician days: Of the chamber music I attempted to perform, I found the hardest music to play well was by Mozart. Vivaldi, Telemann, even good old George Frederick Handel—so what if your timing and intonation were a little wayward, there was always plenty of room to hide among the flurries of scale passages and arpeggios. But Mozart. No way, Wolfgang. What the audience heard was what you had to give, and if your musicianship was inadequate, *that* was what they heard. I can remember sweating blood trying to play eight measures of repeated accompanying eighth-notes—every note ostensibly the same—without appearing a total incompetent. Only angels can play Mozart in public and get away with it, in my opinion. Those same angels would probably design a pretty good two-way speaker selling for under \$1000/pair!

Accordingly, following my favorable report on the Spica TC-50 and Celestion 3 in October,

I will be looking at a further selection of affordably priced two-way speakers in the next few months, starting with this group of three. One is from the UK, the Rogers LS7i; one from the US, the Amrita AMRIT-MiniMonitor; the third, the Paradigm Control Monitor, is from that current hotbed of competent loudspeaker design: Canada.

Review context

The most important consideration with speakers such as these is what stands to use. Often treated as an afterthought, a good pair of stands is fundamental to getting optimum performance from even inexpensive loudspeakers. Paradigm did supply a stand intended for use with their Control Monitor, but in order to keep the effect of the stand a constant during the listening tests, I decided to use the same stands for all three models. These were \$300/pair, 18"-tall Celestion SLSi stands, their center pillars each filled with 30 lbs of lead shot, topped up with sand! With my listening chairs placing my ears 34–36" from the ground, the tweeters of all three speakers were placed at ear height, given that I had to slouch slightly with the Amritas.

The stands were fitted with floor spikes, and each speaker was coupled to the stand top plate with small blobs of EZ-Tak, a not-very-reactive damping compound. Each pair of speakers was carefully positioned for the best sound, generally some 4' from the rear wall (which is faced with books and LPs) and 5.5' from the side walls (also faced with bookshelves). With the exception of the Amritas, each pair was toed-in to the listening seat. The amplification was either a Mark Levinson No.25/26 preamplifier combination or an Audio Research SP14 (review to come soon) driving my 1986-vintage Krell KSA-50. Speaker cable was 15' lengths of AudioQuest Clear Hyperlitz, doubled-up for

¹ These are single-pillar designs, with steel top and bottom plates.



Paradigm Control Monitor loudspeaker

biwiring, while interconnects were 1m lengths of AudioQuest LiveWire Lapis connecting CD player to preamp, and preamp to power amplifier (1m lengths of Magnan V—an excellent cable—also served). Six-foot lengths of Madrigal unbalanced HPC connected the No.25 to the No.26. Source components consisted of a Revox A77 to play my own and others' 15ips master tapes, a Linn Sondek/Ekos/Troika setup sitting on a Sound Organisation table to play LPs, and the CAL Tempest SE two-box CD player.

Only one pair of loudspeakers was in the listening room during the critical tests, something that I alone among this magazine's reviewers appear to consider important.

Regarding measurements, I use a mixture of nearfield, in-room, and quasi-anechoic FFT techniques to investigate possible objective factors that might explain the sound heard. Readers wanting more detail on this regime should read pp.166–167 in the October 1989 issue (Vol.12 No.10).

Paradigm Control Monitor: \$680/pair*

¹ In common with other Canadian loudspeaker

*Prices have changed.

manufacturers, Paradigm (founded in 1982) has been able to benefit from the research into blind listening tests carried out by a team led by Dr. Floyd Toole at Canada's National Research Council in Ottawa. By offering a standardized and repeatable subjective test environment,² the NRC has enabled speaker designers to more effectively target the qualities desirable in a loudspeaker, in particular a smooth, flat, on-axis response and a smooth control of the lateral off-axis sound. It doesn't tell them *how* to achieve these qualities, which is why speakers from different manufacturers using the same NRC facilities still manage to sound different—compare, for example, the Waveform, the Image Concept 200, and the subject of this review, the Paradigm Control Monitor, all three of which have quite distinct personalities. Nevertheless, it has become apparent that the main benefit of the NRC's help has been to help Canadian speaker manufacturers offer a level of performance higher than usual at their products' specific price points.

This was certainly true of Paradigm's two-way 5se model, which I reviewed a couple of years ago (January 1988). It did have a couple of flaws, but the overall sound quality was exceptional for just \$360/pair.* Like the 5se, the Control Monitor is a two-way, reflex-loaded design, but selling for almost double the price. The extra money buys you a larger, deeper-than-wide enclosure, its chipboard sides and MDF rear covered in wood veneer (inside and out) rather than the 5se's vinyl wrap. The MDF front baffle is finished with an attractive hammer-finish grey paint, and the speaker looks handsome without its black grille. (As this consists of cloth stretched over a bulky unprofiled wooden frame and will therefore present the tweeter with significant reflecting surfaces, I left it off for the bulk of my auditioning.) The enclosure is loosely packed with what appears to be long-fiber cotton, and a horizontal panel braces the sidewalls just above the port.

The drive-unit complement, mounted in a vertical array, appears very similar to the 5se's: an 8", mineral-filled polypropylene-cone woofer of Paradigm's own manufacture, constructed on a diecast basket, combined with a Vifa 1" fabric-dome tweeter using an aluminum voice-coil former. (The 5se used a less highly specified plastic-dome unit, also sourced from Vifa.) The bass unit is loaded with a large front-firing reflex port, this 9" deep and 3" in diameter. The crossover is said to be "third-order (acoustic slope), quasi-Butterworth." This takes the acoustic response of the drive-units into account; the actual electrical slopes are first-order low-pass to the woofer, there being a single ferrite-cored coil in its feed, and second-order high-pass to the tweeter, the network consisting of a series pair of film capacitors and a parallel air-cored coil. In addition, the tweeter drive is reduced by a series resistor, this bypassed with a variable resistor to give fine control of HF level. The shaft of this pot is taken through the rear panel and is adjusted

during manufacture to give a match within $\pm 0.25\text{dB}$ to Paradigm's design reference, following which it is sealed with paint. The crossover components are glued to a fiberboard panel on the speaker's rear, this carrying two sets of five-way binding posts to allow bi-wiring/amping.

The sound: Paradigm's recommended listening axis is with the tweeter at ear level, the exact height that the Celestion stands placed them with my listening chair. They also recommend running-in the speakers for 24–48 hours at a "moderate/loud" listening level. This I did, before carrying out any serious listening.

First impressions were extremely favorable. The Control Monitor's basic sound is both more neutral than the Paradigm 5se (particularly in the treble) and considerably more so than the Amrita MiniMonitor. Not only were individual instrumental tonal characters well preserved, but, more importantly, so were the differences between those characters, an area where the Amrita fell down. This is not to say that the speaker didn't have a signature. Male voice was reproduced with rather a chesty quality, while female voice had a slightly "cold" character. The flute on *Stereophile's* first LP also had a little too much breath noise apparent. Nevertheless, the Control Monitor passed difficult tests for midrange neutrality, such as naturally recorded piano, with flying colors. The scale passages on my Chopin Waltz recording on the original *HFN/RR* Test CD were reproduced with an even emphasis on all notes, something quite rare even with relatively high-priced loudspeakers.

The importance of choosing the correct-height stands with these speakers was revealed by listening to pink noise. Sit so you can see the top of the cabinet and the mid-treble depresses, leaving the top octave isolated; sit so your ears are level with the woofer and the sound lacks HF "air." However, even on the optimum listening axis, the treble did feature a degree of liveliness, naturally recorded snare drum acquiring additional wires and hi-hat cymbal becoming slightly "sniffy." (Imagine the sound of an aerosol can being added to the metallic chink.)

Stereo imaging was laterally precise, sound-sources being unambiguously positioned without the positional "splash" that characterizes the Amrita loudspeaker auditioned at the same time. Soundstage depth, however, was less well-developed than with such consummately superb performers in this respect as the Spica TC-50 or Rogers LS3/5a. This was somewhat due to treble instruments, such as the trumpet at the beginning of the Bernstein Mahler 5 recording, being pushed forward by the degree of treble emphasis noted above. But while recorded ambience was not suppressed, being readily audible, it failed to gel sufficiently with the direct sound of the instruments. This is still excellent performance at the price, however.

My only real criticism of the Control Monitor concerns its low-frequency alignment. The lower midrange was consistently warm, with too much lower-bass energy audible. While this made the piano's left-hand registers sound quite weighty, and pizzicato double basses

throbbed, it became too much on rock recordings, bass drum and bass guitar losing definition. In addition, the lower midrange noticeably thickened up at high replay levels, something that may correlate with the fact that the cabinet sidewalls vibrated strongly between 350 and 380Hz and at 465Hz. The bass balance could be usefully modified by bi-wiring, but the speaker's propensity for lower-midrange congestion remained unaffected.

Measurement: Fig. 1 shows the Control Monitor's response to the rectangular test pulse on the tweeter axis with the grille removed. Both drive-units appear to be connected with the same polarity, *ie*, they both start moving forward in response to the positive voltage spike. The initial short-risetime pulse is from the tweeter, which leads the woofer in time on this axis, but note that it appears to have a greater degree of undershoot on the negative side of the time axis than its initial positive-going rise, something I haven't seen before when both units appear to have the same polarity.

Repeating this measurement over a $\pm 15^\circ$ lateral window and averaging the resultant FFT-derived responses gives the curve shown in fig. 2. The midband and treble are reasonably smooth, though too much energy is present in the top audio octave. With the grille on, a significant suckout between 4 and 7kHz appears in this response, although the top-octave peak is then reduced in level. Fig. 2 also shows the nearfield response of the woofer, this 6dB down at 48Hz, not taking the contribution of the port into account.

At the listening position (fig. 3, where the effect of LF standing-waves in the room has been minimized by spatial averaging), these quasi-anechoic measurements translate to a

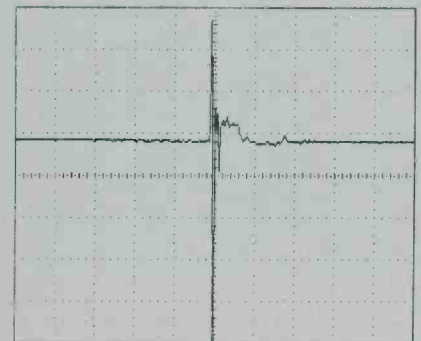


Fig. 1 Paradigm Control Monitor, impulse response (5ms window)

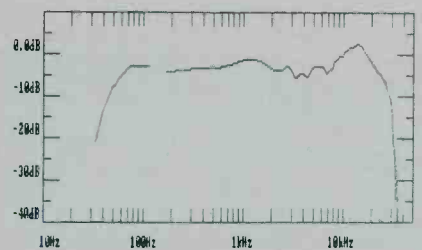


Fig. 2 Paradigm Control Monitor, FFT anechoic response, averaged across 30° lateral window, with nearfield woofer response

² A bound edition reprinting Dr. Toole's earlier papers is available for \$3.75 (US) including postage from the National Research Council, Division of Physics, Ottawa, Ontario K1A 0R6, Canada. These are essential reading for anyone seriously interested in loudspeaker design and testing.

*Prices have changed.

MANUFACTURERS' COMMENTS

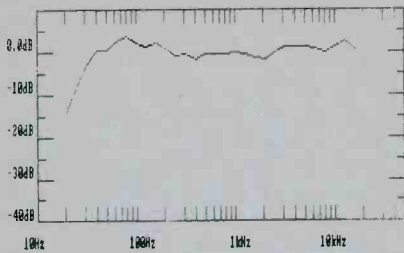


Fig. 3 Paradigm Control Monitor, 1/3-octave, spatially averaged in-room response

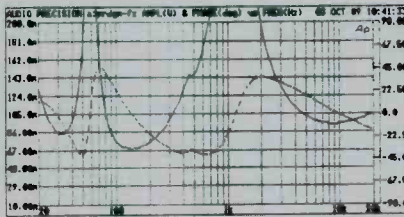


Fig. 4 Paradigm Control Monitor, modulus of impedance (1.9 ohms/vertical div, plotted from 1 to 20 ohms)

balance with an excess of upper-bass energy, though there is useful output down to 30Hz at moderate listening levels. The midrange and treble balance is again very smooth, though a slight energy lack around the crossover region is followed by what is too much tweeter energy. Personally, I would have gone for a slightly less sensitive tweeter setting on the calibration control. I am sure that this tweeter balance, coupled, again, with a slight peak centered on the 12.5kHz 1/3-octave band, correlates with the "somewhat cold" subjective balance noted.

The Control Monitor's impedance (fig. 4, plotted with a scaling of 1.9 ohms/vertical division) drops to a minimum of 6.8 ohms in the upper bass and 9 ohms in the treble, suggesting that the speaker will present no drive problems to inexpensive amplifiers. The dimple in the impedance amplitude and phase curves at 460Hz is also present when just the woofer is measured; it is probably due to a resonance of some sort—remember that I noted a strong cabinet sidewall mode in this region—and might correlate with the subjective "thickening" in the midband.

Conclusion: As implied in the introduction to this review, Paradigm has continued the value-for-money tradition that I noted in my review of their 5se. The Control Monitor owner gets a well-balanced design that, while not achieving greatness in any one area of performance, offers an excellent balance of virtues at its price level. The only region I was bothered by was the upper bass, which I found to be too loose overall, particularly when the speaker is single-wired, and the sound became rather congested at high playback levels. I am obliged, however, to point out that my personal taste tends toward a tighter, more damped bass alignment, the Celestion SL700 being typical. Before you spend \$1000 or more on a pair of loudspeakers, it may well be worthwhile your taking a listen to these Paradigms. Recommended.

Paradigm Control Monitor

Editor:

We are very pleased with JA's review of the Paradigm Control Monitor. It again confirms what many others have quickly discovered: that Paradigm offers excellent performance that is consistently "higher than usual at their products' price points."

It is apparent that JA found the Control Monitor to be a very high-quality, musical speaker system. Midrange neutrality is the hallmark of any great design, and having the Control Monitor pass the difficult midrange neutrality tests, such as naturally recorded piano, with "flying colors" is no easy feat. This industry is littered with failed attempts at the seemingly simple task of designing a speaker to achieve this goal. Midrange neutrality is the prerequisite for musical performance. With it, the music—both instruments and voice—has fidelity and sounds correct. Without it, no matter what other interesting things a speaker might do, the listener is simply not really convinced of the speaker's musical abilities. For many years now, *Stereophile* has told readers of the importance of midrange neutrality. The work of Dr. Floyd Toole at the NRC also clearly shows common listener preference for speakers with neutral midrange.

The work of the NRC has also shown that system-balance preference, above and below the critical midrange, tends to be more room- and listener-dependent, but it still falls within a relatively narrow measurement "window." This means that some listeners preferred a slight gradually rising response above the midrange and others a slight gradually dropping response, so long as the nature of the response was smooth through a wide dispersion area. Below the midrange, there was also varying listener preference—but still within a relatively narrow measurement "window." Some pre-

ferred a somewhat leaner low-frequency balance, others a somewhat richer low-frequency balance. In addition to the low-frequency performance of the speaker system itself, the listening room can play havoc with actual low-frequency performance realized. I have personally been in hundreds of listening rooms with Paradigm speakers around the country and have heard them (actually the room, of course) sometimes sound somewhat rich and at other times somewhat lean. Experimenting with placement and perhaps incorporating some acoustic treatment of the room will help to achieve very impressive results with the Control Monitor.

In addition to midrange neutrality and excellent system balance, our dealers have consistently praised the Control Monitor for its soundstage imaging characteristics. Along with very good dimensional presentation, localization of instruments and voice is precise and unambiguous, as JA discovered. This is also difficult to achieve, and speaks highly of the competence of the design.

But in the end, the truly remarkable thing about the Control Monitor is its exceptional value. As with other Paradigm models, the Control Monitor is consistently compared to much more expensive products. Here is a true audiophile-quality speaker at a price where many people thought they simply had to settle for less.

Paradigm speakers are completely designed by Paradigm. Co-engineered tweeters are carefully selected and matched with Paradigm precision crossovers to Paradigm diecast-chassis woofers. Production is reference-matched to $\pm 1/4$ dB. This level of control ensures that Paradigm loudspeakers will sound consistent and accurate for many years of listening pleasure.

W. A. VanderMarel

Director of Sales & Marketing, AudioStream

music . . . above all.

Stereo Review

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TEST REPORTS



PARADIGM EXPORT MONITOR

Julian Hirsch, Hirsch-Houck Laboratories

THE Canadian-made Paradigm Export Monitor is a moderately sized two-way speaker system with an 8-inch woofer and a 1-inch soft-dome tweeter. The woofer, which operates in a vented enclosure, is assembled on a die-cast aluminium chassis and has a mineral-filled copolymer polypropylene cone, a Kapton high-temperature plastic voice-coil former and a butyl surround.

The tweeter, which takes over at 2,000 Hz, has a laminated-textile dome and a high temperature ferrofluid-cooled voice coil on an aluminium former. The crossover from the woofer is a fourth order 24-dB-per-octave quasi-Butterworth type, using the natural rolloff of the woofer's response to augment the inductive and capacitive elements of the crossover network.

According to the manufacturer, every production unit of the Export Monitor is matched to a reference system within 0.25 dB (it is not clear whether this figure refers to the system's frequency response or its sensitivity). The cabinet is made of composite fiberboard with Medite front and rear baffles for improved overall damping and higher stiffness. The woofer is located at the center of the front baffle, with its port below and the tweeter above. The black cloth grille is retained by plastic snaps. The cabinet is covered with oak, walnut or black-ash veneer on all surfaces except the front speaker board.

The multiway binding-post connectors, separate for the tweeter and woofer, are recessed into the rear panel of the cabinet. The two sets of terminals are normally joined by jumpers, but the Export Monitor can be operated as a biwired or biampified system by removing the jumpers. In any case, the individual crossovers (for tweeter and woofer) are always present between the amplifier and the drivers.

The system's specifications include an on-axis frequency response of 55 to 20,000 Hz ± 2 dB, sensitivity of 88.5 dB, and a nominal impedance of 8 ohms. The cabinet measures 24 inches high, 10 3/4 inches wide and 14 inches deep, and each speaker weighs 33 pounds. The Export Monitor is designed to be operated on matching stands away from any walls, and for best results the tweeters should be approximately at the listeners ear level.

Lab Tests

Lacking the matching Paradigm stands, we used other availa-

"IT'S OVERALL WELL-BALANCED, UNIFIED SOUND WAS WHAT WE WOULD EXPECT, BUT DO NOT ALWAYS HEAR, FROM ANY SPEAKER IN THIS PRICE RANGE."

ble speaker stands to bring the tweeters nearly to the ear height of a seated listener. The room response of the speakers was impressively flat, within ± 2 dB from 200 to 20,000 Hz. The output rose slightly at lower frequencies to a maximum of about 5 dB between 50 and 70 Hz in the composite curve, which was constructed by joining a close-miked woofer measurement to the averaged room response of the two speakers, corrected at high frequencies for the room-absorption characteristics. The overall composite response was an excellent ± 4 dB from 20 to 20,000 Hz (the upper measurement limit was in this test).

"The room response of the speakers was impressively flat..."

"The overall sound quality... was characterized by balance and clarity."

"The common speaker aberration of an emphasized upper-bass response, which gives male-voices a tubby, unnatural quality, was notably absent..."

"...there was no obvious sign of an emphasis or lack of response in any other part of the audible range"

"natural-sounding... exceptionally smooth and extended..."

The quasi-anechoic FFT response plots from our IQS analysis system confirmed the uniformity of the output of the Paradigm speaker. On-axis, the output was flat within ± 3 dB from 180 to 30,000 Hz. The response measured 45 degrees off-axis curve did not diverge significantly from the on-axis curve at frequencies below 8,000 to 10,000 Hz, indicating good horizontal dispersion.

The success of Paradigm's efforts to preserve phase coherence over the audio range was demonstrated by the system's group-delay variation, which was less than ± 0.2 millisecond in the overall tweeter range from 2,000 to 28,000 Hz and much better than that, about ± 0.02 ms, from 10,000 to 20,000 Hz.

The system's impedance reached its minimum of 6.2 ohms from 110 to 140 Hz and its maximum of 35 ohms at 1,200 Hz. The sensitivity was 88 dB sound-pressure level (SPL) at 1 meter with a pink-noise input of 2.83 volts. With a drive level of 3.5 volts (equivalent to a 90-dB SPL), the woofer distortion was 3 to 4 percent from 60 to 100 Hz. The effective crossover to the port was at about 50 Hz, where the distortion was 2 percent, increasing to 5 percent at 30 Hz.

The Export Monitor was able to handle very large peak inputs without distortion or damage. At 100 Hz, the woofer cone began to rattle with a single-cycle input of 500 watts into its 6.5 ohm-impedance. At 1,000 Hz, still in the woofers operating range, the amplifier clipped at 242 watts into its 31-ohm impedance before any distortion was audible.

Comments

The overall sound quality of the Paradigm Export Monitor Speaker was characterized by balance and clarity. The common speaker aberration of an emphasized upper-bass response, which gives male-voices a tubby, unnatural quality, was notably absent, and there was no obvious sign of an emphasis or lack of response in any other part of the audible range.

Comparisons with other speakers on hand revealed what appeared to be a slight crispness in the Export Monitors' upper-midrange and treble output. When we checked our response measurements on the other speakers, it was apparent that their high-frequency output either sloped off gently or was shelved at a lower level than the woofers' maximum output. If the overall response of the other speakers was assumed to be "correct," the Paradigm's sound could be considered slightly bright. But it would be equally justifiable to accept the response of the Export Monitor as "flat," in which case the other speakers could be judged as soft sounding or perhaps somewhat lacking in high-frequency output.

This situation points up the virtually unsolvable problem of determining objectively what is the ideal speaker response. We found the Paradigm's sound to be distinctly different from that of our previously favored speakers, though it was at least as enjoyable, and after a brief period of listening to it, the other speakers seemed a trifle dull sounding! This dichotomy between the perceived sound characters of two different speakers is one of the more fascinating aspects of loud speaker performance, and since either type of response may be preferred by different listeners, or by the same listener for different program material, it is not advisable to be too dogmatic about the "correctness" of one or the other.

The Paradigm Export Monitor was a very smooth, natural-sounding speaker with good, if not exceptional, imaging properties. Its low bass performance was at least adequate, and the middle and high ranges were exceptionally smooth and extended. Its overall well-balanced, unified sound was what we would expect, but do not always hear, from any speaker in this price range.

Manufacturers Comments:

Thank-you for a very favourable review of the Paradigm Export Monitor. We are pleased with both the measured and listening results of your test. It is apparent that you found the Export Monitor to be a high quality musical performer. Paradigm has established an excellent record of providing balanced musical loudspeakers and your review again bears this out.

Concerning your question about reference matching, each Export Monitor is anechoically measured and calibrated to our design reference Export Monitor to $\pm 1/4$ dB for both frequency response and sensitivity.

With regard to the point made about high frequency balance the review leads to a rather interesting turn around. At first the comment is made about a "slight crispness" in the overall balance. However, after "a brief period of listening [to the Export Monitor], the other speakers seemed a trifle dull sounding!". This is indeed consistent with our findings. Paradigm provides a balance that is extended and smooth, thereby preserving the air and ambience of the original music performance.

The imaging properties of the Export Monitor are also quite noteworthy. The design objective was not to create special effects or odd illusions, but rather to accurately portray a listening window to the music with a front stage and each instrument(s) and voice(s) properly located in this acoustic space. Under reasonable conditions the Export Monitor will provide very good soundstaging and image localization. Under optimal conditions, set-up as outlined in the owners manual, the Export Monitor provides a stunning transparent soundstage.

Paradigm speakers are completely designed by Paradigm. Co-engineered tweeters are carefully selected and matched with Paradigm precision crossovers to Paradigm woofers. Production consistency is matched to $\pm 1/4$ dB. This level of control ensures that Paradigm loudspeakers will sound consistent and accurate for many years of listening pleasure.

W.A. VanderMaer, AudioStream

SON HI-FI VIDEO®

(TRANSLATED FROM ORIGINAL FRENCH. REPRINTED WITH PERMISSION)

The Studio Monitor is a very voluminous speaker system. With an interior volume of 95 litres it is, by a long margin, one of the largest speaker systems we've listened to in recent times. And even before opening it to examine it, we knew already that this thing wasn't exactly made of cardboard. At 41 kg. each, setting them up was no picnic!

Construction

The enclosure of the Studio Monitor measures 108cm high by 29cm wide and 42cm deep. It is, most assuredly, a floor standing speaker system. The manufacturer furnishes for this purpose very massive floor spikes for placement on carpets, and rubber feet for placement directly on a hard surface. The designers of the Studio Monitor wanted to keep the front panel of the enclosure as narrow as possible to assure optimal dispersion and integration with the home environment.

This large system is fabricated entirely of MDF 19mm thick. All exterior surfaces are clad in wood veneer. Our samples were veneered in American Walnut, but two other finishes are available at the same price: Oak and Black Ash. The interior of the cabinet is extensively reinforced with three cutout sections of MDF which brace the four panels just where they need it most, that is to say, behind the bass drivers. As well, the fibre cylinder which serves as a midrange enclosure completely traverses the cabinet from the front baffle to the rear panel, for exceptional rigidity. The interior of the cabinet is damped by a type of fibre, very soft to the touch, called "co-spun" by Paradigm. This material vaguely resembles "Toflex", which was popular a few years ago. It is a low density material which, according to the manufacturer's claim, offers good absorbent properties without reducing bass frequencies.

Three pairs of terminal posts (5-way type) are mounted on a board on the rear of the cabinet, and allow use in mono-, bi- or tri-wiring or -amplifying modes.

Component Description

The Studio Monitor is a four speaker three-way system, port-loaded. Two 210mm units share the task of reproducing bass frequencies. Coupled to these bass units is a port 10cm in diameter by 21cm deep which furnishes a quantity of energy that is far from negligible. We are in the presence of a true bass-reflex design where the port actually serves to generate part of the bass frequency energy and not just to damp the system; and as we shall see further along, this is audible!

These two fine drivers are built into a cast-aluminum chassis. The cones are made of copolymer polypropylene, mineral filled. The voice coil is wound on an aluminum/nomex former and the magnetic energy is furnished by an 1120gm barium ferrite magnet. The midrange driver is very similar technically to the bass units. Its diameter of 165mm makes it a relatively large transducer for a driver devoted to mid-frequencies. The highs are handled by a 26mm textile dome mounted on a high-temperature voice coil former. It is further cooled with ferrofluid.

The crossover of a 3-way system is always difficult to produce. In addition, it is rare to find a manufacturer who offers a good 3-way system at a reasonable price,



Speaker REVIEW

Paradigm Studio Monitor

When your name is Paradigm and you name your latest offspring "Studio Monitor" the speaker you are offering must be exemplary, worthy of being a reference. Let's see if these descriptions are adequate!

"WE REPEATEDLY HAVE TO ASK HOW PARADIGM IS ABLE TO OFFER A SYSTEM OF THIS BUILD QUALITY THAT POSSESSES SUCH HIGH CLASS SOUND QUALITY FOR SUCH A LOW PRICE."

because of the higher costs of materials and the added production complexity. Paradigm, however, decided to

"With an efficiency of more than 91db/w/meter and power handling beyond reproach, Paradigm seems to have done what it takes to offer an exceptional speaker system..."

"...truly well controlled and firm bass, with no degradation... the midrange is very open..."

"All of the materials used in manufacture are of exceptional quality... the musical presentation is also of very high calibre..."

"With a combination of elements like very wide bandwidth, high power handling and dynamic range of the first order, combined with an open and detailed sound quality, the Paradigm Studio Monitor could represent one of those rare, economical solutions for high quality sound reproduction in larger listening rooms."

attack the problem head-on by building a most elaborate filter for their Studio Monitor. It is assembled onto three different boards, occupying a good portion of

the rear panel of the enclosure. An enormous inductor wound with 12 gauge wire is situated near the port, far from the other crossover boards to reduce the risk of electromagnetic interference. The other components, numbering twenty in total, are assembled on the other two boards. The inductors are mainly air-core and capacitors are mylar.

Listening

The Studio Monitors are just as imposing for listening as they are in appearance and in testing. With an efficiency of more than 91dB/W/meter and power handling beyond reproach, Paradigm seems to have done what it takes to offer an exceptional speaker system... right from the first listen, we were convinced that we were dealing with a great speaker which demands great spaces to really stretch out into. In our medium-sized listening room, the lows were omnipresent, even after experimenting to find the most ideal coupling placement. But, close-mic measurement of the Studio Monitor showed a very broad yet neutral amplitude/frequency response, and since this balance is generally even, the speaker is not the cause of the bass prominence. When listening, even though the lows were very present, one does not perceive fatness nor mushiness. What we heard was truly well controlled and firm bass, with no degradation if it were not for the limited size of our listening room. The midrange is very open throughout except perhaps for the upper mids which we found a bit too forward.

Putting ourselves in the role of owner we repeatedly have to ask how Paradigm is able to offer a system of this build quality that possesses such high class sound quality for such a low price. All of the materials used in manufacture are of exceptional quality, (except perhaps the crossover capacitors) and this alone would justify a much higher selling price. The musical presentation is also of very high calibre, and even if they do not quite raise themselves to the level of certain esoteric references in terms of finesse of musical textures and depth of image, they are so much less expensive that considering their lower price brings things into a much fairer perspective.

With a combination of elements like very wide bandwidth, high power handling and dynamic range of the first order, combined with an open and detailed sound quality, the Paradigm Studio Monitor could represent one of those rare, economical solutions for high quality sound reproduction in larger listening rooms. *Elles risquent de devenir rapidement des monstres... sacres!* (these speakers are at risk of rapidly turning into monsters... astounding and divine monsters!).

MIX

Paradigm Studio Monitor

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THE RECORDING INDUSTRY MAGAZINE

THE FAST LANE

by Stephen St. Croix

First of all, I want you to realize that I realize what a dangerous thing I am doing in writing this month's column. I have chosen to deviate from my normal, dry, technically dense, information-packed tutorial column format to try something completely different.

Let us say for a moment that you are a writer, and you wish to get into the maximum amount of trouble in the minimum amount of time, with the largest number of people. The way I see it, there are three surefire ways to do this: 1) evaluate, compare and critique the spouses of all your friends and associates; 2) do the same for microphones; 3) do it for speakers.

These are all pretty much guaranteed to shake it up, for the simple reason that taste is involved. Whatever you say, a significant percentage of your readers will disagree. You simply can't win.

With all this in mind, I choose... let's see now, the wheel is still spinning...it's, it's...speakers! Oh, nooooo. Well, at least I'll still be able to go out to dinner with my married friends (but probably not the ones with speakers).

The Setup

I will not be covering 7-foot-tall electrostatics, nor will I use valuable ink on Auratones or NS-10Ms, though we have (in our distant, secret pasts) all used valuable dollars on at least one of these systems. I will not discuss conventional studio monitors. I will not even be presenting an organized comparison, nor review at all, actually. But you regular readers sort of knew that, didn't you?

I will, however, share some observations with you. About three weeks ago, a project brought me back to the film-mixing world. I found that I needed updated monitoring for a new Denon Dolby Pro Logic surround system that had been installed recently. This project included large spaceships, which I felt would require very large engines if they were to be able to get out of their own way. I figured that large engines like this would generate some pretty serious low-frequency stuff. This extended low-frequency information should be felt.

Keeping in mind that the end user is more and more likely to hear today's film tracks not only in the movie theater, but at home sometime later on a monster system, contemporary low-frequency special effects not only have to be loud, but they must also be tight, clean and solid. No more boom box and one-note bass. The paying customer is beginning to expect to hear the difference in the gut-shaking sound of the engine in our space cruiser, the bad guy's cruiser, an earthquake and low E on an electric bass. Picky, picky, picky.

While our main studio is well-equipped for this (built-in, flush mounted Meyer 833s crossed out at 70 Hz, with the very bottom handled by 32 subwoofers fed with over 2 kilowatts, in a full-wave 20 Hz room), the auditioning theater was not. I wanted this room to be a comfortable environment that represented the potential of the new consumer Pro Logic Dolby sur-

round sound technologies. Along with all of the assumed speaker attributes, I wanted a well defined, solid, extended bottom for those special times (when those 70 teraton interstellar cruisers fly over at 60 feet).

"After switching to this speaker in the showroom, what happened was so dramatic I actually accused the salesman of having rigged a different power amp to this one set of speakers. It turned out that he did not, and, after running to the car to get the almost-forgotten music CDs, I tested for real audio, found them most agreeable..."

"Everyone keeps looking around the room for the subwoofers... The subwoofers have been taken out, no longer needed."

"Oh yes, the speaker? The Paradigm Studio Monitor..."

I did not want to re-create my studio environment, and I wanted to limit to non-built-in systems. Further, I wanted to use speakers of realistic size and cost - speakers that might actually be placed on either side of a \$3,000 to \$4,000 consumer large screen. Refrigerators were inappropriate for this room. After some looking, I chose the new tower format. This, I thought, would get the mid- and high-frequency drivers up high enough to clear low-lying interfering objects such as furniture, cats and people.

I was now forced to do something I truly dislike: shop. Comparison shop for floor-standing theater towers with salespeople. I never said this would be a pretty column. I went shopping every evening for 16 days. Not a single speaker could do the job. It was dismal, depressing and fatiguing.

As my quest continued, I found my initial open-mindedness turning to dogged pursuit of the one thing that none of the new, hot, small footprint towers were delivering - bottom. My bag-o'-CDs was staying in the car, and I began to walk into each store armed solely with my Prosonus Studio Reference Disc. I would go straight for the house reference CD player, tear out whatever hyped-up demo disc the salespeople

loved, throw in the SRD, start with track 12 (250 Hz), and end up on track 7 (31.05 Hz).

It mattered not that the staff of each store would go home that night with tales of a crazed techno-nerd with test tones. It meant nothing that standing waves in unplanned, uncontrolled, unpredictable rooms could radically skew my test results. None of this really applied, because none of the speakers could deliver track 7 anyway! None!

Absolutely amazing. I had no idea that the state of consumer mid- and high-end speakers was as it is. I tried all of the tall-format speakers under \$1,000 (and then under \$2,000) that I could find.

Every one could do 50 Hz. Most were even pretty clean, if a bit loose. All of them loved 62.5 Hz. Big surprise. Then I tried the dreaded track 7. This is what happened. Two famous speakers merely doubled and gave me a rather dirty 62 Hz. Ick! Three gasped and breathed, but emitted no perceivable acoustic energy at all below approximately 1 kHz. These speakers had claimed frequency responses of 22 to 28 Hz! How can these manufacturers lie like that?

One emitted scraping, buzzing sounds. One emitted fiberglass. One emitted snoko. Two blew up (it is unlikely that I will be invited back to the store where that happened). One popped a fuse. Two were civilized and gracefully declined to deliver, making no offensive extraneous noises. These were not bad, but not good.

The Lowdown

But wait! Finally one did stand and deliver! Real bass came out and got all over me. After switching to this speaker in the showroom, what happened was so dramatic I actually accused the salesman of having rigged a different power amp to this one set of speakers.

It turned out that he did not, and, after running to the car to get the almost-forgotten music CDs, I tested for real audio, found them most agreeable, and then rushed home to call the manufacturer to find out what was going on with the low end.

Well, after an hour's talk, it became apparent that this speaker did, in fact, work. It is actually rated at a respectable SPL at 27 Hz at an astounding 9% distortion. Two 8-inch drivers do this with speed and definition that impressed me. Great care had been taken to select, align and match components to get the job done properly.

For my surround sound application, these black oak towers are perfect as the front primaries. Everyone keeps looking around the room for the subwoofers every time that Buckaroo Bonzai, Darth Vader or even Captain Picard flies over. The subwoofers have been taken out, no longer needed.

Oh yes, the speaker? The Paradigm Studio Monitor from Canada. I have discovered the wonders of well-controlled, 8-inch, low-frequency drivers as opposed to my old (now previous) 15-inch theater system. Much more present. Tight. These speakers have brought the fun back to surround sound video for me. I need these.

P E R F O R M A N C E S E R I E S

	3se-mini	3se	5se	7se	9se	11se MkII
Design	2 driver, 2-way bass reflex, critically tuned resistive port.	2 driver, 2-way bass reflex, critically tuned resistive port.	2 driver, 2-way bass reflex, critically tuned resistive port.	2 driver, 2-way bass reflex, critically tuned resistive port.	3 driver, 2-way bass reflex, critically tuned resistive port.	3 driver, 2-way bass reflex, quasi-3rd order resistive port.
Frequency Range (DIN 45 500)	45Hz - 24kHz	45Hz - 24kHz	38Hz - 24kHz	31.5Hz - 24kHz	38Hz - 24kHz	33Hz - 24kHz
Frequency Response	65Hz - 20kHz ±2dB at 0° 65Hz - 15kHz ±2dB at 30°	65Hz - 20kHz ±2dB at 0° 65Hz - 15kHz ±2dB at 30°	60Hz - 20kHz ±2dB at 0° 60Hz - 15kHz ±2dB at 30°	60Hz - 20kHz ±2dB at 0° 60Hz - 15kHz ±2dB at 30°	60Hz - 20kHz ±2dB at 0° 60Hz - 15kHz ±2dB at 30°	55Hz - 20kHz ±2dB at 0° 55Hz - 15kHz ±2dB at 30°
Sensitivity-Room/Anechoic	88dB/85dB	91dB/88dB	90dB/87dB	91dB/88dB	95dB/92dB	93dB/90dB
Dynamic Power Range**	15-80 watts/10% maximum clipping	15-100 watts/10% maximum clipping	15-100 watts/10% maximum clipping	15-100 watts/10% maximum clipping	10-150 watts/10% maximum clipping	15-160 watts/10% maximum clipping
Nominal/Minimum Impedance	8 ohms/5 ohms	8 ohms/6 ohms	8 ohms/6 ohms	8 ohms/6 ohms	6 ohms/4 ohms	8 ohms/4 ohms
Bass/Midrange Drive Unit(s)	165mm long-throw, polyamide cone with high compliance suspension, 25mm high-temperature voice coil on an aluminum former. High-pressure diecast aluminum chassis, 350gm barium ferrite magnet.	210mm long-throw, polypropylene cone. High hysteresis ABS butyl surround, 25mm high-temperature multi-layer voice coil on an aluminum former. High-pressure diecast aluminum chassis, 350gm barium ferrite magnet.	210mm long-throw, polypropylene cone. High hysteresis ABS butyl surround, 25mm high-temperature multi-layer voice coil on an aluminum former. High-pressure diecast aluminum chassis, 350gm barium ferrite magnet.	210mm long-throw, polypropylene cone. High hysteresis ABS butyl surround, 25mm high-temperature multi-layer voice coil on an aluminum former. High-pressure diecast aluminum chassis, 560gm barium ferrite magnet.	2x210mm long-throw, polypropylene cone. High hysteresis ABS butyl surround, 25mm high-temperature multi-layer voice-coil on an aluminum former. High-pressure diecast aluminum chassis, 560gm barium ferrite magnets.	2x210mm mineral-filled co-polymer polypropylene cone with a high hysteresis progressively damped polyimide surround, 25mm vented high-temperature multi-layer voice-coil on a specially ventilated aluminum/kapton former. Low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis, 560gm barium ferrite magnets.
High Frequency Drive Unit	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide-dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.
Dividing Networks	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response.	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response.	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy.	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy.	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy.	Phase-corrected multi-element design using high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy.
Crossover	2nd order electro/acoustic at 3.0kHz	2nd order electro/acoustic at 2.5kHz	2nd order electro/acoustic at 2.5kHz	3rd order electro/acoustic at 2.3kHz	3rd order electro/acoustic at 2kHz	3rd order electro/acoustic at 1.8kHz
Internal Volume	12.5 litres.	23 litres.	25 litres.	32 litres.	50 litres.	74 litres.
Recommended Placement	The use of speaker stands is strongly recommended. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is strongly recommended. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is strongly recommended. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is strongly recommended. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is strongly recommended. Refer to owners manual or see your Paradigm dealer for recommendations.	Comes complete with spiked isolation plinth. Refer to owners manual or see your Paradigm dealer for recommendations.
Finish	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.	Scratch-resistant 0.25mm vinyl veneer in natural walnut or black ash.

M O N I T O R S E R I E S

	Compact Monitor	Control Monitor	Export Monitor	Studio Monitor
Design	2 driver, 2-way bass reflex, quasi-3rd order resistive port.	2 driver, 2-way bass reflex, quasi-3rd order resistive port.	2 driver, 2-way bass reflex, quasi-3rd order resistive port.	4 driver, 3-way bass reflex, quasi-3rd order resistive port.
Frequency Range (DIN 45 500)	40Hz - 24kHz	39Hz - 24kHz	27.5Hz - 24kHz	27.5Hz - 24kHz
Frequency Response	55Hz - 20kHz ±2dB at 0° 55Hz - 15kHz ±2dB at 30°	55Hz - 20kHz ±2dB at 0° 55Hz - 15kHz ±2dB at 30°	55Hz - 20kHz ±2dB at 0° 55Hz - 15kHz ±2dB at 30°	43Hz - 20kHz ±2dB at 0° 43Hz - 15kHz ±2dB at 30°
Sensitivity-Room/Anechoic	88dB/85dB	90dB/87dB	88.5dB/85.5dB	91.5dB/88.5dB
Dynamic Power Range**	15-80 watts/10% maximum clipping	15-100 watts/10% maximum clipping	15-100 watts/10% maximum clipping	15-200 watts/10% maximum clipping
Nominal/Minimum Impedance	6 ohms/4 ohms	8 ohms/6 ohms	8 ohms/6 ohms	6 ohms/4 ohms
Bass Drive Unit(s)	165mm mineral-filled laminated co-polymer polypropylene cone. High hysteresis progressively-damped polyimide surround, 25mm high-temperature multi-layer voice-coil on a kapton former. Low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis with a 350gm barium ferrite magnet.	210mm mineral-filled laminated co-polymer polypropylene cone. High hysteresis progressively-damped polyimide surround, 25mm high-temperature multi-layer voice-coil on a kapton former. Low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis with a 560gm barium ferrite magnet.	210mm mineral-filled laminated co-polymer polypropylene cone. High hysteresis progressively-damped polyimide surround, 25mm high-temperature multi-layer voice-coil on a kapton former. Low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis with a 560gm barium ferrite magnet.	2x210mm mineral-filled co-polymer polypropylene cone. High hysteresis progressively-damped polyimide surround, 25mm vented high-temperature multi-layer voice-coil on an aluminum/nomex former. Ultra low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis with a 1120gm barium ferrite magnet.
Midrange Drive Unit				165mm mineral-filled co-polymer polypropylene cone. High hysteresis progressively-damped polyimide surround, 25mm vented high-temperature multi-layer voice-coil on an aluminum/nomex former. Ultra low distortion symmetrically focused-field magnetic assembly. High-pressure diecast aluminum chassis, 1120gm barium ferrite magnet.
High Frequency Drive Unit	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.	Proprietary 26mm radiating element with high-temperature voice-coil on an aluminum former. Maximally flat wide dispersion design with less than 0.3gm of moving mass. Ferro-fluid damped and cooled, 280gm magnet. Replaceable diaphragm.
Dividing Networks	Individually calibrated, phase-corrected multi-element design with high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy. Bi-wireable and Bi-ampable (see owners manual for details).	Individually calibrated, phase-corrected multi-element design with high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy. Bi-wireable and Bi-ampable (see owners manual for details).	Individually calibrated, phase-corrected multi-element design with high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy. Bi-wireable and Bi-ampable (see owners manual for details).	Individually calibrated, phase-corrected multi-element design with high power components in quasi-Butterworth configurations for maximally flat response. Air/ferrite core inductors and mylar capacitors are used to ensure optimum accuracy. Tri-wireable and Tri-ampable (see owners manual for details).
Bass/Midrange Crossover	3rd order electro/acoustic at 2kHz	3rd order electro/acoustic at 2kHz	4th order electro/acoustic at 2kHz	2nd order electro/acoustic at 500Hz
Mid/High Frequency Crossover	3rd order electro/acoustic at 2kHz. Factory calibrated within ±0.25dB of design reference.	3rd order electro/acoustic at 2kHz. Factory calibrated within ±0.25dB of design reference.	4th order electro/acoustic at 2kHz. Factory calibrated within ±0.25dB of design reference.	4th order electro/acoustic at 2.1kHz. Factory calibrated within ±0.25dB of design reference.
Recommended Placement	The use of speaker stands is strongly suggested. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is required. Refer to owners manual or see your Paradigm dealer for recommendations.	The use of speaker stands is required. Refer to owners manual or see your Paradigm dealer for recommendations.	Comes complete with spiked feet. Refer to owners manual or see your Paradigm dealer for recommendations.
Finish	Wood Veneer in Natural Oak, Natural American Walnut or Black Ash.	Wood Veneer in Natural Oak, Natural American Walnut or Black Ash.	Wood Veneer in Natural Oak, Natural American Walnut or Black Ash.	Wood Veneer in Natural Oak, Natural American Walnut or Black Ash.

** Power range indicated is dependant on clipping distortion not exceeding 10% at any power level.

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SA-11



SA-9



SA-4

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BETWEEN
THE
MUSIC
AND
YOU**

PREAMP SYSTEM DEFINES THE ART Counterpoint SA-11 Line Amplifier

Counterpoint was the first company to manufacture a "phono-less" line control amplifier. So it's no wonder that the SA-11 Line Amplifier and its companion SA-9 Phono Equalizer—the two components that compose the Counterpoint SA-11/9 Preamplification System—are so consummate in musicality that they redefine the art. Termed by one audio reviewer, "the finest sounding line amplifier in the galaxy," a look inside the SA-11 reveals design engineering with a vengeance: modern, fully-regulated vacuum tube circuitry driven by a triple-regulated 250 watt vacuum tube power supply! And at last, the convenience of wireless remote control is integrated with the tactile accuracy of a true listener's component. Listen to convincingly vivid midranges. Listen to soundstaging so eerily dimensional that loudspeakers melt into invisibility. Listen to the reproduction of music's dynamic gradations from the quiet, sharp, "ting" of a triangle, to the visceral and all-encompassing "wallop" of a bass drum. In addition, the SA-11 is also an audio enthusiast's dream: it can be used to easily A/B—by remote control—any two audio components with each other, while using its own superb direct or buffered output stages, or even its built-in straight wire passive bypass. No other line stage or preamp wears the three hats of performance, versatility, and comparative test facilitator so preeminently.

SA-11 Specifications

Frequency Resp.: 0.8Hz–230kHz
Harmonic/IM. Distortion: <.008%
Signal to Noise Ratio: 88dB
Gain: 15/7dB
Input impedance: 30k ohms
Output impedance: 60 ohms
Dimensions:
19" × 6.7" × 20" (WHD)

OUR FINAL WORD ON ANALOG Counterpoint SA-9 Phono Equalizer

The Counterpoint SA-9 Phono Equalizer comprises the other half of the SA-11/9 Preamplification System. During this "twilight era" of the vinyl LP, one company had the guts to design the definitive Phono Preamplifier, resulting in a component that will bring great joy to the analog buff, and allow entire LP collections to be discovered anew. The SA-9 utilizes vacuum tubes, FET's, and bipolars transistors throughout its fully regulated dual mono design. An innovative two port cascode topology allows the SA-9 to support two turntables, without signal switching in the circuit path. Wide, precise control over varying phono impedances, and compatibility with cartridge output levels complements the SA-9's FET-given ability to accept virtually any MM or MC cartridge, noiselessly. The SA-9 combines cohesiveness, clarity, and an absence of artificial sonic "texture" with a big, easy quality to the reproduction of instrumental timbre and attack. Oh yes, although we use CD's most of the time, we should tell you that comparing a good analog LP through the SA-9 versus the same CD recording through today's finest CD equipment demonstrates a solid victory for the analog format: the SA-9/LP combination clearly reproduces the ambient dimensional sound of the hall's actual space. . . a space that is simply missing on the digital versions. Honest.

SA-9 Specifications

Frequency Resp.: 1Hz–180kHz
Harmonic/IM. Distortion: <.1%
Signal to Noise Ratio: 89dB
MC/MM Gain: 75/55dB
Output impedance: 720 ohms
MC Input impedance: Adjustable
Dimensions:
19" × 4.46" × 14.50" (WHD)

OTL/OCL MONO- BLOCKS SET TRANSPARENCY STANDARD Counterpoint SA-4 Monoblock Amplifier

Counterpoint's SA-4 Amplifiers are output transformerless (OTL) and output capacitorless (OCL) direct-drive vacuum tube monoblocks. The SA-4's are designed for the uncompromising few who believe that the most important attribute a power amplifier may possess is sonic purity. Whether your loudspeakers are electrostatic, horn designs, or today's more sophisticated dynamic monitors, our third generation SA-4 Monoblocks remain the standard for amplifier transparency. The 140 watts per channel from these magnificent amplifiers can best be described as the complete absence of an electrical amplification device's "sound?" leaving only the music. Midrange clarity has never been so lucid, so free from hardness or grain. Soundstaging increases in all three dimensions, while music's expression of dynamic contrasts possesses an uncanny sense of drama. Accurate low frequency performance—due to response that extends to DC—guarantees bass reproduction real in visceral impact, subterranean extension and definition. Servo protection circuitry saves both amplifier and loudspeaker should a potentially damaging condition occur. The Counterpoint SA-4's are a definitive statement about what great reproduction of music is all about, and remain today's "gold standard" of power amplifiers.

SA-4 Specifications

140 watts, 8 ohm load
200 watts, 16 ohm load
Frequency Resp.: 0.8Hz–100kHz
Harmonic/IM. Distortion: <.5%
Signal to Noise Ratio: 92dB
Gain: 30dB
Input impedance: 100k ohms
Output impedance: 0.3 ohm
Dimensions:
19" × 6.7" × 19" (WHD)

OUR BEST PREAMPLIFIER Counterpoint SA-5000 Preamplifier



SA-5000



SA-3000



SA-2000



SA-220

Since the SA-11/9—a three chassis preamplification system—is expressly reserved for the obsessed, Counterpoint's real "top of the line" control center is the SA-5000. It's all here: warm transparency, astounding dynamics and spectacularly beautiful imaging. Counterpoint's finest preamplifier utilizes the "New Generation" hybrid technology of vacuum tubes, FETS, and bipolar transistors, combining the best performance from all devices. The SA-5000 offers Counterpoint's exclusive separate vacuum tube power supply, a passport to musical dimensions of astonishing truth and definition. Clarity reaches new levels because blurring from active room environments is eliminated by an effective 3-point suspended circuit board. Phono versatility is definitive, offering accommodation of nearly all MM and MC cartridge types; and line amplification is performed by Counterpoint's quintessential realization of hybrid technology. From user control of absolute signal polarity to your choice of vacuum tube direct or solid state buffered main outputs, the SA-5000's functions actually increase musical performance! The Counterpoint SA-5000 is an electrified object that embodies a strain of musical soul. We invite you to audition the new reference preamplifier for the 1990's today.

SA-5000 Specifications

Frequency Resp.: 2Hz-300kHz
Harmonic/IM. Distortion: <.007%
Signal to Noise Ratio: 90dB
Gain (MC): 83dB
Output Level: 40V
Dimensions:
 19" x 4.46" x 12.68" (WHD)

PREAMP HIGH PERFORMANCE BEGINS HERE... Counterpoint SA-3000 Preamplifier

If you're looking for the best value in our "New Generation" hybrid preamplifiers, consider the Counterpoint SA-3000. For pure ability to recreate a live musical event, compare the SA-3000 to any competitor's "top of the line" unit. Like the SA-5000, the SA-3000's definitive phono circuit will accommodate virtually any MC or MM cartridge; and line-level control uses Counterpoint's superb hybrid active technology. Ultra wide frequency response, and low double zero distortion are accomplished without circuit feedback. The SA-3000 combines a warm transparent midrange with extended and defined bass and trebles. But that's not all: thunderous dynamic gradations are guaranteed by a radical power supply regulator design utilizing a proprietary MOSFET topology. Finally, speaking of its ability to recreate the magic of three dimensionality, the SA-3000 was described by one reviewer as a "mean ambience retrieval machine," surpassing the soundstaging of any of the other preamps he'd listened to. But if you don't need phono circuitry, read on...

SA-3000 Specifications

Frequency Resp.: 2Hz-300kHz
Harmonic/IM. Distortion: < .0095%
Signal to Noise Ratio: 83dB
Gain (MC): 83dB
Input impedance (line): 30k ohms
Output impedance: 760 ohms
Dimensions:
19" x 4.46" x 12.68" (WHD)

...AND CONTINUES HERE, SANS PHONO Counterpoint SA-2000 Line Amplifier

Everything said above about the SA-3000 Preamplifier applies equally to the SA-2000 Line Amplifier, because the SA-2000 is an implementation of the same technology. That's why the incredible musicality of our world-famous SA-3000/SA-5000 preamplifiers comes standard in the full-featured SA-2000. All we left out is the phono stage. Again, sonically compare the new SA-2000 to any "top of the line" preamplifier while playing your favorite music, and feel your jaw drop. You'll immediately recognize the SA-2000's musical heritage by the simple, amazing lack of sonic colorations. Add to this mix warm see-through midranges, and thunderous musical dynamics. Today's multi-media lifestyle is acknowledged by eight source inputs, including dual tape-to-tape dubbing. But after everything is said about the SA-2000, the staff of Counterpoint would like mention that, more so than any of our products, the SA-2000 proves that the very best musical performance is now available for more people than ever before.

SA-2000 Specifications

Frequency Resp.: 2Hz-300kHz
Harmonic/IM. Distortion: < .0095%
Signal to Noise Ratio: 88dB
Gain: 25dB
Input impedance (line): 20k ohms
Output impedance: 760 ohms
Dimensions:
19" x 4.46" x 12.68" (WHD)

It's been said that the textbook perfect amplifier would possess infinite input impedance, vanishingly small output impedance, extremely wide frequency bandwidth and zero distortion throughout. To this, Counterpoint—whose engineers have been involved in hybrid technology since 1977—would like to add a conservative 220 watts per channel at 8 ohms, and over 700 watts per channel at 1 ohm! Endowed with a massive 1kVA transformer, the SA-220 is capable of delivering more than 50 amps of peak current, enough to meet any musical demands. Tubes and MOSFET's share a hybrid partnership of performance and longevity, realizing the music lover's dream of a power amplifier that may be a "final purchase." A true listener's component, the SA-220 is superb in its warm, see-through clarity, natural timbres, explosive dynamics, and wondrous soundstaging. Even difficult to drive loudspeakers—regardless of wattage or current requirements—will not disturb the SA-220's faithfulness to the music. Indeed, the amplifier's APC™ protection circuit makes the SA-220 bullet proof against even an intentional short circuit. Still need something better? Try two SA-220's, flick a switch and you have a 600 watt monoblock!

SA-220 Specifications

220 watts per channel, 8 ohms
730 watts per channel, 1 ohm
Frequency Resp.: 1.2Hz-200kHz
Harmonic/IM. Distortion: < 0.5%
Signal to Noise Ratio: 84dB
Gain: 30dB
Input impedance: 100k ohms
Output impedance: 0.12 ohm
Dimensions:
19" x 6.7" x 19" (WHD)

FULL FEATURED HYBRID ENTRY POINT Counterpoint SA-1000 Preamplifier

SA-1000

The Counterpoint SA-1000 dispels the myth that only stratospherically priced audio separates offer quality and performance. Just as in the more expensive Counterpoint preamplifiers, the SA-1000 uses Noble potentiometers, custom IAR/TRT capacitors and precision Roderstein metal film resistors. And just like its richer relatives, the SA-1000's vacuum tube/FET hybrid chassis contains a high performance MC/MM-capable vacuum tube phono stage along with our renowned hybrid line stage. Here, the tube is enhanced by a low distortion MOSFET, allowing it to drive even long cables and assuring compatibility with nearly all power amplifiers. As advanced as the SA-1000's design is, of more importance is the sheer openness and ease of its musical reproduction. Auditioning the SA-1000—despite its affordability—proves that some discern real quality regardless of price. Let the Counterpoint SA-1000 be your doorway to the emotion and grandeur that is music.

SA-100

Solid 8

SA-1000 Specifications

Frequency Resp.: 2Hz-170kHz
 Harmonic/IM Distortion: < .06%
 Signal to Noise Ratio: 83dB
 Gain (MC): 70dB
 Input impedance (line): 30k ohms
 Output impedance: 2.3k ohms
 Dimensions:
 19" x 4.46" x 12.68" (WHD)

Solid 1

YOU CAN'T BUY BETTER SOUND

Counterpoint SA-100 Power Amplifier

Clarity. Definition. Dynamics. Three dimensionality. Musical warmth. These are terms used to describe a superior amplifier. Here's the good news: you don't have to mortgage your house to own one. You can own the Counterpoint SA-100 (100 high current watts per channel, 3db of headroom) and find out for yourself what these words mean. Vacuum tube and solid state MOSFET'S combine in synergistic partnership to create hybrid circuitry which offers the best of both. One conservative British publication found that an early version of the SA-100 put out 800 peak watts per channel into a 2 ohm load, and 40 amps peak output current! Another reviewer ranked it #1, first place, and best sound in a survey of 12 amplifiers, and yet it was the least expensive in the survey! It all comes down to the fact that you can spend a lot more for a different amp than the SA-100, but within its power range you cannot buy better sound. We cordially invite you to audition the product which redefines the price/performance ratio of power amplifiers.

SA-100 Specifications

100 watts per channel, 8 ohms
170 watts per channel, 4 ohms
Frequency Resp.: 5Hz-100kHz
Harmonic/IM. Distortion: <.3%
Signal to Noise Ratio: 80dB
Gain: 30dB
Input impedance: 100k ohms
Output impedance: 0.9 ohm
Dimensions:
19" x 4.4" x 12.6" (WHD)

CONTROL STAGE VALUE REDEFINED

Counterpoint Solid 8 Line Amplifier

Counterpoint's first solid state product, designed and handcrafted in California, is very special. The Counterpoint Solid 8 Line Level Control Amplifier was designed to bring Counterpoint performance—and Counterpoint pride of ownership—to a larger group of music enthusiasts. Like the SA-2000, the Solid 8 is a line amplifier for CD-based systems, and contains no phono stage. Built entirely of discrete components (no IC's in the signal path!), it features full Class-A operation, and differential FET/bipolar cascode topology. This means that as much as possible of the true dimensionality of vacuum tubes has been designed into this unit. Fully complementary circuitry and direct coupling insure superlative bass with no phase shift, and surprising recreation of ambient space and imaging. In short, the Solid 8 is a full-fledged Counterpoint component, an auspicious solid state debut that makes Counterpoint the only high end manufacturer that designs and manufactures solid state, vacuum tube, and hybrid audio components.

Solid 8 Specifications

Frequency Resp.: 1Hz-500kHz
Harmonic/IM. Distortion: <.05%
Signal to Noise Ratio: 95dB
Gain: 24dB
Input impedance: 30k ohms
Output impedance: 110 ohms
Output Level: 12 volts
Dimensions:
19" x 4.45" x 12.68" (WHD)

OUR FIRST SOLID STATE AMPLIFIER

Counterpoint Solid 1 Power Amplifier

It's easy to build truly exceptional "cost no object" power amplifiers, but good design really reveals itself when a superlative amplifier, costing little more than a good receiver, emerges from the pack. Given our preference for warm, vacuum tube musicality, Counterpoint's first solid state amplifier had to be, well, something special. The Solid 1 delivers 100 high current watts at 8 ohms. And because it's a Counterpoint, you'll hear familiar attributes like transparency, dynamics, and three dimensionality. Based upon FET and bipolar cascode technology, the Solid 1 uses both differential and complementary topologies to reduce signal nonlinearities. And the output stage is a reliable, low distortion bipolar design. Direct-coupling is used throughout in combination with fully-regulated low level stages to guarantee accurate reproduction of frequency extremes. Potentially speaker-damaging DC offset is eliminated by a sophisticated DC servo. Never before has an introductory-level product offered this much musical verity. One listen to the Solid 1 reveals a pedigree every bit a Counterpoint...one destined to bring the gift of music to more people than ever before.

Solid 1 Specifications

100 watts per channel, 8 ohms
170 watts per channel, 4 ohms
Frequency Resp.: 1Hz-500kHz
Harmonic/IM. Distortion: <.05%
Signal to Noise Ratio: 95dB
Gain: 30dB
Input impedance: 100k ohms
Current Output: 25 amps peak to peak
Dimensions:
19" x 4.4" x 10.6" (WHD)

COUNTERPOINT (NO-CHARGE/ NO OBLIGATION) PROFESSIONAL STEREO SYSTEM EVALUATION.

**SIMPLY FILL OUT THE FOLLOWING FORM AND YOU
WILL BE MAILED A PROFESSIONAL EVALUATION
OF YOUR STEREO SYSTEM, FROM AN AUTHORIZED
COUNTERPOINT REPRESENTATIVE.**

I own:

Preamp/Line Amp _____	Reel/Reel _____
MC Headamp _____	DAT _____
Power Amp _____	Loudspeakers _____
CD Player _____	Intercon. Cable _____
D/A Converter _____	Speaker Wire _____
Turntable _____	AC Line Process. _____
Tonearm _____	Audio process. _____
Cartridge _____	VCR _____
FM Tuner _____	Video Disk Player _____
Cassette Deck _____	TV/Video Monitor _____

PLEASE RATE ON A SCALE OF 1 (POOR) TO 10 (SUPERB) THE SOUND
OF YOUR SYSTEM.

Clarity/Transparency 1 2 3 4 5 6 7 8 9 10
Comments: _____

Soundstaging/Dimensionality 1 2 3 4 5 6 7 8 9 10
Comments: _____

Dynamic Range 1 2 3 4 5 6 7 8 9 10
Comments: _____

Please describe room acoustics (dimensions, "live" or "dead") _____

I like my stereo system's performance in the areas of _____

I don't like my stereo system's performance in the areas of _____

I've purchased in the last year _____

I plan to purchase in the next year _____

The best stereo system I've ever heard consisted of _____

I am:
Name _____
Address _____
City _____
State _____ Zip _____
Phone 1 _____
Phone 2/Fax _____



COUNTERPOINT



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BETWEEN
THE
MUSIC
AND
YOU

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1-800-266-9090 ext. 103

Enter No. 35 on Reader Service Card

Carver for 1990

Powerful

Musical

Accurate



CARVER

- **Magnetic Field Power Amplifier Technology** enables our amplifiers to deliver more current, more power and more voltage than competitively-priced designs while dealing with demanding, variable speaker impedances. While many amplifier designs claim "low impedance capability", their output voltage or current suffers in the process since all three specifications are interactive. Carver Magnetic Field Amplifiers are capable of delivering both high voltage and high current simultaneously into modern speaker designs which can swing as low as two ohms in certain frequency ranges.

Carver's patented power supply system is a fully regulated design normally used only in esoteric aerospace electronic instrumentation. It accesses more of each AC line voltage cycle and can draw 200% more current than conventional designs. With dynamic switching between three power "rails" depending on demand, and a distributed capacitance system with extremely high energy storage capabilities, Magnetic Field amplifiers can deliver up to 500% more current during musical peaks. At impressive power outputs and into a wide range of both resistive and reactive speaker loads.

- **Transfer Function Technology.** The "T" in Magnetic Field Power Amplifier model numbers signifies the t-modification process which Bob

Carver has perfected over the last two decades. A process which can give you many of the sonic characteristics of our \$17,500 Silver Seven tube amplifier in solid state designs costing a fraction as much. Every amplifier design exhibits a unique relationship between its input and output signals. Like human fingerprints, this transfer function is distinct, defining much of the sonic character of the design.

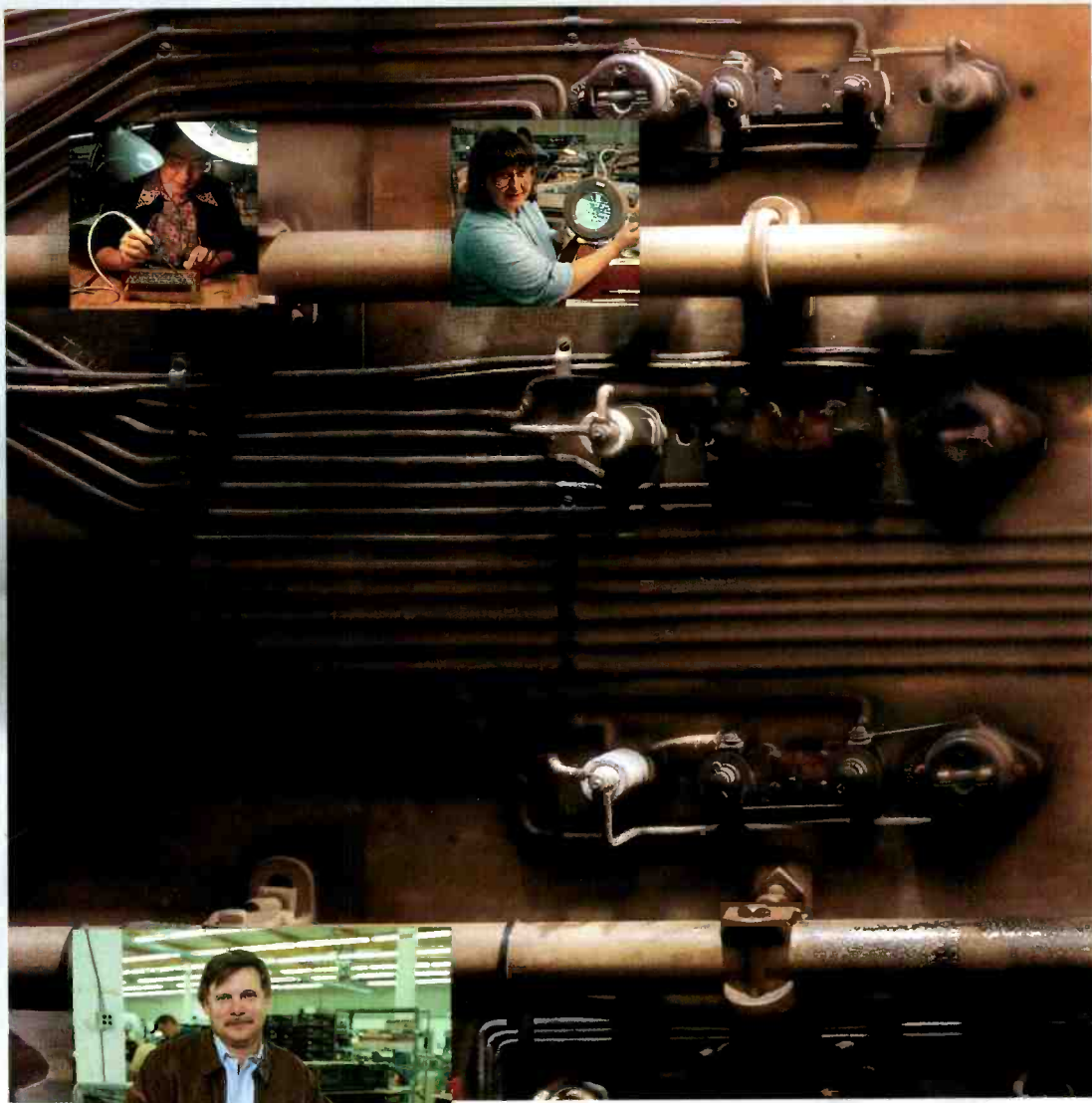
Bob has perfected the art of precisely measuring an ultra-expensive, esoteric amplifier's transfer function, and then closely duplicating it in a different amplifier design! This process is not magic and cannot turn a low quality design into an audiophile power amplifier. In fact, the amplifier being "t-modified" must, in many ways, be the equal of the design whose transfer function is being replicated. Only after these parameters are met, does Bob Carver apply his t-mod wizardry to give you a warm, natural — and eminently affordable — sound.

- **Sonic Holography® and Sonic Holography®-A/VP** technologies recreate sound the way nature intended us to hear it. By definition, conventional stereo cannot. During a live performance, each ear hears just one sound arrival from a sonic event. At home, each ear receives two sound



Carver Corporation is one of the largest consumer audio manufacturers left in the United States. We employ over 300 people at our 75,000 square-foot facility in Lynnwood, Washington, just north of Seattle. All products are designed by Bob Carver and our team of dedicated electronic engineers, and all undergo rigorous quality control before shipment to our dealers across the nation.

Carver's exclusive technology and how it benefits you. When you consider the bewildering array of brands and models available today, it's easy to conclude that all audio equipment is pretty much alike. Unlike other companies, which have felt compelled to constantly release "me-too" products, Carver has deliberately set out to solve previously insoluble problems. Problems which can limit your musical enjoyment. Through painstaking research, innovative circuit engineering — and a deep love of music — we have produced totally new technologies which help our products stand out from the mass of electronics on your dealer's shelves.



Bob Carver, Chairman of The Board and Vice President of Advanced Research, is actively involved in the day-to-day development of Carver audio components. Physicist, circuit engineer, inventor and acknowledged expert on psychoacoustics, Bob provides the company with a single-minded innovative vision which is lacking in many conventional mass-technology audio manufacturers.

arrivals because both ears are exposed to both stereo speakers. Our brain's neural processing is confused; a collapsed sound field results. Sonic Holography[®] detects, analyzes and cancels spurious second sound arrivals, restoring the wide spacial sound field of a live performance. The performance seems to engulf the listener with a sound field that is higher, wider and deeper than the loudspeakers. Or, as one critic put it "...the effect strains credibility — had I not experienced it, I probably would not have believed it."

Our new Sonic Holography[®]-A/VP further enhances the multi-dimensional effect for home audio/video theater applications. A special Precognition circuit dynamically reacts to the amount of stereo and mono information in a movie soundtrack, expanding and narrowing the sound field to preserve dialog centering yet creating a spectacular, 3-dimensional sonic image which can be enjoyed by a whole room full of people. A Blend control is also provided on selected Carver components which allows the listener to freely adjust the amount of stereo information in any sound source.

• **Asymmetrical Charge-Coupled FM Detection Technology.**

Because FM stereo transmission is inherently prone to multipath interference, even the most "advanced" conventional tuner circuitry is forced to deal with a

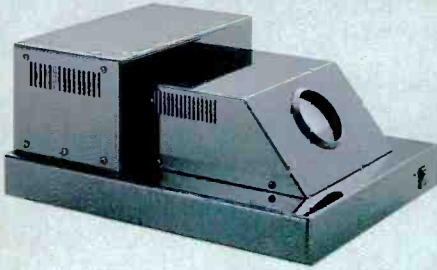
potentially flawed signal. Only Carver ACCD Tuner Circuitry is capable of restoring — literally transforming a multipath-ridden FM station into a clean, clear signal. It separates the FM signal's stereo (L-R) and mono (L+R) components, rejecting up to 80% of the fragile, distortion-filled stereo signal. The 15%-20% of the signal that's "clean" is used to accurately recreate the rest of the stereo signal. You hear quiet, clear FM with accurate frequency response, wide dynamics and ambient stereo information...even when a high portion of the L-R (stereo) FM signal is being ravaged by multi-path.

• **Digital Time Lens Technology.** A significant portion of analog-to-digital (AAD) compact disc releases exhibit audible differences when compared with well-mastered analog versions of the same recording. For various technical reasons, AAD discs often have 1) overall octave-to-octave energy balance shifted towards more midrange above 4kHz; 2) a significant reduction in the amount of L-R signal which provides crucial spacial information. Bob Carver's Digital Time Lens circuitry restores the spectral balance originally intended by the musician and recording engineer and restores ambient effects. The result is a warmer, more natural sound that places you in the same space with performers.



The Silver Seven. Considered by many critics and serious audiophiles to be the world's definitive reference power amplifier (reviews available upon request). \$17,500.00 per pair complete with granite base, separate power supply, hand-machined aluminum transformer end bells, Wonder Caps, Leitz wiring, pure silver solder and fifteen imported vacuum tubes per side.

Power Amplifiers



Silver Seven-t Mark II *Simultaneous High Current/High Voltage Monoblock Reference Magnetic Field Power Amplifier* Sets new standards for sonic quality and robust output at any impedance • Silver Seven Transfer Function Modified • 550 watts into 8 ohms, 20-20kHz with no more than 0.5% THD • 900 watts into 4 ohms, 20-20kHz with no more than 0.5% THD • 1000 watts into 2 ohms, 20-20kHz with no more than 0.5% THD • Lighted analog power meter • Shock-isolation mounting • Black finish • 2 required for stereo • Capable of high output into very low impedance loads for sustained periods. We invite you to send for a free White Paper explaining simultaneous high current and high voltage and its sonic benefits.



TFM-45 / TFM-42 *Simultaneous High Current/High Voltage Magnetic Field Power Amplifiers*

Our most powerful stereo amplifier designs with your choice of power output displays, the TFM-42 and TFM-45 can bring any speaker system under tight, authoritative control, yet with a warmth that rivals tube designs • Silver Seven Transfer Function Modified • 375 watts RMS/channel into 8 ohms, 20-20kHz with no more than 0.5% THD • 500 watts RMS/channel into 4 ohms, 20-20kHz with no more than 0.5% THD • 1000 watts bridged mono • TFM-45 features analog power meters; TFM-42 employs a "ladder" LED display with clipping light



TFM-25 / TFM-22 *Simultaneous High Current/High Voltage Magnetic Field Power Amplifiers*

Eminently affordable and yet astonishingly powerful, the TFM-22 and TFM-25 are designed to drive many popular speaker designs whose overall impedance fluctuations can tax conventional amp designs • Silver Seven Transfer Function Modified • 225 watts RMS/channel into 8 ohms, 20-20kHz with no more than 0.5% THD • 350 watts RMS/channel into 4 ohms, 20-20kHz with no more than 0.5% THD • 600 watts bridged mono • TFM-25 features analog power meters; TFM-22 employs LED power overload/clipping indicators



TFM-15 *High Headroom/Low Feedback Stereo Power Amplifier*

Silver Seven Transfer Function Modified • 100 watts RMS/channel into 8 ohms, 20-20kHz with no more than 0.1% THD, 140 watts RMS/channel into 4 ohms, 20-20kHz with no more than 0.1% THD, 200 watts dynamic power into 2 ohms • Dual analog meters with level selection • A/B speaker switching • L/R input level controls



AV-Sixty Four *3/4-Channel Special Applications Magnetic Field Power Amplifier*

• Designed for surround sound, multi-room and satellite/subwoofer use • Built-in 2-wy. 18dB/octave electronic crossover w/75Hz turnover point • 60 watts, 4 channels driven into 8 ohms, 20-20kHz with no more than 0.5% • 100 W x 4 into 4 ohms, 20-20kHz with no more than 0.5% • 3-ch. operation: 180 W ch. 1/2 bridged 60Wx 2 ch. 3 & 4 output • Rear panel trim/balance controls

Integrated Amplifier



CM-1090 *Remote Control Sonic Holography® Integrated Amplifier with Transfer Function Modified Power Section*

• Silver Seven Transfer Function Modified • 100 watts/channel RMS into 8 ohms, 20-20kHz with no more than 0.1% THD • Analog power meters • 5 audio inputs • Motorized volume control • 3-band tone controls • Dual tape monitors w/dubbing • Pre/main outputs • Remote compatible w/Carver tuners and CD Players



Preamplifier/Tuners



CT-17 *Remote Control A/V Preamplifier/Tuner with Sonic Holography®, Dolby Pro Logic™ and ACCD*

• Dolby Pro Logic 5-channel surround sound processor • Variable Hall & Stadium ambience delay • Sonic Hologram Generator • 2 video inputs w/dubbing & TV monitor out • 5 audio inputs incl. CD direct • Full remote control including rear channel surround level • Motorized volume control • Asymmetrical Charge-Coupled FM Detector • 20 FM/AM presets w/preset scan, stereo/mono, auto/manual controls • Simulated stereo synthesis for mono video • 3-way tone controls • Dual tape monitors • High cut filter • Separate input/record selector & remote volume control for dual-zone room-to-room



CT-7 *Remote Control Preamplifier/Tuner with Sonic Holography® and ACCD • Sonic Hologram Generator*

• 6 audio inputs • 27-button wireless remote w/Carver CD player compatibility • Asymmetrical Charge-Coupled FM Detector • 16 FM/AM presets w/preset scan, stereo/mono, auto/manual controls • 3-way tone controls • Dual tape monitors w/dubbing • Mono button • Loudness equalization circuitry • Headphone monitor jack



CT-6 PRO-PHILE™ Series Ultra-thin Preamplifier/Tuner with Sonic Holography® and ACCD

• Just 1-3/4" tall (1 rack space) • 28-button remote control • 20 random AM/FM station presets • Asymmetrical Charge-Coupled FM circuitry • FM mono • Preset scan • Auto-scan/manual tuning • 3-level signal strength indicator • Sonic Hologram Generator • 4 audio inputs • 2 tape inputs w/dubbing • Bass/treble & loudness equalization • Balance control • Motorized volume control • 2 AC convenience outlets • Stereo headphone monitor jack



Preamplifiers



C-19 Hybrid Vacuum Tube/Solid State Reference Preamplifier

- 4 6DJ8 tubes in phono, tone & output stages • 5 inputs incl. MM phono, MC phono & CD Direct • L/R tone controls w/variable turnover points • Spectral Tilt tone control • 2 ext. processor loops • 2 tape loops w/dubbing • Headphone jack w/speaker defeat switch • Infrasonic filter • Stereo/mono switch • Absolute phase switch



C-16 Preamplifier with Sonic Holography®

- 5 audio inputs incl. MM and MC phono • Sonic Hologram Generator with Blend Control • Individual L/R tone controls w/variable turnover • Spectral Tilt full range tone control • Dual external processor loops • Dual tape monitors w/dubbing • Headphone output w/speaker defeat switch



C-11 Preamplifier with Sonic Holography®-A/VP

- 5 audio inputs incl. MM and MC phono • Sonic Hologram Generator with audio/video Precognition circuitry • Individual L/R tone controls • Loudness equalization • Infrasonic filter • External processor loop • Dual tape monitors w/dubbing • Headphone output w/speaker defeat switch



C-5 PRO-PHILE™ Series Ultra-thin Dual-zone Preamplifier with Sonic Holography®

- Just 1-3/4" tall (1 rack space) • 33-button remote control • Dual-zone feature provides 2 different output signals simultaneously for remote room sound systems (2 independent sets of outputs) with 2nd system source selection and volume control on both remote and C-5 front panel • Mini-phone remote sensor input for infrared relay systems • Sonic Hologram Generator • 6 audio inputs • 2 tape inputs w/dubbing • Bass/treble & loudness equalization • Balance control • Motorized volume control • 2 AC convenience outlets • Stereo headphone monitor jack



Receivers



HR-772 Remote Control High-Power A/V Receiver with Sonic Holography® and ACCD

- Silver Seven Transfer Function Modified • 140 watts RMS/channel into 8 ohms 20-20kHz, both channel driven with no more than 0.1% THD • A/B speaker selection • 20 random AM/FM station presets • Asymmetrical Charge-Coupled FM circuitry • FM mono • Auto-scan/manual tuning • Signal strength indicator • Sonic Hologram Generator • 3 audio inputs • 2 video inputs • 1 video output • 2 tape inputs w/dubbing • Source Direct "straightwire" feature • 5-band rotary tone controls • Loudness equalization • Balance control • Motorized volume control • Pre-out sockets • Alpha-numeric source display • 2 convenience outlets • Headphone monitor jack • 27-button remote control



HR-752 Remote Control Sonic Holography®/ACCD Receiver

- Silver Seven Transfer Function Modified • 100 watts/channel RMS into 8 ohms, 20-20kHz with no more than 0.1% THD • 5 audio inputs • Sonic Hologram Generator • Asymmetrical Charge-Coupled FM Detection circuit • 20 FM/AM presets • Preset scan and auto/manual tuning • Motorized volume control • 3-band tone controls • Matrix surround sound synthesizer • Dual tape monitors w/dubbing • Pre/main outputs • Remote compatible with Carver single-play compact disc players



HR-722 Remote Control Sonic Holography®/ACCD Receiver

- Silver Seven Transfer Function Modified • 60 watts/channel RMS into 8 ohms, 20-20kHz with no more than 0.1% THD • 5 audio inputs • Sonic Hologram Generator • Asymmetrical Charge-Coupled FM Detection circuit • 20 FM/AM presets • Preset scan and auto/manual tuning • Motorized volume control • 3-band tone controls • Dual tape monitors w/dubbing • Remote compatible with Carver single-play compact disc players



Tuners



TX-11b Asymmetrical Charge-Coupled Detection FM + Stereo AM Tuner

- Ultra-High Performance Asymmetrical Charge-Coupled FM Detection circuit for dramatically reduced multipath and noise • 13 FM/AM presets • 3-week memory back-up • Preset scan • Auto/manual tuning • Wide/narrow FM band selection • New AM stereo circuitry • Full 20-15kHz frequency/-70dB noise in AM Stereo tuning mode • AM Gain and AM Noise Elimination circuits



TX-12 Remote Control Asymmetrical Charge-Coupled Detection FM/AM Tuner

- Advanced, logic-controlled Asymmetrical Charge-Coupled FM Detection circuit for dramatically reduced multipath and noise • 20 FM/AM presets • Preset scan • Auto/manual tuning • Stereo/mono switch • Analog signal strength meter • Dual antenna inputs • 28-button multi-function remote control



TX-10 Asymmetrical Charge-Coupled Detection FM/AM Tuner

- Asymmetrical Charge-Coupled FM Detection for dramatically reduced multipath and noise • 20 FM/AM presets • Auto/manual tuning • LED signal strength meter

Cassette Decks



TD-1200 Cassette Deck

- Dolby B/C • Dolby HX Pro for increased high frequency headroom • Adjustable bias • Adjustable tape equalization
- Adjustable play trim • MPX FM taping filter • Feather touch logic transport controls • Dual fluorescent meters • Peak LED meters • Metal tape capability



TD-1400 Remote Control Cassette Deck

- Dolby B/C • Dolby HX Pro • Adjustable bias • Adjustable tape EQ • Adjustable play trim • MPX FM taping filter • Feather touch logic transport controls • Dual analog meters with peak LED • 8-function remote control • Metal tape capability



TDR-1500 Auto-Reverse Remote Control Cassette Deck

- Quick-reverse optical sensor system • Dolby HX Pro • Dolby B/C NR • Adjustable bias • Dual fluorescent meters • Digital footage counter • High conductivity oxygen-free REC/PLAY head core
- MPX FM taping filter • Auto tape EQ select • Memory rewind and repeat • Feather touch logic transport controls • Headphone jack • 8-function wireless remote control



TD-1700 3-Head Dual-Capstan Remote Control Cassette Deck

- Closed loop dual capstan transport • Dolby HX Pro • Double Dolby B/C NR • Adjustable bias
- REC level fine tuning • Dual fluorescent meters • Digital footage counter • High conductivity oxygen-free REC/PLAY head cores • MPX FM taping filter • REC mute • Memory rewind and repeat
- Feather touch logic controls • Headphone jack • 8-function remote



TDR-2400 Double-Auto-Reverse Dubbing Cassette Deck

- Multi-function remote • Dual auto-reverse mechanisms • Continuous and relay play capability
- High speed dubbing • Dolby HX Pro • Dolby B/C NR • Dual peak-reading LED meters • REC mute • Digital footage counter • Music Search • MPX FM taping filter • Auto tape EQ select
- Memory rewind and repeat • Feather touch logic transport controls • Headphone jack • Stereo microphone input



DPL-33 Dolby Pro Logic Decoder/Special Processor/Amplifier

- (photo not available at time of brochure publication - call 1-800-CAVR for additional information) • Adds on to any stereo receiver, integrated amplifier or preamplifier/power amplifier combination via tape monitor or external processor loop
- Dolby Pro Logic decoding with Automatic Balance Adjustment • Provides 25 watts amplification for rear left, rear right and CENTER Dolby Pro Logic channels • "Hall" delay processing for spacious effect from non-Dolby-encoded sound sources • 2 delay settings • 24-LED array provides output display for front left, front right, center and surround channels
 - Rear, center and motorized master volume controls • Full remote control • Additional tape monitor loop



Platinum Edition Amazing Loudspeaker

- Available in natural oiled oak veneer or piano-lacquer black finishes • 60-inch full range ribbon driver • 4 specially-designed 12-inch long-excursion subwoofers • 23-40kHz frequency response +3dB
- 110 dBA maximum SPL • 750 watt power handling • 30" W x 66" H x 10" D

Amazing Loudspeaker Planar/Ribbon technology.

The Silver and Platinum Edition Amazing Loudspeakers are pure, uninterrupted line sources of proprietary ribbon drivers, edge-mounted in a specially shaped trapezoidal panel with a phalanx of state-of-the-art low mass subwoofer drivers delivering solid bass support. The infinitely detailed, electrostatic-like high end, pure midrange and sonorous high bass have a coherency and immediacy which is at once musical and yet totally transparent and uncolored. Yet at the same time a remarkable un-enclosed subwoofer system produces stunningly tight low bass — without a trace of the resonant boom normal enclosures can produce.



Silver Edition Amazing Loudspeaker

- Available in natural oiled oak veneer or piano-lacquer black finishes • 48-inch full range ribbon driver • 3 specially-designed 12-inch long-excursion subwoofers • 23-40kHz frequency response +3dB from reference level • 110 dBA maximum SPL • 600 watt power handling • 27-1/2" W x 54" H x 10" D

Compact Disc Players



TL-3300 18-Bit/8X Oversampling Remote Control DTL Compact Disc Player

- 352.8kHz 18-bit oversampling • Dual D/A converters • Digital Time Lens sound enhancement circuitry for improved tonal balance and ambience • 22-track programming • Search, repeat, skip, scan functions • Full-function random access remote control • Remote compatible with Carver Sonic Holography® Receivers



TL-3220 18-Bit/8X Oversampling Remote Control DTL Compact Disc Player

- 352.8kHz 16-bit oversampling • Dual D/A converters • Digital Time Lens sound enhancement circuitry • 32-track programming w/10-key front panel input • Random play • Delete programming • Intro scan • Search, repeat, skip, scan functions • Full-function, random access remote w/volume control • Remote compatible w/Carver Sonic Holography® Receivers



TL-3200 16-Bit/8X Oversampling Remote Control DTL Compact Disc Player

- 352.8kHz 16-bit oversampling • Dual D/A converters • Digital Time Lens sound enhancement circuitry • 32-track programming • Random play • Delete programming • Intro scan • Search, repeat, skip, scan functions • Full-function, random access remote w/volume control • Remote compatible w/Carver Sonic Holography® Receivers



TL-3100 16-Bit/4X Oversampling Remote Control DTL Compact Disc Player

- 176.4kHz 16-bit oversampling • Dual analog filters • Digital Time Lens sound enhancement circuitry • 22-track programming • Search, repeat, skip, scan functions • Full-function random access remote control • Remote compatible w/Carver Sonic Holography® Receivers



TLM-3600 Remote Control 10-CD Changer with 18-Bit/8X Oversampling and DTL

- Uses Carver TLM-10 pop-in magazines • 32-track random programming • Intro Scan • Random Play • 352.8kHz 18-bit oversampling • Dual D/A converters • Digital Time Lens sound enhancement circuitry • Search, repeat, skip, scan functions • Full-function random access remote control



Carver RemoteSystemLink™

lets you enjoy one stereo system all over your home. Any infrared remote controlled component in your main system can be activated from and enjoyed in any room. Since you don't need special stereo components, the system never becomes obsolete. Each RemoteSystemLink-equipped room features a wall-mounted infrared receiver with optional keypad (which fits in a standard switch or receptacle box) and a special power amplifier which can be mounted in a closet or cabinet. Use the remotes which came with your components along with a basic Carver RH-1 remote, or choose our convenient PRH-1 Universal Programmable Remote. Either way, RemoteSystemLink™ replaces complication with convenience. And you can even listen to a separate in-room source such as a portable CD player or VCR while other RemoteSystemLink™ zones enjoy a different musical program. Consult your Carver dealer for specifications and installation information.



PRH-1 Universal Remote Control learns up to 128 infrared remote functions • Labeled buttons for all common CD, VCR, TV, tape, tuner, receiver remote functions, Pro Logic Surround Sound plus special Carver features such as DTL and Hologram • Easy-to-understand "plain English" manual

MCT Mirror-Image Geometry Moving Coil Transformer allows use of MC cartridges with preamplifiers or receiver which only have MM phono inputs • Fully passive dual transformer design • Oxygen-free windings • Seamless mu metal shielding • Switchable impedance • 24dB gain

Z-1 Wide Band Speaker-To-Power-Amp Coupler converts receiver or integrated amp's speaker outputs to line level signal for power amplifier inputs. If it has speaker outputs, it can be used as a signal source to drive a powerful Carver Magnetic Field Amplifier



H-9AV Audio/Video Sonic Hologram Generator with Precognition Dynamic Video Sound Circuitry adds advanced, second-generation Sonic Holography®-AVP to any preamplifier, integrated amplifier or receiver w/tape monitor or external processor circuitry • Precognition circuitry for optimized video soundtrack Sonic Hologram Generation • Precognition level control • Vocal Zoom dialog processor • Additional L-R outputs for advanced multi-channel installations • Connects to any preamplifier/receiver/integrated amplifier tape monitor or external processor loop



ECS-U Electronic Speaker Control System A 5-way "tool kit" which can add significant flexibility to the sound of any speaker system • 5 sonic enhancement/adjustment circuits • Line level signal processor loop operation • Sonic Hologram Generator optimized for planar or reflecting type loudspeakers • Adjustable Sub-Bass restoration • Gundree Perspective presence circuit • Variable Bass "Q" adjustment • High frequency trim • Connects to any preamplifier/receiver/integrated amplifier tape monitor or external processor loop

Specifications

POWER AMPLIFIERS AND POWER AMP SECTIONS

	SS-t Mark II	TFM-45/TFM-42	TFM-25/TFM-22	TFM-15	AV-64	CM-1090	HR-772	HR-752	HR-722	DPL-33
8-ohm FTC rated power/ch.	555 W	375 W	225 W	100 W	60 Wx4	100 W	140 W	100 W	60 W	25 W/ch.
4-ohm FTC rated power/ch.	900 W	500 W	350 W	140 W	100 Wx4	150 W	150 W	150 W	90 W	—
2-ohm dynamic power/ch.	1000 W	560 W	560 W	200 W	40 Wx4	80 W	100 W	80 W	80 W	—
Bridged mono power	—	1000 W	600 W	—	180 W (ch.1)	—	—	—	—	—
4/8-ohm THD	0.5%	0.5%	0.5%	0.1%	0.15%	0.1%	0.1%	0.1%	0.1%	0.05%
Rated full power bandwidth	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz	20-20kHz
S/N-IHF A-Weighted, dB	>100	>100	>100	100	100	85	85	85	85	85
Dimensions (HxWxD, inches)	7x11.5x14.5	4.25x19x10.5	4.25x19x10.5	3.5x19x12	4.25x19x10.5	4.5x19x13	19x5.5x18	4.25x19x14.5	4.25x19x14.5	(see below)
Comments	Mono 2 required for stereo	Stereo	Stereo	Stereo operation	3/4 ch. operation w/ built-in crossover	Integrated stereo amplifier	Stereo receiver	Stereo receiver	Stereo receiver	Provides power for center & rear surround ch.'s

TUNERS AND TUNING SECTIONS

	TX-11B	TX-12	TX-10	CT-17	CT-7	CT-6	HR-772	HR-752	HR-722
IHF sensitivity mono/stereo, dBf	11.3/16.3	14.5/18.6	16.1/23.5	14.3/20.1	10.3/20.1	10.3/21.3	11.3/—	12.3/—	12.3/—
Capture ratio, dB	1.0	1.45	1.5	1.4	1.5	1.5	1.5	3.0	3.0
AM Suppression, dB	65	62	62	62	62	74	65	62	62
Alt. ch. selectivity, dB	35/90	60	58	72	72	72	72	72	72
Separation at 1kHz, dB	45	42	42	46	50	48	46	46	46
THD at 1kHz, stereo	0.05%	0.02%	0.2%	0.1%	0.02%	0.15%	0.15%	0.15%	0.15%
Maximum S/N, stereo, dB	85	76	74	78	78	72	70	78	78
Station presets	13	20	20	20	16	20	20	20	20
Dimensions (HxWxD, inches)	3.5x19x12.5	3x19x8	3x19x8	3.5x19x12.25	3.5x19x12.25	1.75x19x10	(see Amp section)	(see Amp section)	(see Amp section)
Comments	incl. AM stereo	remote control	—	preamp/tuner	preamp/tuner	preamp/tuner	receiver	receiver	receiver

PREAMPLIFIERS AND PREAMP SECTIONS

	C-19	C-16	C-11	CT-17	CT-7	C-5/CT-6	CM-1090	HR-772	HR-752	HR-722
Frequency response	1-60kHz +0, -3dB	1-60kHz +0, -3dB	1-60kHz +0, -3dB	20-20kHz ±1dB	20-20kHz ±1dB	20-20kHz ±1dB	20-20kHz ±1dB	20-20kHz ±1dB	20-20kHz ±1dB	20-20kHz ±1dB
Maximum output	7 V	7 V	6 V	7 V	7 V	8 V	—	—	—	—
Total Harmonic Distortion	0.07%	0.01%	0.04%	0.04%	0.01%	0.1%	(see Amps)	(see Amps)	(see Amps)	(see Amps)
S/N-IHF A-weighted	85	97	96	98	98	74	(see Amps)	(see Amps)	(see Amps)	(see Amps)
Phono sens. for 0.5V@1kHz	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	1.5	1.5
MM Phono Overload mV	100	135	100	100	100	100	100	150	100	100
Phono input capacitance pF	150	150	Selectable	150	150	150	150	150	150	150
MM S/N A-wtd. 0.5V ref.	86	100	100	100	100	78	78	85	78	78
MC S/N A-wtd. 0.5V ref.	82	89	86	—	—	—	—	—	—	—
Tone Controls	Indiv. L/R 2-band Spectral Tilt	Indiv. L/R 2-band Spectral Tilt	Indiv. L/R 2-band	3-band	3-band	3-band	3-band	5-band	3-band	3-band
Inputs	5 audio	5 audio	5 audio	2 video/5 audio	7 audio	5/6 audio	6 audio	2 video/5 audio	5 audio	5 audio
Dimensions (HxWxD, inches)	5x19x10	4.25x19x10	3.5x19x10	(See Tuners) Sonic	(See Tuners) Sonic	1.75x19x10 Sonic	(see Amps) Sonic	(see Amps) Sonic	(see Amps) Sonic	(see Amps) Sonic
Comments	6DJ8 tubes	Sonic Holography® in 3 stages	Holography® w/Blend	Holography® A/V/P	Holography® Dolby Pro Logic	Holography®	Holography®	Holography®	Holography®	Holography®

CASSETTE DECKS

	TD-1200	TD-1400	TDR-1500	TD-1700	TDR-2400
Frequency response w/best tape	30Hz-20kHz ±3dB	30Hz-20kHz ±3dB	20Hz-20kHz ±3dB	20Hz-20kHz ±3dB	20Hz-16kHz ±3dB
S/N w/best noise reduction	76	78	78	78	74
Noise reduction type	B/C/HX Pro	B/C/HX Pro	B/C/HX Pro	B/C/HX Pro	B/C/HX Pro
Wow & Flutter A-weighted	0.05%	0.05%	0.065%	0.035%	0.08%
Dimensions (HxWxD, inches)	4.5x19x11.5	4.5x19x11.5	4.8x19x11.5	4.5x19x11.5	5.25x19x11.5
Comments	—	Remote control Analog meters	Remote control Auto-reverse	Remote control 3-head	Remote auto-rev. Dolby B

ADD-ON ENHANCEMENTS

	H-9AV	ECS-U	DPL-33
Frequency response	1-60kHz +0 -3dB	5-80kHz +0, -3dB	1-60kHz +0 -3dB
Maximum output	4 V	4 V	—
Total Harmonic Distortion	0.05%	0.01%	0.05%
S/N-IHF A-weighted	90dB	0.08%	85dB
Dimensions (HxWxD, inches)	1.75x19x3.88	2.5x9x7	3x19x10
Comments	Sonic Holography® -A/N/P	Spkr. Ctl. Center Sonic Holography®	Dolby Pro Logic +amplification

COMPACT DISC PLAYERS

	TLM-3600	TL-3300	TL-3220	TL-3200	TL-3100
Decoding system	18-bit/8X	18-bit/8X	18-bit/8X	16-bit/8X	16-bit/4X
Output filtration	Analog	Analog	Analog	Analog	Analog
Frequency response	5Hz-20kHz ±1.2dB	5Hz-20kHz ±0.2dB	5Hz-20kHz ±0.2dB	5Hz-20kHz ±0.2dB	5Hz-20kHz ±0.2dB
S/N-IHF A-weighted	110	100	100	100	96
Total Harmonic Distortion	0.005%	0.002%	0.003%	0.003%	0.005%
Disc capacity	10	1	1	1	1
Programmable selections	32	22	32	32	20
Dimensions (HxWxD, inches)	4.25x19x13.25	3.5x19x12	3.5x19x12	3.5x19x12	3.5x19x10
Comments	Magazine loading DTL	DTL, 10-key on front panel	DTL, 10-key on front panel	DTL	DTL

Dolby, Dolby HX Pro and Dolby Pro Logic are registered trademarks of Dolby Licensing Corp.

Because Carver constantly strives to integrate new technologies, materials and manufacturing methods, all product specifications are subject to change without notice, although they will always meet or exceed published figures.

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About our power amplifier distortion specifications. Why aren't they as low as some other brands? Because Carver is concerned with sound quality, not "specmanship". Ultra-low Total Harmonic Distortion numbers are easy to create by using excessive negative feedback in amplifier circuitry. The result is an impressive THD figure, but often a harsh, brittle sound as well. Extensive psychoacoustic tests have established that even critical listeners cannot detect distortion under 2%. However, excessive negative feedback is very audible. It is interesting to further note that super-low THD is not a priority among audiophile amplifier designers. The world's finest (and most expensive) power amplifiers, including our own Silver Seven, have between 0.5% and 1% THD!

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CARVER

PO BOX 1237 LYNNWOOD, WA 98046 (206) 775-1200
Toll-Free Literature Line 1-800-443-CAVR



Now, music lovers with totally different tastes will enjoy something in common.



D. VONK

The Adcom GFB-800 Music Control Center.



A New Concept in Home Music Systems

Music is playing a more important part in most households. Just about everyone in the family loves

music, but not everyone loves the same music. Until now, the only way to satisfy different musical tastes in the same household was to share the family stereo or for each individual to have his or her own stereo system. Adcom has solved this dilemma with its GFB-800, an innovative new approach to a centralized, remotely controlled music system.

Now, with the Adcom GFB-800 Music Control Center, you have individual, remote control of up to five different audio sources (CD player, FM tuner,

cassette player, turntable [optional], digital audio tape) in two or more rooms.

Until the introduction of the GFB-800, other approaches to providing music throughout an entire home have had serious limitations in either sound quality or in operational features, or both. At the lower end of the market, glorified intercom systems have long been available which do nothing more than distribute a mediocre quality of "elevator" music throughout the home. At the higher end, several audio manufacturers have offered remotely controlled components which provide distribution of sound from the main system to other rooms. While some of these systems offer better sound quality, they are still limited in their ability to play different sources in different rooms. The Adcom GFB-800 Music Control Center, used with Adcom power amplifiers and remote sensors, delivers superior sound quality along with highly flexible system control in each room.

You Have Total Control In Every Room

Using the Adcom GFB-800 as a centralized control center fed by up to five different sound sources, each room has its own remote sensor, power amplifier and pair of loudspeakers. You can choose to use either one hand-held remote which you carry from room to room, or, for convenience, you may want an additional remote control transmitter for each room. Upon entering a room, you can turn on your GFB-800 Music Control Center regardless of where it is located in your home, and select your choice of all available sources.

You can then control any of the five sources as well as adjust the volume level in that room. This ability to select and control any source from any room is a truly innovative feature of the GFB-800 system which sets it apart from all other remote systems. For example, if you are using the

Adcom GCD-575 CD player

with your GFB-800, you may select and use any

of its basic functions as if you were in the same room with the GFB-800 and CD player. Likewise, you can tune up and down the FM dial or select specific

FM stations using Adcom's GFT-555 II tuner from anywhere in your home. And since the Adcom remote sensors have a

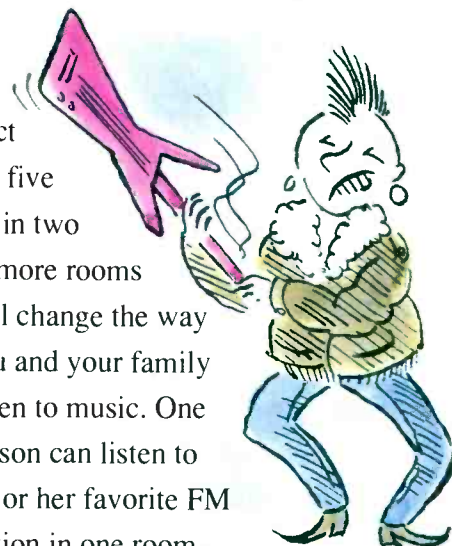
repeater system built in, almost any infrared remote component can be used and controlled within this system. A remotely controlled cassette tape deck, for example, can be used through this repeater system.



The easy-to-use Adcom Remote Control Transmitter can be taken from room to room, or a separate hand-held remote may be added for each room.

Multi-Room, Multi-Source

Having the power to individually select and control up to five different sources in two



or more rooms will change the way you and your family listen to music. One person can listen to his or her favorite FM station in one room, while another listens to a CD in a different room, and you may listen to a cassette tape in still another room. Each person can always adjust the listening level he or she selects in that particular room. Perhaps the greatest benefit of the Adcom GFB-800 is that it allows listeners in each area independent access to a superlative sound system, a broad choice of sources, and control over the volume at which it is played.

Add One Room At A Time

The GFB-800 is remarkably flexible and can be tailored to your individual needs because of its modular, plug-in design. Each GFB-800 comes with two plug-in "room boards" which allow distribution and system control in two separate rooms or areas.

You can add one or more rooms at a time by purchasing an additional plug-in room board, remote sensor, a power amplifier and a pair of loudspeakers for each room. For even greater convenience, you may also add a remote control transmitter for each room. This modular approach lets you install

fabulous sound (not just "elevator" music) throughout your home, room by room, as your requirements expand or as your budget allows.

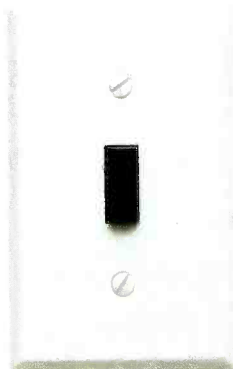
Large Scale, Daisy Chained Installations

Music systems designed around the Adcom GFB-800 are limited only by one's imagination, making it a perfect solution for very large scale residential or other specialized applications such as installations in restaurants, offices or classrooms.

The GFB-800s can be daisy-chained, meaning they can be hooked together to give you multiples of five different rooms or zones. Two GFB-800s with the appropriate room boards, remote sensors and power amplifiers can, for example, provide sound in 10 different rooms. Three GFB-800s can provide individually controlled music in 15 different rooms!



Imaginative use of speaker selectors could further extend the locations in which this system is able to play music to dozens of rooms or areas.



SPM-500 II: Inconspicuous remote sensor installed in the wall and it is no bigger than a typical light switch.



SR-500 II: Free standing, enclosed remote sensor in black enclosure to match other Adcom components.



Designing And Installing Your System

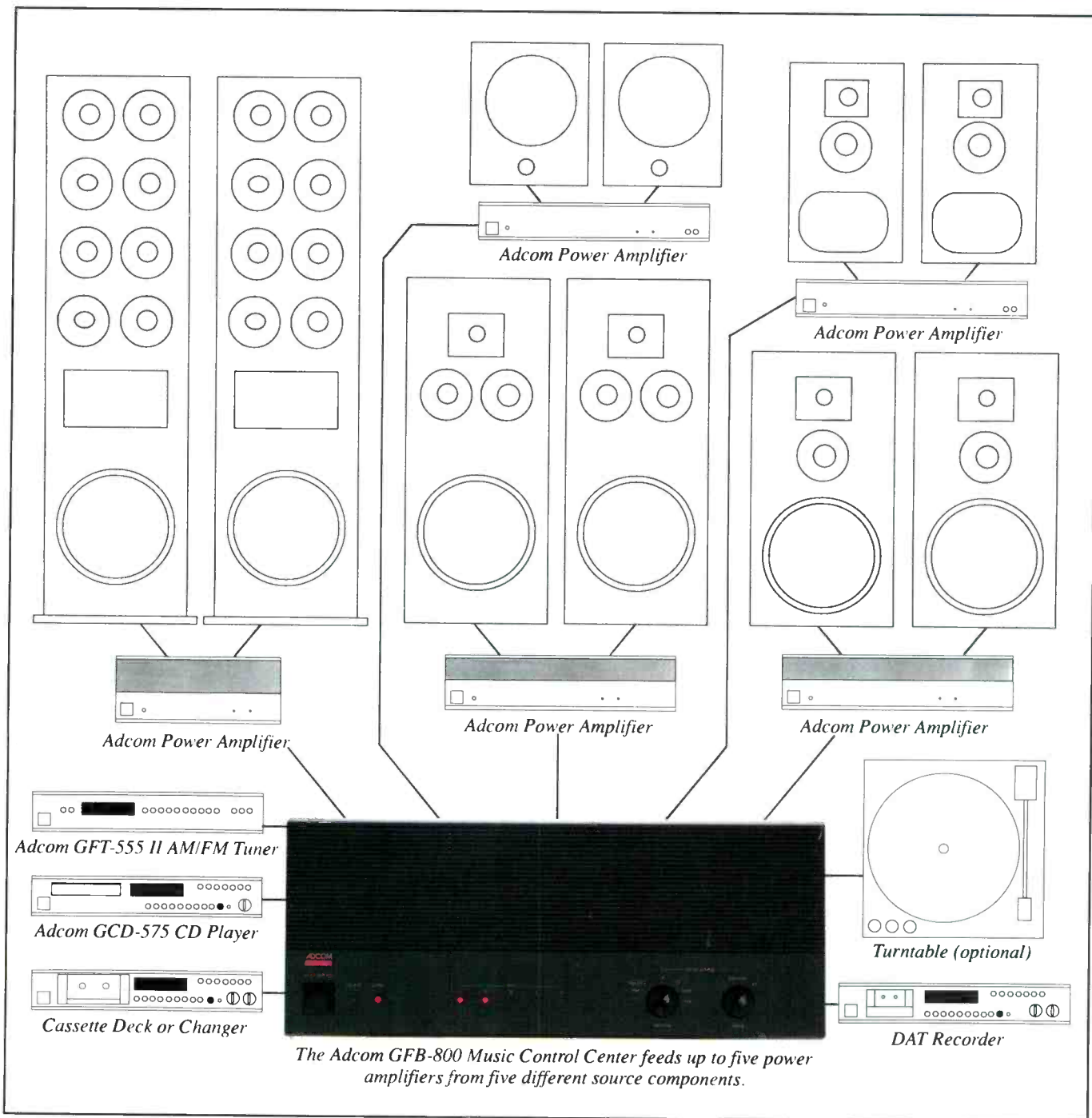
For best results, designing and installing a multi-room system around the Adcom GFB-800 may require more than a casual knowledge of audio equipment. There are many details which should be considered if top performance is to be achieved. In cases of new

home construction, you may also want to involve your architect and builder in the planning stages.

Your Adcom audio dealer is equipped and trained to help you select the right combination of components for your specific needs. Many Adcom dealers also have separate departments or divisions which specialize in the design and installation of customized music systems. We highly recommend that you visit your Adcom dealer to discuss your specific needs. The number of possibilities and scope of system design with the GFB-800 are virtually limitless.

(cont. on back page)

Listen to your CD player in one room while playing FM music in another.. and cassette tapes in yet another!



As Always, More Sound ...Less Money

Adcom has earned a reputation for delivering superior sound at reasonable prices. Many of its components, in fact, have been rated more favorably than others costing two and three times as much. The GFB-800 continues this tradition of offering more sound for less money.

Installing a large, multi-room music system around the GFB-800 is an ambitious but rewarding project. If desired, you can start at a more moderate cost level and add additional rooms later without waste or duplication. Its ingenious design makes such efficient use of high quality source components that it is now economically feasible to provide a truly superior level of sound quality throughout your home from a single set of source components.

Now, with the GFB-800, the cost of multiple sets of source components is eliminated along with the physical space necessary to house them. The money saved can be invested in higher quality source components, substantially improving the overall sound quality of your home music system.

If music plays an important part in your home, or if you would like it to, please visit your authorized Adcom dealer and find out how the GFB-800 will let everyone in your family march to the beat of his or her own drummer.

ADCOM[®]

details you can hear

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

Specifications

Output Impedance

Rooms Output: 100 ohms
Tape Output: 475 ohms
Daisy-Chain Output: 475 ohms

Output Level (Rated)

Rooms Output: 2.0V
Tape Outputs: 2.0V

Output Level (Maximum)

Rooms Output: $\geq 7.5V$
Tape Outputs: $\geq 7.5V$

Frequency Response ($\pm 0.5dB$)

High Level: 5Hz-50kHz
Phono: 5Hz-50kHz

THD -Noise (@ Rated Output, 20Hz-20kHz)

High Level: 0.03%
Phono: 0.06%

IMD (SMPTE, @ Rated Output)

High Level: 0.07%
Phono: 0.07%

Signal-to-Noise (@ Rated Output, "A" Weighted)

High Level: $\geq 100dB$
Phono: $\geq 95dB$

Input Impedance

High Level: 100,000 ohms/100pF
Phono: 47,000 ohms/100pF

Input Sensitivity (@ Rated Output, 1kHz)

High Level: 310mV
Phono: 3.5mV

RIAA Accuracy (20Hz-20kHz): $\pm 0.1dB$

Crosstalk (1kHz @ Rated Output): $-90dB$
Separation (1kHz @ Rated Output): $\geq 85dB$

General

Power: 120VAC 50-60Hz
(available in 220V or 240V on special order)

Power Consumption: 50 watts max.

Chassis Dimensions:

17" (432mm)W x 16 1/8" (410mm)D x 6 1/2" (165mm)H

Maximum Dimensions:

17" (432mm)W x 17 1/8" (435mm)D x 7 1/4" (184mm)H

Weight: 24lbs. (10.9kg)

Weight Packed: 28lbs. (12.7kg)

Accessories for GFB-800:

RC-800 Hand-held Remote Control Transmitter
SPM-500II Remote Sensor, switch-plate mount
XR-500II Remote Sensor, enclosed, shelf or table mount
IRA-500II Infrared repeater for other brand components
ERB-801 Extra room board
PHO-802 Phono preamplifier board
DSY-803 Daisy-chain board

Various extension cables and plugs are also available for use with SPM-500II and XR-500II remote sensors.

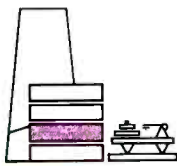
Specifications subject to change without notice

investigate perfection

**WHEN THE ELEMENTS OF AN INTEGRATED SYSTEM FUNCTION
IN CONSORT, THE WHOLE CAN BE GREATER THAN THE SUM OF
ITS PARTS. INDIVIDUALLY, MELIOR COMPONENTS HAVE
BEEN CRITICALLY ACCLAIMED AS SUPERIOR, AUDIOPHILE
INSTRUMENTS. IN COMBINATION, THEIR PERFORMANCE
IS SUPERLATIVE. THE MELIOR INTEGRATED COMPONENT
SYSTEM ELIMINATES GUESSWORK AND TRIAL AND
ERROR – AND DELIVERS UNCOMPROMISED SOUND.**



Melior
by **MUSE**  **TEX**

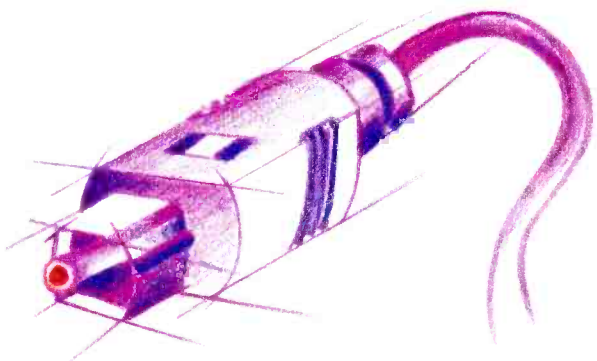


M E L I O R I N T E G R A T E D S Y S T E M S

RATIONAL NUMBERS. SOME PEOPLE WOULD CONSIDER OUR DIGITAL-TO-ANALOG CONVERTER REVOLUTIONARY; WE PREFER TO CALL IT RATIONAL. FOR THE MELIOR DIGITAL CENTER, ED MEITNER HAS DESIGNED A "CLASS A" DATA FORMAT, DRIVING TWO 18-BIT CONVERTER CHIPS PER CHANNEL TO ACHIEVE 19 BIT RESOLUTION. THESE CHIPS ARE KEPT IN THEIR MOST LINEAR REGION AT ZERO CROSSING, COMPLETELY ELIMINATING CROSSOVER DISTORTION.

ELEGANT ENGINEERING SOLUTIONS ABOUND. THE DISCRETE ANALOG OUTPUT STAGE BRINGS THE AUDIO FROM THE DAC CHIPS TO THE JACKS VIA A MINIMUM NUMBER OF TRANSISTORS AND OTHER COMPONENTS. THE RESULT IS A UNIQUE CONVERSION SYSTEM AND SUPERB SOUND – QUALITY THAT YOU CAN HEAR. EQUIPPED WITH ONE DIGITAL TAPE LOOP AND ONE PROCESSOR LOOP, THE MELIOR DIGITAL CENTER HAS FOUR DIGITAL INPUTS AND TWO STEREO ANALOG OUTPUTS. TO ENSURE CLEAN, ERROR FREE SIGNAL TRANSMISSION, INTERFACES ARE DESIGNED TO ACCOMMODATE BOTH COAXIAL AND FIBRE OPTIC CABLES.

THE MELIOR DIGITAL CENTER CONTINUES THE TRADITION OF UNDERSTATED DESIGN THAT MAKES ALL MELIOR COMPONENTS AS BEAUTIFUL TO THE EYE AS THEY ARE TO THE EAR.



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museatex on digital audio

THE MELIOR DIGITAL CENTER IS UNIQUE IN THAT IT PROVIDES A REMOTE CONTROL FOR VOLUME AND BALANCE THAT ADJUSTS THESE FUNCTIONS EXCLUSIVELY IN THE DIGITAL DOMAIN. TYPICALLY, ATTENUATORS SACRIFICE 1 BIT OF INFORMATION FOR EVERY 6 DB OF ATTENUATION. OUR PROPRIETARY HYBRID ATTENUATOR AVOIDS LOSS OF INFORMATION WHILE ACCURATELY PRESERVING PHASE AND FREQUENCY RESPONSE INTEGRITY.

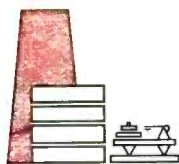
—ED MEITNER



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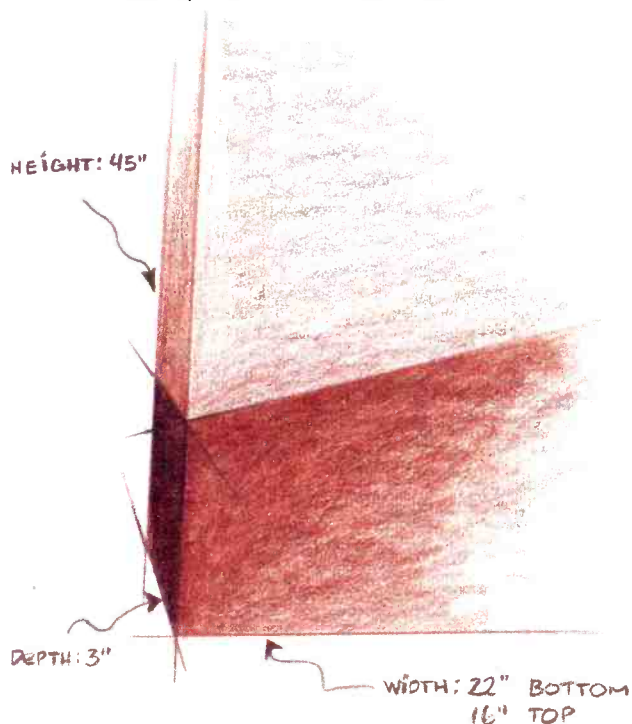
M E L I O R I N T E G R A T E D S Y S T E M S

UNPARALLELED. A GOOD SPEAKER SHOULD BE SEEN, NOT HEARD. ACOUSTICAL TRANSPARENCY MUST BE JOINED TO EYE-PLEASING DESIGN. THE MELIOR SINGLE POINT PLANAR SPEAKER ACHIEVES THESE OBJECTIVES. IN FACT, CRITICS HAVE CALLED THIS PATENTED DESIGN THE FIRST SPEAKER BREAKTHROUGH SINCE THE INTRODUCTION OF ELECTROSTATICS SOME 30 YEARS AGO. HERE'S WHY.

THE MELIOR'S MYLAR MEMBRANE IS CENTRALLY-DRIVEN, PROPAGATING SOUND WAVES ACROSS ITS ENTIRE SURFACE. THIS PRODUCES A VIRTUAL POINT SOURCE BEHIND THE PLANE OF THE DIAPHRAGM, ELIMINATING TREBLE BEAMING AND CREATING A STABLE SOUND STAGE. THE MELIOR GENERATES AUTHORITATIVE LOWS, CLEAN, POWERFUL HIGHS, AND A FULL MIDRANGE – ALL WITHOUT COMPLEX ARRAYS OF WOOFERS,

TWEETERS AND CROSSOVERS.

THE CLEAN, PRECISE SONIC IMAGE GENERATED BY THE MELIOR LETS YOU HEAR THE MUSIC, NOT THE SPEAKER. VISIT A FINE AUDIO DEALER AND DISCOVER MELIOR LOUDSPEAKERS.



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musatex on acoustics

THE FIRST THING MOST PEOPLE NOTICE ABOUT THE
REVOLUTIONARY MELIOR SPEAKER IS ITS ELEGANT,
DISTINCTIVE SHAPE. THIS IS MUCH MORE THAN AN
INTERIOR DECORATING FEATURE: THE SHAPE OF THE
MELIOR IS DICTATED BY AN ACOUSTIC IMPERATIVE TO
AVOID PARALLEL SIDES ON THE DIAPHRAGM WHICH
GENERATE DISTORTING STANDING WAVES.

— ED MEITNER

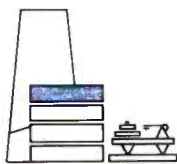


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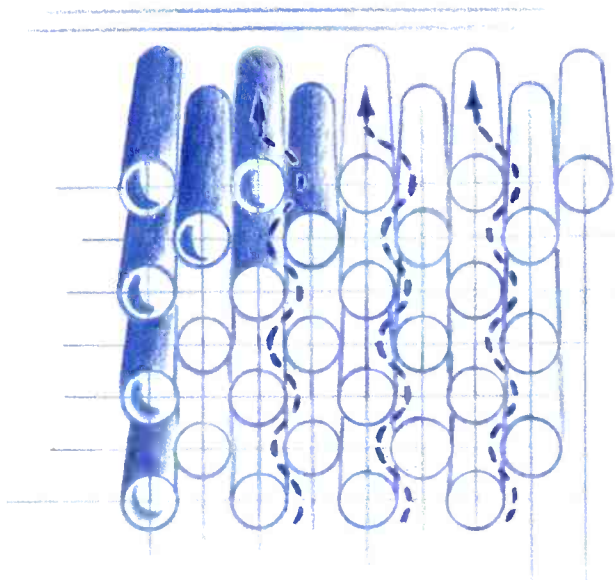


M E L I O R I N T E G R A T E D S Y S T E M S

UNCONVENTIONAL WISDOM. NOT ALL POWER AMPLIFIERS SOUND ALIKE. UNPRECEDENTED SUBTLETY IS REVEALED IN EVERY NOTE PLAYED THROUGH THE MELIOR POWER AMPLIFIER. THIS ELOQUENCE STEMS FROM AN INNOVATIVE, LOW-FEEDBACK DESIGN BY ED MEITNER, CREATOR OF THE FAMOUS AT2 PLATTERLESS TURNTABLE AND OTHER AUDIOPHILE COMPONENTS.

THE MELIOR POWER AMPLIFIER IS REMARKABLY COMPACT THANKS TO ITS SOLID STATE CIRCUITRY. YET ITS SOUND IS UNCOMPROMISED AND CRITICS HAVE CALLED ITS DETAILING "SUPERB". UNIQUE TO THE MELIOR IS ITS FLOATING CHARGE POWER SUPPLY. WITH PARALLEL CHOKES AND UNIQUE GROUND ISOLATION, NO SPURIOUS NOISE, SUCH AS HIGH FREQUENCY POWER LINE SIGNALS, CAN ENTER THE AUDIO PATH. ADDITIONAL PROTECTIVE CIRCUITRY OUTSIDE THE AUDIO PATH ALSO PROTECTS THE AMPLIFIER AND SPEAKERS FROM DC CURRENT SURGES AND HIGH TEMPERATURE.

TO EXPERIENCE THE MELIOR'S PRECISE ACOUSTIC PERSPECTIVE AND INNER DETAILING, VISIT A FINE AUDIO DEALER AND INVESTIGATE PERFECTION.



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muscatex on efficiency

THE MEITNER STATIC FAN HEAT SINK IS AN INTEGRAL PART OF THE MELIOR AMPLIFIER. AN ARRAY OF ALUMINUM ALLOY RODS ON THE BACK OF THE AMPLIFIER SETS UP CONVECTION CURRENTS THAT CARRY HEAT AWAY FROM THE UNIT FIVE TIMES MORE EFFICIENTLY THAN FROM CONVENTIONAL HEAT SINKS.

— ED MEITNER



by MUSE Melior
TEX

TEX MUSE TEX MUSE TEX

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Many listeners like the close-up approach, which is not possible with binaural recordings.

Continued from page 32

precisely the value of the sound pressure. This ignores reflections and refractions related to the outer ear and distortion within the inner ear, but these items are probably not relevant to the real point I'm trying to make.

Therefore, a means which reproduces, at the ear, exactly the same

time function of sound pressure as is produced at the ear in the "live" situation should result in an acoustic experience which is literally indistinguishable from the live one. Obviously, recordings fed by a complex of microphones, and reproduced by some arrangement of loudspeakers radiating into a listen-

ing environment with its own set of characteristics, introduce several more extensive sets of acoustic variables and come nowhere close to duplicating the original time function of sound pressure at the listener's ears.

It would seem to me that a process which uses only a pair of microphones whose spatial sensitivity characteristics are like those of the human ear, positioned and oriented relative to each other the same as the two ears of an optimally placed human listener—with an acoustic replica of the human head between them—represents the start of the recording chain. Each microphone would feed a single "track," and the listener would play back each track through one side of a pair of headphones. This should produce the closest possible replica of hearing the original event. Ignoring the presence of the headphones over the ears and in the absence of sonic pressure on other parts of the body, listening to recordings should be distinguishable from the live experience only to the extent to which technology, and not the principle, is imperfect. As a bonus, I would think that such recordings would sound as good through two loudspeakers as any other recording techniques.

It seems as though the audiophile would love this and demand such recordings. They should be flooding the market. Alas, they are not.

Is this the same as "binaural" recording? Are such recordings available? Any guidance you can give me will be greatly appreciated.—Dr. Howard L. Ritter, Omaha, Nebr.

A. I can't disagree with what you have said. After all the possible oddities of the ear have been accounted for and all the problems with loudspeakers and room acoustics have been entered into the pot, we do come up with some variation of the original, or live, sound.

Your scheme of recording via two microphones placed in a dummy head is a good one and was, and sometimes still is, the way many binaural recordings are made. These recordings are heard best via headphones, however, as they often lack sufficient separation when played through loudspeakers. This, along with the need to be con-

Continued on page 106



WBT

Innovative precision work is the characteristic property of all WBT products. Whether they be active spring contacts for RCA sockets or collet chuck mechanisms for RCA plugs, our sophisticated mechanisms always ensure optimum contact quality.

WBT plug connectors are systematically manufactured from a single piece of primary material. Based on more than



100 years experience and know-how in high precision mechanics, WBT plug connectors head the field in the audio sector—in more than 30 countries around the world—only five years after the start of production.

WBT has been successful in further optimizing cable connections through the introduction of the crimping technique to the audio sector. Proper crimping results in cold-welding of the cable strands by the application of high pressure. To achieve the desired results, WBT has not only developed special plug connectors and sockets but also offers the necessary accessories.

Should you require more detailed information, please contact us:



may audio marketing inc.

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JVC

SUPER DIGIFINE AUDIO SERIES

**JVC Super Digifine Audio Series —
In full view of the possibilities**



SUPER DIGIFINE

*Digital Technology is no longer a shimmer on
some distant horizon. We are now in full view
of the possibilities that the technology affords us.
The Super Digifine Series from JVC turns
these possibilities into reality.*

RX-1010VTN Audio/Video System Control Center

CSRP — Getting control over the possibilities

With technologies as advanced as Digital Acoustics Processing, Dolby Pro-Logic, electronics equalization and digital delay processing plus the variables of front and rear channel levels, balance, loudness compensation and even room compensation, the RX-1010VTN is an engineering marvel. It can quite literally recreate any acoustic experience, whether it be a movie in your neighborhood theater or the sound of a choir in a great cathedral. But how does one control the over 10 million possible settings necessary to achieve this?

CSRP — or COMPU LINK Source-Related Presetting — does the chore completely and automatically. Touch a single button and all the parameters change to a setting that is appropriate for the source you've selected.

Then if your listening determines that some fine tune adjustments should be made, make them. One more button updates the memory with your changes and from then on recalls all the settings everytime you return to that source.

For example: When you turn on your hi-fi system and listen to a CD, you get response specially customized for CD listening. Level and channel balance are properly adjusted, a customized equalization is recalled, and parameters for JVC's sound field processor — the Digital

Acoustics Processor — are all optimized for the size and acoustics of your listening room.

Or, as you switch to video, settings you've preset for the Dolby Pro-Logic decoder, such as the center-channel



Audio/Video Inputs and Outputs on Back (S-Video Terminals Included)

mode and center and rear levels, are automatically recalled.

This also holds true for all program sources — records, tapes and even individual radio stations. Since the RX-1010VTN accepts connection of up to eight audio and video programs, and provides presets of 40 FM/AM stations, this means it can handle a total of 48 different program sources or stations. That's control.

Example of Fluorescent Display with CSRP Preset (VCR-1 as a source)





DAP — Digital Acoustics Processing

In the RX-1010VTN, there's a ROM (Read-Only Memory) that stores the sound field patterns we measured at famous halls and theaters all over the world. Seven patterns, from symphony hall to movie theater, are programmed in memory for instant recall.



And you can fine-adjust these pat-

terns to suit the size, "liveness" and wall type of your listening room. This ensures that the ambience of your listening room is completely compensated for so that you enjoy the reflections and reverberations of only a desired hall.

Dolby Pro-Logic



With sound steering, active matrix and center channel output, Dolby Pro-Logic Surround provides you with an enhanced sense of direction and sharply centered dialog. When

watching videos, it will make you feel as if you were sitting in a first-class movie theater, especially since the digital acoustics processor is already at work.

The remote is a convenient LCD touch panel. The amplifier is a state-of-the-art Super-A design.

Our RX-1010VTN simply does everything and keeps everything simple.

**"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.



XL-Z1010TN Compact Disc Player

K2 Interface — Revealing possibilities at the source

Changing the digital code on a CD into music requires that a digital-to-analog converter choose 1 of 65,536 possibilities every 1/44,100th of a second.

It's commonly assumed that digital signal is composed of 1's and 0's, each represented by the presence or absence of a square-shaped pulse. But the fact of the matter is, a digital signal contains ripple — a type of distortion that changes the shape of a waveform — and jitter, components that move the timing of a pulse forward or behind.

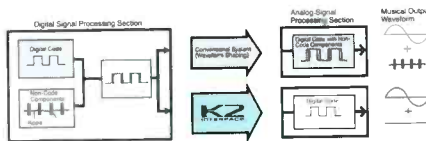
These “non-code” components can result in a sound that differs from the intent of the digital source. The K2 Interface solves this problem by completely regenerating the digital signal. At the heart of the K2 Interface is essentially an ultra-high-speed camera with a shutter speed of 20 nanoseconds (20 billionths of a second). Based on these quick snapshots, it recreates the digital signal as a perfect square wave.

Providing a perfect signal to the D/A converter allows for accurate reproduction of all the nuances such as sound staging and depth.

As a matter of fact, in many ways both frequency range and dynamic range are expanded. High frequencies sound clearer. There is a heightened sense of the power in the mid- to low-frequency range.

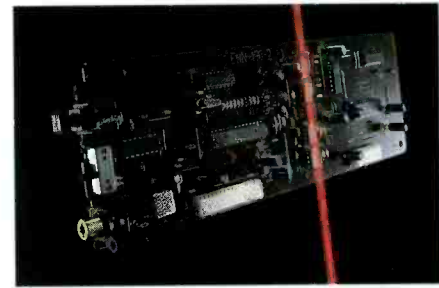
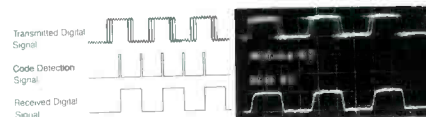
Comparison of K2 Interface and Conventional Transmission System

The JVC K2 Interface strips the transmitted signal of ripple and jitter as it travels from the digital to analog processing circuit.



Data Transmission Waveforms

The clean shape of data transmission waveforms indicates that the K2 Interface has removed ripple and jitter.



The K2 Interface optically decouples the digital from the analog section

Music seems to acquire more depth and width, providing clear images of instruments and voices. Overall, sound is smoother and more natural across the audio spectrum.

Precision D/A Converter System Using Four D/A Units

The XL-Z1010TN features two D/A converter units for each channel — four in all. There is a 16-bit converter for the most significant bits and a 2-bit converter for the two least significant bits. Since the least significant bits have greatest bearing on the sound quality at low level, JVC uses an elaborate discrete D/A converter system for these bits to ensure higher precision. All four converters operate with 18 bits “full time” whether the level is high or low. Our “quadruple full-time linear 18-bit combination D/A converter” allows you to enjoy digital sound at its most delicate and dynamic.



FINE

XP-A1010TN Digital Acoustics Processor

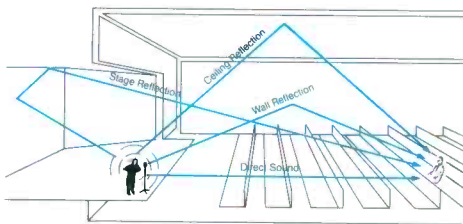
Bringing new possibilities to the home

Many of us have already invested in fine audio systems for our homes. Even the best, however, sound like music being played in a home environment.

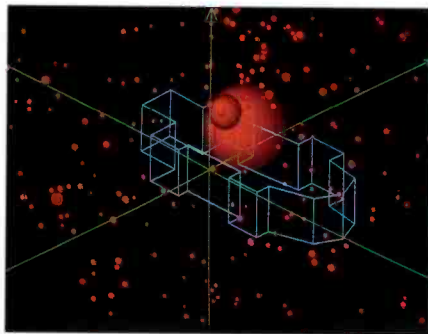
A new age is dawning in audio realism, thanks to the vast advancements in digital engineering. Now it is possible to simulate the acoustic ambience of a live music space — concert hall or movie theater — and recreate it right in your own listening room.

The new JVC XP-A1010TN Digital Acoustics Processor is the key. No other component available today so accurately brings concert hall ambience to the home.

The processor features a ROM (Read-Only Memory) containing a huge amount of data on reflections and reverberations — “sound field patterns” — our engineers measured in actual halls and theaters throughout the world.



Acoustic Response of a Musical Space



CHURCH
Sound Field Analysis Pattern

JVC's Unique Advantages of Acoustics Synthesis

The JVC XP-A1010TN offers a number of unique advantages. One,



Symmetrical 6-Point Sound Field Measurement Microphone Set

excessive reflections and reverberations added by your listening room can be compensated for, and so can reverberations contained in the source program. This means a precise sense of the size and shape of a simulated space is accurately recreated in any listening room.

Two, the entire process, from input to output, is performed channel by channel independently. Therefore, critical time-related information contained in music is retained, providing a natural sound field ambience.

Three, the size of the sound source — a point, like a solo or a spread, like an orchestra — is precisely reproduced.

The XP-A1010TN comes with sound fields from 20 actual concert halls, jazz clubs, theaters and stadiums. You can customize an additional 20 patterns of your own. With the XP-A1010TN, the possibilities now include the recreation of the concert halls around the system in your home.



AX-Z1010TN High-Power Class-A Amplifier

Digital Pure-A — New possibilities for class-A

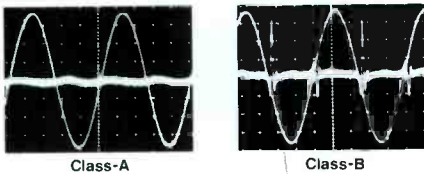
There's no doubt that an amplifier operating in class-A mode provides lower distortion and cleaner sound than those in popular class-B or class-AB. Their inefficiency, however, makes class-A amplifiers require elaborate heat sinking, and still the amps waste much of their power in the form of heat. This results in inflated cost and relatively low power output. But to enjoy the dynamic sound of digital programs, you need a lot of power.

How to combine the low-distortion sound of class-A with efficiency and power demanded by digital audio?

Class-A vs. Class-B Operation

With class-A, combined output from the paired transistors looks very close to that of the input. With class-B, this is not so, leading to crossover and switching distortion.

Output Waveform

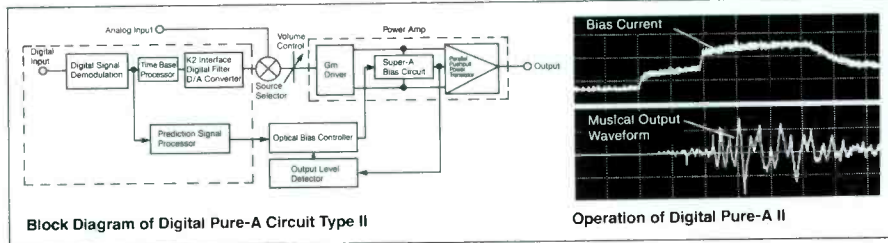


Class-A

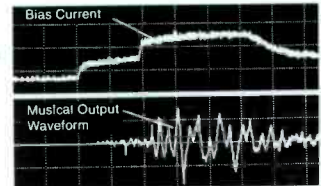
Class-B

Enter the Digital Pure-A Type II

JVC has the solution — the Digital Pure-A Type II circuit featured in the AX-Z1010TN "Digital" Integrated Amplifier.



Block Diagram of Digital Pure-A Circuit Type II



Operation of Digital Pure-A II

This ingenious design takes the advantage of the fact that digital signals can be stored in memory temporarily without changing their frequency response or phase response.

In the Digital Pure-A Type II, digital signals fed directly from digital equipment are split into two: the main signal and the "prediction" signal.

The AX-Z1010TN is a "digital" integrated amplifier incorporating a D/A converter system complete with the K2 Interface, 8-times oversampling and quadruple D/A converters.

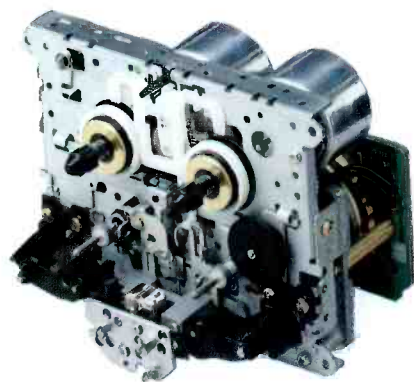
And the amp features a special design for analog programs too — Opt Super-A, another JVC exclusive combining low distortion and high efficiency.



FINE

TD-V1010TN Discrete 3-Head Cassette Deck

The world's finest cassette deck? A distinct possibility!



Closed-Loop Dual-Capstan Drive Mechanism

When it comes to specifications for cassette decks — such as wow & flutter, frequency response and signal-to-noise ratio — we can safely say today there is only marginal room for further improvement. This is because of the steady but sure advances over the years in mechanical design, heads, noise reduction designs and tapes.

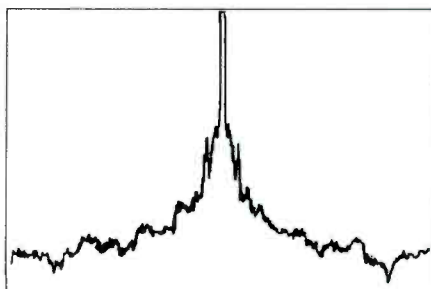
We have isolated "dynamic" response as one of the final steps in ensuring taped sound that's as pure and transparent as can be. We even developed a new specification to measure the degree of purity and transparency a cassette deck can provide: acoustic modulation noise.

In this measurement system, the test deck is subjected to a high 100-phon sound pressure during recording and playback. More rigorous than conventional modulation noise tests, this new method better simulates a real-world situations where the deck must operate while speakers are playing music.

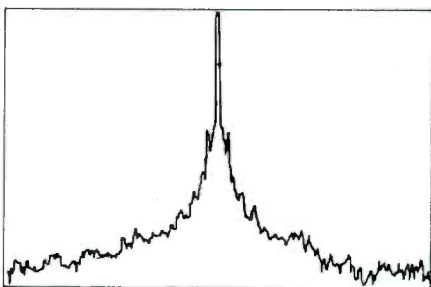
Taped Sound Free of Acoustic Modulation Noise

Based on what we discovered from

"Acoustic Modulation Noise"



Response of Conventional Deck



Response of Rigidly Built Deck

our test, we've developed solid mechanical designs in order to suppress resonance and vibration. The result of our efforts is taped sound that rivals digital.

Moreover, there are other ways we've improved clarity and purity of the taped sound of the TD-V1010TN. A "CD DIRECT" switch lets you route the signal from your CD player direct to the cassette deck. We've cut down wiring to a minimum length using remote rods and controls. We use the time-proven closed-loop dual-capstan tape transport to suppress modulation noise. "Fine" amorphous heads, highly pure PCOCC copper wire and high bias frequency also enhance the purity and transparency of the taped sound.

If you think that taped sound cannot compare with digital programs, you owe yourself a listen to the TD-V1010TN.



FX-1010TN Computer-Controlled FM/AM Tuner

Self-adjusting to the possibilities

The FX-1010TN is a smart tuner that adjusts itself to the endless possibilities in the capture of radio signals.

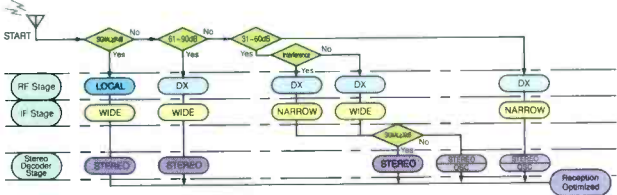
Our reception servo automatically selects the optimum operating mode — front-end gain,

IF bandwidth, stereo mode, etc. — after checking the degree of interference and the strength of the station you're tuned to. It guarantees you get the best reception anywhere and from every station. And yet the digital noise, which a

computer could create to muddy sound, is cut down by the "Opticalink" system separating the digital section from the analog.

The computer is put to use for special conveniences, too. You can preset up to 40 FM/AM stations for one-touch recall, and give a name to each preset station. You can let the tuner automatically preset all 40 FM/AM stations for you. You can "shop" for stations one by one. Also you can set the muting level to tune all stations in your area or only a few powerful ones.

Add circuitry designed for low distortion and wide dynamic range and you'll see that the FX-1010TN is the tuner that addresses the practical world of radio reception.



Flowchart of Optimum Reception Servo System



We are no longer at the threshold but have passed well into the world of digital technologies and their applications. In full view of the possibilities, we have endeavored to develop products that will endure the test of time and stand as small reminders that technology can advance while remaining sensitive to the needs of its users.

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SATELLITES & POWERED SUBWOOFERS

Throughout the audio world, M&K Sound is synonymous with high performance Satellite and Powered Subwoofer speaker systems. And while other manufacturers are discovering the substantial advantages of this concept, we are applying fifteen-plus years of loudspeaker design and audiophile recording experience to create a new, fifth generation of innovative products.

Think of these as *component* speakers — speakers with the flexibility to adapt to *any* listening environment, especially that of the multi-channel Surround Sound system. Although compact in size, M&K Satellites actually outperform large conventional speakers — and M&K Powered Subwoofers give you the universally recognized superiority of a separate subwoofer for the ultimate in bass performance.

With mid and high frequency drivers mounted in optimally shaped enclosures, M&K Satellites deliver sharp detail and clarity with pinpoint imaging — going far beyond the “boxy” and “canned” sound of conventional speakers. Our precise driver alignment and unique crossover design insure that sounds reproduced by both drivers reach you simultaneously — giving M&K Satellites the rare ability to produce the sharp transients and presence of live musical instruments. *Close your eyes and the speakers seem to disappear — the sound is live!*

M&K's component speaker concept perfectly meets the sonic and aesthetic needs of the '90s. And our newest innovations are advancing audio/video system performance with pedestal subwoofers, high-performance center channel and other speakers optimized for Dolby Surround Sound.

No other company has over fifteen years of experience in the design and manufacture of Satellites and Subwoofers. This experience, combined with the audio industry's only six Satellite, eight Subwoofer line makes M&K “the only choice.”

MILLER & KREISEL
SOUND CORPORATION



10391 Jefferson Boulevard, Culver City, CA 90230 USA · 213 204-2854

Enter No. 53 on Reader Service Card

S-100

SATELLITE



MILLER & KREISEL
SOUND CORPORATION

**S-100 Satellite
Loudspeaker System**

Presence:

The Random House dictionary defines it as the state or fact of being present, as with others or in a place. And it aptly describes what you experience when the sound of the M&K S-100 loudspeaker transforms your listening room — the feeling that you are *there*.

Giving you this sense, that you are in the studio with a favorite singer or in a concert hall with one of the world's finest orchestras is the greatest challenge for loudspeakers in the audio/video world of the '90s. The S-100 meets that challenge — as it redefines loudspeaker performance and ushers in a new generation of M&K technology.

The S-100 Sound

Simply put, the S-100 renders sound with brilliant clarity and pin-point detail in a vast three-dimensional sound stage — lifting the veils that stand between you and the performance.

The S-100 provides distinct stereo separation, especially in Surround Sound systems, thanks to M&K's unique *dispersion-shaping network* — which allows it to work equally well horizontally or vertically.

Its ultra-smooth frequency response makes for unsurpassed musical accuracy and realism *in your listening environment* — not just on a spec sheet or in a laboratory.

And M&K's multiple-driver design, with its

S-100

S-100 Satellite Loudspeaker System

three tweeters and two woofers gives you lower distortion and increased efficiency and power handling to produce tremendous dynamic range and realism—even at maximum volume levels.

The S-100 Cabinet and Grille

The distinctive cabinet design of the S-100 is not only attractive, but also crucial to its exceptional sonic clarity, detail and openness. Diffraction and baffle coloration are reduced to a minimum through its small front panel and $\frac{3}{4}$ " edge radius. And its fabric and solid aluminum frame suspended grille is unsurpassed for acoustic transparency.

Only the separate Satellite/Subwoofer concept allows for this degree of optimization in speaker cabinet design. M&K has pioneered and built upon this unique concept, leading the industry for over 16 years.

M&K Dispersion-Shaping Network

The S-100's unique three-tweeter array and special electronic dispersion-shaping network act in unison to combine the benefits of wide dynamic range and low distortion with controlled dispersion of sound both vertically and horizontally.

The S-100's special network, derived from antenna radiation theory, causes the higher frequency components to roll off very smoothly off axis, in both the vertical and horizontal planes. This network acts to minimize unwanted room reflections and side lobing, providing a controlled energy distribution to the reverberant field.

Technical Discussion

The dispersion-shaping network controls the two outer tweeters in level and phase relative to the center control tweeter, so that as the frequency rises the outer tweeters contribute less and less of the total energy to greatly reduce the presence of nulls and maxima in the radiation pattern at all forward angles.

As is known from antenna radiation theory, a wide antenna (disposed horizontally for example), whose amplitude of excitation is decreased smoothly and monotonically to each side of center, produces an angular distribution of radiation which decreases monotonically for greater and greater angles off axis to left and right. The three tweeter array of the S-100 uses a lumped element approximation of this concept.

Speaker Driver Elements

The driver elements in the S-100 are "time-proven", by over more than a dozen years of M&K experience, assuring you of their excellence in musical reproduction and long-term reliability. The woofer is designed to M&K's historically rigid standards for power handling, low distortion, and low coloration. And the soft-dome tweeter combines exceptional dynamic range, high power handling, unusually smooth response, and superior transient performance.

Tonal Balances

Two unique six-position rear-panel switches on the S-100 let you "fine-tune" its sound to match your personal taste, environment, or musical material. They enable you to choose different spectral contours that affect presence, depth, brightness, impact, and more, helping you to achieve a virtual flat response in your listening room without the use of a separate equalizer—a near impossibility with most loudspeakers.

The Surround Sound Speaker Concept

M&K design engineers have spent years studying the varied aspects of Surround Sound. They studied the encode/decode process at both the commercial and consumer levels; the differences in sound mixing between soundtracks, albums and CDs; and they compared the distribution of sound in movie theatres to that of the home environment.

This in-depth research provides them with the foundation needed for designing and manufacturing speakers that elevate the performance standards of speakers in the home theatre.

The S-100 is the result—a speaker system optimized for music and for multi-channel Surround Sound systems, whether used as a front, center, or rear channel speaker.

And because the S-100 matches the tonal and dispersion characteristics of other M&K Satellites and Subwoofers, it allows you to put together a state-of-the-art, all-M&K home theatre that places you in a seamless 360 degree field of sound.

For use next to television monitors, the S-100 is available with internal magnetic shielding. And like all M&K Satellites, the S-100 can be purchased as a single Center Channel speaker or in pairs.

The Only Choice

Whether the reference standard in your home theatre is the delicate, warm sound of an acoustic instrument; the intriguing, realistic sound of footsteps and closing doors; or the blast of a .45 magnum, the S-100 makes these sounds come *alive*—with a transparent clarity and realism that will delight and astound you.

From eight-channel Surround Sound systems to state-of-the-art two-channel stereo music systems, the S-100 is, "the only choice."

Tweeter: Three 1" soft-dome
Woofer: Two 5" polypropylene cone
Power Requirements: $7\frac{1}{2}$ watts minimum
400 watts maximum
(unclipped peaks)

Impedance: 4 ohms

Finish: Glass Bead Black, Black Grille

Dimensions (H X W X D): 10" X 12" X 9 $\frac{1}{2}$ "

Weight: 21 Lbs each

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The 300 watt continuous RMS MX-2000 incorporates M&K's remarkable new Horizontal Push-Pull Dual Driver System—producing the tightest,

cleanest and most powerful bass M&K has ever offered. This innovative system delivers superior transient performance; lowers harmonic distortion; reduces cabinet coloration and vibration; and couples remarkably well to the listening room.

Building On Excellence

Fifteen years of unmatched experience puts M&K at the forefront of the subwoofer industry. No other manufacturer offers as wide a variety of styles and sizes of high-performance subwoofers. From the very affordable to the state-of-the-art, M&K subwoofers are unsurpassed in audio and audio/video system performance.

And M&K offers the ultimate Satellite-Subwoofer systems, with a

choice of five highly acclaimed Satellite speakers. These small speakers are optimized for music or multi-channel surround-sound home theatre systems, and actually outperform large speakers.

The Only Choice

Building on M&K's legendary high level of subwoofer excellence, the MX-2000 becomes M&K's finest achievement in a subwoofer—blending seamlessly with any speaker. For high-performance audio and audio-video systems, the MX-2000 is "the only choice."

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And with the technically ingenious Back-to-Back, Horizontal, Dual Driver System, the MX-1000 achieves a sonic



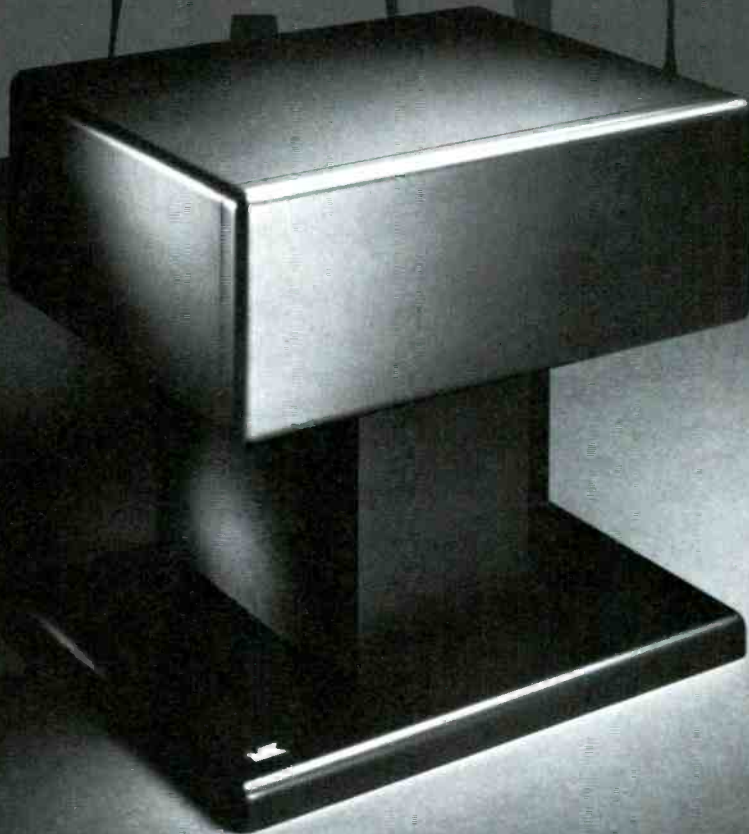
breakthrough, setting new standards for smooth and deep bass; superb transient response; wide dynamic range; and low distortion.

Furthermore, maximum flexibility is built in, making it easy to connect and balance it to your system. And it can be driven by virtually any source — even your television's built-in amplifier.

The MX-1000 redefines the subwoofer standard! Virtually no other upgrade to your system will enhance your audio and video experience

so dramatically — capturing the magic of a live performance with a level of realism that will astound you!

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Why buy speakers whose specs say they are made to reproduce live music when most of my music is studio recorded?

Continued from page 92

stantly attached to the 'phones, is probably the reason binaural recording has not caught on.

Much of today's music could never be recorded using binaural techniques. Often, one musician plays several instruments or a singer sings many different parts, so multi-track recording

is the only way out. Many producers believe that multi-track recording provides a second chance to balance the elements of a recording without the need for the artists to play it again and increase the cost of the session.

Many listeners like the close-up approach, which is not possible with bin-

aural recording; they like the ability to take an orchestra apart with their ears. I suppose this brings us to the question of what is or is not "high fidelity," but I won't answer that one here—or anywhere, for that matter. It's too much a subjective and personal matter.


For a listing of binaural recordings past and present, see "Binaural Overview: Ears Where the Mikes Are, Part II" in the December 1989 issue.

Loudspeaker Criteria

Q. If most of the music I listen to has been recorded in a studio, why should I buy a pair of speakers whose specs tell me they are designed to reproduce live music? Do I have an incorrect interpretation of the term "live performance"?—Tuan Ta, Winona, Minn.

A. Yes! A loudspeaker is supposed to reproduce live performances in such a way that you would be transported right to the place where those performances were originally given. If we could make a direct comparison between the actual sound heard in that live performance and what you hear from your loudspeakers, there would be no difference between those two sounds if the loudspeakers were indeed reproducing what was presented to them. This, then, is the criterion: The loudspeaker should faithfully reproduce whatever is fed into it. If it can do that, it won't matter whether the original program was a live performance, a studio recording, or even a recording you made in your home. If the sound of a given recording is poor, then the loudspeaker reproduction will sound poor—but in no way different from playback of that recording via another pair of very good loudspeakers.

There is no loudspeaker system which can take a studio performance—maybe one which encompassed the work of a single musician playing a dozen instruments—and make that recording sound live. All that a loudspeaker can do is produce what is presented to it, and do it as faithfully as possible.

I suppose the specs you read were attempting to tell you as "graphically" as possible that the speakers were good enough so that, when listening to a recording of a live performance, you would believe you were seated in the performance hall. 

TIFFANY

TIFFANY CABLE... THE MEANS JUSTIFY THE ENDS! Long in the developmental stages, TIFFANY TIC-5 and TIC-10 interconnect cables offer several advantages over all competing brands. (1) Skin effect is completely eliminated. (2) Capacitance and resistance are extremely low. (3) Unique design prevents energy storage problems. Terminated with newly designed TIFFANY Connectors, the TIC-5 and TIC-10 are ultra-fast, highly accurate MUSICAL cables that sound great on a variety of equipment at an affordable price. Experience why THE MEANS JUSTIFY THE ENDS.

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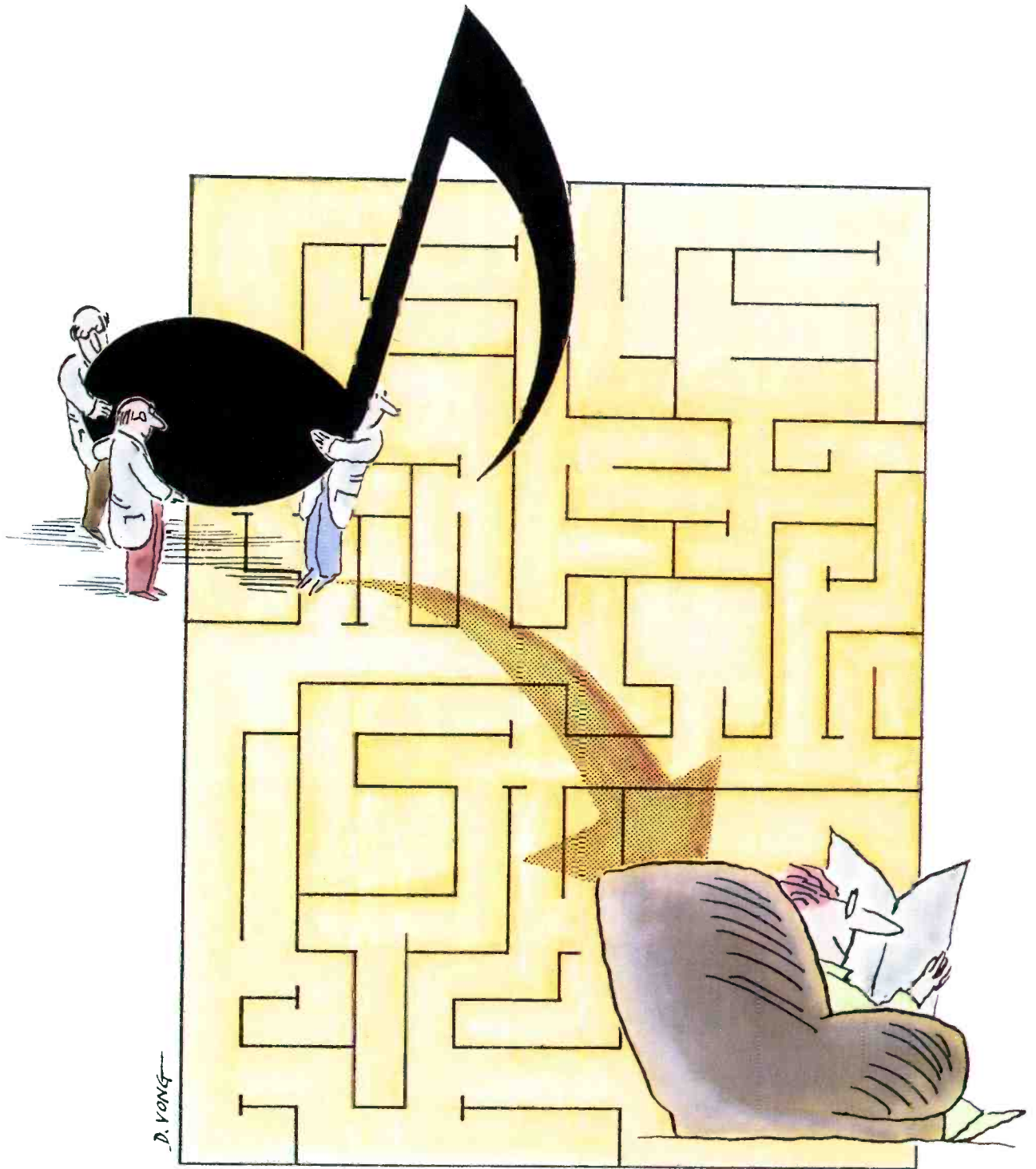
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preamplifier.

Precision 1% tolerance Roederstein metal-film resistors and polycarbonate-film capacitors - For infinitesimally low distortion and long-term stability.

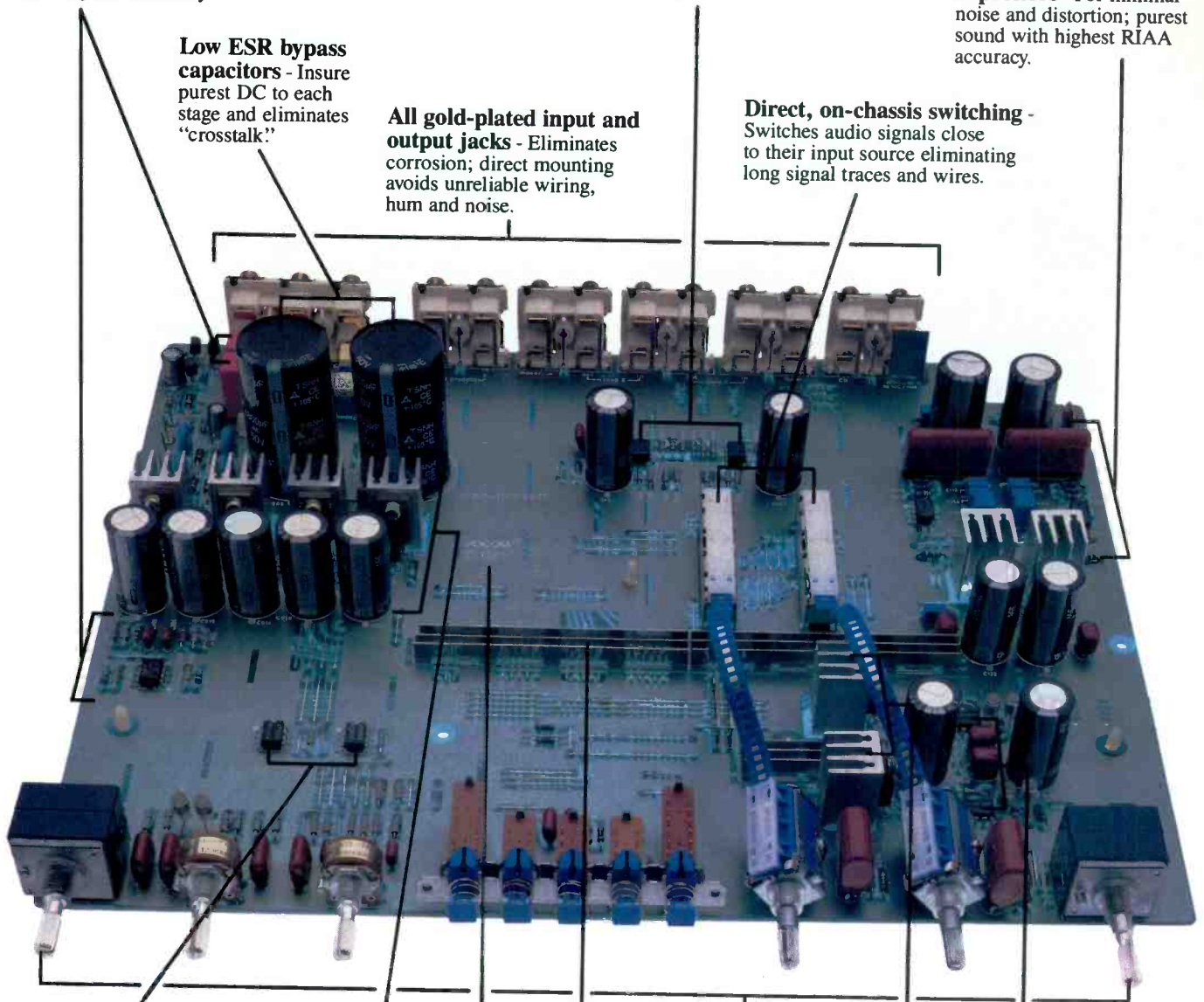
Buffered tape outputs - To prevent any degradation of source signals by tape recorders connected to the recording circuit.

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

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.

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.

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.

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

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.

(over please)

Why Is Adcom Clearly Superior To Other Brands?



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



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



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

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: 10.0 V
Frequency Response (± 0.5 dB)
High Level: 5 Hz - 90 kHz
Phono: 5 Hz - 70 kHz
THD + Noise (@ Rated Output, 20 Hz - 20 kHz)
High Level: 0.0025%
Phono: 0.009%
IMD (SMPTE, @ Rated Output)
High Level: 0.0025%
Phono: 0.0025%
Signal-to-Noise (@ Rated Output, "A" Weighted)
High Level: >100 dB
Phono: >95 dB
Input Impedance
High Level: 22 kohms
Phono: 47 kohms
Input Sensitivity (@ Rated Output)
High Level: 205 mV
Phono: 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)
100 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) \times 11 3/8" (289 mm) \times 3" (76 mm)
Maximum Dimensions: 17" (432 mm) \times 12 9/16" (319 mm) \times 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.

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.*

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TAPE GUIDE

HERMAN BURSTEIN

Print-Through

Q. What causes print-through in cassette recording tape and how do I prevent its occurrence?—Lynn Harner, Dodge City, Kans.

A. Print-through is a magnetic phenomenon whereby the signal on one layer of tape is transferred to adjoining layers. It tends to be most audible during quiet passages and/or when an adjoining layer contains a very loud sound. Tape consists of a layer of magnetic material on a plastic base. This base is so thin that magnetic lines of force occasionally permeate it and affect adjoining layers.

Print-through has been pretty well, though not totally, conquered in modern tapes. The best way to prevent noticeable print-through—and tape saturation, with its consequent distortion and treble loss—is to record at normal levels, so your record-level indicator does not go substantially into the red. Avoiding the very thin cassette tapes, namely the C-120 lengths, also should help prevent print-through; recently, however, I have been hearing kind words about C-120 cassettes—or at least about some of them—so they may no longer have a print-through problem.

Finally, if tapes are stored a long time without being played, print-through tends to develop, although most of this takes place in the first few days or weeks. Winding and rewinding a stored tape before playing it may alleviate print-through somewhat.

Missing Air

Q. I own a top-of-the-line cassette deck that has variable bias, Dolby HX Pro, Dolby B and C NR, and dbx NR. Before each recording, I clean and demagnetize the heads. One evening, I noticed that the "airiness" of all my recordings—current and previous—was missing! The overall sound quality was intolerable. What is the problem? Azimuth? What else?—Kevin Mahoney, Westbury, N.Y.

A. A difference in azimuth alignment between the record and playback heads could easily account for the high-frequency loss you have encountered. Malfunctioning of a noise-reduction circuit could produce treble loss, but if such loss occurs with all three NR circuits in your deck, this cause seems

unlikely. A third possibility is that the gap of the playback head has widened disastrously; the wider the gap, the poorer the high-frequency response.

There is also a chance that your problem was brought on by the very precautions you are taking. Touching the heads for cleaning and demagnetization could affect alignment if these operations are done with insufficient delicacy or if the alignment adjusters have become loose. And if the power to a demagnetizer is interrupted before demagnetization is complete, it can actually increase magnetization; for proper operation, the demagnetizing current must gradually die away. Demagnetization is, in any case, not needed as often as it used to be. Once a year should normally suffice, although if the deck is moved to a new spot it may be advisable to demagnetize it again.

Queries About Bias

Q. I have a number of questions about bias frequency, auto bias, and bias fine tuning.

1. Are these three operative during playback, recording, or both?
2. Are they related to each other?
3. Does auto bias render bias fine tuning unnecessary?
4. What is the connection between the three items I mentioned and the recorder's tape-type switch?
5. Are there any general rules that would aid in determining the bias frequency most suitable for one's use?
6. How is playback performance affected when a tape has been recorded on another cassette deck having a different bias frequency? What's the maximum difference in bias frequency between two cassette decks which would permit a given tape to be used for record/playback on either deck with equally good results?
7. Given two cassette decks having different bias frequencies, on which deck should recording be performed for best playback on the other?
8. What is an acceptable range of bias frequencies for recording classi-

If you have a problem or question on tape recording, write to Mr. Herman Burstein at AUDIO, 1633 Broadway, New York, N.Y. 10019. All letters are answered. Please enclose a stamped, self-addressed envelope.



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cal music and vocal performances from LPs, CDs, and prerecorded cassettes?

9. Given two cassette tapes, identical except that one was recorded on a deck with a higher bias frequency than was used to record the other, which tape would erase better? On which tape would a better recording be made?—Victor S. Zupancic, Kirkland Lake, Ont. Canada

A. I will answer your questions point by point.

1. Bias is operative only in recording.
2. Bias frequency is not related to auto bias or bias fine tuning. Bias fine tuning gives the user manual control over the amount (but not the frequency) of bias. Auto bias automatically adjusts the amount of bias for the particular cassette in use. Decks that provide automatic bias control usually couple this with automatic adjustment of record equalization and/or adjustment for tape sensitivity (to ensure good Dolby NR tracking).

3. Usually, yes. On the other hand, a meticulous user might feel he could get the most satisfactory results (extended treble response along with low distortion) by a slight manual bias touch-up.

4. The tape-type switch selects a bias level in a general range suitable for the tape type in use. Manual fine tuning and auto bias adjust bias level more precisely within that range.

5. To my knowledge, bias frequency is never adjustable by the user, at least in home decks; it is preset by the manufacturer. The bias frequency should be at least five times as high as the highest audio frequency to be recorded. It is therefore desirable that bias be at least 100 kHz.

High bias frequencies impose greater demands on the electronics and on the record head than do low frequencies. As bias frequency increases, it becomes more difficult to drive the requisite bias current through the head, and more current must be generated by the bias oscillator. Therefore, decks of lower quality and with less ambitious treble response tend to use bias frequencies below 100 kHz.

6. Playback performance is not affected by bias frequency at all; see item (1). It thus does not matter if two decks have different bias frequencies.

The difference in bias frequency between two decks is immaterial as far as playback is concerned.


7. All else being equal, recording is best done on the deck with the higher bias frequency; see item (5).

8. Bias frequency is best governed by the rule given in item (5), namely that it be at least 100 kHz. If the bias frequency is lower, problems are apt to occur with program material having substantial content in the high end of the treble range—for example, symphonic rather than vocal music. The problem with bias of relatively low frequency is that it is apt to beat with audio frequencies, causing objectionable sounds. If the program material has limited high-frequency content, as in the case of vocals (particularly male vocals), beats are less likely to occur.

9. To my knowledge, the bias frequency used to make a recording does not affect its erasability. The principal factors governing erasure are the quality of the erase head and the tape type, with Type IV being hardest to erase. Also, high recorded levels are more difficult to erase.

Recording Level Problem

Q. Recently I upgraded from a cheap phono cartridge to an expensive one. With the cheap cartridge, I turned the record level control of my cassette deck slightly above midway in order to achieve a record level meter reading of +3 dB. With the new pickup I have to turn the control 3/4 of the way up to achieve the same reading; at the same time I get a lot more distortion. Is there a solution to this problem?—Roy L. Bonds, Natchez, Miss.

A. Possibly your cheap cartridge had strong peaks in the midrange or lower treble that caused the record level to appear relatively high, although overall it was appreciably lower. And it may be that your new cartridge is quite flat—as expensive ones usually are—so that you are getting a more accurate indication of record level over the whole audio range. Hence, you may be overrecording with the new one. Try recording at a lower level, say 0 VU or a bit lower, to determine whether distortion drops substantially. I assume that the distortion is not in the new pickup; that is, all sounds well when you listen directly to your records. 

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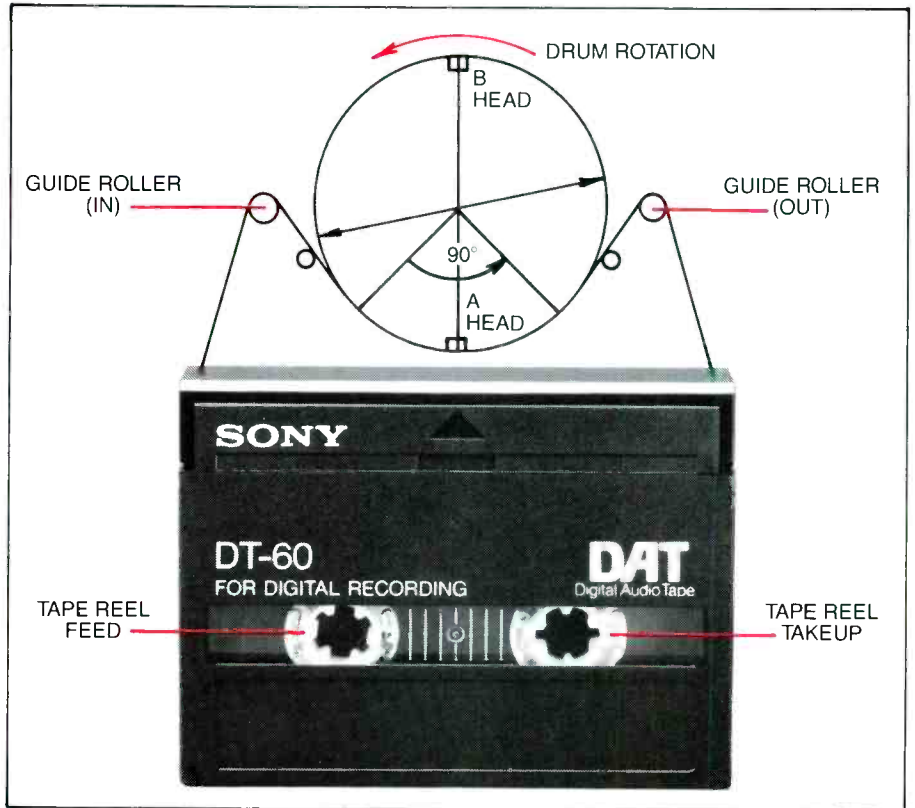
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REELING IN ASYMMETRY



I am astonished, reading the professional accounts of our earlier and historical audio equipment, how remarkably the quirks, faults, idiosyncrasies, and interesting peculiarities of our legendary hi-fi are simply bypassed—and thus consigned to unwise oblivion. This is especially noticeable to those few of us who actually used the old equipment when it was new. Not many of us are left but they include, in a modest way, this very writer.

Understandable. A professional paper in any area has its own strict format and limitations. It must be precise, objective, and stick to the facts, measurements, and technical descriptions. No personal side comments! A quirk may be discussed only in engineering terms with measurements to prove. Same for an evaluation, an opinion. As we all know, science, engineering, must be recorded in this way if professional standards are to be maintained.

But this leaves the door wide open for those of us who specialize, conversely, in comment, opinion, and informal personal reminiscence. Yes, we aim to entertain. But, I humbly submit, we can be useful too; because many of the quirks of older equipment, in older times, have become significant in shaping our later history. They need to be described just as they were, in the flesh, if you will, on the hoof—as those few of us remaining actually got down to work (whether pro or amateur) say in 1947, or 1943. Whoever we were, we ran into common experiences in dealing with the brand-new. Ask any of my older colleagues. End of sermon.

One of the curious aspects of early tape recording, as I think back today, was the concept—or lack of it—of *mechanical symmetry*. Rights and lefts. I am really at a loss to explain the lapses in engineering thinking that were evident in this very practical area. How could it have happened? Engineering compartmentalization? Perhaps.

We began with prejudice, in favor of the right-handed majority of human beings. *Dextrous* means right-handed—*ambi-dextrous* means you have two right hands. Do we have any *ambisinister* souls? The very word for left has dismally poor connotations. A truly *right-eous* person does not pull off left-handed deals. Slang says “right!” when things go well. Why not say “left!” too? Nobody does.

I am periodically furious (being a lefty) at right-handed can openers, pitchers, shavers, a thousand other items that are thus partial in their very shape. Tape recorders too? In a slightly different fashion but still—perhaps—biased. I, too, was forced as a child to write with my “write” hand; I only learned later and in a more enlightened (and unprejudiced) school to do easy printing with my left. And so—the right-handed tape recorder? That is, the one-function-each-way machine. Record to the right. Fast rewind to the left. I cite you two immediate examples—there were others, notorious. One was the Magnecorder, the first professional machine after Ampex’s notable Model 200 built on the basis of the German Magnetophons brought in as loot (!) by the astute Jack Mullin, celebrated in my previous column.

Why, why, after the 200 was launched, and in public, did Magnecorder persist in the mechanical asymmetry of its original format? No *fast forward*; a horrendously fast rewind (yes, fast enough to scare you), and room for only 7-inch reels, vertically held (whereas the Ampex 200 took larger quantities of tape, held horizontally, on bare hubs—not flanged reels—exactly as in later years to the present). I assume the timing and development process was the cause. The Magnecorder design was probably beyond alteration when the Ampex 200 appeared.

You will note that Ampex already, in 1947, had perfectly symmetrical mo-

tion, almost exactly as found in a million recorders of later decades. Equal right and left, equal rewind and fast forward, only minor differences from one side to the other required by the left-to-right recording movement. Magnecorder came forth in 1948, the very next year, as Ampex went on to the ubiquitous model 300, then the more portable (?) 350, with which I worked for many long years.

The Magnecorder, of course, was virtuous in that it was far less bulky and less expensive than the big, heavy Ampex machines. Why else did I acquire one, via the old Electronic Workshop (which “enhanced” the electronics for optimum performance—maybe even to today)? It was the obvious choice for all semi-pro and advanced amateur operations. If only it had been provided with that utterly necessary symmetry!

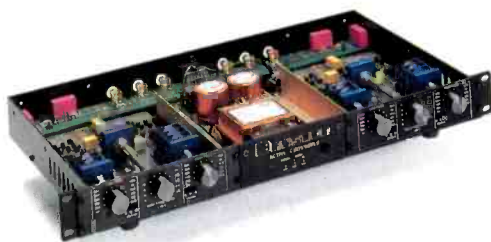
Frankly, it was a nuisance to operate. The superspeed, uncontrolled rewind often ran amuck and tore yards of tape into shreds, or wound them in tight coils around the reel hubs. How many times I spent an hour carefully unwinding the creased and curled-up stretches of precious tape from those reel hubs, trying to salvage what I could of a good recording! By dint of expert editing (here’s where pro and advanced amateur meet) I sometimes restored to usefulness a yard or so of irreplaceable sound, with perhaps 50 patches, sometimes with an extra tape behind to hold it all together. I can hear right now the dangerous whine of that Magnecorder rewind as it picked up speed and then more speed! I used to



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try to hold it back—but not with the fingers. It was immensely powerful. One held a piece of wood or such against the reel, as the motor groaned angrily at this interference. Once revved up, almost nothing could slow things down—and too often at the snap of the Off switch the restraining mechanism missed, and there was tape everywhere—a nightmare! Sorry, Magnecord. This is the way it was.

As for editing—forget it. (But I didn't. I edited.) By the time my "chassis" came along, Magnecord had had hasty second thoughts. An improvised lever and roller gave a fast forward, or rather, slow forward, that was roughly three times the 7½ ips recording speed I mostly used (with those improved electronics and a careful alignment of the spring-held recording/playback head before every session). It took forever. The simple thing to do was to remove the reels, carefully reverse them (a bit tricky) and use the rewind for a fast forward. As I say, a blasted nuisance—and really hard to understand, when you come down to it. Those with more primitive cassette recorders today will be sympathetic—though, of course, all cassettes have entire right-left symmetry. The fast speed is similarly just too slow, often poisonously slow, whichever direction is used.

Magnecord also had another belated second thought—outriggers to accept the larger NAB reels that quickly became the professional standard. I bought the outriggers. They were incredibly clumsy, great floppy appurtenances on each side that threatened to collapse at any moment. Not a good solution to earlier misguided planning. I managed one or two precarious recordings with these, then abandoned them. When, later, I got a chance to pick up a barely used Ampex 350, with symmetry in all respects, I grabbed it. The Magnecorder retired to a closet. It is still there, outriggers and all.

Mind you, that was a sturdy and very reliable machine, within its odd parameters. Nothing ever went wrong that I can remember. The frame, the motors, the whole get-up, was professionally solid—in contrast to too many later tape miracles that caused nothing but trouble. Magnecord eventually dropped its pioneer design, but it nev-

Many of the quirks of older equipment have become quite significant in shaping our later audio history.

er quite recovered its initial impact on our developing audio. Definitely, symmetry was the basic problem.

Unsymmetry, to a greater or lesser degree, plagued many other earlier tape machines. I have never gotten a look at the basic German Magnetophons, two of them, that Jack Mullin "liberated" from Germany, but I assume that Ampex's admirable symmetry was at least spurred by the German product of 1943, which served very much as a test bed for Ampex's development work on the 200—Ampex gratefully presented the first two 200s to Mullin when the original German machines (with their Mullin-updated electronics including a.c. bias) began to wear out.

Another two machines that I remember had very curious symmetry problems. The big and early-on Ranger recorder—was it the Rangertone?—was beyond my acquiring capabilities though I well remember it at assorted shows and demos. Colonel Richard Ranger—what a name!—was the flamboyant designer and the picture of Jack Mullin's machine (with a large and decorative R inside a big circle on the front panel), shows the typical unsymmetry of tape travel characteristic of that time. This machine had the flat discs for large horizontal rolls of tape that have since been standard, like those on the Ampexes and a thousand other machines for the professional. But the tape's travel path has to be seen to be appreciated! The capstan is far right, in front, the tape heads are on the left in a big open curve, no pressure pads. Forward looking, that. Whether the machine had equal fast-forward and reverse speeds, I do not know. An earlier machine, designed by Marvin Camras, the famed Utah Radio Products Co. professional wire recorder (1943, U.S.A.) was notable in that it had a genuine capstan, which somehow controlled the clumsy wire medium and allowed for constant speed. (The infamous Webster-Chicago, or Webcor, wire recorder for the consumer had no such thing—its wire was just pulled, from one side to the other.)

A machine very similar in looks, the first commercial (i.e. consumer) American tape recorder, was the Brush BK-401 Soundmirror (not counting a bit of mirror distortion!) of remarkably early

The Soundmirror was clumsy and complicated, but no matter. It was the initial introduction to actual tape recording for most of us.

date—1946. It was, of course, much smaller than Marvin Camras's or the big Rangertone. A box a foot or so high and reasonably portable. I borrowed one of these, and had it for some weeks all to myself. Results were very, very so-so. It used paper magnetic tape, for one thing. There was not yet

any plastic-type tape in the U.S.A., not until Mullin brought home hundreds of reels of German tape. On this machine, the tape track was astonishing, much more uneven in symmetry than the later Ranger model—even though that one looks very peculiar today. In a word, the Soundmirror tape threading

path was a labyrinth. All over the place, back and forth, around this pulley and that, hither and yon, and so eventually—if you got it all correct—to the opposite reel! A small one, I think 7-inch. Crazy! No symmetry at all. I do not remember whether it had a fast forward—surely not. It must have had some sort of rewind. You couldn't exactly wind back by hand. I can only vaguely remember various frustrations, by now quite fuzzy. Editing? I doubt if I then knew such a thing existed. This was before the Webcor wire recording, where you tied knots in the springy pieces of wire to make a sort of edit (usually altering pitch due to varying speed).

However, the Soundmirror was memorable. It was the first of all home, or consumer, tape machines and the first introduction to actual tape recording for most of us. No matter that it was unbelievably clumsy and complicated in the mechanics, that the paper tapes produced a miserable playback sound—even in terms of those days. It was new, a whole new ball game, and notably for thousands who had variously and dismally tried out home or portable disc recording for themselves. You may remember my own account of the rather high-level, portable disc set-up I worked out in 1940, with wide range Astatic crystal cutter cartridge and a good 78-rpm motor. A few minutes of perilous sound was all I ever got, interrupted by the ever-present problem of 78-rpm "chip" (shavings) which got under the cutting stylus and lifted it off the disc, or induced repeated grooves all on top of each other. It was 40 years later that I triumphantly edited my disc recordings of the big wedding of that summer near my home, after transferring the entire disc sound to tape.

The more you think on it, the more you will understand that this idea of working symmetry in a recorder, any sort, was not only vital for our future but astonishingly little understood by the early audio designers. History really is interesting, you know. It explains why I could enthuse over the unsymmetrical Soundmirror, with all its extraordinary faults—as we see them now. We still had no thought at all of the need for symmetry in the operation of a recorder. Live and learn. **A**

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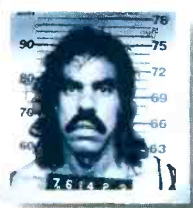
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LOGISTICS OF A THOUSAND



Illustration: Karen Stolper

Last month I wrote about my lifelong involvement with music and audio and my interrelations with many composers, conductors, and musical personalities.

I was privileged to be a friend of Leopold Stokowski for 26 years and recording his masterful performances was particularly rewarding. I met many people and was involved in many situations through my relationship with Stokowski and much of this was the result of fortuitous circumstances. Stokowski was not merely a stellar conductor, but also a figure of historical importance in the music world.

As I concluded last month's column, he was fleeing Germany at the outbreak of World War I. Let me set the scene. Munich in the early 1900s was one of the foremost cultural bastions in Europe, especially with respect to music. The early summer of 1914 was one of Munich's most brilliant music seasons: Bruno Walter was conducting both operatic and symphonic concerts. Munich was celebrating Richard Strauss' 50th birthday and he was conducting many of his own works, including *Elektra*. Wagner operas at nearby Bayreuth and the close proximity of Salzburg added to the festivities. Stokowski and his wife, the prominent

concert pianist Olga Samaroff, were very fond of Munich. A wealthy patroness of the arts, Maria Dehon, had given Leopold and Olga a villa in Munich as a wedding present!

(During that gala 1914 music season in Munich, many Americans were already in residence there, including the family of Eugene Luening, whose 14-year-old son Otto was studying flute, piano, and composition at the Royal Academy of Munich. In 1952 in New York, Otto Luening was a colleague of Vladimir Ussachevsky, a professor of music at Columbia, who was a pioneer in the avant-garde field of electronic music. When he died in January 1990, synthesizer pioneer Bob Moog wrote his obituary in the *Journal of the Audio Engineering Society*. Ussachevsky and Otto Luening did much early work in the utilization of tape machines and their manipulation in the production of electronic music. Ussachevsky first used a monophonic Ampex, but I sold him his first stereo recorder, a Magnecord PT6 BN. In 1952 at the Museum of Modern Art in New York, Ussachevsky and Otto Luening presented a "tapsichord" concert, and later Stokowski was involved with them in concerts of electronic music. Some years later, I was at a reception in New York for

Wendy Carlos, honoring her for the brilliant employment of synthesizers in her famous *Switched-on Bach* recording. Otto Luening was also there and introduced me to Carlos, who had been reading my stuff for years. Later I visited her home and studio and recorded a lengthy conversation on the techniques and philosophy of synthesizer composition.)

Last month I noted that Stokowski and Samaroff were close friends of Ossip Gabrilowitsch, the well-known Russian pianist and conductor. When Gabrilowitsch and his wife went to a resort area in the Bavarian mountains, the Stokowskis joined them. Perhaps stimulated by the surroundings and the general air of *gemütlichkeit*, Stoky decided to emulate all the well-upholstered, bald-pated Bavarians. Stoky shaved off all his hair and looked like a stand-in for Yul Brynner! Pictures of him in knickers, high stockings, and bald pate were published in American newspapers. Knowing his pride in his famous very full bushy blond hair, this was quite an extraordinary gesture to his Bavarian friends.

When World War I broke out, German troops arrested Stoky's friend Gabrilowitsch because he was a Russian. Stoky was urged to leave Germany at once, but this proved to be very difficult. The Swiss closed their borders, so Stoky had to head for the Dutch border. Stoky had taken out first papers for American citizenship but was still a British subject and could face internment in Germany for the duration of the war. Through a friend with connections, Stoky got a military pass from the War Minister of Bavaria giving permission for "Mr. Stokowski and his wife of Philadelphia" to proceed to Holland without hindrance. It was hoped this reference to an American city would help circumvent nationality problems.

On August 11, 1914, Stoky's wife Olga, his secretary Ruth O'Neil, his butler Ludwig, and Stoky, with a copy of the score for the Mahler Eighth, "Symphony of a Thousand," tucked in his suitcase, squeezed themselves into a crowded third-class railway car at the Munich station. For the next three days they had to wear the same clothes, and they changed cars more than 14 times to let various military trains go through. After 13 hours they

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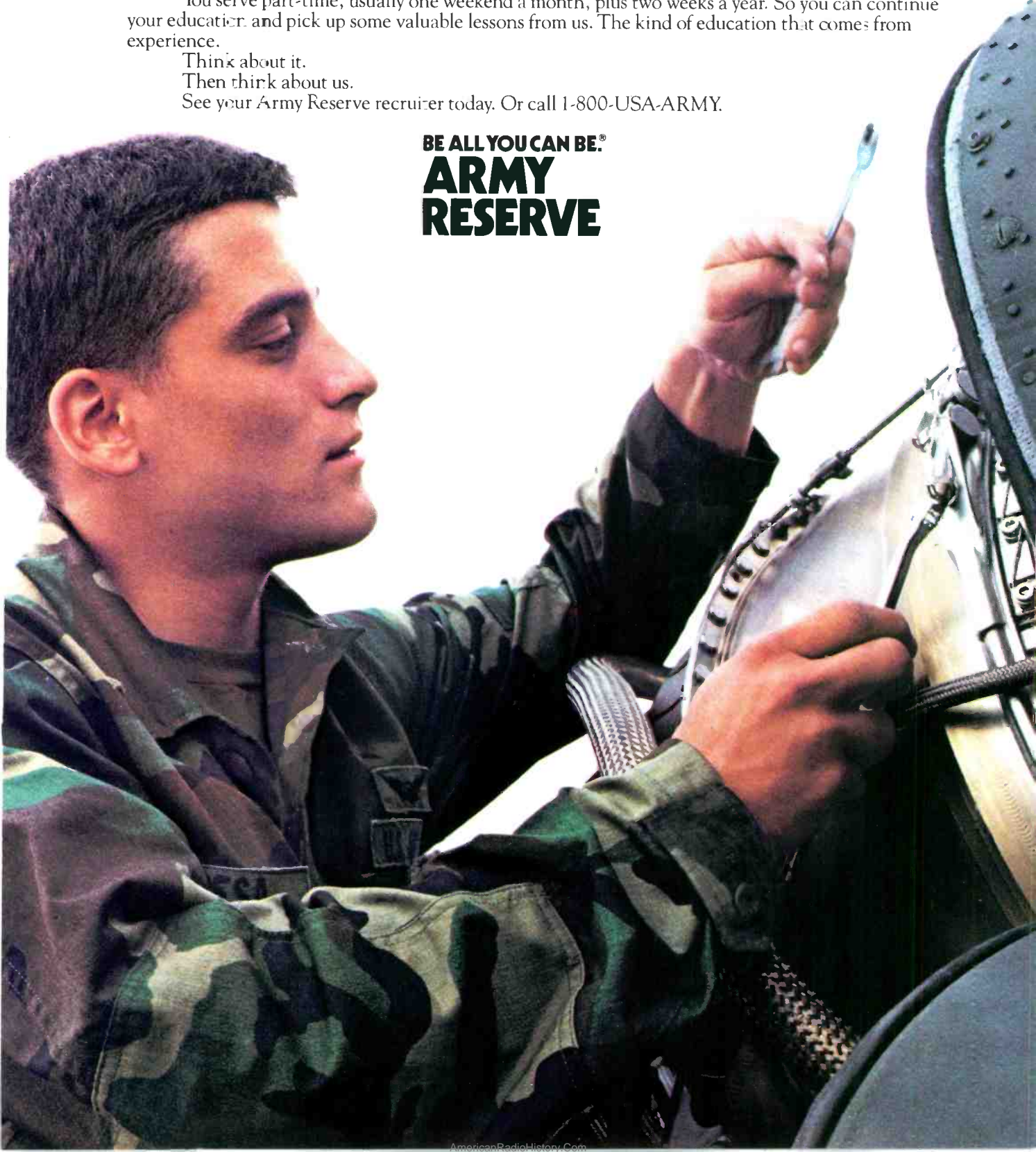
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reached Würzburg, normally a three-hour journey. They were shuffled around many small towns, sleeping on station platforms at night, not knowing when any trains would be available. Trains loaded with German troops, horses, and cannons rumbled through the night. By avoiding mainlines and

changing cars numerous times, they reached the Dutch border. With American flags prominently pinned on their clothes and luggage, they were herded into a room full of German officers who proceeded to search their luggage. From the first day of the war, foreign paper money and letters of

credit were worthless. Stoky had taken the precaution of having a small sack of gold coins, which his secretary Ruth had stuffed into her bosom. Stoky and his party finally got across the border and made their way to Rotterdam. There they boarded a small ship bound for New York. Passing through the English Channel, British cruisers warned them of mines ahead! Fortunately, they reached New York without further obstacles.

The score of Mahler's “Symphony of a Thousand” that Stoky had brought from Munich was soon used for the American premiere of the huge work. Mahler had conducted the first performance on September 12, 1910, with Stoky and Olga in the audience.

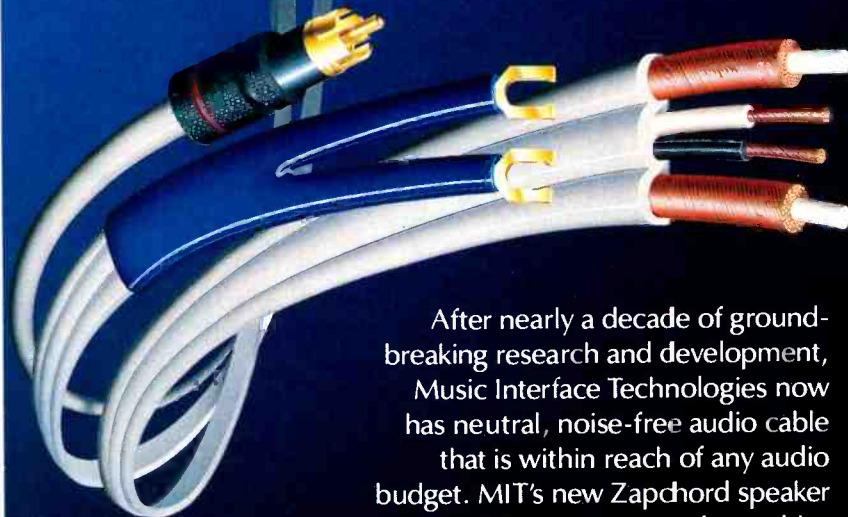
Directors of the Philadelphia Orchestra were aghast when Stokowski told them he wanted to perform the Mahler Eighth—principally because of the expenses involved for all the extra musicians. They were daunting indeed, for Stoky required two choruses of 400 singers each, a children's chorus of 150, eight soloists, and an augmented orchestra of 110 players. It took six weeks to build special platforms from the Academy of Music stage—they needed to reach practically up to the ceiling to accommodate the choruses—and an apron was built out from the stage into the hall to contain all the orchestral players.

After tremendous publicity build-up in the press, everyone who was anyone in the society and musical worlds wanted to attend the Mahler Eighth premiere. Scalpers were getting \$100 for a seat—this in 1916! On March 2, 1916, Mahler's “Symphony of a Thousand” premiered to wild acclaim. The audience was whistling, yelling, stomping, and cheering while a tired but smiling Stokowski enjoyed the plaudits.

Then the Mahler Eighth was to be presented in New York City. The logistics problems were tremendous. On April 9th, two private trains totaling 18 cars transported the 1,200 people involved in the concert. Accommodations for this group were set up at the McAlpin Hotel so they could dress and dine before going to the Metropolitan Opera House, some blocks north on Broadway. The forces involved were beyond the capacity of Carnegie Hall.

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Anyone who was anyone in society and music was at Mahler's Eighth premiere. Scalpers were getting \$100 for a seat—this in 1916!

The scene was the same as in Philadelphia—scalpers charging outrageous prices for tickets, celebrities of every stripe pouring into the Opera House, traffic jammed on Broadway. When the great gold curtain of the Met rose, revealing the huge performance group stacked 12 tiers high, there was an audible gasp from the audience. Again, the Mahler Eighth performance was a roaring success and Stokowski the lion of the hour. A total of nine performances were given in Philadelphia plus the one in New York. Many more could have been given in sold-out houses.

In retrospect, Stokowski's performance of the Mahler Eighth gave him an international reputation and the Philadelphia Orchestra was acknowledged as world-class. Stokowski knew Mahler and they conversed extensively on music. Thus it is strange that after all his success with the Mahler Eighth and an obviously high regard for Mahler and his music, Stokowski recorded so little of his music. He recorded the Eighth Symphony with the New York Philharmonic in 1950, and the Mahler Second Symphony "Resurrection" with the London Symphony Orchestra and BBC choruses in 1963 and the same work again with the LSO and LSO choruses in 1974. It is notable that these are the large-scale Mahler choral symphonies, and one wistfully thinks about what interesting and wonderful interpretations he could have done with some of the other Mahler symphonies.

I asked him to do some Mahler for Everest, but he refused and wouldn't elaborate on why he wasn't interested. I have a personal view that he felt some of Mahler's works showed a preoccupation with death—especially the Ninth Symphony—and he was uneasy about that sort of thing.

I could cite other interrelationships involving Stokowski and me with certain music and events, as well as involvements with other composers on music and technical matters. These will have to wait for another time—or perhaps someday I will write a book.

I must state my indebtedness to Oliver Daniel who kindly allowed me to extract material from his splendid and fascinating biography *Stokowski—a Counterpoint of View*, published by

Dodd, Mead & Co. Daniel was a close personal friend of Stokowski, even to the point of being executor of his will. Daniel was prominent in the broadcast and musical fields and knew a great many of Stokowski's friends and cohorts. He attended some of my recording sessions with Stokowski in Manhat-

tan Center in New York. He especially wanted to be on hand when I recorded Villa-Lobos' *Uirapurú* with the New York Philharmonic (under its nom de plume "Stadium Symphony"). Daniel was also generous enough to chronicle my relationships with Stokowski in his biography. **A**

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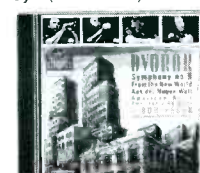
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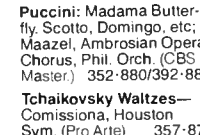
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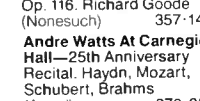
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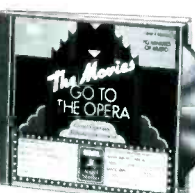
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TREE DIMENSIONS CD550 CD CABINET

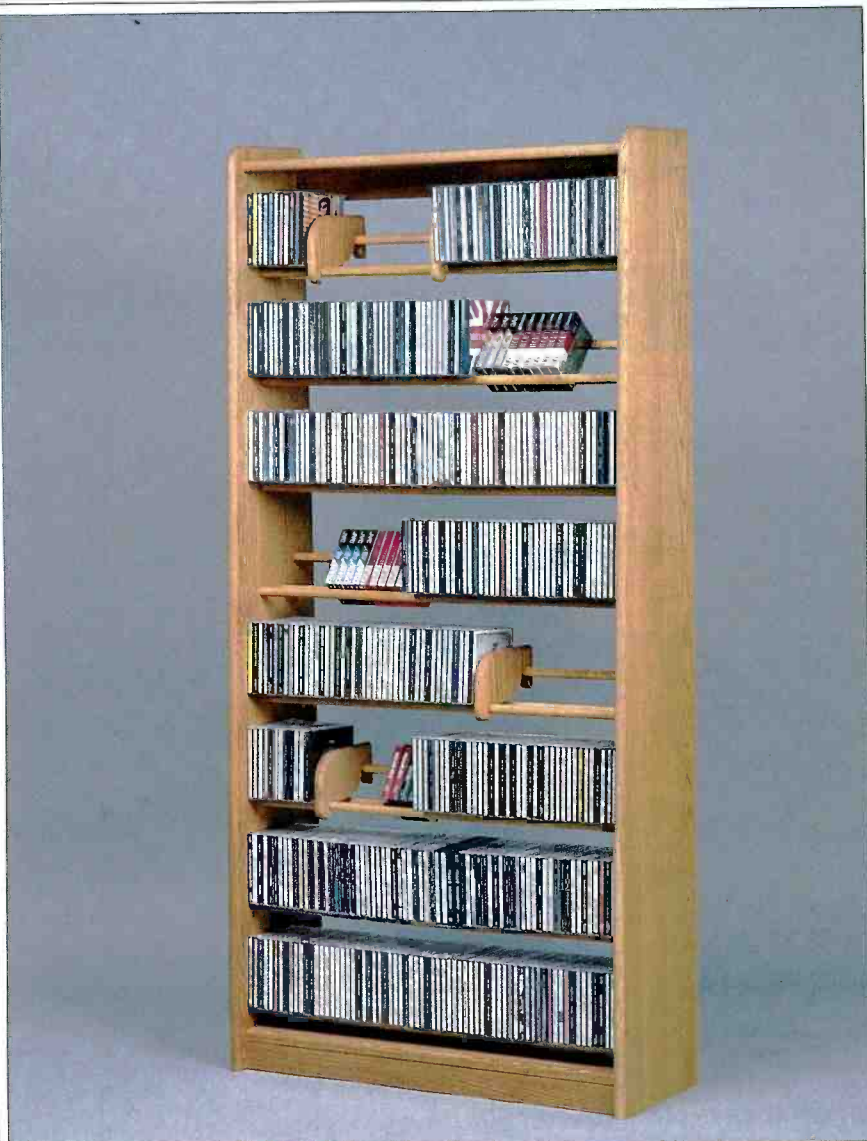
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Most CD cabinets are built for people who don't have many CDs. They not only hold small quantities of discs, but separate those discs with fixed slots or dividers. I don't much mind small cabinets, since they can be used as modules to store a growing collection. Dividers, however, are another story: Add a disc by Albinoni or Adam Ant, and everything from there to Zemlinsky or Zappa must be pulled from its slot and moved over one. Dividers also make it impossible to fit in multi-disc albums.

This Tree Dimensions cabinet, on the other hand, holds 552 discs in only eight fixed groups. However, four movable wood dividers are also supplied, to help separate disc categories and keep things from falling over on loosely filled shelves. It's also an attractive piece of furniture, with a hand-rubbed honey-oak finish and curved edges on the planks which make up its bottom, top, and sides. Its "shelves" are each made up of three long dowels, two of which support the discs while the third acts as a backrest for them. Overall dimensions are 62 in. H x 30 in. W x 10¾ in. D. At \$189.95, it can store discs for under 35¢ each—some other cabinets I've seen cost more per disc than the CDs do.

As you'd expect for a cabinet this size and price, the CD550 is shipped as a kit, but the wood is prefinished and assembly isn't difficult. The only tools required are a large Phillips-head screwdriver and a hammer or mallet, preferably the latter.

The first three steps are pretty easy. You screw special "Minifix bolts" into predrilled holes, lower the top and bot-



tom shelf assemblies onto the bolts in one cabinet side, and lock the assembly together with cam nuts. The bolts are supposed to be at right angles to the cabinet sides, and the more accurately you do this, the easier the shelves will fit over them. If you have a drill press, make a 90° hole (big enough to pass the screw but not too loosely) in a piece of scrap wood to use as a screw guide. Tree Dimensions may soon supply such drilled guides with their cabinets, for the benefit of people like me who don't have drill presses. I did fine without such guides, but they would have made things easier.

The next step requires dropping small, premeasured capsules of glue (a neat idea) into 24 holes on the cabinet side to which the shelves have been attached, then tapping long dowels into each hole with a mallet. (If you lack that, you can use a hammer with a piece of scrap wood or a thick magazine between it and the wood.) It's hard to tell when you've tapped the dowels in far enough; I'd suggest penciling a light line slightly less than half an inch from each dowel end, then tapping until the line disappears into the hole.

As it happened, I ruined one of their special screws and one of the match-

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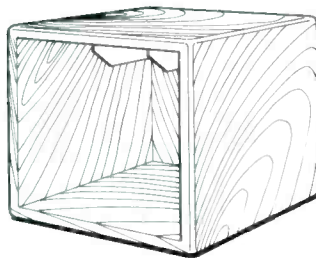
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Assembling the CD550 takes less than two hours, an easy evening's work despite a bit of banging and cursing.

ing cam nuts in building the CD550—and, as it also happened, Tree Dimensions had provided an extra one of each. Some cam nuts didn't seem to snug down properly. There were also extra glue capsules left over—but better that than running short of items you can't get at your neighborhood hardware store (especially if you do it when the stores are closed).

Final assembly is simple, but not that easy. The instructions say you could use a friend's help in step five, and they're not kidding! In the prior steps, you've mounted two shelves and 24 dowels to one side of the cabinet; now you must flip this ungainly assemblage over and lay it down so that the shelves fit over the six screws in the other side piece and all 24 dowels (none of them perfectly straight) fit into their holes. It would seem logical to lay the other cabinet side down on the dowels, but that would let the premeasured glue capsules fall out of the dowel holes. It took me 41 minutes to get up to this point, but over an hour of banging, cursing, and calling my wife for help to get it finished. Still, the whole assembly took less than two hours, an easy evening's work.

Do not do as I did and start loading your new baby with CDs as soon as it's assembled—that leads to bowing of the dowels. Instead, set the cabinet upright, make sure all dowels are straight, and let the glue set for an hour, just as the instructions tell you to.

A cabinet like this certainly helps alleviate the CD storage problem. Until I got it, I had CDs squirreled away all over the house, filling bookshelves that I'd rather use for books, and I was sometimes buying duplicates of discs I already had but couldn't find. Now, at last, my classical collection is neatly filed, with enough shelf space left for at least a bit more collecting. The problem I have now is that I need another cabinet for my pop, jazz, folk, show, and other albums and for future expansion of my continually growing classical collection.

Because my CD550 is already just about full, I'm only using one of the handsome, but thick, movable wood dividers. Tree Dimensions informs me that thin index dividers of heavy plastic, with protruding tabs and stick-on labels, are in the works. *Ivan Berger*



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ADCOM GFP-565 PREAMP

Company Address: 11 Elkins Rd.,
East Brunswick, N.J. 08816.
For literature, circle No. 91

Mid-fi gear often has excellent technical measurements and acceptable sound. Only a few exceptions, however, offer sound quality comparable to the best high-end equipment. You have to listen as well as measure, and most mid-fi firms seem to show more interest in features and market share than sound. At the same time, most high-end firms seem obsessed with offering the very best, regardless of price. Their components may produce superb sound but do so at the cost of making them unaffordable to all but a handful of wealthy enthusiasts.

Adcom is one of the few companies that has found its market niche in making high-end sound available as inexpensively as possible. It has consistently emphasized sound quality as much as technology and performs as many listening tests as technical ones. The result has been cartridges, CD players, amplifiers, and preamps that have introduced a wide range of people to a level of musicality impossible to obtain from products whose main virtues are discounted prices, numerous knobs and LEDs, and the new feature of the month.

The Adcom GFP-565 preamplifier is an excellent case in point. It retails for \$799.95—expensive by the standards of mid-fi and rack systems but dirt cheap by the escalating standards of the high end. Most important, while the GFP-565 has many of the features provided by mid-fi preamps, it is definitely designed for the serious audiophile. You can bypass virtually all of the largely unnecessary features, along with their sonic penalties, and get truly outstanding sound for the price.

It has been quite a long time since I encountered badly designed audio electronics or components without interesting design features. The technical

features of the GFP-565 have a special interest, however, because they are the result of a deliberate effort to select low-cost ways of achieving the sound of the best high-end preamps.

Like far more expensive high-end equipment, the GFP-565 was designed by listening to the effects of different circuit topologies and adjustments, different solid-state devices and passive components, and different control features. At the same time, its sound was constantly compared to some of the most expensive high-end preamps on the market. Many of the design choices were made on this basis, and anyone who has talked to the designers of preamps costing thousands of dollars realizes that this is the way most such designers operate. Good engineering theory is essential, but only empirical listening tests can produce an outstanding product.

The designers of the GFP-565 had several objectives in addition to sound quality per se. The first was to keep noise levels as low as possible and to avoid any noise that might color even the most demanding digital signal source. The second was to preserve all of the dynamic contrasts in the original signal source and not simply provide flat frequency response, low distortion, and bass extension. As a result, a great deal of attention was given not only to internal design, but to the ability of the GFP-565 to interface with a wide range of signal sources and amplifiers.

To begin with, the GFP-565 uses only high-quality passive components. The resistors are 1% Roederstein metal-film types, and the capacitors are high-grade film types. The preamp also uses an aluminum bottom plate rather than the usual steel; Adcom feels that steel causes eddy currents and distortion when it is placed near electronic circuitry or the main circuit board of a preamplifier. The cover and sides of the unit are made of steel, however, because Adcom feels there is sufficient distance from the circuitry to keep hum and noise at reasonable levels.

The circuit board is glass epoxy, with copper plating on both sides to reduce hum and r.f. interference. All input and output jacks are wired directly to the p.c. board, as are the selector switches. Long traces and wires are

avoided to minimize noise and hum and the effects of capacitance. The circuit board has one of the cleanest layouts I have ever seen, especially in this price range.

Unlike many high-end designs, Adcom has opted for the use of integrated circuits as voltage amplifiers. The company believes that this ensures uniformity from unit to unit. They also believe that the sonic problems stemming from the use of ICs in most mid-fi



ADCOM GFA-565 MONO AMP

Company Address: 11 Elkins Rd.,
East Brunswick, N.J. 08816
For literature, circle No. 92

I suspect that long before this review appears, dedicated audiophiles and a number of professionals in the music business will have already discovered that the Adcom GFA-565 power amplifier provides a mix of power and sound quality that is untouchable at anything close to the price. Audiophiles will have found that the GFA-565 is the affordable answer to inefficient speakers that present complex loads—an answer many of them will have been searching for for years. Professionals will have found a consumer-level product that can outdrive many professional amplifiers in providing concert sound levels of even large halls. But to the numbers...

The Adcom GFA-565 is a monoblock power amplifier selling for \$849.95 per channel. It has a rated signal-to-noise ratio of better than 106 dB. Its input impedance is 50 kilohms, and its input sensitivity is 130 mV for 1 watt out and 2.15 V for full rated power. Even at maximum rated power into 4 ohms, it has a dynamic headroom of 1.6 dB. Its damping factor is greater than 1,000 into 8 ohms.

The key specification for many users will be power. Each monoblock amplifier is rated at 300 watts into 8-ohm loads with a power bandwidth of 20 Hz to 20 kHz and less than 0.02% total harmonic distortion. Each amp is also said to provide 450 watts into 4 ohms and 850 watts into 2 ohms. Many manufacturers claim high-current capability for their amps; however, the GFA-565s deliver the goods even into 1-ohm loads. Equally important, they meet the real-world use test: They easily cope with even the most demanding Apogee, Infinity, and Thiel speakers.

All this power comes in a remarkably small package. The amp measures

Continued on page 144

equipment can be overcome by careful selection based on listening to individual IC types and models, and by ensuring that all ICs can operate in Class-A mode and operate with very low output impedance.

All of the relevant ICs in the GFP-565 are buffered using separate high-current, low output impedance ICs operating in Class A to ensure that they can deliver high peak currents into the load at their outputs. The buffering avoids

dynamic loading distortion, and the high-current buffers can drive the load after the IC with no current limitation. They provide low output impedance while presenting a constant load to the main IC. This loading allows the main IC to operate at its best and to provide the necessary gain without being affected by the loading of the next stage.

The best high-end preamplifier designers are placing more and more

Continued on page 140

Providing both tone controls and a way to bypass them is a much wiser path to purity than omitting even balance controls, as some preamps do.

Continued from page 139

emphasis on the power supply, and the Adcom GFP-565 reflects many of the virtues of its far more expensive brethren. It has an "overdesigned" power transformer whose current capability far exceeds what the circuit can demand. All capacitors used in the "smoothing" circuitry of the power supply, as well as rectifiers and voltage regulators, have extremely low impedances. The GFP-565 uses heavy brass buses to supply current to the circuitry and reduce the resistance of the conductors in the power supply as much as possible. Large capacitors of low effective series resistance (ESR) are placed next to each circuit and its high-current buffer to ensure isolation between the preamplifier's different stages.

In a departure from many high-end designs, there is no long wiring between the transformer and/or power supply and the circuitry. Adcom feels this increases impedance and that the power transformer must be placed in proximity to the capacitors and rectifiers of the power supply to prevent losses and degradation in power-supply regulation. So the company puts the transformer in the main chassis but isolates it from the p.c. board.

The active circuitry of this preamp also has a number of interesting features. The phono stage does not have inputs for a low-output, moving-coil cartridge—which reflects cost constraints, Adcom's emphasis on high-output cartridges, and what they believe is a declining audiophile interest in phono in general. I personally would not make such a choice, because many serious audiophiles already have large record collections and I feel most of the best cartridges are still low-output moving coils. Nevertheless, the GFP-565 does provide exceptionally good reproduction with both moving-magnet and high-output, moving-coil cartridges.

The Adcom uses a specially selected IC with ultra-low noise to amplify the signal from the cartridge. This amplifier is isolated from subsequent circuits by a high-current, low-impedance IC buffer. The phono preamp is designed to have high accuracy and to match the RIAA curve within ± 0.1 dB. Phono equalization is handled by a low-noise network of very low impedance, using 1% Roederstein film capacitors whose

impedance at high frequencies is less than 250 ohms. The use of a high-current, low-impedance buffer also allows one IC to provide the necessary gain, the current required to drive the RIAA network, and the drive required by the rest of the circuitry. This gives exceptionally low noise while still providing excellent reproduction of dynamics and transients.

The GFP-565 also has circuit features that blend the normal bells and whistles with the ability to use it as a purist's preamp. Like mid-fi preamps, this unit has a mono switch, a high-frequency filter, tone controls, and loudness compensation. The high-frequency filter is switchable and provides a slow 6-dB/octave roll-off that is down only 2.5 dB at 20 kHz. It can remove a bit of noise and hiss but does relatively limited damage to music.

The tone controls provide an adjustment range of about ± 9 dB at 40 Hz and 15 kHz. This is par for such controls, but I suspect you will rarely use them. Any speaker whose bass really needs tone controls is simply not a good speaker. The treble control can help improve really noisy musical material, but the likelihood that any tone control will have a slope that coincides closely with the compensation needed for a given system and listening room is negligible. The loudness compensation produces a 6-dB rise at 50 Hz but will color the mid-bass. And few speakers that need bass compensation can benefit from it. Some of them can't take the power, particularly those that use the same driver for bass and mid-range, and most of the rest already have a slight hump in their bass response just before the woofer's response plunges to the point where the speaker stops delivering any real power into the room.

Fortunately, the GFP-565's purist-oriented features include three different types of output—all with a low, 100-ohm impedance to minimize interaction with power amplifiers and help preserve maximum dynamic range. The "Bypass" output provides the cleanest signal path possible, with a minimum of components in the signal path. Only the volume and balance controls then affect the sound—a far wiser approach to purity than preamp designs that omit the balance control

and ignore the very real imbalances in left and right signal strength in many recordings. The "Lab" output is identical to "Bypass" unless the filters and tone controls are switched in. The "Normal" output is identical to "Lab" but is capacitively coupled with high-grade Roederstein capacitors.

I suppose that I hardly need say that I prefer the "Bypass" output. There are no night-and-day differences in sound quality, but with top-quality high-end amplifiers and speakers, you can clearly hear the difference between the "Bypass" and "Lab" outputs, and even my nonaudiophile kids could still pick up some relatively minor differences between the two. Equally important, if you use the "Bypass" output, your significant others cannot sneak up on you, and switch in the controls when you're not looking—something my rock-oriented daughter has done on occasion in what seems an unending quest to convert a high-end system into the ultimate boombox.

In fairness, many mid-fi systems are not likely to reveal most of the coloration you add as you go from the shortest to the most complex signal path, particularly those systems with relatively small speakers that suffer both from limited bass and from a roll-off and loss of speed in the upper octaves. There also are a number of transistor and tube amplifiers that really need capacitive coupling. This is especially true of older models. No competent recent design should need such protection, but you should consult your dealer or amplifier manufacturer before using the "Bypass" output.

As for other technical features, there are a large number of inputs, a processor loop, a headphone jack with its own amplifier (designed for headphones with impedances of 100 to 2,000 ohms), two tape loops, and a recording selector that is independent of the main selector switch. The tape outputs are buffered (which is a bit unusual), using individual ICs operating in Class A. Buffering helps prevent tape recorders from loading down the preamp circuitry, particularly when they're shut off and their unbiased input junctions can act as diodes across the line and distort the main signal. The buffers also have a low output impedance of 475 ohms, which reduces the

The GFP-565 combines bells and whistles, such as tone controls, with purist touches like outputs that bypass those controls.

interactions between cables and the input impedances of tape decks.

The GFP-565 is compact and nicely styled. However, there are no calibration points for the balance and tone controls, and you will need to check the pushbuttons occasionally since there are no indicators to show which features are engaged. The rear panel has good labelling and high-quality jacks that are well-spaced on the panel. There are also two switched outlets in back. This is not a flashy preamp, but most people will appreciate its restrained, "form follows function" styling.

The sound of the GFP-565 lives up to its design goals. It is one of a handful of reasonably priced preamps that approach the performance of high-end designs costing several thousand dollars or more, and is a significant advance over the Adcom GFP-555II—which is an excellent bargain in its own right. There are many other good full-featured preamps available for under \$1,000 (made by firms including Audiolab, Belles Research, B & K Components, Bryston, Counterpoint, Hafler, PS Audio, Soundcraftsmen, Superphon, and VTL), but the GFP-565 undoubtedly rivals the best of its contemporaries at anything near the price.

Its deep bass and mid-bass dynamics are excellent. They are very neutral, the sound is tight and well controlled, and transient handling is very good. Only much more expensive high-end designs offer a better combination of detail and power. The upper bass and lower midbass are very neutral, with no "suck-out" or leanness.

The midrange has considerably better dynamics than most preamps in this price range. Some other comparably priced preamps may sound sweeter but only because they mask transients and dynamic contrasts and/or roll off the apparent energy in the upper octaves. The transition between the midrange and upper midrange, and reproduction of the upper midrange, are probably the most demanding tests of a transistor preamp. The Adcom does not handle these areas as well as a number of more expensive high-end preamps do: Its presentation emphasizes transparency, rather than sweetness, in comparison to some oth-

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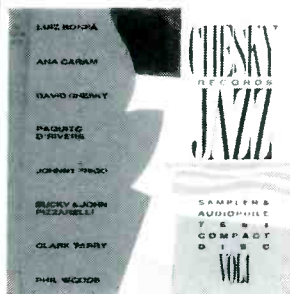
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The Adcom GFP-565 is among the few preamps good enough to reveal just how dynamic most recordings really are.

er preamps in its price range. At the same time, there is none of the hardness in the upper midrange that characterizes most mid-fi preamps and many transistor high-end preamps as well. The sound is not forgiving, but it is quite revealing and very musical with clean, well-recorded material.

The upper octaves are very clean and reproduce music in a natural form without roll-off or exaggeration. Again, some preamps costing two to three times more do better, and other preamps can be more forgiving. If you prefer accuracy over euphony, however, the Adcom offers excellent value.

The soundstage is wide and open, with excellent air and detail. Imaging is very good, with unusually good extension from left to right, and no hole in the middle or wandering of the image. Ambient noise and hall effects are reproduced very well. The only fault in this preamp is a slight lack of depth and inability to reproduce front-to-back imaging. Other preamps in this price range that have better depth achieve it at either the cost of soundstage width or of low-level detail and ability to handle transients.

The handling of dynamic contrasts is excellent, as is the ability to handle both the softest and loudest passages. It meets its design goal of being sufficiently free of noise to reveal the detail in even the lowest level digital passages and does an equally good job with analog records as well. It is considerably more open and dynamic than most competitively priced units and outperforms many top high-end designs of only a few years ago. It is one of the few preamps good enough to reveal just how dynamic most recordings really are, and is exceptionally free of the listening fatigue that can result from constriction and compression of loud passages in most moderately priced audio equipment.

In praising the Adcom GFP-565, I do not mean to imply that it is a direct rival to the preamps at the top of the high end. These designs offer improvements in many aspects of sound quality—particularly in depth and in the upper midrange. I also do not mean to imply that this preamp is superior to every rival under \$2,000. I have not heard all the competition, and I do not believe in trying to give such rankings when there are legitimate differences between designers as to what aspect of sound quality matters most. I do believe, however, that the Adcom GFP-565 is an excellent value and far from a run-of-the-mill product. It is also one of the few reasonably priced components that, when used with a top-quality system, quickly allows those who are not familiar with high-end sound to hear the difference. If you don't have several thousand dollars to spend on a preamp, the Adcom GFP-565 will make a superb introduction to the high end.

Anthony H. Cordesman

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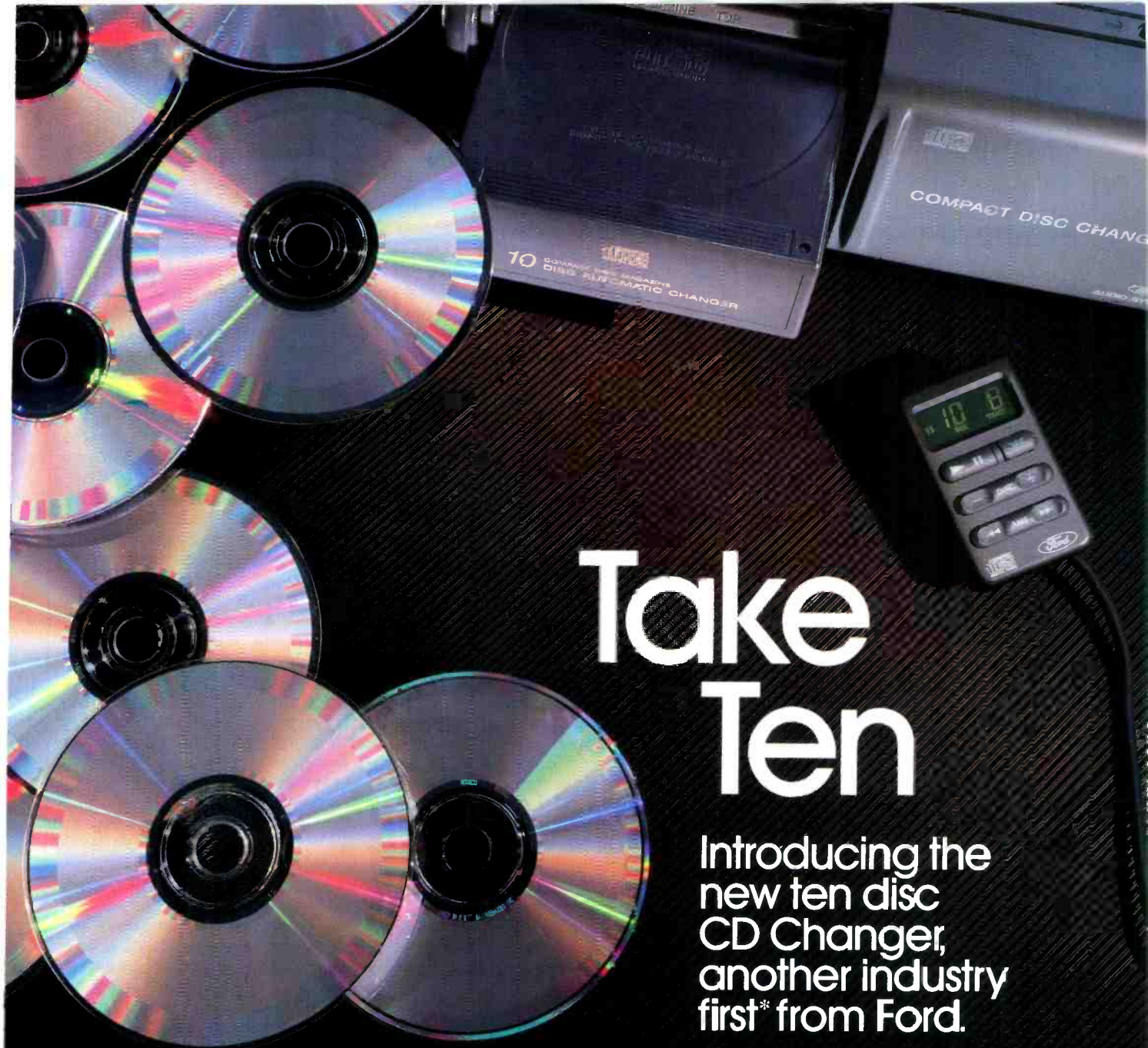
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While many amps claim high current capability, the Adcom GFA-565 delivers the goods, even with 1-ohm loads.

Continued from page 139

17 × 8¼ × 11½ inches and weighs only 45 pounds. This may seem heavy to receiver fans, but it is light by current high-end standards, particularly when compared to high-end amplifiers of similar power. Incidentally, the GFA-565 is available with a top-mounted, automatically variable ventilating fan; rack mounting, and a balanced-line input. The styling of the GFA-565 is clean and simple, and lacks the aggressive "handle and heat-sink" look of many current power amps. The only control is the on/off switch, although there are also three LEDs. The first LED shows power on, the second warns that power is reaching peak distortion levels in excess of 1% (THD, IM, TIM, or SID), and the third warns that thermal power protection has been triggered.

Like virtually every power amp on the market, the Adcom GFA-565 has excellent technology for meeting most simple frequency, power, and distortion tests. The GFA-565, however, is designed to do more than provide a massive amount of power into purely resistive test-bench loads: It is designed to provide its full rated output on a sustained basis while driving very low impedances, even when these impedances are highly reactive loads where the phase angles are substantially different.

There are good theoretical reasons for such design goals. If voltage or current lead or lag each other, it becomes more difficult for the amplifier to drive the load. Depending on the output devices used and the circuit design of the output stage, such loads can make the output devices dissipate more and more power internally rather than delivering it to the load. Adcom has found that amplifiers that perform well into the simple resistive loads, used by many magazine testers and manufacturers when measuring power, sometimes deliver only one-third as much power into "difficult" speaker loads. With some amps, it has also been found that such "difficult" loads can lead to a significant increase in distortion.

Adcom's solution to these amplifier/speaker interface problems was to develop a power supply with a large, 1.25-kVA toroidal power transformer and some 70,000 µF of filter capaci-

ance. Adcom also provided a high-capacity output circuit with 10 pairs of specially selected TO-3 metal-cased bipolar output transistors in a triple Darlington configuration. The safe operating area of these output transistors, and this circuit topology, ensure efficient power delivery into reactive loads regardless of the voltage and current phase angles.

No electronic protection or current-limiting circuitry is used that might degrade the signal. Such protection would impede the ability of the amplifier to deliver large amounts of current or power to low-impedance and highly reactive loads. Adcom feels this constricts dynamics and reduces the clarity of the sound.

A special "anti-sticking" circuitry is built into the GFA-565. If the amplifier is driven into overload, this circuitry makes certain that the sonic effects will be minimal. Thermal and dynamic tracking of the bias for the triple Darlington driver and output stages are provided to ensure that the amplifier operates at a near optimal point regardless of the length of time and level of operation or the temperature of the heat-sinks and output devices. If the user does need extremely large amounts of power into very low-impedance loads on a continuous basis, the optional variable-speed fan may be used, but it's unlikely to be needed in home applications.

The low-level input stages of the GFA-565 use a double-differential cascode voltage gain stage to ensure low distortion regardless of the level or load being driven by the amplifier. The input stages are tightly regulated, which ensures that the low-level stages are maintained at their optimal operating point regardless of the amount of power the amplifier is delivering. These regulators effectively form a power supply for the low-level stages that is separate from the power supply for the output stages. The driver stages are also designed to provide the current required by the output stages without limiting, compressing, or otherwise distorting the signal coming into the power amplifier.

A double-rail servo circuit, with positive and negative supplies, balances the double-differential circuitry, reducing d.c. offset at the amplifier output

and d.c. imbalance within the active circuitry. The servo also balances gain parameters to reduce distortion, especially at low amplifier output levels. The GFA-565's circuitry is direct-coupled to minimize the sonic deterioration capacitors are felt to cause when used between stages of amplification. As a result, the GFA-565 can amplify a d.c. signal, so there is no limit to its low-frequency extension and it can deliver enormous peaks of bass energy.

Construction quality is good, although the emphasis is placed on circuitry and not on creating the kind of "bulletproof" chassis and case provided in more expensive high-end amplifiers. The internal wiring and circuit-board work are clean and very well assembled. All internal point-to-point wiring is of oxygen-free copper. The GFA-565 uses high-quality passive components, and top-grade film capacitors are used in critical circuits. My only practical complaint is that I would like larger and better-spaced binding posts to make it easier to use a variety of speaker cables.

Many audiophiles may not need the power that is available from the GFA-565 and may prefer a cheaper amp, like Adcom's GFA-555II or one of many other high-quality, medium-priced models. High-powered amps like the GFA-565 can overdrive many speakers. Such overdriving may not be easily apparent, since it may only affect the sound at peak or surge levels, but the buyer should exercise some caution. There is no point in matching a high-power amplifier with a speaker having limited power-handling capability, and the result can be hard or colored sound, if not a blown driver. In this regard, using the GFA-565 also requires some caution. Popping interconnects and other audio "accidents" can make this amp deliver enough surge power to fry one or more drivers in many speakers.

That said, the GFA-565 is a perfect moderate-cost solution to driving the many top-quality speakers which need an amplifier that kicks out the jams and takes over. It can deliver all the dynamics that good speakers provide, it offers excellent control, and it has very good bass power and extension. Equally important, it can do this on a sustained basis. There are no trick

The GFA-565 does more than provide massive power into test-bench loads; it thrives on the real-world loads of "difficult" speakers.

power supplies that lose energy when the going gets tough, nor are there problems in driving the most demanding Apogee, Spondor, and Infinity speakers. I made a point of using the GFA-565 with several of the most difficult speakers I know of, and it clearly showed that these speakers were only difficult when the power amplifier did not match the quality of the speaker.

These words may not mean much if you have been using speakers that inherently lack the ability to produce the vast dynamic swings and sudden bursts of transient energy you often hear on the best recordings. They also may not mean much if your speakers cannot handle more than low-level deep bass or if you have been using a receiver or mid-fi amplifier that lacks "legs" and cannot handle complex loads. Most audiophiles never really hear their CDs, tapes, and records because of the limitations in their systems, and are only aware of how much they are missing if they go to live performances or hear an amplifier like the GFA-565 in a top-quality system.

The differences involved, however, have tremendous emotional and aesthetic importance. The ability to provide full orchestral sound, concert-level rock, and lifelike jazz volumes and transients is essential to making music come alive. For one thing, the human ear's sensitivity to frequency is directly proportional to volume level, and timbre can never sound natural unless music is played at natural volume levels. For another, the power in the bass is one of the critical emotional aspects of music, and you have to hear and feel it to understand what the composer and performer were trying to do.

The importance of the kind of power the GFA-565 can provide also goes far beyond its ability to deliver sheer volume. Most audio systems "compress" music so that transients and sudden musical changes do not sound natural at low to moderate levels. Low-level musical detail is not clear, and the proper contrast between soft and loud passages is missing. Bass often lacks either impact or control. Complex string passages sound blurred, and the sound-stage seems to shrink. In fact, the differences between a top-quality high-end system and most mid-fi systems in these areas are almost as

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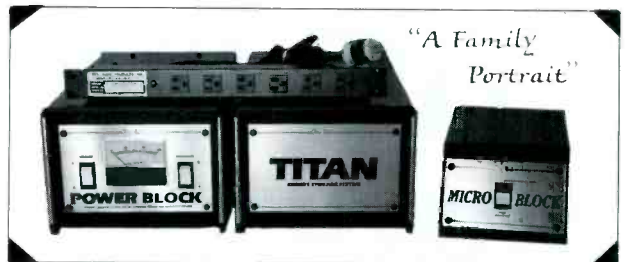
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Only far more expensive amplifiers approach the ability of the Adcom to pump this kind of power into any speaker I know of. At the same time, the amplifier does a good job of providing sweetness and detail. Many

past attempts at providing this kind of power for a moderate price have resulted in amplifiers that do not seem to come alive unless they are driven to high listening levels and that do not reproduce low-level passages with the sweetness of lower-power amplifiers. Such units become fatiguing when you

listen to chamber music, vocals, or soft jazz passages.

The Adcom has a slightly forward sound with a fair amount of upper-octave energy. It is not as sweet as some less powerful amplifiers in its price range, and it certainly is not forgiving. At the same time, there is no harshness or fatigue. You never feel you had to make important trade-offs between musicality and power. Instead you have the feeling that this amp was designed to be as revealing as possible. Some other amplifiers are able to provide this level of information with more air and musicality, but none that I know of can provide anything like the Adcom's combination of sound quality, power, and affordability.

The soundstage of the GFA-565 is also quite good, and soundstage width is very good. Imaging is stable, and left-to-right imaging is far more dependent on front-end and speaker capability than on what seems to be minimum inherent coloration in this amp. The only significant difference in this respect between the GFA-565 and competing high-end amplifiers is that some of the competition provides more depth and better resolution of front-to-back detail. As I mentioned earlier, no competing amplifier I know of can do so in a way that provides a similar balance of sound quality, power, and affordability.

I find it difficult to believe that the Adcom GFA-565 is not going to get universally favorable reviews. Transistor amplifiers have gotten far better in the last five years or so, and the overall standards in the high end are now so good that it is difficult for any product to stand out among the crowd. This is particularly true of a product that delivers two monoblock amplifiers for only \$1,700 when competing designs sell for well in excess of \$16,000! Yet the Adcom GFA-565 is a real breakthrough in terms of power and is fully competitive with anything approaching its price in the other aspects of sound quality. For most audiophiles with real-world wallets, it will be the first practical option in creating a high-end system using demanding speakers—and many top speaker designers show few signs of making life easier for power amplifiers in the future.

Anthony H. Cordesman

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MI Ann Arbor: Hi Fi Buys • Birmingham: Almas King • Dearborn: Almas Hi Fi • Farmington Hills: Almas Hi Fi • Flint: Stereo Center • Grand Rapids: Classic Stereo • Iron Mountain: Sound North • Kalamazoo: Classic Stereo • Lansing/ Midland: Hi Fi Buys • Petoskey: Kurtz Music • Rochester: Sound Choice • Saginaw: Court St. Listening Room • Traverse City: Kurtz Music
MN Alexandria: Sound Shop • Duluth: Mel's TV & Audio • East Grand Forks: Maury's • Grand Rapids: Audio Files of Grand Rapids • Menkato: Audio King • Minneapolis & Suburbs: Audio King • Rochester: Audio King • St. Paul: Audio King • Winona: Audio Designs
MO Cape Girardeau: Stereo One • Columbia: Johnston Audio • Jefferson City: The Entertainer • Kansas City: Brands Mart • Springfield: Harvey's Stereo • St. Louis: Sound Central
MS Columbus: Hooper's • Gulfport: Hooper's • Hattisburg: McLelland TV • Jackson: Hooper's • Pascagoula: Empress, Hooper's
MT Billings: Video Sat & Sound • Bozeman: Thrifty Ear • Great Falls: Rocky Mountain Hi Fi • Kalispell: Audio Visions • Missoula: Aspen Sound
NC Boone: Highland Audio • Carrboro: Stereo Sound • Chapel Hill: Stereo Sound • Charlotte: Audio Video Systems • Conover • Tri City • Greensboro: Stereo Sound • Hendersonville: Audio Connections • Kinston: Stereo Concepts • Moorehead City: Anderson Audio • New Bern: Anderson Audio • Raleigh: Audio Buys, Stereo • Winston-Salem: Stereo Sound
ND Bismarck: Pacific Sound • Fargo: Today Electronics
NE Kearney: Midwest Audio • Lincoln: Stereo West • Norfolk: Mid City Stereo • Omaha: Stereo West • York: Midwest Audio
NH Concord: Audio of New England • Laconia: Greenlawn Music • North Hampton: The New Audiophile • Salem: Cuomo's
NJ East Brunswick: Atlantic Stereo • Maple Shade: Bryn Mawr Stereo • Paramus: Harkey Electronics • Raritan: AC Audio • Ridgewood: Sounding Board • Shrewsbury: Monmouth Stereo • Tom's River: Bands Camera • Trenton: Hals Stereo Sound Center • Wall Twp.: Monmouth Stereo • Westfield: Sluerts Audio Video
NM Alamogordo: D&K Electronics • Albuquerque: West Coast Sound • Carlsbad: Beason's • Clovis: Towne Crier • Santa Fe: West Coast Sound
NV Elko: Elko Audio • Las Vegas: Upper Ear • Reno: Good Guys
NY Albany: Clark Music • Amherst: Speaker Shop • Batavia: Unicorn Audio • Bedford Hills: The Sound Concept • Buffalo: Speaker Shop • Corning: Chemung • Elmira: Chemung • Forest Hills: Continental Sound • Fredonia: Studio One • Glens Falls: Audio Genesis • Goshen: Long-pipers Stereo • Harriman: The Sound Concept • Ithaca: Chemung Sound Image • Jamestown: Studio One • Massena: Hi Fi Shop • Nanuet: The Sound Concept • Newburgh: Audio Expressions • New Hartford: Adirondack Music • New York

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The Speaker Specialists™

CT: Electronic Workshop, Harvey Electronics • **Pittsburgh:** Alpha Stereo • **Queensbury:** Audio Genesis • **Rochester:** JB Sound • **Syracuse:** Clark Music • **Vestal:** Hart Electronics • **Westbury:** Harvey Electronics • **White Plains:** Harvey Electronics
OH Akron: Audio Craft • **Canton:** Belden Audio • **Cleveland & Suburbs:** Audio Craft • **Cincinnati:** Stereo Lab • **Columbus:** Stereo Lab • **Dayton:** Stereo Showcase • **Findlay:** Audio Craft • **Lima:** Classic Stereo • **Niles:** Reunited Electronics • **Toledo:** Audio Craft • **Wooster:** Far East Audio
OK Lawton: Hi Fi Shop • **Oklahoma City:** Audio Dimensions • **Shawnee:** Rave Sounds • **Sillwater:** Cartunes • **Tulsa:** Audio Advice
OR Eugene: University Hi Fi • **Grants Pass:** Sheekells • **Medford:** Sheekells • **Portland:** Magnolia • **Salem:** Kellys Home Center
PA Allentown: Bryn Mawr Stereo • **Blakely:** Hart Electronics • **Bryn Mawr:** Bryn Mawr Stereo • **Camp Hill:** Bryn Mawr Stereo • **Chambersburg:** Sunrise Electronics • **Erie:** Studio One • **Harrisburg:** Bryn Mawr Stereo • **Jeanette:** Audio Communications • **Johnstown:** Gary's Entertainment • **Kingsport:** Hart Electronics • **Lancaster:** G'n'T Stereo • **Langhorne:** Bryn Mawr • **Montgomeryville:** Bryn Mawr Stereo • **Natrona Heights:** Stereo Land • **Philadelphia & Suburbs:** Bryn Mawr Stereo • **Pittsburgh:** Audio Communications, Audio Junction • **Quakertown:** Bryn Mawr Stereo • **Reading:** G'n'T Stereo • **Selinsgrove:** Stereo Shoppe • **State College:** Paul & Tony's Stereo • **Stroudsburg:** Main St. Audio Video • **Williamsport:** Robert M. Sides
PURCHASING OFFICES: Boston: Precision Audio, RI Middle: Hi Fi Audio • **N. Providence:** Eastern Audio • **Warwick:** Tweeter Etc.
SC Anderson: Music Machine • **Charleston:** Audio Warehouse • **Columbia:** Music Machine, Sound Advice • **Greenville:** American Audio • **Greenwood:** Stereo Shop • **Spartanburg:** Stereo Shop
SD Aberdeen: Engel Music • **Rapid City:** Team Electronics • **Sioux Falls:** Audio King
TN Chattanooga: R&R TV • **Cookeville:** Lindsey Ward • **Jackson:** New Wave Electronics • **Kingsport:** Audition • **Knoxville:** Lindsey Ward • **Memphis:** Modern Music • **San Angelo:** Sound Box • **Nashville:** Hi Fi Buys
TX Amarillo: Sound Systems Ltd. • **Arlington:** Sound Idea • **Austin:** Marcum Electronics • **Beaumont:** John Goodyear Audio • **College Station:** Audio Video • **Corpus Christi:** Tape Town • **Dallas:** AmeriQuest • **Denton:** Bell Audio Video • **El Paso:** Soundquest • **Ft. Worth:** Sound Idea • **Garland:** MJM Audio • **Houston:** Sheffield Audio • **Hurst:** Sound Idea • **Laredo:** Metex International • **Longview:** Audio Techniques • **Lubbock:** Electronics Supercenter • **McAllen:** Metex • **San Angelo:** Sound Box • **San Antonio:** Mobile HiFi • **San Marcos:** Discovery Audio Video • **Sherman:** Worldwide Stereo • **Temple:** Audio Tech • **Texarkana:** Sound Town • **Victoria:** Dyer Electronics • **Waco:** Audio Tech
UT Logan: Consumer Technologies • **Salt Lake City:** Broadway Music • **St. George:** Boulevard Home Furnishings
VA Charlottesville: Holdrens • **Colinsville:** Holdrens • **Falls Church/Manassas:** Audio Buys • **Harrisonburg:** Ace Music • **N. Electronics:** Sound World • **Roanoke:** Holdrens • **Richmond:** Gary's Stereo • **Roanoke:** Holdrens • **Virginia Beach:** Digital Sound
VT Essex Junction: Creative Sound
WA Bellingham: QC Stereo • **Chelan:** Music Store • **Oak Harbor:** QC Stereo Center • **Seattle/Bellview/Lynnwood:** Magnolia • **Spokane:** Electracraft (Hal's) • **Tacoma:** Magnolia
WI Appleton: Sound World • **Eau Claire:** F.S. Appliance & TV • **Fond Du Lac:** Audio Plus • **Green Bay:** Sound World • **Lacrosse:** Sound World • **Madison:** Happy Medium • **Milwaukee:** Audio Emporium • **Oshkosh:** Audio Plus • **Ripon:** Audio Plus • **Sheboygan:** Genes Sound & Camera
Wausau: Sound World
WV Barboursville, Beckley, Charleston: Pied Piper • **Clarksburg:** Audio Visual Concepts • **Huntington:** Pied Piper • **Parkersburg:** Video Warehouse • **Piedmont:** Sound Gallery • **Wheeling:** Look 'N' Listen
WY Cheyenne: Electronics Unlimited • **Gillette/ Sheridan:** Star Video Library

SPECTRAL DMC-20 A New Reference Preamplifier for the Coming Decade

Advances in analog and digital source components are redefining the role of the preamplifier in today's consummate music system. The Spectral DMC-20 Reference Preamplifier dramatically defines this new role, setting performance standards for the 1990s.

With unprecedented flexibility and control features, the DMC-20 establishes a benchmark in preamplifier design. Spectral's innovative architecture provides seven audio sources, phase switching, and full tape facilities, surpassing the finest purist preamp in sonic performance.

The DMC-20 can provide precision accommodations for any phono cartridge. It can offer fully differential balanced input and output capability.

New breakthroughs in signal linearity are achieved in the DMC-20. Advanced design techniques produce the fastest signal response known in the audio industry. The result is superb musical coherence and transparency.

In the DMC-20 Reference Preamplifier, timeless qualities of care and craftsmanship join Spectral's flawless engineering to promise a lifetime of music enjoyment.





Imagine a DiscJockey that's professional, accommodating and ready to play hour after hour of your favorite music. That's the guiding principle behind Sony DiscJockey® CD changers—inspiring Sony to create more ways than anyone to enjoy the fabulous sound of Compact Disc in your car.

Of course, today's DiscJockey changers are just the latest in a string of Sony hits that began with the world's first Compact Disc player. And Sony was first to take our act on the road with the world's first car CD player. We also invented the car CD Changer, opening up remarkable new possibilities. The trunk-mounted



ONE OF MANY REMOTE POSSIBILITIES TO CONTROL 10 DISCS.

mechanism lets you load ten discs at a time while the remote control switches from Be-Bop to Beethoven at the touch of a button.



THIS IN-DASH OPERATES AM, FM, CASSETTE AND 10 CDS—AND COMES WITH WIRELESS REMOTE.



So it's only natural that only Sony gives you the widest choice of CD changers and controls, starting with the affordable, sensational-sounding CDX-A30. This changer even connects to car stereos without provision for CD; all you need is your FM radio and our CDX-A30RF system. Next comes the Sony

Sony presents the only DiscJockey that takes all your requests.

Introducing the 1990 DiscJockey® CD changers.
The most comprehensive line of car CD changers in CD history.

CDX-A100, combining a superlative new suspension with an 8x oversampling digital filter to take automotive high fidelity even higher. And for the fortunate few, there's the incomparable CDX-A2001. With such esoteric circuitry as a 45-bit digital filter and four staggered D/A



SOMETIMES
REMOTE CONTROL
IS NO BIG DEAL.

converters, its musical abilities border on the magical.

While a DiscJockey changer mounts out of sight, it's never out of touch. You can operate it with any of three Remote Commander® units. Or choose one of the many Sony in-dash cassette/receivers that give you effortless

command over radio, tape and disc. Whatever your need, chances are there's a DiscJockey controller that fills it perfectly.

DiscJockey grants you one other request. Its ten-disc magazine—used by more car stereo companies than any other design—is also compatible with Sony home DiscJockey ten-disc changers. Which means the same library of CD magazines that transport you in the car will be equally at home—at home.

So if you want a car Compact Disc changer that will carry all of your favorite tunes, listen closely. Sony has dedicated a DiscJockey just for you.



WITH SONY 10-DISC MAGAZINES, YOU CAN
BRING IT ALL BACK HOME.

SONY®

THE LEADER IN DIGITAL AUDIO™

33rd ANNUAL EQUIPMENT DIRECTORY

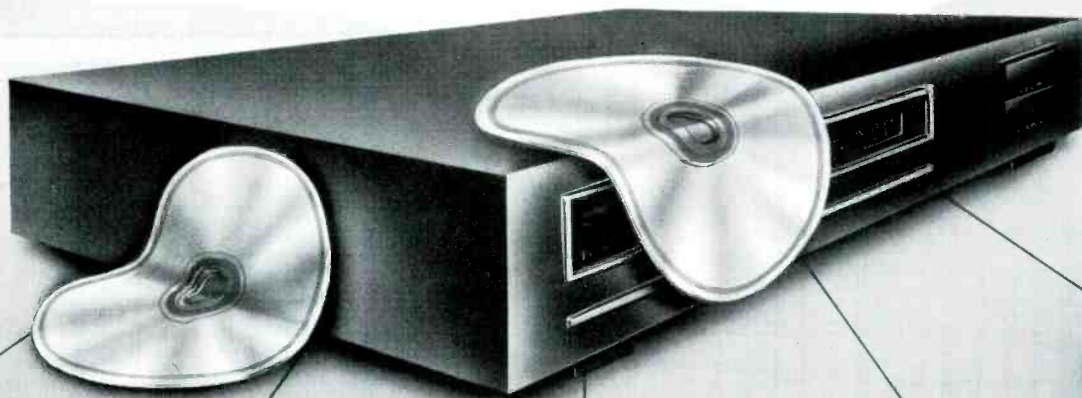


Photograph: © Bill Ashe

CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Disc Capacity	Decoding System: Number of Bits—Oversampling Rate			Line Outputs: Fixed = F, Var. = V, Balanced Analog = B Other Outputs: Headphone = H, Headphone with Level Control, HI Subcode = S, Coaxial Digital = D, Fiber Optic = F	Frequency Response, Hz to kHz, ±dB	S/N Ratio, "A" Wtd., ±dB	THD, %	Elapsed Time Display, From Disc Start = D, From Track Start = T, Both = B	Repeat/Time Display To Disc End = D, To Track End = T, Both = B	Number of Programmable Subsections	Repeat Functions: Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	Weight, Lbs.	Price, \$	Notes
			A	F/V/B	D											
ACCPHASE	DP80L/DC81L(RI)	1	20-8X	A	F/V/B	D	4-20 ± 0.3	120	.0016	D	D	30	D/T	90	13,000.	Digital signal processing for volume and de-emphasis.
	DP70(RI)	1	16-4X	A	F/V/B	D	4-20 ± 0.3	115	0.002	D	D	30	D/T	58	7600.00	
ADCOM	GCD-575(RI)	1	16-4X	A	F/V	HL/D	5-20 +0.1,-0.5	105	.0025	B	B	24	D/T/P/E	12	599.95	
AIWA	XC-M800(RI)	5	18-8X	A	F	F	2-20	0.005				32	D/T/E	12	420.00	Random play. As above.
	XC-M600(RI)	5	16-4X	A	F	F	2-20	0.04				32	D/T/E	12	330.00	
ANALOG RESEARCH	Legato(RI)	1	16-4X	A	F	HL/D/F	20-20 +0.1	107	0.01	B	B	20	D/T/P/E	33	2800.00	External power supply.
ANDDYNE GRDUP	Adapt		18-8X	A	F/V		4-20 ± 0.3	112	0.03					26	2295.00	D/A converter; tube output stage. Solid-state D/A converter.
	FET-Adapt		18-8X	A	F		4-20 ± 0.25	115	0.006					19	1695.00	
AR	CD-06(RI)	1	16-4X	A	F/V	D	4-20 ± 0.5	105	0.007	B	B	20	D/T/P/E	15	499.90	Remote has volume control.

Without WADIA, Chances Are Your CD's Sound Like This



Time-distorted harmonics are inevitable in CD playback which uses conventional digital-to-analog conversion.

WADIA D-to-A conversion reconstructs the absolute time-relationships between music fundamentals and their harmonics which are critical to the perception of music as "live."

The WADIA Time-based Algorithm

All WADIA D-to-A Converters* incorporate the patent-pending TIME-BASED Bio Digital™ Algorithm and DigiMaster™ software. The result is CD listening without harshness or time-smeared harmonics.

Three WADIA Converters

The WADIA DigiMaster X-32 provides mainframe computing power with 32x resampling for superior transient and impulse performance. The flagship

WADIA 2000 and the new WADIA DigiMaster X-64.4 use 18-bit BOSS DACs and resample at 64x to set new standards in D-to-A conversion accuracy.

For Real Listening Satisfaction

Test the musical realism of a WADIA TIME-BASED Converter at your audio dealer today. To get the cleanest signal, you'll want to listen with a new WADIA CD Transport featuring exclusive Glass Fiber Optic modem and interconnect.

With WADIA, your CD's will sound like real music —time and time again.



Wadia DIGITAL™

The Leader in Signal Conversion

511 Second Street, Hudson, WI 54016
(715) 386-8100 FAX: (715) 386-8116

*Suggested Lists: X-32—\$1,995 X-64.4—\$4,995 WADIA 2000—\$7,995

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CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model	Disc Capacity	Decoding System			Line Outputs	Other Outputs	Frequency Response	S/N Ratio	THD	Elapsed Time Display	Repeat Functions	Weight	Price	Notes
			(RI) = Remote Included	(RO) = Remote Optional	Number of Bits										
		Digital Only = B		Analog Only = C		Fixed = F, Var. = V, Balanced Analog = B		Hz to kHz, ±dB		From Track Start = A, From Disc Start = D		To Track End = T, To Disc End = O		Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	
ARAGDM	D2A		18-8X	A	F	D	2-20 ± 0.3	110	0.009				14	995.00	D/A converter; three inputs; external power supply; remote polarity inversion.
ARCAM	Alpha CD(RD)	1	16-4X	A	F	D	20-20 + 0.1, -0.5	†	0.007	T		20	8.2	799.95	†105 dB, CCIR/ARM weighting. Display dimmer.
	Delta 70.2(RI)	1	16-4X	A	V/F	D	20-20 + 0.1, -0.5	†	0.007	T	T	20	11.6	1195.00	CD transport; as above.
	Delta 170(RI)	1				D/F				T	T	20	11.6	1295.00	D/A converter; optional fiber-optic inputs, \$149.95.
	Delta Black Box		16-4X	B			10-20 + 0.1, -0.4	110	0.015					649.95	Combination, bitstream D/A converter and preamp (see "Preamps").
	Delta 110		1-256X	V	D/F									1500.00	
ARISTOM	Encore CD Player(RI)	1	16-4X	A	F	H/D	2-20	105	0.002	B	B		15	799.00	
A.V.A.	FET 3i(RI)	1	16-4X	A	F	H	5-20 ± 0.02	101	0.002	T	D	20	10	295.00	
	Omega(RI)	1	16-4X	A	F	H	3-20 ± 0.02	103	0.001	T	D	20	10	495.00	
	Transcendence(RI)	1	16-4X	A	F	H	2-20 ± 0.01	105	0.001	T	D	20	11	950.00	
	FET Valve(RI)	1	16-4X	A	F	H	1-20 ± 0.01	107	0.0009	T	D	20	16	1195.00	
BANG & OLUFSEN	CD4500	1	16-4X	A	F	D	3-20 ± 0.3	110	0.003			D	9.9	800.00	
	CD6500	1	16-4X	A	F	D	3-20 ± 0.3	110	0.003	B	D	20	14.1	1140.00	
BEARD AUDIO	DAP-1		16-12X	C	B	D/F								1999.00	D/A converter; tube output stage.
BURMESTER	870MK2		16-16X	A	V/B									8570.00	D/A converter and preamp; one analog, three digital inputs. D/A converter.
	871		16-16X	A	F/B									7990.00	
CAE	MCD-12 CD12-V	1	16-4X 16-4X	A A	F F		0-20 ± 0.05 2-20 ± 0.05	95 95	.0015 0.003	B	D	20	9 12	1100.00 1800.00	Kit, \$350.00. D/A converter; tube output stage; kit, \$1000.00.
CALIFORNIA AUDIO LABS	Icon(RI)	1	18-8X	A	F	†	10-20 + 0, -0.5	106	0.003	B	B	20	14	750.00	†Coaxial digital and fiber-optic outputs optional.
	Tercet Mk III(RI)	1	18-8X	A	F	†	10-20 + 0, -0.2	106	0.012	B	B	20	15	1295.00	Upgradable drive control. D/A converter. †MASH supplied, second converter opt. (switch-selectable).
	Aria Mk III(RI)	1	18-8X	A	F	†	10-20 + 0, -1.8	96	0.005	B	B	20	25	2395.00	
	Genesis(RI)	1	MASH-32X	A	F/B	F				B	B	20		1695.00	
	System I D/A Converter		†	A	F/B	None						20		1995.00	
CARREFA	CD-3300(RI)	1	16-2X	A	F	H	20-20 ± 0.5	95	0.01	D	D	20	9	199.95	
	CD-3400(RI)	6	16-4X	A	F		20-20 ± 0.5	96	0.009	B	B	32	11	249.00	
CARVER	TL-3300(RI)	1	18-8X	A	F	H	5-20 ± 1	110	0.002	B	B	22	13	699.00	Digital Time Lens time-domain correction circuitry. As above.
	TL-3200(RI)	1	16-8X	A	V	HL	2-20 ± 1	110	0.005	B	B	32	13	499.00	As above.
	TL-3100(RI)	1	16-4X	A	F	H	2-20 ± 1	110	0.005	B	B	16	12	349.00	As above.
	TL-3220(RI)	1	18-8X	A	V	HL	5-20 ± 0.2	100	0.003	B	B	32	11	529.00	As above.
	TLM-3600(RI)	10	18-8X	A	F	HL	5-20 ± 0.2	110	0.005	B	B	32	16	699.00	As above.
CARY AUDIO DESIGN	CAD CD50(RI)	1	16-4X	A	F	HL	20-20 ± 0.1	110	0.005	B	B	20	14	595.00	Modified Philips CD-50.
CITIZEN	CBM-50CP/S(RD)	1	16-2X	B		H	20-20 + 0.5, -1.5	92				16	0.8	245.00	Portable; includes headphones. As above.
	CBM-2200	1	16-2X	B		H	20-20 + 0.5, -1.5	92				16	1	219.95	As above.
CONRAD-JOHNSON	DF-1(RI)	1	14-4X	A	F/B		5-19 ± 0.5		0.25	T			19	1595.00	CD player/preamp (see "Preamps").
DENON	DCD-3560(RI)	1	20-8X	A	F/V	HL/D/F	2-20 ± 0.2	120	.0015	B	B	20	37½	1500.00	Four D/A converters.
	DCD-2560(RI)	1	20-16X	A	F/V	HL/D/F	2-20 ± 0.2	116	.0018	B	B	20	28	750.00	As above; adjusted for MSB.
	DCD-1560(RI)	1	20-8X	A	F/V	HL/D/F	2-20 ± 0.2	115	0.002	B	B	20	23½	650.00	Dual D/A converters adjusted for MSB; digital pitch control. As above.
	DCD-860(RI)	1	18-8X	A	F/V	HL/D	2-20 ± 0.2	105	0.003	B	B	20	9	400.00	As above.
	DCD-660(RI)	1	18-8X	A	F	HL	2-20 ± 0.2	103	0.004	B	B	20	8½	300.00	As above.
	DCD-560(RI)	1	18-8X	A	F	HL	2-20 ± 0.5	100	0.005	B	B	20	8	250.00	Dual D/A converters adjusted for MSB. As above.
	DCM-777(RI)	6	20-8X	A	F/V	HL/D/F	4-20 ± 0.2	106	0.003	T	T	32	13¼	700.00	As above; digital pitch control.
	DCM-450(RI)	6	16-8X	A	F/V	HL/D	4-20 ± 0.5	105	0.005	D	B	(6) 20	14	450.00	As above; digital pitch control.
	DCM-350(RI)	5	16-8X	A	F	HL/D	4-20 ± 0.5	100	0.01	D	B	32	12	350.00	Dual D/A converters adjusted for MSB.



WADIA CD Transports Deliver A Musical Code That Doesn't Crack

Musicality from Compact Discs depends on a precise, jitter-free data-stream.

With a new WADIA WT-2000 or WT-3200 CD Transport in place of your CD player, you'll be assured of a signal stream that won't break up.

WADIA Glass Fiber Optics Deliver Complete Musical Integrity

The new WADIA CD Transports feature WADIA's proprietary Glass Fiber Optic modem and output. You'll get 8 times greater bandwidth and 40 orders of magnitude less attenuation [ref: 1km] than with conventional CD players or Transports.

WADIA Clocks Out Jitter

The superb musicality of WADIA CD Transports

begins at the LSI Chip, where exclusive circuitry clocks the digital sampling frequency to extremely tight specs. This ensures that the WADIA Glass Fiber Modem receives a precise jitter-free data-stream.

Real Listening Satisfaction

Experience the WADIA WT-2000 or WT-3200 CD Transports* at your audio dealer today. You'll want to listen with a WADIA D-to-A Converter featuring the patent-pending time-based Algorithm for realistic reconstruction.

With WADIA, your CD's will sound like real music —maybe for the first time.

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*Suggested Lists are \$5,595 and \$1,995.

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CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model	Remote Inclusion		Disc Capacity	Decoding System			Output Filter	Line Outputs	Digital Outputs	Digital Headphone	Frequency Response	S/N Ratio	THD	Elapsed Time Display	Remaining Time Display	Number of Programmable Selections	Repeat Functions	Weight	Price	Notes
		(RI) = Remote Included	(RD) = Remote Optional		Digital Only	Analog Plus Digital	Analog Only														
DENON (Continued)	LA-3000(RI)	1		20-8X	A	F/V						5-20 ± 0.3	109	0.003	B	B	20		28½	1000.00	Combination CD/ videodisc player; S-video outputs. Combination CD/ videodisc player. Portable; includes a.c. adaptor and rechargeable battery. Portable; includes a.c. adaptor.
	LA-2000(RI)	1		20-8X	A	F						5-20 ± 0.5	106	0.004	B	B	20		21	700.00	
	DCP-100	1		16-8X	A	V	HL					2-20 ± 0.2	90	0.005	B	B	32	D/T/E	1½	399.00	
	DCP-50(RI)	1		16-4X	A	V	HL					20-20 ± 0.5	90	0.004	T		16	D/T/E	1	250.00	
DISTECH	LSI MKV Signature(RI)	1		16-4X	A	F	HL/D/F					0-20	120	0.001	B	B	20	D/T/P/E	40	4500.00	Dual mono; two external power supplies. Dual mono; external battery power.
	LSI MKVa Signature(RI)	1		16-4X	A	F	HL/D/F					0-20	120		B	B	20	D/T/P/E	40	5000.00	
EMERSON RADIO	AD2575(RI)	5		16-4X	B	F	HL					20-20 ± 1.5	90	0.05	T		32	D/T/E	14	279.05	
ESOTERIC	P-2(RI)	1		45-8X	A	V/B	D/F					0-20 ± 0.3	110	.0014	B	B	40	D/T/P/E	28¼	4000.00	CD transport. D/A converter. CD transport. D/A converter. CD transport. D/A converter.
	D-2	1		18-4X	A	F	D/F					0-20 ± 0.5	100	.0018	B	B	20	D/T/P/E	24	4000.00	
	D-10	1		18-4X	A	F	D/F					0-20 ± 0.5	100	.0018	B	B	20	D/T/P/E	15½	1000.00	
	P-500(RI)	1		25-8X	A	F	F					0-20 ± 0.5	110	0.002	B	B	20	D/T/P/E	15½	1000.00	
	CD-2500(RI)	1		18-8X	A	F	F					1-20 ± 0.5	110	0.008	B	B	20	D/T/P/E	10½	850.00	
EUPHONIC TECHNOLOGY	Arpeggio(RI)	1		16-4X	A	F/B	D					20-20 ± 0.1	104	0.002	T	B	20	D/T/P/E	12	1200.00	
FISHER	AD-742	1		18-8X	A	F	F					20-20 ± 0.5	105	0.03	B	B	16	D/T/E	6.8	249.95	Combination CD changer/LP turntable.
	AD-743(RI)	1		18-8X	A	F	F					20-20 ± 0.5	105	0.03	B	B	16	D/T/E	6.8	259.95	
	DAC-143(RI)	5		18-4X	A	F	F					20-20 ± 0.5	90	0.07	B	B	32	D/T/E	9.9	349.95	
	DAC-145(RI)	5		18-8X	A	F	F					20-20 ± 0.5	90	0.07	B	B	32	D/T/E	12.1	399.95	
	AD-ZI(RI)	1		18-8X	A	F	HL/D/F					2-20 ± 0.5	116	.0025	B	B	20	D/T/E	17.8	749.95	
	DAC-ZI(RI)	5		18-8X	A	F	HL/D/F					2-20 ± 0.5	116	.0025	B	B	32	D/T/E	20.4	899.95	
	AD-752(RI)	1		16-8X	A	F	None					20-20 ± 0.5	100	0.005	B	B	16	D/T/E	8.4	259.95	
DAC-199(RI)	5		16-8X	A	F	HL					20-20 ± 0.5	100	0.005	B	B	32	D/T/E	12.1	399.95		
GOLDMUND	Mimesis 10(RD)					F/V	D/F												6400.00	D/A converter; six digital inputs; two digital tape loops.	
GRUNDIG	CD-9000(RI)	1		16-4X	A	F/V	HL/D					20-20 ± 0.5	101	.0035	B	B	20	D/T/P/E		1099.00	
	CD-903(RI)	1		16-4X	A	F	HL					20-20 ± 0.5	101	0.005	B	B	20	D/T		899.00	
HAFLER	SE 150(RI)	1		16-4X	A	F	D					2-20 ± 0.1	100	.0025	T		20	D/E		549.00	
	Iris CD(RD)	1		16-4X	A	F	D					2-20 ± 0.1	100	.0025	T		20	D/E		599.00	
HARMAN KARDON	HD7300	1		18-4X	A	F						4-20 ± 0.2	100	0.008	B		36	D/T/E		299.00	Rear-panel remote jack.
	HD7400(RI)	1		18-4X	A	F						4-20 ± 0.2	100	0.008	B		36	D/T/E		349.00	Third-order noise shaping. As above. As above.
	HD7450(RI)	1		PWM	A	F					4-20 ± 0.0-0.5	106	0.003	B	B	30	D/T/P/E	11	429.00		
	HD7500II(RI)	1		PWM	A	F/V	HL					4-20 ± 0.0-0.2	106	0.003	B	B	30	D/T/P/E		529.00	
HD7600II(RI)	1		PWM	A	F/V	HL/D/F					4-20 ± 0.0-0.2	106	0.003	B	B	30	D/T/P/E		699.00		
HITACHI	DA-6500	1		16	C	F						5-20	93	0.005			24	D/T/P/E	6½	200.00	Combination CD/ videodisc player.
	DA-8200SW(RI)	1		16-2X	A	F						5-20	90	0.008	B		24	D/T/P/E	6½	280.00	
	DA-C70SW(RI)	12		16-2X	A	V	HL					5-20	95	0.006	B		32	D/T/E	12½	550.00	
	DA-8500	1		16-4X	A	F						5-20	96	0.03	T		32	T/E	6		
	VIP RX6EX(RI)	1		1-8X	A	F	HL					4-20	107	0.003	B	B	24	T/P/E	16½		
JVC	XL71010TN(RI)	1		18-8X	A	F/V	HL/D/F					2-20	108	0.003	B	B	32	D/T/P/E	16.4	700.00	K2 interface. Graphics capability. DiscTrack title memory.
	XLG512NBK(RI)	1		18-4X	A	F	HL					2-20	100	0.004	B	B	32	D/T/E	8.6	500.00	
	XLZ611BK(RI)	1		18-4X	A	F/V	HL/D/F					2-20	106	.0035	B	B	32	D/T/P/E	9.3	480.00	
	XLZ431BK(RI)	1		PEM/DD	A	F/V	HL/D					2-20	106	.0022	B	B	32	D/T/P/E	8.4	310.00	
	XLZ331BK(RI)	1		PEM/DD	A	F	H/D					2-20	104	.0025	B	B	32	D/T/E	7.8	255.00	
	XLV231BK	1		PEM/DD	A	F	H					2-20	104	.0025	B	B	32	D/T/E	7.8	220.00	
	XLV131BK	1		16-4X	A	F	H					5-20	100	0.05	B	B	32	D/T/E	7.8	200.00	
	XML403BK(RI)	†		PEM/DD	A	F	H					2-20	104	.0025	B	B	32	D/T/E	11.3	370.00	
	XML303BK	6		18-4X	A	F						2-20	100	0.004	B	B	32	D/T/E	10.4	315.00	
	XML202BK	5		16-4X	A	F						4-20	100	0.05	T		32	D/T	10.4	300.00	
KENWOOD	DP-7020(RI)	1		20-8X	A	F/V	HL/F					2-20 ± 0.5	110	.0025	B	B	20	D/T/E	13	469.00	
	DP-5020(RI)	1		20-8X	A	F	HL/F					2-20 ± 0.5	104	0.003	B	B	20	D/T/E	9.2	349.00	
	DP-3020(RI)	1		18-8X	A	F	HL					4-20 ± 1	90	0.01	B	B	20	D/T/E	8.4	259.00	
	DP-1520(RI)	1		16-4X	A	F	HL					4-20 ± 1	90	0.07	B	B	20	D/T/E	7.7	229.00	
KINERGETICS RESEARCH	KDP-100			18-8X	A	V						20-20 ± 1	110	0.02					20	1895.00	D/A converter with line-level preamp (see "Preamps").
	KCD-40(RI)	1		18-8X	A	V						20-20 ± 1	110	0.02	T	B	30	D/T/E	21	2295.00	
	KCD-20B(RI)	1		16-4X	A	V						20-20 ± 1	110	0.02	T	B	30	D/T/E	21	1495.00	

The Direct Path to High Definition®

Introducing the LSI Stereo Line Stage Amplifier



To begin with, forget any comparison to ordinary passive line-stage controls. The active LSI goes far beyond them—in musicality, in technical innovation, in quality of manufacture. Its pedigree, in other words, is pure Audio Research.

But far from being an expensive, limited-audience assault on an esoteric ideal, the LSI costs \$300 less than our popularly priced SP9 Mark II preamplifier.

And, it includes Audio Research's famous hybrid tube/solid-state circuit technology, unstinting parts and manufacture, and service backed by 20 solid years of leadership in audio.

The LSI offers owners the exceptional convenience of seven inputs, including the new Direct Gain Path,

which bypasses all major controls except Gain—and provides a degree of resolution that challenges the best preamps in the world.

The LSI features Audio Research's own oxygen-free Litz wire in critical circuit paths, as well as audiophile-grade connectors selected for their sonic purity. And for audiophiles who own signal processors or who bi-wire, the LSI offers two main outputs.

If you've forsaken vinyl records, if you collect only tapes or digital source material, audition an LSI at your nearest Audio Research dealer today. It may seem too good to be true, but we promise: the LSI will make a believer out of you.

20
classic years
1970 - 1990

audio research®
HIGH DEFINITION®

For line-level sources, the best is also affordable.

The LS1 stereo line amplifier carries on the proud Audio Research tradition of technical innovation and musical excellence, as it redefines the parameters of line-level input performance. At a price any music lover can afford.

The key to the LS1's exceptional attainments is a unique new input called the Direct Gain Path. Bypassing the Balance, Mode and Input controls as well as tape switching, the Direct Gain Path achieves singular sonic purity and dynamic expression, opening up line-level source material like few other control amps or preamps on the market, regardless of price. It's a circuit as close to the ideal "straight wire with gain" as Audio Research has ever produced. LS1 owners will be startled at how much more the Direct Gain Path reveals of their CDs and tapes.

Significantly, the LS1 disproves the accepted belief that a passive signal path is the better approach to line-level signal handling. With its active circuitry, the LS1 avoids the pitfalls common to passive line-level controls—the inability to properly "drive" longer interconnects; a loss of dynamics; and high-frequency rolloff. Instead, the gain stage of the LS1 reveals the airiness, timbral accuracy and dynamics needed to transcend mere hi-fi.

For its six normal line-level inputs, the LS1 provides features and operational convenience like that of the preamp upon which its design was based: the popular SP9 Mark II. Users of tape, video

and tuner inputs will enjoy the full musicality and harmonic fidelity their ancillary components are capable of.

And like the SP9, the LS1 will dramatically improve the character of modest systems, keeping pace as upgrades are put in place. Yet the Direct Gain Path also puts the LS1 at home in systems which assault the state of the art. It will serve the most demanding audiophile handsomely for years to come.

Of course, the LS1 features the same hybrid tube / solid-state technology that's made Audio Research a world standard among audiophiles. A single 6DJ8 dual triode vacuum tube, combined with the latest FET technology, provides 21 dB of high-purity gain. The benefits are consistent, reliable performance over the years.

Beyond issues of performance, the LS1 is built with as much attention to careful manufacture as every other Audio Research product. LS1 owners can rest easy with the security of Audio Research's 20-year history of support and service, a benchmark in the high-end audio industry. No matter how many years you own your LS1, Audio Research will be there.



Optional anodized black front panel and control knobs are available at additional cost.

LS1 SPECIFICATIONS

- FREQUENCY RESPONSE:** ± 5 dB, 5Hz to 50kHz, -3dB points below 1Hz and above 200kHz
- DISTORTION:** Less than .01% at 2V RMS output. (Typically less than .005% in midband)
- GAIN:** Direct input to main output: 21dB, CD input to main output: 11dB, High level inputs to tape output: 0dB, High level inputs to main output: 21dB
- INPUT IMPEDANCE:** 50K ohms (150K ohms CD, 100K ohms Direct)
- OUTPUT IMPEDANCE:** 250 ohms main output. Recommended load 60K ohms and 100pF. (20K ohms minimum and 1000pF maximum)
- MAXIMUM INPUT:** 20V maximum.
- RATED OUTPUTS:** 2V RMS 5Hz to 50kHz, all outputs, 60K ohm load (main output capability is 50V RMS output at 1/2% THD at 1kHz into a 100K ohm load with 5V RMS input)
- POWER SUPPLIES:** Electronically-regulated low and high voltage supplies. Shielded toroid transformer. Line regulation better than .01%.
- NOISE:** (1) 70uV RMS maximum residual unweighted wideband noise at main output with gain control minimum (98dB below 5V RMS output), (2) More than 100dB below 1V RMS input (less than 7uV equivalent input noise)
- TUBE COMPLEMENT:** 1 - 6DJ8/ECC88 dual triode (Hybrid FET/Tube audio circuit, solid-state power supply)
- POWER REQUIREMENTS:** 100-135VAC 60Hz (200-270VAC 50/60Hz) 50 Watts maximum
- DIMENSIONS:** 19" (48 cm) W x 5-1/4" (13.4 cm) H (standard rack panel) x 10-1/4" (26 cm) D. Handles extend 1-5/8" (4.1 cm) forward of front panel. Rear chassis fittings extend 7/8" (2.3 cm)
- WEIGHT:** 12 lbs. (5.5 kg) Net, 21 lbs. (9.5 kg) Shipping

Three-Year Limited Warranty

All Audio Research products are backed by a Three-Year Limited Warranty; vacuum tubes are warranted against defects for 90 days. For one year from date of purchase, Audio Research pays round-trip freight charges on any equipment requiring warranty service at the factory. See your authorized Audio Research dealer for details.

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Custom gold-plated input connectors are carefully selected for sonic purity. Direct Gain Path inputs are at extreme left.



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HIGH DEFINITION[®]

CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	Disc Capacity	Decoding System: Number of Bits		Digital Filter: Digital Only = B, Analog Only = C	Line Outputs: Fixed = F, Var. = V, Balanced Analog = B	Frequency Response, Hz to kHz, ± dB	S/N Ratio, A* Wtd., ± dB	THD, %	Repeat Function: From Track Start = T, Both = B From Disc Start = D, Both = D	Number of Programmable Selections A-B Phrase = P, Entire Program = E	Weight, Lbs.	Price, \$	Notes				
			Number of Bits	Over-sampling Rate														
KRELL	SBP-64X	18-64X		F/B	D/F		100	0.017				8950.00	D/A converter, software-based, upgradable. As above.					
	SBP-32X MD-1(RI) MD-2(RI)	1 1	18-32X	F/B	D/F S/D/F S/D/F		110	0.017	D D	D D		3500.00 5400.00 2700.00	CD-RDM transport. Transport.					
KRELL DIGITAL	MD-1(RI)	1			D/F							5400.00	Top-loading CD transport. As above.					
	MD-2(RI) CD-16(RI)	1 1	18-16X	C	F/B D/F	20-20	100	0.03	D	D D		2700.00 3650.00	Top-loading, upgradable, software-based D/A converter. Upgradable, software-based dual D/A converter. As above.					
	SBP-64X SBP-32X		18-64X 18-32X		F/B	20-20	100	0.03				8950.00 3500.00						
LUXMAN	DZ-92(RD) DC-114(RD)	1 †	16-4X 18-8X	A A	F F	HL	5-20 ± 0.05 5-20 ± 0.05	105 104	0.06 0.005	T T	T T	20 24	D/T/E D/T/E	6.8	280.00 800.00	f6 + 1. Compatible with Alpine 5952 car changer. Hybrid with tubes.		
	D-105u(RI) DZ-111(RI) DZ-112(RI) OC-113(RI)	1 1 1 †	18-8X 16-4X 18-8X 16-8X	A A A A	F F F F	HL/D/F HL/D HL/D HL/D	5-20 ± 0.1 5-20 ± 0.05 5-20 ± 0.05 5-20 ± 0.05	105 105 106 98	0.05 0.06 0.005 0.008	B B B B		32 32 32 32	D/T D/T D/T D/T	18.7 9.3 9.9 11.2	1200.00 350.00 500.00 600.00	f6 plus 1 changer.		
	MAGNAVOX	CDB-500(RD) CDB-502(RI) CDB-614(RI) CDB-624(RI) CDC-550(RD)	1 1 1 1 5	16-4X 16-4X 1-256X 1-256X 16-4X	C C C C C	F F F F F	H H HL HL	2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5	95 95 100 100 100	0.015 0.015 .0025 .0025 0.015	T T T T T	D D D B	20 20 20 30 50	D/E D/E D/T/P/E D/T/P/E D/E	7.7 7.7 9 9.5 9	169.95 179.95 229.95 299.95 249.95	Bitstream. As above. Four discs changeable during play. As above.	
		CDC-552(RI) CDB-490(RD) CDB-492(RI) CDB-494(RD)	5 1 1 6	16-4X 16-1X 16-1X 16-1X	C C C C	F F F F	H H H H	2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5	100 90 90 90	0.015 0.02 0.02 0.02	T T T T		50 20 20 30	D/E D/E D/E D/E	9 9 9 11	249.95 169.95 179.95 269.95	Optional single-disc tray. As above.	
CDB-496(RI) CDB-583(RI) CDB-586(RI)		6 6 6	16-1X 16-4X 16-4X	C C C	F F F	H H H	2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5	90 100 100	0.02 0.015 0.015	T T T	B B	30 30 30	D/E D/T/E D/T/E	11 12.1 12.1	299.95 329.95 349.95	Favorite Track Selection.		
CDB-610(RI) CDB-630(RI)		1 1	16-4X 16-4X	C C	F F/B	H H/D	2-20 ± 0.5 2-20 ± 0.5	100 105	.0025 .0025	T T	B B	20 20	D/T/P/E D/T/P/E	9 9	229.95 399.95	Dual Favorite Track Selection.		
MARANTZ		CD-94(RI) CDA-94 CD3577(RI) DC3587(RI)	1 1 1 5	16-4X 16-4X 1-256X 16-4X	A A A A	F F F F	HL/D HL/D	4-20 ± 0.5 2-20 ± 0.1 4-20 ± 0.05 20-20 ± 1	96 100 100 96	0.003 0.003 0.01 0.03					28 25.3 9.3 10.8	1800.00 1800.00 450.00 380.00	D/A converter.	
		McINTOSH	MCD7007(RI)	1	16-4X		F/V H/D	20-20 ± 0.03	114	.0012	B	D	20	D/T/P/E	18	1995.00		
		MELOS AUDIO	CD-T Bitstream(RI)	1	1-256X	A	V		20-20 ± 0.1	89	0.07	D		20	D/T/E	32	1695.00	Separate chassis for digital, analog, and power supply. As above; includes line level preamp.
			CD-T Bitstream Preamp(RI) 1 Bit Processor	1	1-256X 1-256X	A	V		20-20 ± 0.1 20-20 ± 0.1	89 89	0.07 0.07	D		20	D/T/E	34	1995.00 2395.00	D/A converter; differential mode bitstream; two chassis.
MERIDIAN		203		1-256X	A	F		20-20 ± 0.2	106	0.004					9	990.00	Bitstream D/A converter; coaxial and fiber-optic inputs.	
		206(RI) 208(RI)	1 1	16-4X 1-256X	A A	F F/V	HL/D/F HL/D/F	20-20 ± 0.2 20-20 ± 0.2	115 106	0.004 0.004	B B	D D	32 32	D/T/E D/T/E	22 22	1650.00 2950.00	Three-input preamp. CD transport.	
	602(RI) 603(RD)	1 1	1-256X	A	V/B	D/F	20-20 ± 0.2	108	0.004	B	D	32	D/T/E	22	2500.00 2500.00	Combination preamp and bitstream D/A converter; four analog, four digital inputs.		
	META RESEARCH/ GDLMUND	Laser I(RI) Convert I(RD)	1			F S/D									3190.00 2650.00	CD transport. D/A converter; variable line outputs optional; expandable.		
MISSION	Cyrus PCMI(RI)	1	16-4X	A	V	HL/D	20-20 ± 0.5	96	0.003	B	B	20	D/T/P/E	16	849.00			
MITSUBISHI	M-C6010(RI)	5	18-8X	B	F	HL	4-20 ± 0.3	106	0.002	B		†	D/P/E	15	849.00	†1000. Dual D/A converters; on-screen TV display with 50-magazine memory. Dual D/A converters. As above.		
	M-C4030(RI) M-C2050(RI)	5 1	16-4X 1-32X	B	F F	H HL	4-20 ± 0.5 4-20 ± 0.5	100 100	0.02 0.003	T T		20	D/P/E D/P/E	14 8	449.00 349.00			
THE MOO SQUAD	Signature(RI)	1	16-4X	A	F/V	D/F	0.1-20 ± 0.5	100	0.005	B	B	20	D/T/P/E	14	2995.00	Upgradable D/A converter; Favorite Track Selection; polarity inversion. Upgradable D/A converter; FTS.		
	Prism II(RI)	1	16-4X	A	F/V	D	0.1-20 ± 0.5	100	0.005	B	B	20	D/T/P/E	12	1750.00			

Learn to play Bach



It may have taken a musical genius to write the *Tocatta and Fugue in D Minor*, but it shouldn't take a technical genius to play it.

Or at least, that's the thinking behind the Mitsubishi M-C6010, the world's first CD changer with on-screen commands.

The way we see it, you shouldn't have to spend the best years of your life figuring out how to work your audio equipment. So we've put the directions right on the TV screen in

front of you, in the form of menus that lead you through every function, step by step. And confirm what you're doing while you're doing it. There are menus that cover all the usual functions, like programming discs and recording them to tape.

And then there are menus for things that aren't usual at all. For instance, imagine being able to customize your CD library according



The M-C6010 CD changer.



The M-R8010 Home Theater receiver.

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in three easy steps.



to category. You name each magazine, and the next time you insert it into the changer, your title—"Sixties Classics" or "Elevator Greats"—will appear on the screen. Or if you feel like browsing, you can call up the names of every magazine in your library with a quick flick of the remote control.

As a piece of video equipment, our CD changer is pretty impressive. But we could hardly expect you to buy it on looks alone, so we gave it all the technology any right-minded audiophile would insist on. Dual 18-bit linear D/A converters. 8-times oversampling during the filtering process. And digital de-emphasis, a special circuit for accurate playback of the

high frequencies present on compact discs.

Of course, the best way to get the most out of all this technology is to make it part of a Mitsubishi Home Theater System, so your audio and video components can work together as a cohesive unit. Everything in the system—from our big screen TVs and VCRs to our CD changer and Home Theater receiver—operates the same way and can be controlled by a single learning remote.

With all of this in mind, picking out your next CD changer should be as easy as playing "Chopsticks."

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CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Disc Capacity	Decoding System			Line Outputs	Frequency Response, Hz to kHz, ±dB	S/N Ratio, "A" Wtd., -0dB	THD, %	Bypass Time Display From Disc Start = 0, From Track Start = 1, Both = 2	Repeat Functions: Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	Weight, lbs.	Price, \$	Notes		
			Number of Bits	Over-sampling Rate	Digital Filter											
MSB TECHNOLOGY	Silver 630(RI)	1	16-4X	A	F	None	10-20 ±0.5		B		20	D/T/P/E	14	1695.00	Combination CD/ videodisc player.	
	Gold(RI)	1	16-4X	A	F	None	10-20		B		20	D/T/E	14	2350.00		
	Platinum(RI)	1	16-4X	A	F	None	10-20		B		20	D/T/E	14	6995.00		
	Gold CDV(RI)	1	16-4X	A	F	None	10-20		B		20	D/T/E	72	2995.00		
MUSEATEX AUDIO	Melior CD Deck(RI)	1		B		D/F		0.005	B	B	99	D/T/P/E	22.5	1650.00	CD transport.	
	Meitner CD-3(RI)	1	16-4X			D	20-20 ±0.5	100	0.005	B	B	99	D/T/P/E	38.2	3050.00	D/A converter.
	Melior D/A Converter		PDM	C	F		20-20 ±0.2	100	0.005				10	750.00		
MUSICAL CONCEPTS	Enigma IIM(RI)	6	16-4X	A	F/V	H/D	20-20 ±0.1	105	0.002	B	B	32	D/T/P/E	14½	729.00	External dual-mono power supply. Motorized volume control.
	Enigma II(RI)	1	16-4X	A	F	H	20-20 ±0.1	102	.0025	B	B	20	D/T/P/E	9	495.00	
	Era II(RI)	1	16-4X	A	F/V	H/D	20-20 ±0.1	105	0.002	B	B	20	D/T/P/E	13	895.00	
	Epoch II(RI)	1	16-4X	A	F/V	H/D	20-20 ±0.1	105	0.002	B	B	20	D/T/P/E	15	1195.00	
	Epoch II 80(RI)	1	16-4X	A	F/V	HL/D/F	20-20 ±0.1	105	.0015	B	B	20	D/T/P/E	33	1595.00	
NAD	5100(RI)	1	16-4X	A	F/V	HL	5-20 +0,-0.2	106	0.004	B	B	29	D/T/E	10¾	499.00	
	5170(RI)	7	16-4X	A	F/V	HL/D	5-20 +0.1,-0.3	103	0.006	B	B	32	D/T/E	13½	699.00	
	5325(RI)	1	16-4X	A	F		5-20 +0,-0.5	112	0.04	B	B	20	D/T/E	7¾	299.00	
	5340(RI)	1	16-8X	A	F/V	D	5-20 ±0.1	107	0.003	B	B	32	D/T/E	7¾	399.00	
NAKAMICHI	OMS-7AII(RI)	1	16-4X	A	F	HL	5-20 ±0.5	104	.0025	B	D	24	D/E	16½	1995.00	Dual D/A converters. As above. 16 plus 1 changer. Digital de-emphasis; synchro recording. †As above. Digital de-emphasis. Dual D/A converters. A/D and D/A converter; included with 1000 DAT recorder.
	OMS-5AII	1	16-4X	A	F	None	5-20 ±0.5	104	.0025	B	D	0	D/E	16	1650.00	
	CD Player 2(RI)	†	20-8X	A	F/V	HL/D	5-20 ±0.5	105	.0025	B	D	50	D/E	12	649.00	
	CD Player 3(RI)	†	18-8X	A	F	HL	5-20 ±0.5	103	.0035	B	D	50	D/E	12	499.00	
	CD Player 4(RI) 1000P	1	18-8X 20-8X	A	F	HL/D	5-20 ±0.5	100	.0035	B	D	24	D/E	11	349.00	
				A	F/V/B	HL/D/F	5-20 ±0.5	106	.0005					38	5100.00	
ONKYO	DX-1400(RO)	1	18-8X	A	F	H	5-20	100	0.004	T	B	20	D/T/E	10.1	199.95	Dual DA converters adjusted for MSB. As above; shuffle play and repeat. Dual D/A converters adjusted for two MSBs; opto-coupling. Shuffle play and repeat. As above. Opto-coupling. As above. Music File memory for 340 discs. Opto-coupling; D/A converter adjusted for four MSBs. Shuttle search; variable speed scanning and cueing; digital polarity switch.
	DX-1800(RI)	1	18-8X	A	F	HL	5-20	100	0.004	T	B	20	D/T/E	10.1	229.95	
	Integra DX-5700(RI)	1	18-8X		F/V	HL/D/F	5-20	110	0.003	B	B	20	D/T/P/E	18.1	579.95	
	DX-C100(RO)	5	16-4X	A	F		2-20	96	0.05	B	T	36	D/T/E	13.2	299.95	
	DX-C200(RI)	5	16-4X	A	F		2-20	96	0.05	B	T	36	D/T/E	13.2	329.95	
	DX-2800(RI)	1			F/V	HL/F				B	B	20	D/T/P/E			
	Integra DX-3800(RI)	1			F/V	HL/F				B	B	20	D/T/P/E			
	DX-C310(RI)	6	18-8X	C	F	H	5-20	96	0.004	B	B	40	D/T/E	12.8	420.00	
	DX-C510(RI)	6	18-8X	C	F	HL	5-20	96	0.004	B	B	40	D/T/E	12.8	520.00	
	Integra DX-7500(RI)	1	18-8X	C	F/V	HL/D/F	2-20	108	.0015	B	B	20	D/T/P/E	19.4	700.00	
Grand Integra DX-G10(RI)	1	18-8X	A	F/V	HL/D/F	2-20	110	.0015	B	B	16	D/T/P/E	59.5	2500.00		
OPTIMUS	42-5013(RI)	1	16-2X	A	B	None	5-20 ±5	98	0.01	B	D	20	D/T/P	9½	239.95	
	42-5015(RI)	1	16-2X	A	B	None	5-20 ±5	102	0.05	B	D	16	D/T/E	11½	219.95	
	42-5016(RI)	1	16-2X	A	B	None	5-20 ±5	98	0.05	B	D	20	D/T/E	6½	199.95	
	42-5021(RI)	5	16-4X	A	B	H	5-20 ±5	105	0.05	B	D	32	D/T/E	11½	249.95	
PANASONIC	SC-SLPS352	1	16-4X				2-20 ±1	96	0.05			20	D/T/E	7.9	179.95	Combination CD/ videodisc player. As above; jog/shuttle control.
	SC-SLPC363(RO)	5	18-4X				2-20 ±1	96	0.005			20	D/T/E	10	229.95	
	LX-200(RI)	1	18-8X				4-20	106	0.003				20.3	850.00		
	LX-1000(RI)	1	MASH				4-20	110	.0027				25.4	1400.00		
PARASOUND	CDX88(RI)	1	18-8X	A	F	H/D	5-20 ±0.2	110	0.002	T	D	20	D/T/P/E	12	345.00	Dual D/A converters.
PHILIPS	CD-40(RI)	1	16-4X	A	F	H	20-20 ±0.1	102	.0025	T		20	D/T/P/E	9	249.95	Random play; intro scan; index access. Favorite Track Selection; random play; index access. FTS; random play; cassette edit. FTS; random play; index access. Alphanumeric FTS titling. Differential mode bitstream. Separate transport and D/A converter.
	CD-50(RI)	1	16-4X	A	F/V	HL/D	20-20 ±0.1	102	.0015	T		20	D/T/P/E	10	329.95	
	CD-60(RI)	1	16-4X	A	F/V	HL/D/F	20-20 ±0.1	102	.0015	B	B	20	D/T/P/E	11	429.95	
	CDC-875(RI)	6	16-4X	A	F/V	HL/D	20-20 ±0.1	100	.0025	T		32	D/T/P/E	15	469.95	
	CD-80(RI)	1	16-4X	A	F/V	HL/D/F	20-20 ±0.1	104	.0015	B	B	20	D/T/P/E	33	799.95	
	LHH-500(RI)	1	1-256X	A	F/B	D/F	20-20 ±0.1	96	.0025	B	B	20	D/T/P/E	37	2000.00	
	LHH-1000(RI)	1	16-4X	A	F/B	HL/D/F	20-20 ±0.1	104	.0015	B	B	20	D/T/P/E	62	4000.00	

CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	Disc Capacity	Decoding System: Number of Bits			Original Filtration: Digital Only = B, Analog Only = C	Over-sampling Rate	Line Outputs: Fixed = F, Var. = V, Balanced Analog = B	Other Outputs: Headphones = H, Headphone with Level Control = HL, Coaxial Digital = D, Fiber Optic = F	Frequency Response: Hz to kHz, ±dB	S/N Ratio: A* Wtd. - dB	THD: %	Ejected-Time Display: From Track Start = T, Bolt = B	Remaining Time Display: To Track End = T, Bolt = B	Number of Programmable Selections	Repeat Functions: Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	Weight: Lbs.	Price: \$	Notes
			A	F/V	H/HL/D/F														
PIONEER	PD-M730(RI)	6	20-8X	A	F/V	HL/F	2-20		110	0.002						12 3/8	600.00	Combination CD/ videodisc player; plays both sides of videodisc; S-video output. As above but without S-video output. Combination CD/ videodisc player. As above; dual D/A converters. Combination CD/ videodisc player; plays both sides of videodisc; S-video output.	
	PD-M630(RI)	6	20-8X	A	F/V	HL	2-20		107	0.003						10 7/8	450.00		
	PD-M530(RI)	6	20-8X	A	F/V	HL	2-20		106	0.04						10 3/4	335.00		
	PD-M435(RI)	6	20-8X	A	F/V	HL	2-20		106	0.04						10 3/4	300.00		
	PD-M430(RD)	6	20-8X	A	F/V	HL	2-20		106	0.04						10 3/4	275.00		
	PD-8500(RI)	1	20-8X	A	F/V	HL/D/F	2-20		112	0.002						17 3/8	620.00		
	PD-7500(RI)	1	20-8X	A	F/V	HL/F	2-20		108	.0024						9 1/2	450.00		
	PD-6500(RI)	1	20-8X	A	F/V	HL/F	2-20		106	.0027						8	370.00		
	PD-5500(RI)	1	20-8X	A	F/V	HL	2-20		106	0.004						8	250.00		
	PD-4550(RI)	1	20-8X	A	F/V	HL	2-20		106	0.004						8	225.00		
	PD-4500(RD)	1	20-8X	A	F		2-20		106	0.004						8	220.00		
	PD-93(RI)	1	20-8X	A	F		2-20		115	.0015						38 1/4	1800.00		
	PD-73(RI)	1	20-8X	A	F		HL/D/F	2-20		113	.0018					20 7/8	850.00		
	PD-M92(RI)	6	20-8X	A	F/V	HL/F	2-20									13 7/8	800.00		
CLD-3080(RI)	1	18			F								20		24 1/2	1400.00			
CLD-2080(RI)	1												24		23 3/4	850.00			
CLD-1080(RI)	1					H							24		16 1/2	600.00			
CLD-980(RI)	1	16											24		16 3/8	500.00			
Elite CLD-92(RI)	1	20				F							20		28 5/8	2000.00			
PROCEED	PCD(RI)	1	18-8X	A	F/B	D	10-20 ± 0.0-0.2		105	0.004	D		20	D/T/E	25	1650.00	D/A converter. CD transport. †Via XLR and RCA jacks.		
	PDP		18-8X	A	F/B	D			105	0.004			20	D/T/E	21	1295.00			
	PDT(RI)	1				D†							20	D/T/E	24	1495.00			
PROTON	AC-620(RD)	1	16-4X	A	F/V	HL	20-20 ± 0.3		100	0.003	T		20	D/T/E	17	650.00			
	AC-420	1	16-2X	A	F/V	HL	20-20 ± 0.3		95	0.05	T		15	D/T/E	9 3/4	250.00			
QUAD	66(RI)	1	16-4X	A	F	D	20-20 ± 0.1		96	0.003	T		20		8	1200.00			
QUASAR	CD8930	1	16-4X	C	F		2-20 ± 1		96	0.004	T	T	20	D/T	9	169.95	Top-loading. Combination CD/ videodisc player.		
	CD8949(RD)	1	16-4X	C	F		2-20 ± 1		96	0.004	T	T	20	D/T	9 1/2	199.95			
	CD8990(RI)	5	16-4X	C	F		2-20 ± 1		96	0.004	T	T	32	D/T/E	10	299.95			
	LD9090(RI)	5	18-8X	A	V/B	HL/F	4-20 ± 0.5		106	0.003	B	B	20	D/T/P/E	20	899.95			
REALISTIC	16-302(RI)	1	16-4X	A	F	H	20-20 ± 2		90	0.03	B	B	20	D/T/E		499.95	Combination CD/ videodisc player. Portable; includes AM/ FM tuner. As above. Portable.		
	42-5026	1	16-2X	A	F	H	20-20 ± 2		75	0.07					1.8	189.95			
	42-5017	1	16-2X	A	F		20-20 ± 2		90	0.05	D	D	16	D/T/E	1.8	199.95			
	42-5027	1	16-2X	A			20-20 ± 1		90	0.05			16	D/T/E	1	239.95			
REVOX	B226-S(RD)	1	16-4X	B	F/V	HL/D/F	20-20 ± 0.1		100	0.005	B	B	19	D/T/P/E	18 1/2	1895.00			
	B126(RD)	1	16-4X	B	F/V	D/F	20-20 ± 0.1		100	0.005	B	B	19	D/T/P/E	18 1/2	1275.00			
ROTEL	RCD855(RI)	1	16-4X	A	F	D	20-20 ± 0.05		100	.0025	T		20	D/T	16	349.00	†Bitstream.		
	RCD865B(RI)	1	†													599.00			
SANSUI	CD-X211(RI)	1	MASH	A	V	HL/D	4-20		100	0.005	B	B	20	D/T/P/E	8 3/4	299.95	One-bit D/A converter.		
	CD-X111(RI)	1	MASH	A	F		5-20		100	0.005	B	B	16	D/T/E	8	269.95			
	CD-2700(RI)	1	MASH	A	F		5-20		100	0.005	B	B	16	D/T/E	8	249.95			
	CD-3100(RI)	5	16-4X	A	F		5-20		100	0.04	B	B	30	D/T/E	10 3/4	349.95			
	Vinlage CO-X711(RI)	1	1		B	HL/D/F	0-20 ± 0.3		103	0.003	B	B	20	D/T/P/E	20	840.00			
SANYO	CP770(RD)	1	16-8X	A	F		20-20 ± 0.5		105	0.03	B	B	16	D/T/E	6.6	159.99			
	CP870(RI)	1	18-8X	A	F		20-20 ± 0.5		105	0.03	B	B	16	D/T/E	6.6	179.99			
SCOTT	DA 970(RI)	1	16	A	F		5-20		95	0.03	B	B	15	D/T/P/E	9 3/4	129.95	Two disc trays.		
	DA 980(RI)	1	16	A	F	H	5-20		95	0.03	B	B	15	D/T/P/E	9 3/4	169.95			
	DA 1000(RI)	2	16	A	F	HL			93	0.03	B	B	30	D/T/P/E	10	229.95			
	DA 5001(RI)	5	16-4X	A	F	HL	20-20 ± 1.5		90	0.04	T		30	D/T/E	14	279.95			
SHARP	DX-677	1	16-2X	C	F		5-20		95	0.05	B		20	D/T/E	6.2	149.95	Combination CD/ videodisc player. As above.		
	DX-R777(RI)	1	16-2X	C	F		5-20		95	0.05	B		20	D/T/E	6.2	199.95			
	DX-R840(RI)	1	18-8X	C	F		5-20		100	0.005	B	B	20	D/T/E	6.2	239.95			
	DX-C3510(RI)	6	16-2X	C	F		20-20		95	0.01	B	B	32	D/T/E	11	349.95			
	DX-C4000(RI)	6	16-4X	C	F	HL	20-20		100	0.008	B		32	D/T/E	11	389.95			
	MV-D2000(RI)	1	16-4X	A	F		20-20		90	0.03	B		20	D/T/E	19	839.95			
	MV-D100(RI)	3	16-8X	A	F/V	H/F	5-20		98	0.007	B		20	D/T/E	30	1899.95			
SHERWOOD	CD-1060C(RD)	1	16-4X	A	F	H	2-20 ± 0.5		93	0.07	B	B	16	D/T/P/E	10 5/8	199.95	Random play. As above.		
	CD-1180C(RD)	1	16-8X	A	F	HL	2-20 ± 0.5		95	0.004	B	B	16	D/T/P/E	10 5/8	229.95			
	CD-1182R(RI)	1	16-8X	A	F	HL	2-20 ± 0.5		95	0.004	B	B	16	D/T/P/E	11	249.95			
	CD-1192R(RI)	1	18-8X	A	F	HL	2-20 ± 0.5		110	.0024	B	B	16	D/T/P/E	11	299.95			
	CDM-1260R(RI)	6	16-4X	A	F		20-20 ± 0.5		91	0.01	B	B	32	D/T/P/E	11 1/2	329.95			
SIMPLYPHYSICS	Digital Driver(RI)	1				D/F					B			D/T	150	1600.00	CD transport; stand and cable. S350.00. CD transport; Philips CD-50 mod.		
	Isodriver RR50(RI)	1				D/F									15	450.00			

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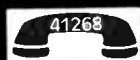


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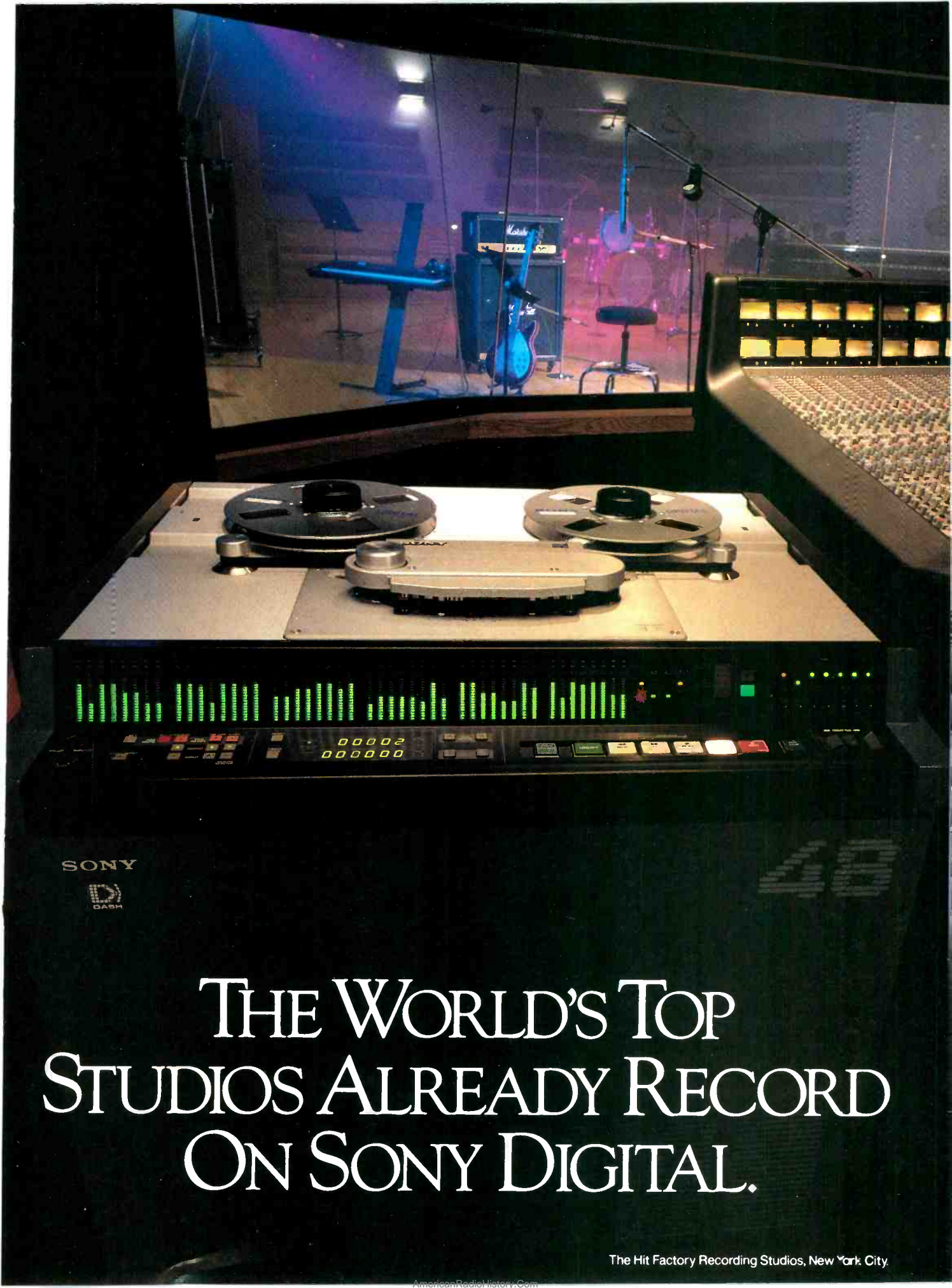
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CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Disc Capacity	Decoding System: Number of Bits	Output Filteration: Digital Only = B, Analog = C	Oversampling Rate	Other Outputs: Fixed = F, Var. = V, Balanced Analog = B, Coaxial Digital = D, Fiber Optic = F	Frequency Response, Hz to KHz, ±dB	S/N Ratio, "A" Wtd., ±dB	THD, %	Elapsed Time Display, From Disc Start = 0, From Track Start = Both, To Track End = Both	Number of Programmable Selections	Repeat Functions: Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	Weight, Lbs.	Price, \$	Notes	
																HL/F
SONY	CDP-990(RI)	1	18-16X	B	V	HL/F	2-20 ± 0.5	110	0.003	B	B	24	D/T/P/E	11 1/8	470.00	Portable; digital signal processing control. Portable; 10-key music select. Portable. As above; includes AM/FM tuner. Portable; bass-enhancement circuit; with 20-preset AM/FM tuner, Model D-T66. Portable; bass-enhancement circuit. Combination CD/ videodisc player.
	CDP-790(RI)	1	18-8X	B	V	HL/F	2-20 ± 0.5	104	0.003	B	B	24	D/T/P/E	7 1/8	295.00	
	CDP-690(RI)	1	18-8X	B	F	HL/F	2-20 ± 0.5	102	0.005	B	B	24	D/T/P/E	8	280.00	
	CDP-590(RI)	1	16-8X	B	F	HL	2-20 ± 0.5	100	0.008	B	B	24	D/T/P/E	7 1/8	225.00	
	CDP-390(RI)	1	16-4X	C		HL	2-20 ± 1	93	0.05	B	B	20	D/T/P/E	6 1/8	190.00	
	CDP-190	1	16-4X	C		HL	2-20 ± 1	93	0.05	B	B	20	D/T/P/E	6 1/8	165.00	
	CDP-C705(RI)	5	18-8X	A	V	HL/F	2-20 ± 0.3	105	.0035	B	B	32	D/T/P/E	13	380.00	
	CDP-C505(RI)	5	16-8X	C		HL	2-20 ± 0.5	100	0.01	B	B	32	D/T/P/E	13	320.00	
	CDP-C305(RI)	5	16-4X	C		HL	2-20 ± 0.5	93	0.05	B	B	32	D/T/P/E	10 1/8	280.00	
	CDP-C205	5	16-4X	C		HL	2-20 ± 0.5	93	0.05	B	B	32	D/T/P/E	10 1/8	240.00	
	CDP-C900(RI)	10	16-8X	A		HL/F	2-20 ± 0.3	105	0.004	B	B	32	D/T/P/E	14 1/8	470.00	
	D-555(RD)	1	16-8X	A	F	HL/D/F	20-20 ± 1	90	0.008	T	B	22	D/T/P/E	1 1/2	450.00	
	D-35(RI)	1	16-8X	A	F	HL	20-20 ± 1	90	0.008	T	B	22	D/T/P/E	1	400.00	
	D-180K(RD)	1	16-2X	A	F	HL	20-20 + 1,-3	85	0.008	T	B	22	D/T/P/E	1 1/2	270.00	
D-T2(RD)	1	16-2X	A	F	HL	20-20 + 1,-3	85	0.07	T	B	22	D/T/E	1	250.00		
D-66(RD)	1	16-8X	A	F	HL	20-20 ± 1	90	0.008	T	B	22	D/T/P/E	1 1/4	230.00		
D-11(RD)	1	16-2X	A	V	HL	20-20 + 1,-3	85	0.008	T	B	16	D/T/P/E	1	180.00		
MDP-333(RI)	1	PLM	A	F	HL/F	4-20 ± 0.2	112	0.002	B	D	20	D/T/P/E	16 3/4	650.00		
SONY ES	CDP-X77ES(RI)	1	PLM	A	F/V/B	HL/D/F	2-20 ± 0.3	117	.0015	B	B	20	D/T/P/E	37 3/8	1700.00	
	CDP-X55ES(RI)	1	PLM	A	V	HL/F	2-20 ± 0.3	115	.0018	B	B	24	D/T/P/E	27 1/2	900.00	
	CDP-X33ES(RI)	1	PLM	A	V	HL/F	2-20 ± 0.3	113	0.002	B	B	24	D/T/P/E	24 1/4	580.00	
	CDP-209ES(RI)	1	PLM	A	V	HL/F	2-20 ± 0.3	110	0.003	B	B	24	D/T/P/E	10	320.00	
	CDP-C85ES(RI)	5	PLM	A	V	HL/F	2-20 ± 0.3	110	.0025	B	B	32	D/T/P/E	18	500.00	
	CDP-C75ES(RI)	5	PLM	A	V	HL/F	2-20 ± 0.3	110	0.003	B	B	32	D/T/P/E	15 3/8	400.00	
CDP-C950(RI)	10	PLM	A	V	HL/F	2-20 ± 0.3	105	0.003	B	B	32	D/T/P/E	14 1/8	500.00		
SOUND ENGINEERING	PFM-1M	1	16-4X	A	F	D	0-20 + 0,-2	112	0.003	T		20	D/T/E	16	1100.00	
	PFM-1R	1	16-4X	A	F	D	0-20 + 0,-2	110	0.004	T		20	D/T/E	16	1250.00	
SPECTRAL AUDIO	SOR-1000 Series II Digital Reference(RD)	1		A†	V		0-20 ± 0.1	106	0.003	B	B			49	7895.00	†Selectable output filters. Combination CD player/preamp.
STAX	CDP Quatro II(RI) DAC-X1 +	1	18-8X 20-8X	C C	F/V F/B	HL/D	0-20 4-20	118 118	.0015 .0016	B B	B B	20	D/T/P/E	22 42	3500.00 12,000.	Digital output optional. D/A converter; tube output stage.
SYLVANIA	CD-1502(RI)	1	16-4X	C	F	H	2-20 ± 0.5	95	0.015	T	D	20	D/E	7.7	179.95	Four of five discs changeable during play.
	CD-1552(RI)	5	16-4X	C	F	H	2-20 ± 0.5	100	0.015	T	D	50	D/E	9	249.95	
	CD-1490(RD)	1	16	C	F	H	2-20 ± 0.5	90	0.02	T		20	D/E	9	169.95	
CD-1494(RD)	6	16	C	F	H	2-20 ± 0.5	90	0.02	T		30	D/E	11	269.95		
TEAC	ED-500(RI)	1	18-4X	B	F	F	20-20 ± 0.5	105	0.005	B	B	20	D/T/E	8	249.00	Dual D/A converters. As above; random play for live discs. As above. Dual D/A converters. As above.
	PD-0600(RI)	5	16-4X	B	F	F	20-20 ± 1	90	0.05	B	B	32	D/T/E	11 3/4	319.00	
	PD-C400(RI)	5	18-4X	B	F	F	20-20 ± 1	96	0.07	B	B	32	D/T/E	9 1/4	319.00	
	PD-C350	5	18-4X	B	F	F	20-20 ± 1	96	0.07	B	B	32	D/T/E	9 1/4	279.00	
	PD-365(RI)	1	16-4X	B	F	F	2-20 ± 1	105	0.005	B	D	16	D/T	9 1/2	249.95	
	PD-265(RI)	1	16-2X	B	F	F	5-20 ± 1	90	0.005	B	D	16	D/T	7	229.95	
	PD-700M(RI)	6	16-4X	B	F	F	5-20 ± 1	93	0.01	B	D	32	D/T/E	11 3/8	369.95	
TECHNICS	SL-P1300(RI)	1	18-8X	A	F/B	HL/D/F	2-20 ± 0.2	112	0.003	B	B	20	D/T/P/E	35	1799.00	Wired remote port. Dual D/A converters. Top-loading. As above. Front-loading. Dual D/A; portable. As above.
	SL-P1200(RI)	1	16-2X	A	F	HL/S	4-20 ± 0.1	106	.0025	B	B	20	D/T/E	32	1499.00	
	SL-PS70(RI)	1	MASH	A	F	HL/F	2-20 ± 0.3	112	0.003	B	B	20	D/T/E	11.4	449.95	
	SL-PS50(RI)	1	MASH	A	F	HL/F	2-20 ± 0.5	103	0.003	B	B	20	D/T/E	7.7	329.95	
	SL-P370(RI)	1	MASH	A	F	HL	2-20 ± 1	96	0.005	B	B	20	D/T/E	7.7	199.95	
	SL-P170(RD)	1	MASH	B	F	HL	2-20 ± 1	96	0.005	B	B	20	D/T/E	7.7	179.95	
	SL-PC45(RI)	5	MASH	A	F	F	2-20 ± 1	96	0.005	B	B	32	D/T/E	10.8	329.95	
	SL-PC25(RI)	5	MASH	A	F	F	2-20 ± 1	96	0.005	B	B	32	D/T/E	9	259.95	
	SL-PC15(RD)	5	MASH	A	F	F	2-20 ± 1	96	0.005	B	B	32	D/T/E	8.6	229.95	
	SL-PC33(RI)	5	MASH	A	F	F	2-20 ± 1	96	0.005	B	B	32	D/T/E	13.2	299.95	
	SL-XP6(RI)	1	16-4X	A	F/V	HL	20-20 + 0.5,-1	88	0.008	B	B	18	D/T/E	3/4	379.00	
	SL-XP2(RI)	1	16-4X	A	F/V	HL	20-20 + 0.5,-1	88	0.008	B	B	18	D/T/E	3/4	249.95	
THETA DIGITAL	Theta DS Pro Gen. II		18-8X	A	F	D	0-20.5 + 0,-0.1	110	0.001					33	3500.00	D/A converter; optional balanced outputs, \$1000.00. D/A converter.
	Theta DS Pro Basic		18-8X	A	F	D	0-20 + 0,-0.1	110	0.002					17	2000.00	
TOSHIBA	XR-9459(RI)	1	18-4X	C	V	HL	20-20 ± 0.5		0.01	B	B	32	D	1	350.00	
	XR-9437	1	16-2X	C	F	H	20-20 ± 0.5		0.01	B	D	16	D	1.8	250.00	
VECTOR RESEARCH	VCD-410R(RI)	1	18-8X	A	F	H	20-20 ± 0.5	100	0.004	B	D	20	D/T/P/E	9.9	259.00	
	VCD-420R(RI)	1	16-4X	A	F	H	20-20 ± 0.5	100	0.004	B	D	20	D/T/P/E	9.9	299.00	
	VCD-628R(RI)	6	16-8X	A	F	H	20-20 ± 0.5	96	0.009	B	D	32	D/T/P/E	13	349.00	
WADIA DIGITAL	Wadia 2000		18-64X	B	F/B		†	†	†					60	7995.00	†Software-dependent D/A converter.
	DigiMaster X-64.4		18-64X	B	F/B		†	†	†					30	4995.00	Transport; two units; glass-fiber output. CD transport, glass-fiber output.
	DigiMaster X-32		18-32X	B	F		†	†	†					20	1995.00	
	WT-2000(RI)	1				D/F								60	5595.00	
WT-3200(RI)	1				D/F								30	1995.00		



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CD PLAYERS & D/A CONVERTERS

MANUFACTURER	Model (RI) - Remote Included, (RO) - Remote Optional	Disc Capacity	Recording System: Number of Discs	Output Filter: Analog Plus Digital = A, Digital Only = B, Analog Only = C	Line Outputs: Fixed = F, Var = V, Balanced Analog = B, Coaxial Digital = D, Fiber Optic = F	Decoding System: Number of Bits	Frequency Response, Hz to kHz, ± dB	S/N Ratio, "A" Wtd, - dB	THD, %	Eject-Time Display: From Disc Start = D, From Track Start = T, Both = B	Remaining Time Display: To Disc End = D, To Track End = T, Both = B	Number of Programmable Selections	Repeat Functions: Entire Disc = D, Track = T, A-B Phrase = P, Entire Program = E	Weight, Lbs.	Price, \$	Notes
YAMAHA	CDX-2020(RI)	1	22-8X	A	V	H/D/F	2-20 ± 0.3	118	0.003	T	D	24	D/T/P/E	34¾	1499.00	Four D/A converters; 18-bit plus 4-bit floating.
	CDX-1120Ti(RI)	1	22-8X	A/B	V	H/D/F	2-20 ± 0.3	120	0.003	T	D	24	D/T/P/E	26¾	1199.00	As above.
	CDX-1030(RI)	1	1-768X	F	F	HL/D/F	2-20 ± 0.5	110	0.003	B	B	25	D/T/P/E	23	699.00	As above.
	CDX-930(RI)	1	1-768X	F	V	HL/D/F	2-20 ± 0.5	110	0.003	B	B	25	D/T/P/E	12½	549.00	As above but dual converters.
	CDX-920(RI)	1	22-8X	A/B	V	H/D/F	2-20 ± 0.3	120	0.003	T	B	24	D/T/P/E	18¾	749.00	As above but dual converters.
	CDX-730(RI)	1	18-8X	F	F	HL/F	2-20 + 0.5, -1	106	0.005	B	B	25	D/T/E	8½	349.00	Four discs changeable during play; 100-disc program file; relay play; digital EQ.
	CDX-530(RI)	1	18-8X	F	H	HL/F	2-20 + 0.5, -1	106	0.005	B	B	25	D/T/E	8	279.00	Four discs changeable during play.
	CDC-805(RI)	5	1-768X	F	F	HL/F	20-20 ± 0.5	105	.0035	B	B	40	D/T/E	13¼	449.00	Four discs changeable during play.
	CDC-705(RI)	5	1-768X	F	F	HL	20-20 ± 0.5	105	.0035	B		20	D/T/E	13¼	399.00	Combination CD/ videodisc player.
	CDC-610U(RI)	10	16-4X	A	F	HL	5-20 ± 0.5	100	0.008	T	No	36	D/T/E	15%	599.00	
	CDC-605(RI)	5	16-4X	F	F	HL	20-20 ± 1	100	0.005	B		32	D/T/E	10¾	299.00	
	CDV-1700(RI)	1	18-8X	F	F	HL/F	5-20 + 0.5, -1	70	0.004	B		15	D/T/P/E	20½	699.00	

DAT RECORDERS

MANUFACTURER	Model (RI) - Remote Included, (RO) - Remote Optional	Recording Sampling Rates: 48 kHz A, 44.1 kHz B, 32 kHz C	Frequency Response, Hz to kHz, ± dB	Dynamic Range, dB	THD at 1 kHz, % at Maximum (0-dB) Record Level	Input Filter: Analog Plus Digital = A, Digital Only = B, Analog Only = C	Output Filter: Analog Plus Digital = A, Digital Only = B, Analog Only = C	Decoding System: Number of Bits	Inputs: Mike = M, Line = L, Balanced = B, Coaxial Digital = D, Fiber Optic = F	Outputs: Line = L, Line with Level Control = LL, Balanced = B, High Imp. Level Control = HL, Fiber Optic = F	Headroom (Margin) Indicator?	IDs Auto Eject = A, Manual Eject = M, Rechargeable = R, ID = I, S/P ID = S, End ID = E, ID Case = X	Repeat Functions: Entire Tape = A, Track = B, Program = C	audible Fast Search?	Intro Scan?	Price, \$	Notes
AUDIO + DESIGN	PRODAT 1A(RI)	A/B/C	2-22 ± 0.5	90	0.005	A	B	16	L/B/D	L/HL/B/D	Yes	A/M/R/S		Yes	No	3995.00	Apogee filters; error status display; AES sync; copy prohibit.
COMPUSONICS	DSP1800(RO)	B/C	20-20 ± 0.5	90	0.007	C	A	16-1X	B	B	Yes	A/M/R/S/E/X	A/B/C	Yes	Yes	15,000.	Digital disk recorder with erasable optical disk cartridge.
DENON	DTR-2000	A/B/C	2-22 ± 0.5	90	0.006	B	A	20-8X	L/D/F	L/HL/D/F	Yes	A/R/S/E/X	B	Yes	No	1000.00	Lambda System D/A converters.
FOSTEX	D20	A/B	20-20	90	0.05	A	A	16-2X	L/D	L/H/D	Yes	A/R/S	C	Yes	No	8000.00	SMPT-E control; RS422 connector.
ISOSONICS	PCM44.1	B	5-20 ± 0.3	96	0.005		A	16-4X	D/F	L/D/F	Yes	A/M/R/X		No	No	1495.00	Digital input only; eight-hour recording on VHS tape.
	AD44.1	A/B	10-20 ± 0.1	96	0.003	D			L/D/F	D/F	Yes					495.00	A/D converter.
JVC	XD2505BK(RI)	A/B/C	2-22 ± 0.5	91	0.004	A	A	PEM-8X	L/D/F	L/HL/D/F	Yes	A/M/R/E/X	A/B	Yes	No	1000.00	Response specs for Standard Play; in Long Play, 2 Hz to 14.5 kHz, ± 0.5 dB.
	XD21010TN(RI)	A/B/C	2-22 ± 0.5	93	0.003	A	A	18-8X	M/L/D/F	LL/HL/D/F	Yes	A/M/R/S/E/X	A/B/C	Yes	Yes	1700.00	As above.
NAKAMICHI	1000DARS(RI)	A/B/C	5-20 ± 0.5	100	.0005	A	A	20-8X	L/B/D/F	LL/HL/B/D/F	Yes	A/M/R/S/E/X	A/C	Yes	No	11,000.	Includes 1000P A/D and D/A converter (see also "D/A Converters").
ONKYD	DT-9000(RI)	A/B/C	2-22	90	.0084			1						Yes	Yes		SCMS equipped; digital fade in/out.
PHILIPS	DT-80	A/B/C	20-20	96	0.002	A	A	1	L/D/F	L/D/F	Yes	A/M/R/S/E/X	A/B/C	Yes	Yes	1200.00	
SONY	DTC-700(RI)	A/B/C	2-22 ± 0.5	92	.0045	A	A	PLM-64X	L/D/F	L/HL/D/F	Yes	A/M/R/S/E/X	A	Yes	Yes	900.00	Specs shown for Standard Play; in Long Play: Response, 2 Hz to 14.5 kHz, ± 0.5 dB; THD, 0.08%.
SDNY ES	DTC-75ES(RI)	A/B/C	2-22 ± 0.5	93	.0045	A	A	PLM-64X	L/D/F	L/HL/D/F	Yes	A/M/R/S/E/X	A	Yes	Yes	950.00	Specs shown for Standard Play; in Long Play: Response, 2 Hz to 14.5 kHz, ± 0.5 dB; dynamic range, 92 dB; THD, 0.08%.
STELLAVOX	Stelladat	A/B							†	†	†					From 7500.00	†Optional. Portable; 32-kHz sampling rate optional.
TECHNICS	SV-DA10(RI)	A/B/C	2-22 ± 0.5	90	0.008	A	A	MASH	L/D/F	L/HL/D/F		A/M/R/S/E/X	A/B/C	Yes	Yes	900.00	SCMS equipped.

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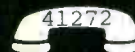
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AMPLIFIERS

MANUFACTURER	POWER AMP										PREAMP											
	Model (R) = Remote Included, (RO) = Remote Optional	Type: Integrated = I, Type = T, Hybrid = H, Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/μs	High-Level Sensitivity, mV	Does Unit Invert Polarity?	Cont. Avg. Watts/Channel into 8 Ohms	Cont. Avg. Watts/Channel into 4 Ohms	Rated Full-Power Bandwidth, Hz to kHz	Class of Output Operation	Dynamic Headroom, dB	Input Impedance, kOhms	MM Photo S/W, -dB	MM Photo Sensitivity, mV	Moving Coil Input?	Weight, Lbs.	Price, \$	Notes			
AUDIO INNOVATIONS	Series 200	B/T				No	12			A					No	20	995.00	Triode operation.				
	Series 500	I/T				No	25			A					No	40	1795.00					
	Series 501	I/T				No	25			A					No	40	1995.00					
	First Audio Amplifier	B/T				No	7.5			A					No	40	3500.00					
AUDIO INNOVATIONS	Second Audio Amplifier	B/T				No	15			A					No	38	6000.00	As above.				
	Third Audio Amplifier	B/T					30			A							12,000.00	As above.				
AUDIOLAB	8000A	I	0.05	No	100	100	No	50	100	20-20	AB	2.8	50	76	2.0	175	Yes	17	695.00	25 amps, peak. 40 amps, peak.		
	8000P	B	0.05	No	100	100	No	100	200	20-20	AB	2.9	50					20	995.00			
AUDIO RESEARCH	Classic 30	B/H	1	No	15	400	No	30		12-40	AB							46	2295.00	Triode operation; balanced output. As above. Balanced output. As above; triode operation. As above.		
	Classic 60	B/H	1	No	20	550	No	60		15-50	AB							63	3295.00			
	Q125	B/H	0.4	No	20	700	No	110		10-80	AB							84	4450.00			
	Classic 120	B/H/M	1	Opt.	25	650	No	115		10-80	AB							61	2995.00			
AUDIO RESEARCH	Classic 150	B/H/M	0.8	No	25	600	No	140		7-100	AB							110	4995.00			
		M										60										
AUDIOSOURCE	Amp One	B	0.02	No	100	600	No	60	100	20-20	AB	1.5	33					17½	299.95	Bridgeable.		
AUDIRE	Otez	B	0.015	No	50	1.5V	No	250	500	2-50	AB							90	2900.00	Semi dual mono.		
	Noble I	B/M	0.01	No	50	1.3V	No	75	150	2-50	AB							30	1050.00			
	Noble II	B/M	0.01	No	50	1.5V	No	200	400	2-50	AB							30	1100.00			
	Forte	B	0.025	No	50	1.4V	No	125	250	2-50	AB							45	1050.00			
AUDIRE	Crescendo	B	0.05	No	45	1.3V	No	75	130	2-50	AB							25	495.00	Dual mono; bipolar; MOS-FET version, \$1150.00. Bipolar; MOS-FET version, \$535.00.		
A.V.A.	Omega 50	I	0.1	No	90	50	No	25	45	20-20	AB	1.8	50	75	0.58	150	No	18	595.00	Dual mono.		
	Omega 150	I	0.1	No	90	100	No	75	125	20-25	AB	1.8	50	75	1.0	150	No	19	795.00			
	MF240E	B	0.1	No	90		No	120	200	15-40	AB	1.8	100					28	575.00			
	MF250E	B	0.1	No	90		No	140	250	15-40	AB	1.8	100					30	695.00			
	MF280E	B	0.1	No	90		No	150	275	15-40	AB	1.8	100					32	795.00			
	MF400E	B	0.1	No	90		No	200	350	15-40	AB	1.8	100					50	900.00			
	T250	B	0.06	No	100		No	140	250	10-80	AB	2.0	100					30	1195.00			
	T280	B	0.06	No	100		No	150	275	10-80	AB	2.0	100					32	1295.00			
	FV300	B/H	0.04	No	115		No	150	170	5-100	AB	2.2	1M					25	1195.00			
	FV300i	B/H	0.04	No	115		No	150	240	5-100	AB	2.2	1M					30	1395.00			
	FV500	B/H	0.04	No	115		No	250	350	5-100	AB	2.2	1M					35	1995.00			
	BEARD AUDIO	P35	B/T	1			775		35	35	20-20	A							45		2499.00	Dual mono.
		M70	B/T/M	1			775		70	70	20-20	A							45		4999.00	
M1000		B/T/M	0.5			500		120	120	10-30	A/AB		100					50	8499.00			
PI-50		I/T						50	50		A/AB			72	1.2		Yes	Yes	1999.00			
BEARD AUDIO	PI-100	I/T						100	100		A/AB			72	1.2		Yes	Yes	3499.00			
BEDINI AMPLIFIERS	BA-801	B	0.15	No	65		No	100	200	5-30	A	3						26	1500.00			
	BA-803	B	0.15	No	55		No	200	400	5-30	A	3						52	3000.00			
BEL	2002	B				1.4V	No	100	200	5-200	A							50	3395.00	Dual mono; balanced output. Bridges to 200 watts; balanced output. †400 watts x 1 into 1 ohm. Bridges to 200 watts; balanced output.		
	1001	B		Opt.		1V	No	50	100	5-200	A							28	1495.00			
	1001P	B/M				1V	No	†		5-200	A							28	1595.00			
	FET1001	B		Opt.		1V	No	50	100	5-200	A							28	1695.00			
BELLES	Soloist	I	1.0	No		113	No	100	200	0.1-60	AB	2	50					33	1995.00	Five line-level inputs; double tape loop. †Balanced input provides monoblock operation.		
	OCM 500	B	0.2	Yes†		1.7V	No	250	500	0.1-100	AB	2	50					65	2495.00			
	OCM 200	B	0.2	Yes†		1.2V	No	125	250	0.1-100	AB	2	50					42	1595.00			
	150	B	0.1	No		1.1V	No	100	165	0.1-60	AB	1.8	25					24	749.00			
DAVID BERNING CO.	EA-2101	B/T	2	Yes		1V	No	100	100	20-40	AB	2	100					40	3500.00			
BGW SYSTEMS	85	B	0.1	Opt.	40	840	No	35	45	15-50	AB/B	1.3	15					14	529.00	Metered version. Model 350A, \$1349. Metered version. Model 750G, \$1849.		
	200	B	0.08	Yes	40	900	No	100	100	10-50	AB/B	1.2	15					14	999.00			
	350	B	0.02	Yes	40	1.2V	No	200	325	10-50	AB/B	1.2	15					34	1199.00			
	750F	B	0.03	Yes	40	1.5V	No	300	450	10-50	AB/B	1.6	15					54	1699.00			
	7500T	B	0.10	Opt.	40	1.2V	No	200	325	10-50	AB/B	1.2	15					36	849.00			
	6500T	B/H	0.05	Opt.	40	900	No	100	150	10-50	AB/B	1.5	15					28	599.00			
	8500T	B	0.10	Opt.	40	1.5V	No	300	450	10-50	AB/B	1.5	15					50	1299.00			
	SPA-1	I	0.10	Yes		1.5V	No	250	400		AB/B	1.5	15					41	1999.00			
	SPA-3	†	0.10	Yes		1.5V	No	250	400		AB/B	1.5	15					43	2599.00			
	GTA	B	0.10	Yes	40	1.5V	No	360	625	10-50	AB/B	1.3	15					78	2199.00			
	GTB	B	0.10	Yes	40	1.5V	No	300	450	10-50	AB/B	1.6	15					50	1539.00			
Tri-Amp	B/M		Yes	20	1.5V	No	580	900		AB/B	1.6	15					44	2499.00				

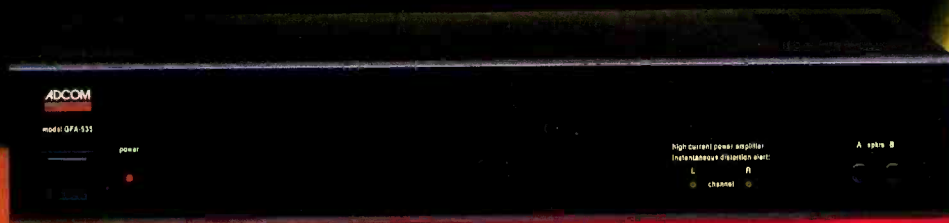
ADCOM[®] POWER AMPLIFIERS HIGH CURRENT, HIGH PERFORMANCE



The modestly-priced amplifiers that deliver price-no-object sonic performance.

ADCOM POWER AMPLIFIERS.

These high-power, high-current amplifiers easily and accurately interface with virtually any speaker system available today (perhaps even tomorrow)—including some troublesome exotic types whose impedance falls as low as 1 ohm.



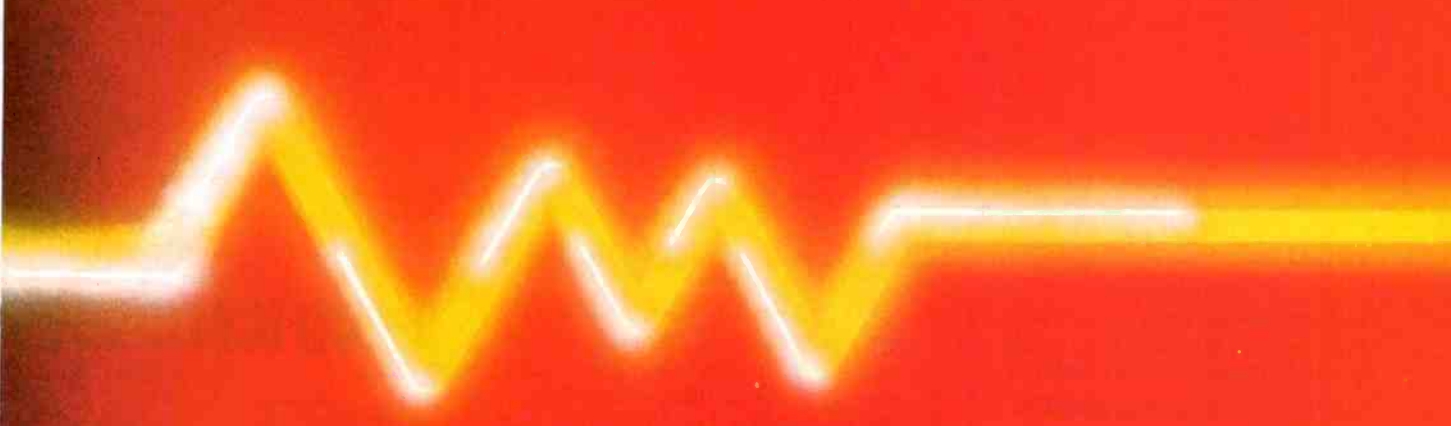
GFA-535



GFA-545



GFA-555



Before we tell you about Adcom's amplifiers, there are a few facts you should know about amplifiers in general.

Amplifiers vary enormously in two related areas: how accurately they present the audio signal to the speakers, and how well they interface with the complex electrical load presented by many speakers. The latter is probably the least understood of all the factors affecting the ultimate sound in a given stereo system.

All the specifications that describe an amplifier's performance—including our own—are laboratory measurements made with standard purely resistive loads. These measurements provide relative benchmarks, but do not fully predict an amplifier's performance with any particular speaker system.

The importance of high current.

The standard 8-ohm impedance at which an amplifier's output power is normally referenced may not even be close to the actual moment-by-moment impedance presented by a given speaker under typical operating conditions. That is, with a music signal driving a speaker.

A speaker with a nominal rating of 8 ohms can actually present the amplifier with a load anywhere from almost 60 ohms to less than 2 ohms, depending on the frequencies it is handling at any given moment.

But even, when operating well within normal limits, an amplifier's output circuit interacts with the speaker's impedance variations to affect, for better or worse, how the music sounds.

As speaker impedance falls, increased current is drawn from the amplifier output stage. In fact, many amplifiers, when pushed to very high levels and very low impedances, reach a point where their protection circuitry had better shut them off... or their output transistors will self-destruct.

Which brings us to Adcom.

Despite their affordable prices, Adcom's amplifiers were conceived and designed to be compared with "esoteric" price-no-object amplifiers.

The flagship of this new generation is the GFA-555. Throughout its development, we subjected it to comparative blind listening tests against highly-regarded amplifiers priced up to nine times higher.

Although some listeners reported hearing subtle differences among all the amplifiers, none heard anything to suggest that the Adcom amplifier was priced much lower than the others.

When a production model of the GFA-555 was tested by *Stereophile* magazine (Vol. 8, No. 4), the results were even more gratifying:

"It is so clearly superior to past amplifiers in the low- to mid-priced range—not to mention most amplifiers two to three times its price—that I can unhesitatingly recommend it for even the most demanding high-end system."

"... it rivals any transistor power amplifier in its price class that I have heard—including high-powered receivers or amps with trick power supplies—at any price."

Why Adcom amplifiers sound better than those more expensive amplifiers.

High current output stage.

The GFA-555, GFA-545 and GFA-535 all use multiple high-current discrete output transistors, each capable of handling large amounts of current. In the GFA-555, for example, 16 such devices are used, providing a capability of more than 20 amperes into low impedance loads.

The GFA-545 and GFA-535 use 12 and 8 of these devices, respectively, and achieve high levels of current capability that few amplifiers with comparable power claims have been able to deliver up to now.

Transient capability—which differentiates the demands of music from conventional test procedures—is greater than 800 watts into 2-ohm loads with the GFA-555. The GFA-545 and GFA-535 also produce considerably more dynamic power than their continuous power measurements would suggest. And the continuous power is always there whenever you need it, not just for milliseconds. All Adcom amplifiers are designed to remain stable, without glitches or oscillation, under virtually any operating condition.

No matter how complex a load it presents, no speaker made yesterday, today—or probably even tomorrow—should be a problem for Adcom amplifiers.

Well-regulated, high-current power supplies.

Adcom amplifiers use custom-designed transformers that provide especially tight regulation and a minimum of interchannel crosstalk, vibration, hum, or noise. The GFA-555 and GFA-545 use expensive toroidal transformers, which are noted for their higher performance capability. The GFA-535 uses two transformers, one for each channel, in order to provide some of the benefits of toroidals without the additional cost.

The power supply in all three models is designed with separate rectifier bridges and specially-designed filter storage capacitors. The GFA-555 has a total capacitance of 60,000 microfarads; the GFA-545, 40,000; the GFA-535, 27,200. This high capacity provides tremendous reserves for high dynamic power demands. (As an informal but impressive way of experiencing these reserves, you can unplug the AC line cord of an Adcom amplifier while your system is operating, and the music will probably continue for several seconds.)

This rugged, efficient and stable power supply is extremely important, and is largely responsible for maintaining low distortion down to very

low frequencies—and for performance that remains relatively unaffected by fluctuations in AC line voltages.

No current-limiting protective circuitry.

The only protection needed against short-term overloads is power-supply fusing.

To protect against long-term overloads that can cause overheating, a thermal circuit breaker shuts down the amplifier when the heat-sink temperature reaches 75 degrees C. When the temperature drops, normal operation resumes automatically.

Advantages of direct coupling.

Coupling capacitors can be responsible for a variety of subtle signal distortions. Some manufacturers minimize the problem by using special and expensive capacitors. By direct coupling of the input and output of the circuitry, Adcom eliminates the need for such capacitors, and thus eliminates the problem at the source.

No protective output coil.

Most amplifier designs have protective coils in their output circuits to prevent spurious oscillations under typical load/signal conditions. But these coils are responsible for most amplifier/speaker interface problems. They introduce frequency-response irregularities and lower damping factor.

And when the amplifier is connected to high-capacitance loads, such as electrostatic speakers and some esoteric cables, the coil resonates to produce the oscillations they are supposed to prevent.

This is another problem Adcom solved by the direct coupling of the output. The damping factor remains high at all frequencies, phase shift is kept low, and sonic performance into difficult loads—particularly electrostatics—is improved.

Simple gain path throughout.

The gain path is simple and direct, with a minimum number of components, each of high quality, from input to output. This means less waveform distortion and less phase shift. Further, Adcom power amplifiers use only discrete circuit elements rather than integrated circuits. This allows for total flexibility in selecting individ-

ual elements and calibrating them for optimum performance at every stage. Functionally, the input circuit uses a differential-input transistor pair, followed by a single voltage-gain transistor. Both active elements in this stage are class-A biased, using very sophisticated double-regulated active current sources. This current supply is unaffected by variations in the power supply or signal.

This circuit design provides pure Class A operation for the input and second gain stages, resulting in low noise, low distortion and low DC offset voltages.

Instantaneous distortion alert.

The instant that any form of distortion—THD, IM, TIM, SID, etc.—exceeds 1 percent, a front-panel LED illuminates.

The highly accurate indicators are activated by unique circuitry that monitors the activity in the internal feedback loop.

Final word.

If you are looking for a new amplifier, appreciate the need for considerable power, understand the importance of high-current capability—and know great value when you hear it—you'll certainly want to compare the Adcom amplifiers to any others, at any price!

When you do, you'll hear for yourself that higher cost does not necessarily mean better performance. And like many other music lovers, you're likely to prefer any of ours purely on their own sonic terms—sight unseen and price unknown.

Anything less is a compromise.

SPECIFICATIONS:

AMPLIFIERS	GFA-555	GFA-545	GFA-535
Power output (watts/channel, continuous, both channels, 20 Hz-20 kHz, <0.05% THD):			
8 ohms	200	100	60
4 ohms	325	150	100
Bridged, mono, 8 ohms, 20 Hz-20 kHz, <0.25% THD:	600	n/a	n/a
Bridged, mono, 4 ohms, 20 Hz-20 kHz, <0.25% THD:	850	n/a	n/a
Signal-to-noise ratio A-weighted, full output:	>106 dB	>106 dB	>106 dB
Input impedance:	22kOhms	22kOhms	22kOhms
Input sensitivity, for rated output, f0t 1 watt:	1.85 volts 130 mV	1.3 volts 130 mV	1.0 volt 130 mV
Damping factor (20 Hz-20 kHz):	>130	130	>180
Dynamic headroom (at 4 ohms):	2.3 dB	2.6 dB	3 dB
Voltage:	120V/60 Hz (Available in 220V/50Hz on special order)		
Dimensions:	17 x 7 3/8" x 11 1/2" D, (432mm x 187mm x 292mm D)	17 x 5 1/2" x 12 1/2" D, (432mm x 140mm x 318mm D)	17 x 3 1/4" x 12 1/2" D, (432mm x 83mm x 318mm D)
Shipping weight:	35 lbs (15.9 kg)	27 lbs (12.2 kg)	22 lbs (10 kg)
Optional rack mount adaptors:			
Black:	RM-7	RM-5	RM-3
White:	RM-7W	RM-5W	RM-3W
Silver:	RM-7S	RM-5S	RM-3S

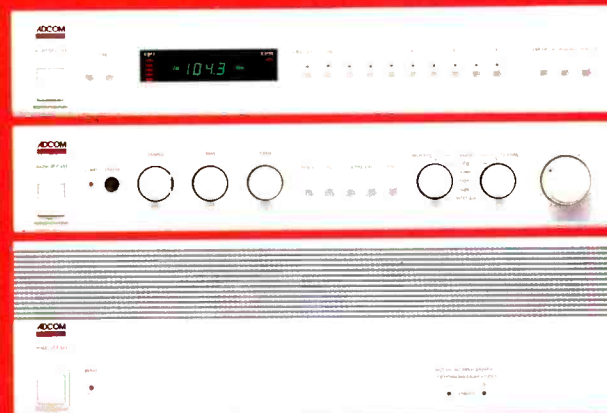
Cover photo: GFA-555 with optional RM-7 rack mount adaptors

ADCOM

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PRO ACOUSTICS INC.
Pointe Claire, Quebec H9R 4X5

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Adcom products are available with white or silver front panels on special order. Shown: GFA-545 with GFT-555 AM/FM-stereo tuner and GFP-555 preamplifier with white front panels.

AMPLIFIERS

MANUFACTURER	Model (M) - Remote Included, (R) - Remote Optional	Type: Integrated = I, Basic = B, Hybrid = H, Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/μs	High-Level Sensitivity, mV	Cont. Avg. Watts	Cont. Avg. Watts/Channel into 8 Ohms	Cont. Avg. Watts/Channel into 4 Ohms	POWER AMP				PREAMP				Notes					
										Rated Full-Power Bandwidth, Hz to kHz	Class of Output Operation	Dynamic Headroom, db	MM Phono S/N, db	MM Phono S/N, db	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.		Price, \$				
BIAMP SYSTEMS	XA 100	B	0.05	Yes	30	960	No	35	50	20-20	AB							13 1/2	599.00	Bridgeable; MOS-FET. As above.			
	XA 300	B	0.07	Yes	30	1.1V	No	100	150	20-20	AB							21	899.00				
	XA 600	B	0.07	Yes	30	1.5V	No	200	300	20-20	AB							24	999.00				
	XA 1000	B	0.10	Yes	30	1.4V	No	300	500	20-20	AB							35	1349.00				
	ADV 650	B	0.08	Yes		1V	No	200	325	20-20	AB								33		799.00		
	ADV 130	B	0.08	Yes		1V	No	40	65	20-20	AB								22		499.00		
ADV D60	B/M	0.005	Yes		1.6V	No	60	60	20-20	AB								15	399.00	Includes 70-V output.			
B & K	ST-140	B	0.09	No	11	1.2V	No	105	105	5-45	AB								25	498.00	Mono version available.		
	ST-202	B	0.09	No	11	1.4V	No	150	200	5-45	AB								30	698.00	High-current design.		
	ST-202 + EX-442 Sonata	B	0.09	No	12	1.6V	No	200	300	5-45	AB								32	748.00	As above.		
	M-200 Sonata	B	0.09	No	14	1.6V	No	200	350	5-45	AB								40	948.00	As above; dual mono.		
	M-200 Sonata	B/M	0.09	Opt.	25	1.6V	No	200	400	1-100	AB								40	898.00	High-current design; d.c. coupled.		
Pro-600 Video-5	B	0.09	No	25	1.8V	No	250	400	5-100	AB									40	1298.00	Dual mono.		
	B	0.09	No	20	890	No	85	100	5-45	AB									40	1298.00	Five-channel operation.		
BOULDER AMPLIFIERS	250AE	B	0.005	Yes	25	1.3V	No	75	125	10-100	AB								30	2199.00	Peak current, 30 amps.		
	500AE	B	0.005	Yes	35	1.8V	No	150	250	10-100	AB								51	3299.00	Peak current, 50 amps.		
	250AE Mono	B/M	0.005	Yes	50	1.3V	No	250	250	10-100	AB								30	2199.00	Peak current, 30 amps; balanced output.		
	500AE Mono	B/M	0.005	Yes	70	1.8V	No	500	500	10-100	AB								51	3299.00	Peak current, 50 amps; balanced output.		
500	B	0.005	Yes	35	1.8V	No	150	250	10-100	AB									51	4099.00	As above.		
BRITISH BUILT AUDIOPHILE PRODUCTS	BB-100	I/T		No		200	No	50		20-20	A/AB								64	2200.00	Optional MM/MC phono stage, \$650.00.		
BRYSTON	6B	B/M	0.01	†	60	1V	No	500	800	1-100	AB								46	1895.00	†With optional balanced inputs, \$100.00 additional.		
	4B	B	0.01	†	60	1.3V	No	250	400	1-100	AB								44	1795.00	Bridgeable.		
	3B	B	0.01	†	60	1V	No	100	200	1-100	AB								38	1195.00	As above.		
	2B	B	0.01	†	60	750	No	50	100	1-100	AB								20	695.00	As above.		
	2B Special	B	0.01	†	60		No	50	100	1-100	AB								20	750.00	As above.		
BURMESTER	878	B		Yes				70	100		AB									4990.00	Dual mono; bridgeable.		
CAE	MS7-P	B/T	0.33	No	13	150	No	35	35	20-20	AB1	3	475						40	825.00	Kit, \$350.00.		
	M3-M3P	B/T/M	0.27	No	13	150	No	60	60	20-20	AB1	3	475						30	1400.00	Kit, \$500.00.		
CARVER	Silver Seven-I Mark II	B/M	0.5	No	300		No	555	900	20-20	AB									16	1000.00	Magnetic Field Amp.	
	TFM-42	B	0.5	No	180		Yes	375	500	20-20	AB									20	899.00	As above.	
	TFM-45	B	0.5	No	180		Yes	375	500	20-20	AB								20	949.00	As above.		
	TFM-22	B	0.5	No	180		Yes	225	350	20-20	AB								20	599.00	As above.		
	TFM-25	B	0.5	No	180		Yes	225	350	20-20	AB								20	669.00	As above.		
	TFM-15	B	0.5	No	180		Yes	100	140	20-20	AB								22	399.00	As above.		
	AV-64	B	0.15	No	180		Yes	†	††	20-20	AB								14	779.00	†60 watts x 4. ††100 watts x 4. Three- or four-channel operation; built-in electronic crossover.		
	Silver Seven	B/T/M	0.5	No			Yes	375	475	20-20	AB								150	8750.00	†Variable. Separate power supply; 14 output tubes.		
	CARVIN	FET 400	B	0.006	Yes	30	1V	No	100	200	20-20	AB									31	519.00	Bridgeable; subsonic and ultrasonic filters; MOS-FET.
		FET 900	B	0.005	Yes	50	1V	No	200	300	20-20	AB									35	669.00	As above; operates into 2 ohms.
	CARY AUDIO DESIGN	SLA-70	B/T	0.1	No		950	No	35		20-20	A									28	995.00	Self-biasing output tubes.
CAD-50SL		B/T/M	0.1	No		850	No	50		20-20	A									30	2195.00		
CAD-100		B/T/M	0.1	No		850	No	100		20-20	A									37	2995.00	Dual output transformers.	
CAO Ref.		B/T	0.1	No		850	No	50		20-20	A									60	3995.00	Four monoblocks.	
CAD-2500		B/H	0.004	No		750	No	150		15-20	AB1									23	1495.00	Dual mono.	
CAD-45	B/H	0.004	No		750	No	45		15-20	AB1									19	1395.00	Four-channel operation.		
CELLO	Performance	B/M		Yes																	18,000.00	Four chassis.	
	Encore	B		Yes																	6000.00	Dual mono.	
CLASSE AUDIO	DR-8	B	0.01	Yes		1V	No	80	160	0.5-80	A/AB	3	100							50	2495.00	Bridges to 300 watts.	
	DR-9	B	0.01	Yes		1.2V	No	125	250	0.5-80	A/AB	3	100							60	3495.00	Bridges to 500 watts.	
	DR-10	B	0.01	Yes		1V	No	100	200	0.5-100	A/AB	3	100							50	1895.00	Bridges to 400 watts.	
	DR-15	B	0.01	Yes		1.2V	No	150	300	0.5-100	A/AB	3	100							60	2895.00	Bridges to 600 watts.	
	DR-25	B	0.01	Yes		1.6V	No	250	500	0.5-100	A/AB	3	100							70	3895.00	Bridges to 1000 watts.	
	DR-100M	B/M	0.01	Yes		1V	No	100	200	0.5-100	A	5	100							80	10,000.00	Split-rail power supply.	
	Classic Audio LTD.	CA260	B/H	0.1	No		750	No	50	50	17-100	AB		1.5	100						56	1665.00	Dual mono; bridgeable.
DON J. COCHRAN	Delta Mode	B/H/M	0.07	Yes	65	1.6V	No	200	200	0.5-50										58	10,000.00	Differential signal path; balanced bridge output.	

THE SLEEPER HAS AWAKENED

KSA-250 Stereo Balanced Amplifier



MDA-500 Mono Differential Amplifier (one shown)

KBL High Level Preamplifier (top)

KPA Phono Preamplifier (bottom)

Krell Industries has long been recognized in international audiophile groups as a leader in amplifier and preamplifier design. This enviable reputation has been earned through a combination of superb sonic quality, innovative features,

reliability and impeccable service. Due to steady growth Krell products are now available in fine audio retail stores across the country. A call to the Touch Tone Access number shown below will identify the Krell dealer nearest you.

For More Information



Call 1-800-553-4355

*KSL High Level Preamplifier (top)
KST-100 Stereo Amplifier (bottom)*



KSA-150 Stereo Balanced Amplifier



KSP-7B Stereo Preamplifier



MDA-300 Mono Differential Amplifier (one shown)

Krell has great respect for its customers and their investments. The current line of Krell product reflects this thinking by offering unmatched flexibility and freedom from obsolescence. For example, the KSA-150 amplifier can be converted into an MDA-300 mono unit and com-

bined with a second new unit, thereby protecting the original investment. With the purchase of a Krell product you acquire the finest in audio amplification and the knowledge that Krell provides consummate support for its customers.

KRELL INDUSTRIES ■ 35 Higgins Drive ■ Milford, CT 06460
Phone: 203-874-3139 ■ Fax: 203-878-8373

See the Krell Digital advertisement in this issue.



AMPLIFIERS

MANUFACTURER	POWER AMP										PREAMP		Notes								
	Model (RI) = Remote Included, (RO) = Remote Optional	Type: Integrated = I, Tube = T, Hybrid = H, Mono = M	Rated THD, %	Balanced Input?	Rated Slew Rate, V/μs	High-Level Sensitivity, V/μs	Does Unit Invert, Polarity?	Cont. Avg. Watts/Channel, mV	Cont. Avg. Watts/Channel into 8 Ohms, Hz to kHz	Rated Full-Power Bandwidth, Class of Output Operation	Dynamic Headroom, dB	MM Phono S/N, ab		MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.	Price, \$				
CODA TECHNOLOGIES	100	B	0.05	Yes	50	No	100	200	0-100	A				110	6000.00	†Unbalanced, 100 kilohms, balanced, 2 kilohms.					
	10	B	0.1	Yes	50	No	100	180	0-50	A AB				65	3000.00						
CONRAD-JOHNSON	MF80	B	1			No	80		20-20	AB				38	1395.00						
	MV100	B T	1			No	90		20-20	AB				80	2950.00						
	Evolution 2000	B H	1			Yes	200		20-20	AB				125	4995.00						
	MV52	B/T	1	No		No	45		30-15	AB				39	1895.00						
COUNTERPOINT	SA-100	B	0.8	No	92	No	100	170	20-20	AB	3	10		18	795.00						
	SA-220	B H	0.5	No	92	No	220	420	1.2-200	AB	3	100			1295.00						
	SA-220/220	B H	0.5	No	92	No	600	700	1.2-200	AB	3	100			2795.00						
		M													5590.00						
	SA-4	B H M	0.2	No	6	77	No	140	96	1-100	AB Var.	3	100		Pair 6495.00						
CREATIVE DIMENSIONS	HA-1	B	0.01	No	200	Adj.	No	0.25	20-20	A	0	100		4	495.00	For low-impedance headphones; tape loop.					
CREEK	4040S2	I	0.01	Yes	150	250	No	40	50	20-20	AB	1	75	2.5	350	No	10	450.00	100-μV sensitivity and 1-kilohm loading for MC input. Bridges to 200 watts.		
	4140S2	I	0.01	Yes	150	250	No	45	75	20-20	AB	1	75	2.5	500	Yes	11	550.00			
	6060	I	0.01	Yes	150	250	No	60	100	20-20	AB	1	75	2.0	2V	Yes	22	995.00			
CROWN INTERNATIONAL	D-75	B	0.001	Yes	6	812	No	40	55	20-20	AB/B	25		10	524.00	Bridgeable.					
	D-150AI	B	0.001	No	12	1.2V	No	80	125	20-20	AB/B	25		24	795.00	As above.					
	DC-300AI	B	0.001	No	16	1.8V	No	175	305	20-20	AB/B	25		45	1095.00	As above.					
	PS-200	B	0.001	Opt.	16	1.3V	No	100	170	20-20	AB/B	30		25	859.00						
	PS-400	B	0.001	Opt.	16	1.8V	No	190	330	20-20	AB/B	30		55	1069.00						
	PSA-2	B	0.002	Opt.	30	2.1V	No	275	460	20-20	AB/B	25		57	1995.00						
	Micro Tech 600	B	0.05	Yes	13	775	No	235	325	20-20	AB/B	20		39 1/4	1049.00	Bridgeable.					
	Micro Tech 1200	B	0.05	Yes	13	775	No	320	465	20-20	AB/B	20		40 5/8	1295.00	As above.					
	Power Base 1	B	0.05	Yes	13	775	No	205	230	20-20	AB/B	20		30	799.00	As above.					
	Power Base 2	B	0.05	Yes	13	775	No	320	400	20-20	AB/B	20		32	1049.00	As above.					
	Macro Tech 600	B	0.05	Yes	13	775	No	235	340	20-20	AB/B	20		39 5/8	1295.00	Bridged or parallel mono operation.					
	Macro Tech 1200	B	0.05	Yes	13	775	No	320	495	20-20	AB/B	20		44 5/8	1565.00	As above.					
	Macro Tech 2400	B	0.05	Yes	13	775	No	520	820	20-20	AB/B	20		51 3/4	1995.00	As above.					
	Macro Tech 10,000	B/M	0.05	Yes	40	Var.	No				AB/B	20		128	9995.00	Operates into 1 ohm or less.					
Macro Reference	B	0.05	Yes		775	No			20-20	AB/B	20		62		Damping, above 100,000; S/N, greater than 120 dB.						
DAX	A100	B	0.001	Yes	40	1.3V		80	120	20-20				19	629.00	Bridgeable.					
DB SYSTEMS	DB-6A	B	0.003	No	15	1V	No	40	70	20-20	AB	3	48		18	795.00	Three-times power-supply capacitance optional.				
	DB-6A-M	B M	0.008	No	30	1V	No	140	225	20-20	AB	3	48		18	795.00	Per pair, \$1550.00.				
DBX	BX-3Mkil	B	0.003	No	200	1V	No	400	500	20-20	AB	1.5	20		46.4	1299.00	Two-, three-, or four-channel operation.				
DENON	PMA-1520	I	0.005	No		150		130	5-50	†			47	95	2.5	160	Yes	28 1/2	1000.00	†Optical Class A. Coaxial and fiber-optic digital inputs; O/A converters.	
	PMA-1060	I	0.005	No		150		105	20-20	†									600.00	Remote power switching control. As above. Dual mono. Remote power switching control; bridgeable. †Front, 80 watts x 2; center, 35 watts x 1; rear, 35 watts x 2. Dolby Pro-Logic (see also "Surround Processors"). †Front, 55 watts x 2; center, 25 watts x 2; rear, 25 watts x 2; four- or six-channel operation. Dolby Pro-Logic (see also "Surround Processors"). †Front, 55 watts x 2; rear, 18 watts x 2. Dolby Pro-Logic (see also "Surround Processors").	
	PMA-860	I	0.01	No		150		80	20-20	†				94	2.5	160	Yes		400.00		
	PMA-560	I	0.015	No		150		70	20-20	†				94	2.5	160	Yes	330.00			
	POA-6600A	B/M	0.02	Yes	500			260	5-80	†				25				34 1/2	750.00		
	POA-4400A	B/M	0.015	Yes	500			150	5-80	†				25				22 3/4	500.00		
	POA-2400A	B	0.01	No				200	5-80	†				25				38 1/2	750.00		
	POA-800	B	0.05	No				50	10-50	†				25				15 1/2	300.00		
	AVC-3000(RI)	I	0.08 (F) 0.4 (C) 2.0 (R)	No		150		†		20-20				47	76	2.5		No	33		1000.00
	AVC-1000(RI)	I	0.08 (F) 0.4 (C) 2.0 (R)	No		150		†		20-20				47	76	2.5		No	30		700.00
AVC-700(RI)	I	0.4 (F) 2.0 (R)	No		150		†		20-20				47	76	2.5		No	20	600.00		

The beauty of a Classic is in the playing.



Like a great instrument in the knowing hands of a master, Classic 120 monoblock power amplifiers tell the truth about music—every time you play them, for as long as you possess them. And, this uncanny experience is finally possible at a price where true leading-edge sonic performance is seldom encountered.

Classic 120 amplifiers represent an incredible value, from a company with 20 years of proven products and support. Don't miss an opportunity to hear for yourself how a pair of these fine instruments can enrich your musical life for years to come. Visit your nearest Audio Research retailer today.

20
classic years

1970 - 1990

audio research®

HIGH DEFINITION®

The Classic you've been waiting for.

In the past, music-lovers and audiophiles shopping for high-end amplification had a frustrating choice: Performance? Or price? Because the best performance cost much more than most people could afford, and the more affordable prices involved a compromise in performance.

No more.

Audio Research has resolved that frustrating dilemma in a single stroke. Leading-edge performance and affordability are no longer mutually exclusive. The solution is called the Classic 120 monoblock, and it redefines the landscape of high-end amplification.

The Classic 120 draws on the technology that has made Audio Research's Classic series of hybrid power amplifiers the talk of the audio world. It emulates the performance standard of the preeminent Classic 150 and embraces certain economies from the popular and highly acclaimed Classic 60.

For example, instead of the Classic 150's more costly, all solid-state input stage, the Classic 120 uses two 6FQ7 dual triode tubes in the input stage to drive the eight 6550 output tubes, much like the Classic 60. And, operational controls have been economically reduced to a simple on-off power switch.

Like its distinguished siblings, the Classic 120 features triode operation of the output stage. That, together with its massive, tightly regulated power supply (with over 415 joules of energy storage,

just like the Classic 150) and its all new, low-loss power and output transformers, assures superior bandwidth and a noise floor so low that it challenges the listener's ability to even perceive it.

Amazing as it may sound, because of its sophisticated simplicity, a pair of Classic 120s outplay amplifiers with much greater objective power ratings. The gain can be kept low, while the resolution remains surpassingly high.

On the bottom end the Classic 120 rivals the authority and delivery of the finest solid-state amplifiers. Yet the midrange evinces the speed, harmonic accuracy and mellifluousness merely hinted at in previous tube or hybrid designs. As for the top end, the Classic 120 has an air and openness that will astonish.

And any lingering worry about the occasional tribulation associated with older, more conventional tube amplifiers can be put aside.

Because of its triode operation, the Classic 120's eight 6550 output tubes are subjected to far less stress than they would be under standard pentode operation. That, with the help of fan cooling, translates into longer, more trouble-free tube life. DC balance of the tubes is maintained automatically, as is tube biasing, which adjusts instantly to changes in incoming line voltage. The Classic 120 virtually takes care of itself.

If you're looking for value without the usual compromises in a new power amplifier, look to the company with a proven 20-year history of product performance and support: look to the Classic 120 from Audio Research.

Three-Year Limited Warranty

All Audio Research products are backed by a Three-Year Limited Warranty; vacuum tubes are warranted against defects for 90 days. For one year from date of purchase, Audio Research pays round-trip freight charges on any equipment requiring warranty service at the factory. See your authorized Audio Research dealer for details.



CLASSIC 120 SPECIFICATIONS

POWER OUTPUT: 110 watts minimum continuous at 8 ohms from 20Hz to 20kHz with less than 1.0% total harmonic distortion (typically below .005% at 1 watt)

POWER BANDWIDTH: (-3db Points) 10Hz to 80kHz

INPUT SENSITIVITY: .65V RMS for rated output

INPUT IMPEDANCE: 100K ohms

OUTPUT REGULATION: Approximately 0.2dB 16 ohm load to open circuit (Damping factor approximately 45)

OVERALL NEGATIVE FEEDBACK: 21dB

SLEW RATE: 17 volts/microsecond

RISE TIME: 2.0 microseconds

HUM & NOISE: Less than 1.0mV RMS—92db below rated output (20kHz bandwidth unweighted, input shorted)

POWER SUPPLY ENERGY STORAGE: Approximately 415 joules

POWER REQUIREMENTS: 105-125VAC 60Hz (210-250VAC 50Hz) 450 watts at rated output, 700 watts maximum, 330 watts at "idle"

TUBES REQUIRED: 4—Matched pair 6550 (low gas)—Power Output
2—6FQ7/6CG7—Drivers

DIMENSIONS: 19" (48cm) W (standard rack panel) x 8 3/4" (22 cm) H x 15 3/4" (40 cm) D (front panel back). Handles extend 1 5/8" (4.1 cm) forward of the front panel. Output connectors extend 1" behind rear panel.

WEIGHT: 61 lbs. (27.7 kg) Net; 75 lbs. (34.1 kg) Shipping

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HIGH DEFINITION[®]

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AMPLIFIERS

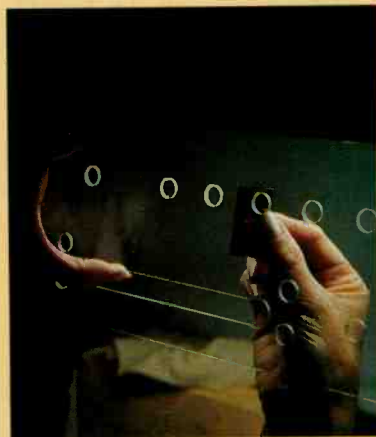
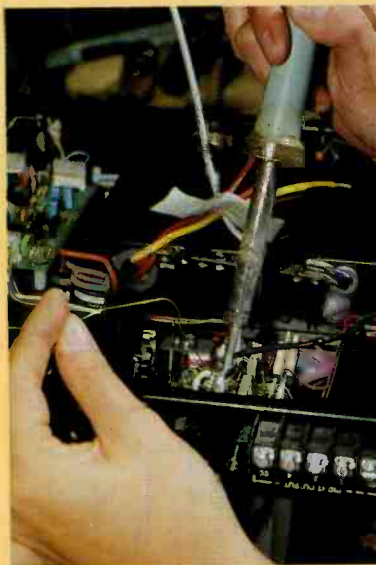
MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Type Integrated - I, Basic - B, Tube - H, Hybrid - H, Mono - M	Rated THD, %	Balanced Inputs?	Rated Stereo Rate, V/μs	High-Level Sensitivity, mV	Does Unit Invert Polarity?		Cont. Avg. Watts Channel into 8 Ohms	Rated Full-Power Bandwidth, Hz to kHz	POWER AMP				PREAMP				Notes		
							Cont. Avg. Watts Channel into 4 Ohms	Class of Output Operation			Dynamic Headroom, dB	Input Impedance, kOhms	MM Phono S/N, -dB	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, lbs.	Price, \$				
DISTECH	LS11a Stereo LS11a Mono	B B/M	0.02 0.01	No No	65 100	120 120	No No	120 250	250 250	3-100 3-100	AB AB	3.2 5	75 75						1250.00 3000.00 Pair		
DoReTech	Triode-70	B/T	1.0	No		1.2V	No	25	25		AB							29	519.00	Modification of Dynaco ST-70; triode output; bridges to 50 watts into 2, 4, or 8 ohms.	
DYNACO	Stereo 70 Series II	B/T	0.5	No		1.2V	Yes	35	35	20-20	AB	2	1					38	995.00	Bridgeable.	
ELECTRO-COMPAIET	AW 75	B	0.003	Yes	75		No	75	150	20-20	A/AB								2195.00	Bridgeable; dual mono	
	AW 100	B	0.2	No			No	100	180		A/AB							39	2195.00		
	AW 250 EC 100(RI)	B I	0.2 0.2	No			No	250 100	380 180		A/AB			Yes				65	3995.00	Nine inputs; video switching.	
ELECTRON KINETICS	Eagle 2C	B	0.1	No	120	1.3V	No	120	200	0-150	AB	0	100					37	1499.00		
	Eagle 400	B	0.1	No	240	1.3V	No	400	800	0-130	AB	0	100					37	1599.00		
ENSEMBLE	B-50	I/H	0.05	No		300	No	50	70	5-50	AB								1940.00		
ESSENCE	Reference	B	0.01	Opt.			No	200	300	5-100	A/AB								9850.00	Four mechanical ground planes. As above.	
	Standard	B	0.01	Opt.			No	200	300	5-100	A/AB								4850.00		
EXPOSURE	X	I					No	35	35	20-20	AB						†	18	1025.00	†Optional.	
	XV	I					No	35	35	20-20	AB						†	18	1125.00	Includes preamp power supply.	
	VIII	B					No	55	55	20-20	AB							18	1125.00		
	VIII Super VIII Mono Regulated IV Dual Regulated	B/M B					No	55 55	55 55	20-20 20-20	AB AB							18	2175.00		
							No	80	80	20-20	AB							42	2875.00	Dual mono.	
FENTON AUDIO	Stereobate II	B/M	0.022	Opt.	500	500	No	300	600	20-150	A/AB							68	2300.00 Pair	MOS-FET; water-cooled.	
FORTÉ AUDIO	1a	B	0.1	No	40	1V	No	50	80	7-30	A	0	75					31	1250.00	30 amps, peak, per channel. As above.	
	3	B	0.1	No	40	1.9V	No	200	320	7-30	AB	1.3	75					31	1250.00		
FOSGATE-AUDIOGNICS	S-150	B	0.05	No	50	1V	No	125	175	20-20	AB		50					22	849.00		
	T-150	B	0.05	No	50	1V	No	125	150	20-20	AB		50					30	999.00		
	M-60	B	0.05	No	16	Var.	No	40	60	20-20	AB		25					8	199.00		
FOSTEX	AP1020	B	0.05	Yes		700		75	100	10-35								17	995.00	Includes compressor and crossovers.	
	AP2130	B	0.05	Yes		1.7V		450	650	10-35								50%	2295.00		
GEMINI	SA-401	B	0.04	Yes		150	Var.	85		20-20	AB		47					20	399.95		
	SA-501	B	0.04	Yes		150	Var.	125		30-20	AB		47					25	449.95		
GOLDMUND	Mimesis 3(RO)	B	0.01	Yes	100	155	No	100	200	0-850			100					34	5950.00	A.c. polarity switch. As above. Fits directly into Goldmund Apologue speaker.	
	Mimesis 6.8	B	0.01	No	100	155	No	80	150	0-600			50					27½	3390.00		
	Mimesis 8	B	0.01	Yes	100	155	No	125	250	0-800			50					77	4990.00		
	Mimesis 9	B	0.01	Yes	100	155	No	175	350	0-1M			50					143	9990.00		
	Mimesis 9.2	B/M	0.01	Yes	100	110	No	250	400	0-1M			50					143	9990.00		
	Goldcube(RO)	B/M		No			No							50							11,000.
GRUNDIG	A-9000	I	0.005	No		150	No	120	200	5-80	AB	1.5	50	82	2.5	160	Yes		1199.00		
	A-903	I		No		180	No	100	150	5-50	AB	1.5	50	78	1.9	160	No		699.00		
GRYPHON AUDIO	S100	B		Yes				100	200		A								12,999.		
	M200	B/M		Yes				200	400		A								25,999.		
HAFLER	SE240	B	0.025	No	45		No	120	175	20-20	AB		47						27	549.00	Bridgeable. As above; chassis or floating ground. Bridgeable. As above. As above.
	JF2000	B	0.05	No	80		No	250	350	20-20	AB	1.5	20								
	SE120	B	0.008	No	13		No	65	75	20-20	AB	1.8	23					18	325.00		
	XL280 XL600	B B	0.05 0.08	No No	75 100		No No	145 305	200 450	20-20 20-20	AB AB	1.4 1.4	47 47					27 51	675.00 1195.00		
HARMAN KARDON	HK6100	I	0.09	No	90	135	No	30	30	20-20	AB		22	78	2.2	130	No	12½	249.00	Selectable power-supply voltage; active/passive phono section. As above; phase-correct loudness control. As above. Selectable power-supply voltage; active/passive phono section; interactive A/V switching. As above.	
	HK6200	I	0.09	No	90	135	No	45	45	20-20	AB		22	80	2.2	120	No	13½	349.00		
	HK6500	I	0.09	No	90	135	No	70	70	20-20	AB		22	80	2.2	130	Yes	18½	549.00		
	HK6600 HK6800	I I	0.08 0.08	No No	180 280	135 135	No No	90 120	90 120	20-20 20-20	AB AB		22 22	80 80	2.2 2.2	130 220	Yes Yes	22½	699.00 949.00		
	HK6900	I	0.08	No	280	135	No	170	170	20-20	AB		22	80	2.2	220	Yes		1299.00		

McIntosh[®]...

*handcrafted with pride
dedicated, highly*

In a world of mass produced merchandise McIntosh is a welcome relief. Since its beginning in 1949, all McIntosh instruments have been and still are hand made, one by one, with as much care and dedication as if each was the only one. Each McIntosh is handcrafted. There is no production rush at McIntosh, for handcrafting takes time. Handcrafting gives you more performance and more value. Note the precise placement of each part. This means longer trouble-free performance. As more parts go into a chassis, craftsmanship becomes more apparent. Each operator is highly trained. Trained in the McIntosh way, training is continuous. Each instrument is checked from one station to the next. Each instrument is checked again and again to give the best possible performance ensuring that your McIntosh instrument will continue to sound good year after year. If you were going to build stereo components, isn't this the way you would build them?

McIntosh instruments are made with the best materials. Before any particular individual



component part is chosen, it is checked, re-checked, tested and re-tested to make sure that you are getting the best. The manufacture, alignment and testing of all McIntosh instruments reflect this care. Try the controls on a McIntosh. Then you will know one of the reasons a foremost technical journal of sound reproduction said: "The McIntosh feel... is the most perfect we have experienced." At McIntosh, nothing is left to chance. Every part selected for use in a McIntosh must be top quality. As each assembly takes shape, it is inspected, tested and measured to exacting performance demands. Then each completed instrument passes hundreds of tests designed to prove it is a McIntosh.

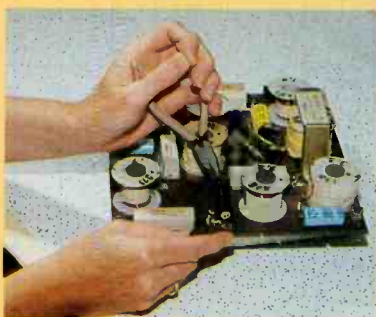
No word describes how immaculate a front panel must be to pass the critical eye. It is checked for dust, fingerprints, smudges, or anything that is distracting. The front panel is checked and rechecked, just like everything in a McIntosh. After a final cleaning and visual inspection, the instrument is put into a plastic bag

in the United States by trained craftspeople.

to keep it spotless and is packed in a scientifically designed shipping carton to provide maximum protection from transportation influenced maladjustment or damage. All these things are done to protect your investment.

To handcraft a product, there can be no demanding production pressure. At McIntosh there is only a **demanding product quality pressure**. Each McIntosh instrument must have the same quality performance, reliability and long life demanded of the original laboratory designed and built sample. To assure that each instrument is an exact duplicate of the laboratory model each wire, each resistor, each capacitor, each solid state device is carefully wired into its specific place. Laboratory precision and care are built into each McIntosh instrument.

Each instrument is rigorously tested. Each test is designed to give you the best performance. So much testing makes sure each part, each circuit, each detail meets the McIntosh quality requirement. Every instrument must meet exacting critical,



precision standards. At any point, if something does not meet its performance guarantee, all testing stops. The reason is found, corrective measures are taken and then the testing starts all over again. Testing, endless testing, is your assurance of highest quality performance and protection from failure; testing is one of the reasons McIntosh can give you a guarantee that your new McIntosh will meet or exceed its published performance limits.

At McIntosh, each of us is responsible for product quality. Each of us knows that one of the prices of leadership is the **constant struggle for superiority**. Each of us is dedicated to giving you the performance you expect and the value you deserve.

These are just some of the considerations that go into each McIntosh, your McIntosh.

For information on McIntosh products and product reviews, please send your name, address and phone number to:

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AMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Type: Integrated = I, Basic = B, Tube = T, Hybrid = H, Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/μs	High-Level Sensitivity, V/μs	Does Unit Invert Polarity?	Cont. Avg. Watts	Cont. Avg. Watts Channel into 8 Ohms	Cont. Avg. Watts Channel into 4 Ohms	Rated Full-Power Bandwidth Hz to kHz	POWER AMP					PREAMP			Notes					
												Class of Output Operation	Dynamic Headroom, dB	Input Impedance, kilohms	MM Phono S/N, -dB, A, Wdr, re 5 mV	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.	Price, \$						
HARMAN KARDON CITATION	Twenty-two	B	0.08		160	1V	No	200	200	20-20	AB										45	1149.00	Bridges to 400 watts.		
HEYBROOK	P-3	B	0.05				No	100	150	20-50	AB											24	1499.00		
INTEGRA AUDIO	Integra MF120 Mono-Blocks	B/M				500	No	120			AB											32	3000.00	Pair	
ISEM	AP 70D	B	0.005	No	250		No	80	160	5-200	A	1.3	50									88	7495.00	Dual mono.	
JADIS	JA-30	B/T/M		No		775	No	35	35	20-35	A											50	6495.00	Pair	
	JA-80	B/T/M		No		775	No	75	75	20-35	A											80	10,995.00	Pair	
	JA-200	B/T/M		No		775	No	175	175	20-20	A											200	17,500.00	Pair	
	JA-500	B/T/M		No		775	No	400	400	20-20	AB												22,995.00	Pair	
	DEFY D-7	B/T		No		775	No	100	100	15-60	AB											80	4995.00	Pair	
JRM	Power Tower	B/M	0.02		100	†	No	††	†††	0.6-75	AB	3	50									65	3000.00	†(2)2.0 and (2)1.1 V. ††(2)180 and (2)70 watts. †††(2)500 and (2)250 watts into 2 ohms. All-cascade design.	
	Power Tower/B Pro	B/M	0.02		100	†	Sel.	††	†††	0.6-75	AB	1.5	50									75	4000.00	†(2)2.0 and (2)1.1 V. ††(2)600 and (2)200 watts. †††(2)800 and (2)350 watts into 4 ohms. All-cascade design; bridged outputs.	
JVC	AXZ911BK(RI) AXZ1010TN(RI)	I I	0.003 0.004	No No		400 300		100 100		20-20 20-20	A/Sup. A A/Sup. A	30 30	80 82	2.5 4	100 100	Yes Yes						44 37	1100.00	Direct digital inputs. As above; 18-bit D/A converters.	
KEBSCHULL	35-70	B/T/M	0.02	No				70	100	15-30	A/AB											50	2595.00	Pair	
KENWOOD	Basic-M1D Basic-M2A L-1000M	B B B	0.008 0.004 0.006	No No Yes		100 100 100		125 220 130		20-20 20-20 20-20												21.6 34.1 59.5	429.00 679.00 1300.00		
KINERGETICS RESEARCH	KBA-75 KBA-202	B B/M	0.02 0.05	No No	65 65	1.5V 1.5V	No No	75 250	150 400	5-100 5-100	A AB	3 3	100 100									65 55	1795.00 2590.00	Pair	
KIRKSAETER	LAB 120	B/H	0.003	No	100	200	Var.	120	200	8-120	Sup. A	1.4	50									25	2499.00		
KLIMO	Kent Linnet	B/T/M B/T/M	0.3 0.3	No No			No	35 100	35 100		AB A											19 43	2550.00 7800.00	Pair Pair	
KLYNE AUDIO ARTS	SKX 120	B	0.1	Yes			No	100	200	0.1-200	A/AB		50												
KRELL	KSA-250 KSA-150 KST-100 MDA-500 MDA-300	B B B B/M B/M	0.1 0.1 0.1 0.1 0.1	Yes Yes Yes Yes Yes	100 100 50 100 100	230 180 150 230 180	No No No No No	250 150 100 500 300	500 300 200 † 600	0-250 0-250 0-150 0-250 0-250	A A AB A A		47 47 47 47 47									143 90 50 143 90	5700.00 3950.00 2500.00 6000.00 4250.00	†1000 watts.	
LAZARUS	H1A 50 50 H1A M200 200/200	B/H B/H M B/H	0.2 0.2 0.2	No Yes No		Sel. Sel.	Yes Var.	50 200	100 350	5-80 5-80	A AB		Sel. Sel.									35 35 35	1920.00 3840.00 1750.00	Bridgeable. Two chassis; balanced differential. Bridgeable.	
LECTRON	JH-30 JH-50 JH-80	I/H B/T B/H M	0.05 0.3 0.05	No Yes Yes			No	30 50 80	30 50 80	13-95	AB AB AB											40 62 50	3300.00 3950.00 9500.00	Pair	
LEGACY	The Power Amplifier	B	0.05	No	50	120	No	250	400	20-20	AB	2.0	25									60	996.00		
MARK LEVINSON	No. 20.5 No. 23 No. 27 No. 29	B/M B B B	0.3 0.3 0.5 0.3	Yes Yes Yes Yes		141 141 141 141	Sel. Sel. Sel. Sel.	100 200 100 50	200 400 200 100	20-20 20-20 20-20 20-20	A AB AB AB		50 50 50 50									90 100 75 60	6000.00 5295.00 3795.00 2600.00	Regulated power supply. Dual mono. As above.	
LINN HI-FI	LK280 Spark LK280 INTEK	B B I						80 80 50	160 160 50	20-20 20-20 20-20	AB AB AB											45 20 25	2790.00 1595.00 995.00	Dual mono; two chassis.	
LSR&D	The Leach Amp The Leach Super	B B/M	0.05 0.05	No No	70 80	1.8V 2.4V	No No	160 300	300 500	0.37-220 0.3-200	AB AB	2.2 2.2	30 30									36 36	970.00 970.00	Twin toroidal power supply; kit, \$580.00. As above.	

NAD Introduces A New Standard In Value.



The New NAD 1600 Preamplifier/Tuner

NAD is the world's leading manufacturer of reasonably priced, high-performance audio equipment. Since 1978, their products have won universal acclaim for their brilliant sound and their unique, innovative engineering. The new model 1600 Pre-amplifier/Tuner is a perfect example of NAD's continued commitment to extraordinary performance at affordable prices.

Inside this deceptively simple looking, remote controlled package is a high performance preamplifier/tuner that has to be heard to be believed. In fact, prior to the introduction of the NAD 1600, audio enthusiasts could only dream of this kind of performance at a price of only \$399*.

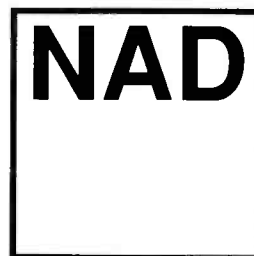
As a preamplifier, the 1600 delivers outstanding performance and flexibility. In reality, few separate preamps can match its freedom from hum and noise, its immunity from component interaction, or its accurate reproduction of both high level and phono input signals. Furthermore, unlike some competing preamp/tuners, the 1600 has a discrete (non IC) phono section.

As a tuner, the 1600 combines truly phenomenal sensitivity, selectivity, and signal-to-noise ratio with ease of operation. In fact, in real-world listening conditions, the 1600 will outperform many separate tuners which cost as much as the 1600 itself.

By combining this remarkable preamp/tuner with one of NAD's Power Envelope™ power amplifiers, you can assemble a state-of-the-art separates system for as little as \$828*. Never before has any company offered such brilliant performance at such an affordable price. Come visit your local authorized NAD dealer to audition the new standard of audio value.

Just a few of NAD's noteworthy achievements:

- Largest selling hi-fi component of all time.
- Most highly reviewed product of all time.
- First amplifiers with Power Envelope circuitry.
- First Dolby C cassette deck.
- First cassette deck with Play Trim.
- First cassette deck to combine HX Pro™ and Dyneq™.
- First Controlled Dynamic Range circuit for CD players.
- First audiophile quality Preamp/Tuner under \$400.



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* Manufacturer's suggested retail. Prices may vary.

AMPLIFIERS

MANUFACTURER	POWER AMP										PREAMP					Notes					
	Model (R) = Remote Included (RD) = Remote Optional	Type Integrated Tube = I Hybrid = H Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/μs	High-Level Sensitivity, mV	Does Unit Invert Polarity?	Cont. Avg. Watts Channel into 8 Ohms	Cont. Avg. Watts Channel into 4 Ohms	Rated Full-Power Bandwidth, Hz to kHz	Class of Output Operation	Dynamic Headroom, dB	Input Impedance, kilohms	MM Phono S/N, dB: A: Wdr. re. 5 mV	MM Phono Sensitivity, mV		Moving Coil Input?	Weight, Lbs.	Price, \$		
RAYMOND LUMLEY DESIGNS	M-150	B/T/M	0.5	No			No	150		20-25							90	6500.00 Pair			
	M-75	B/T/M	0.5	No			No	75		20-25							77	4500.00 Pair			
LUXMAN	LV111	I	0.05	No	15	150	No	40		20-20	AB		40	82	2.5	140	No	14.3	350.00	Direct digital inputs. As above. Bridgeable.	
	LV112	I	0.05	No	20	150	No	55		20-20	AB		40	84	2.5	140	No	19.8	550.00		
	LV113	I	0.05	No	20	150	No	65		20-20	AB		40	84	2.5	140	No	21.6	750.00		
	LV105u	I/H	0.25	No	12	150	No	80		20-20	AB		47	90	2.0	160	Yes	25.3	1000.00		
	LV117	I	0.05	No	12	150	No	110		20-20	AB		47				No	34.5	1200.00		
	M113	B	0.03	No	15	Sel.	No	50		20-20	AB		42					18.7	600.00		
	M117	B	0.03	No	20	1V	No	200		20-20	AB		37					52	1250.00		
MADISON FIELDING	PA900	B	0.01	No	20	100	No	150	220	20-20	AB		1.5	100				29	1350.00	Dual mono; high-current MOS-FET design. High-current MOS-FET design. Multi-room remote system component; includes seven-band EQ. Four-channel amp; multi-room remote system component; includes four-channel, three-band EQ.	
	PA750	B	0.01	No	20	100	No	75	150	20-20	AB		1.5	100				19	800.00		
	CA700(RD)	I	0.01	No	20	100	Yes	60	100	20-20	AB		1.0	20				18	1200.00		
	CA300(RD)	I	0.015	No	15	100	Yes	40	60	20-20	AB		1.2	20				20	1700.00		
MARANTZ	PM94	I	0.02	No	70	150	No	140	200	20-20	A/AB		30	83	2.5	200	Yes	51	2000.00	MOS-FET outputs; dynamic bias. As above.	
	PM84	I	0.03	No	30	150	No	105	125	20-20	A/AB		30	83	2.5	150	Yes	40	1100.00		
	PM74	I	0.06	No		150	No	105		20-20	A/AB		20	95	2.5	140	Yes	23.1	750.00		
	PM65	I	0.03	No		150	No	65	80	20-20	A/AB		25	85	2.5	140	No	22.9	520.00		
	PM25	I	0.1	No		150	No	30		40-20	AB		45	83	2.5	150	No	11.7	350.00		
McINTOSH	MC2600	B	0.005	Yes	50	Sel.	No	600	600	20-20	AB		1.7	†				130	4995.00	†Balanced, 40 kilohms; unbalanced, 20 kilohms. Bridgeable. Bridgeable. As above. As above.	
	MC7270	B	0.02		17	Sel.	No	270	270	20-20	AB		1.6	20				82	2499.00		
	MC7200	B	0.005	Yes	35	Sel.	No	200	300	20-20	AB		1.8	†			55	2595.00			
	MC754	B	0.02		12	Sel.	No	100	100	20-20	AB		1.6	20			21	1049.00			
MELOS AUDI0	Triode 125 Plus	B/T	0.2	No		150	No	125	125	15-60	AB		3	100				62	1995.00		
	Triode 200 Plus	B/T	0.2	No		150	No	200	200	15-60	AB		3	100				72	2995.00		
	Triode 200 Plus Mono	B/T/M	0.2	Yes		150	No	200	200	15-60	AB		3	100				60	3995.00 Pair		
	Triode 400 Plus Mono	B/T/M	0.2	Yes		150	No	400	400	15-60	AB		3	100				74	5495.00 Pair		
MERIDIAN	205	B/M	0.04	No		775	Yes	100	150	20-20	†	2	11					13	1790.00 Pair	†Class AA, non-switching. Signal-sense auto turn-on.	
MFA SYSTEMS	M120C	B/T/M	0.15	No	40	770	No	120	120	14-120	A/AB1		1.2	100				60	3960.00 Pair	Class-A operation to 60 watts. As above to 100 watts. As above to 40 watts.	
	M200C	B/T/M	0.3	No	40	1.5V	No	200	200	14-120	A/AB1		1.2	100				84	5960.00 Pair		
	O75A	B/T	0.3	No	40	760	No	75	75	12-150	A/AB1		1.2	100				64	2120.00		
MIRROR IMAGE AUDIO	1.1S	B	0.01	No	300			200	400	1-500	A/AB							52	2995.00	Bridgeable; d.c. coupled; biampable. As above. As above. As above; operates into 1 ohm.	
	1.1SB	B	0.01	Yes	300			200	400	1-500	A/AB							52	3500.00		
	1.1S + 1.1M	B	0.01	Yes	300			200	400	1-500	A/AB							62	4500.00		
		B/M	0.01	Yes	300			200	400	1-500	A/AB							70	7000.00 Pair		
MISSION	Cyrus One	I	0.003	Yes	†	65	No	30	40	20-20	AB		1.4	14	84	0.4		Yes	15	549.00	†Slew factor of 10. Biamp capable. As above. Add-on power supply, Model Cyrus PSX, \$699.00.
	Cyrus Two	I	0.003	Yes	†	50	No	50	80	20-20	AB		1.4	14	84	0.3		Yes	16	799.00	
MOTIF	MS1001	B	1	No			No	100		20-20	AB							45	3295.00		
	MS2001	B	1	No			No	200		20-20	AB							63	4395.00		
MUSE	100	B	0.5	Opt.	32	890	No	100	200	13-160	AB		51					28	1200.00		
	150	B/M	0.5	Opt.	90	960	No	125	250	13-300	AB		51					28	2280.00 Pair		
MUSEATEX AUDIO	STR-55	B	0.25	No	75	1V	No	50	95	20-20	AB		20					18	1590.00	Floating charge power supply. As above. As above.	
	MTR-101	B/M	0.25	No	75	1V	No	100	200	20-20	AB		20					21	3400.00 Pair		
	Melior	B	0.25	No	75	1V	No	100	180	20-20	AB		20					23	1995.00		
MUSICAL DESIGN	D-140	B	0.007	No	30	1.7V	No	140	200		AB		22					28	1295.00	Dual mono.	
MUSIC REFERENCE	RM-9	B/T	0.2	No		Var.	No	100	100	20-40	A/AB		1.5					55	2500.00	Variable feedback; 2-, 4-, and 8-ohm taps.	
MUSIC & SOUND	SPA-100	B	0.1	Opt.	30		Var.	100	180	10-100	AB		3	20					849.00	Two pairs of binding posts for bi-wiring.	
	SPA-65	B	0.1		30		Var.	65	120	10-100	AB		3	20					595.00		

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When you open a Soundcraftsmen amplifier you'll find a Certificate of Performance...your guarantee that the product that you've just purchased is not just a statistic on someone's projected minimum performance curve. It is a hand-built masterpiece that exceeds its published specifications and will hold those tolerances for years and years to come.



It has been said that the quality of a product endures long after the price has been forgotten. This, therefore is the difference between Soundcraftsmen and the mass-manufactured competition. The making of Soundcraftsmen products is an art, and we craft them with care, knowing that someone who appreciates the finer things in life will appreciate the advantage of owning the finest in sound quality.

You don't find Soundcraftsmen products in every store, because in a world that wants to know "how many" and "how quickly" something can be sold per square foot of retail floor space, only those retailers who



truly CARE about audio, will take the time to demonstrate a superior product. Mediocrity is always simpler. Superiority takes discipline and time.

When a Soundcraftsmen product is conceived, it's not with the primary concern of "how fast can we sell

them?" but for a sonic reason, because someone has found a way to make something sound even better than before.

The real advantage of a Soundcraftsmen product being "hand-crafted" is not just that the product was built by hand, things can be poorly built by hand. "Hand-crafted" means that the manufacturer cared enough to strive for perfection in all the steps in the process...an on-going intensive QC process from start to finish.

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AMPLIFIERS

MANUFACTURER	POWER AMP														PREAMP			Notes																														
	Model (RI) = Remote Included, (RO) = Remote Optional	Type: Integrated, Tube, or Hybrid	Rated THD, %	Balanced Inputs?	Rated Stew Rate, V/1.5S	High-Level Sensitivity, mV	Dores Limit Invert. Polarity?	Cont. Avg. Watts/Channel Info & Ohms	Cont. Avg. Watts/Channel Info & Ohms	Rated Full-Power Bandwidth, Hz to kHz	Class of Output Operation	Dynamic Headroom, dB	Input Impedance, Kilohms	MM Phono S.N. -dB, A: wide re 5 mV	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.		Price, \$																													
																				2100X	2400	2600A	3225PE	3240	3400(RI)	NAIT 2	NAP 90	NAP 140	NAP 250	NAP 135	PA-7AII	PA-5AII	Subwoofer Controller	NA-1	A401M	A201S	401S	Oakley	OR-1	OA21	OA20	M-5200	Integra M-502	Integra M-504	A-8200(RI)	Integra A-8500	Integra A-8700	Integra A-8800
NAD		B	0.03	No	35	Var.	No	60	100	20-20	AB	5.3	20				21	429.00	Bridgeable.																													
		B	0.03	No	30	Var.	No	100	100	20-20	AB	5.7	20				22	599.00	As above.																													
		B	0.03	No	35	Var.	No	150	150	20-20	AB	4	20				28 1/2	799.00	As above.																													
		I	0.03	No	15	Var.	No	25	25	20-20	AB	4	20	75	0.5	200	No	13	249.00																													
		I	0.03	No	15	160	No	40	40	20-20	AB	6	22	76	0.35	180	No	15	399.00																													
		I	0.03	No	15	160	No	100	100	20-20	AB	5.7	20	80		180	Yes	24 1/2	799.00																													
NAIM AUDIO		I	0.1	No		75	No	18	25	5-20	B						11	825.00	Can be adapted for use as preamp. Includes 24-V power supply for NAIM preamps. As above.																													
		B	0.1	No		700	No	30	45	5-40	B						12	795.00																														
		B	0.1	No		700	No	45	70	5-40	B						14	1245.00																														
		B	0.1	No		900	No	70	125	5-40	B						30	2795.00																														
		B/M	0.1	No		900	No	75	135	5-40	B						33	2795.00																														
NAKAMICHI		B	0.05	No		140	No	225	150	5-50	Stasis	1.7	50				62 3/4	2195.00																														
		B	0.05	No		140	No	150	150	5-50	Stasis	1.7	50				47 3/8	1550.00																														
NELSON-REED		B	0.1	No		500	No	100	200		AB						50	2750.00	Amp/crossover for subwoofers.																													
NESTOROVIC LABS		B/T/M	0.5	Yes		Sel.	Var.	150	150	20-20	AB						65	2750.00																														
NRG CONTROL		B/M	0.05	No	800	91	No	400	800	0.7-1M	A	1	100				125	5600.00																														
		B	0.05	No	600	91	No	200	400	0.7-1M	A	1	100				125	5900.00																														
		B	0.05	No	800	91	No	400	800	0.7-1M	A/AB	1	100				125	5900.00																														
OAKLEY		B/H	0.02	No	75		No	100	200	20-20	A/AB	3	47				35	1195.00																														
OCTAVE RESEARCH		B	0.9			1.5V	No	80	160	20-20	A/AB		100				70	3650.00	Dual mono; no negative feedback.																													
ONIX AUDIO		I	0.01	Yes	150	250	No	50	70	20-20	AB	1.3		75	2.0	500	†	11	750.00	†Optional. Add-on power supply, Model S.O.A.P., \$525.00.																												
		I	0.01	Yes	100	250	No	35	60	20-20	AB	1.0		75	1.80	220		9	399.00																													
ONKYO		B	0.09	No			No	150		20-20	AB		50				20.1	359.95	Four-way speaker selector.																													
		B	0.003	No			No	140		20-20	AB		20				40.8	650.00																														
		B	0.003	No			No	165		20-20	AB		20				46	830.00																														
		I	0.06	No			No	60	100	20-20	AB		80	2.5		Yes	15.9	320.00																														
		I	0.008	No			No	80	120	20-20	AB		93	2.5		Yes	27.5	420.00																														
		I	0.008	No			No	105	160	20-20	AB		94	2.5		Yes	29.7	530.00																														
		I	0.008	No			No	100		20-20	AB		94	2.5		Yes	32	850.00	Dual D/A converters.																													
		I	0.008	No			No	100		20-20	AB		80	2.5		No	20.1	400.00	A V amp; with universal remote. Model A-RV400M, \$450.00. Dual mono.																													
		I	0.08	No			No	100		20-20	AB						55.1	1200.00	As above.																													
		B	0.003	No			No	200		20-20	AB		20				138	4500.00	As above.																													
		B	0.005	No			No	300	500	20-20	AB		20				66.1	3000.00	As above; dual D/A converters.																													
		I	0.008	No			Yes	135	240	20-20	AB		50																																			
PAC		I/H	0.1		10	30	No	50	75	5-45	AB	3		0.3	350	No	25	1495.00																														
PARASOUND		B	0.07	Yes	130		No	220	365	3-90	AB	1	50				63	1385.00	Dual mono; bridgeable.																													
		B	0.08	No	100		No	200	300	8-90	AB	1	50				33	775.00	Bridgeable.																													
		B	0.05	No	60		No	100	150	8-90	AB	1.5	50				24	395.00	As above.																													
		B	0.15	No	40		No	50	75	10-60	AB	2	50				16	285.00																														
PERREAUX		B	0.003	No			No	100	160	6-65	A/AB	2	47				17	999.00																														
		B	0.003	No			No	200	300	6-65	A/AB	2	47				27	1499.00																														
PHILIPS		I	0.03	No	150		No	70	95	20-20	AB		33	85	2.5		Yes	22	399.95																													
		I	0.03	No	150		No	100	140	20-20	AB		33	85	2.5		Yes	29	599.95																													
		I		No	150		No	100	120	20-20	AB		33	83	2.5		Yes	37	749.95																													
		I		No	150		No	120	150	20-20	A/AB		33				62	2500.00	Digital. As above. Bridges to 300 watts into 8 ohms and 400 watts into 4 ohms. Six-channel operation; bridgeable.																													
		B	0.03	No			No	100	150	20-20	AB		20				29	699.95																														
		B	0.03	No			No	50	75	20-20	AB		20				40	1000.00																														
PIONEER		I	0.003	No			No	120	170	20-20	AB		50	95	2.5	200	Yes	59 3/8	1100.00	†Main. 100 watts x 2 into 8 ohms; rear, 30 watts x 2 into 6 ohms; center, 30 watts into 6 ohms. Multi-room; Dolby Pro-Logic. Coaxial and fiber-optic digital inputs and outputs.																												
		I	0.005	No			No	120	170	20-20	AB		30	83	2.5	150	No	27 3/8	1000.00																													
		I	0.003	No			No	120	170	20-20	AB		50	95	2.5	200	Yes	66	1600.00																													



RPCTM

"REVERSE PHASE CANCELLING"



The Cary Audio Design **CAD-5500**TM compact disc audio processor is a revolutionary design analog, audio control center for high-end stereo and video systems. The CAD — 5500's primary purpose is processing the analog, audio output signal from a compact disc player and is used in conjunction with basic or mono-bloc amplifiers (e.g. — The Cary Audio DesignTM line of basic power amplifiers.) The Cary Audio C.D. Processor provides the audiophile with a method to "tame" extremely bright, harsh, edgy and often unpleasant sounds emanating from the many digital audio playback systems. Cary Audio Design's unique method of audio signal processing is called "Reverse Phase Cancelling" RPCTM.

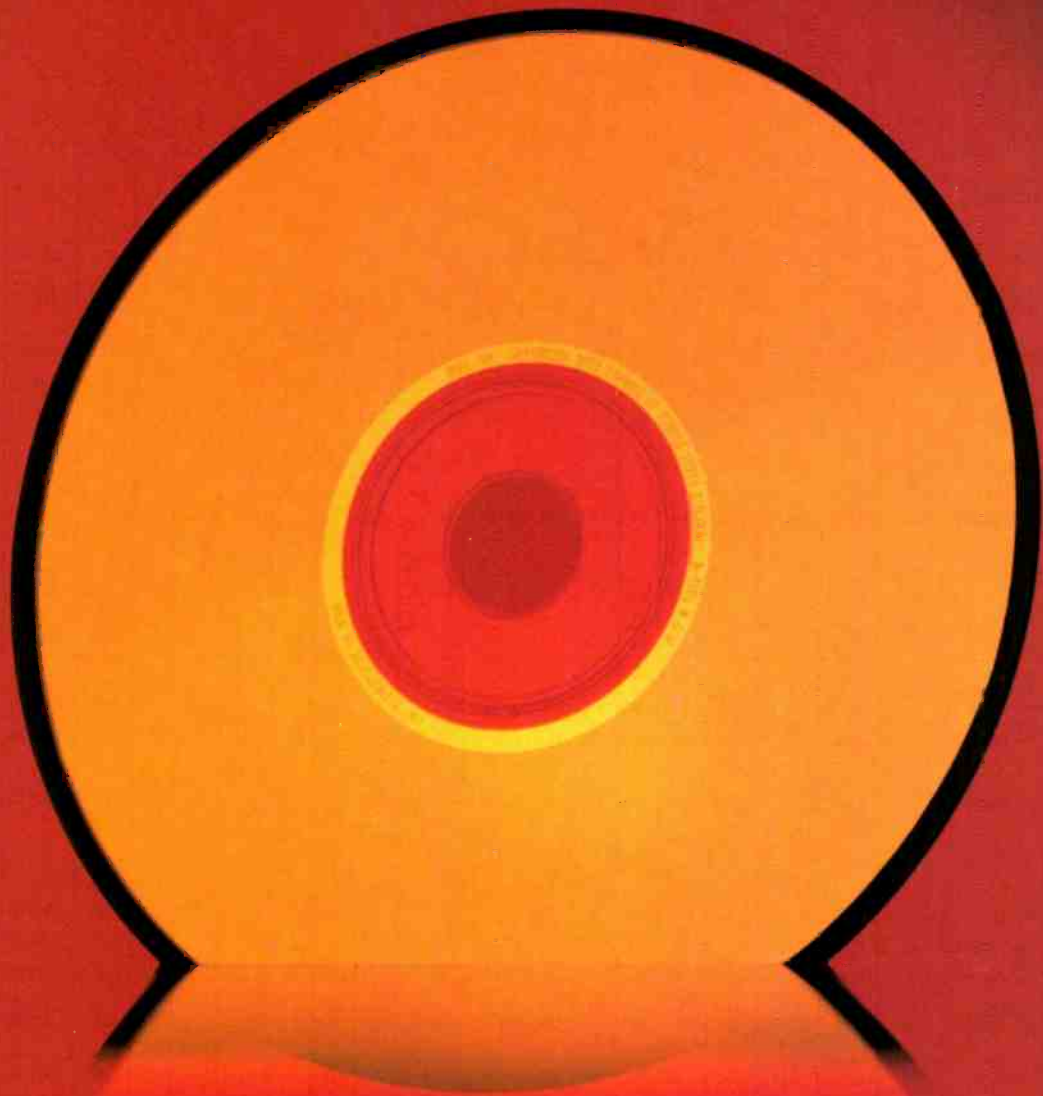
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AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included (RO) = Remote Optional	Type (I) = Mono (B) = Stereo	THD, %	Balanced Inputs?	Rated Stew Rate, V _{rms} /S	High-Level Sensitivity, mV	Does Unit Invert Polarity?	Cont. Avg. Watts/Channel into 8 Ohms Hz to kHz	Cont. Avg. Watts/Channel into 4 Ohms Hz to kHz	Class of Output Operation	POWER AMP				PREAMP				Notes	
											Input Impedance, dB	MM Phono S/N, dB	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.	Price, \$	MM Phono S/N, dB	MM Phono Sensitivity, mV		Moving Coil Input?
PIONEER (Continued)	A-757 M-72	I B	0.003 No	No		No	100 †	135	20-20	AB		50		2.5	200	Yes	43 53 ⁷ / ₈	750.00 1000.00	†100 watts x 2 or 50 watts x 4.	
	M-91 A-337	B I	0.003 0.02	No No		No	200 40	50	20-20 20-20	AB AB	1.8	50 40	89	2.5	150	No	60 15 ¹ / ₂	1400.00 250.00		
POINT SOURCE AUDIO	200	B	0.05	No	45	1V	No	200	300	20-20	A/AB		22					810.00	Dual mono.	
PRODIGY AUDIO LABS	Mono 150	B/T/M		No	35			150		5-100	AB		240				100	7000.00 Pair	Output transformerless. MOS-FET; bipolar design.	
	MAX FET 125	B/M	0.004	No	75			125		15-50	A		47				42	2500.00 Pair		
PROTON	AA-1150	B	0.02	No	35	150	No	50	100	12-70	AB	7.0	12				25.3	519.00		
	AM-655(RI)	I	0.02	No		150	No	60	120	10-50	AB	6.0		85	2.5	150	Yes	29		700.00
	AM-455	I	0.03	No		150	No	50	100	10-50	AB	3.0		85	2.5	150	No	29		250.00
	D-540	I	0.02	No		150	No	40	80	10-50	AB	5		92	2.5	150	Yes	19		380.00
PS AUDIO	PS 100 Delta	B	0.01	No	80		No	130	200	20-20	AB	0.5	100					45	1195.00	
	PS 250 Delta	B/M	0.01	No	80		No	250	400	20-20	AB	0.5	100					45	995.00	
PSE	Studio IV	B	0.01	No	100	1.2V	No	100	195	0-100	A/AB	1	50					27	850.00	
	Studio V	B/M	0.2	Yes	200	1.2V	No	120	230	0-500	A/AB	1	50					27	800.00	
QED	A240CDII	I	0.1	No		300		40	65	5-30	AB			72	3	No	12	449.00	Bi-wire output; bridgeable.	
	A240SAMKII	I	0.1	No		300		40	65	5-30	AB			72	3	Yes	12	569.00		
	A270MKII	I	0.1	No		300		50	85	5-30	AB			72	3	Yes	16	849.00		
	P300	B	0.1	No		300		50	85	5-30	AB			72	3	Yes	16	599.00		
QSC	1100	B	0.1	Yes	14	1V	Opt.	50	70	20-20	AB	2.0	20					12	568.00	
	1200	B	0.1	Yes	12	1V	Opt.	100	150	20-20	AB	2.0	20					24	598.00	
	3500	B	0.1	Yes	20	1V	Opt.	300	450	20-20	AB	3.0	20					50	1488.00	
	3800	B	0.1	Yes	20	1V	Opt.	375	600	20-20	AB	3.0	20					75	1958.00	
QUAD	306	B	0.01	No		500	Yes	50	80	20-20			1.5	20					699.00	Feed forward error-correction circuitry; current dumping. As above.
	606	B	0.01	No		500	Yes	140	220	20-20			1.5	20					1295.00	
QUICKSILVER AUDIO	KT88	B/T/M					No	60	60	13-55	AB		100					30	925.00	
	8417	B/T/M					No	60	60	13-55	AB		100					30	787.50	
RANE	MA6	B	0.2	Yes			No	100	150	20-20	AB	1.3	20					48	1348.00	Six-channel operation.
REVOX	B242-S	B	0.01	Yes	80	Adj.	No	200	300	20-20	AB	3						37 ¹ / ₂	3500.00	
	B242	B	0.01	Yes	80		No	200	300	20-20	AB	3						37 ¹ / ₂	3000.00	
	B250-S(RD)	I	0.015	No		250	No	100	150	20-20	AB	2.8		80	2.5	†	33	2500.00		
	B250(RD)	I	0.015	No		250	No	60	90	20-20	AB	2.8					28	1275.00		
ROBERTSDN AUDIO	Forty-Ten	B	0.1	No	159		No	60	120	0.5-330	AB		50					25	995.00	
	Sixty-Ten	B	0.1	No	256		No	200	400	0.5-250	AB		50					65	2700.00	
ROCKFORD FOSGATE	RF-2000	B	0.05	No	80		No	250	350	20-20	AB	7	20						1250.00	Bridgeable; chassis on floating ground.
ROTEL	RA820BX4	I	0.3	No		150	No	30		20-20	AB			80	2.5	170	Yes	15 ¹ / ₂	299.00	
	RA840BX4	B	0.03	No		150	No	50		20-20	AB			80	2.5	170	Yes	16	399.00	
	RB850	B	0.03	No			No	50		4-100	AB		25						299.00	
	RB870BX	B	0.03	No			No	100		4-100	AB		22						499.00	
JEFF ROWLAND DESIGN GROUP	1	B	0.04	Yes	70	136	No	60	120	0.3-300	A/AB		Sel.					48	3100.00	
	3	B/M	0.08	Yes	45	136	No	100	200	0.15- 175	A/AB		Sel.					46	4600.00 Pair	
	5	B	0.075	Yes	75	136	No	150	300	0.15- 250	A/AB		Sel.					103	5500.00	
	7	B/M	0.05	Yes	50	136	No	350	700	0.15- 225	A/AB		Sel.					135	11,300.00 Pair	
SANSUI	Vintage AU-X911DG	I	0.005	Yes	180	150	No	100	120	20-20	A	1.5	47	86	2.5	210	Yes	40	1100.00	
	Vintage AU-X711	I	0.005	Yes	180			100		20-20	A	1.5	47	88	2.5		Yes	40	850.00	
	Vintage AU-X611AV	I	0.008	No		150		80	130	20-20	A	1.4	47	87	2.5	150	Yes	24 ¹ / ₄	700.00	
	Vintage AU-X301i	I	0.05	No		200		65		20-20	A	1.4	47	80	3.5	150	Yes	30	320.00	
SCIENTIFIC FIDELITY	Tritium	B/T/M						65	65	10-60	AB							60	7500.00 Pair	
SHERWOOD	AI-1110	I	0.2	No		150		50		40-20	AB		47	75	2.5	150	No	15.4	159.95	
	AI-1210R(RI) AM-7040	I B	0.05 0.03	No Yes		150 1V		100 200	340	20-20 20-20	AB AB		47 47	79	2.5	200	No	27.4 56.2	329.95 599.95	

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AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Type Integrated = I, Basic = B, Tube = T, Hybrid = H, Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/ μ S	High-Level Sensitivity, mV	Does Unit Invert Polarity?	Cont. Avg. Watts Channel into 8 Ohms	Cont. Avg. Watts Channel into 4 Ohms	Rated Full-Power Bandwidth, Hz to KHz	POWER AMP				PREAMP				Price, \$	Notes		
											Class of Output Operation	Dynamic Headroom, dB	Input Impedance, Kilohms	MM Phono S.N. - dB	MM Phono Sensitivity, mV	MM Phono Sensitivity, mV	Moving Coil Input?	Weight, Lbs.				
SHURE HTS	HTS50SPA	B	0.1	No	1V	No	100	20-20	AB	1.5										27	999.00	Bridgeable; includes processing for Shure HTS speakers.
SIMA	W-2003	B	0.05	No	60	1.5V	No	225	450	20-20	AB									45	1350.00	Dual mono; bridges to 850 watts.
	W-2002	B	0.05	No	60	1V	No	125	200	20-20	AB									25	850.00	Bridges to 400 watts.
	W-3050	B	0.05	No	60	500	No	50	100	20-20	A, AB									32	995.00	Dual mono; bridges to 200 watts; high-current design.
	PW-3000	I	0.09	No	50	200	No	50	85	20-20	AB				75	2.8	160	Yes	16	695.00		
SM AUDIO	Studio Series	B	0.02	No	100	800	No	80	160	20-20	AB									30	979.00	
SONANCE	VCA1(RI)	I	0.05	No	20	500	No	60	100	20-20	AB									35	815.00	Three-channel operation; includes crossover and EQ for subwoofer; remote wall-mount volume control.
	Sonamp 260	B	0.05	No	20	625	No	60	100	20-20	AB									23	325.00	Auto on; with three-speaker switching. Model Sonamp 260 x 3, \$375.00.
SONIC FRONTIERS	SFM-75	B/T/M	1.0	No		1.4V	No	75	75	30-20	AB1									46	1575.00 Pair	Kit.
SONOGRAPHIE	SA120	B	1.0			1.1V	No	120		20-20	AB									40	995.00	FET.
SONY ES	TA-N110	B	0.08			180	No	45	55	10-40	AB									11 $\frac{3}{4}$	300.00	Bridges to 100 watts.
	TA-N55ES	B	0.005		125		No	110	150	10-100	AB									26 $\frac{7}{8}$	500.00	Bridges to 300 watts.
	TA-N77ES	B	.001B		150		No	200	270	10-100	AB									54 $\frac{3}{4}$	1200.00	Bridges to 580 watts.
SOUND-CRAFTSMEN	Pro-Power Ten	B	0.05		40	120	No	600	900	20-20	AB									60	1399.00	Two-, three-, or four-channel operation; MOS-FET; LED power meters.
	Pro-Power Four	B	0.05		50	120	No	205	300	20-20	AB									30	849.00	MOS-FET; LED power meters; without meters, Model Pro-Power Three, \$749.00; 17-inch-width, Model Pro-Power Four-17, \$799.00.
	A5002	B	0.05		50	120	No	250	375	20-20	H									52	949.00	Signal-tracking supply; LED meters.
	Pro-Reference Two	B	0.05		50	120	No	100	190	20-20	AB									30	699.00	MOS-FET; LED meters.
	Pro-Power One	B	0.05		50	120	No	205	300	20-20	AB									23	579.00	MOS-FET; operates into 2 ohms.
	PCR800	B	0.05		40	120	No	205	300	20-20	AB									30	499.00	
Pro-PA2X200	B	0.05		40	95	No	140	200	20-20	AB									30	499.00	Bridgeable; operates into 2 ohms.	
SOUND ENGINEERING	PFM-3	B	0.1	Yes	100	1.8V	No	150	300	1-100	A, AB									55	1850.00	
SOUNDSTREAM	RA-100(RO)	I	0.1	Yes	35	120	No	30	50	20-20	AB									5	649.00	Multi-zone remote room amp; auto local/main source switching; operates into 1 ohm.
	DA-1 MKII	B	0.05	No	35	1V	No	200	300	20-20	AB									35	1195.00	Bridgeable; infrared speaker selector.
SPECTRAL AUDIO	DMA-200	B	0.01	Yes	†	200	No	200	380	0-2M	A									87	5995.00	†1100 V/ μ S.
	DMA-80	B	0.01	Yes	500	200	No	100	200	0-2M	AB									19	2795.00	Bridgeable.
	DMA-80M	B	0.01	Yes	†	200	No	200	345	0-2M	AB									19	2595.00	
SPECTRASCAN	BPA-101B	B	0.07	No	40	1V	No	120	200	2-120	AB									40	1895.00	†Regulated power supply; bridges to 350 watts into 8 ohms.
SUMO	Andromeda II	B	0.02	Yes	115	130	Var.	240	400	20-20	AB									55	1499.00	MOS-FET; balanced output.
	Polaris II	B	0.05	No	75	130	No	120	200	20-20	AB									35	799.00	MOS-FET; bridgeable.
	Polaris	B	0.05	No	60	130	No	100	175	20-20	AB									29	749.00	MOS-FET.
	Ulysses	B	0.03	No	85	130	No	60	100	20-20	AB									25	549.00	As above; bridgeable.
	Nine Plus	B	0.10	No	20	130	No	65	120	20-20	A									35	1299.00	Balanced output.
SUPERPHON	400S	B		No			No	200	350		AB									35	1499.00	
SYMETRIX	A220	B	0.05	Yes	15	500	No	20	20	20-20	AB									9	315.00	Bridgeable.
	SX204	B	0.01	Yes	6	150	No	0.5	20	20-20	AB									2	269.00	For high-impedance headphones.
SYMPHONIC LINE	RG 1 MKII	B	.0005	No				100	200	10-400	A, AB									48	3475.00	
	RG 7 MKII	B	.0005	No				130	260	10-400	A, AB									55	4675.00	
TANDBERG	TPA-3016A	B	0.05	No			No	220	400		AB									62	3799.00	
	TPA-3026A	B	0.02	No			No	150			AB									31.4	2199.00	
	TPA-3036A	B	0.08	No			No	100	120		AB									23.4	1199.00	
	TIA-3032A	I	0.09	No			No	100	115		AB				72		70	Yes	23	1699.00		



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AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Type: Integrated = I, Hybrid = H, Mono = M	Rated THD, %	Balanced Inputs?	Rated Slew Rate, V/μs	High-Level Sensitivity, mV	Does Unit Invert Polarity?	Cont. Avg. Watts/Channel into 8 Ohms	Cmt. Avg. Watts/Channel into 4 Ohms	Class of Output Operation	POWER AMP				PREAMP		Notes		
											Dynamic Headroom, dB	Input Impedance, Kilohms	MM Phono S.N. - db - μV	MM Phono Sensitivity, mV	MM Phono Overload, mV	Moving Coil Input?		Weight, Lbs.	Price, \$
YAMAHA	MX-2000	B	0.003	No	1.2V	No	130	180	10-100	A	1.4	20					61½	1899.00	Two- or four-channel operation. Active servo technology.
	MX-1000	B	0.003	No	1.6V	No	260	330	10-60	A	2.3	60					45½	1199.00	
	MX-830	B	0.003	No	1.3V	No	170	230	10-60	A	2	60					29¾	699.00	
	MX-630	B	0.003	No	1.3V	No	135	190	10-60	A	2.1	60					28½	499.00	
	MX-35	B	0.05		940		40		20-20	AB	1.5	20					11	299.00	
	MX-M70	B/M	0.01	No	720	No	50		10-50	AB	1.5	20					8½	199.00	
	YST-A5	B	0.012	No	700	No	50		10-50	AB	1.5	20					10½	249.00	
	AX-430	I	0.015		150		55		20-20	AB	2.7	30	75	2.5		Yes	13%	299.00	
	AX-900U	I	0.005		150	No	130		20-20	AB	1.4	47	93	2.5	160	Yes	37%	749.00	
	AX-700U	I	0.005		150	No	110		20-20	AB	1.4	47	92	2.5	160	Yes	26%	599.00	
AX-630	I	0.01		150	No	85		20-20	AB	2.8	47	92	2.5	150	Yes	17%	399.00		
YBA	Integré	I		No			45	90	20-20	A							18	1850.00	Five line-level inputs and MM input; MC module optional. Dual mono. As above; high-current version, \$7000.00. Dual mono; high-current version, \$3750.00. Double transformer version, \$2250.00.
	Signature	B	0.09	No		No	100	190	20-20	A							50	11,000.00	
	YBA1	B	0.09	No		No	85	170	20-20	A							47	6000.00	
	YBA2	B	0.09	No		No	70	140	20-20	A							27	3100.00	
	YBA3	B	0.1	No		No	50	90	20-20	A							23	1800.00	



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PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	Type: T = Tuner, Hybrid; H = Mono; M = Right = D; Moving Coil Stage Only = MC; Phono Stage Only = P	Frequency Response, Hz to KHz, ±dB	Maximum Output, V	THD, %	Balanced Inputs = I, Balanced Outputs = O	High-Level Sensitivity, mV	Number of Tape & Processor Loops	Does Unit Invert Polarity?	PHONO STAGE										Notes
										MM Phono Sensitivity, mV for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono Input Capacitance, pF	MC Phono S/N, -60, -70, -80, -90, -100, -110, -120, -130, -140, -150, -160, -170, -180, -190, -200, -210, -220, -230, -240, -250, -260, -270, -280, -290, -300, -310, -320, -330, -340, -350, -360, -370, -380, -390, -400, -410, -420, -430, -440, -450, -460, -470, -480, -490, -500, -510, -520, -530, -540, -550, -560, -570, -580, -590, -600, -610, -620, -630, -640, -650, -660, -670, -680, -690, -700, -710, -720, -730, -740, -750, -760, -770, -780, -790, -800, -810, -820, -830, -840, -850, -860, -870, -880, -890, -900, -910, -920, -930, -940, -950, -960, -970, -980, -990, -1000	Price, \$						
ACCUPHASE	C-280L	MC	1-700 +0.3	10	0.005	I/O	126	2	0	No	0.5	300		85	76	Yes	11,750.			
	C-270		1-500 +0.3	10	0.005	I/O	126	2	0	No	0.5	300		85	85	No	8250.00			
	C-200V		1-500 +0.3	8	0.005	I/O	126	3	0	No	1			83	83	No	6000.00			
	C-202		1-500 +0.3	10	0.005	I/O	200	2	0	No				76	76	No	4100.00			
	C-17		20-20 +0.0-0.2	8	0.005	I/O	126	2	2	No	1	270		90	74	Yes	3400.00			
C-11(RI)	20-20 +0.0-0.2	8	0.005	I/O										Yes	3990.00					
AOCOM	GTP-400		10-40 ±0.5	8	0.01		80	2	2	Yes	0.82	118	100	80		No	379.95	Tuner/preamp (see also "Tuners"). As above; optional remote sensors.		
	GTP-500II (RI)		10-40 ±0.4	8	0.01		80	2	2	No	0.95	120	100	82		No	599.95			
	GFP-555II		10-50 ±0.3	10	0.005		52	3	2	No	0.55	120	100	85		No	499.95			
	GFP-565		10-50 ±0.2	10	0.003		52	3	2	No	0.55	120	100	90		No	799.95			
GFB-800 (RI)	10-50 ±0.5	7.5	0.03		76	2	0	No	0.88	100	100	81		No		Five-room, multi-source switcher.				
A/D/S/	SC6		1-200 ±0.3	5	0.01		250	0	2	No							1300.00	Six-zone, eight-source switching system.		
AMERICAN HYBRID TECHNOLOGY	AHT P	MC	1-50 ±1											98	Yes	2500.00	External power supply; d.c. coupled. As above; line level only. †Optional balanced outputs.			
	AHT H		1-1M ±1		.0015	†		1	0	No						3300.00				
	AHT X		1-200					1	†	No						5200.00				
AMPLIFI/MAVRICK	Ultimate Reference Phono Processor	P	1-500	10						No	500		130	100	Yes	11,000.	Floor-standing; external power supply; "K-FET" valve amp.			
ANALOG RESEARCH	Terzetto Line Stage	P	20-20 ±0.05	10	0.01	0		1	0	Sel.							1700.00	Line level only; requires external power supply. †Optional balanced inputs. Line level output; requires external power supply.		
	Terzetto Phono Stage		RIAA, ±0.05	10	0.01	†					Sel.	Sel.	Sel.	85	73	Yes	700.00			
ARAGON	24K		20-20 +0.0-0.15	8	0.06		170	2	0	No				90	70	Yes	1250.00	External power supply; selectable MC impedance. External power supply.		
	24K sp		20-20 +0.0-0.15	8	0.06		170	2	0	No							995.00			
ARCAM	Delta 110 (RI)	D					2								Yes	1500.00	Preamp with D/A conversion (see also "D/A Converters"); MM and MC phono.			
ATMA-SPHERE	MP-1	T	2-80 ±0.5	30		I/O	150	2	0	Sel.	0.3	800	20	90	70	Yes	5600.00	Fully balanced differential design; d.c.-coupled line out; zero feedback; servo loop; external power supply.		
AUDIBLE ILLUSIONS	Modulus 2D	T	5-100 ±1	80	0.02		50	1		Yes		1.2V	40	75		Yes	945.00	Auto and manual muting. Dual mono; variable MC impedance; external power supply. †Optional balanced outputs. Dual mono; external power supply.		
	Modulus 3	H/P	5-200 ±1	40	0.01					No							1795.00			
	Modulus 4	H	5-150 ±1	80	0.02	†	50	1		No							1295.00			
AUDIOACCESS	PX-6(RO)		10-25 ±3	6.3	0.002	I	16	2	2	Sel.								†	Multi-zone, multi-source, multi-room switching system; optional keypad or hand-held remote. †\$950.00 per zone.	
	PX-6S(RO)		10-25 ±3	6.3	0.002	I	16	2	2	Sel.								†		
AUDIO DESIGN ASSOCIATES	OSP-8(RO)		20-20 ±0.25	5	0.007			4	3	No								1395.00	Multi-room preamp. 8 x 8 multi-room, multi-source switcher. Multi-room preamp. For multi-room System Omega; without front-panel controls, Model CR-P, \$950.00.	
	ADP-8		20-20 ±0.25	5	0.05			1	3	No								995.00		
	CPC-8(RO)		20-20 ±0.25	5	0.007						No							11,492.		
	OSP-48(RO)		20-20 ±0.25		0.05				3	No								2495.00		
CR8-P(RO)	20-20 ±0.25		0.05				2	No									1150.00			
AUDIO INNOVATIONS	Series 200MC	T					1	0	No						Yes		895.00			
	Series 1000	T					1	0	No						No		2500.00			
	First Audio Preamp	T															6000.00			
AUDIOLAB	8000C		20-20 ±0.5	7.8	0.01		100	2	2	No	2.0	175	Adj.	79	75	Yes	595.00	Class-A operation.		
AUDIO RESEARCH	LS1	H	1-200 +0.3	50	0.005			1	0	No								1495.00	Auto and manual muting; direct gain path. Auto and manual muting. Bypass switch. External power supply.	
	SP9MKII	H	1-200 +0.3	50	0.005		50	2	0	No	0.25	200	100	92	72	Yes	1795.00			
	SP14	H	1-200 +0.3	50	0.005		50	2	0	No	0.25	200	100	92	72	Yes	2995.00			
	SP15	H	1-200 +0.3	80	0.001	0	18	2	0	Sel.	0.088	350	150	90	70	Yes	5995.00			
AUDIOSOURCE	Pre One		8-100 +0.3	5	0.005		120	2	3	No	2.2	125	250	86	71	Yes	249.95	Dual output; bass EQ; tape-to-tape dub.		
AUIRE	Andante		5-100 +0.0-0.2	12	0.005		100	2	2	†	1.00	175	220	90	80	Yes	1750.00	†Inverts polarity only in MC stage. Dual mono. †Optional, \$135.00.		
	Diffet 3		5-100 +0.0-0.25	15	0.005		100	2	0	No	1.00	250	100	86	72	†	855.00			
	Legato		5-100 +0.0-0.25	10	0.005		100	2	0	No	1.00	150	180	75		No	440.00			

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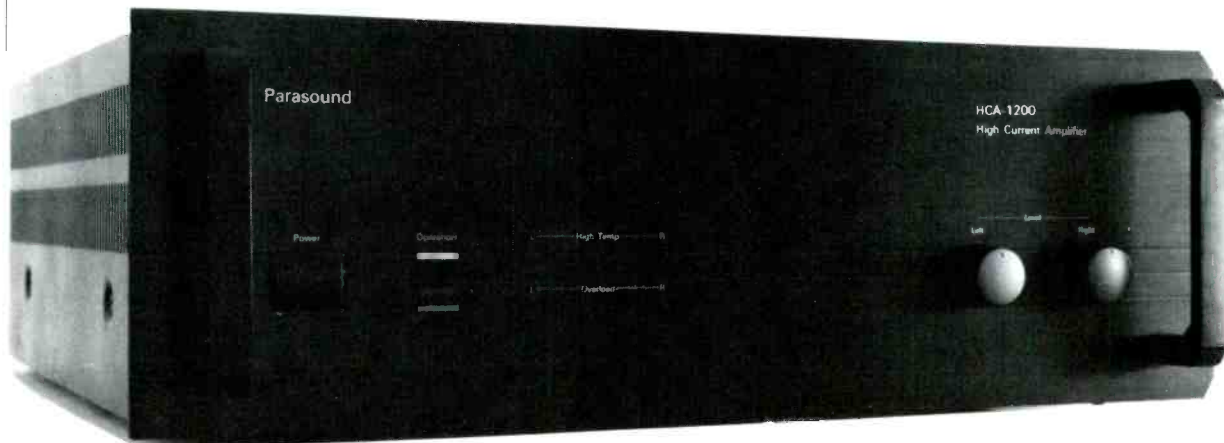


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PREAMPLIFIERS

MANUFACTURER	Model (RD) = Remote Included; (RO) = Remote Optional	Type: Tube = T, Hybrid = H, Mono = M, Digital = D, Moving Coil Stage Only = MC, Phono Stage Only = P	Frequency Response, Hz to KHz, ±dB	Maximum Output, V	THD, %	PHONO STAGE										Price, \$	Notes	
						Balanced Inputs = 1, Balanced Outputs = 0	High-Level Sensitivity, mV	Number of Tape & Processor Loops	Does Unit Invert Polarity?	MM Phono Sensitivity, mV, for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono S/N, -dB, "A" Wid. re. 5 mV	MC Phono S/N, -dB, "A" Wid. re. 0.5 mV	Moving Coil Input?	MC Phono Capacitance, pF			
A.V.A.	Omega Super PAS 3 Transcendence FET Valve	T	12-40 ± 0.2 20-25 ± 0.2 10-45 ± 0.2	12 8 12	0.004 0.02 0.002		50 50 50	3 1 3	2 0 2	No No No	0.7 0.6 0.7	200 200 350	10 20 10	78 72 80		No No No	495.00 595.00 795.00	With Omega line buffers, \$745.00.
		H	10-40 ± 0.1	15	0.001		50	3	2	No	0.7	400	10	82		No	1195.00	
BEARD AUDIO	CA35	T	2-80 ± 3	45	0.015		Sel. 40	2	0		1.2			70	70	Yes	1999.00	Switchable to passive line-level direct.
	CA506	T	10-100	80	0.05			2	0		0.4			70	70	Yes	3499.00	
BEDINI AMPLIFIERS	BC-800 BC-866		1-110 + 0.3 1-110 + 0.3		0.15 0.15	No No		2 1	2 2	No No			Sel. 100			No No	2100.00 960.00	
BELLES	OCM 55		2-100	9	0.01		50	2	0	No							1750.00	Two chassis; external power supply; five line-level inputs; two preamp outputs. RIAA equalization; adjustable sensitivity, gain, and impedance.
	OCM Phono Interface	P									Adj.	180	100	86	80	Yes	1150.00	
DAVID BERNING CO.	TF-12(RI)	H	4-50 ± 1	5	0.05		32	1	0	No	0.38	200		74	54	Yes	2950.00	
BIAMP SYSTEMS	Advantage One	M	20-20 + 0.3	7.7	0.08	I/O	1.2V	2	No								799.00	Eight-channel mike mixer.
	Advantage 601	M	20-20 + 0.3	7.7	0.08	I/O	1.2V	0	No								459.00	Six-channel mike mixer.
BOULDER AMPLIFIERS	Ultimate		20-20 + 0.05	12	.0025	D	67	2	0	Sel.	2.5	530	85	85	74	Yes	5299.00	External power supply; separate phono unit has three-position low-cut selector. External power supply; line-level inputs only. Inputs as above.
	Ultimate High Level Complete		20-20 + 0.05	12	.0025	O	67	2	0	Sel.						Opt.	3499.00	
	Complete High Level L3AE		20-20 + 0.05	12	.0025	O	53	2	0	No	2.5	530	85	85		Opt.	3199.00	
	L3AE High Level		20-20 + 0.05	12	.0005	D	53	2	0	No	2.5	530	85	85		Opt.	2399.00	
				20-20 + 0.05	12	0.005	O	53	2	0	No	2.5	530	85	85		Opt.	
BROADCAST ELECTRONICS	EP-1			†	0.01	I/O		0	0	No	1.0	320	Adj. ††				450.00	†21 dBm. ††88 dB, re: 10 mV.
	EP-2			†	0.2	I/O		0	0	No	1.0	320	Adj. ††				475.00	†21 dBm. ††88 dB, re: 10 mV.
	BETMS-100			†	0.25	O		0	0	Yes	5.0	50	65				250.00	†16 dBm.
	BETMS-200			†	0.25	O		0	0	Yes	5.0	50	65				325.00	†16 dBm.
BRYSTON	4b		22-20 ± 0.05			†	50			No							695.00	†Optional balanced outputs.
	BP4.2		22-20 ± 0.05			I/O	50			††	1.25	200	220	80			995.00	††Inverts polarity in phono only.
	.5B		22-20 ± 0.05			†	50			††	1.25	200	220	80			750.00	††As above. Without phono stage, \$1195.00.
	11B		22-20 ± 0.05			†	50			††	1.25	200	220	80			1295.00	††Inverts in MM phono only. S/N spec unweighted, MM phono only, RIAA.
12B TF1 BP6	MC P		22-20 ± 0.05 5-30 ± 0.05			†	50			†† No Yes	1.25 200 220	80 80 80	80 85		Yes Yes No	1695.00 500.00 650.00		
BURMESTER	808MK3					I/O		2	0		Adj.	80	Var.	88	86	Yes		Modular design; external power supply. Balanced and unbalanced outputs; optional balanced MC phono stage, \$1150.00. Balanced and unbalanced inputs and outputs; optional balanced MC phono stage, \$1150.00; optional remote, \$1100.00.
	897					I/O		1	0		Sel.	80	Var.	83	84	Yes	3990.00	
	877MK2(RD)					I/O		2	0		Sel.	80	Var.	83	85	Yes	6995.00	
CAE	MP-567	T	15-160 ± 0.1		0.035		150	1	0	No	1.58	1.1V	60	73			800.00	Kit, \$400.00.
	Daniel II	H	10-400 ± 0.1		0.008		150	1	0	No	0.3	800	60	82	73	Yes	2200.00	
CARVER	C-19	H	1-60 + 0.3	7	0.07			4	3	Yes	1.5	100	150	86	82	Yes	999.00	Tone controls have variable turnover.
	C-16		1-60 + 0.3	7	0.01			4	3	No	1.5	135	150	100	89	Yes	749.00	As above; includes Sonic Hologram Generator.
	C-11			6	0.04			3	2	No	1.5	100	Sel. 100	100	86	Yes	579.00	As above.
	CT-17(RI)		20-20 ± 1	7	0.04			4	3	No	1.5	100	150	86		No	799.00	Tuner/preamp (see also "Tuners"); five-channel surround sound; Dolby Pro-Logic; hall and stadium effects; Sonic Hologram Generator.
	C-5		20-20 ± 1	7	0.04			2	2	No	1.5	100	150	78		No	449.00	Tuner/preamp; Sonic Hologram Generator; dual-zone operation.
	CT-7		20-20 ± 1	7	0.01			2	3	No	1.5	100	150	100		No	599.00	Tuner/preamp (see also "Tuners"); Sonic Hologram Generator.
CT-6		20-20 ± 1	7	0.04			2	2	No	1.5	100	150	78		No	549.00	As above.	
CARY AUDIO DESIGN	CAD 5500P	T	10-20	5	0.003	No			0	No		400	150	92		No	1795.00	Ultrasonic and r.f. cancellation for CD; external power supply; without phono stage. Model CAD 5500, \$1295.00.
CASCADE AUDIO SYSTEMS	RPP-53	P	2-100 ± 1		0.05					No	1.2	140	82	84	78	Yes	329.00	Requires BPS-50 power supply (\$69.00) or HCS-51 high-current supply (\$199.00); switchable gain.
	CLP-54		2-100 ± 1	7	0.05		100	1	0	No							429.00	As above; 20-dB gain or straight-line bypass mode.

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PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Type: Tube = T, Hybrid = H, Mono = M, Digital = D, Moving Coil Stage Only = MC, Phono Stage Only = P	Frequency Response Hz to kHz, ±dB	Maximum Output, V	THD, %	Balanced Inputs = 1, Balanced Outputs = 0	High-Level Sensitivity, mV	Number of Tape & Processor Loops	Does Unit Invert Polarity?	MM Phono Sensitivity, mV, for 5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono S/N, —dB, A: With re: 5 mV MC Phono S/N, —dB, A: With re: 0.5 mV	MC Phono Input Capacitance, pF	Moving Coil Input?	Price, \$	Notes		
																	I/O	2
CELLO	Encore Audio Suite														8000.00	External power supply; without phono stage, \$7500.00. Modular system (mainframe with external power supply and choice of input and output modules); specs on request.		
CLASSE AUDIO	DR-4 DR-4L DR-5 DR-5L DL-6 DR-6L		20-20 ± 0.1 20-20 ± 0.1 20-20 ± 0.1 20-20 ± 0.1 20-20 ± 0.1 20-20 ± 0.1	8 8 8 8 8 8	0.01 0.01 0.01 0.01 0.01 0.01	0 I/O I/O I/O I/O I/O	155 155 155 155 155 155	1 1 1 1 1 1	0 0 0 0 0 0	No No No No No No	1.15 1.15 1.15 1.15 1.15 1.15	200 200 200 200 200 200	100 100 100 100 100 100	75 75 80 80 80 80	Yes No Yes No Yes No	1395.00 1295.00 2395.00 2195.00 3395.00 3100.00	Line level only. As above. External power supply. As above; line level only.	
CODA TECHNOLOGIES	O1 O2		0-200 + 0, -3 0-200 + 0, -3	10 10	0.01 0.01	0 0	200 200	2 1	0 0	No No	2.0	140	Set.	85 80	Yes Yes	2500.00 1650.00	FET. As above; line level only.	
CONRAD-JOHNSON	Premier Seven-A PV9 PV10 DF-1(RI) PF1 PV11	T T T T T T	2-100 2-100 2-100 5-100 2-75 2-100	20 20 25 10 10 10	0.25 0.25 0.25 0.1 0.1 0.1			2 2 1 1 2 2		Yes Yes Yes Yes Yes Yes		150 200 125			Yes Yes Yes Yes Yes Yes	8950.00 2950.00 995.00 1595.00 1295.00 1795.00	Dual mono. CD player/preamp (see also 'CD Players').	
CONVERGENT AUDIO TECHNOLOGY	SL-1 Reference Mark 2	T	0.1-600	50	.0005		25	1	0	No	0.12	250	180	92	72	Yes	4500.00	External power supply; stepped volume and balance controls.
COUNTERPOINT	SA-2000 Solid 8 SA-2 SA-1000 SA-3000 SA-5000 SA-9 SA-11(RI)	H T/MC H H H T/P T	2-300 ± 0.01 1-500 ± 0.1 0.5-350 ± 0.1 2-300 ± 0.1 2-300 ± 0.1 1-500 ± 0.1 1-180 ± 0.1 0.8-230 ± 0.1	80 20 150 70 80 100 100 42	0.01 0.03 0.1 0.17 0.01 0.01 0.1 0.007		24 24 24 24 24 24 90	2 2 1 2 2 2 2	0 0 0 0 0 0 Adj.	No Yes Yes No No No No Adj.	0.5 0.5 0.5 0.5 0.5	250 250 350 500 500		82 76 82 82 Adj.	75 93 68 71 75 77	Yes Yes Yes Yes Yes Yes Yes	1495.00 595.00 1145.00 835.00 1895.00 2995.00 3995.00 6995.00	Line level only. FET signal path. External power supply. Auto mute. External transformer. External tube power supply. External power supply. Motor-driven potentiometers.
CROWN INTERNATIONAL	PSL-2		10-50 ± 0.25	2.5	0.009	No	250	2	2	No	6.6	330	50	87		No	695.00	
DB SYSTEMS	DB-1B/2A DBR-15B/2A DB-1B-HL/2A DB-4B	MC	20-20 ± 0.04 20-20 ± 0.04 10-50 ± 0.1 10-100 ± 0.1	9 10 9 2	.0008 .0008 .0008 .0008		120 120 120	1 1 1	0 6 0	Var. Var. Var. No	0.9 0.9	150 150	100 100	77 77		No No No Yes	700.00 1135.00 580.00 205.00	External power supply. Without oak cabinet, \$985.00. Adjustable gain.
DBX	CX-3MkII(RI)		10-50	10	.0008	I	150	5	3	No	2.5	180	33	78	70	Yes	799.00	Dolby Surround circuitry.
DENNESEN	Sirius JC90	M			0.01 0.005	†	125 100	2 2	0 0	No Yes	2 2	200 500		80 100		No Yes	900.00 5500.00 Pair	†Optional balanced outputs.
DENON	DAP-5500 DAP-2500 (RI) PRA-1500 (RI)	D O O	1-300 + 0.2, -3 1-300 + 0.2, -3 1-300 + 0.2, -3	15 15 10	0.002 0.002 0.003	I/O O O	150 150 150	3 3 2	0 2 2		2.5 2.5 2.5	160 160 160		96 96 96	79 Yes Yes	1500.00 1000.00 500.00	One optical and two coaxial digital inputs; DAT monitor loop; four D/A converters. One optical and one coaxial digital input; two video inputs and one video output; monitor loop and converters as above. Two video inputs and one video output; mono, full-range, and subwoofer outputs.	
DISTECH	LS III LS IIIa		0-100 0-100	8 8	0.001 .0001			1 1		No No							1895.00 4500.00	Dual mono; line level only. As above; external battery power.
EIDOLON RESEARCH	Julia Salesia	T T	0.1-200 +0, -1.5 0.5-150 +0, -1.5	85 70	0.01 0.01	No No	Set. Set.	2 2	0 0	Var. Yes	1.45 1.45	500 500	Adj. Adj.	79 78	65	Yes	4249.00 1249.00	Dual mono. Passive and active RIAA.
ELECTRO-COMPAIET	EC1 EC1a MC2 LD1	MC		15 15	.0004 .0004 .0015		100 100 100	2 2 4	0 0 0	† No	1.5 1.5	200 200	Adj. Adj.	84 84	Yes Yes Yes	2095.00 1795.00 450.00	†Inverts polarity only in MC phono stage. Line level only.	
ELECTRONIC VISIONARY SYSTEMS	MOD 1 + MOD 2 + PB2SA PB2SAT4 PB2SAB Ultimate Attenuators Balanced Ultimate Attenuators	T T/P	20-350 + 0, -3 20-20 ± 0.5 0-250 0-250 0-250 0-250	70 30	0.1 0.05		50	1	0	Yes No	0.5 4	1V 300	30 50	75 75		No No	925.00 1025.00 320.00 520.00 450.00 150.00 300.00 Pair	Passive high-level stage. Passive line level only; 31-position stepped attenuators. As above; four inputs. Balanced stepped attenuators. Stepped attenuators; mount directly on amps. As above; balanced.



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PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Type: Tube = T, Hybrid = H, Mono = M, Digital = D, Moving Coil Stage Only = MC, Phono Stage Only = P	Frequency Response, Hz @ kHz, \pm dB	Maximum Output, V	THD, %	PHONO STAGE										Price, \$	Notes		
						Balanced Inputs = 1, Balanced Outputs = 0	High-Level Sensitivity, mV	Number of Taps & Processor Loops	Number of Tone Controls	Does Unit Invert Polarity?	MM Phono Sensitivity, mV for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono Input Capacitance, pF	MC Phono S/N, \pm dB, "A" = 100, "B" = 50, "C" = 20, "D" = 10, "E" = 5, "F" = 2	Moving Coil Input?				
ENCORE ELECTRONICS	DL2010.1	H	5-75 +0,-1	23	0.025		270	2	0	No	5	75	Sel.		No	1995.00	No potentiometers or switches in signal path; without phono stage, Model DL2010L.1, \$1695.00.		
ENSEMBLE	PA-2	P									3	100		60	60	Yes	425.00	Requires Model B-50 amp for power supply.	
EXPOSURE	VII							1	0	No						Yes	975.00	Dual mono; external power supply required.	
	XI							1	0	No						Yes	1275.00	As above.	
	XIV							2	0	No						Yes	As above.		
EXPRESSIVE TECHNOLOGIES	SU-1		0.7-150 +0,-0.1	25		1/0				No				100	Yes	2500.00	28-dB fixed gain.		
FIRST SOUND	Reference II		0-200		0.001			1	0	No							1895.00	Passive line-level unit.	
FORTE AUDIO	2		1-100 +0,-3	20	0.02		200	1	0	No		100	Sel.	90	85	Yes	1100.00	Selectable gain; external power supply.	
GEMINI	PA-101	H	20-150	10	0.005	1/0	150	1	3	Sel.	1.75	150	250	72	72		259.95	Mike mixing.	
	PA-301	H	20-150 +0,-0.5	10	0.005	1/0	150	2	3	Sel.	1.75	150	250	72	68	Yes	349.95		
GOLDMUNO	Mimesis 7.1		0-650 \pm 3	35	0.01		100	2	0	Sel.							3990.00	With optional MC phono stage, \$4490.00.	
	Mimesis 2 (RO)		0-850 \pm 3	40	0.01		100	2	0	Sel.							6290.00	Star ground configuration; a.c. polarity switch; with PH01 MC phono stage, \$7890.00.	
GOROON INSTRUMENTS	Gordon(RI)																	Custom-designed.	
GRYPHON AUDIO	Gryphon XT		1-10M	†		0	85	2	0					64	Yes	9499.00	†11.5 V. External power supply; line level only, \$7999.00.		
	Gryphon LE		1-10M	†		0	85	2	0					64	Yes	11,499.	Line level only, \$9999.00.		
HAFLER	JF200		20-20 \pm 0.4	9.3	0.005		60	2	2	No	0.6	75	150	83	No	550.00	Includes active crossover.		
	SE100		20-20 \pm 0.1	7	0.005		65	1	2	No	6	65	Adj.	87	80	Yes	399.00	Optional phono stage.	
	Iris(RI)		20-20 \pm 0.1	7	0.005		200	3	0	No	0.35	70	Adj.	87	80	Yes	900.00	J-FET; remote operation of Iris tuner and Iris CD player.	
	Iris NR(RO)		20-20 \pm 0.1	7	0.005		200	3	0	No	0.35	70	Adj.	87	80	Yes	700.00	J-FET; optional remote. \$250.00.	
HARMAN KAROON CITATION	Twenty-one		0.25-250 +0,-3	10	0.001		65	2	2	No	1.1	160	125	83	78	Yes	629.00		
	Twenty-five (RI)		0.25-250 +0,-3	10	0.002		65	4	2	No	1.1	180	Sel.	83	78	Yes	899.00	Video switching; selectable turnover on tone controls.	
HEYBROOK	C-3		20-50	10	0.05			1	0	No				80	Yes	899.00			
INTEGRA AUDIO	Integra Reference	T/M		50				0		No	2		120		No	7500.00	External power supply.		
	Integra TP1	T		50				0		No	2		120		No	3000.00	As above.		
JADIS	JP-30	T						2	0	No					No	5995.00	Two chassis.		
	JP-30MC	T						2	0	No					Yes	6495.00	As above.		
	JP-80	T						2	0	No					Yes	8995.00	As above.		
	JP-80MC	T						2	0	No					Yes	11,995.	As above.		
	JP-200	T						2	0	No					Yes	19,000.	Four chassis; dual mono; external power supply.		
	OEFY DP-60	H						2	0	No					Yes	3995.00	Solid-state MC stage.		
JRM	Preamp		0-50 +0,-1	12	0.001			Sel.	2	Opt.	No	1.25		Sel.	88	78	Yes	675.00	Includes 10-watt channel headphone amp; video inputs; infrasonic filter.
	PEM		0-50 +0,-1	12	0.001			Sel.	2	†	No	1.25		Sel.	88	No	2200.00	†Two 3-band pre-EQs; 6-band master EQ; 4-band monitor EQ. Cross-fade input select; master and cue busses.	
KENWOOD	Basic-C2		1-350 +0,-3	1	0.002		150	1	2		2.00				Yes	329.00			
	L-1000C		5-100 +0,-3	2		1/0	300		2		1.50				Yes	1100.00			
KINERGETICS RESEARCH	KPA-2		20-300 \pm 0.2	12	0.02	0	200	1	0	Sel.	1.0	20	Var.	77	73	Yes	1445.00	Without phono stage, \$995.00.	
	KDP-100	D	20-300 \pm 0.2	12	0.02		200	2	0	No						Yes	1895.00	Line-level preamp with D/A converter (see also "CD Players & D/A Converters").	
KIRKSAETER	LAB 11	H	1-120 +0,-0.5	15	0.002		200	2	4	Sel.	1.50	220		83	81	Yes	2299.00		
KLIMO	Argo	T/MC	10-450 +0,-3	10	0.2					Yes					75	Yes	1450.00	External power supply; adjustable input impedance.	
	Merlin	T	3-450 +0,-3	25	0.07			1	0	No	1.0	600	20	76	No	3900.00			



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One day a buddy called and invited me over to hear his new KLIPSCH® speakers. He was going on and on about how these speakers had just come out. I could tell he was excited. Then I realized what he was talking about.

"Wait a minute, did you say KLIPSCH FORTÉ®?" I asked. "It's been out a couple of years. I'm familiar with the speaker and it's really good. But you're just now hearing a pair?"

"The KLIPSCH FORTÉ II®" he responded, "a new and improved version of the original FORTÉ."

I arrived that evening sort of expecting to hear the audio equivalent of a movie sequel. But on the very first CD, the FORTÉ IIs had me sharing my friend's excitement. They were so open, yet dynamic. The image was so big, wide, and steady that you felt like you could touch the music. The sound was literally lifelike. I was impressed.

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"That's the secret," I said.

"And a new woofer, and a new passive radiator, and a new crossover, and not a lot of money," he said.

Today, FORTÉ IIs are a welcome addition to my system, as well. No component I ever bought, not even my CD player, has made such a vivid difference. Music never sounded so "new and improved" to me.

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PREAMPLIFIERS

MANUFACTURER	Model (RD) = Remote Included, (RD) = Remote Optional	Type (T) = T, Hybrid = H, Mono = M, Digital = D, Moving Coil Stage Only = P, MC Phono Stage Only = P	Frequency Response, Hz to KHz, ± dB	Maximum Output, V	THD, %	Balanced Inputs = 1, Balanced Outputs = 0		High-Level Sensitivity, mV	Number of Tape & Processor Loops	Number of Tone Controls	Does Unit Invert Polarity?	MM Phono Sensitivity, mV, for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono S.N. — db, A: Wtd. re. 5 mV	MC Phono S.N. — db, A: Wtd. re. 0.5 mV	Moving Coil Input?	Price, \$	Notes	
						Balanced Inputs = 1	Balanced Outputs = 0												
KLYNE AUDIO ARTS	7PX	MC		10	0.01			No									2750.00	External power supply; adjustable gain. External power supply. Modular system of models below. Line level only. As above; external power supply. Plug-in phono stage; adjustable gain. As above.	
	7LX System Six		1-200 + 0, -0.2	10	0.005	I/O	100	2	0	No							1750.00		
	6L		1-200 + 0, -0.2	10	0.005		100	2	0	No							2450.00		
	6PX	P	1-200 + 0, -0.2	10	0.01					No	7.1	150	Sel.	85	70	Yes	595.00		
KRELL	KBL	P	0.1-400	27	0.02	I/O		2	0	Sel.							4250.00	External power supply. As above. As above. As above.	
	KPA		20-20 ± 0.1	8	0.05	0				No	7	600	62	71	62	Yes	2700.00		
	KSP-7B		0.5-300 ± 3	8	0.02	0				Sel.	8	1.4V	62	75	60	Yes	2700.00		
	KSL		1-600 ± 3	12	0.015	I/O				No							1800.00		
LAZARUS	Cascade Basic	T	20-20 + 0, -1	50	0.05		50	1	0	Yes	1.5	600	100				No	690.00	External power supply. As above. †Inverts polarity for line only. As above.
	Cascade Classic	T	20-20 + 1, -0	50	0.05		50	1	0	Yes	1.1	600	100				No	950.00	
	Cascade Deluxe	H	20-20 + 1, -0	50	0.05		50	1	0	†		150	100		75	Yes	1200.00		
	Balanced Classic	H	20-20 ± 0.5	10	0.02	0	50	1	0	Sel.	1.1	600	100				No	1695.00	
LECTRON	MC-30	P			0.025												Yes	1250.00	One MC and two MM inputs.
	The Preamplifier		1-100 ± 1	10	0.01		450	2	2	No	0.5	100	75	89			No	496.00	
MARK LEVINSON	No. 26		20-20 + 0, -0.2	6	0.01	I/O		2	0	Sel.	Sel.	415	Sel.				Yes	4470.00	Price varies with input and power-supply options.
LINN HI-FI	LK1(RD)						200	2	0	Yes	5						Yes	1195.00	
LSR&D	The Leach	MC	0.2-200 + 0, -3	4	0.005	No				No						88	Yes	170.00	Selectable input impedance; kit, \$100.00.
LUXMAN	TP114		5-160 + 0, -0.5	8	0.008		150	1	2	No	2.5	150	200	78			No	450.00	Multi-zone tuner/preamp; with video amps.
	TP117		4.5-350 + 0, -3	8	0.006		150	1	4	No	2.5	150	200	86			No	1250.00	
	LE109	P	20-20 + 0, -0.3		0.005					No	2.5	250	200	101	86	Yes	500.00		
MADISON FIELDING	CA700P(RD)		20-50	5	0.005		100	1	7	Yes							1200.00	Part of multi-room system.	
McINTOSH	C34V		20-20 + 0, -0.5	10	0.01	0	250			No	0.4	91	65	84			No	2349.00	Two chassis; dual mono. External power supply.
	C35(RI)		20-20 + 0, -0.5	8	0.002	0	250			No	0.5	91	65	84			No	1995.00	
MELOS AUDIO	MA-222 B	T	5-300 ± 1	40	0.07	0	70	2	0	Sel.	Var.	450	100	80	70	Yes	3395.00	Remote control of volume and source; with dual outputs for multi-room control. Model 202(RD). Includes bitstream D/A converter; four analog and four digital inputs. †Analog, no; digital, switchable.	
	MA-111	T	5-300 ± 1	20	0.07	No	70	1	0	Yes	Var.	300	100	80	70	Yes	1200.00		
	MA-110	T	5-300 ± 1	20	0.07	No	70	1	0	Yes							995.00		
MERIDIAN	201(RD)		20-20 + 0, -0.2	9	0.02		150	2	0	No	1.5	150	100	72	63	Yes	1090.00	Remote control of volume and source; with dual outputs for multi-room control. Model 202(RD). Includes bitstream D/A converter; four analog and four digital inputs. †Analog, no; digital, switchable.	
	603	D	20-20 + 0, -0.2	9	0.02	0	150	1	0	†	1.5	150	100	72	63	Yes	2500.00		
MFA SYSTEMS	Magus B	T	3-100 ± 1	88	0.15		50	1	0	Yes	0.16	300	200	82	62	Yes	995.00		
	Luminescence B1C	T	3-200 ± 1	75	0.025		50	1	0	No	0.13	400	200	90	70	Yes	4460.00		
MIRROR IMAGE AUDIO	.2P		1-1M		0.01	0		2		Sel.								2600.00	Switchable for amp bridging and biamping; separate channel muting; external power supply; d.c. coupled; with optional .2P phono stage, \$3150.00. Plug-in for model above; adjustable MC input impedance; adjustable gain.
	.2P Phono Stage	P									2		Adj.	85	80	Yes	750.00		
THE MOD SQUAD	Line Drive		0-200		.0001			2	0	No								595.00	Passive line level only. As above. Optional external power supply. Separate active and passive line stages with separate volume controls.
	Deluxe Line Drive Phono Drive Duet	P	0-200	20	.0001		87	2	0	No	2.5	2.5	Adj.	80	65	Yes	1095.00		
MODIF	MC10		20-75	10	0.1			2		Yes								2395.00	Line level only.
	MP11	P	20-75	10	0.1					No		100					Yes	2395.00	
MSB TECHNOLOGY	MSB Passive Control Center		0-500					†	0	No								3000.00	†Tape output only. Passive; stepped attenuator; with optional crossover, \$4000.00 (see also "Crossovers").



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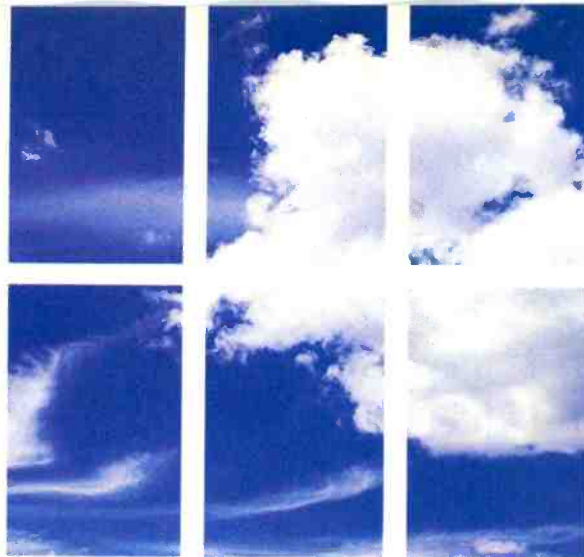
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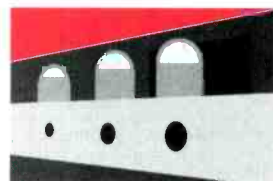
PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Type: T = Tube, H = Hybrid, M = Moving Coil, P = Phono Stage Only	Frequency Response, Hz to kHz, ±dB	Maximum Output, V	THD, %	PHONO STAGE										Price, \$	Notes	
						Balanced Inputs = 1, Balanced Outputs = 0	High-Level Sensitivity, mV	Number of Tape & Processor Loops	Does Limit Invert Polarity?	MM Phono Sensitivity, mV, per 5 V input at 1 kHz	MM Phono Overload, mV	MM Phono S.N. - 69, "A" Wtd. re: 5 mV	MC Phono S.N. - 68, "A" Wtd. re: 0.5 mV	Moving Coil Input?				
PROTON	AP1000		20-20 ± 0.2	21	0.003		150	2	3	No	2.5	150	Sel.	91	70	Yes	350.00	Dual mono.
PS AUDIO	PS 4.6 PS 6.0		10-20 ± 0.1 10-20 ± 0.1	15 10	0.01 0.01			1	0	No	5	150	150	80	75	Yes	699.00 499.00	Line level only.
PSE	Studio SL Studio SL-Line Fulcrum	H	5-100 + 0, -0.05 5-100 + 0, -0.05 5-100 + 0, -0.05	12 12 12	0.005 0 0.005	0 0 I/D	250 250 250	1 1 1	1 1 1	Sel. Sel. Sel.		200 200 200	220 220 220	80 80 80	78 78 78	Yes Yes Yes	750.00 650.00 1500.00	Two-bay modular (phono stage, \$400.00; balance, \$300.00; mike, \$800.00).
QED	C300							1	0	No					72	Yes	599.00	
QUAD	34 66(RI)		20-20 ± 0.5 15-20 ± 0.2	0.5 1.5	0.05 0.05		300 300	1 1	5 5	No No	3 3	150 150	180 220	75 75	72	Yes Dpt.	799.00 1500.00	Operating controls on supplied remote.
QUICKLINE PRODUCTS	CC-1 CC-2 CC-3		0-100 + 0, -0.25 0-100 + 0, -0.25 0-100 + 0, -0.25					2	0	No							1295.00 995.00 495.00	Passive. As above. As above.
QUICKSILVER AUDIO	Preamp Moving Coil Transformer	T MC	1-650 + 0, -3 1-100	65 2.8	.0005		20	1	0	No No	5	500				No Yes	1595.00 335.00	12.5-ohm output impedance. 23-dB fixed gain; for cartridges of 0.5 to 40 ohms.
RANE	MP 24		15-30 + 0, -3	10	0.03	I/D	150	2	4	No	1.5	175	47			No	1299.00	Four-channel mixer with output metering.
REVDX	B240-S(RD)		20-20 + 0, -0.2		0.006	D	200	2	2	Yes		200				Yes	2600.00	
ROBERTSON AUDIO	Forty-Two Sixty-Two		2-400 2-400 + 0, -3	12 12	.0176 0.013			1	0	No No	2.6 2.6	220 220	130 130	80 81		No No	995.00 1250.00	
ROCKFORD FDSGATE	RF-200		20-20 ± 0.4	9.3	0.005		60	2	2	No	0.6	75	150	83		No	575.00	Internal crossover.
ROTEL	RC850 RC870BX	T T	20-20 ± 0.2 20-20 ± 0.2	10 12	0.004 0.004		150 150	2 2	2 0	No No	2.5 2.5	180 180		80 80	70 70	Yes Yes	249.00 399.00	CD direct input.
JEFF ROWLAND DESIGN GROUP	Coherence One Series II Consonance (RI) Consummate (RI)		0.2-500 + 0, -3 0.3-240 + 0, -3 0.2-300 + 0, -3	15 15 15	0.01 0.015 0.008	D 0 I/O	125 Sel. Sel.	1 1 1	0 0 0	Sel. Sel. Sel.	5 5 5	70 70 70	Sel. Sel. Sel.	72 72 70	71 70 70	Yes Yes Yes	4600.00 3350.00 5500.00	External power supply. Microprocessor-controlled switching and volume; phono stage can be deleted. Microprocessor-controlled switching and volume; external power supply.
SCIENTIFIC FIDELITY	Aurora		4-250 ± 1	13													5000.00	
SHERWOOD	AP-7020	H	5-100 + 0.5, -3	10	0.005	I/D	150	3	2		1.25	330	250	80	75	Yes	329.95	Direct switch; selectable subwoofer crossover frequency.
SIMA	P-2001 mkII P-3001		20-80 + 0, -3 20-80 + 0, -3	11 9	0.01 0.05	No	200 200	2 2	0 0	No Sel.	1 1	110 90	100 Sel.	80 81	67 70	Yes Yes	695.00 1850.00	External power supply; no negative feedback; d.c. coupled; phono stage can be ordered as MM, MC, or high level.
SONOGRAPHE	SC-1		5-100	7.5	0.05			2		No		150				Yes	695.00	
SONY ES	TA-E1000-ESD(RI)	D	10-20 ± 0.1	1.5	0.004		150	†	††		2	150	200	84		No	1000.00	Digital preamp/surround processor (see also "Ambience & Surround Sound Processors"). †8 analog, 3 digital. †† Digital parametric EQ. Digital inputs and outputs; Dolby Pro-Logic.
SOUND-CRAFTSMEN	Pro-Control 422 Pro-Control One Pro-Control Four Pro-Control Three Pro-PT Two DX4000 Pro-PT 5R (RI)		5-100 ± 0.25 10-100 ± 0.5 5-100 ± 0.25 5-100 ± 0.25 10-100 ± 0.5 5-100 ± 0.25 10-100 ± 0.5	10 8 10 10 8 10 8	0.005 0.008 0.005 0.005 0.008 0.01 0.008		125 150 125 125 150 90 150	6 2 7 3 2 5 2	2 2 2 2 2 0 2	No No No No No No No	2.5 2.5 2.5 2.5 2.5 2.8 2.5	200 200 200 200 200 200 200	100 200 100 100 100 100 200	97 80 97 97 80 97 80			849.00 329.00 699.00 549.00 449.00 439.00 599.00	Dual-channel, 10-band EQ; C-MDS switching; auto bridging circuitry. C-MDS switching. As above; auto bridging circuitry. As above; 17-inch-wide version available. Tuner/preamp (see also "Tuners"); C-MDS switching. Auto bridging circuitry. Tuner/preamp (see also "Tuners"); C-MDS switching; dynamic compansion.
SDUND ENGINEERING	PFM-2 PFM-0	MC	1-50 + 0, -0.5 5-100 + 0, -0.1	17 3	0.01 0.06	0	Sel.	1	0	Sel. No	Sel.	450	100	94		No Yes	1550.00 850.00	

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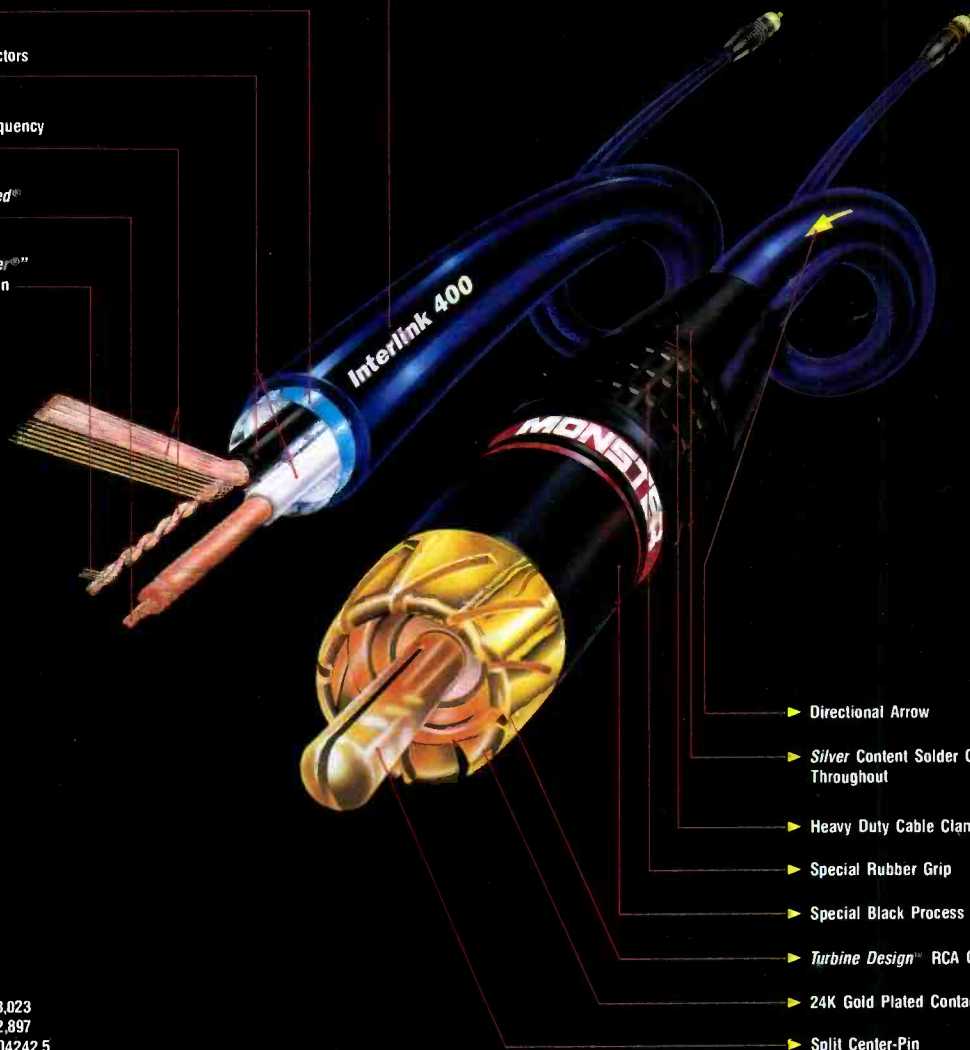
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PREAMPLIFIERS

MANUFACTURER	Model (RM) = Remote Included, (RO) = Remote Optional	Type Tube = T, Hybrid = H, Mono = M, Digital = D, Moving Coil Stage Only = MC, Phono Stage Only = P	Frequency Response Hz to kHz, ±dB	Maximum Output, V	THD, %	Balanced Inputs = 1, Balanced Outputs = 0				PHONO STAGE										Notes				
						High-Level Sensitivity, mV	Number of Tape & Processor Loops	Number of Tone Controls	Does Unit Invert Polarity?	MM Phono Sensitivity, mV for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MM Phono S.N. - db; :k: Wdb, re: 0.5 mV	MC Phono S.N. - db; :k: Wdb, re: 0.5 mV	Moving Coil Input?	Price, \$									
SOUNDSTREAM	C-1(RI)		5-75	8.5	0.05		75	4	2	No												1495.00	Optional phono card; direct video switching; optional multi-room switching; dual mono; Class A.	
SPECTRAL AUDID	DMC-20 Reference		0-1M ± 0.1	80	0.01	I/D	100				Sel.	1.5	1.2V				90	Yes				5995.00	External power supply; without Model 202 phono module, \$5395.00.	
	DMC-10 Series Delta		0-1M ± 0.1	40	0.01		100				No	1.5	1.2V				78	Yes				3495.00	External power supply.	
	DMC-6 Series II		0-1M ± 0.1	40	0.01		100				No	1.5	1.2V				76	Yes				2795.00	As above.	
SPECTRASCAN	LCA-10		3-250 + 0.3	15	0.05	No	100	2	0	No	1.0	300	Var.	85	78	Yes						1969.00	Without MC input, \$1569.00.	
STANTON	310B	P	20-20	15	0.05							0.5	120	Adj.	74	No						280.00		
SUMO	Athena		20-20 ± 0.1	20	0.01	No	300	2	0	No	0.37	160	100	85	80	Yes						749.00	High-level bypass; Class A; high-current design.	
	Athena II		10-100 ± 0.1	20	0.008	No	300	3	0	No	0.50	160	120	85	80	Yes						799.00	CD direct; Class A; high-current design; without phono stage, \$649.00.	
SUPERPHON	Revelation II		2-175	5				2	0	No		150					No					749.00	Adjustable line-stage bias.	
SYMETRIX	202		20-20 + 0.1	†	0.007	I/D		0	0								No					289.00	Microphone preamp. †24 dBm.	
SYMPHONIC LINE	RG3 MKII		5-300	12	0.001	I/D	120	2	0	Yes	1.25	200	Sel.	70	70	Yes						4200.00	External power supply; adjustable MC impedance.	
TANDBERG	TCA-3018A		20-20 + 0.0-0.1	20	0.009		80	2	0	No	1	290	Sel.	78	74	Yes						2299.00		
	TCA-3038A		20-20 + 0.0-0.5	6	0.04		70	2	3	No	0.5	70	100	75	70	Yes						1199.00		
TARA LABS	Passage	T	10-100	30	0.01			2	0	No	Var.	Var.	Var.				72	Yes				1498.00		
TECHNICS	SU-A200		0.05-180 + 0.3	8	0.001		36	4	0		0.63	150		80	77	Yes						1199.00		
	SU-A6MK2		0.5-200 + 0.3	8	0.002		36	3	4		0.63	150		80	77	Yes						799.00		
	SU-A40		0.8-150 + 0.0-0.1		0.009		75	3	2		1.25	150		79	74	Yes						329.00		
THETA DIGITAL	DS Pre Gen. II	D	0-20.5 + 0.0-0.1	10	0.001		100	1	0	No												4500.00		
	DS Pre Basic	D	0-20 + 0.0-0.1	10	0.002		100	1														2400.00		
THRESHOLD	FET ten/e hl FET ten/e pc FET nine/e	P	0-125 RIAA, ± 0.25 0-125	20 20 20	0.01 0.01 0.02	I/D O	200 200	2 1	0 0	No No No	5 5	100 100	Sel. Sel.	90 85	79 74	Yes Yes						3200.00 2500.00 2500.00	External power supply. As above. As above.	
VENETTA RESEARCH	SCP-2B LLP-1	MC	0.1-1M 0.1-1M	3 3	0.01 0.01	O	150	1	0	No Sel.							90	Yes				2495.00 3995.00	Variable MC impedance. External power supply.	
VTL	Maximal De Luxe	T						0	0	No				120			No					775.00	With MC stage, \$1350.00. Dual mono. As above; with balanced inputs and MM/MC stage, \$3950.00. Line level only; equalizer has tilt control (see also "Equalizers"). External tube power supply. Line level only. Microphone preamp; selectable feedback. Line level only (see also "Equalizers"). Tape-head input only; NAB, CCIR, and AME equalization for 7½, 15, and 30 ips. Six line inputs; optional balanced out. Fixed-gain MC preamp with RIAA equalization; includes external power supply; available without equalization for mike use. †Pre- and post-ladder sends. Eight inputs for mike or line; selectable bass cut on mike inputs; optional balanced out.	
	Super De Luxe	T						0	0	No				120			Dpt.					1050.00		
	Ultimate	T						0	0	No				120			Yes					2400.00		
	Ultimate Equalizer and Preamp	T						0	2	No												3050.00		
	Manley Reference Integrator	T						0	0	No				120								3950.00		
	Manley Microphone Preamp	T/M	5-50					0	0	No												5500.00		
	Manley Equalizer/Line Preamp	T/M						0	3													450.00 2000.00		
	Manley Tape Playback Preamp	T/M																						2000.00
	6-Way Mixer	T/M																						2000.00
Close Encounter	T/MC																	Yes				2000.00		
Portable Suitcase Mixer	T							†														8000.00		
YAMAHA	CX-2000(RI)	D	20-20 + 0.0-0.2		0.001		50	3	3	No	0.83	190	Sel.	95	91	Yes						1499.00	Digital inputs and outputs.	
	CX-1000(RI)	D	20-20 + 0.0-0.2		0.001		50	3	3	No	0.83	180	Sel.	95	91	Yes						1199.00	As above.	
	CX-830(RI)		20-20 + 0.0-0.2		0.001		50	4	5	No	0.83	180		95	90	Yes						699.00		
	CX-630(RI)		20-20 + 0.0-0.2		0.002		50	2	5	No	0.83	170		94	84	Yes						449.00		
YBA	Signature(RI)		5-400 ± 2	8	0.05		150	1	0	Sel.	2.0	2.2V	250	90	90	Yes						10,000.	Dual mono; external power supplies for each channel and remote.	
	YBA1 Pre		5-400 ± 2	8	0.05		150	1	0	Sel.	2.0	2.2V	250	90	90	Yes						5750.00	Dual mono; external power supply.	
	YBA2 Pre		5-400 ± 2	8	0.05		150	1	0	No	2.0	2.2V	250	90	90	Opt.						2750.00	As above; optional MC module, \$600.00.	
	YBA3 Pre		5-400 ± 2	8	0.05		150	1	0	No	2.0		250	83	84	Opt.						1800.00		

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- ▶ Special Rubber Grip
- ▶ Special Black Process Finish
- ▶ Turbine Design[™] RCA Connectors
- ▶ 24K Gold Plated Contacts
- ▶ Split Center-Pin

Patent Numbers: 4,538,023
4,932,897
M8904242.5

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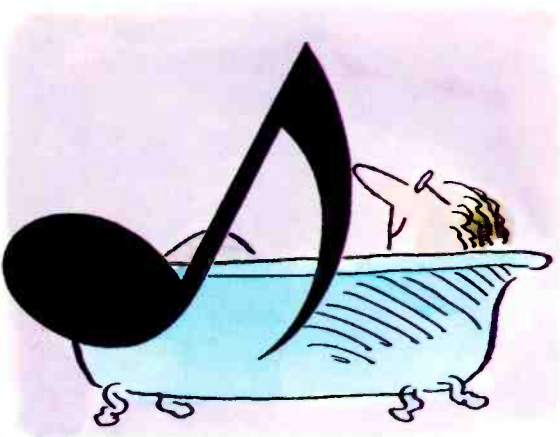
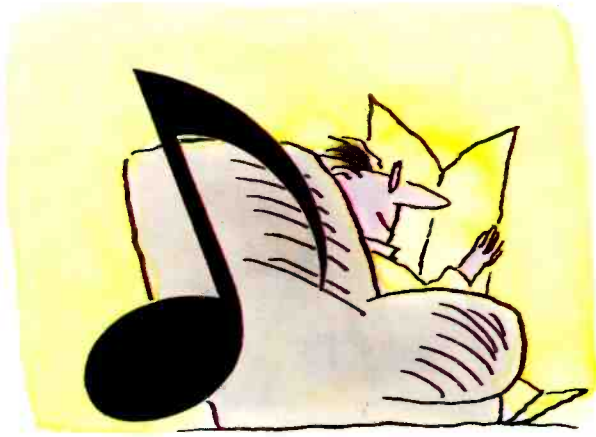
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TUNERS

MANUFACTURER	Model (RI) - Remote Included, (RO) - Remote Optional	D	No	FM Only = F, Digitally Synthesized = D		AM Stereo Capable?	HF (Usable) Sensitivity, dbi, Mono/Stereo	Signal Strength for 50 db Quieting, dbi, Mono/Stereo	Capture Ratio, db, Mono/Stereo	AM Suppression, db	Alternate Channel Selectivity, db, Wide/Narrow	Total Number of Station Presets	Separation at 1 kHz, db	THD at 1 kHz, % Mono/Stereo, 100% Modulation	THD at 8 kHz, % Mono/Stereo, 100% Modulation	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$
				11/29	17/37													
ACCUPHASE	T-106 T-107	D	No	11/29	17/37		1.5/1.5	80	70/100	12	50	0.04/0.08	0.04/0.08	83/79	28.6	2750.00		
ADCDM	GFT-555II GTP-500II(RI) Tuner/Preamp GTP-400 Tuner/Preamp	D	No	11.2/12.2	13.2/35.0/14.36		1.5/1.7	65/63	76/75	16	60/55	0.065/0.05/0.07/0.09		86/78/80/75	14/15	299.95/599.95		
AR	T-06 T-06R(RO)	D	No	11.2/11.2	14.6/37.2/14.6/37.2		1.0/1.0	60/60	70/70	16	48/48	0.08/0.2/0.08/0.2	0.08/0.3	80/75/80/75	13.3/13.3	329.90/399.90		
ARAGDN	4T2		No	10.8/	37.6		1.0	80	66	16	50	/0.09	/0.12	/75	15	599.00		
ARCAM	Delta 80 Alpha 2		No	14.2/14.2			1.5/1.5	50/50	60/60	12	40/40	0.15/0.25/0.15/0.25		74/70/70/68	6.6/5.7	599.95/329.95		
AUDIO DESIGN ASSOCIATES	MT-3000 Multi-Tuner (multi-room)	D	Yes	8/14.5	13/34		1.4	54	80	3x10	50	0.075/0.09		74/69	8	2500.00		
AUDIDLAB	8000T		No								39					699.00		
AUDISOURCE	TNR One	D	No	11.2/20.2	20.2/40.2		1.0	55	65	20	45	0.21/0.3		70/65	12 3/4	229.95		
A.V.A.	FET 3i Omega Transcendence FET Valve	D	No	11.3/11.3/11.3/11.3	17.2/37.2/17.2/37.2/17.2/37.2		1.5/1.5/1.5/1.5	60/60/60/60	80/80/80/80	18/15/5/5	45/48/52/55	0.1/0.17/0.09/0.12/0.07/0.1/0.05/0.08		72/68/79/74/83/78	10/10/11/16	395.00/495.00/825.00/1195.00		
CARVER	TX-12 TX-11b TX-10 CT-6 CT-17 CT-7	D	No	14.5/18.6/11.3/16.3/16.1/23.5/10.3/21.3/14.3/20.1/10.3/20.1			1.45/1.0/1.5/1.5/1.4/1.5	62/65/62/74/62/62	60/35/90/58/72/72/72	20/13/20/20/20/20/16	42/45/42/48/46/48/50	/0.02/0.05/0.2/0.15/0.1/0.02		/76/85/74/72/78/78	10/11/9/10/16/15	399.00/749.00/299.00/549.00/799.00/599.00		
CREEK	T40	F		10.0/17.0	9.0/32		0.4/3.0	50	30/100		35	0.2/0.3	0.3/0.4	80/70	4	475.00		
DAY SEQUERRA	FM Broadcast Monitor FM Studio	F													45	12,800.		
DBX	TX-3MKII	D	No	9.4/	11.2/43.8		1.5	70	70	16	55	0.06/0.07	0.06/0.07	85/79	10 1/2	599.00		
DENDN	TU-660 TU-460	D	No	11.2/10.3	15.3/37.2/15.3/38.5		1.3/1.5	60/50	50/75/50	30/30	50/45	0.06/0.1/0.08/0.15		88/82/82/78		330.00/240.00		
GEMINI	TU-100	D	No	15/20			1.25/2.0	55	50/80	16	35	0.08/0.1			8 1/4	329.95		
GDLMUND	Mimesis 4(RO)	F									6	0.02/0.025	0.05/0.05	75/70	22	4890.00		
GRUNDIG	T-9000 T-903	D	No	6.8/38.8/11.2/42.1	20/21/36.3/39.2		0.05/0.09		65/83/70	29	19	0.05/0.10/0.2/0.4		79/76/72/70		1199.95/449.95		
HAFLER	SE130 Iris(RO)	D	No	12.8/11.3	13.8/15.3/36.5		1.1/1.5	55	57/60	18	40/45	0.2/0.4/0.1/0.18		68/60/72/68	9	349.00/450.00		
HARMAN KARDDN	TU9400 TU9600 TU909	D	No	11.2/11.2/11.2	37.2/36.2/38.2		1.2/1.0/1.5	50/65/45	65/45/80/70	24	50/45/50	0.08/0.09/0.06/0.08/0.1/0.12		82/75/82/75/80/72	7 1/2/7 1/2/10	319.00/429.00/199.00		
HARMAN KARDDN CITATION	twenty-three	D		10.8/	36.5		0.75/1.75	45	65/75	16	55	0.06/0.08		84/75	15	699.00		
JVC	FX1100BK FX1010TN	D	No	10.3/10.3	14.8/38.1/14.8/38.1		1.2/1.2	65/65	25/75/25/75	40	60/60	0.009/0.009		94/88/94/88	8.2/8.2	470.00/480.00		
KENWDD	KT-5020 KT-89 L-1000T(RI)		No	10.8/10.8/10.8	16.2/38.8/15.2/38.2/16.3/38.8		1.0/2.5/2.0/1.0	76/68/70	60/90/50/70	20	55/78/70	0.004/0.06/0.4/0.5/0.004/0.018		88/82/78/73/93/86	7.9/5.5/23.1	269.00/169.00/1100.00		
KINERGETICS RESEARCH	KBT-2	F/D		9.0/11.2	13.5/36.0		1.5/1.5	60	50/70	5	45	0.02/0.05	0.02/0.05	75/73	20	995.00		
KIRKSAETER	LAB 10 LAB 12 Tuner/Preamp	F/D		10.3/28.8/10.3/	14.7/29.8/14.7/29.8		1.5/1.5/1.0	55	90/65	8	50/55	0.08/0.1/0.08/0.1		75/73/75/73	15/15	2499.00/3999.00		
LUXMAN	T111 T117 TP114 TP117		No	10.8/8.8/11.3/10.8	19/38/16/36/14.8/38.0/14.8/38		1.3/1.5/1.5/1.5	68/70/68/69	60/45/80/65/68	20	50/55/20/47/20/48	0.15/0.20/0.05/0.06/0.15/0.20/0.1/0.15		75/70/88/78	5.1/9.9/11.2/11.4	300.00/600.00/450.00/1250.00		
MAGNUM DYNALAB	Etude FT101A FT11	F		10.3/11.2/10.3/11.2/12.1/	13.2/34.0/13.2/34.0/35.3/		1.5/1.5/1.5	70/70/70	70/80/60/80/70	60	60/3	0.10/0.18/0.10/0.18/0.13/0.30		80.0/80.0/75.0/	14/12/10	1295.00/805.00/449.00		
MARANTZ	ST54 CG ST54 BL ST35	D	No	10.8/10.8/12.1/	16.8/38.3/16.8/38.3		1/1/1.5	60/60/55	75/75/60	24	48/48/16	0.1/0.2/0.1/0.2/0.3/0.6	0.15/0.15/0.3/0.6	85/76/85/76/68	9.3/9/6.6	500.00/420.00/300.00		
McINTOSH	MR7083	D	No	11.25/18	15/37		1.5	60	70	16	50	0.08/0.08	0.08/0.12	80/75	15	1699.00		
MERIDIAN	204(RO)	F/D		11/	15/		1.5	55	70	18	47	0.2/0.2		77/70	10 1/2	1090.00		

TUNERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	FM Only = F, Digitally Synthesized = D	AM Stereo Capable?	HF (Ucable) Sensitivity, dbi, Mono/Stereo	Signal Strength for Quieting, dbi, Mono/Stereo	Capture Ratio, db, Mono/Stereo	AM Suppression, db, Wide/Narrow	Alternate Channel Selectivity, db, Wide/Narrow	Total Number of Station Presets	Separation at 1 kHz, db	THD at 1 kHz, % Mono/Stereo, 100% Modulation	THD at 6 kHz, % Mono/Stereo, 100% Modulation	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$
MISSION	Cyrus(RI)	D	No	6/12	10/28	1.5	80	40	59	0.1/0.1	0.15/0.2	82/76	10	649.00	
MUSEATEX AUDIO	Melior(RO)	F		10.2/11.2	13.2/34.0	1.5/2.0		50/75	53	0.15/0.25	0.2/0.25	70/65	22½	1150.00	
NAD	4225	D	No	10.8/	14.4/37	1.5	65	65	14	45	0.09/0.09	0.2/0.30	80/75	3.2	249.00
	4300	D	No	9.0/	12/34	1.5/2.5	70	80/100	16	50	0.07/0.07	0.15/0.35	85/80	10.4	499.00
	1700(RI)	D	No	10.3/	13/35	1.5/2.5	65	80/90	14	50	0.08/0.08	0.20/0.30	80/75	14.5	799.00
	Tuner/Preamp 1600(RI)	D	No	11/	14/36	1.6	60	68	14	50	0.1/0.1	0.2/0.3	82/76		399.00
NAIM AUDIO	NAT 01	F							0				24	2995.00	
	NAT 02	F							0				12	1725.00	
NAKAMICHI	ST-7 (w/Schotz NR)	D		10.0/17.0	14/28	1.9	60	60	16	55	0.06/0.08		80/76	10¾	795.00
ONIX AUDIO	BW01	F		7.5/	9.1/32.3	0.5/2.9	65	30/100		70	0.03/0.04	0.03/0.1	90/91	6	885.00
ONKYO	T-4300(RO)	D	No	11.2/17.2	16.1/36.1	1.5	50	55	40	40	0.1/0.2		73/66	5.7	199.95
	Integra	D	No	10.3/17.2	16.1/36.1	1.3			40	40			78/73	8.8	320.00
	T-4500	D	No						40						450.00
	Integra	F		10.3/17.2	15.8/37.2	1.0	60	95	20	55	0.009/0.02		95/85	18.7	750.00
	T-4700(RI)	F		10.3/17.2	15.8/37.2	1.0	60	95	20	55	0.009/0.02		95/85	19.6	850.00
PARASOUND	T-9090MKII (RI)	F		10.3/17.2	15.8/37.2	1.0	60	95	20	55	0.009/0.02		95/85	19.6	850.00
	Grand Integra T-G10(RI)	F		10.3/17.2	15.8/37.2	1.0	60	95	20	55	0.009/0.02		95/85	19.6	850.00
	TQ260II	D	No	9.8/	17.1/36.9	1.2	65	80	16		0.22/0.12	0.22/0.12	78/75	9	295.00
PERREAUX	CPT600	D	No	9.8/	17.1/36.9	1.2	65	80	16		0.22/0.12	0.22/0.12	78/75	12	375.00
	Tuner/Preamp CPT1000R(RI)	D	No	9.8/	17.1/36.9	1.2	65	80	16		0.22/0.12	0.22/0.12	78/75	17	550.00
PERREAUX	ET	D	No	10.2/	14.6/37.2	1.0	58	60	16	45	0.08/0.2	0.15/0.3	82/77	9	699.00
PHILIPS	FT-50	D	No	11.3/	16.8/38.1	1/	60	35/75	30	50	0.05/0.1		86/80	9	259.95
PIONEER	F-656	D	Yes	12.1/	15.9/36.2	1.0	60	80	24	60	0.06/0.1		85/80	7½	325.00
	F-447	D	Yes	12.7/	18.0/36.2	1.5	65	65	35	45	0.2/0.3		80/78	7¾	200.00
	F-91	D	No	9.8/	12.8/34.8	0.8	70	85	24	65	0.009/0.02	0.02/0.07	95/87	11½	600.00
PROTON	AT-670(RO)	D	No	10.3/		1/	65	65/80	27	45	0.2/0.3		83/74	15½	400.00
	AT-470	D	No	10.3/		1.5	65	65	16	45	0.2/0.3		83/74		220.00
	440	D	No	10.3/		1.5	65	65	12	45	0.2/0.3		83/74		300.00
PSE	Studio III	F		17/40	1	70		6	55	0.1/0.2		75/70	9	795.00	
QED	T-260	F		12/22	18/38				6	45	0.08/			12	479.00
QUAD	FM4	F		10/29	1.5	60	53	7		0.15/0.15	0.15/0.15	76/70	6.6	695.00	
REVOX	B260-S(RO)	F		10.8/	13.2/34.8			50/100	60	43	/0.07		/80	15½	2500.00
	B160(RO)	F		10.8/	13.2/34.8			50/100	30	43	/0.07		/80	15½	990.00
ROTEL	RT850A	D	No	10.8/	15.2/37.2	1.0	57	70	16	45	0.07/0.25		80/75	8.5	299.00
	RT870	D	No	10.8/	14.8/37.2	1.0	58	60/80	16	48	0.05/0.1		80/75	9	399.00
	RTC850(RI)	D	No	10.8/	15.2/37.2	1.0	57	70	16	45	0.07/0.25		80/75	12	499.00
SANSUI	Vintage TU-X711	D	No	10.8/	16.2/37	1.0/	65	60/75	30	60	0.009/0.02		98/91	11¼	500.00
	Vintage TU-X301i	D	No		16.0/38.0	1.0	60	60	30	40	0.08/0.12		79/73	6¼	220.00
SHERWOOD	TD-7010R(RO)	D	No	9.8/	17.2/36.1	1.5	55	70	30	50	0.15/0.25	0.15/0.25	80/75	7¾	199.95
	TD-1120	D	No	11.2/	19.2/39.2	2.0	50	60	24	45	0.2/0.4	0.2/0.4	75/68	6¾	149.95
SONY ES	ST-S730ES	D	No	10.3/	16.8/37.9	1.0/	65	70/65	20	70	0.004/.0075		100/92	14	550.00
SOUNDCRAFTSMEN	Pro-Tuner Four	D	No	9.5/	12/36	1.0	65	80	16	52	0.04/0.08		85/75	12	379.00
	Pro-PT Two	D	No	10.3/	12/36	1.2	65	80	32	52	0.04/0.08		85/75	14	449.00
	Tuner/Preamp Pro-PT 5R(RI)	D	No	10.3/	12/36	1.2	65	80	32	52	0.04/0.08		85/75	14	599.00
SOUNDSTREAM	T-1(RO)	D	No	11.2/17.2	14.7/31.2	1.5	60	65	16	50	0.1/0.1	0.12/0.1	81/79	17	795.00
SUMO	Aurora	D	No	11/17	16/34	1.0/1.0	60	75/100	8	50	0.04/0.05	0.05/0.08	85/82	10	749.00
TANDBERG	TPT-3001A	F		9.3/32.1	14.7/37.3	0.4/3	70	/90	8	60	0.03/0.04	0.03/0.1	95/92	15.3	2199.00
TECHNICS	TPT-3031A	F/D		17.3/37.3	17.3/37.3	0.9	70	100	16	45	0.09/0.2		75/75	10.7	999.00
	ST-G70	D	No	10.8/	18.1/38.1	1.0/	55	30/55	39	60	0.015/0.02		/73	7.7	379.00
VECTOR RESEARCH	ST-G460	D	No	18.1/38.1	18.1/38.1	1.0	55	65	39	50	0.05/0.1		80/73	4.9	239.00
	VU-1000	D	No	10.2/	14.6/37.2	1.5	59	60	16	50	0.08/0.2	0.09/0.25	82/77	10	219.00
YAMAHA	TX-2000(RI)	D	No	9.3/	15.3/37.2	1.2	70	90	24	68	0.02/0.03		98/90	13½	749.00
	TX-530	D	No	9.3/	15.1/37.7	1.0	55	85	20	50	0.05/0.07		82/76	6¾	329.00
	TX-330	D	No	9.3/	15.3/37.7	1.0	55	85	16	40	0.1/0.2		82/76	4¾	249.00
	TX-930(RI)	D	No	9.3/	15.1/37.7	1.2	70	85	24	60	0.02/0.03		96/90	7½	399.00
	TX-540(RO)	D	No	9.3/	15.1/37.7	1.5	55	85	24	52	0.02/0.03		90/85	6¾	299.00
	TX-340	D	No	9.3/	15.3/37.7	1.5	55	85	16	40	0.1/0.2		82/76	4½	199.00



Turn on, tune in, turn up and enjoy your
Adcom music system everywhere...

Introd Adcom Tuner/



Adcom announces a new concept in home music systems. Through a revolutionary approach to its remote control system, the new Adcom GTP-500 II tuner/preamplifier gives you full control of your entire music system from any room. Together with any one of Adcom's critically acclaimed power amplifiers, this unique audio product will give cost-minded, serious music lovers a superior alternative to the common AM/FM receiver. And with optional speakers and remote sensors you will be able to turn on, and listen to your music system anywhere in your home.

Complete System Control At Your Command

The full function, wireless remote control system of the GTP-500 II offers superior flexibility and integration with other components. Control your system's power on/off, select your favorite pre-programmed FM and AM stations, scan the entire FM dial, adjust volume level and select different sources... all with Adcom's handheld remote controller.

roducing the new n GTP-500 II Preamplifier



To enjoy your Adcom music system throughout your home, simply add a pair of loudspeakers and an Adcom remote sensor in each room. Your Adcom remote controller will perform all of its remote functions, giving you full control of your system. (In some cases, it will be advisable to use one of Adcom's multiple speaker selectors, so please discuss your system requirements with your Adcom dealer.)

Remote control of the basic functions of Adcom's much heralded GCD-575 CD player is also achieved with the GTP-500 II remote system,

thereby simplifying control of your Adcom system. For total music system integration, the GTP-500 II remote sensors will also receive and re-transmit commands to any other remotely controlled component. Regardless of brand, you can control your cassette tape deck and VCR, using their respective controllers through the GTP-500 II's sensor system.

This remarkable and well thought-out remote control design gives you full command of your audio system and will virtually change the way you listen to music throughout your home.

(over please)

The Adcom GTP-500 II: Its value is measured by its performance.

The overall performance of the new GTP-500 II is demonstrably superior through its evolutionary design improvements and the use of today's most advanced, high grade component parts. Adcom's fundamental design objectives of creating a quieter preamplifier, an FM tuner with improved RF performance and an AM tuner with flatter frequency response and reduced distortion were all achieved.

The Preamplifier

Adcom's unique low-impedance RIAA compensation provides lower noise and distortion in the phono input stage. To further reduce noise and distortion in all stages, all switching devices are buffered.



GTP-500 II/GFA-555 (200 watts/ch)*

And to simplify the signal path and minimize degradation, tone controls, contour and filters are out of the circuit until and unless they are needed.

To ensure that long term adherence to circuit design objectives is accomplished, 1% Roederstein resistors are used in all critical applications as well as a new low-loss, printed circuit board. Throughout all circuits, the GTP-500 II uses state-of-

the-art component parts for the highest performance possible during its lifetime.

The AM/FM Stereo Tuner

Through a careful balance of sensitivity and selectivity, the GTP-500 II optimizes FM performance whether you're in an urban area troubled with excessively strong FM signals, or you're in a rural area with weak signals. Also contributing to a significant reduction in distortion is an improved IF stage. Indeed, the quality of FM stereo reproduction through the GTP-500 II is as good as the broadcast itself.

Sixteen stations, eight FM and eight AM, can be programmed for instant retrieval at the touch of a button. And, a bi-directional FM scan feature makes it easy to find your favorite source of FM stereo music.

More Sound, Less Money

Adcom stereo components have gained a reputation for sounding superior to components costing two and three times as much. The new GTP-500 II promises to keep faith with this tradition of more sound for less money.

ADCOM[®]
details you can hear

11 Elkins Road, East Brunswick, NJ 08816
U.S.A. (201) 390-1130
Distributed in Canada by PRO ACOUSTICS INC.
Pointe Claire, Quebec H9R 4X5

Specifications

Preamplifier

Total harmonic distortion: 0.004%
IM distortion: 0.005%
Frequency response: 5 - 65 kHz \pm 0.5 dB
Maximum Output Level: >10V
Input sensitivity for rated output:
Phono: 4 mV
High level: 320 mV
Tone controls:
High filter: (20 kHz) - 4dB
Low filter: (20 Hz) - 3dB
Output Impedance: 100 Ω
Voltage: 120V/50 - 60 Hz
Dimensions: 17" \times 3 1/4" \times 12 3/4" D
(432mm \times 83mm \times 324mm D)
Weight: 16 lbs. (7.3 Kg.)

FM Tuner

IHF sensitivity, mono: 12.2 dBf
Signal strength for - 50 dB quieting, mono/stereo: 14/36 dBf
Capture Ratio: 1.7 dB
AM suppression: 60 dB
Alternate channel selectivity: 75 dB
Total station presets: 16
Separation at 1 kHz: 50 dB
THD/stereo at 1 kHz: 0.09%
Maximum signal-to-noise ratio, mono/stereo: 80/75 dB
Frequency response: 30 - 15 kHz \pm 0.5 dB
Antenna Impedance: 75 Ω /300 Ω
Optional accessories for GTP-500 II:
Available with white front panel, XR/500 II and SPM/500 II remote sensors, RM-3 rack mount adaptors.

*Power output, watts/channel, continuous both channels driven into 8 ohms, 20 Hz-20kHz 0.09% THD.

RECEIVERS

MANUFACTURER	Model (R) = Remote Included. (RO) = Remote Optional	FM Only = 1. Digital Synthesizer = D. AM Stereo Capable = A	AMPLIFIER SECTION										TUNER SECTION									
			Average Watts Per Channel. 8 Ohms & Ohms		THD, %	Headphone Jack? Jack with Level Control = LC	Rated Full-Power Bandwidth, Hz to kHz	MM Phono S.N. = 1. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100.	MM Phono Overload, mV	Video Inputs?	Surround Delay/Ambience Circuits?	Total Number of Station Presets	Mono IFR (k/mHz) Sensitivity, dB	Signal Strength for 50-dB Quieting, dB	Capture Ratio, dB	THD at 1 kHz, % Mono Stereo, 100% Modulation	Alternate Channel Rejection, dB	Maximum S.N. - dB Mono Stereo	Separation at 1 kHz, dB	Weight, Lbs.	Price, \$	
			195/250	0.008																		Yes
AIWA	AXR-005(RI) AXR-004(RI) AXR-002(RI)		140/190 70/90	0.03 0.08 0.03	Yes Yes Yes	20-20 20-20 20-20	79 79 72	105 105 100		Yes Yes Yes	Yes Yes Yes	30 30 30	11.2 11.2 11.2	18.3/38.3 18.3/38.3 18.3/38.3	1.2 1.2 1.2	0.3/0.5 0.3/0.5 0.3/0.5	60 60 60	80/74 80/74 80/74	45 45 45	21 21 14.1	550.00 550.00 440.00	
AR	X-07 X-05		70/95 40/	0.03/ 0.05 0.04	Yes Yes	10-150	160 180	2.5 2	Yes Yes	No No	No No	16 16	11.2 11.2	17.2/37.2	1.5 1.5		70 65	78/70 72/70	40 40	25.1 18.1	769.90 499.90	
BANG & OLUFSEN	Beomaster 4500 Beomaster 6500	D D	20 50/	0.1 0.09	Yes Yes	20-20 20-20	75 78	1.6 1.5	No No	No No	No No	20 20	14 14	19/40 19/40	1.7 1.7	0.3/0.3 0.16/0.2	70 70	75/70 75/70	40 45	15.4 19.2	1098.00 2220.00	
CARRERA	CR-230 D CR-2530	D D	25/30 30/33	0.5 0.25	LC LC	40-20 20-20	70 75	1.75 2.0	No No	No No	No No	17.2 12.5	25.5/41.5 17.2/38.7	2.0 1.75	0.3/0.5 0.2/0.4	50 58	72/65 72/68	42 42	12 1/2 13	149.95 199.95		
CARVER	HR-722 HR-752 HR-772	D D D	60/ 100/ 140/	0.05 0.05 0.15	Yes Yes Yes	20-20 20-20 20-20	85 85 85	100 100 150	3.3 4.7 5.2	No No Yes	No Yes Yes	20 20 20	10.3 10.3 10.3	15.3/37.1 15.3/37.1 15.3/37.1	1.5 1.5 1.5	0.09/0.2 0.09/0.2 0.15	52 52 72	78 78	46 46 46	35 35 45	549.00 649.00 799.00	
DENON	DRA-1025RA (RI) DRA-825RA (RI) DRA-625RA (RI) DRA-435R (RI) DRA-335R (RI) AVR-1010 (RI)	D D D D D D	125/ 90/ 65/ 55/ 40/ 100/ (Front) 35/ (Ctr.) 35/ (Rear)	0.015 0.015 0.05 0.05 0.05 0.08	Yes Yes Yes Yes Yes Yes	5-40 5-40 5-40 20-20 20-20 20-20	92 92 86 120 120 76	150 150 110 120 120 120		Yes Yes No No No No	No No No No No Yes	16 16 16 16 16 16	10.3 10.3 10.3 10.3 10.3 10.3	14.8/37.3 14.8/37.3 15.3/38.5 15.3/38.5 15.3/38.5 15.3/38.5	1.3 1.3 1.3 1.5 1.5 1.5	0.06/0.09 0.06/0.09 0.08/0.15 0.1/0.15 0.1/0.15 0.1/0.2	75 75 55 55 55 80/75	86/82 86/82 82/78 83/78 82/78 80/75	55 55 40 40 40 33	26 1/2 23 17 1/4 14 3/4 14 33	1000.00 800.00 500.00 350.00 270.00 1000.00	
FISHER	RS-625B RS-21 (RI) RS-627 (RI) RS-615 (RI) RS-605	D D D D D	120/ 150/150 100/ 60/ 40/	0.05 0.007 0.05 0.09 0.09	Yes Yes Yes Yes Yes	20-20 20-20 20-20 20-20 20-20	65 62 65 65 65	150 160 150 150 150	1.5 2.0 1.5 1.5 1.5	No No No No No	No No No No No	24 24 24 24 24	14.7 10.3 14.7 14.7 14.7	19.2/42.1 16.1/40 19.2/42.1 19.2/42.1 19.2/42.1	1.5 1.3 1.5 1.5 1.5	0.3/0.4 0.05/0.1 0.3/0.4 0.3/0.4 0.3/0.4	55 80 55 55 55	70/65 85/80 70/65 70/65 70/65	45 50 45 45 35	20 46.2 20 15 12.8	449.95 1400.00 499.95 349.95 249.95	
HARMAN KARDON	hk3300 hk3400 (RI) hk350 D (RI) hk880 Vxi (RI) hk990 Vxi (RI)	D D D D D	25 35 50 60 90/	0.09 0.09 0.09 0.08 0.08	Yes Yes Yes Yes Yes	20-20 20-20 20-20 20-20 20-20	78 78 78 78 78	120 120 120 120 120	1.8 2.0 2.2 2.2 2.2	No No No Yes Yes	No No No No No	16 16 16 18 18	11.2 11.2 11.2 10.8 10.8	37 37 37 36 36	1.0 1.0 1.0 1.0 1.0	0.07/0.12 0.07/0.12 0.07/0.12 0.07/0.12 0.07/0.12	70 70 70 70 70	82/74 82/74 82/74 82/74 82/74	50 50 50 50 50	22 28	329.00 449.00 619.00 799.00 1099.00	
JVC	RX1010VTN (RI) RX903VBK (RI) RX803VBK (RI) RX703VBK (RI) RX503VBK (RI) RX403BK (RI) RX302BK RX201BK	D D D D D D D D	120/ 100/ 120/ 100/ 80/ 60/ 60/ 40/	0.007 0.007 0.007 0.007 0.03 0.03 0.03 0.08	Yes Yes Yes Yes Yes Yes Yes Yes	20-20 20-20 20-20 20-20 20-20 20-20 40-20 40-20	80 78 78 78 78 78 78 78		3 3 2 2 No No No No	Yes Yes Yes Yes Yes Yes No No	Yes Yes Yes Yes Yes Yes No No	40 40 40 40 40 40 40 40	10.8 10.8 10.8 10.8 10.8 10.8 10.8 10.8	16.3/38.3 16.3/38.3 16.3/38.3 16.3/38.3 16.3/38.3 16.3/38.3 16.3/38.3 16.3/38.3	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	0.15/0.2 0.15/0.2 0.15/0.2 0.15/0.2 0.15/0.2 0.15/0.2 0.15/0.2 0.15/0.2	65 65 60 60 60 60 60 60	81/73 81/73 81/73 81/73 80/73 80/73 80/73 80/73	40 40 40 40 40 40 40 40	27.6 27.6 25.6 24.3 17.5 16.1 14.3 12.1	1500.00 950.00 620.00 500.00 360.00 320.00 255.00 230.00	
KENWOOD	KR-V9020 (RI) KR-V8020 (RI) KR-V7020 (RI) KR-V6020 (RI) KR-A5020 KR-A4020	D D D D D D	130/ 100/ 100/ 70/ 60/ 40/	0.008 0.008 0.06 0.08 0.09 0.07	Yes Yes Yes Yes Yes Yes	20-20 20-20 20-20 20-20 20-20 20-20	79 79 81 78 78 78		Yes Yes Yes Yes Yes No	Yes Yes Yes Yes Yes No	Yes Yes Yes Yes Yes No	20 20 20 20 20 20	10.8 10.8 10.8 10.8 10.8 10.6	14.2/37.2 14.2/37.2 16.2/38.2 16.2/38.2 16.2/38.2 16.2/38.2	1.2 1.2 2.0 2.0 2.0 2.0	0.1/0.2 0.1/0.2 0.3/0.5 0.3/0.5 0.3/0.5 0.3/0.5	80/74 80/74 79/73 79/73 79/73 79/73	50 50 45 45 45 45	32.4 27.6 22.4 20.3 14.3 12.4	850.00 679.00 499.00 399.00 299.00 229.00		
LUXMAN	R113 R114 R115 R117	D D D D	35/ 50/ 70/ 160/	0.08 0.05 0.03 0.03	Yes Yes Yes Yes	20-20 20-20 20-20 20-20	88 78 88 88	150 150 3.0 4.4	1.5 1.75 3.0 4.4	No No Yes Yes	No No Yes Yes	20 20 20 20	10.8 10.8 10.3 10.3	14.38 14.0/38.0 13.2/36.6 13.2/36.6	1.5 1.5 1.5 1.5	0.1/0.18 0.15/0.20 0.08/0.11 0.08/0.1	60 65 80/75 80/75	80/74 47 50 50	45 17.2 25.5 35	13.4 55.0 850.00 1200.00		
MAGNAVDX	MRB130 (RI) MRB150 (RI) MRB200 (RI)	D D D	30/ 50/ 100/	0.5 0.09 0.09	Yes Yes Yes	40-20 20-20 20-20	77 77 77	130 130 130	3 3 3	No Yes Yes	No Yes Yes	24 24 24	16.7 10.7 10.7	19.39 19.39 19.39	1.75 1.75 1.75	0.15/0.3 0.15/0.3 0.15/0.3	65 65 65	70/68 70/68 70/68	40 40 40	15 16 18	249.95 299.95 399.95	
MARANTZ	RS3559 RS3557 RS3555	D D D	125/ 100/ 50/	0.02 0.03 0.04	Yes Yes Yes	20-20 20-20 20-20	75 75 75		Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	30 30 30	11.2 11.2 11.2	12.38 12.38 12.38	1.5 1.5 1.5	0.15/0.3 0.15/0.3 0.15/0.3	69 69 69	76/70 76/70 76/70	45 45 45	32.7 32.2 28.7	1000.00 700.00 500.00	
McINTOSH	MAC4300 (RI) MAC4280 (RI)	D D	100/100 75/100	0.02 0.03	Yes Yes	20-20 20-20	80 80	1.3 1.3	Dpt. No	No No	No No	12 13	13 11.25	18.36 15.2/27	1.5 1.5	0.08/0.08 0.1/0.1	55 60	78/73 80/75	45 45	29 41	2995.00 2099.00	
mitsubishi	M-R8010 (RI) M-R7020 (RI) M-R6030 (RI)	D D D	125/ 80/ 80/	0.05 0.05 0.05	Yes Yes Yes	20-20 20-20 20-20	80 80 80	1.4 1.4 1.4	6 2 6	Yes Yes Yes	Yes Yes Yes	16 16 16	10.8 10.8 12.8	16.2/37.2 16.2/37.2 18.1/37.2	1.0 1.0 1.0	0.1/0.2 0.1/0.2 0.1/0.2	60 60 60	75/70 75/70 75/70	40 40 40	27 22 22	1399.00 1049.00 799.00	
NAD	7225PE 7240PE 7000 (RI) 7100X (RI) 7400 (RI)	D D D D D	25/ 40/ 40/ 60/ 100/	0.03 0.03 0.03 0.03 0.03	Yes Yes Yes Yes Yes	20-20 20-20 20-20 20-20 20-20	76 76 75 75 76	200 180 180 180 180	4.4 6 6 6 5.7	Yes Yes Yes Yes Yes	No No No No No	10 10 14 14 14	10.8 10.3 11 11 10.3	14.4/37 14.2/36 14/36 13.9/35.6 13.1/35	1.5 1.5 1.6 1.6 1.5	0.1/0.1 0.09/0.09 0.1/0.1 0.1/0.1 0.08/0.08	58 65 68 70 75	80/74 80/75 82/76 84/77 84/78	45 50 50 50 50	12 1/8 16 1/2 24 1/2 24 1/2 26	329.00 479.00 579.00 749.00 999.00	
NAKAMICHI	TA-4A (RI) Receiver 1 (RI) Receiver 2 (RI) Receiver 3 (RI)	D D D D	100/ 80/ 55/ 37/	0.1 0.1 0.1 0.1	Yes Yes Yes Yes	5-60 5-40 5-40 10-40	78 78 78 78	180 180 180 180		Yes Yes No No	No No No No	10 10 10 10	11.0 11.0 12.0 12.0	14.7/37.5 14.7/37.5 15.7/38.5 15.7/38.5	2.0 2.0 2.0 2.0	0.07/0.07 0.07/0.07 0.1/0.1 0.2/0.25	65 65 55 55	82/75 79/74 79/74 72/67	50 50 50 38	33 24 1/4 19 13 1/4	1295.00 899.00 549.00 349.00	

Don't Let Your Friend Expens

Overwhelming envy could interfere with their listening pleasure when you play a few of your favorite tracks for them.

Your friends will remember the great sounding receivers we built back in the Sixties that reproduced the music of Clapton, Jimi Hendrix and The Doors. You can just imagine what our FM sounds like now with improvements such as balanced mixers and a MOSFET front end. A heavy duty power

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Because you demand that your receiver is your Audio/Video command center, we provide input jacks for CD, Phono, Video 1 and 2, Tape 1 and DAT/Tape 2. To enhance your home theater experience our engineers have added Dolby® Surround and a remote



control to harness all this power from the best seat in the house.

Yes, the RV-1340R does look expensive. That's because we haven't gone away from

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an all-aluminum cabinet or cheapened the faceplate with seldom used features, instead we neatly concealed them behind a smoothly articulated fold-down door.

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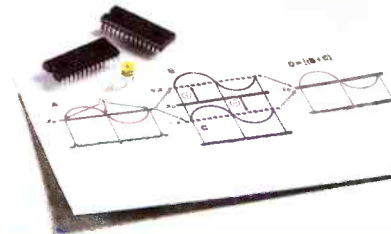
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RECEIVERS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	FM Only = F. Digitally Synthesized = D. AM Stereo Capable = A	AMPLIFIER SECTION														TUNER SECTION							
			Average Watts per Channel, 8 Ohms @ 4 Ohms		THD, %	Headphone Jack? Jack with Level Control = LC	Rated Full-Power Bandwidth, Hz to kHz	MM Power SW - dB "A" = 100, "B" = 5	MM Phono Overload, mV	Dynamic Headroom, dB	Video Inputs?	Surround Delay/Ambience Circuits?	Total Number of Station Presets	Mono Infr. (Usable) Sensitivity, dB	Signal Strength for Mono Stereo, dB	Capture Ratio, dB	THD at 1 kHz, % Mono-Stereo, 100% Modulation	Alternate Channel Selectivity, dB	Maximum S/N - dB Mono Stereo	Separation at 1 kHz, dB	Weight, Lbs.	Price, \$		
DNKYD	TX-811	D	40/75	0.3	Yes	40-20	80	120	Yes	No	30	12.4	18.2 38.2	1.5	0.15/0.3	50	70/65	40	14.8	199.95				
	TX-822(RI)	D	50/90	0.3	Yes	40-20	80	120	Yes	No	30	12.4	18.2 38.2	1.5	0.15/0.3	50	70/65	40	14.8	249.95				
	TX-844(RI)	D	60/125	0.08	Yes	20-20	80	120	Yes	Yes	40	11.2	17.2 37.2	1.5	0.15/0.3	50	72/66	45	19.8	349.95				
	TX-866(RI)	D	80/145	0.04	Yes	20-20	80	120	Yes	Yes	40	10.8	17.2/37.2	1.5	0.15/0.3	50	73/67	45	19.8	479.95				
	Integra TX-870(RI)	D	105/	0.025	Yes	20-20	93	150	Yes	Yes	20	10.8	17.2/37.2	1.5	0.1/0.2	65	73/67	45	29.1	680.00				
	Integra TX-870M (w/Universal Remote)																					740.00		
	Integra TX-890(RI)	D	125/	0.02	Yes	20-20	93	150	Yes	Yes	20	10.8	17.2/37.2	1.3	0.1/0.18	65	76/70	45	32.6	820.00				
	Integra TX-890M (w/Universal Remote)																					880.00		
	TX-SV90PRO (RI)	D	110/	0.04	Yes	20-20	80	120	Yes	Yes	20	11.2	17.2 37.2	1.5	0.1/0.2	65	76/70	45		1200.00				
	TX-SV70PRO (RI)	D	85/		Yes				Yes	Yes	30										900.00			
TX-SV50PRO (RI)	D	70/		Yes				Yes	Yes	30										750.00				
OPTIMUS	STAV-3200(RI)	D	100/	0.05	Yes	20-20	85		Yes	Yes	30	9.8		2.5	0.25/0.4	60	72	45	26	499.95				
	STAV-3100(RI)	D	100/	0.05	Yes	20-20	85		Yes	Yes	30	9.8		2.5	0.25/0.4	60	72	45	23	479.95				
	STAV-3000	D	100/	0.05	Yes	20-20	85		Yes	Yes	24	9.8		2.5	0.25/0.4	60	72	45	23	399.95				
	STA-2160	D	100/	0.3	Yes	40-20	85		No	Yes	24	14.2		2.5	0.35/0.5	60	70	43	20	339.95				
	STA-20	D	5/	0.05	Yes	40-20	70		No	No	0						35			129.95				
PHILIPS	FR-50	D	40/	0.09	Yes	20-20	77		No	Yes	30	13.5	16.4/37.3	0.5/0.7	65	78/75	40	15	299.95					
	FR-60	D	60/	0.09	Yes	20-20	77		Yes	Yes	30	13.5	16.4/37.3	0.5/0.7	65	78/75	40	17	399.95					
	FR-70	D	70/	0.09	Yes	20-20	81		Yes	Yes	30	13.5	16.4/37.3	0.5/0.7	65	78/75	40	21	499.95					
	FR-980	D	125/150	0.01	Yes	20-20	75		Yes	Yes	19	13.5	16.4/37.3	0.1/0.2	65	83/77	50	35	999.95					
PIONEER	VSX-D1S(RI)		130/40	0.005	Yes	20-20	77	150	Yes	Yes	30	10.8	15.3 37	1.0	0.08/0.15	65	80/76	50	32	1350.00				
	VSX-9700S(RI)		125/40	0.005	Yes	20-20	77	150	Yes	Yes	30	10.8	15.3/37	1.0	0.08/0.15	65	80/76	50	30 1/4	1050.00				
	VSX-5700S(RI)		105/25	0.008	Yes	20-20	77	130	Yes	Yes	30	10.8	15.3 37	1.0	0.2/0.3	65	80/76	45	23 5/8	710.00				
	VSX-5600(RO)		105/25	0.008	Yes	20-20	77	130	Yes	Yes	30	10.8	15.3 37	1.0	0.2/0.3	65	80/76	45	23 5/8	650.00				
	VSX-4700S(RI)		105/20	0.008	Yes	20-20	73	130	Yes	Yes	30	10.8	15.3 37	1.0	0.2/0.3	65	80/76	45	21	620.00				
	VSX-4600(RO)		105/20	0.008	Yes	20-20	73	130	Yes	Yes	30	10.8	15.3 37	1.0	0.2/0.3	65	80/76	45	21	570.00				
	VSX-3700S(RI)		100/15	0.05	Yes	20-20	72	130	Yes	Yes	30	10.8	15.3/37.1	/0.3	55	80/76	35	18 3/4	490.00					
	VSX-3600(RO)		100/15	0.05	Yes	20-20	72	130	Yes	Yes	30	10.8	15.3/37.1	/0.3	55	80/76	35	18 3/4	440.00					
	SX-2700(RI)		65/	0.07	Yes	20-20	72	130	No	No	30	10.8	15.3 37.1	/0.3	55	78/75	35	15	310.00					
	SX-2600(RO)		65/	0.07	Yes	20-20	72	130	No	No	30	10.8	15.3 37.1	/0.3	55	78/75	35	15	260.00					
	SX-1700		45/	0.07	Yes	20-20	72	130	No	No	30	10.8	15.3 37.1	/0.3	55	78/75	35	12 7/8	220.00					
	PROTON	AV-6410(RI)	D	100	0.02	Yes	10-50	85	150	2	No	No	27	15.3 30	1.00	0.2/0.3	65	83/74	45		900.00			
		AV-646A(RI)	D	60	0.02	Yes	10-50	85	150	2	No	No	27	15.3 30	1.00	0.2/0.3	65	83/74	45		700.00			
AV-643(RI)		D	35	0.03	Yes	10-50	85	150	2	No	No	27	15.3 30	1.00	0.2/0.3	65	83/74	45		500.00				
AV-445(RI)		D	50	0.03	Yes	10-50	85	150	3	No	No	24	15.3 30	1.5	0.2/0.3	65	83/74	45		400.00				
D940		D	40	0.02	Yes	10-60	92	250	6	No	No	16	10.3	15.3 30	1.5	0.2/0.3	65	83/74	45	18 3/4	500.00			
REALISTIC	STA-785	D	50	0.5	Yes	40-20	56		Yes	No	18	13.2		2.5	0.4			38		199.95				
ROTEL	RX850A	D	30/	0.03	Yes	20-20	80	170	No	No	16	10.8	15.2/37.2	1.0	0.07/0.25		80/75		19	399.00				
	RX855	D	55/	0.03	Yes	20-20	80	300	No	No	16	10.8	15.2/37.2	1.0	0.07/0.25		80/75		29	549.00				
SANSUI	RZ9500AV(RI)	D	100/ (Front) 30/ (Rear) 40/ (Ctr.)	0.02 (F) 0.005 (R) 0.05 (C)	Yes	20-20	73			Yes	Yes	30	11.2	17.2/38.2	1.5	0.2/0.3	70	76/70	40	33	769.95			
	RZ7500AV(RI)	D	100/ (Front) 20/ (Rear)	0.02 (F) 0.005 (R)	Yes	20-20	73			Yes	Yes	30	11.2	17.2/38.2	1.5	0.2/0.3	70	76/70	40	24 1/4	579.95			
	RZ5500AV(RI)	D	70/	0.05	Yes	20-20	73		Yes	Yes	30	11.2	17.2/38.2	1.5	0.2/0.3	70	76/70	40	21	429.95				
	RZ3500(RI)	D	50/	0.09	Yes	20-20	73		Yes	No	30	11.2	17.2/40.0	1.5	0.3/0.5	70	76/70	40	21	349.95				
	R-950AV	D	105/	0.1	Yes	20-20			Yes	Yes	30	10.0	15.0 32.0	1.5	0.5/	50	65/60	35	22	419.95				
	R-750AV	D	55/	0.5	Yes	20-20			Yes	Yes	24	10.0	15.0/32.0	1.5	1.0/	50	65/60	35	15 1/2	319.95				
	R-550	D	35/	0.5	Yes	40-20			No	No	24	10.0	15.0 32.0	1.5	1.0/	50	66/60	35	12	249.95				
SCOTT	RS-300	D	30/	0.06	Yes	20-20	66		Yes	Yes	16			0.02/		70/	40	12	149.95					
	RS-550	D	55/	0.5	Yes	20-20	73		Yes	Yes	16	14		0.5/			40	14 1/2	249.95					
	RS-1250	D	125/	0.02	Yes	20-20	73		Yes	Yes	24	9		0.2/		36	24 1/2	499.95						
	RS-250	D	25/	0.9	Yes	20-20	79		Yes	Yes	16			0.3 1.0		34	12	125.00						
	RS-500(RI)	D	50/	0.5	Yes	20-20	79		Yes	Yes	16	11		0.3/1.0		14	225.00							
	RS-1000(RI)	D	100/	0.09	Yes	20-20	60		Yes	Yes	24	10.8		0.5/1.0		45	20	349.95						
	STA-1200(RI)	D	110/	0.05	Yes	20-20	70		Yes	Yes	24	11.2		0.4 0.5		70 65	40	21 1/2	399.95					
SHARP	SA-R55AV(RI)	D	55	0.08	Yes	20-20			Yes	Yes	30	10.8							14.3	379.95				
	SA-R56AV(RI)	D	55	0.08	Yes	20-20			Yes	Yes	30	10.8							14.3	389.95				
	SA-R75AV(RI)	D	75/	0.05	Yes	20-20			Yes	Yes	30	10.8							17	429.95				
SHERWOOD	RA-1140	D	25/	0.2	Yes	40-20	75	150	Yes	Yes	24	11.2	19.2 39.2	2.0	0.2/0.4	60	75/68	45	10 3/8	149.95				
	RA-1142	D	50/	0.05	Yes	40-20	75	150	Yes	Yes	24	11.2	19.2/39.2	2.0	0.2/0.4	60	75/68	45	13 1/4	199.95				
	RA-1145R(RI)	D	50/	0.09	Yes	20-20	75	150	Yes	Yes	30	11.2	19.2 39.2	2.0	0.2/0.4	60	75/68	45	15 1/2	239.95				
	RA-1240R(RI)	D	70/	0.08	Yes	20-20	75	150	Yes	Yes	30	9.8	14.8 36.8	2.0	0.15/0.25	60	75/68	50	17 3/8	299.95				
	RV-1340R(RI)	D	100/ (Front) 20/ (Rear)	0.04	Yes	20-20	78	190	Yes	Yes	30	9.8	14.8/36.1	1.5	0.15/0.25	70	80/75	50	21 1/8	399.95				

Starting with the first digital recording of music in 1972, Denon has produced an unbroken string of digital audio breakthroughs.



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

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



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.


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DCD-1560 shown with the optional side panels available for most Denon models. Prices quoted are manufacturer's suggested retail prices and may vary.

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RECEIVERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	FM only = F, Digital Synthesizer = D, AM Stereo Capable = A	AMPLIFIER SECTION										TUNER SECTION								
			Average Wpts per Channel, 8 Ohms @ 100Hz	THD, %	Headphone Jack? Jack with Level Control = LC	Rated Full-Power Bandwidth, Hz to kHz	MM Phono S.W. -A, Wid re -5 dB	MM Phono Overload, mV	Dynamic Headroom, dB	Video Inputs?	Surround Delay/Ambience circuits?	Total Number of Station Presets	Mono IIF (Usable) Sensitivity, dBf	Signal Strength for 50-dB Quieting, dBf	Capture Ratio, dB	THD at 1 Hz, % Mono Stereo, 100% Modulation	Alternate Channel Selectivity, dB	Maximum S.W. -dB, Mono Stereo	Separation at 1 kHz, dB	Weight, Lbs.	Price, \$
SONY	STR-D2020(RI)	D	130/	0.008	Yes		82	150		Yes	Yes	30	11.2	18.3/38.3		0.2/0.4	60	84/78	45	26 1/4	1100.00
	STR-AV1020 (RI)	D	120/	0.008	Yes		79	150		Yes	Yes	30	11.2	18.3/38.3		0.2/0.4	60	84/78	45	23 3/8	600.00
	STR-AV920(RI)	D	100/	0.03	Yes		79	150		Yes	Yes	30	11.2	18.3/38.3		0.2/0.5	60	80/74	45	23 1/8	480.00
	STR-AV720(RI)	D	80/	0.08	Yes		72	150		Yes	Yes	30	11.2	18.3/38.3		0.2/0.5	60	80/74	45	20 1/4	350.00
	STR-AV320(RI)	D	50/	0.08	Yes		72	150		Yes	No	30	11.2	18.3/38.3		0.2/0.5	60	80/74	45	13 1/8	240.00
STR-AV220(RI)	D	40/	0.08	Yes		72	150		Yes	No	30	11.2	18.3/38.3		0.2/0.5	60	80/74	45	11 1/8	210.00	
SONY ES	STR-GX90ES (RI)	D	120/120	0.008	Yes	5-60	90	150	1.25	Yes	No	30	11.2	16.8/37.9	1.2	0.05/0.07	85	83/78	55	32 1/8	1000.00
	STR-GX80ES (RI)	D	110/110	0.008	Yes	5-60	90	150	1.25	Yes	No	30	11.2	16.8/37.9	1.2	0.05/0.07	85	83/78	55	30	800.00
	STR-GX60ES (RI)	D	100/100	0.08	Yes	5-60	85	150	1.00	Yes	No	30	11.2	18.3/38.3	1.2	0.1/0.2	65	82/76	50	22 1/4	550.00
	STR-GX50ES (RI)	D	80/80	0.08	Yes	10-30	85	150	1.00	Yes	No	30	11.2	18.3/38.3	1.2	0.1/0.2	60	82/76	45	19 1/2	450.00
	STR-GX40ES (RI)	D	50/50	0.08	Yes	10-30	85	150	1.00	Yes	No	30	11.2	18.3/38.3	1.2	0.1/0.2	60	82/76	45	18 1/2	350.00
TANDBERG	TPR-3080A		80/100	0.09	LC		72	70		Yes	No	16	12.8	17.3/37.3	0.9	0.09/0.2	100	75/75	45	26 1/2	2099.00
TEAC	AG-550(RI)	D	55/	0.08	Yes	20-20	65			Yes	Yes	16	12		1.5	0.3/0.6	65	73/68	40	15 1/2	299.00
	AG-400		40/	0.8	Yes	40-20	65			Yes	Yes	16	12		1.5	0.3/0.6	65	73/68	40	13 1/4	219.00
	AG-55(RI)	D	55/	0.05	Yes	20-20	70			No	No	8	11.2			0.25/0.05		90	40	15.4	299.95
	AG-75	D	75/	0.02	Yes	40-20	80		2.5	No	No	16	11.2			0.2/0.5		78/72	40	15.4	379.95
TECHNICS	SA-GX700(RI)	D	100/	0.008	Yes	20-20	70	160	1.2	2	Yes	24	11.2	20.2/40.2	1.0	0.2/0.3	65	75/70	40	22	549.95
	SA-GX500(RI)	D	80/	0.008	Yes	20-20	70	160	1.2	2	Yes	24	11.2	20.2/40.2	1.0	0.2/0.3	65	75/70	40	18.7	379.95
	SA-GX300(RI)	D	60/	0.05	Yes	20-20	70	160	1.2	1	No	24	11.2	20.2/40.2	1.0	0.2/0.3	65	75/70	40	15.6	279.95
	SA-GX100(RI)	D	40/	0.07	Yes	20-20	68	160	1.2	1	No	24	11.2	20.2/40.2	1.0	0.2/0.3	65	75/70	40	13.1	229.95
VECTOR RESEARCH	VRX-2700	D	30/33	0.09	LC	20-20	78	190	1.85	Yes	No	20	11.2	17.2/38.7	1.5	0.25/0.5	58	72/68	40	13	199.00
	VRX-3600R(RI)	D	40/45	0.08	LC	20-20	78	190	1.85	Yes	Yes	20	11.2	15.6/37.6	1.5	0.2/0.4	58	72/68	42	15	299.00
	VRX-5200R(RI)	D	50/60	0.07	LC	20-20	80	190	1.90	Yes	Yes	20	11.2	15.6/37.6	1.3	0.17/0.35	60	74/70	42	17	349.00
	VRX-6200R(RI)	D	65/75	0.05	LC	20-20	82	190	2.0	Yes	Yes	16	10.2	14.6/36.2	1.2	0.12/0.25	60	75/70	45	20	449.95
	VRX-8200R(RI)	D	110/125	0.03	LC	20-20	83	200	2.0	Yes	Yes	20	10.2	14.6/35.5	1.0	0.1/0.2	65	76/71	48	24	659.95
	VRX-9200R(RI)	D	120/135	0.03	LC	20-20	83	200	2.0	Yes	Yes	20	10.2	14.6/35.5	1.0	0.1/0.2	65	76/71	48	26	849.95
	VRX-3550	D	55/60	0.25	LC	20-20	75	150	1.5	No	No	16	12.5	17.2/38.7	1.75	0.2/0.4	58	72/68	42	13	249.95
YAMAHA	RX-1130Ti(RI)	D	125/	0.015	Yes	10-50	92	110	1.58	Yes	Yes	16	8.8	14.8/37.3	1.2	0.05/0.07	85	85/81	54	31 1/8	1199.00
	RX-330	D	67/95	0.04	Yes	10-40	88	120		No	No	16	9.3	15.1/37.7	1.5	0.1/0.2	85	81/76	50	11 1/2	279.00
	RX-930(RI)	D	85/	0.015	Yes	10-50	92	110	1.84	Yes	Yes	16	9.3	15.1/37.7	1.5	0.07/0.07	55	81/76	52	23 3/8	849.00
	RX-830(RI)	D	70/	0.015	Yes	10-50	88	110	2.15	Yes	Yes	16	9.3	15.1/37.7	1.5	0.07/0.07	55	81/76	52	16 1/2	599.00
	RX-730(RI)	D	50/	0.02	Yes	10-50	94	110	1.80	Yes	No	16	9.3	15.1/37.7	1.5	0.07/0.07	55	81/76	52	14 3/4	499.00
	RX-530(RI)	D	50/	0.02	Yes	10-50	88	110	2.10	No	No	16	9.3	15.1/37.7	1.5	0.1/0.1	55	81/76	50	12 3/8	399.00

Performance And Technology

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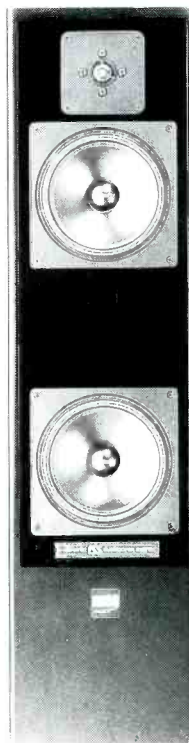
HECO HiFi

For years audiophiles have added separate subwoofers to their music systems to achieve fast, deep, accurate bass. These separate subwoofers, though, are large, expensive and difficult to match to most loudspeaker systems. HECO's new ISS technology skillfully blends and integrates an entire subwoofer system into each loudspeaker. It incorporates a totally separate

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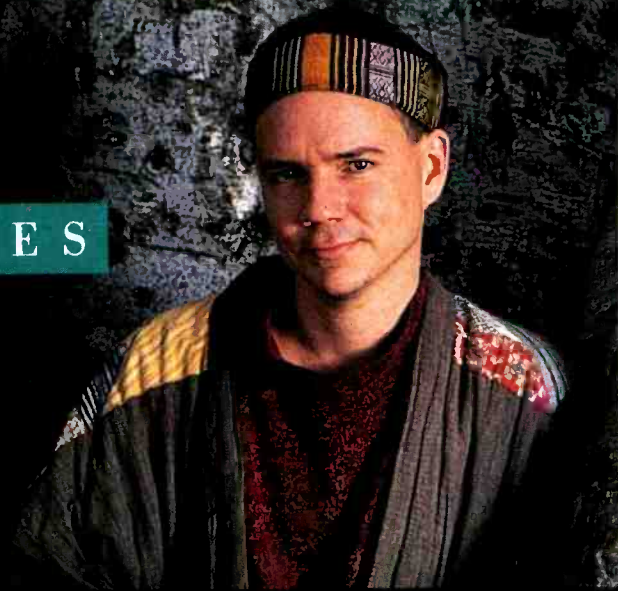


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WH-1093
Photo by Carl Studna

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LIZ STORY

Escape of the Circus Ponies

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WH-1099
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The Long Road

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WH-1092
Photo by Michael Tighe



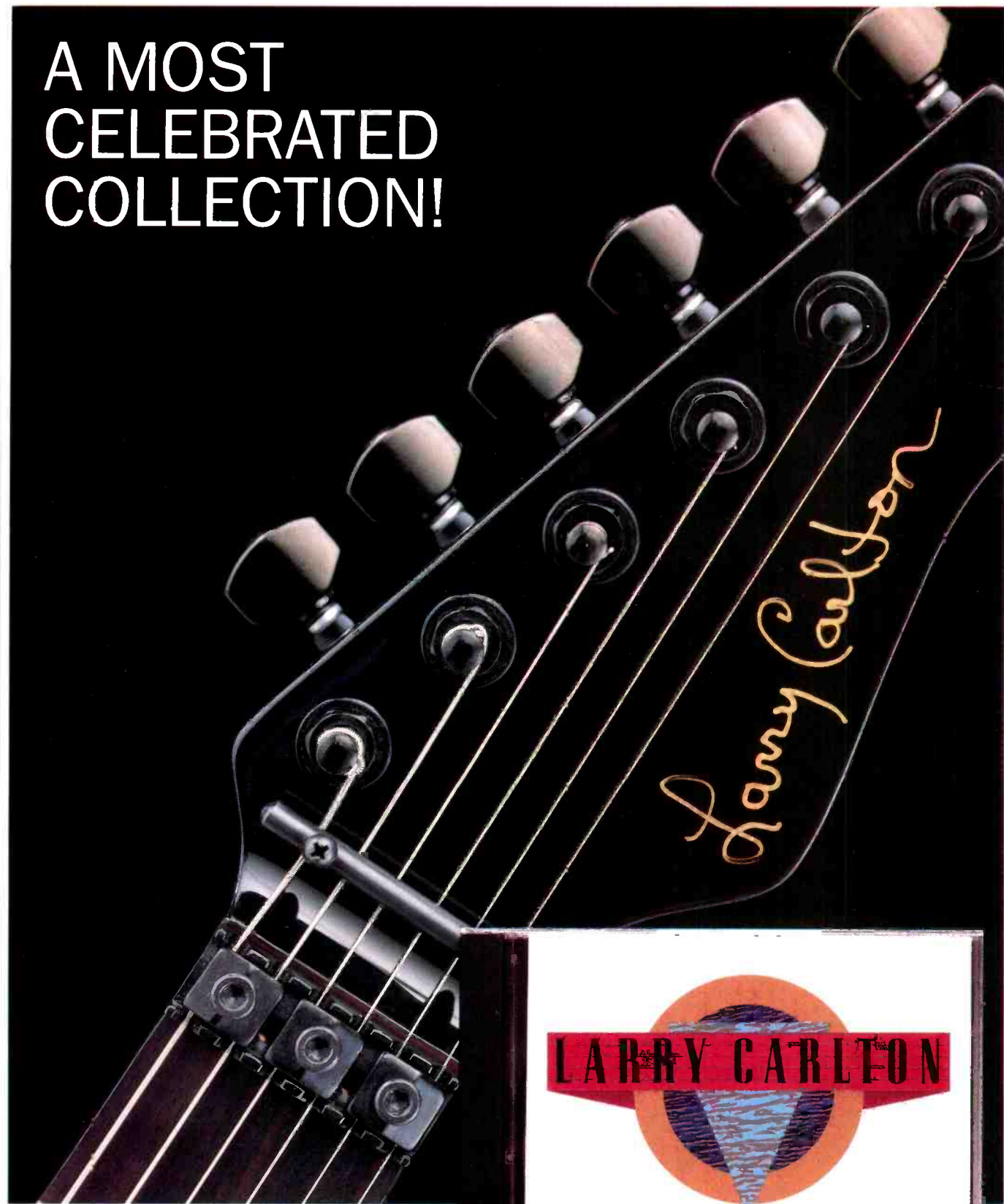
TURNTABLES

MANUFACTURER	Model (RI) - Remo Included, (RO) - Remo Optional	Speeds - See Code	Wow & Flutter, % DIN 45-507	Rumble, - dB, DIN 45-539-B	Drive System	Speed Accuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Type: Probe = P, Linear = L, Servo = S, Microbeam = A	Pivot Stylus Distance, Inches	Auto Cue = C, Auto Return = R, Programmable Play = P	Recommended Tracking Force Range, Grams	Anti-Skating Adjustment?	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	TONEARM		Price, \$	
																	Cap. Mount = F, Removable Shell = R, P-Mount = P, Changeable Wand = W	Dimensions, Inches, Including Dustcover		
AR	ES-1	B	0.04	78	Belt				P			0.5-3	Yes	3-9				18 1/2 x 15 1/4 x 7	725.00	
ARCIC1	Onyx	B	0.025	86	Belt	0.015	No	No										20 1/2 x 17 3/4 x 4 1/4	995.00 w/Stand	
ARISTON ACOUSTICS	"Q" Deck Mk II	B	0.04	75	Belt		No	No	P				Yes	4-9		F		16.3 x 13.2 x 5.1	499.00	
	Icon Mk II	B	0.04	75	Belt		No	No	P				Yes	4-9		F		16.3 x 13.2 x 5.1	369.00	
BANG & OLUFSEN	Beogram RX-2	B	0.07	65	Belt	0.2	No	No	P	9 1/4	C/R	1.0-1.5	Yes	1.6	240	F		16 1/2 x 2 1/2 x 12 7/8	299.00	
	Beogram TX-2	B	0.06	80	Belt	0.2	No	No	L/S	4 3/4	C/R	1.0-1.5	No	1.6	240	F		16 1/2 x 3 x 12 3/4	399.00	
	Beogram 4500	B	0.06	80	Belt	0.2	Yes	No	L/S	4 3/4	C/R	1.0-1.5	No	1.6	240	F		16 1/2 x 3 x 12 3/4	499.00	
	Beogram 6500	B	0.06	80	Belt	0.2	No	No	L/S	4 3/4	C/R	1.0-1.5	No	1.6	240	F		16 1/2 x 3 x 12 3/4	499.00	
	Beogram 9500	B	0.06	80	Belt	0.2	No	No	L/S	4 3/4	C/R	1.0-1.5	No	1.6	240	F		16 1/2 x 3 x 12 3/4	450.00	
BASIS AUDIO	Debut Gold Standard	B	0.02	90	Belt	0.02		No										23 x 16 1/2 x 7 1/4	6900.00	
	Dvation	B	0.02	90	Belt	0.02		No										23 x 16 1/2 x 5 1/2	3750.00	
BROADCAST ELECTRONICS	12C	C	0.1	38 NAB	Rim	+1, -0	Yes	No	P	7 7/8		1	Yes	5-8		R		15 x 15 1/2 x 5	450.00	
	16C	C	0.1	38 NAB	Rim	+1, -0	Yes	No	P	11 1/8		1	Yes	5-8		R		20 1/8 x 20 1/4 x 5 5/8	995.00	
	12C2	B	0.1	38 NAB	Rim	+1, -0	Yes	No	P	7 7/8		1	Yes	5-8		R		15 x 15 1/2 x 5	450.00	
CARRERA	CT-1155	B	0.07	65	Belt	0.02	3	Yes	No	P	8	R	1.25-3	No	2.5-5		P		99.95	
DENON	DP-59L	B	0.006	82	Direct	0.002	9.9	No	No	P/S	9.6		0-3	Yes	3-14	W		19 1/4 x 8 5/8 x 16 1/8	695.00	
	DP-47F	B	0.01	78	Direct	0.002		Yes	No	P/S	8.7	C/R	0-3	Yes	3-12	R		17 x 7 x 16 1/8	450.00	
	DP-23F	B	0.02	75	Direct	0.002		Yes	No	P/S	8.7	C/R	0-3	Yes	4-9	R		17 x 4 1/2 x 14 1/8	275.00	
	DP-7F	B	0.018	75	Direct	0.01		Yes	No	P/S	8.7	C/R	1.25	Yes	6	P		14 3/8 x 3 3/4 x 14 1/8	200.00	
DUAL	CS 7000 S	C	0.023	85	Belt		0	No	No	P		C	1-4	Yes	3-12	150	R	17 1/4 x 5 1/2 x 15	899.95	
	CS 5000	C	0.025	80	Belt		6	No	No	P		C	1-4	Yes	3-12	150	R	17 1/2 x 5 x 15	499.95	
	CS 505-3	B	0.06	75	Belt			No	No	P		C	1-4	Yes	3-10	150	R	17 1/4 x 5 1/2 x 14 1/2	399.95	
	CS 503-2	B	0.06	70	Belt			No	No	P		C	1-4	Yes	3-10	150	R	17 1/4 x 5 1/2 x 14	349.95	
	CS 455 G	B	0.07	70	Belt			No	No	P		C/R	1-4	Yes	3-10	150	R	17 1/4 x 4 3/4 x 14	299.99	
	CS 455 S	B	0.07	70	Belt			No	No	P		C/R	1-4	Yes	3-10	150	R	17 1/4 x 4 3/4 x 14	289.95	
	CS 450 S	B	0.07	70	Belt			No	No	P		C	1-4	Yes	3-10	150	R	17 1/4 x 4 3/4 x 14 1/2	269.95	
	CS 431 S	B	0.08	70	Belt			No	No	P		C	1-4	Yes	3-10	150	R	17 1/4 x 4 3/4 x 14	199.95	
	ESOTERIC SOUND	Vintage V-2	C	0.045	70	Belt		6	Yes	No	P	9 1/8	R	1.25-3.5	No	6	P		17 x 3 1/2 x 14 1/2	229.00
			C	0.025	80	Direct	0.01	12	Yes	No	P	8 1/4	C	2-3.5	Yes	2-10	200	R	16 1/2 x 13 3/4 x 4 1/2	395.00
FISHER	MT-9050	B	0.05	70	Direct			Yes	No	P/S		R					R	17 3/8 x 4 5/8 x 13 3/4	199.95	
GEMINI	XL-BD10	B/D	0.045	70	Belt	0.01	12	Yes	No	P	8 1/4	C/R	2-3.5	Yes	2-10	200	R	16 1/2 x 13 3/4 x 4 1/2	179.95	
	XL-DD20	B/D	0.025	78	Direct	0.01	12	Yes	No	P	8 1/4	C/R	2-3.5	Yes	2-10	200	R	16 1/2 x 13 3/4 x 4 1/2	249.95	
	XL-DD30	B/D	0.025	80	Direct	0.01	12	Yes	No	P	8 1/4	C	2-3.5	Yes	2-10	200	R	16 1/2 x 13 3/4 x 4 1/2	299.95	
	XL-DD50	B/O	0.02	55	Direct	0.01	12	Yes	No	P	8 1/4	C	2-3.5	Yes	2-10	200	R	17 1/2 x 14 x 6 1/4	349.95	
	XL-1800Q	B/O	0.01	56		0.01	12	Yes	No	P	8 1/4	C	2-3.5	Yes	2-10	200	R	17 1/2 x 14 x 6 1/4	399.95	
GOLOMUNO	Studietto MKII	B	0.02		Direct			Yes										18 x 18 x 8 3/4	2195.00	
	ST4	B	0.02		Direct			Yes		L/S		1.0-3.0		4.4-25		R		20 x 20 x 8 3/4	4690.00	
	Studio MKIV Reference (RD)	B	0.02		Direct	0.01	4	Yes										20 x 20 x 8 3/4	3750.00	
		B	0.01		Belt			Yes										23 x 21 x 29	27,900.00	
HEYBROOK	TT-3	B	0.04	75	Belt			No	No									17 1/2 x 14 1/4 x 6 1/4	898.00	
JVC	ALFQ55BK	B	0.045		Direct	0.005		Yes	No	P	8 5/8	C/R	1.25	Yes	6	P		17 1/4 x 14 1/4 x 4 1/4	240.00	
	ALF353BK	B	0.05		Belt			Yes	No	P	8 5/8	C/R	1.25	No	6	P		17 1/4 x 14 1/4 x 4 1/4	175.00	
	ALA151BK	B			Belt			Yes	No	P	8 5/8	R	1.25	No	6	P		17 1/4 x 14 1/4 x 4 1/4	100.00	
KENWOOD	KD-4020	B	0.05	70	Direct			Yes		L	5 3/4	C				P		17 3/8 x 4 x 13 3/8	249.00	
	KD-49FC(RD)	B	0.05	68	Belt					L	8 3/4	C				P		17 3/8 x 4 1/4 x 15 3/8	119.00	
	KD-39RC	B	0.05	68	Belt					L	8 3/4	C				F		17 3/8 x 4 1/4 x 15 3/8	79.00	
LINN HI-FI	Linn Sondek LP12	A	0.04	75	Belt			No	No									17 1/2 x 14 x 5 1/2	1295.00	
	Azis Basic	B	0.04	75	Belt	0.01		No	No	P	9		0.75-3.0	Yes	2-10	100	F	17 1/2 x 13 3/4 x 5 1/2	895.00	
		B			Belt			Yes	No	P									550.00	

TURNTABLES

MANUFACTURER	Model (RO) - Remote Included, (R) - Remote Optional	Speeds - See Code		Wow & Flutter, DIN 45-507	Rumble - 0B, DIN 45-538-9	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Tape Speed? P = 1, L = 1.5, S = 2, K = 3mm = 1	Pivot Stylus Distance, Inches	Auto Cue - C, Auto Return = R, Programmable Play = P	Recommended Tracking Force Range, Grams	Anti-Skating Adjustment?	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	Cart. Mount = B, Removable Shell = R, P = Mount = P, Changeable Wad = W	Dimensions, Inches, Including Dustcover	Price, \$
		Model (RO) - Remote Included, (R) - Remote Optional	Speeds - See Code																	
MAPLENOLL	Cleo II	B	0.03	80	Belt	0.003		Yes	No	L			1-6			R		15 1/2 x 17 3/4	995.00	
	Ariadne	B	0.03	80	Belt	0.003		Yes	No	L			1-6			R		15 1/2 x 17 3/4	1395.00	
	w/Reference Signature Ariadne	B	0.03	80	Belt	0.003		Yes	No	L			1-6			R		15 1/2 x 17 3/4	2595.00	
MERRILL AUDIO	Heirloom	A	0.02	78	Belt	0.05		Yes	Yes									19 x 15 x 8	1290.00	
	w/Remote Power Supply Panacea	B	0.02	78	Belt	0.05		Yes										25 x 20 x 46	1660.00	
J. A. MICHELL	Syncro	B	0.05	76	Belt	0.1	0	No	No	P	9 3/8		0-3.5	Yes	3-8		F	17 1/4 x 14 3/4 x 5 1/4	795.00	
	Syncro & Rega RB250	B	0.05	76	Belt	0.1	0	No	No	P	9 3/8		0-3.5	Yes	3-8		F	17 1/4 x 14 3/4 x 5 1/4	995.00	
	GyroDec	B	0.04	81	Belt	0.05	0	No	No									21 1/4 x 16 3/4 x 7 1/2	1395.00	
GyroDec LE	B	0.05	81	Belt	0.05	0	No	No										21 1/4 x 16 3/4 x 7 1/2	1595.00	
MUSEATEX AUDIO	AT-2	C			Belt		5	Yes	No	P	Var.		0.5-5.0	Yes			W	13 1/4 x 13 1/4 x 8 1/2	2500.00	
ONKYO	CP-1200A	B	0.045		Belt			Yes	No	P		R		Yes			R	16 1/2 x 14 3/4 x 5 1/8	130.00	
	CP-1500F (RO)	B	0.023		Direct			Yes		P	8 7/8	C/R	1.7	Yes	4-9		R	17 3/8 x 16 1/4 x 6 3/8	260.00	
	Integra CP-1057F (RO)	B	0.023		Direct			Yes		P	8 7/8	C/R	1.7	Yes	4-9		R	17 3/8 x 16 1/4 x 6 3/8	360.00	
OPTIMUS	LAB-2250	B	0.10	55	Belt			Yes	No	L/S		R	2-3	Yes	5-9		R	3 3/4 x 14 1/4 x 13 3/4	149.95	
	LAB-460	B	0.10	55	Belt			Yes	No	P/S		R	1-2	Yes	5-9		P	3 1/2 x 13 3/4 x 13 3/8	119.95	
ORACLE	Paris	B			Belt		5												From 695.00	
	Alexandria	B			Belt		5												1195.00	
	MKIV Delphi	B			Belt		5												From 1950.00	
	MKIV Premiere MKIV	B			Belt		5												From 3150.00	
PIONEER	PL-600	B	0.06	68	Belt			Yes	No	P/S	8 3/4	R	2.0-3.0	Yes	4-8		R	16 3/8 x 3 3/4 x 14	140.00	
	PL-910	B	0.06	70	Belt			Yes	No	L	3 3/4	R/P	1.0-1.5	Yes			F	16 3/8 x 4 1/8 x 13 3/4	400.00	
	PL-670	B	0.025	78	Direct			No	No	P/S	8 3/4	R		Yes			P	16 3/8 x 4 5/8 x 14 3/8	175.00	
	PL-90	B	0.018	85	Direct			No	No	P/S	11 1/8	R		Yes	2.4-12		R	23 1/2 x 8 1/2 x 17 1/8	950.00	
REALISTIC	LAB-340	B	0.15	45	Belt			No	No	P/S		R	2.5	Yes			F	4 x 13 7/8 x 13 7/8	99.95	
REVOLVER	Revolver 21 w/Revolver Super Arm & Bullet Cart.	B	0.08	65	Belt	0.02		No	No	P	9		0.75-3.0	Yes	2.0-12	45	F	16 1/2 x 14 1/2 x 24	1195.00 w/Stand	
	Revolver w/Revolver Arm	B	0.08	65	Belt	0.02		No	No	P	9		0.75-3.0	Yes	3.0-10.0	45	F	16 1/2 x 14 1/2 x 4 1/4	From 595.00	
	Revolver w/Revolver Super Arm	B	0.08	65	Belt	0.02		No	No	P	9		0.75-3.0	Yes	2.0-12	45	F	16 1/2 x 14 1/2 x 4 1/4	From 875.00	
	Revolver Rebel w/Arm & Goldring Elan Cart.	B	0.08	65	Belt	0.02		No	No	P	9		0.75-3.0	Yes	2.0-10.0	45	F	16 1/2 x 14 1/2 x 4 1/4	425.00	
REVOX	B291(RO)	B	0.05	72	Direct	0.01	9.9	Yes	No	L/S	1 1/2	C/R	0.8-2.0		2.5-10	220	F/P	17 3/4 x 5 1/2 x 15 1/2	1500.00	
ROKSAN	Xerxes	B	0.03	83	Belt		0.5	Yes	No									19 x 15 x 6	1800.00	
ROTEL	RP855																		299.00	
SCOTT	PS 60C	B	0.08		Belt			Yes	No	P	8	R	2.5	No	4-6		P	16 1/2 x 3 7/8 x 13	79.95	
SHADOW PRODUCTS	312	B	0.03	78	Belt	0.02	No	No	No										19 1/2 x 14 3/4 x 6 1/2	From 995.00
	312Ti w/Rega RB 300 Arm	B	0.03	78	Belt	0.02	No	No	No	P	9 3/8	No	0-3.5	Yes	4.5-10	100	F	19 1/2 x 14 3/4 x 6 1/2	From 1295.00	
SHERWOOD	PF-1170R (RO)	B	0.06	65	Direct			Yes	1	P	8 7/8	C/R	0-3	Yes	4-8	250	W	17 3/8 x 4 1/2 x 15	149.95	
	PM-1270	B	0.06	65	Belt			Yes	1	P	8 7/8	R	0-3	Yes	4-7	250	W	17 3/8 x 6 x 15 1/8	139.95	
SIMPLYPHYSICS	Darkstar	B			Belt					L/A							F		3500.00 w/Stand	
	Signature	B			Belt					L/A							F		7000.00 w/Stand	

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TURNTABLES

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Speeds—See Code	Wow & Flutter, DIN 45-507	Rumble, -dB, DIN 45-539-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Type Pivoted P. Linear L- Servo S, Anti-Skating = A	Pivot-Stylus Distance, Inches	Auto Cue = C, Auto Return = R, Programmable Play = P	Recommended Tracking Force Range, Grams	Anti-Skating Adjustment?	Cartridge Weight Range, Grams	Cap. Mount Case = Removable Shell = R, P-Mount = P, Changeable Wad = W	Dimensions, Inches, Including Dustcover	Price, \$	
																			SME
SME	30 w SME Series V Arm	C		Belt			Yes		P	9%			Yes	4-18		F		20.000.	
SONOGRAPHE	SG3A SG3	B B	0.1 0.1	65 65	Belt Belt				P	9 1/4			Yes			F	18 x 14 x 7 18 x 14 x 7	795.00 595.00	
SONY	PS-FL7H PS-LX520 PS-LX430	B B B	0.03 0.035 0.045	75 75 70	Direct Direct Direct	0.03 0.03 0.03	Yes Yes Yes	No No No	L L L/S	3 3 8 1/2	C/R C/R C/R	1.5 1.5 1.75	No No Yes			P P P	17 x 3 7/8 x 15 1/8 17 x 3 3/4 x 14 3/8 17 x 4 3/8 x 14	350.00 270.00 180.00	
SDTA	Jewel Deluxe Sapphire III Deluxe Vacuum Star III Cosmos	B C C C	0.03 0.03 0.03 0.03	85 88.2 88.2 88.2	Belt Belt Belt Belt	0.02 0.02 0.02 0.02	5 5 5 5	No No No No									20 1/4 x 16 1/2 x 7 1/2 20 1/4 x 16 1/2 x 7 1/2 20 1/4 x 16 1/2 x 7 1/2 20 1/4 x 16 1/2 x 7 1/2	895.00 1350.00 w/Clamp 1795.00 w/Vacuum 4500.00 w/Clamp, Vacuum, a.c. Con- ditioner	
SPACE & TIME	Aura	B	0.08	82	Belt	0.02	5	Yes										19 1/2 x 12 1/2 x 8	4650.00
TECHNICS	SP-10MK3 SP-10MK2A SP-15 SP-25 SL-1200MK2 SL-MA1 SL-QD33(RO) SL-DD33 SL-DD22 SL-L20K SL-BD22K SL-BD20 SL-BD20A	C C C B B B B B B B B B B B	0.015 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.025 0.045 0.045 0.045 0.045	92 78 78 78 78 81 78 78 78 70 70 70 70	Direct Direct Direct Direct Direct Direct Direct Direct Direct Belt Belt Belt Belt	0.001 0.025 0.002	9.9 9.9 6.0 8.0	Yes No No No No Yes Yes Yes Yes Yes Yes Yes	No No No No No No No No No No No No No	P P/S P P P L P P P	9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8 9 1/8	C/R C/R C C C C R R R R	0-2.5 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25 1.25	Yes Yes No No No No No No No No No No	3-9.5 6 6 90 90 90 90 90 90 90		R P P P P P P P P P P P P	14 1/2 x 4 x 14 1/2 14 1/2 x 4 x 14 1/2 13 3/4 x 4 x 14 1/2 13 3/4 x 3 1/4 x 14 1/2 17 7/8 x 6 1/4 x 14 1/4 17 7/8 x 6 3/4 x 16 1/8 17 x 4 x 14 3/4 17 x 4 x 14 3/4 17 x 3 3/4 x 13 3/4 17 x 3 3/8 x 14 3/4 17 x 3 3/8 x 14 3/4 17 x 3 3/8 x 14 3/4	2699.00 1399.00 899.00 569.00 529.00 489.00 199.00 169.00 159.00 189.00 139.00 119.00 129.00
TOWNSHEND AUDIO	Rock Reference	B	0.02	85	Belt	0.01	0.5	Yes	No									19 x 17 x 6	3500.00
VECTOR RESEARCH	VT-155 VT-185 VT-320	B B B	0.07 0.05 0.05	65 68 69	Belt Belt Belt	0.02 0.02 0.02	3 3 3	Yes Yes Yes	No No No	P P L	8 8 1/2 8 1/2	R R P	1.25-3 1.25-3 1.25-3	No Yes Yes	2.5-5 2.5-5		P R F		99.95 185.95 199.95
VERSA DYNAMICS	1.0 2.0	B B			Belt Belt					L/A L/A			1.0-4.0 1.0-4.0				F R	15 3/4 x 20 3/4 x 9 18 1/8 x 17 7/8 x 9 1/4	6875.00 12,500.
VOYD TURNTABLES	Voyd (Split Phase) Valdi	B B	0.004 0.005	80 78	Belt Belt	0.001 0.001		Yes Yes										20 x 17 x 7 18 x 14 x 6	2500.00 1500.00
VPI	HW-19 Jr. HW-19 MKIII T.N.T. Reference	B B D	0.03 0.03 0.02	79 79 86	Belt Belt Belt	0.05 0.05 0.01		No No No										21 1/4 x 16 1/2 x 6 21 1/4 x 16 1/2 x 7 25 x 19 x 8	600.00 1200.00 3300.00
WELL TEMPERED LAB	Well Tempered Classic Well Tempered Record Player Well Tempered Signature	B B B	0.01 0.01 0.005	84 84 90	Belt Belt Belt	0.001 0.001 0.001		No No No	1 1 1	P P P	9 9 9		Yes No Yes				F F F	19 x 15 x 8 19 x 15 x 7 21 x 16 x 8	1795.00 995.00 6500.00
WIN RESEARCH	SEC-10	B	0.05	85	Direct	0.001	5	Yes										21 x 16 x 7 1/2	6500.00
YAMAHA	TT400U TT300U	B B	0.045 0.045	70 70	Belt Belt			Yes Yes	No No	P P	9 1/8 9 1/8	C/R C/R	0-3 0-3	Yes Yes	4-9 4-9		R R	17 x 4 x 15 17 x 4 x 15	199.00 159.00
ZARATHUSTRA DESIGNS	Series 4 Series 5	B B	0.02 0.01	82 82	Belt Belt	0.01	5	Yes Yes										16 x 13 1/2 x 4 3/4 19 1/2 x 16 1/2 x 7 1/2	3000.00 5000.00

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MANUFACTURER	Model	Type: Air-Bearing = A, Pivoted = P, Linear = L, Servo = S			Cartridge Mount: Fixed = F, Removable Shell = R, P-Mount = P, Changeable Wand = W			Cueing?	Anti-Skating Adjustment?	Adjustable Vertical Tracking Angle?	Pivot-Stylus Distance, Inches	Overall Length, Inches	Maximum Tracking Error, Degrees per Inch Range, Grams	Recommended Tracking Force	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	Mounting Hole Diameter, Inches	Price, \$	Notes
		A/L	W	Yes	Yes	Yes	Yes												
AIR TANGENT	1B 2B	A/L	W	Yes		Yes		Yes			0	0	0.5-4.0 0.5-4.0	4-17 4-17		1/2 1/2	3295.00 4495.00		Electronic cueing; auto pick-up.
AUDIOQUEST	AQ PT-5 AQ PT-5+	P P	F F	Yes Yes	Yes Yes	Yes Yes	9 9	12 12			0-3 0-3		3-12 3-12	71 95	1 1/4 1 1/4	350.00 425.00		Optional viscous damping. As above.	
AUDIO-TECHNICA	ATP-12T	P	R	No	No	†	10 1/8	14 1/8	1.55	1-3			3-23	300	7/8	275.00		†Built-in VTF gauge.	
BROADCAST ELECTRONICS	S-320 S-260	P P	R R	Yes Yes	Yes Yes	Yes Yes	7 7/8 11 1/8	12 1/4 15 3/4	1 1	1 1			4-12 4-12	120 120	7/8 7/8	200.00 250.00			
DENNESEN	A8LT-1	A	W	Yes		Yes	Adj.	12	0	Adj.			Any	100		2000.00			
EMINENT TECHNOLOGY	Two	A	W	Yes		Yes	7 3/8	10 3/4	0	0-5			0-16	22		950.00		Includes air pump; optional fluid damping, \$95.00.	
GOLOMUND	T5 T3F(RD)	L/S L/S	R R	Yes Yes		Yes Yes					1-3 1-3		4-20 4-25			2195.00 4990.00		Fully automatic; computer-controlled.	
GRAHAM ENGINEERING	1.5	P	W	Yes	Yes	Yes	9 1/4	11 3/4	0.2	0.5-3.0			4-20		†	2140.00		†SME-compatible base mount. Precision alignment system.	
HEYBROOK	Heybrook Arm	P	F	Yes	Yes	Yes		11 5/8					0-3			549.00		Magnesium armtube.	
LINN HI-FI	Ekos Ittok-LVIII Basik Plus Akito	P P P P	F F F F	Yes Yes Yes Yes	Yes Yes Yes Yes	No No No No	9 9 9 9	11 1/4 11 1/4 11 1/4 11 1/4			0.75-3.00 0.75-3.00 0.75-3.00 0.75-3.00		2-10 2-10 2-10 2-10		1 1/4 1 1/4 1 1/4 1 1/4	1995.00 1195.00 295.00 395.00			
MAYWARE	Formula V	P	F/R	Yes	Yes	Yes	9	11 1/2			0.75-3			100	3/4			Variable effective mass; viscous damping; unipivot.	
MÖRCH	UP-4 DP-6	P P	W W	Yes Yes	Yes Yes	Yes Yes	9 1/8 9 1/8	11 3/4 11 3/4			0.75-3 0.75-3		3-15 3-15	128 128	7/8 7/8		†	†With copper wire, \$560.00; with silver wire, \$695.00. Choice of six armtubes; unipivot; viscous damping. Armtube choice and damping as above; dual bearings.	
NAIM AUDIO	ARD	P	F	No	Yes	Yes	9	11 1/2					5.5-12		3/4	1495.00		Unipivot design.	
ORACLE	Beta Oracle SME 345	P P	F R	Yes Yes	Yes Yes	Yes Yes	9 9 1/8	11 1/2 12	0.2	0-3 0-3			3-12 5-10	140	1 1/8 x 2 3/4	350.00 From 1395.00			
PREMIER	Studio FT-3K FT-4 MMT	P P P P	R F F R	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes	9 1/2 9 1/2 9 1/2 9 1/2	12 12 12 12			0-3 0-3 0-3 0-3		4-14 4-14 4-14 4-14	86	1 1/4 3/4 3/4 3/4	400.00 395.00 550.00 290.00		Damped tube. As above; azimuth adjustable; RCA connectors on interface box. As above; VTA lift base. Azimuth adjustable.	
REVOLVER	Revolver Revolver Super	P P P	F F F	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	9 9 9	11.2 11.2			0.75-3.00 0.75-3.5		2.0-10.0 1.0-12.0	45 45	1.2 1.2	220.00 500.00			
ROKSAN	Artemiz Tabriz Tabriz-zi	P P P	F F F	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes					1.0-2.5 1.0-2.5 1.0-2.5					1250.00 350.00 500.00			
JEFF ROWLAND DESIGN GROUP	Complement	P	F	Yes	Yes	Yes	9.65	12.6	1.5	0-3.5			6-35		1.5	2400.00			
SIMPLYPHYSICS	Aviator II Signature	A/L A/L	F F	Yes Yes		Yes Yes	4 1/2 4 3/4		0 0	1.25-3.0 1.00-4.0			4-12 3-15		3/8 3/8	1000.00 2000.00		Includes air pump and air-flow valve. As above; adjustable azimuth; 4-inch diameter air gauge.	
SME	Series IV Series V 309	P P P	F F F	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	9 1/8 9 1/8 9 1/8	11 5/8 11 5/8 11 5/8			0-3 0-3 0-3		4-18 4-18 4-18	140 140 140	1 1/8 x 2 3/4 1 1/8 x 2 3/4 1 1/8 x 2 3/4	1500.00 2250.00 950.00		Damped magnesium casting; ABEC-3 bearings; adjustable static tracking; optional fluid damping. Casting as above; ABEC-7 bearings; adjustable dynamic and static tracking; fluid damping; VTA lift. Removable headshell; gold-plated phono plugs.	
TOWNSHEND AUDIO	Excalibur	P	F	Yes	Yes	Yes	7.9	10	0.5	0.5-2.5			4-20	200		1100.00			
WELL TEMPERED LAB	Well Tempered Classic Well Tempered Record Player Well Tempered Signature	P P P P	F F F F	No No Yes Yes	Yes No Yes Yes	Yes Yes Yes Yes	9 9 10 10	11 3/8 11 3/8 12 12							1/4 5/8 3 1/2	825.00 580.00		Variable viscous damping. As above. As above; special order.	
WHEATON MUSIC	Triplanar II Improved	P	F	Yes	Yes	Yes	9 3/4	11 3/4	0.03	1-3			4-22			1795.00		Azimuth adjustable.	
ZETA	Std. VdH	P P	F F	Yes Yes	Yes Yes	Yes Yes	9 9	11 1/2 11 1/2			0.75-4 0.75-4		4-12 4-12	90 90	1 1/4 1 1/4	925.00 1180.00			



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STYLUS TYPE C—Conical S—Spherical E—Elliptical M—MicroLine, MicroRidge, or similar V—Van den Hul X—Hyper-Elliptical, Stereohedron, Fine Line, Line Contact, Long Line, Line Trace, or similar	MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Pivoting: Moving Iron—M, Magnetically—Mr, Moving Coil—MC.		Individual Response	Channel Separation: 1 kHz, dB	Channel Separation: 10 kHz, dB	Output, mV, 1 kHz, 5 cm/Sec. rms Lateral Velocity	Recommended Tracking Force Range, Grams	Recommended Load Capacitance, pF	Stylus Type—See Code	Stylus Radius (Radius), Mils	Dynamic Compliance, μm/mNm Vertical/Lateral	Stylus Replacement: User = U, Factory = F	Mounting: Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$				
				No	Yes																		
ADCOM		HC-E II	20-20 +2.5,-1	MC	No	22	22	2.3	1.6-2.0		E	0.3 x 0.7		F	S	4.7	160.00	88.00					
		HP-E II	20-20 +2.5,-1	MC	No	22	22	2.3	1.25		E	0.3 x 0.7		F	P	4.7	160.00	88.00					
		HC-vdH II	20-20 +2.5,-1	MC	No	22	22	2.3	1.6-2.0		V	0.2 x 2.8		F	S	4.7	250.00	138.00					
		XC-LT II	20-20 ±1	MC	No	25	25	2.3	1.6-2.0		X	0.15 x 1.5		F	S	4.7	290.00	160.00					
		XC-MR II SXC-vdH	20-20 ±1 20-20 +3,-1	MC MC	No No	25 25	25 25	2.3 2.3	1.6-2.0 1.8		M V	0.15 x 3.0 0.15 x 3.3		F F	S S	4.7 4.7	360.00 500.00	198.00 275.00					
ARCAM		E77Mg P77Mg	20-20 ±2.5 20-20 ±2.5	MM MM	No No	20 20	15 15	4 4	1.6-2.0 1.6-2.2	200-400 200-400	E X	0.3 x 0.7 0.3 x 2.0	20/20 20/20	U U	S S	6.2 6.2	119.95 149.95	59.95 89.95					
		ARGENT	Diamond MC-110 MC-300 MC-310 MC-500H MC-500HS MC-500HR	10-50 10-50 10-40 10-40 10-40 10-50 10-50	MC MC MC MC MC MC	Yes Yes Yes Yes Yes Yes	30 30 25 25 25 25	25 25 20 20 20 20	0.2 0.2 0.1 0.1 1.9 1.9	1.8-2.2 1.8-2.2 1.8-2.2 1.8-2.2 1.8-2.2 1.8-2.2	100 100 100 100 100 100	X X X X X X	0.3 x 0.6 0.3 x 0.6 0.3 x 0.6 0.3 x 0.7 0.3 x 0.6 0.3 x 0.6	8/8 8/8 8/8 8/8 8/8 8/8	F F F F F F	S S S S S S	8 8 7 7 7 7	1200.00 300.00 150.00 100.00 200.00 260.00 300.00	600.00 120.00 60.00 40.00 100.00 130.00 150.00				
AUDIO INNOVATIONS			Symphony of the Air		MC				0.02	3.00-4.00		V			F			2500.00					
			AUDIOQUEST	AQ M-1 AQ MC-3 AQ MC-4 AQ MC-5 AQ 4041-MH AQ 4041-L AQ B-200MH AQ B-200L AQ 7000	15-30 15-35 10-40 10-40 10-50 10-50 10-50 10-50 10-50	IM MC MC MC MC MC MC MC MC	No Yes No No Yes Yes Yes Yes No	25 25 25 30 30 30 30 30 30	20 20 20 25 25 25 25 25	3.0 2.5 2.5 1.4 1.4 1.9 0.5 1.4 0.5 0.3	1.5 2.0 1.8 1.8 1.9 1.9 1.9 1.9												
AUDIO-TECHNICA	AT201P AT201EP AT211EP AT216EP AT221EP AT231LP AT232EP AT152MLP ATP-1 AT70 AT71E AT105 AT110E AT120 E.T AT125 LC.T AT130 E.T AT140ML ATML170 ATP-2 ATP-2XN (w/2 Stylus) ATP-3			20-22 ±1 20-25 ±1 15-25 ±1 15-27 ±1 10-28 ±1 10-30 ±1 10-30 ±1 5-35 ±1 20-20 ±1.5 20-20 ±1.5 20-22 ±1.5 20-20 ±1 20-22 ±1 15-25 ±1 10-28 ±1 10-30 ±1 5-32 ±1 5-40 ±1 15-22 ±1.5 15-22 ±1.5 15-25 ±1.5	MM MM	No No	26 26 29 29 31 31 31 31 21 20 22 26 26 29 29 30 30 31 23 23 23 23	16 16 18 18 20 20 20 20 16 15 16 16 16 16 17 17 17 17 17 17 17 17	5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 3.5 3.5 3.5 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	1.0-1.5 1.0-1.5 1.0-1.5 1.0-1.5 1.0-1.5 1.0-1.5 1.0-1.5 1.0-1.5 1.5-2.5 1.2 1.5-2.5 1.0-2.0 1.0-1.8 1.0-1.8 0.8-1.8 0.8-1.6 0.3-1.25 3-5 3-5 3-5	100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 100-200 200 200	C E E E E E E E C C C C C C E E E E E	0.6 0.4 x 0.7 0.4 x 0.7 0.3 x 0.7 0.2 x 0.7 0.2 x 0.7 0.6 0.6 0.4 x 0.7 0.6 0.4 x 0.7 0.3 x 0.7 0.3 x 0.7 0.2 x 0.7 0.2 x 0.7 0.2 x 0.7 0.4 x 0.7 0.4 x 0.7										
	A.V.A.				Longhorn Z	10-60 ±1.5	IM	No	35	30	5.6	1.5-2.0		E	0.3 x 0.6		U	F	S	8	99.00	45.00	
					BANG & OLUFSEN	MMC 1 MMC 2 MMC 3 MMC 4 MMC 5	20-20 ±1 20-20 ±1.5 20-20 ±2 20-20 ±2.5 20-20 ±3	MI MI MI MI MI	Yes Yes Yes Yes Yes	20 25 25 22 20	22 20 20 17 15	2.12 2.12 2.12 2.12 2.12	1 1 1.2 1.2 1.5	200-400 200-400 200-400 200-400 200-400	X X E E E	0.1 x 0.1 0.12 x 0.12 0.15 x 0.15 0.2 x 0.2 0.25 x 0.25		No No No No No	I I I I I	1.6 1.6 1.6 1.6 1.6	499.00 269.00 169.00 99.00 69.00		
						BENZ-MICRO	MC-100 MC-200 MC-3	15-25 ±0.5 15-25 ±0.5 10-50 ±0.5	MC MC MC	Yes Yes Yes			0.4 2.0 0.3	1.6-2.0 1.6-2.0 1.75-1.9		M M M			F F F	S S S	7.5 7.5 7.2	800.00 1200.00 1500.00	400.00 600.00 750.00
							DENON	DL-304 DL-303 DL-302 DL-160 DL-110	20-75 20-75 20-70 20-50 20-46	MC MC MC MC MC		28 28 28 28 25		0.18 0.2 0.25 1.6 1.6	1.0-1.4 1.0-1.4 1.2-1.6 1.5-2.1 1.5-2.1					F F F F F	S S S S S	5.8 6 6 4.8 4.8	395.00 350.00 260.00 115.00 85.00
		DYNAVECTOR						XX-1L XX-1 17D2 MkII 23RS MkII 10X4 MkII 50X MkII	20-20 ±1.0 20-20 ±1.0 20-20 ±1.0 20-20 ±1.0 20-20 ±2.0 20-20 ±2.0	MC MC MC MC MC MC	Yes Yes Yes Yes No No	30 30 25 25 25 25		0.25 2.0 0.15 0.15 2.0 2.0	1.9-2.3 1.8-2.2 1.8-2.0 1.7-1.9 1.5-1.9 1.5-1.7		M X M M E			F F F F F	S S S S S	12 12 5.3 5.3 4.6 4.5	1000.00 1000.00 560.00 430.00 240.00 190.00
	EPOCH			HZ9S LZ9E LZ8S HZ8S HZ7S HZ6E		10-30 10-50 10-40 10-30 10-25 10-22		MM MM MM MM MM MM	Yes Yes No No No No	35 35 35 35 32 32	22 22 22 22 20 15	4.0 0.2 0.2 0.2 4.0 4.0	0.75-1.5 0.75-1.5 0.75-1.5 0.75-1.5 0.75-1.5 0.75-1.5	275 275 275 275	X X X X X E	0.3 x 2.8 0.3 x 2.8 0.3 x 2.8 0.3 x 2.8 0.3 x 2.8 0.2 x 0.7	25 25 20 20 17 15	U U U U U U	S S S S S S	4 3.8 3.8 4 4 4	250.00 250.00 190.00 190.00 120.00 95.00	90.00 90.00 75.00 75.00 50.00 40.00	
				EXCELSIOR SOUNDS	ZEN Goldline ZEN Goldline	10-50 ±1.5 10-50 ±1.5		MC MC	Yes Yes	30 30		0.4 2.5	1.8 1.8		M M			F S	S S	4.8 4.9			

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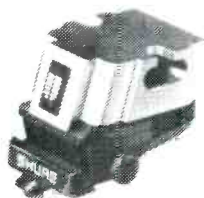
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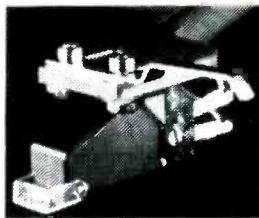
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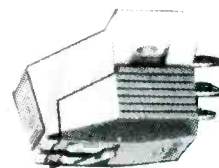
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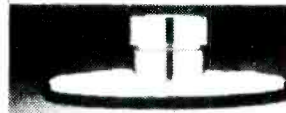
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STYLUS TYPE C—Conical S—Spherical E—Elliptical M—MicroLine, MicroRidge, or similar V—Van den Hul X—Hyper-Elliptical, Stereohedron, Fine Line, Line Contact, Long Line, Line Trace, or similar	MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Principle Moving Iron—MI Induced Magnet—IM Moving Magnet—MM	Individual Response Curve Supplied?	Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Output, mV 1 kHz, 5 cm Sec. rms Lateral Velocity Range, Grams	Recommended Tracking Force	Stylus Type—See Code	Stylus Radius (Radius), Mills	Dynamic Compliance, μm/mN Vertical/Lateral	Stylus Replacement: User = U, Factory = F	Mounting: Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$	
																		MC
	GOLOMUNO	Goldmund Gold		MC				2-2.2		X					6.4	1950.00	1170.00	
	GOLORING	Excel	20-30 ±2	MC	Yes	25	0.5	1.5-2.0	100-500	V	VOH I	16/16	F	S	8.5	1195.00	795.00	
		Elite	20-30 ±2	MC	Yes	25	0.5	1.5-2.0	100-500	V	GYGER I	18/18	F	S	5.7	495.00	330.00	
		Eroica Low Out	20-30 ±2	MC	No	25	0.5	1.5-2.0	200-1000	V	GYGER II	18/18	F	S	5.5	325.00	182.00	
		Eroica High Out	20-22 ±3	MC	No	25	2.5	1.5-2.0	100-500	V	GYGER II	18/18	F	S	5.5	275.00	154.00	
		G1042	20-20 ±2	MM	No	25	6.5	1.5-2.5	150-200	V	GYGER S	24/16	U	S	6.3	250.00	140.00	
		G1022	20-20 ±2	MM	No	25	6.5	1.5-2.5	150-200	V	GYGER II	24/16	U	S	6.3	175.00	98.00	
		G1012	20-20 ±2	MM	No	25	6.5	1.5-2.5	150-200	V	GYGER I	24/16	U	S	6.3	125.00	70.00	
		G1012 78rpm	20-20 ±2	MM	No	25	6.5	1.5-2.5	150-200	V	GYGER I	24/16	U	S	6.3	125.00	70.00	
		Epic II	20-20 ±3	MM	No	20	6.0	1.7-5	150-400	E	0.7 x 0.3	20/16	U	S	7.0	99.00	55.00	
		Elan	20-20 ±3	MM	No	20	5.0	1.5-3.0	150-400	S	0.6	16/16	U	S	4.2	60.00		
	GRAAO	Z2 +	10-60	MI	No	25	1.4	1.5		E			U	P/S	5.5	265.00	110.00	
		Z1 +	10-60	MI	No	25	1.4	1.5		E			U	P/S	5.5	180.00	75.00	
		Z +	10-55	MI	No	25	4.0	1-2		E			U	P/S	5.5	130.00	55.00	
		ZF1 +	10-55	MI	No	25	4.0	1-2		E			U	P/S	5.5	110.00	45.00	
		ZF2 +	10-55	MI	No	25	4.0	1-2		E			U	P/S	5.5	86.00	36.00	
		ZF3E +	10-55	MI	No	25	4.0	1-2		E			U	P/S	5.5	69.00	33.00	
		ZCE + 1	10-50	MI	No	20	4.0	1-2		E			U	P/S	5.5	55.00	30.00	
		ZTE + 1	10-50	MI	No	20	4.0	1-2		E			U	P/S	5.5	25.00	17.00	
		ZCE +	10-50	MI	No	20	4.0	2-3		E			U	S	5.5	45.00	28.00	
		ZTE +	10-50	MI	No	20	4.0	2-3		E			U	S	5.5	30.00	21.00	
	JOSEPH GRAAO SIGNATURE PRODUCTS	XTZII		Flux Bridge	No	35	2.2	1.5			0.15 x 0.9		U	S	5	750.00	375.00	
		TLZII		Flux Bridge	No	35	2.2	1.5			0.15 x 0.9		U	S	5	500.00	250.00	
		MCZII		Flux Bridge	No	35	2.2	1.5			0.2 x 0.2		U	S	5	300.00	150.00	
		8MZII		Flux Bridge	No	35	5	1.5			0.2 x 0.2		U	S	5	200.00	100.00	
	KISEKI	Black Heart	20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	10/10	F	S	7.5	2500.00	1625.00
		Lapis Lazuli	20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	8/8	F	S	11	5600.00	3100.00
		Agaat Ruby	20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	8/8	F	S	7.5	1250.00	850.00
		Purple Heart	20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	8/8	F	S	7.5	975.00	680.00
		Sapphire	20-50	MC	Yes	30	25	0.4	2.0		X	0.3 x 0.7	10/10	F	S	11	600.00	360.00
	Blue Gold	20-50	MC	Yes	30	25	0.4	2.0		X	0.3 x 0.7	10/10	F	S	11	600.00	360.00	
	KOETSU	EMC-Black Goldline	15-45 ±2	MC		25			1.6-1.95		X		U	S		795.00	575.00	
		EMC-Rosewood	10-50 ±2	MC		30			1.6-2.0		X		U	S		1250.00	700.00	
		EMC-Rosewood Sig.	10-50 ±2	MC		35			1.5-2.0		X		U	S		1950.00	1200.00	
		Urushi		MC					1.9-2.1	140	X				12	2500.00		
		Rosewood PRO IV		MC					1.9-2.1	140	X			10	3500.00			
	LINN HI-FL	Basik III		MM	No				1.8		S				5	75.00	45.00	
		K5		MM	No				1.7		E	0.2 x 0.8	U	S	5.5	150.00	90.00	
		K9		MM	No				1.7		E	0.2 x 0.8	U	S	5.5	275.00	165.00	
		K18		MM	No				1.7		E	0.2 x 0.8	U	S	6.0	450.00	270.00	
		Asaka		MC	No				1.7		E	0.2 x 0.8	F	S	6.0	895.00	596.66	
		Karma		MC	No				1.7		E	0.2 x 0.8	F	S	6.0	1295.00	863.34	
		Troika		MC	No				1.7		E	0.2 x 0.8	F	S	6.0	1895.00	1263.34	
	LYRA	Lydian	10-50	MC		35		0.25	1.8-2.0		X		F	S	9	900.00		
		Clavis	10-50	MC		35		0.25	1.8-2.0		X		F	S	9	1350.00		
		Parnassis	10-50	MC		35		0.25	1.8-2.0		X		F	S	9	2200.00		
	JOHN MAROVSKIS	JMAS MIT-1	10-10 ±1.0	MC	No	25	20	0.25	2.25-2.5	500	V	0.2 x Line	16	F	S	5.5	550.00	275.00
	MAYWARE	MC-7V-III	10-50 ±1.5	MC	Yes	30		0.3	1.75		E	0.2 x 0.8		F	S	4.8		
		MC-7V-III	10-50 ±1.5	MC	Yes	30		2.5	1.75		E	0.2 x 0.8		F	S	4.8		
	MONSTER CABLE	Alpha Genesis 1000 Mk. II	20-20 ±1	MC		30		0.2	1.5-2.0				12/15			4.2	800.00	
		Alpha Genesis 500	20-20 ±1	MC		30		0.2	1.5-2.0				12/15			4.2	500.00	
		Sigma Genesis 2000	20-20 ±1	IM		30		0.2	1.5-2.5		M	0.3 x 6.0	12/15			4.2	1250.00	
	ORTOFON	MC3000MII	5-55 +3,-1	MC	No	25		0.15	1.7-2.2		X		13/13	F	S		1500.00	800.00
		MC2000H	10-50 +3,-1	MC	No	25		0.15	1.7-2.2		X		13/13	F	S		1000.00	500.00
		MC30 Super II	20-40 +4,-1	MC	No	25		0.25	1.6-2.0		X		16/16	F	S	10	600.00	300.00
		MC20 Super	10-50 +3,-1	MC	No	25		0.25	1.5-1.9		X		17/17	F	S	9	300.00	175.00
		MC10 Super	10-30 +5,-1	MC	No	25		0.3	1.3-1.8		X		14/14	F	S	9	100.00	75.00
		HMC30	20-40 +4,-1	MC	No	27		0.5	1.8-2.2		X		14/14	F	S	10	500.00	250.00
		HMC20	20-30 +4,-1	MC	No	26		0.5	1.8-2.2		X		14/14	F	S	10	400.00	200.00
		HMC10	20-25 +4,-1	MC	No	24		0.5	1.8-2.2		X		14/14	F	S	10	350.00	175.00
		MC3 Turbo	20-40 +3,-1	MC	No			3.3	1.8-2.2		X		13/13	F	S	5	200.00	100.00
		MC1 Turbo	20-30 +3,-1	MC	No			3.3	1.8-2.2		X		13/13	F	S	5	150.00	75.00
		X5 MC	15-35 +4,-1	MC	No			2.2	1.7-2.2		X		12/12	F	P/S	5	300.00	150.00
		X3 MC	20-40 +3,-1	MC	No			2.2	1.7-2.2		X		13/13	F	P/S	5	200.00	87.50
		X1 MC	20-30 +3,-1	MC	No			2.2	1.7-2.2		X		13/13	F	P/S	5	100.00	50.00
		540	18-27 +3,-1	MM	No	25		3	1.25-1.5		X		30/30	U	P/S	5	300.00	150.00
		530	20-25 +3,-1	MM	No	25		3	1.25-1.5		X		30/30	U	P/S	5	225.00	120.00
		520	20-23 +3,-1	MM	No	25		3	1.25-1.5		X		25/25	U	P/S	5	150.00	75.00
		510	20-20	MM	No	25		3	1.25-1.5		E		25/25	U	P/S	5	75.00	40.00
		OM40	20-29 +3,-1	MM	No	25		3.5	1.0-1.5	300			45/45	U	P/S	5	300.00	150.00

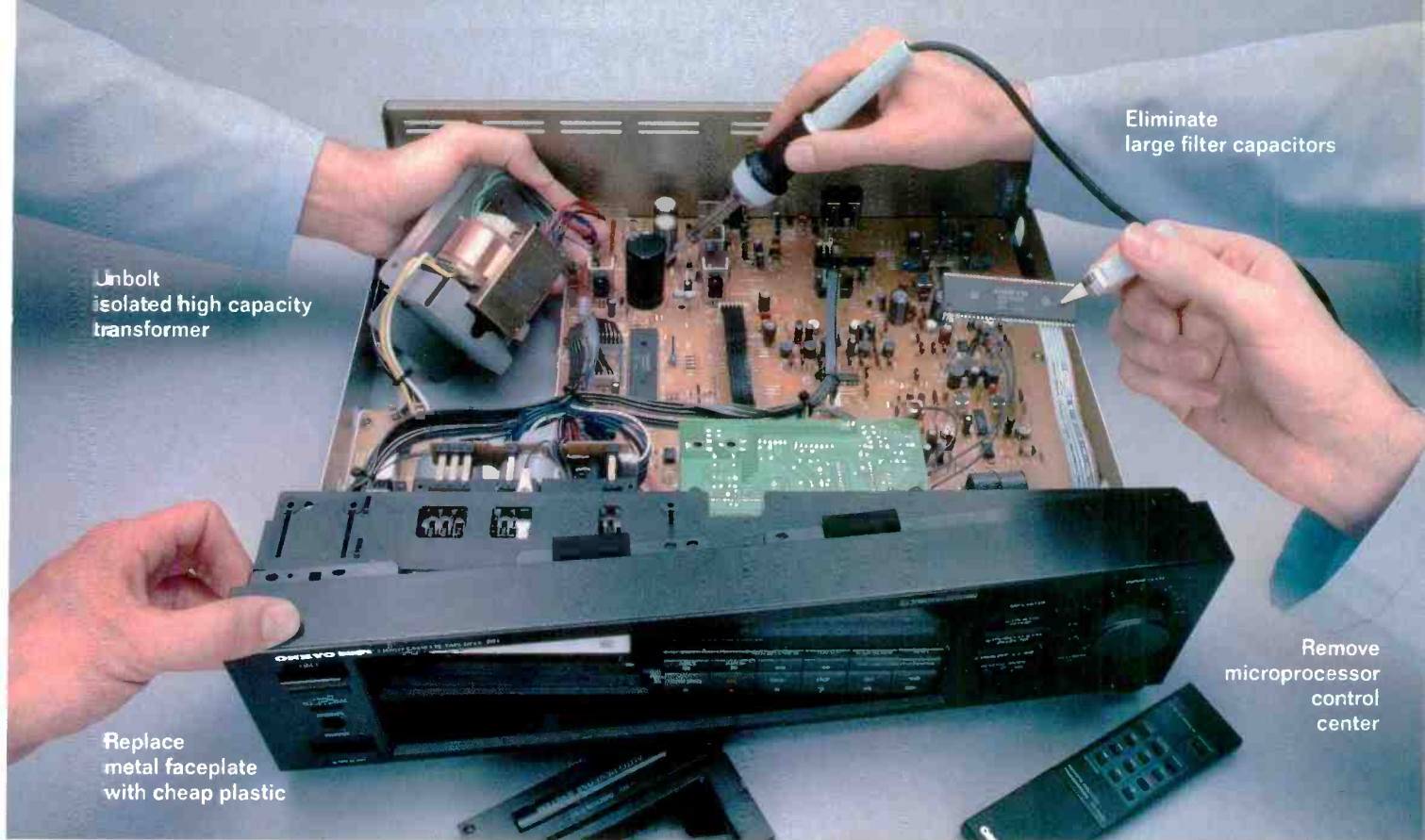
PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Principle: Moving Iron = MI, Moving Magnet = MM, Moving Coil = MC	Individual Response Curve Suppliers?	Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Output, mV, 1 kHz, 5 cm/sec, rms Lateral Velocity Range, Grams	Recommended Tracking Force	Stylus Type—See Code	Stylus Radius (Radius), Mills	Dynamic Compliance, μm/mN, Vertical/Lateral	Stylus Replacement: User = U, Factory = F	Mounting: Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$	
																	STYLUS TYPE C—Conical S—Spherical E—Elliptical M—MicroLine, MicroRidge, or similar V—Van den Hul X—Hyper-Elliptical, Stereohedron, Fine Line, Line Contact, Long Line, Line Trace, or similar
DRTOFON (Continued)	OM30 Super	20-20 +2,-0	MM	No	25	4	1.0-1.5	300	X	0.40 x 0.8	40/35	U	P/S	5	225.00	90.00	
	OM20 Super	20-20 +2,-1	MM	No	25	4	1.0-1.5	300	E	0.18 x 0.8	35/30	U	P/S	5	150.00	60.00	
	OM10 Super	20-20 +3,-1	MM	No	22	4	1.25-1.75	300	E	0.18 x 0.8	30/25	U	P/S	5	75.00	30.00	
	OM5E	20-20 +3,-1.5	MM	No	22	4	1.25-1.75	300	E		25/25	U	P/S	5	50.00	20.00	
	OM3E	20-20 +3,-2	MM	No	20	4	1.25-1.75	300	E		25/25	U	P/S	5	35.00	12.00	
	TM20UD	20-20 +3,-1	MM	No	25	3.5	1.0-1.5	400	X		35/35	U	P/S	6	129.00	75.00	
	TM14U	20-20	MM	No	20	4.5	1.0-1.5	400	E		30/30	U	P/S	6	89.00	30.00	
TM7	20-20	MM	No	20	5	1.0-1.5	400	E		30/30	U	P/S	6	60.00	25.00		
PICKERING	XLZ 7500S	10-50	MM	No	35	0.33	0.75-1.5		X	0.3 x 2.8	30/	U	S	5	275.00	90.00	
	XSV 5000	10-50	MM	No	35	3.8	0.75-1.5	275	X	0.3 x 2.8		U	S	5.6	275.00	80.00	
	XSV/4000	10-36	MM	No	35	3.8	0.75-1.5	275	X	0.3 x 2.8	30/	U	S	5.6	200.00	56.00	
	XSV/3000	10-30	MM	No	35	3.8	0.75-1.5	275	X	0.3 x 2.8	30/	U	S	5.6	130.00	49.95	
	TLZ 7500S	10-50	MM	No	35	0.33	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.9	275.00	90.00	
	XSP/4004	10-36	MM	No	35	3.8	0.75-1.5	275	X	0.3 x 2.8	30/30	U	P/S	5.9	200.00	56.00	
	XSP/3003	10-30	MM	No	35	5.0	0.75-1.5	275	X	0.3 x 2.8	30/30	U	P/S	5.9	130.00	49.95	
	TL-4 Super	10-25	IM	No	35	4.4	0.75-1.5	275	X	0.3 x 2.8	15/15	U	P/S	5.9	170.00	45.00	
	TL-3S	10-25	IM	No	35	4.4	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.9	140.00	40.00	
	TL-2S	10-22	IM	No	35	4.4	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.9	110.00	36.00	
	TL-2E	10-22	IM	No	35	4.4	0.75-1.5	275	E	0.3 x 0.7		U	P/S	5.9	95.00	29.50	
	TL-1	10-20	IM	No	32	4.4	0.75-1.5	275	E	0.3 x 0.7		U	P/S	6	85.00	24.50	
	TL-Type 2	10-20	MM	No	28	3.0	1-1.5	275	E	0.3 x 0.7		U	P/S	6	60.00	22.50	
	TLE	10-20	MM	No	28	4.4	1-1.5	275	E	0.3 x 0.7		U	P/S	6	55.00	20.00	
	XV-15/625E	10-25	IM	No	35	4.4	0.75-1.5	275	E	0.3 x 0.7		U	S	6.3	110.00	30.00	
	XV-15/400E	10-25	IM	No	35	4.4	1-2	275	E	0.4 x 0.7		U	S	6.3	95.00	28.50	
	V-15 Series IIe	10-18	IM	No	22	3.5	1-2	275	E	0.3 x 0.7		U	P/S	6.3	50.00	16.50	
	TL-625DJ	20-20	IM	No	30	4.4	3.5-4	275	E	0.4 x 0.7		U	P/S	8.5	82.00	30.00	
	XV-15/150DJ	10-20	IM	No	28	8.0	2.4	275	S	0.7		U	S	6.3	79.00	16.50	
	XV-15/150DJ (w/2 Stylus)	10-20	IM	No	28	8.0	2.4	275	S	0.7		U	S	6.3	99.00	12.85	
	V-15 DJ	20-20	IM	No	30	4.4	2.5	275	S	0.7		U	S	5.5	43.00	34.75	
	V15-DJ-DP	20-20	IM	No	30	4.4	2.5	275	S	0.7		U	S	5.5	86.00	34.75	
	XV-15/625DJ	20-20	IM	No	30	4.4	1.4	275	S	0.3 x 0.7		U	S	5.5	82.00	30.00	
	XV-15/200E	10-20	IM	No	35	4.4	0.75-1.5	275	E	0.2 x 0.7		U	S	6.3	170.00	35.00	
	XV-15/757S	15-25	IM	No	35	4.4	0.75-1.5	275	X	0.3 x 2.8		U	S	6.3	140.00	43.75	
	XV-15/625E	10-25	IM	No	35	4.4	0.75-1.5	275	X	0.3 x 0.7		U	S	6.3	110.00	30.00	
	XV-15/400E	10-25	IM	No	35	4.4	1-2	275	E	0.4 x 0.7		U	S	6.3	95.00	28.50	
V15 Series IIs	10-25	MM	No	25	3.5	0.75-1.5	275	X	0.3 x 2.8		U	S	5.5	88.00	37.50		
V15 Series II-EE	10-20	MM	No	25	3.5	0.75-1.5	275	E	0.3 x 0.7		U	S	5.5	55.00	21.50		
V-15 Series II-E	10-18	MM	No	22	3.5	1-2	275	E	0.3 x 0.7		U	S	5.5	50.00	16.50		
PIONEER	PC-295T														80.00	35.00	
	PC-290T	10-33													70.00	30.00	
	PC-250T														50.00	20.00	
	PC-5MC	10-32													54.00	32.00	
REALISTIC	Realistic/Shure V15	5-30	MI	Yes	30		1.25-1.75		E	1.5 x 2.0		U	S		79.95		
	Realistic/Shure R25XT	20-20	MI	Yes	20		2.5-3.5		E	0.4 x 0.7		U	S		19.95	14.95	
	Realistic/Shure R47XT	20-20	MI	Yes	25		1.75-2.25		E	0.4 x 0.7		U	S		26.95	17.95	
	Realistic/Shure RXP3	20-20	MI	Yes	29		1.25-1.75		E	0.2 x 0.7		U	P		29.95	19.95	
	Realistic/Shure RXT6	20-20	MI	Yes	25		1.25-1.75		E	0.2 x 0.7		U	P		49.95	24.95	
RENAISSANCE	Renaissance	20-20 ±1	MC	No	30	0.4	1.9		M		15/15	F	S	5	1400.00	924.00	
JEFF ROWLAND DESIGN GROUP	Complement	10-45 ±1.5	MC	No	27	0.2	2.3-2.7		X		6	S	15.7	2500.00			
	LH Complement	10-45 ±1.5	MC	No	27	0.2	2.1-2.5		X		6	S	14.7	1200.00			
SHINON	Black Magnet	10-35	MM	No	30	2.8	1.2-1.5		E		19/	F		6.8	199.00	99.50	
	Black Magnet Super	10-35	MM	No	30	2.8	1.2-1.5		M		19/	F		6.8	319.00	159.50	
	Titan	10-40	MC	No	30	0.4	1.2-1.5		E			F			239.00	119.50	
	MV2.5 Improved	10-45	MC	No	35	2.5	1.75-2.25		X			F			419.00	209.50	
	Saphir Improved	10-45	MC	No	35	0.3	1.75-2.25		X			F			499.00	249.50	
	Red Boron Improved	10-45	MC	No	35	1.0	1.75-2.25		M			F			899.00	449.50	
SHURE	Ultra 500	10-35 ±0.5	MM	No	27	20	3.2	1.2	250	M	0.15 x 3.0	U	S	9.3	415.00	150.00	
	VST V	10-35	MM	No	25	15	3.2	1.0-1.5	250	M	0.15 x 3.0	U	S	6.4	180.00	103.00	
	VST III	20-20	MM	No	25	13	3.0	1.0-1.5	250	X	0.2 x 1.5	U	S	6.6	105.00	51.50	
	VST III-P	20-20	MM	No	25	13	3.0	1.25	250	X	0.2 x 1.5	U	P	5.9	95.00	49.95	
	V15 Type V-MR	20-28 ±0.75	MM	Yes	25	18	3.2	1.0-1.25	250	M	0.15 x 3.0	U	S	6.6	297.00	140.00	
	M110HE	20-20	MM	No	25	4.0	1.25	250	X	0.2 x 1.5		U	P/S	5.9	122.95	56.95	
	M104E	20-20	MM	No	20	5.0	1.25	250	E	0.2 x 0.7		U	P/S	5.9	77.95	35.95	
	M99E	20-20	MM	No	20	5.0	1.25	250	E	0.2 x 0.7		U	P/S	5.9	55.95	26.95	
	M92E	20-18	MM	No	20	5.0	1.25	250	E	0.4 x 0.7		U	P/S	5.9	33.95	20.95	
	M55E	20-20	MM	No	20	6.2	0.75-2	450	E	0.2 x 0.7		U	S	6.7	72.95	30.95	
	M44E	20-20	MM	No	20	9.5	1.75-4.0	450	E	0.4 x 0.7		U	S	6.7	63.95	28.95	
	M44C	20-20	MM	No	20	9.5	3.0-5.0	450	S	0.7		U	S	6.7	56.95	25.95	
	M44B	20-20	MM	No	20	6.2	0.75-1.5	450	S	0.6		U	S	6.7	58.95	26.95	
	M44-7	20-20	MM	No	20	9.5	1.5-3	450	S	0.7		U	S	6.7	56.95	25.95	
	ME97HE	20-20	MM	No	25	4.0	0.75-1.5	250	X	0.2 x 1.5		U	S	6.6	89.95	41.95	
	ME95ED	20-20	MM	No	25	4.7	0.75-1.5	250	E	0.2 x 0.7		U	S	5.8	64.95	29.95	
	ME75ED	20-20	MM	No	25	6.0	0.75-1.5	250	E	0.2 x 0.7		U	S	6.1	49.95	35.95	
	ME70B	20-20	MM	No	20	6.0	1.5-3.0	250	S	0.6		U	S	6.5	21.95	17.95	
	ME75-6	20-20	MM	No	20	6.0	1.5-3.0	250	S	0.6		U	S	6.5	21.95	25.95	
	SC35C	20-20	MM	No	20	10	5.0	4-5	450	S	0.6		U	S	6.2	50.00	19.00
	SC39EJ	20-20	MM	No	20	4.0	1.5-3	250	E	0.4 x 0.7		U	S	6.3	78.00	35.90	

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Pinpoint, Moving Iron = MI, Moving Magnet = MM, Moving Coil = MC	Individual Response Curve Supplied?	Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Output, mV, 1 kHz, 5 cm Sec. rms Lateral Velocity	Recommended Tracking Force	Recommended Load Capacitance, pF	Stylus Type—See Code	Stylus Radius (Radius), Mills	Dynamic Compliance, μm/mN, Vertical/Lateral	Stylus Replacement, User = U, Factory = F	Mounting, Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$	
SIGNET	AT-0C9	15-50	MC	Yes	29	20	0.4	1.25-1.75		E	0.2 x 0.7		F	S	7.8	395.00		
	AT-F5	15-50	MC	No	29	20	0.3	1.25-1.75		E	0.2 x 0.7		F	S	5	200.00		
	AM50	5-37	MM	Yes	33	25	5	0.8-1.8		M			U	S	6	350.00		
	AM40	5-35	MM	Yes	33	23	5	0.8-1.6		X			U	S	6	275.00		
	AM30	5-30	MM	Yes	30	20	5	0.8-1.6		E	0.3 x 0.7		U	S	6	225.00		
	AM20	10-30	MM	No	29	19	5	0.9-1.9		E	0.3 x 0.7		U	P/S	6	195.00		
	AM10	15-25	MM	No	27	17	5	1.3-2.3		E	0.3 x 0.7		U	P/S	6	125.00		
	107	10-30	MM	No	31	21	3	1.6		X			U	P/S		150.00		
	105	15-27	MM	No	29	18	5	1.6		E	0.3 x 0.7		U	P/S		110.00		
	103	15-25	MM	No	25	17	5	1.6		E	0.4 x 0.7		U	P/S		90.00		
	101	20-20	MM	No	24	15	5	1.6		E	0.6		U	P/S		60.00		
	100	20-22	MM	No	22	15	4.2	1.5-2.5		E	0.4 x 0.7		U	S		60.00		
SPECTRAL AUDIO	MCR-1 Signature	10-20 ± 0.5	MC		40	35	0.2	1.8		X			F	S	8.9	1190.00		
	MCR-1 Select	10-20 ± 0.5	MC		40	35	0.2	1.8		X			F	S	9.5	990.00		
STANTON	981LZ MKIIS	10-50	MM	Yes	35	25	0.3	0.75-1.5		X	0.3 x 2.8	30/	U	S	5.5	250.00	90.00	
	981HZ MKIIS	10-50	MM	Yes	35	25	3.5	0.75-1.5	275	X	0.3 x 2.8	30/	U	S	5.5	250.00	90.00	
	881 MKIIS	10-25	MM	Yes	35		3.5	0.75-1.5	275	X	0.3 x 2.8	30/	U	S	5.5	180.00	75.00	
	681EEE MKIIS	10-22	IM	Yes	35		3.5	0.75-1.5	275	X	0.3 x 2.8	25/	U	S	6.3	120.00	45.00	
	L847S	10-36	MM	No	35		2.5	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.9	198.00	60.00	
	L747S	10-30	MM	No	35		3.0	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.9	155.00	55.00	
	L737S	10-25	MM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8		U	P/S	5.7	138.00	40.00	
	L737E	10-22	MM	No	35		4.4	0.75-1.5	275	E	0.3 x 0.7		U	P/S	5.7	110.00	36.00	
	L727E	10-20	MM	No	32		4.4	0.75-1.5	275	E	0.3 x 0.7		U	P/S	5.7	83.00	24.50	
	L725E	10-22	MM	No	28		3.0	0.75-1.5	275	E	0.4 x 0.7		U	P/S	5.7	60.00	22.00	
	L720EE	10-20	MM	No	28		3.2	0.75-1.5	275	E	0.4 x 0.7		U	P/S	5.7	55.00	20.00	
	L680EL	20-18	IM	No	28		4.5	4-5	275	E	0.4 x 0.7	13.5/	U	P/S	8.4	106.00	30.00	
	680EL	20-18	IM	No	30		4.5	2-5	275	E	0.4 x 0.7	13.5/	U	S	5.5	106.00	30.00	
	681SE	10-10	IM	Yes	35		4.5	2-4	275	S	0.4 x 0.7	12.5/	U	S	5.5	110.00	39.00	
	680AL	20-18	IM	No	30		4.5	2-5	275	S	0.7	13/13	U	S	5.5	90.00	25.00	
	500AL	20-17	MM	No	28		4.0	2-5	275	S	0.7	10/	U	S	5	58.00	12.00	
	500AL-MP	20-17	MM	No	28		4.0	2-5	275	S	0.7	10/	U	S	5	122.00	22.00	
	L500AL	20-17	MM	No	28		4.0	3.5-4	275	S	0.7		U	P/S	8.4	53.00	16.00	
	500AL-DP	20-17	MM	No	28		4.0	3.5-4	275	S	0.7		U	S	6.3	30.00	43.75	
	680EE(S)	20-20	MM	No	35		3.5	1-2	275	X	0.3 x 0.7	18/18	U	S	6.3	72.50	27.50	
	680EE	20-20	IM	No	35		3.5	0.75-1.5	275	E	0.3 x 0.7	18/18	U	S	6.3	80.00	31.25	
	680EL-MP	20-18	IM	No	30		4.5	2-5	275	E	0.4 x 0.7	13.5/	U	S	5.5	149.00	55.00	
	500EE MKII	10-22	MM	No	35		4.5	0.75-1.5	275	E	0.3 x 0.7	16/	U	S	5.5	60.00	20.00	
	500E MKII	10-22	MM	No	35		0.8	0.75-1.5	275	E	0.4 x 0.7	14/	U	S	5.5	55.00	15.00	
	STC-740	10-20	MM	No	32		4.4	0.75-1.5	275	E	0.4 x 0.7		U	S	5.9	44.00	24.50	
	STC-730	10-22	MM	No	28		3.0	0.75-1.5	275	E	0.4 x 0.7		U	P/S	5.9	33.00	22.00	
	STC-710	10-20	MM	No	28		3.0	0.75-1.5	275	S	0.4 x 0.7		U	P/S	5.5	22.00	15.00	
	890AL	20-20	MM	No	30		3.0	2-7	275	S	0.7		U	S	5.5	125.00	36.75	
	680AL	20-18	MI	No	28		1.1	2-5	275	S	0.7	10/	U	S	5.5	90.00	25.00	
	Collector's Series 100	20-20 ± 1	MM	No	35		3.2	0.75-1.5	275	X	0.3 x 2.8	30/	U	S	5.5	300.00	110.00	
	SUMIKO	Blue Point	15-35	MC	No	32	32	3.0	1.25-1.7		E	0.3 x 0.7	15/15	F	P/S	5.9	125.00	
		Oyster	30-20	MM	No	25	25	4.0	1.5-2.5		S	0.6	12/12	U	S	5.3	30.00	
Black Pearl		18-27	MM	No	28	28	5.0	1.5-2.0		S	0.5	15/15	U	S	6.0	50.00		
Pearl		12-30	MM	No	30	30	5.0	1.5-2.0		S	0.2 x 0.8	15/15	U	S	6.0	75.00		
TALISMAN	AT	20-40	MC	Yes	25	22	0.20	1.5-2.1		E	0.3 x 0.7	15/15	F	S	6.3	225.00	135.00	
	BvdH	10-50	MC	Yes	30	30	0.26	1.5-2.1		V	0.1 x 3.0	15/15	F	S	6.3	325.00	195.00	
	SvdH	10-60	MC	Yes	30	30	0.26	1.8-2.2		V	0.1 x 3.0	18/18	F	S	6.3	395.00	235.00	
	Alchemist IAT	20-40	MC	Yes	25	22	1.8	1.5-2.1		E	0.3 x 0.7	15/15	F	S	6.7	300.00	180.00	
	Alchemist IIIS vdh	10-60	MC	Yes	30	30	1.8	1.8-2.2		V	0.1 x 3.0	18/18	F	S	6.7	495.00	300.00	
	Alchemist IIB vdh	15-32	MC	Yes	35	30	1.8	1.8-2.2		V	0.1 x 3.0	15/15	F	S	6.7	475.00	285.00	
	+2,-0.5	15-32	MC	Yes	35	30	1.8	1.8-2.2		V	0.1 x 3.0	15/15	F	S	7.5	850.00	510.00	
	Virtuoso Boron	+2,-0.5	MC	Yes	35	30	1.8	1.8-2.2		V	0.1 x 3.0	15/15	F	S	7.5	1200.00	720.00	
Virtuoso DTi	15-32	MC	Yes	35	30	1.8	1.8-2.2		V	0.1 x 3.0	15/15	F	S	7.5				
+2,-0.5																		
TECHNICS	EPC-P550	20-35 ± 3	MM	No	25		2.5	1.25		E	0.3 x 0.7		U	P	6	139.00		
	EPC-P540	20-35 ± 3	MM	No	25		2.5	1.25		E	0.3 x 0.7		U	P	6	109.00		
	EPC-P530	20-35 ± 3	MM	No	25		2.5	1.25		E	0.3 x 0.7		U	P	6	79.00		
VAN DEN HUL	MC-10	20-20 ± 0.75	MC	Yes	40	30	0.5	1.3-1.5		V			F	S	7.3	775.00	387.50	
	MC-One	20-20 ± 0.75	MC	Yes	40	30	0.7	1.3-1.5		V			F	S	7.3	1075.00	537.50	
	Grasshopper		MC	Yes	50	40	0.5	1.3-1.5		V			F	S		2700.00		
	MM-1		MM	No	26	20	5	1.0-1.25		V			U	S		350.00	175.00	
WIN RESEARCH	FET-10 & Source Module	0-50 ± 1	FET	Yes	35	28	1V	1.25		X		20/20	F	S	6	3500.00	650.00	
YAMAHA	MC-100	20-20	MC	No	28		0.2	1.2-1.6		E	0.3 x 1.6	12/14	F	S	9.5	300.00		
	MC-10	20-20	MC	No	27		0.3	1.4-2.0		E	0.3 x 0.8	8/10	F	S	5.4	120.00		
	MC-21	20-20	MC	No	28		2.0	1.4-2.0		E	0.3 x 0.8	8/10	F	S	2.8	70.00		

How to make an Onkyo tape deck as good as its competition.



Unbolt isolated high capacity transformer

Eliminate large filter capacitors

Replace metal faceplate with cheap plastic

Remove microprocessor control center

If we wanted to make an Onkyo cassette deck as good as our competition, it wouldn't be too hard.

First, we'd remove our specially isolated transformer, bolting a cheaper replacement directly to the chassis. This would result in vibrations that mask some of the musical detail. Nothing important, just little things like instruments and vocals.

Gone would be the three independent power supplies, and we'd throw out our audio-grade capacitors, too. Competition between the meter circuitry and recording electronics for current could then allow noise to creep into the audio signal while recording. So all the singers seem to have sinus infections. And the instruments sound more surgical than musical.

Of course, the custom designed microprocessor would have to go, taking the Real Time Counter with it. After all, isn't it more exciting to watch the song and tape race to see which finishes first?

As a final touch, the front panel would be plastic. Hey, when you're not all that concerned about performance, why bother with structural integrity.

Now, we could do all these things to an Onkyo cassette deck. But then we wouldn't have one as exceptional as our new TA-R500 that combines the convenience of auto reverse with the sound quality and precision design of our premiere Integra® products



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PHOTOGRAPH: KAREN ANDERSON
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OPEN-REEL TAPE DECKS

MANUFACTURER		Model (R) = Remote Included, (RD) = Remote Optional	Speeds—See Letter Code	Maximum Reel Size	Number of Heads	Number of Tracks	Number of Channels	Record Play	Drive to Capstan	Frequency Response, Hz to kHz, ± dB with Best Tape at Highest Machine Speed	Wow & Flutter, Wtd. Peak, %	S/N, "A" Wtd. Peak, dB	Output Level at 0 VU, mV	Mike Mixing?	Mike Input Impedance, Ohms; Balanced = B	Record Level Indicator(s), Number and Type	EE Tape Capable?	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
<p>SPEED CODE A—7½, 3¾ B—7½, 3¾, 1½ C—7½, 3¾, 1½, 15/16 D—15, 7½ E—15, 7½, 3¾</p>																					
FOSTEX	R8	†	7	2	8	8	4		40-18	0.06	74		No		††			12½ x 13½ x 6⅞	28	2800.00	†15 ips. ††Eight-segment bar graph. Dolby C NR.
	E2	D	10½	3	2	2	3		30-20	0.05	80		No		2 VU Mtrs. & 2 Peak LEDs			17 x 17½ x 9¼	73	3750.00	
	G16	†	10½	2	16	16	3		40-18	0.05	80		No		16 LEDs & Peak Hold				80	7995.00	Dolby C NR; detachable front panel becomes remote. Dolby C NR.
	E8	†	10½	2	8	8	3		40-18	0.05	80		No		8 LED Mtrs.			17 x 17½ x 9¼	73	4495.00	
NAGRA	4.2	E	10½	4	1	1	1	Belt	30-20 ± 5	0.05	†	560	Yes	200	1 VU Mtr.	Yes		13⅞ x 9½ x 4½	15		†NAB, 70 dB; CCIR, 68 dB. Sync capability. Sync capability.
	IV-S	E	10½	4	2	2	1	Belt	0-4 + 0, -3	0.05	74	560	Yes	200	1 VU Mtr.	Yes		13⅞ x 9½ x 4½	15½		
	IV-STC	E	10½	4	2	1	1	Belt	30-20 ± 1	0.05	72	560	Yes	100k	1 VU Mtr.	Yes		13¼ x 9⅝ x 4½	15½		Center-track time code.
	E	†	10½	3	1	1	1	Belt	70-4.5 ± 3	0.05	50	560	No	330	1 VU Mtr.	Yes		12⅝ x 8⅞ x 4	12½		†15/16 ips. Sync and non-sync. †"E" speeds plus 30 ips. Center-track and internal time codes.
	T-Audio	†	10½	4	3	3	2	Belt	50-60 ± 1	0.05	77	775	No	10k	LED	Yes		15¾ x 13¼ x 9⅝	70		
DTARI	MK-III-8	D	10½	3	8	8	3		30-18 ± 2	0.04	68	330	No		8 VU Mtrs.			17.3 x 21.3 x 26.6	110	5495.00	
	MK-III-4	D	10½	3	4	4	3		30-20 ± 2	0.04	69	330	No		4 VU Mtrs.			19.2 x 21.3 x 27.5	77	5935.00	
	MK-III-2	E	10½	4	2	2	3		30-20 ± 2	0.04	68	330	Yes		2 VU Mtrs.			18.75 x 21.3 x 28.3	105	3925.00	
	B-II	E	10½	4	2	2	3		25-22 ± 2	0.04	68	330	Yes		2 VU Mtrs.			22.1 x 21.3 x 10.9	60	2995.00	
	BQ-II	D	10½	4	4	4	3		30-20 ± 2	0.06	66	330	Yes		4 VU Mtrs.			22.1 x 21.3 x 10.2	66	4345.00	
	MX-50	†	10½	3	2	2	3		30-20 ± 2	0.06	69	330	No		2 VU Mtrs.			18 x 17.2 x 7.4	52	2495.00	†"A" or "D" speeds.
	MX-55N	†	10½	4	2	2	3		30-20 ± 2	0.06	69	330	Yes		2 VU Mtrs.			19.5 x 17.6 x 8.9	67	3895.00	
	MX-55NM	†	10½	4	2	2	3		30-20 ± 2	0.06	69	330	No		2 VU Mtrs.			20 x 17.6 x 29.6	67	4995.00	
	MX-55TM	†	10½	4	2	2	3		30-20 ± 2	0.06	69	330	No		2 VU Mtrs.			20 x 17.6 x 29.6	67	5995.00	
REVOX	B77 MKII	†	10½	3	2/4	2	3	Direct	30-22 + 2, -3	0.06	67	775	Yes	22k, 110k	2 Mtrs. & 2 Peak LEDs	No		16½ x 17¾ x 8¼	37½	2450.00	†Any two adjacent speeds from 15/16 to 15 ips.
TASCAM	22-2	D	7	3	2	2	3		40-22 ± 3	0.04	68		200	VU Mtr. & Peak LEDs			16¾ x 16⅞ x 9⅞	30⅞	1099.00		
	32	D	10½	3	2	2	3		40-20 ± 3	0.05	68		200	VU Mtr. & Peak LEDs			16¾ x 18¾ x 10⅞	44	1749.00		
	42B	D	10½	3	2	2	3		30-20 ± 2	0.05	70		150B	VU Mtr. & Peak LEDs			17 x 19⅞ x 10¾	70⅞	3249.00		
TEAC	X-300	A	7	3	2/4	2/4	3	Belt	40-30 ± 3	0.04	65		Yes		2 VU Mtrs.	Yes		16⅞ x 12⅞ x 9⅞	30.9	1145.00	
	X-300R	A	7	3	2/4	2/4	3	Belt	40-30 ± 3	0.04	65		Yes		2 VU Mtrs.	Yes		16⅞ x 12⅞ x 9⅞	33	1280.00	Auto reverse.
	X-2000(RD)	A	10½	3	2/4	2/4	3	Belt	40-33 ± 3	0.03	100		Yes		2 VU Mtrs.	Yes		17 x 17⅞ x 10⅞	46.3	1950.00	Spooling mode; dbx Type I NR.
	X-2000R(RD)	A	10½	3	2/4	2/4	3	Belt	40-33 ± 3	0.03	100		Yes		2 VU Mtrs.	Yes		17 x 17⅞ x 10⅞	46.3	2069.00	Auto reverse.
UHER	4000	C	5	3	2	1	1	Belt	20-25 ± 2	0.2	64	775	Yes	200	1 VU Mtr.	Yes		11 x 3½ x 9	8	1750.00	
	4200	C	5	3	2	2	1	Belt	20-25 ± 2	0.2	64	775	Yes	200B	2 VU Mtrs.	Yes		11 x 3½ x 9	8	1870.00	
	4400	C	5	3	4	2	1	Belt	20-25 ± 2	0.2	62	775	Yes	200B	2 VU Mtrs.	Yes		11 x 3½ x 9	8	1870.00	24 hours record time.
	6000	†	5	3	2	1	4	Belt	20-22 ± 2	0.2	62	775	Yes	220	1 VU Mtr.	Yes		11 x 3½ x 9	8	2260.00	†"C" speeds plus 15/32 ips. As above.
	SG 631	B	10½	4	4	2	4		20-22 ± 3	0.1	67		Yes	200	2 VU Mtrs.	Yes		20 x 4½ x 16	29	2375.00	
	1200	A	5	3	1	1	1	Belt	40-16 ± 3	0.15	62	600	Yes	200	1 VU Mtr.	Yes		11 x 3½ x 9	8	5310.00	

IF GOD EVER SPEAKS TO YOU, THIS IS THE TAPE TO RECORD IT ON.



here are some things you want to record with absolute accuracy. Which is why Maxell has created Metal Vertex — the most precise audio cassette ever.

52% LESS MODULATION NOISE.

And that's compared to our top-of-the-line MX tape. Thanks to a sturdier, fiber-glass-reinforced guideblock, steel pins, wider pressure pad, and high precision crown-shaped rollers, Metal Vertex virtually eliminates tape fluctuation. Plus our proprietary Techno-Silver backcoating reduces friction and further improves tape-running stability. All of which makes for a tape with the lowest modulation noise level available. Anywhere.

A REVOLUTIONARY NEW CASSETTE SHELL.

To better absorb outside vibrations, our new three-piece shell is made of a highly visco-elastic, super composite material with almost twice the specific gravity of that found in most cassettes. Yet what

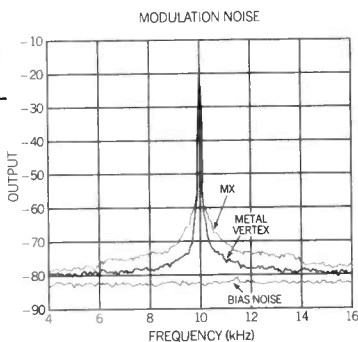
makes this mechanism truly unusual is the golden emblem center, which is not simply decorative but serves to dampen external vibrations even further. Bad vibes aside, our new Metal Vertex cassette shell also provides unmatched durability and heat resistance.

WIDER DYNAMIC RANGE AND THE HIGHEST MOL IN EXISTENCE.

The Metal Vertex magnetic coating consists of extremely fine (.3 micron) metal particles, packed together with high density through a process called parallel bundling. That not only increases dynamic range, it pushes the Maximum Output Level 1db to 2db higher than our MX tape (depending on frequency). That, in turn, allows for a substantial improvement in sensitivity and an astonishing 40% reduction in distortion.

If you're surprised by all these incredible specs, don't be. Remember, Maxell has always been at the forefront of creating magnetic tape for the world's most sophisticated equipment. So if what you're recording demands superior reproduction, look to Metal

Vertex from Maxell. Anything less and you don't have a prayer.





0004520

Metal Vertex 90

maxell

ANTI-MODULATION NOISE CASSETTE MECHANISM
THREE-PIECE CONSTRUCTION

Techno-Silver Back Coat

A

How to make an Onkyo CD player as good as its competition.

Eliminate independent power supplies

Remove fiber optic modules from signal path

Disconnect Accubit calibration circuit

Replace die cast metal tray with cheap plastic

If we wanted to make an Onkyo CD player as good as our competition, it wouldn't be too hard.

We'd have to remove our isolated transformer with its three independent power supplies for the transport, digital and analog circuits. As a result, tracking stability suffers, while signal interference measurably increases (turning music peaks into music mounds).

There'd be no need for Onkyo's proprietary Accubit calibration circuit. Which means there'd be no low level dynamics—no sense of depth or dimension to the music. So Carnegie Hall sounds like Carnegie's closet.

Taking out Onkyo's Opto-Coupling fiber optic

modules and using conventional circuit wiring would insure that a little harsh digital noise mixes in with the music. Perfect for "grate audio."

Gone would be the die cast aluminum tray Onkyo uses, replaced by a plastic version that leads to further diminished sound quality and a wear, tear, it's-due-for-repair syndrome.

Now, we could do all these things to an Onkyo CD player. But then we wouldn't have a component as masterful as our new DX-5700 with Dual Linear 18 Bit D/A Converters and Accubit² Calibration.

At Onkyo, all our CD players are built to be better. That's a difference you can hear—and see.



ONKYO®

200 Williams Drive, Ramsey, N.J. 07446 201-825-7950

Do As The

If you share the beliefs of the most serious audiophiles, *Audio* magazine is something you live by. And if you saw the March 1990 issue, you must surely see the wisdom of TDK.

But in case you missed it, allow us to enlighten you.

In that issue, *Audio* revealed the results of a massive test it conducted among 88 blank audio cassettes. And all it could do was praise TDK.

**AUDIO MAGAZINE RATED
TDK AR-X #1 OVERALL AMONG ALL
NORMAL BIAS CASSETTES.**

The test began with *Audio* evaluating and comparing normal bias Type I cassettes from virtually every conceivable manufacturer.

After the data was polled, *Audio* concluded TDK AR-X was not only the best Type I tape, but "... close to the best for Type II as well." A finding that isn't all that surprising considering the technology that goes into AR-X, which results in the



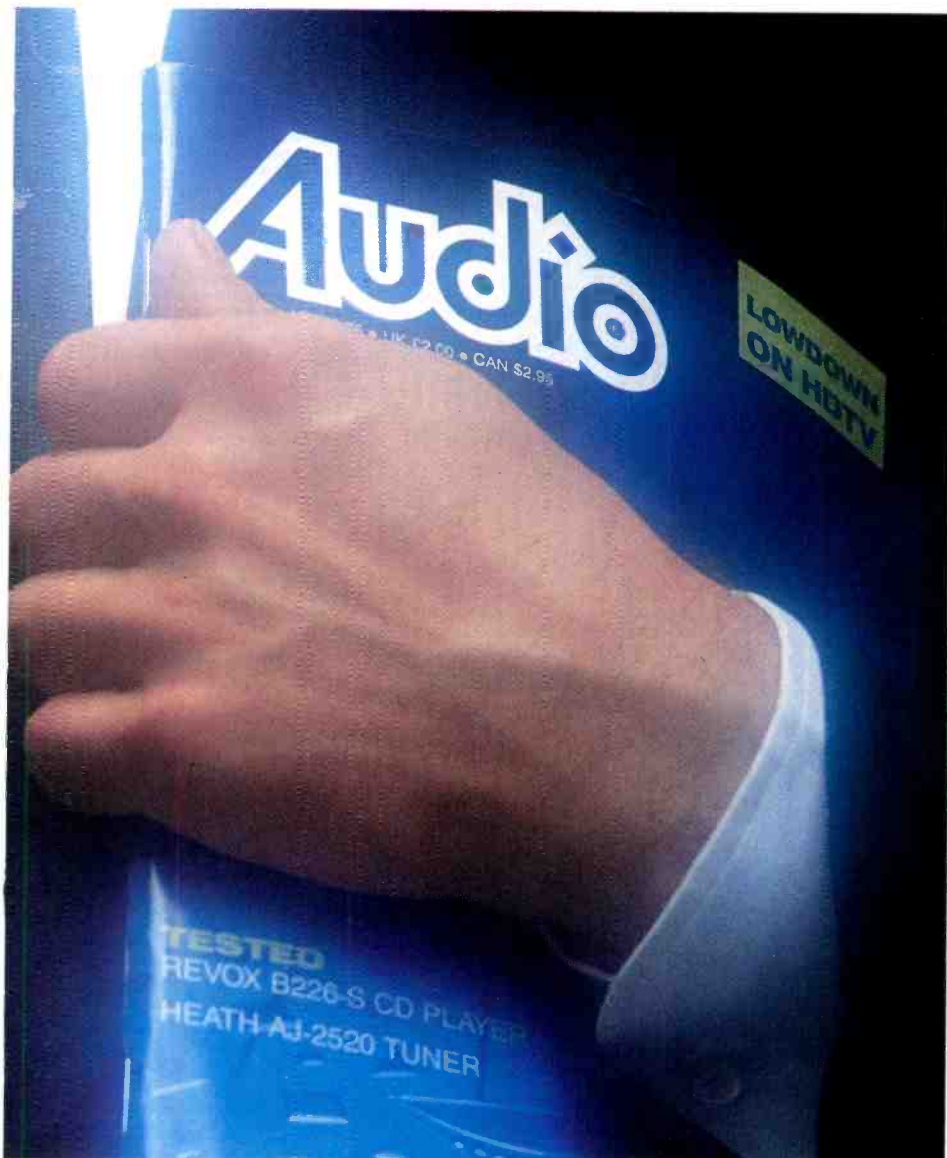
highest high-frequency SOL.

**AUDIO MAGAZINE RATED TDK SA-X
THE #1 HIGH BIAS CASSETTE IN TERMS
OF DYNAMIC RANGE (S/N RATIO).**

The next area for review was the high bias Type II segment. And in this highly

competitive arena, the engineer *Audio* used found the performance of TDK no less impressive: TDK SA-X, with its dual coating of Super Avilyn particles, has the

Bible Says.



widest dynamic range of any high bias tape. Which perhaps explains why serious audiophiles have always found CD recordings made on TDK SA-X to be so incred-

ibly faithful to the original.

AUDIO MAGAZINE RATED TDK METAL MA-XG # 1 OF ALL 88 TAPES TESTED.

TDK has a long history of innovation in metal tape technology, the most recent

example of which is the MA-XG. And by the end of the test, it was the chosen tape of *Audio*.

After a close and exhaustive scrutiny of Type IV tapes, based on several parameters, TDK MA-XG was not only the choice as the best Type IV tape, but also the best tape on the market. Period.

So why not write to TDK Reprints, P.O. Box 166, 70A Greenwich Ave., New York, NY 10011, for a condensed reprint of the ultimate tape test from the ultimate authority.

If you're serious about your sound, you'll practice what *Audio* preaches, and use TDK.



As Serious
As You Can Get.

Enter No. 97 on Reader Service Card

AmericanRadioHistory.Com

CASSETTE DECKS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	Frequency Response with Best Tape. Hz to kHz, ±db	Monitoring During Recording?	Wow & Flutter, Wtd. Peak, %	S/N without Noise Reduction, "A" Wtd., %	S/N with Noise Reduction, "A" Wtd., %	Noise Reduction, Dolby C, Dolby S, dB	Noise Reduction, "A" Wtd., -dB	Bias Fine Tuning, Auto A, Manual M	Number of Preset Bias/ED Positions	Program Search?	Intro Scan?	Level Indicators, Average-A, Peak-P, Peak-Mix-B, PH	Counter Indications, Number of Turns-T, Elapsed Time-E, Remaining Time-R	Auto Reverse?	Number of Mike Inputs	Dual Wells?	Weight, Lbs.	Price, \$	Notes
MARANTZ	DL3507	20-20	No	0.07 wrms	56	74	B/C/H	A	3	Yes	Yes	P	T	Yes	0	No	9.9	400.00		
MITSUBISHI	M-T5010(RO)	25-20	Yes	0.07	56	76	B/C/H	A/M	3	Yes	Yes	P/PH	T	Yes	0	Yes	14	639.00	Video output for on-screen TV display of counter and control functions; auto reverse in both wells.	
NAD	6100(RI) 6300(RI) 6325 6340	30-19 ±3 30-19 ±3 35-16 ±3 30-19 ±3	No Yes No No	0.06 0.03 0.06 0.06	57 59 56 57	77 78 76 77	B/C/H B/C/H B/C B/C/H	M M B M	3 3 3 3	No No No No	No No No No	P P P P	T T T T	Yes No No No	0 0 0 0	No No No No	10 ⁵ / ₈ 13 9 ³ / ₄ 9 ³ / ₄	499.00 899.00 279.00 399.00		
NAKAMICHI	Dragon(RO) RX-505(RO) RX-202(RO) CR-7A(RI) Cassette Deck 1(RO) Cassette Deck 2(RO)	20-22 ±3 20-20 ±3 20-20 18-21 ±3 20-21 ±3 20-20 ±3	Yes Yes No Yes Yes No	0.04 0.08 0.11 0.048 0.06 0.11	72 70 68 72 72 70	72 70 68 72 72 70	B/C B/C B/C B/C B/C B/C	M M No A M M	3 3 3 3 3 3	No Yes No No No No	No No No No No No	P P P P/PH P P	T T T T/E/R T T	Yes Yes Yes No No No	0 0 0 0 0 0	No No No No No No	21 22 19 ³ / ₄ 19 ³ / ₄ 12 ³ / ₄ 11 ³ / ₄	2295.00 1395.00 795.00 1695.00 799.00 349.00	Auto azimuth correction. Flips cassette for tape reverse. As above. Manual playback azimuth adjustment. As above.	
ONKYO	Integra TA-R500(RI) TA-W200(RO) Integra TA-2700(RI) TA-2000(RO) TA-2200(RI) TA-R200(RO) TA-R300(RI) Integra TA-2600(RO) Integra TA-2800(RI) Integra TA-2090(RO) TA-RW400(RO) TA-RW470(RO) TA-RW490(RO)	30-18 ±3 30-16 ±3 Yes 30-16 ±3 30-18 ±3 30-16 ±3 30-18 ±3 30-19 ±3 20-20 ±3 25-21 ±3 30-16 ±3 30-16 ±3 30-16 ±3	No No Yes No No No No Yes Yes Yes No No No	0.055 0.07 Yes 0.07 0.07 0.07 0.07 0.035 0.035 0.02 0.07 0.06 0.06	58 58 Yes 58 58 58 58 60 60 60 58 58 58	78 78 Yes 78 78 78 78 80 80 80 78 78 78	B/C/H B/C/H Yes B/C/H B/C/H B/C/H B/C/H B/C/H B/C/ D/H B/C/H B/C B/C/H	M M Yes M M M M 3 3 3 3 3 3	3 3 Yes 3 3 3 3 3 3 3 3 3 3	Yes No Yes Yes Yes Yes Yes Yes Yes Yes No No Yes	Yes No Yes Yes Yes Yes Yes Yes Yes Yes No No Yes	PH P PH PH PH PH PH PH PH PH PH PH PH	E/R T E/R T T T E/R E/R E/R T T E/R E/R	Yes No No No No No No No No No Yes Yes Yes	0 0 0 0 0 0 0 0 0 0 0 1 1 1	No Yes No No No No No No No No Yes Yes Yes	13.7 10.6 No 8.6 9.7 8.6 9.9 12.8 13.7 19.8 10.6 13.2 13.6	449.95 249.95 530.00 230.00 330.00 260.00 360.00 480.00 650.00 950.00 340.00 500.00 630.00	Three motors. Normal and high-speed dubbing; headphone jack. Three motors; dual capstan. Three motors. As above; dual capstan; Dolby record calibration. As above.	
OPTIMUS	SCT 74 SCT 85 SCT 87 SCT 88 SCT 89	60-14 ±3 60-14 ±3 60-14 ±3 20-18 ±3 30-17 ±3	Yes Yes Yes Yes Yes	0.12 0.15 0.15 0.05 0.05	70 70 62 73 70	70 70 62 73 70	B/C B/C B/C B/C B/C/H	M M M A A	3 3 3 3 3	No No No No No	No No No No No	P P P PH PH	T T T PH T	No No No Yes Yes	2 2 1 2 2	Yes Yes Yes Yes Yes	7 7.3 7.4 8.8 11	179.95 199.95 149.95 199.95 299.95	High-speed dubbing. As above. As above. As above.	
PARASOUND	D/HX-550	20-19 +2,-3	Yes	0.04	78	78	B/C/H	M	3	No	No	P	T	No	0	No	12	265.00	"Playtrim" control.	
PHILIPS	FC40 FCR40 FC50 FCR50 FC60 FC315 FC415 FC515	40-19 ±3 40-19 ±3 40-19 ±3 40-19 ±3 20-20 ±3 40-17 ±3 40-17 ±3 40-18 ±3	No No No No Yes No No No	0.05 0.05 0.05 0.07 0.03 0.08 0.08 0.06	60 60 60 60 65 55 55 60	73 73 73 73 78 70 70 71	B/C/H B/C/H B/C/H B/C/H B/C/H B/C/H B/C/H B/C/H	M M M M M M M M	3 3 3 3 3 3 3 3	No No Yes Yes Yes No Yes Yes	No No Yes Yes Yes No No No	P P PH PH PH P P PH	T T T/E T/E T/E T T T	No No No No No No Yes Yes	1 1 1 1 1 1 1 1	Yes Yes Yes Yes Yes Yes Yes Yes	11 12 12 12 15 12 12 14	249.95 299.95 349.95 399.95 549.95 299.95 399.95 499.95	Closed-loop dual capstan. High-speed dubbing. As above. As above.	
PIONEER	CT-M6R CT-M5R CT-W830R CT-W630R CT-W530R CT-W430 CT-W330 CT-S707 CT-607R CT-S507 CT-S405 CT-91	20-19 20-19 18-18.5 25-18 25-18 35-17 35-16 15-21 25-18 25-18 25-17 25-17 20-23	No No No No Yes No No No No No Yes Yes	0.055 0.055 0.055 0.055 0.055 0.13 0.13 0.05 0.55 0.55 0.075 0.075 0.022	58 58 57 57 57 56 56 58 57 57 57 57 60	89	B/C/H B/C B/C/H B/C/H B/C B/C B/C B/C/H B/C/H B/C/H B/C/H B/C/H	M M M M M M M M M M M M M	3 3 3 3 3 3 3 3 3 3 3 3 3	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No	PH PH PH PH PH P P PH PH PH PH PH	E E E T T T T E E E T E/R	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No	1 1 1 1 1 1 1 1 1 1 1 1 0	Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes Yes No No	16 ⁵ / ₈ 16 ³ / ₈ 12 ⁵ / ₈ 10 ¹ / ₈ 10 ¹ / ₈ 8 ⁵ / ₈ 8 ⁵ / ₈ 12 ⁵ / ₈ 9 ¹ / ₂ 8 ⁵ / ₈ 9 ¹ / ₄ 24 ¹ / ₈	450.00 400.00 500.00 360.00 270.00 220.00 200.00 480.00 330.00 290.00 230.00 950.00	CD synchro record. As above. As above. As above. As above. As above. As above. As above. As above. As above.	
PROTON	740 AD-603HX(RO) AD-430	25-19 ±3 30-19 ±3 30-18 ±3	No No No	0.05 0.05 0.06	54 53 52	90 90 72	B/C/D B/C D/H B/C/H	A A M	3 3 3	Yes Yes Yes	No No No	A/PH A/PH A	T T T	No No No	2 2 No	No No No	11 ³ / ₈ 21 ³ / ₄ No	350.00 800.00 280.00		
REALISTIC	SCT 86	60-12	No	0.15	52	52	B	M	3	No	No	P	T	No	No	No	3.8	89.95		
REVOX	B215(RO) B215S(RO)	30-20 +2,-3 30-20 +2,-3	Yes Yes	† †	58 58	72 72	B/C/H B/C/H	A A	6 6	Yes Yes	No No	P P	E E	No No	0 0	No No	20 ¹ / ₄ 20 ¹ / ₄	2300.00 2800.00	†0.1%, DIN wtd. Pivoting headblock.	
ROTEL	RD855 RD865	30-19 ±3 30-20 ±3	No No	0.035 0.035	55 55	73 73	B/C B/C/H	M M	3 3	No No	No No	P P	T T	No No	0 0	No No	11 11	349.00 449.00		
SANSUI	D-X311WR D-X211HX-R D-X111HX D-950WR D-750WR D-350W	20-21 20-21 20-21 62-13 62-13 62-13	Yes Yes Yes Yes Yes Yes	0.06 0.06 0.06 0.09 0.02 0.02	58 58 58 50 50 50	65 65 60 60 60 60	B/C/H B/C/H B/C/H B B B	A/M A/M A A A A	3 3 3 3 3 3	Yes Yes Yes No No No	No No No No No No	P P P P P P	T T T T T T	Yes Yes Yes Yes Yes No	0 0 0 0 0 0	Yes No No Yes Yes Yes	10 ³ / ₄ 8 ¹ / ₄ 8 ¹ / ₂ 11 11 11	349.95 299.95 249.95 219.95 189.95 169.95	High-speed dubbing; switchable MPX filter. High-speed dubbing. As above. As above.	

V DAT IS HERE



8 hours of CD quality on a \$3 VHS tape

Introducing the First VDAT Digital Audio Recorder ...

Just grab any VCR, a \$3 blank video tape, and the PCM 44.1. Then make a perfect digital-to-digital copy of over 8 hours of CD's by touching two buttons and walking away.



Since the PCM 44.1 just copies numbers, there is no need to set recording levels, bias, equalization or Dolby.

You can preserve your priceless LP collection with inexpensive video tape, make live recordings, time-shift FM broadcasts, or make ten-hour party tapes on the new T200 VHS cassettes. Video tape is the lowest cost, highest reliability data storage medium, better even than optical disks.



How VDAT Works

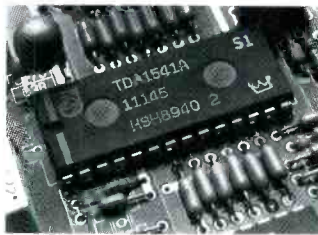
VDAT works the same way as professional digital master tape recorders: by transforming the digital signal from your CD player into a video signal that your VCR can record. VDAT has more powerful error correction than traditional studio recorders, enabling the use of inexpensive VHS units at the EP (8-hour) speed.

Just connect either the coaxial or optical digital output from your CD player to the PCM 44.1, and the PCM 44.1 to your VCR. With the touch of a button, make a flawless digital recording of 8 CDs (or more) onto a single video cassette!

On playback, use your VCR's address or index search system to go straight to any spot on the tape. The PCM 44.1 automatically lays down a control track while recording so that you can access any of hundreds of songs using your VCR's remote control.

Audiophile Sound

Upon playback, the video signal from your VCR passes back through the PCM 44.1. The PCM 44.1 adheres to the VDAT standard for error correction, which provides full data recovery even if there are dropouts on the tape. Correct data is fed to the best Philips 4x oversampling D/A conversion chip set available. The PCM 44.1's output stage contains only the highest quality analog components and regulated power supplies.



The PCM 44.1 features the Philips linearity-selected TDA-1541A-S1 -- the world's lowest distortion audio D/A converter. It is the same chip found in Philips' \$4000 L11H 1000 Reference Series CD Player.

The sound is so good that you will probably end up using the PCM 44.1 as an outboard D/A converter even when you aren't recording.

Won't Steal Your VCR

The PCM 44.1 only needs your VCR when you want to listen to music. When you're not using the PCM 44.1, your VCR records and plays back movies as usual.



64X Oversampling A/D

IsoSonics' AD 44.1 outboard A/D converter uses 64-times oversampling to eliminate phase distortion, aliasing and non-linearity. Over 99% of all CD's on the shelves today were mastered with non-oversampling A/D converters. The brickwall anti-aliasing filter in these old machines adds phase distortion and aliasing to your music, distortions often worse than those of the analog recorders they replaced. And these old converters aren't linear, especially at low levels, so quiet passages are distorted. Oversampling and linearity mean that your first recording with an AD 44.1 will probably sound better than your best CD.

We put the AD 44.1 in its own chassis with fully-regulated power supplies, thus providing full isolation for lowest distortion. The AD 44.1 will allow any digital audio recorder to make faithful recordings at 44.1 or 48KHz.

Made In The USA

IsoSonics is a Cambridge, MA based company, founded by a team of audiophile engineers from the Massachusetts Institute of Technology. We are committed to producing innovative audio technology that maintains the highest quality and truest sound possible.

Satisfaction Guaranteed

If you're not completely satisfied with any IsoSonics product, return it within 30 days for a full refund.

5-Year, 5-Day Warranty

Every IsoSonics product is unconditionally warranted for five years. What's more, if we can't fix it within 5 working days, we'll send you a replacement unit immediately.

You can own a PCM 44.1 for \$1495.

You can own an AD 44.1 for \$495.

Special offer: Buy both units together for \$1750.

(All prices include shipping. MA residents please add 5% sales tax.)

To order your PCM 44.1 or AD 44.1 (with our 30-day money-back guarantee)

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CASSETTE DECKS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Frequency Response Hz to KHz. ± dB	Monitoring During Recording?	Wow & Flutter - Wld. Peak, %	S/N without Noise Reduction?	S/N with Noise Reduction, "A" Wld., -dB	Noise Reduction, "A" Wld., -dB	Bobbin C. C. Dolby S. S. box. B. HX Pro. H	Bias Free Tuning Auto. A Manual. M	Number of Preset Bias/FED Positions	Program Search?	Intro Scan?	Low Indicators, Average=A, Peak=T, Peak Hold=PH	Cover Indicators, Number of Turns=T, Engaged Time=E, Remaining Time=R	Auto Reverse?	Number of Mike Inputs	Dual Wells?	Weight, Lbs.	Price, \$	Notes
SANYO	RDW489	40-16 ± 3	Yes	0.08	56	71	B/C			3	No	No	P	T	Yes	0	Yes	7.5	149.99	Full and four-track; high-speed dubbing.
	RDW589	40-16 ± 3	Yes	0.08	55	70	B/C			3	No	No	P	T	Yes	2	Yes	7.5	169.99	
SCOTT	DD660	50-13	Yes	0.15	50	64	B			6	Yes		P	T	Yes	0	Yes	8	129.95	Auto reverse for one well. Auto reverse for both wells.
	DD700	30-13	Yes	0.15	50	64	B			6	Yes	Yes	P	T	Yes	0	Yes	8	159.95	
	DD900	30-15	Yes	0.15	50	65	B			6	Yes	Yes	P	T	Yes	0	Yes	9 1/2	229.95	
SHERWOOD	DS-7000R(RO)	25-20 ± 6	Yes	0.06	58	75	B/C/H			3	Yes	No	A/PH	E	No	2	No	13 1/2	449.95	Two line inputs/outputs; cross fader control. As above.
	DS-1630R(RO)	25-19 ± 6	Yes	0.08	57	75	B/C/H			3	Yes	No	A/PH	E	Yes	0	No	12 7/8	269.95	
	DD-1230R(RO)	25-18 ± 6	Yes	0.12	57	75	B/C			3	Yes	No	A/PH	E	Yes	0	Yes	13 3/8	279.95	
	DD-1030	30-15.5 ± 6	Yes	0.15	56	65	B			3	No	No	A/P	E	No	0	Yes	7 3/8	129.95	
	DD-1130	30-16 ± 6	Yes	0.12	56	74	B/C			3	No	No	A/P	E	No	0	Yes	9	149.95	
SONY	TC-WR820(RO)	30-18 ± 3	No	0.07	58	73	B/C/H	M		3	Yes	No	P	E	Yes	0	Yes	10 7/8	470.00	High-speed dubbing. As above.
	TC-WR720(RO)	30-15 ± 3	No	0.07	58	73	B/C/H	M		3	Yes	No	P	E	Yes	0	Yes	10 1/4	350.00	
SONY ES	TC-K650ES(RO)	20-21 ± 3	Yes	0.05	60	75	B/C/H	M		3	Yes	Yes	P	E/R	No	0	No	15 1/4	600.00	High-speed dubbing. As above.
	TC-RX70ES(RO)	20-20 ± 3	No	0.06	59	74	B/C/H	M		3	Yes	Yes	P	E/R	No	0	No	10 1/4	400.00	
	TC-WR90ES(RO)	20-20 ± 3	No	0.06	59	74	B/C/H	M		3	Yes	Yes	P	E/R	Yes	2	Yes	15 7/8	350.00	
	TC-WR80ES(RO)	20-20 ± 3	No	0.07	59	74	B/C/H	M		3	Yes	Yes	P	E/R	Yes	0	Yes	10 7/8	600.00	
	TC-K950ES(RO)	15-22 ± 3	Yes	0.024	61	76	B/C/H	M		3	Yes	Yes	P	E/R	No	0	No	25 7/8	900.00	
	TC-K850ES(RO)	15-21 ± 3	Yes	0.024	61	76	B/C/H	M		3	Yes	Yes	P	E/R	No	0	No	15 1/4	600.00	
	TC-K650ES(RO)	20-21 ± 3	Yes	0.05	60	75	B/C/H	M		3	Yes	Yes	P	E/R	No	0	No	10 1/4	400.00	
	TC-RX70ES(RO)	20-20 ± 3	No	0.06	59	74	B/C/H	M		3	Yes	Yes	P	E/R	Yes	2	Yes	15 7/8	350.00	
	TC-WR90ES(RO)	20-20 ± 3	No	0.06	59	74	B/C/H	M		3	Yes	Yes	P	E/R	Yes	0	Yes	10 7/8	600.00	
	TC-WR80ES(RO)	20-20 ± 3	No	0.07	59	74	B/C/H	M		3	Yes	Yes	P	E/R	Yes	0	Yes	10 7/8	400.00	
TEAC	AD-3	30-16	No	0.08	55	65	B/H	A		0	No	No	P	T	Yes	0	No	11	399.00	CD player/cassette deck; sync dub; bidirectional record and play; timer record and play. CD player/cassette deck; sync dub. High-speed dubbing.
	AD-1	30-16	No	0.09	55	65	B	A		0	No	No	P	T	No	0	No	10.5	299.00	
	W-360H	30-16	No	0.09	55	65	B/H	A		3	No	No	P	T	No	0	Yes	7	199.00	
	V-260H	30-16	No	0.09	55	65	B/H	A		3	No	No	P	T	No	0	No	6.5	139.00	
	V-580(RO)	20-19	No	0.06	59	74	B/C/H	M		0	No	No	P	E/R	No	0	No	11	349.00	
	V-680(RO)	20-21	Yes	0.06	60	80	B/C/H	M		0	No	No	P	E/R	No	0	No	11	449.00	
	EW-750R	30-17	Yes	0.06	55	70	B/C/H	A		0	No	No	P	T	Yes	2	Yes	10	289.00	
	EW-650	30-18	No	0.07	59	74	B/C	A		0	No	Yes	P	T	No	0	Yes	10.5	249.00	
	EW-550	30-16	No	0.095	55	65	B	A		2	No	No	P	T	No	0	Yes	7	169.00	
	EV-700	30-18	No	0.07	59	74	B/C/H	M		0	No	No	P	T	No	0	No	10	199.00	
	EV-600	30-16	No	0.095	55	70	B/C/H	M		3	No	No	P	T	No	0	No	6.3	149.00	
	EV-500	30-16	No	0.09	55	65	B/H	M		3	No	No	P	T	No	0	No	6.3	129.00	
	V-250	30-16	No	0.095	55	65	B	M		3	No	No	P	T	No	0	No	6.3	119.95	
	V-270C	30-16	No	0.095	55	70	B/C	M		3	No	No	P	T	No	0	No	6.3	139.95	
	V-285CHX	30-16	No	0.095	55	70	B/C/H	M		3	No	No	P	T/E	No	0	No	9.9	149.95	
	V-480	30-18	No	0.07	59	74	B/C/H	M		3	No	No	P	T	Yes	0	No	6.6	209.95	
	R-445	30-17	No	0.06	55	70	B/C	M		3	No	Yes	P	T	Yes	0	No	6.6	219.95	
R-445CHX	30-17	No	0.06	55	70	B/C/H	M		3	No	Yes	P	T	Yes	0	No	10.5	289.95		
R-540(RO)	30-19	No	0.07	59	74	B/C/H	M		3	No	No	P	T	No	0	Yes	7	169.95		
W-350	30-16	Yes	0.095	55	65	B	M		3	No	No	P	T	No	0	Yes	7	199.95		
W-370C	30-16	Yes	0.095	55	70	B/C	M		3	No	No	P	T	Yes	2	Yes	10.1	289.95		
W-450R	30-17	No	0.06	55	70	B/C/H	M		3	No	Yes	P	T	No	0	Yes	10.5	249.95		
W-470	30-18	No	0.07	59	74	B/C	M		3	No	No	P	T	No	0	Yes	12.1	359.95		
W-550R	30-19	No	0.07	59	74	B/C/H	M		3	No	Yes	P	T/E	No	0	No	12.8	799.95		
V-970X(RI)	25-20 ± 3	Yes	0.028	60	92	B/C/D	M		Yes	Yes	Yes	P	T/E	No	0	No	12.8	799.95		
R-919X(RI)	25-20 ± 3	Yes	0.029	60	92	B/C/D	M		Yes	Yes	Yes	P	T/E	No	0	No	13.3	829.95		
W-990RX(RI)	30-19 ± 3	No	0.045	59	91	B/C/D	M		Yes	Yes	Yes	P	T	Yes	0	Yes	13.3	799.95		
TECHNICS	RS-B965	20-21 ± 3	Yes	0.03	57	92	B/C/D/H	A/M		3			PH	T/E	No		No	14.1	679.95	CD synchro edit. Closed-loop dual capstan. Quick-reverse and record in both wells. CD synchro edit; high-speed dubbing. As above. CD synchro edit.
	RS-B755	20-21		0.05	59	94	B/C/D/H	M		3	No	No	P	T	No	2	No	12	439.00	
	RS-B555	20-19		0.05	56	91	B/C/H	M		3	No	No	P	T	No	2	No	10	299.00	
	RS-TR555(RO)	20-19		0.07	56	92	B/C/D/H	M		3	Yes		P	T	Yes	0	Yes	12	439.00	
	RS-TR355(RO)	20-19		0.1	56	74	B/C/H	M		3	No		P	T	Yes	0	Yes	12	329.00	
	RS-TR265(RO)	20-18		0.1	56	74	B/C/H	A		3			P	T	Yes	0	Yes	10.6	249.95	
	RS-TR165(RO)	20-18		0.1	56	74	B/C	A		3			P	T	Yes	0	Yes	10.6	229.95	
	RS-TR155(RO)	20-18		0.1	56	66	B	M		3	No		P	T	Yes	0	Yes	12	209.00	
RS-BR465(RO)	20-18		0.07	56	74	B/C/H	M		3			PH	T	Yes	2	No	9.5	229.95		
UHER	CR 1600	30-16 ± 1	Yes	0.3	52	60	B	A			Yes	Yes	P	T	Yes	1	No	7	1890.00	8-hour record time. As above.
	CR 1601	20-19 ± 1	Yes	0.2	50					4	Yes	Yes	P	T	No	1	No	7	1890.00	
VECTOR RESEARCH	VCX-255	30-18 ± 3	No	0.05	56	75	B/C	M		3	No	No	P	T	No	0	No	11 1/2	179.00	
	VCX-270	30-20 ± 3	No	0.05	60	75	B/C/H	M		3	No	No	P	T	No	2	No	14	279.00	

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CASSETTE DECKS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Frequency Response with Best Tape, Hz to kHz, ±dB	Monitoring During Recording?	Wow & Flutter, Wtd. Peak, %	S/N without Noise Reduction, "A" Wtd., -0dB	S/N with Noise Reduction, "A" Wtd., -0dB	Noise-Reduction Circuit, Dolby B, C, Dolby S, S-β	Bias Fine Tuning, Auto - A, Manual - M	Number of Preset Bias/EQ Positions	Program Search?	Intro Scan?	Legal Indicators, Average A, Peak = P, Peak Hold = PH	Corner Indicators, Number of Tapes = T, Bases Time = E, Remaining Time = R	Auto Reverse?	Number of Mike Inputs	Dual Wells?	Weight, Lbs.	Price, \$	Notes
YAMAHA	KX-130	20-16 ±3	No	0.15	58	74	B/C		3	No	No	P	T	No	0	No	8 7/8	219.00	"Playtrim" adjustment. As above. Four motors; quick auto reverse. Closed-loop dual capstan. Two-speed dub; relay play. As above.
	KX-230(RO)	20-19 ±3	No	0.08	58	74	B/C	M	3	Yes	Yes	P/PH	T	No	0	No	9 1/4	269.00	
	KX-330(RI)	20-17 ±3	Yes	0.08	60	76	B/C/H	A/M		Yes	Yes	P/PH	E/R	No	0	No	10	299.00	
	KX-R430(RI)	20-19 ±3	No	0.08	58	74	B/C/H	M	3	Yes	Yes	P	T	Yes	0	No	9 1/2	349.00	
	KX-530(RI)	20-17 ±3	Yes	0.08	60	76	B/C/H	A/M		Yes	Yes	P/PH	E/R	No	0	No	10 1/2	399.00	
	KX-630(RI)	20-20 ±3	Yes	0.08	60	76	B/C	M	3	Yes	Yes	P	E/R	No	0	No	10 3/8	469.00	
	KX-R730(RI)	20-20 ±3	Yes	0.08	60	76	B/C/H	A		Yes	No	P/PH	E/R	Yes	0	No	11 3/4	499.00	
	KX-930(RI)	20-20 ±3	Yes	0.08	61	77	B/C/H	A/M		Yes	Yes	P/PH	E/R	No	0	No	10 1/2	599.00	
	KX-1200U(RO)	20-24 ±3	Yes	0.06	61	95	B/C/D	A/M	3	Yes	Yes	P	E/R	No	0	No	17 3/8	749.00	
	KX-W232(RO)	20-16 ±3	Yes	0.15	58	74	B/C	A		Yes	No	P		No	0	Yes	10 1/2	299.00	
	KX-W332(RO)	20-16 ±3	Yes	0.15	58	74	B/C/H	A		Yes	No	P		No	0	Yes	10 3/4	399.00	
	KX-W602(RI)	20-20 ±3	No	0.08	58	74	B/C/H		3	Yes	No	P	R	Yes	0	Yes	12 1/8	519.00	
	KX-W900U(RI)	20-20 ±3	No	0.08	58	74	B/C/H		3	Yes	Yes	P	R	Yes	0	Yes	15 3/8	699.00	

BLANK TAPE

MANUFACTURER	Brand	Tape Type—See Code	ANALOG CASSETTES							OPEN REEL		DAT CASSETTES			Notes				
			C-30	C-45 or C-46	C-60	C-74, C-75, or C-76	C-90	C-100	C-120	1800 Feet	3600 Feet	R-46	R-60	R-90		R-120			
			IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV		IV			
BASF	Metal Maxima	IV			3.29			4.29		6.49									
	Chrome Maxima	II			2.69			2.99											
	Chrome Extra	II			2.59			2.89		3.29									
	Ferro Maxima	I			1.49			1.69		1.89					9.99	10.99	11.99		
	DAT	I																	
CERTRON	CTX-90	II					2.79†											†Two-pack. Five-pack, \$6.49.	
DENON	R-DT	IV			4.50	4.99	5.50	5.99					8.99	10.99	12.99				
	HDM	II			3.75	4.25	4.75	4.99											
	HD8	II			3.00	3.50	4.00	4.25											
	HD7	II			2.50	2.75	3.25	3.50											
	HD6	II						6.99†											
	S-PORT Metal	IV						4.99†										†Two-pack.	
S-PORT High	II			3.00		4.00													
DX4	I			1.75		2.25							8.99	9.99	10.99	11.99		R-30, \$7.99.	
DX1	I																		
DIC DIGITAL	DIC																		
	DR-I	I			1.49		1.99												
	DR-II	II			2.49		2.99	3.49											
	FR-Iix	II			3.49	3.79	3.99	4.49											
	FR-Iix PRO	II			4.49	4.79	4.99	5.49											
FR Metal	IV			5.49		5.99	6.49						10.95	11.95	12.95				
DAT																			
GE BLANK TAPE	HD	I			1.49		5.49												
	HFX	I			2.49		2.99												
	H8X	II					3.49												
GREENCORP	XDS Music Grade	I	.35	.39	.45		.55												C-12, 28¢.
	Music Plus Grade	I	.42	.45	.52		.64												C-12, 32¢.
	Genuine Chrome	II	.51	.55	.61		.85	.88											C-12, 41¢.
JVC	XFIV	IV					3.90												
	AFII	II			2.20		2.50												
	GI	I			1.30		1.55												
	R-(DAT)												10.00	12.00	14.00				R-100, \$12.80.
LORAN	ESQ	II					4.99												
	Loran	II	2.99	3.49			3.99						7.50		10.50				R-5, \$4.75; R-10, \$5.00; R-30, \$6.00; R-140, \$11.59.
MACH (Continued)	ESR	I			.99		1.19												Two-packs: C-60, \$1.89; C-90, \$2.29.

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BLANK TAPE

ANALOG CASSETTE TAPE TYPE CODE I — Normal Ferric II — Chrome/Chrome Equivalent IV — Metal Particle		ANALOG CASSETTES										OPEN REEL		DAT CASSETTES		Notes				
		MANUFACTURER	Brand	Tape Type—See Code										1800 Feet	3600 Feet		R-46	R-60	R-90	R-120
				C-30	C-45 or C-46	C-60	C-74, C-75, or C-76	C-90	C-100	C-120										
MACH (Continued)	CDX	II			1.59		1.89													Two-packs: C-60, \$2.99; C-90, \$3.69.
MAXELL	UR UDI UDII XLII XLI-S XLII-S MX XLI-35-90B XLI-35-180B UD-35-90 UD-35-180 DM	I I II II I II IV		1.49 2.49 2.49 3.29	1.49 2.49 2.49 3.29		1.79 3.29 3.29 4.39 4.39 5.29				2.79					13.99 9.99	38.99 31.29	8.99 10.99 12.99 14.99		Back-coated. As above.
MEMOREX	dBX MRX HBS CDX	I I II II		1.04 1.59	1.09 1.79 1.79		1.39 2.29 2.29 4.79	1.99		2.59		1.94								
NAKAMICHI	ZX SXII SX EXII DAT	IV II II I					10.00 8.90 6.50 6.00											14.50 16.50 19.50 22.50		High coercivity.
RAKS	SD-X CD-X ED-X	II I I		.63 .57 .45	.70 .62 .51		.81 .73 .61													
REALISTIC	Supertape Low Noise Supertape XR Extended Range Supertape HD Chrome Supertape Metal MII Supertape Metal MIV Supertape Low Noise	II I II II IV	1.69†	1.99†		2.39†				3.49†										†Two-pack. 900 feet, \$3.99; 1200 feet, \$4.79.
SKC	GX AX QX CD ZX	I I II II IV		1.29 1.99	1.39 2.09 2.39 2.49 4.09		2.99		1.59 2.49 2.79 3.39 5.59	1.99	2.39									Cobalt-doped ferric oxide. Pure chromium dioxide.
SDNY	HF HFS UX UX-S UX-ES UX-PRO Metal-SR Metal-ES Metal Master	I I II II II II IV IV IV		1.49	1.79 1.99 2.49 2.99 3.99 5.99 3.49			2.29 2.69 3.29 3.99 5.49 7.99 3.99 9.99 11.99		2.99										
SWIRE MAGNETICS	Laser XL-Plus Normal Bias Laser XL-Plus High Bias	I II			1.20			1.45		1.95										
TDK	MA-XG MA-X MA SA-X SA SD AR-X AR AD D OA	IV IV IV II II II I I I I I		4.25 3.00 2.50 2.25	15.00 4.25 3.50 3.00 2.50 2.25 2.50 2.50 2.25 1.75			18.00 5.00 4.00 3.50 3.00 2.50 3.00 2.75 2.50 2.00		4.50 4.50 3.00	2.50					10.00 12.00 14.00			C-110, \$5.25. C-80, \$2.75.	
THAT'S AMERICA	Suono CD-IV CD-MH CD-II CD AS-IV AS-II	IV IV II II I IV II	8.10	9.44		11.49 5.79 4.75 4.13 2.91		13.10 5.99 5.31 4.51 2.83 4.98 3.15		7.35 5.79 5.10 3.95 5.37 3.57										
3M/BLACK WATCH	2020 4040-Metal 7707-DAT 1006 1007	II IV				4.00 7.00			6.00 9.00							20.00 25.00				R-75, \$15.00. 1200 feet, \$10.00; 2500 feet, \$15.00.
3M/SCOTCH	BX CX XS XSM IV "SCREAM'R" DAT	I I II IV I			1.69 2.40 2.99 4.49			1.95 2.99 3.99 5.99 2.98									8.99 10.99 12.49 14.99			

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	C32	.46	.35	.32
	C47	.51	.39	.35
	C62	.58	.45	.42
	C92	.68	.55	.52
Music-PLUS	C12	.44	.32	.30
	C32	.54	.42	.39
	C47	.58	.45	.41
	C62	.66	.52	.47
	C92	.77	.64	.57
Genuine Chrome	C12	.53	.41	.39
	C32	.63	.51	.48
	C47	.68	.55	.51
	C62	.75	.61	.57
	C92	.98	.85	.80
	C100	1.04	.88	.82

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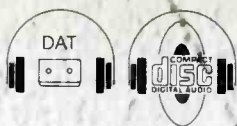
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MICROPHONES

MANUFACTURER	Model	Directional Pattern	Operating Principle	Case Material	Most Common Use	Actual Impedance	Operating Range	Open-Circuit Sensitivity	Mike Connector Type	Cable Length	Connector Type on End of Cable	Weight, Ounces	Price, \$	Notes	
		Stereo = x2, Quad = x4, M-S = M-S				Ohms	Hz to KHz	1 KHz, -dB, re. 1 Volt/1 u-bar		Feet					
AKG	D-58E	Card.	Dynamic	Nckl./Brass	Noisy Envrn.	240B	70-12	83	XLR			1 1/2	125.00	Noise cancelling.	
	D-70M	Card.	Dynamic	Plastic	Record	600	50-18	77		15	Phone	6 3/4	75.00		
	D-70ME	Card.	Dynamic	Plastic	Record	620B	50-18	77	XLR			6 3/4	85.00		
	D-80	Card.	Dynamic	Brass	Record	210B	60-15	76	XLR	15	Phone	7 3/8	135.00		
	D-80E	Card.	Dynamic	Brass	Record	210B	60-15	76	XLR			7 3/8	140.00		
	D-109	Omni	Dynamic	Brass	Voice	240B	70-12	79		30	Phone	5 3/8	125.00	Lavalier.	
	D-112	Card.	Dynamic	Zinc Alloy	Bass	200B	20-17	75	XLR			13 3/8	225.00		
	D-125E	Card.	Dynamic	Zinc Alloy	Instr.	210B	100-18	74	XLR			8	170.00		
	D-130E	Omni	Dynamic	Zinc Alloy	ENG	220B	50-13	75	XLR			9	140.00		
	D-130NR	Omni	Dynamic	Zinc Alloy	ENG	220B	50-13	75	XLR			9	150.00		
	D-190E	Card.	Dynamic	Zinc Alloy	General	280B	30-15	73	XLR			6 1/2	S	135.00	
	D-190ES	Card.	Dynamic	Zinc Alloy	General	280B	30-15	73	XLR			6 1/2	S	155.00	
	D-202E1	Card.	Dynamic	Zinc/Plastic	Strings	300B	20-20	76	XLR			12	F	425.00	Two-way system.
	D-222EB	Card.	Dynamic	Zinc/Plastic	Podium	320B	20-16	77	XLR			9	F	350.00	
	D-224E	Card.	Dynamic	Zinc Alloy	Acoust. Instr.	260B	20-20	78	XLR			10	F	600.00	
	D-310	Card.	Dynamic	Zinc Alloy	Vocal	270B	80-18	78	XLR			9		160.00	
	D-310NR	Card.	Dynamic	Zinc Alloy	Vocal	270B	80-18	78	XLR			9		165.00	
	D-310S	Card.	Dynamic	Zinc Alloy	Instr./Vocal	270B	80-18	78	XLR			9	S	175.00	
	D-321	Hyper Card.	Dynamic	Zinc Alloy	Vocal	300B	40-20	77	XLR			13 3/8		210.00	
	D-321S	Hyper Card.	Dynamic	Zinc Alloy	Vocal	300B	40-20	77	XLR			11 1/2	S	225.00	
	D-330BT	Hyper Card.	Dynamic	Zinc Alloy	Vocal	370B	50-20	78	XLR			12	F	250.00	
	D-330NR	Hyper Card.	Dynamic	Zinc Alloy	Vocal	370B	50-20	78	XLR			12	F	265.00	
	D-510B	Omni	Dynamic	Nckl./Brass	Voice	230B		79	Attached	3/4	None	11 1/2		140.00	Gooseneck.
	D-541B	Card.	Dynamic	Plastic	Vocal	720B	120-16	73	Attached	3/4	None	12 1/2		115.00	As above.
	D-550B	Card.	Dynamic	Nckl./Brass	Voice	200B	70-15	83	Attached	3/4	None	11 1/2		165.00	
	D-590	Card.	Dynamic	Nckl./Brass	Vocal	230B	150-17	78	Attached	3/4	None	10		175.00	As above.
	D-900E	Super Card.	Dynamic	Lacq. Nickel	ENG	240B	60-12	70	XLR			18	F	450.00	Long shotgun.
	D-1200E	Card.	Dynamic	Zinc Alloy	General	200B	25-17	73	XLR		None	8 1/2	F	250.00	
	C-426	Multiple x2	Condenser	Zinc Alloy	Orch.	200B	20-20		12-Pirr	60	XLR		W	3395.00	Remote pattern control.
	AKG Tube	Multiple	Condenser	Zinc Alloy	Studio	200B	20-20	60	12-Pirr	60	XLR	24	W	2295.00	As above.
	C-414B ULS	Multiple	Condenser	Zinc Alloy	Studio	200B	20-20	58	XLR			11	WF	1045.00	Transformerless version, Model C-414B TL, \$1255.00, Modular system.
	C-451EB/CK1	Card.	Condenser	Zinc Alloy	Studio	200B	20-20	60.5	XLR			3 3/4	F	495.00	
	C-460B/CK-61ULS	Card.	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	550.00	As above.
	C-460B/CK-62ULS	Omni	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	550.00	As above.
	C-460B/CK-63ULS	Hyper Card.	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	550.00	As above.
	C-451EB/CK-9	Super Card.	Condenser	Zinc Alloy	Studio	200B	20-20	59	XLR			4	F	1100.00	Long shotgun.
	C-451EB Preamp		Condenser	Zinc Alloy	Studio	200B	20-20		XLR			3	F	335.00	Modular preamp.
	C-451E Preamp		Condenser	Zinc Alloy	Studio	200B	20-20	60.5	XLR		None	3 3/8		250.00	As above; no bass roll off.
	C-460B Preamp		Condenser	Zinc Alloy	Studio	500B	20-20		XLR			4 1/2	F	420.00	As above.
	CK-1	Card.	Condenser	Zinc Alloy	Studio		20-20	60				1		145.00	
	CK-1X	Card.	Condenser	Zinc Alloy	Studio		20-20	62	LEMO	10		1 1/8		230.00	
	CK-2X	Omni	Condenser	Zinc Alloy	Studio		20-20	62	LEMO	10		1 1/8		230.00	
	CK-3	Hyper Card.	Condenser	Zinc Alloy	Studio		20-20	61				1		145.00	
	CK-3X	Hyper Card.	Condenser	Zinc Alloy	Studio		20-20	61	LEMO	10		1 1/8		230.00	
	CK-5	Card.	Condenser	Zinc Alloy	Studio		20-20	60				4		275.00	
CK-8	Super Card.	Condenser	Zinc Alloy	Studio		20-20	54				2 1/2	W	260.00	Short shotgun.	
CK-8X	Super Card.	Condenser	Zinc Alloy	ENG		30-18	59	LEMO	10	XLR	4 1/4	W	365.00	As above.	
CK-9	Super Card.	Condenser	Zinc Alloy	Studio		20-20	59				12	W	320.00	Long shotgun.	

(Continued)



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Records aren't the only things made obsolete by CD's. Many headphones that sounded fine with analog audio just aren't up to reproducing the remarkable clarity and full dynamic range of digital sound. In the tradition of the professionally used AKG K240 series, AKG continues to meet this technological challenge with the new K280—the first *parabolic* headphones designed specifically for digital recordings. Within each earcup are two perfectly matched transducers computer-positioned to focus interference-free sound at the center of the user's ear. This "acoustic lens" offers exceptionally transparent sound and dimensional imaging, while the use of doubled transducers improves channel balance and increases dynamic range to match the most demanding performance. Comfortable and accurate, AKG K280 headphones are designed to be driven by the low impedance outputs of modern CD players and audio gear. Also available is the K270, a non-open air [sealed] version of the K280.

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MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = X2, Quad = X4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance - 1 kHz, Ohms, Balanced = B	Operating Range - Hz to kHz	Open-Circuit Sensitivity, 1 kHz, -dB, re: 1 Volt/1 μbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On Or Switch = S, Switched Low or Proximity Filter = F	Price, \$	Notes
AKG (Continued)	CK-22	Omni	Condenser	Zinc Alloy	Studio	20-20	62				1 1/2		145.00		
	CK-61ULS	Card.	Condenser	Zinc Alloy	Studio	20-20	62				1		170.00		
	CK-62ULS	Omni	Condenser	Zinc Alloy	Studio	20-20	62				1		170.00		
	CK-63ULS	Hyper Card.	Condenser	Zinc Alloy	Studio	20-20	62				5 1/2	F	170.00		
	C-410	Card.	Electret Condenser	Plastic	Vocal	300	20-20	70.5	XLR	11 3/4		4 5/8		225.00	
	C-522	Card. x2	Electret Condenser	Zinc Alloy	Stereo	300B	20-20	60	5-Pin XLR	6	3-Pin XLR	10	W	995.00	X-Y stereo.
	C-525	Hyper Card. Card.	Condenser	Alum.	Stage	200B	80-20	76	XLR		None	5 3/8		195.00	
	C-535EB	Card.	Condenser	Zinc Alloy	Vocal	200B	20-20	61	XLR			10	F	350.00	
	C-562	Hemi.	Condenser	Zinc Alloy	General	600B	20-20	54	XLR	10		33 5/8	W	435.00	
	C-562CM	Hemi.	Condenser	Zinc Alloy	General	600B	20-20	49	Mini	3	XLR	1		195.00	Ceiling-mount boundary layer mike.
	C-567E	Omni	Electret Condenser	Zinc Alloy	Voice	200	20-20	64	XLR	9		3 1/2	W	275.00	
	CK-67.3	Omni	Electret Condenser	Zinc Alloy	Voice			55				3/8		155.00	Lavalier.
	C-568EB	Super Card.	Condenser	Zinc Alloy	ENG	200B	20-20	62	XLR			6	WF	350.00	Short shotgun.
	D-12E	Card.	Condenser Dynamic	Zinc Alloy	Bass Drum	280B	30-15	73	XLR			17		425.00	
	C-535WL	Card.	Electret Condenser	Brass	Vocal		40-20	63				13 5/8		295.00	Wireless.
	CK-67WL	Omni	Electret Condenser	Zinc Alloy			40-20	64						190.00	As above; lavalier; with tie-tac and tie-bar.
	D-321WL	Hyper Card.	Condenser Dynamic	Zinc Alloy	Vocal		40-20	77				13 5/8		195.00	Wireless.
	D-330WL	Hyper Card.	Dynamic	Zinc Alloy	Vocal		50-20	77				13 5/8		195.00	As above.
	A-85 Module													80.00	Allows use of any dynamic mike.
	D-95S	Hyper Card.	Dynamic		General	300B	70-18	†	XLR				S	160.00	†1.3 mV/Pa.
	D-90S	Card.	Dynamic		General	300B	70-18	†	XLR				S	150.00	†As above.
	CK-62DF	Omni	Condenser	Zinc Alloy										170.00	
	C-401	Figure 8	Condenser	Plastic	Strings	200B	10-10	†	XLR	5	None	3/8		140.00	†Velocity sensitivity, 3 mV/mS ⁻² . Contact pickup.
	C-401B	Figure 8	Condenser	Plastic	Strings	200B	10-10		Mini					85.00	Two inputs, one output.
	C-402	Card.	Condenser	Plastic	Strings	200B	2.5k-20k	61	XLR	5	None	3/8		150.00	For use with C-401.
	C-402B	Card.	Condenser	Plastic	Strings	200B	2.5k-20k	†	Mini					95.00	†13 mV/Pa. Two inputs, one output.
	C-406	Hyper Card.	Condenser	Plastic	Instr.	200B	20-20	63	XLR	5	None	3 1/2	W	220.00	
	C-406B	Hyper Card.	Condenser	Plastic	Instr.	200B	20-20	63	Mini	5	None	3 1/2	W	165.00	
	C-407	Omni	Condenser	Plastic	Voice	200B	20-20	60	XLR	5	None	3/8	W	145.00	Miniature lavalier.
	C-407B	Omni	Condenser	Plastic	Voice	200B	20-20	60	Mini	5	None	3/8	W	100.00	As above.
C-408B	Hyper Card.	Condenser	Plastic	Perc.	200B	20-20	†	Mini			3/8	W	165.00	†5 mV/Pa. Two inputs, one output.	
C-409B	Hyper Card.	Electret Condenser	Plastic	Wind Instr.	200B	20-20	†	Mini					165.00	†10 mV/Pa. As above.	
C-747	Hyper Card. Card.	Condenser	Metal	Instr. Vocal	400B	30-18	†	XLR					400.00	†10 mV/Pa.	
C-1000S	Card.	Condenser	Metal	Vocal	200B	50-20	†	XLR				S	325.00	†6 mV/Pa. Includes adaptor for hyper cardioid.	
C-408	Hyper Card.	Condenser	Plastic	Perc. Wind Instr.	200B	80-20	†	XLR					220.00	†5 mV/Pa.	
C-409	Hyper Card.	Electret Condenser	Plastic	Wind Instr.	200B	20-20	†	XLR					220.00	†10 mV/Pa.	
AMBICO	V-0620	Uni/Card.	Electret Condenser	Alum.	Video	600	†	40	None	3	Mini	10	WS	99.95	Switchable shotgun.
	V-0623	Card.	Electret Condenser	Alum.	Video	75	300-15	94	None	0	Mini/Phone	16	SF	99.95	†Uni, 100 Hz to 15 kHz; cardioid, 20 Hz to 18 kHz
	V-0625	Card.	Electret Condenser	Plastic	Video	75	300-15	40	Mini	0	Mini/Phone	6	S	94.95	Wireless; lavalier; three frequencies.
AUDIO-TECHNICA (Continued)	AT877	Line Gradient	Condenser	Alum.	Video/Record Perc.	350B	60-14	40	XLR-M			5.6	WSF	645.00	
	ATM25	Hyper Card.	Dynamic	Zinc Die-Cast	Instr.	600B	20-18	54	XLR-M			13.7		240.00	
	ATM63	Card.	Dynamic	Zinc Die-Cast	Instr.	250B	50-17	55.5	XLR-M			9.5		180.00	
	ATM41HE	Hyper Card.	Dynamic	Zinc Die-Cast	Vocal	600B	50-17	51	XLR-M			10.3		198.00	
ATM61HE	Hyper Card.	Dynamic	Zinc Die-Cast	Instr.	600B	50-18	51	XLR-M			9.7		238.00		

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M-S = M-S	Operating Principle	Casing Material	Most Common Use	Actual Impedance, 1 kHz, Ohms; Balanced = B	Operating Range, Hz to kHz	Open Circuit Sensitivity, 1 kHz, -dB re: 1 Volt/1 bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On Off Switch = S Shielded low or Phantom Filter = F	Price, \$	Notes
AUDIO-TECHNICA (Continue#)	AT4031	Card.	Condenser	Brass	Studio	100B	30-20	XLR-M			4.8	F	325.00	Interchangeable elements. As above. As above. Boundary mike; requires phantom powering. Three elements in one housing. Lavalier. As above. Phantom powered also available. As above. Requires phantom powering. Gooseneck. Subminiature lavalier.	
	AT4049	Omni	Condenser	Brass	Studio	250B	20-20	XLR-M			4.4	F	580.00		
	AT4051	Card.	Condenser	Brass	Studio	250B	20-20	XLR-M			4.2	F	580.00		
	AT4053	Hyper Card.	Condenser	Brass	Studio	250B	20-20	XLR-M			4.2	F	610.00		
	AT4071	Line	Condenser	Alum.	Brdcst.	250B	30-20	XLR-M			5.8	WF	950.00		
	AT4073	Gradient	Condenser	Alum.	Brdcst.	250B	30-20	XLR-M			4.2	WF	790.00		
	AT837QML	Gradient	Condenser	ABS	Podium	200B	40-18	XLR-M	25	XLR-M	2	WF	152.00		
	AT853a	Card.	Condenser	ABS	Choir/ Stage	400B	30-20	Swcfl. TA3F	10	XLR-M	4	WSF	237.00		
	AT857	Card.	Condenser	ABS	Podium	400B	30-20	Swcfl. TA3F				WSF	285.00		
	AT859a	Card.	Condenser	ABS	Voice	400B	40-18	XLR-M	25	XLR-M	14.8	WS	225.00		
	AT871R	Uni	Condenser	Brass	Reinl.	400B	30-20	Swcfl. TA3F				SF	295.00		
	R0303	(3)Card.	Condenser	Brass	Podium	100B	30-20	(3)Swcfl. TA3F	(3)25	XLR-M	13.8	WSF	1000.00		
	AT801	Omni	Condenser	Alum.	Record	600	40-18	XLR-M	16½	Phone/ XLR-M		S	126.00		
	AT802	Omni	Dynamic	Alum.	Brdcst.	600	50-15	XLR-M	16½	Phone/ XLR-M	5	S	122.00		
	AT803b	Omni	Condenser	Alum.	Brdcst.	400B	30-20	XLR-M		Phone	0.09	S	139.00		
	AT805b	Omni	Condenser	Alum.	Aero- bics	600B	50-15	XLR-M	20			S	85.00		
	AT811	Card.	Condenser	Alum.	Reinl.	600B	50-20	XLR-M	16½	Phone/ XLR-M		S	139.00		
	AT813	Card.	Condenser	Alum.	Studio	600B	40-20	XLR-M	16½	Phone/ XLR-M	6.5	S	153.00		
	AT814a	Card.	Dynamic	Brass	Vocal	250	50-16	XLR-M	16½	Phone/ XLR-M	10		173.00		
	AT815a	Line	Condenser	Alum.	Brdcst.	600B	40-20	XLR-M	16½	Phone/ XLR-M	9.2	WF	285.00		
	AT831b	Gradient	Condenser	Brass	Reinl.	400B	40-20	XLR-M			0.1	WS	165.00		
	AT833R	Card.	Condenser	Alum.	Studio	150B	30-20	XLR-M	16½	XLR-M	4.7		225.00		
	AT835	Line	Condenser	Alum.	Brdcst.	600B	40-20	XLR-M	16½	XLR-M	8	WF	257.00		
AT836	Gradient	Dynamic	Brass	Vocal	250B	50-17	XLR-M	16½	Phone/ XLR-M	8.5		162.00			
AT836g	Card.	Dynamic	Steel & Alum.	Podium	600B	100-10	XLR-M			12.4		110.00			
ATR20	Card.	Dynamic	Plastic	Vocal	500	80-12	64	Attached	10	Mini/ Phone	4.7	WS	25.95		
ATR25	Card. x2	Condenser	Plastic	Video/ Record	600	70-18	60	Mini	10	Mini/ Phone	2.8	S	64.95		
ATR30	Card.	Dynamic	Metal	Vocal	500	60-15	58	XLR	20	Phone	8	WS	53.95		
ATR35	Omni	Condenser	Metal	Vocal	1k	50-18	54	Attached	20	Mini/ Phone	0.2	W	35.95		
ATR55	Card./ Super Card.	Condenser	Metal	Video/ Record	700	70-18	50/40	Attached	3	Mini/ Phone	4	WS	104.95		
AUDIX	UD50	Card.	Dynamic	Zinc Alloy	Vocal	500B	80-15	80	XLR		9	S	89.00		
	UD300	Card.	Dynamic	Zinc Alloy	Vocal	200B	50-18	76.5	XLR		10		165.00		
	OM-1	Hyper Card.	Dynamic	Brass	Vocal/ Instr.	200B	50-18	78.5	XLR		10½		239.00		
	OM-2	Hyper Card.	Dynamic	Zinc Alloy	Vocal	200B	40-20	78.5	XLR		9½		215.00		
	DM-3xb	Hyper Card.	Dynamic	Zinc	Vocal	200	38-21.5	67.5	Neutrik A3F		10	W	279.00		
	ML-10	Omni	Electret Condenser	Alum.	Vocal	1k, B	30-15	68	XLR	10	Mini XLR	1	WS	95.00	
	LEM-1	Omni	Electret Condenser	Alum.	Vocal	2.2k	80-12	66	Attached	10		3	W	49.00	
	UEM-81C	Card.	Electret Condenser	Alum.	Vocal/ Instr.	600B	50-18	62	XLR	20	XLR	4½	WSF	119.00	
	UEM-81S	Super Card.	Electret Condenser	Alum.	Vocal	600B	30-20	65	XLR	20	XLR	8½	WSF	325.00	
	C-1	Card.	Electret Condenser	Alum.	Vocal/ Instr.	1k, B	40-20	65	XLR			4½	WS	189.00	
	UEM-83R	Super Card.	Electret Condenser	Alum.	Vocal/ Instr.	600	50-16	64	Attached	1	Mini/ Phone	8	W	119.00	
	UEM-311	Card. x2	Electret Condenser	Alum.	Vocal/ Instr.	1k	40-20	64	Attached	20	Phone	9	WS	119.00	
	UEM-312	Card. x2	Electret Condenser	Plastic	Vocal/ Instr.	1k	40-20	64	Attached	20	Phone	6	WS	55.00	
	ST-1	Card. x2	Electret Condenser	Alum.	Vocal/ Instr.	1.7k	80-20	64	Attached	2	Stereo Mini	4	W	129.00	
	UEM-85	Super Card.	Electret Condenser	Alum.	Video	2k	50-15	58	Attached	1	Mini	3	W	65.00	
	UEM-87	Super Card.	Electret Condenser	Alum.	Video	2k	50-15	62	Attached	1	Mini	3	W	65.00	
	UEM-88	Super Card.	Electret Condenser	Plastic	†	2k	200-15	64	Attached			4	WS	89.00	
SCX-1 Series	†	Condenser	Brass	Vocal/ Instr.	200	20-20	58	Neutrik A3F			6		1800.00		

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MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M.S. = M.S.	Operating Principle	Case Material	Most Common Use	Actual Impedance, 1 kHz, Ohms, Balanced = B	Operating Range, Hz to kHz	Open-Circuit Sensitivity 1 kHz, -dB, re: 1 Volt/1 μ bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wing Screen Switched = W Low or Phantom Filter = L	Price, \$	Notes
AZDEN	DX-580		Dynamic	Alum.	Music/Vocal	600	50-15	76	XLR	20	Phone	WS		69.95	
	DX-750		Dynamic	Plastic	Vocal	600	70-12	76			Phone	WS		39.95	
	DX-431		Dynamic	Plastic	Vocal	600	100-12	76			Phone	WS		29.95	†Mini with phone adaptor.
BEYERDYNAMIC	TG-X180	Hyper Card.	Dynamic	Alum.	Vocal Instr.	290B	40-16	54†	3-Pin XLR			5.8	S	159.00	†dBV.
	TG-X280	Hyper Card.	Dynamic	Alum.	Vocal Reinf.	290B	30-16	54†	3-Pin XLR			5.8	S	199.00	
	TG-X480	Hyper Card.	Dynamic	Alum.	Live Vocal	280B	40-18	50†	3-Pin XLR			8	S	269.00	
	TG-X580	Hyper Card.	Dynamic	Alum.	Vocal Record	280B	30-18	50†	3-Pin XLR			8	S	349.00	
	M58	Omni	Dynamic	Alum.	ENG/ EFP	200B	40-20	149	A3M			9	W	199.95	
	M300	Card.	Dynamic	Alum.	Vocal	250B	50-15	150	A3M			8.6		179.95	
	M300S	Card.	Dynamic	Alum.	Vocal	250B	50-15	150	A3M			8.6	S	199.95	
	M300 TG	Card.	Dynamic	Alum.	Vocal	250B	50-15	150	A3M			8.6		189.95	
	M300S TG	Card.	Dynamic	Alum.	Vocal	250B	50-15	150	A3M			8.6		209.95	
	M400	Super Card.	Dynamic	Alum.	Vocal	200B	40-16	146	A3M			9		229.95	
	M400S	Super Card.	Dynamic	Alum.	Vocal	200B	40-16	146	A3M			9	S	249.95	
	M500	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	150	A3M			8.5		329.95	
	M500S	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	150	A3M			8.5	S	349.95	
	M500 TG	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	150	A3M			8.5		339.95	
	M500S TG	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	150	A3M			8.5		359.95	
	M600	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	149	A3M			8.2		349.95	
	M600S	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	149	A3M			8.2	SF	369.95	
	M700	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	149	A3M			9.2		289.95	
	M700S	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	149	A3M			9.2	S	309.95	
	MCE80	Super Card.	Electret Condenser	Brass	Vocal	190B	50-18		A3M			8	S	339.95	4.5-V battery or 12 to 48-V phantom powered. 12 to 48-V phantom powered.
	MCE81	Card.	Condenser	Brass	Vocal	190B	50-18		A3M			9.2		299.95	
	M69	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	145	A3M			11.3		214.95	
	M69 TG	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	145	A3M			11.3		224.95	
	M88 TG	Hyper Card.	Dynamic	Brass	Instr.	200B	30-20	145	A3M			11.3		399.95	
	M88	Hyper Card.	Dynamic	Brass	Instr.	200B	30-20	145	A3M			11.3		389.95	
	M101	Omni	Dynamic	Brass	Instr.	200B	40-20	149	A3M			5.6	W	229.95	
	M130	Figure 8	Dual Ribbon	Brass	Instr.	200B	40-18	152	A3M			5.3		519.95	
	M160	Hyper Card.	Dual Ribbon	Brass	Instr.	200B	40-18	152	A3M			5.5		499.95	
	M201	Hyper Card.	Dynamic	Brass	Instr.	200B	40-18	150	A3M			7.8		269.95	
	M260	Hyper Card.	Ribbon	Brass	Instr.	200B	50-18	150	A3M			10.6	S	299.95	
	M260S	Hyper Card.	Ribbon	Brass	Instr.	200B	50-18	150	A3M			10.6		309.95	
	M380 TG	Figure 8	Dynamic	Zinc	Instr.	600B	15-20		A3M			13		279.95	
	M420	Hyper Card.	Dynamic	Brass	Instr.	200B	100-12	150	A3M			5.2		199.95	
	M422	Hyper Card.	Dynamic	Alum.	Instr.	200B	100-12	152	A3M			2.5		139.95	
	M260N.80	Hyper Card.	Ribbon	Brass	P. A.	200B	100-18	150	A3M			8		289.95	
	CV710P48	Preamp		Brass	Studio	200B	40-20		A3M				F	300.00	Modular preamp for use with "CK" models. 8 to 52-V phantom powered.
	CV720Pv	Preamp		Brass	Studio	200B	40-20		A3M				F	350.00	
	AC/CV750	Preamp		Brass	Studio	150B	40-20		A3M			6	F	399.95	
	CK701	Omni	Condenser	Brass	Studio		40-20						W	265.00	
	CK702	Omni	Condenser	Brass	Studio		40-20							325.00	Built-in suspension.
	CK703	Card.	Condenser	Brass	Studio		40-20						W	325.00	
	CK704	Card.	Condenser	Brass	Studio		40-20							345.00	
	CK706	Card. Lobe	Condenser	Brass	Studio		40-20							540.00	
	CK707	Lobe	Condenser	Brass	Studio		40-20							650.00	
	CK708	Figure 8	Condenser	Brass	Studio		40-20							625.00	
	MC734P48	Card.	Condenser	Alum.	Vocal		20-18	138	A3M			9.5		795.00	48-V phantom powered.
	MC734PA	Card.	Condenser	Alum.	Vocal	150B	20-18	138	A3M			9.5	F	800.00	Higher SPL version of model above.
	MC736P48	Card./Lobe	Condenser	Alum.	Studio	150B	40-20	30	A3M			8.8	F	930.00	
	MC736PV	Card./Lobe	Condenser	Alum.	ENG/ EFP	150B	40-20	33	A3M			7	F	910.00	
	MC737P48	Lobe	Condenser	Alum.	Studio	150B	40-20	30	A3M			15.6	F	960.00	
MC737PV	Lobe	Condenser	Alum.	ENG/ EFP	150B	40-20	33	A3M			9	F	980.00		
MC740	5-Pattern	Condenser	Alum.	Studio	150B	40-20	133	A3M			13.8	F	1420.00		
MC740N (C/S)	5-Pattern	Condenser	Alum.	Studio	150B	40-20	133	A5M			13.8	F	1440.00		
MCE5	Omni	Electret Condenser	Brass	Brdcst.	800B	20-20	141		4	6-Pin DIN	0.25	W	199.00	Lavalier.	
MCE5-3M	Omni	Electret Condenser	Brass	Brdcst.	800B	20-20	141		10	6-Pin DIN	0.25	W	209.00	As above.	
MCE5.1	Omni	Electret Condenser	Brass	Brdcst.	200B	20-20	129		10	Phone	0.25	WS	299.00	As above.	
MCE5.9	Omni	Electret Condenser	Brass	Brdcst.		20-20	129		10	None	0.25	W	189.00	As above; for wireless system.	
MCE5.11	Omni	Electret Condenser	Brass	Brdcst.	200B	20-20	129		10	A3M	0.25	WS	399.00		
MCE6	Omni	Electret Condenser	Brass	Instr.	800B	20-20	111		4	6-Pin DIN	0.25	W	199.00	Lavalier.	
MCE6.1	Omni	Electret Condenser	Brass	Instr.	200B	20-20	99		10	Phone	0.25	WS	299.00	As above.	
MCE6.9	Omni	Electret Condenser	Brass	Instr.		20-20	99		10	None	0.25	W	189.00	As above; for wireless system.	
MCE6.11	Omni	Electret Condenser	Brass	Instr.	200B	20-10	99		10	A3M	0.25	WS	399.00	Lavalier; battery or phantom powered.	
(Continued)	MCE10	Hyper Card.	Electret Condenser	Brass	Brdcst.	700B	40-20	42		4	6-Pin DIN	0.5	W	299.00	Lavalier; for mike line level.

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Store Manager
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MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = X2, Quad = X4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance, Balanced = Ω	Operating Range, 1 kHz, Ohms:	Open-Circuit Sensitivity, 1 kHz, dB, re: 1 Volt/1 μbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wood Screen = W, On On Switch = S, Switched Low or Priority Filter = F	Price, \$	Notes
BEYERDYNAMIC (Continued)	MCE10.1	Hyper Card.	Electret Condenser	Brass	Brdcst.	200B	40-20	42		10	Phone	0.5	WS	429.95	Lavalier.
	MCE10.9	Hyper Card.	Electret Condenser	Brass	Brdcst.		40-20	42		10	None	0.5	W	269.95	As above; for wireless system.
	MCE10.11	Hyper Card.	Electret Condenser	Brass	Brdcst.	200B	40-20	42		10	A3M	0.5	WS	399.00	Lavalier; battery or phantom powered.
	MPC40	Hemi.	Condenser	Brass	Reinf.	1k	25-20			10	3-Pin	3		260.00	
	MPS40.01	Hemi.	Condenser	Brass	Reinf.	180B	25-20			10	3-Pin	3	S	499.95	Includes MES40 power supply.
	MPS40.02	Hemi.	Condenser	Brass	Reinf.	150B	25-20			10	3-Pin	3	F	750.00	Includes CV750 preamp.
MPC50	Hemi.	Condenser	Oak	Reinf.	200B	20-20		A3M			18	S	690.00	Battery or phantom powered.	
MPC60/1	Hemi.	Condenser	Oak	Reinf.	200B	20-20		A3M			26		870.00	As above.	
MPC60/3	Half Card.	Condenser	Dak	Reinf.	200B	20-20		A3M			25		900.00		
BRÜEL & KJAER	4003	Omni	Condenser	Brass	Orch.	30B	10-20	†	A4F	15	4-Pin	6	W	1337.00	†50 mV/Pa; this and all other sensitivity specs measured at 250 Hz. Requires Model 2812 power supply (two-channel, 130 V), \$1432.00.
	4004	Omni	Condenser	Brass	High Inten. Orch./Vocal/Acoust. Perc.	30B	10-40	†	A4F	15	4-Pin	6	W	1337.00	†10 mV/Pa. Powered as above.
	4006	Omni	Condenser	Brass	High Inten. Orch./Vocal/Acoust. Perc.	30B	20-20	†	A3F	15	A3F	8	W	1337.00	†10 mV/Pa. 48-V phantom powered.
	4007	Omni	Condenser	Brass	Vocal	180B	20-40	†	A3F	15	A3F	8	W	1337.00	†2.5 mV/Pa. Powered as above.
	4011	Card.	Condenser	Brass	Vocal	180B	20-40	†	A3F	15	A3F	8	WS	1497.00	†10 mV/Pa. Powered as above.
	4012	Card.	Condenser	Brass	High Inten. Drch.	30B	40-20	†	A4F	15	A3F	8	WS	1733.00	†9 mV/Pa. Requires Model 2812 supply.
	3529	Omni x2	Condenser	Brass	Orch.	30B	10-20	†	A4F	15	4-Pin	6	W	5708.00	†50 mV/Pa. Powered as above.
	3530	Omni x2	Condenser	Brass	Orch.	30B	20-20	†	A3F	15	XLR	8	W	4377.00	†10 mV/Pa. 48-V phantom powered.
CROWN INTERNATIONAL	PZM-6F	Hemi.	Electret Condenser	Alum.	Record	240	20-15	67		15	XLR	5	W	349.00	Pressure Zone Mike.
	PZM-6R	Hemi.	Electret Condenser	Alum.	Record	240	20-15	65		15	XLR	5	W	349.00	As above.
	PZM-30F	Hemi.	Electret Condenser	Alum.	Record	240	20-15	67	XLR			6½	W	349.00	As above.
	PZM-30R	Hemi.	Electret Condenser	Alum.	Record	240	20-15	65	XLR			6½	W	349.00	As above.
	PZM-20R	Hemi.	Electret Condenser	Alum.	Conf.	240	20-15	65	Screw			8		349.00	As above.
	PZM-180	Hemi.	Electret Condenser	Plastic	Record	150	50-18	70	XLR			2	W	189.00	As above.
	Sound Grabber	Hemi.	Electret Condenser	Plastic	Conf.	1.6k	50-15	55		8	Mini/Phone	2	W	99.00	As above.
	CM-310	Diff. Card.	Electret Condenser	Alum./Steel	Stage/Vocal	200	60-17	77	XLR			7	W	259.00	High gain before feedback.
	CM-200	Card.	Electret Condenser	Alum./Steel	Stage/Vocal	200	80-15	73	XLR			7	W	209.00	
	CM-100	Omni	Electret Condenser	Alum./Steel	Stage/Vocal	240	20-20	72	XLR			8	W	189.00	Pressure Zone Mike.
	PCC-160	Half Super Card.	Electret Condenser	Steel	Stage	150	50-18	53	Swcft. TA3M	15	XLR	11½	WF	285.00	Boundary mike.
	PCC-200	Half Super Card.	Electret Condenser	Steel	Stage	150	50-18	53	Swcft. TA3M	15	XLR	11½	WF	329.00	Gated boundary mike.
	GLM-200	Super Card. Hyper Card.	Electret Condenser	Steel	P.A./Record	100	60-20	69		8	XLR	1	W	229.00	Miniature.
	GLM-100	Omni	Electret Condenser	Steel	P.A./Record	240	20-20	71.5		8	XLR	1	W	199.00	As above.
	GLM-100/E	Omni	Electret Condenser	PVC										98.00	Lavalier; for wireless transmitter.
LM-200a	Super Card.	Electret Condenser	Steel	†	100	80-15	67.5		8	Screw	10¼	W	289.00	†Lectern. Shorter version, Model LM-190a.	
SASS-P	Uni x2	Electret Condenser	Plastic	ENG	240	20-18	64	XLR			17	WF	899.00		
SASS-B	Uni x2	Electret Condenser	Plastic	†	30	20-18	56.5	XLR			30	W	799.00	†Classical recording.	
ELECTRO-VOICE (Continued)	N/D 857	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-22	50†	A3M			7.9	WF	450.00	†0 dB = 1 mW/Pa.
	N/D 757A	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-22	51†	A3M			7.7	WF	330.00	
	N/D 757AS	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-22	51†	A3M			7.7	WSF	340.00	
	N/D 457A	Hyper Card.	Dynamic	Steel & Alum.	Vocal	150B	25-21	51†	A3M			7.1	W	256.00	
	N/D 357A	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-20	53†	A3M			7.1	W	206.00	
	N/O 357AS	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-20	53†	A3M			7.1	WS	216.00	
	N/D 257A	Card.	Dynamic	Steel & Alum.	Vocal	150B	35-19	53†	A3M			7.1	W	152.00	



ANY CD CHANGER CAN CHANGE DISCS. THIS ONE WILL CHANGE THE WAY YOU HEAR MUSIC.

Technics introduces MASH* one-bit technology.

When you (and your friend) sit down to hear music, you want as much glorious sound with as little of anything else as possible.

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throughout the louder passages as well. And because MASH delivers wider dynamic range, the expanded distance between the very quietest and loudest passages can give you more of the directness and dramatic impact of the original performance. With the virtual elimination of zero-cross distortion.

The net effect is that you're that much closer to the music. And that much further from distractions.

Of course, since all our CD changers play any combination of five

3-inch or 5-inch discs, they also bring you music for hours. Any way you like. Continuously. Only selected tracks. Random play from all discs. Or random only from selected tracks. All under the direct control of the wireless remote.

You can even – thanks to its top-loading design – change 4 discs while the fifth keeps playing. Because when you and a friend are having such a rich experience, who wants the music to stop.

Technics
The science of sound

* Technics developed the MASH one bit DAC. NTT (LSI Labs) invented MASH technology. NTT has applied for trademark registration for MASH.

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance - Balanced - Ω	Operating Range - 1 kHz, Ohms.	Open-Circuit Sensitivity 1 kHz, - dB, re: 1 Volt/1 μbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Price, \$	Notes	
ELECTRO-VOICE (Continued)	N/D 408A	Super Card.	Dynamic	Steel & Alum.	Instr.	150B	30-22	51†	A3M			6.7	W	258.00	Positionable yoke mount.
	N/D 308A	Card.	Dynamic	Steel & Alum.	Instr.	150B	40-20	53†	A3M			6.7	W	222.00	As above.
	MS1000	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-22	Var.				10.5	WS	900.00	Wireless.
	RE20	Card.	Dynamic	Steel	Music/ Vocal	50B/150B/ 250B	40-18	57†	A3M	15	None	26	WF	630.00	Variable-D.
	RE18	Super Card.	Dynamic	Steel	Music/ Vocal	150B	80-15	57†	A3M	15	None	8	W	458.00	As above; integral shock mount.
	RE16	Super Card.	Dynamic	Steel	Vocal	150B	80-15	56†	A3M	15	None	8	W	438.00	Variable-D.
	RE15	Super Card.	Dynamic	Steel	Vocal	150B	80-15	56†	A3M	15	None	6	W	349.00	As above.
	RE11	Super Card.	Dynamic	Steel	Vocal	150B	90-13	56†	A3M	15	None	6	W	298.00	As above.
	RE10	Super Card.	Dynamic	Steel	Vocal	150B	90-13	56†	A3M	15	None	6	W	280.00	As above.
	RE98	Omni	Condenser	Brass & Alum.	Music/ Vocal	150B	80-15	45†		10	A3M	††	W	324.00	††0.7 ounce for capsule only. Battery or phantom powered.
	RE50	Omni	Dynamic	Alum.	Vocal	150B	80-13	55†	A3M	15	None	9.5	W	248.00	Integral shock mount.
	RE55	Omni	Dynamic	Steel	Music/ Vocal	150B	40-20	57†	A3M	15	None	8.5	W	406.00	
	RE45N/D DS35	Hyper Card. Card.	Dynamic Dynamic	Alum. Steel	ENG Music/ Vocal	600B 150B	150-15 60-17	50† 60†	A3M A3M	15	None	7.5 9.2	WF W	514.00 260.00	Short shotgun. Integral shock mount.
	DD54	Omni	Dynamic	Steel	Music/ Vocal	150B	50-18	58†	A3M	15	None	6.5	W	242.00	
	DO56	Omni	Dynamic	Steel & Alum.	Music/ Vocal	150B	80-18	61†	A3M	15	None	6.5	W	210.00	As above; with longer handle. Model D056L, \$156.00.
	CO90	Omni	Condenser	Brass & Alum.	Music/ Vocal	150B	40-15	57†	Threaded	6	None	0.7	W	234.00	Lavalier; battery powered.
	PL80	Super Card.	Dynamic	Zinc & Alum.	Vocal	150B	60-17	56†	A3M	0	None	12.3	W	196.00	
	PL20	Card.	Dynamic	Steel	Music/ Vocal	50B/150B/ 1250B	45-18	57†	A3M	0	None	26	WF	630.00	Variable-D.
	PL10	Card.	Dynamic	Steel	Music/ Vocal	150B	75-15	56†	A3F	0	None	11	W	314.00	As above.
	PL50N/D PL60N/D PL70N/D BK-1	Card. Super Card. Hyper Card. Card.	Dynamic Dynamic Dynamic Condenser	Zinc Zinc Zinc Zinc & Alum.	Vocal Vocal Vocal Vocal	150B 150B 150B 150B	80-18 70-18 60-18 50-18	53† 53† 50† 50†	A3M A3M A3M A3M	0	None	9.7 9.7 9.7 12	WS WS WS WS	172.00 226.00 294.00 198.00	Battery or phantom powered.
FOSTEX	M20RP	M-S	Ribbon	Alum.	Vocal Instr.	250B	40-18	51		6		24		695.00	
	M11RP	Uni	Ribbon	Alum.	Vocal	250B	40-18	51				20		595.00	
	M88RP	Bi	Ribbon	Alum.	Vocal	250B	40-18	52				20	F	650.00	
	M77RP	Uni	Ribbon	Alum.	Instr.	250B	40-18	56				20	F	460.00	
	M65RP	Uni	Ribbon	Alum.	Instr.	250B	50-12	56				20		395.00	
GC ELECTRONICS	30-2374	Card.	Dynamic	Alum.	Vocal	500 50k	80-15	†		20	Phone	8	WSF	48.68	†-72 dB at 500 ohms, -52 dB at 50 kilohms.
JVC	MV-50	Uni		Alum.	Vocal		100-16	75		16.4	Phone	8.8		89.95	Includes phone adaptor. As above. As above.
	MV-30	Uni		Alum.	Vocal		100-13	75		16.4	Mini	5.9		29.95	
	MV-20	Uni		Alum.	Vocal		100-13	76		9.8	Mini	5.9		24.95	
	MV-10	Omni		Alum.	Vocal		100-10	77		6.5	Mini	3.2		19.95	
	M-101	Omni		Alum.	Vocal		150-15	76		9.9	Mini	4.5		29.95	
MILAB	VIP-50	Multiple	Condenser	Alum.	Vocal	180B	40-20	†	3-Pin XLR			14.3	WF	1395.00	†14 mV/Pa. Transformerless.
	DC-96B	Card.	Condenser	Brass	Piano/ Strings	170B	40-20	†	3-Pin XLR			7.1	W	750.00	†6 mV/Pa.
	VM-44	Card.	Condenser	Brass	Perc./ Cymbals	170B	40-20		3-Pin XLR			3.8	WF	575.00	Transformerless.
	LC-25	Card.	Condenser	Brass	Vocal	170B	40-20	†	3-Pin XLR			11.4	W	575.00	†10 mV/Pa. Transformerless; hand-held. line-level version with 400-ohm impedance; Model LC-25LL.
	LC-28	Card.	Condenser	Brass	Vocal	170B	40-20	†	3-Pin XLR			11.4	WF	675.00	Hand-held.
	MP-30	Card. Hemi.	Condenser Condenser	Brass Brass	Vocal Instr.	170B 170B	40-20 40-20	† †	3-Pin XLR 3-Pin XLR			2.9	W	365.00	†9 mV/Pa. Pressure Zone Mike.
	BM-75	Card.	Condenser	Brass	Vocal	200B	40-20	†	3-Pin XLR			11.1	WF	525.00	†5 mV/Pa. Hand-held.
D-37	Card.	Dynamic	Brass	Vocal	250B	50-20	†	3-Pin XLR			10.4	W	295.00	†1.3 mV/Pa. As above.	
LSR-2000	Card.	Condenser	Brass	Vocal		40-20	†	3-Pin XLR			11.4	WF		Transformerless.	
NADY	1200 GT													1599.95	True diversity wireless system; up to 20 units.
	1200 LT													1599.95	As above but with lavalier transmitter with mini XLR connector; compatible with most lavaliers.
	1200 HT													1699.95	Same as 1200 GT but with Shure SM-58 mike/transmitter; choice of optional elements.
	650 GT													599.95	True diversity wireless system; up to 10 units.
	650 LT													639.95	As above but with lavalier transmitter; compatible with most lavaliers; also used with directional mikes for instruments.

Audio Cables: The Final Component

The performance of your sound system is limited by the cables used to connect it.

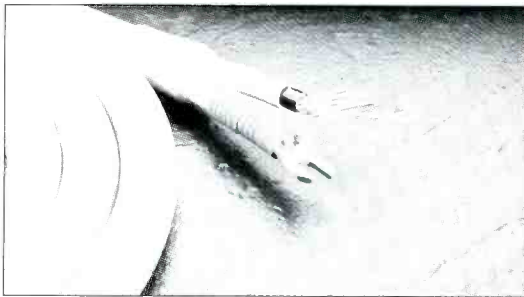
Today's knowledgeable audiophiles know how important properly designed audio cables are to the reproduction of music. Cables are a critical link between components and should be selected with the same care and attention one would a fine amplifier, preamplifier, receiver or CD player.

Today's audio cables are quite sophisticated in their construction and offer substantial value in money spent and the performance gained.

Both speaker cables and interconnect cables are important. There is no system too small to take advantage of the sonic benefits that a good audio cable can provide.

But not everyone is familiar with the sonic benefits of audiophile interconnect and speaker cables, and indeed it can be confusing. As a product category, cables are relatively new, so the standards of evaluation and testing beyond those of basic resistance and impedance have yet to be established.

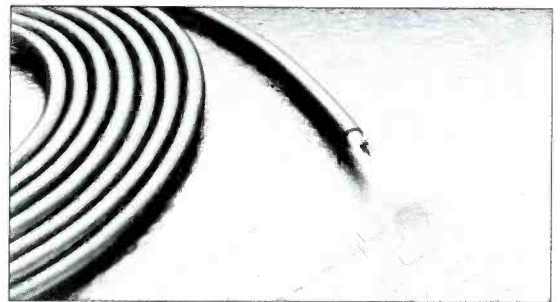
The sonic improvements – the magnitude of which has been misunderstood by many – is not a night and day difference as many cable people would have you believe. But the sonic benefits are at least as significant as, if not greater than, the differences between let's say a first generation CD player and the best of today's one bit or oversampling players. Or the musicality of the sound that audiophiles like to hear between a receiver and a good set of audio separates. Cables are popular among audiophiles because the improvements obtained are typically at a lower cost and of greater magnitude than the same money spent on upgrades of a preamplifier, amplifier or CD player.



Monster Cable®'s M1® Cable uses a complex winding using multi-gauged conductors.

The sonic qualities one might expect from properly designed audio cables range from improvements in the dynamics of the music, the impact and "weight" of the bass frequencies, to a smoother extension of the high frequencies. In more sophisticated designs the cables achieve what many describe as a "more natural recreation of the music." This translates to improvements in reproducing the depth and soundstage, more precise imaging and placement of the instruments, and a fuller reproduction of harmonic structure and music overtones. There is a sense of greater presence and greater overall clarity.

In describing the sonic qualities of cables, let's not forget a properly designed cable, because it is a passive component, cannot add anything to the music, but merely more accurately reveals and transfers the source signal from component to component with less signal degradation than in conventional cables. The technologies used to achieve this performance go far beyond that of just big speaker wire and gold plated connectors. Indeed, some of today's better designs focus on obtaining better sound quality from smaller cables at lower cost. By using clever cable windings and construction, better quality materials, improved



Monster Cable®'s Interlink® 400's balanced construction using multiple gauged conductors with Monster's Turbine Design™ connector

dielectrics, multiple gauged constructions and advanced manufacturing techniques, cable suppliers have supplied a wealth of choices for the audiophile. But buyer beware – there are many cable manufacturers who offer no cable technology (and hence no sonic improvements) who are taking advantage of the recent popularity of cable.

The quality of the terminations are also important. A good connector will not only use quality gold plating, but will have high mechanical integrity that provides a tight solid contact with sufficient mass to carry all of the signal without sonic degradation.

To be sure, there are some technocrats who refuse to believe that cables can provide the sonic improvements users say they are hearing, just as there are those who do not hear the differences in amplifiers, preamplifiers and CD players. There is a lack of standardized testing procedures for cables that correlate to what audiophiles hear. But that's nothing new in audio – measurements still don't tell us what an audio amplifier sounds like. It is the audiophile's quest for better sound that has sent engineers back to the drawing boards to bring us improved amplifiers, CD players – and cables.

There is no denying the popularity of audio cables. Cables remain a source of fascination and controversy among audiophiles. As an audio component, cables demand further exploration by the audio and engineering community.

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance, 1 kHz, Ohms; Balanced = B	Operating Range, Hz to kHz	Open Circuit Sensitivity, 1 kHz, -dB re. 1 Volt/1ubar	Mike Connector Type	Cable Length, Feet	Connects Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On/off Switch = S, Switched Low or Proximity Filter = F	Price, \$	Notes
NADY (Continued)	650 HT													659.95	Same as 650 GT but with Nady YD-08 hand-held mike/transmitter.
	650 HT/58													859.95	Same as 650 GT but with Shure SM-58 element on hand-held mike/transmitter.
	650 HT/N/DYM													889.95	Same as 650 GT but with Electro-Voice N/DYM on hand-held mike/transmitter.
	750 Receiver													849.95	Two separate receiving sections plus mixer.
	201 GT													349.95	True diversity wireless system; seven channels.
	201 LT													389.95	As above but with lavalier transmitter; compatible with most lavaliers.
	201 HT													409.95	Same as 201 GT but with Nady YD-08 hand-held mike/transmitter.
	201 HT/58													609.95	Same as 201 GT but with Shure SM-58 element on hand-held mike/transmitter.
	201 HT/N/DYM													639.95	Same as 201 GT but with Electro-Voice N/DYM element on hand-held mike/transmitter.
	101 GT													249.95	Seven channels.
	101 LT													279.95	As above but with lavalier transmitter; compatible with most lavaliers.
	101 HT													299.95	Same as 101 GT but with Nady YD-08 hand-held mike/transmitter.
	101 HT/58													509.95	Same as 101 GT but with Shure SM-58 element on hand-held mike/transmitter.
	101 HT/N/DYM													534.95	Same as 101 GT but with Electro-Voice N/DYM element on hand-held mike/transmitter.
	49 Mini/GT													119.95	Compact wireless system; operates on two 49-MHz frequencies.
49 Mini/LT													159.95	As above but with lavalier transmitter.	
49 Mini/HT													199.95	Nady E-107 omni element. Same as 49 Mini/GT but with Nady YD-08 hand-held mike/transmitter.	
NAKAMICHI	CM-300S	Card./Omni	Electret Condenser	Alum.		200	30-18	76	XLR	16½	Phone	5.9	WSF	250.00	Both capsules supplied; shotgun capsule optional; three-mike matched set, Model CM-300T, \$650.00.
	CM-100	Card.	Electret Condenser	Alum.		200	30-18	76	XLR	16½	Phone	5.6	WSF	150.00	Omni and shotgun capsules optional.
	DM-500	Card.	Dynamic	Alum.	Vocal	250	50-15	73	XLR	16½	Phone	5.6	W	150.00	
NEUMANN	KM130	Omni	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	640.00	†12 mV/Pa. (1 Pa equals 94 dB SPL.)
	KM131	Omni	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	795.00	†12 mV/Pa. Direct field pressure.
	KM140	Card.	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	640.00	†15 mV/Pa.
	KM143	Card.	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	640.00	†15 mV/Pa.
	KM145	Card.	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	640.00	†14 mV/Pa. Low-frequency roll-off.
	KM150	Hyper Card.	Condenser	Brass	General	50B	40-20	†	A3M		A3M	3	W	795.00	†10 mV/Pa.
	KMR81	Lobe	Condenser	Brass	Film/Brdcst.	150B	40-18	†	A3M	25	A3M	5	WF	1110.00	†18 mV/Pa. Short shotgun.
	KMR82	Lobe	Condenser	Brass	Film/Brdcst.	150B	40-20	†	A3M	25	A3M	8¾	WF	1215.00	†21 mV/Pa. Shotgun.
	KMS84	Card.	Condenser	Brass	Vocal/Perf.	150B	40-18	†	A3M	25	A3M	7½	WF	1310.00	†5 mV/Pa.
	KU81	Binaural	Condenser	Rubber		150B	40-16	†	A3M	25	A3M	95		4600.00	†10 mV/Pa. "Dummy" head included.
	GFM132	Hemi.	Condenser	Alum.	General	50B	40-20	†	Spez.	12	A3M	16¼	W	1550.00	†18 mV/Pa. Boundary layer mike.
	RSM191S	M-S	Condenser	Alum.	Film/Brdcst.	50B x2	40-20	†	Spez.	16½	(2)A3M	6	WF	3050.00	†23 mV/Pa. Stereo shotgun; mono compatible.
	TLM170	5-Pattern	Condenser	Brass	Studio	100B	40-18	†	A3M	25	A3M	22	WF	1995.00	†20 mV/Pa.
	U87A	Omni/Card./Figure 8	Condenser	Brass	Studio	200B	40-16	†	A3M	25	A3M	17½	WF	2150.00	†18 mV/Pa.
	U89	5-Pattern	Condenser	Brass	Studio	150B	40-18	†	A3M	25	A3M	14	WF	1955.00	†8 mV/Pa.
SM691et	M-S/X-Y	Condenser	Brass	Concert Hall	200B	40-16	†	Spez.	33	A3M	16½		4400.00	†19 mV/Pa.	
USM69	M-S/X-Y	Condenser	Brass	Studio	150B	40-16	†	A5M	25	A3M	18		4000.00	†10 mV/Pa.	

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MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M-S = M, S	Operating Principle	Case Material	Most Common Use	Actual Impedance	Operating Range, 1 kHz, Ohms	Actual Impedance, Balanced = B	Operating Range, Hz to kHz	Output Sensitivity 1 kHz, -20 dB, 1 Volt/1 u-bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On Off Switch = S, Switched Low or Priority Filter = F	Price, \$	Notes
PASO SOUND	M501	Card.	Dynamic	Die-Cast Zinc	Vocal	250B	50-15			A3F	15	A3F or A3M	32	WS	90.00	Includes holder.	
	M601	Card.	Dynamic	Zinc Die-Cast	Vocal	250B	50-15			A3F	15		32	WS	104.00	As above.	
	M701	Card.	Dynamic	Zinc Die-Cast	Vocal/Instr.	250B	40-16			A3F	15		32	WS	134.00	Includes anti-shock mount, holder, and case.	
	M800	Card.	Dynamic	Zinc Die-Cast	Vocal/Instr.	250B	40-18			A3F	15		48	W	160.00	As above.	
	M50	Card.	Dynamic	Zinc Plastic		250B	50-15			A3F	15		22	W	76.00	Includes holder.	
PIONEER	DM-51												11		100.00		
REALISTIC	33-1065	Card. x2	Electret Condenser	Metal	Vocal	600	50-15	72	None	6 1/2	(2)Mini	3 3/8	W		27.95		
	33-984	Uni	Dynamic	Alum.	Vocal	600/10k	50-20	75	XLR	16	Phone	15 7/8	WS		57.95		
	33-1070	Omni	Dynamic	Alum.	Vocal/Music	500	40-17	74	XLR	16	Phone	15 1/2	WS		44.95		
	33-1073	Card.	Dynamic	Alum.	Vocal	600	50-15	76	None	5	Phone	7	WS		35.95		
	33-992	Card.	Dynamic	Metal	Vocal/Music	600	80-15	76	None	6	Phone	5 1/2	WS		27.95		
	33-1090	Uni	† Dynamic	Alum.	Vocal	600	20-18		None	18	Phone			S	49.95	†Pressure Zone Mike.	
33-985	Omni		Metal	Vocal	600	50-13		None	6	Phone				23.95			
SCHOEPS	CMC 52S	Omni	Condenser	Nckl. & Brass	Spaced Omni	35B	20-20	†	XLR-3M			3/4			930.00	†1.2 mV/u-bar (at 1 kHz into 1 kilohm).	
	CMC 54	Card.	Condenser	Nckl. & Brass	Piano & Spot	35B	40-20	†	XLR-3M			3/4			890.00		
	CMC 541	Hyper Card.	Condenser	Nckl. & Brass	Film/Video	35B	40-20	†	XLR-3M			3/4			1040.00		
	CMC 521	Sub Card.	Condenser	Nckl. & Brass	Vocal	35B	30-20	†	XLR-3M			3/4			950.00		
	CMC 58	Figure 8	Condenser	Nckl. & Brass	Stereo Pair	35B	40-16	†	XLR-3M			3/4			1130.00		
	BLM 53	Hemi.	Condenser	Alum.	Stage	35B	20-20	†	XLR-3M			26			1160.00		
	CMH 541C	Hyper Card.	Condenser	Brass	Vocal	35B	50-18	†	XLR-3M			6 1/2			1215.00		
	MSTC 54	Card. x2	Condenser	Nckl. & Brass	ORTF	35B	40-20	†	XLR-5M			9			1960.00		
CMTS 501	Omni/Card./Fig. 8 x2	Condenser	Nckl. & Brass	M-S/X-Y	250B	40-16	†	XLR-5M			12 1/2			3250.00			
SENNHEISER	ME20/K3U	Omni	Condenser	Alum.	Instr. Orch.	200B	50-15	†	XLR			11	SF		†5.5 mV/Pa.		
	ME40/K3U	Super Card.	Condenser	Alum.	Vocal/Instr.	200B	50-15	†	XLR			11	SF		†As above.		
	ME80/K3U	Lobe/Super Card.	Condenser	Alum.	†	200B	50-15	††	XLR			12	SF		†Broadcast/film video. ††5.5 mV/Pa.		
	ME88/K3U	Card./Lobe	Condenser	Resin Fiber	†	200B	50-15	††	XLR			13	WSF		†As above. ††8 mV/Pa.		
	MKE2/K3U	Omni	Condenser	Vinyl	Vocal/Instr.	200B	40-20	†	XLR			1.5	WSF		†5.1 mV/Pa. Lavalier.		
	MKE10/K3U	Omni	Condenser	ABS	Vocal	200B	50-20	†	XLR			10	WSF		†1.5 mV/Pa. Lavalier.		
	MKE40/K3U	Card.	Condenser	Alum.	Vocal/Instr.	200B	50-20	†	XLR				WSF		†1.2 mV/Pa. Lavalier.		
	MKE4032	Super Card.	Condenser	Alum.	Vocal	200B	70-20	†	XLR			7.5	F	625.00	†5 mV/Pa. Hand-held; battery or 48-V phantom powered.		
	MD441	Super Card.	Dynamic	Nickel	Vocal/Strings	200B	30-20	†	XLR			16	F	595.00	†1.8 mV/Pa. Five-position roll-off filter.		
	MD431	Super Card.	Dynamic	Alum.	Vocal	200B	40-16	†	XLR			8.9	S	449.00	†1.4 mV/Pa. Hand-held.		
	MD421	Card.	Dynamic	Plastic	Drums/Instr.	200B	30-17	†	XLR			13.8	F	439.00	†2 mV/Pa. Five-position roll-off filter.		
	MD409	Card.	Dynamic	Nickel	Drums/Congas	200B	50-15	†	XLR			6.3		289.00	†1.18 mV/Pa.		
	MD518	Card.	Dynamic	Alum.	Vocal/Instr.	200B	50-16	†	XLR			8.5		219.00	†1.3 mV/Pa. Hand-held.		
	MKH20P48	Omni	R.F. Condenser	Alloy	Instr./Orch./Piano	150B	20-20	†	XLR			3.5	WF	1075.00	†25 mV/Pa. 48-V phantom powered.		
	MKH-30PA48	Figure 8	R.F. Condenser	Alloy	Instr./Strings	150B	40-20	†	XLR			3.9	WF	1175.00	†As above. Power as above.		
	MKH40P48	Card.	R.F. Condenser	Alloy	Instr./Orch./Piano	150B	40-20	†	XLR			3.5	WF	1075.00	†As above. Power as above.		
	MKH50P48	Super Card.	R.F. Condenser	Alloy	Instr./Perc.	150B	40-20	†	XLR			3.5	WF	1075.00	†As above. Power as above.		
	MKH60P48	Lobe/Super Card.	R.F. Condenser	Alloy	†	150B	50-20	††	XLR			5.2	F	1275.00	†Broadcast/film/video. ††40 mV/Pa. Power as above.		
	MKH70P48	Lobe/Super Card.	R.F. Condenser	Alloy	†	150B	50-20	††	XLR			6.3	F	1495.00	†As above. ††50 mV/Pa. Power as above.		
	MKH416	Lobe/Hyper Card.	R.F. Condenser	Brass	†	10B	40-20	††	XLR			6.2		1025.00	†As above. ††25 mV/Pa. 12T or 48-V phantom powered.		
MKH816	Lobe/Hyper Card.	R.F. Condenser	Brass	†	10B	40-20	††	XLR			13.4		1295.00	†As above. ††40 mV/Pa. Power as above.			

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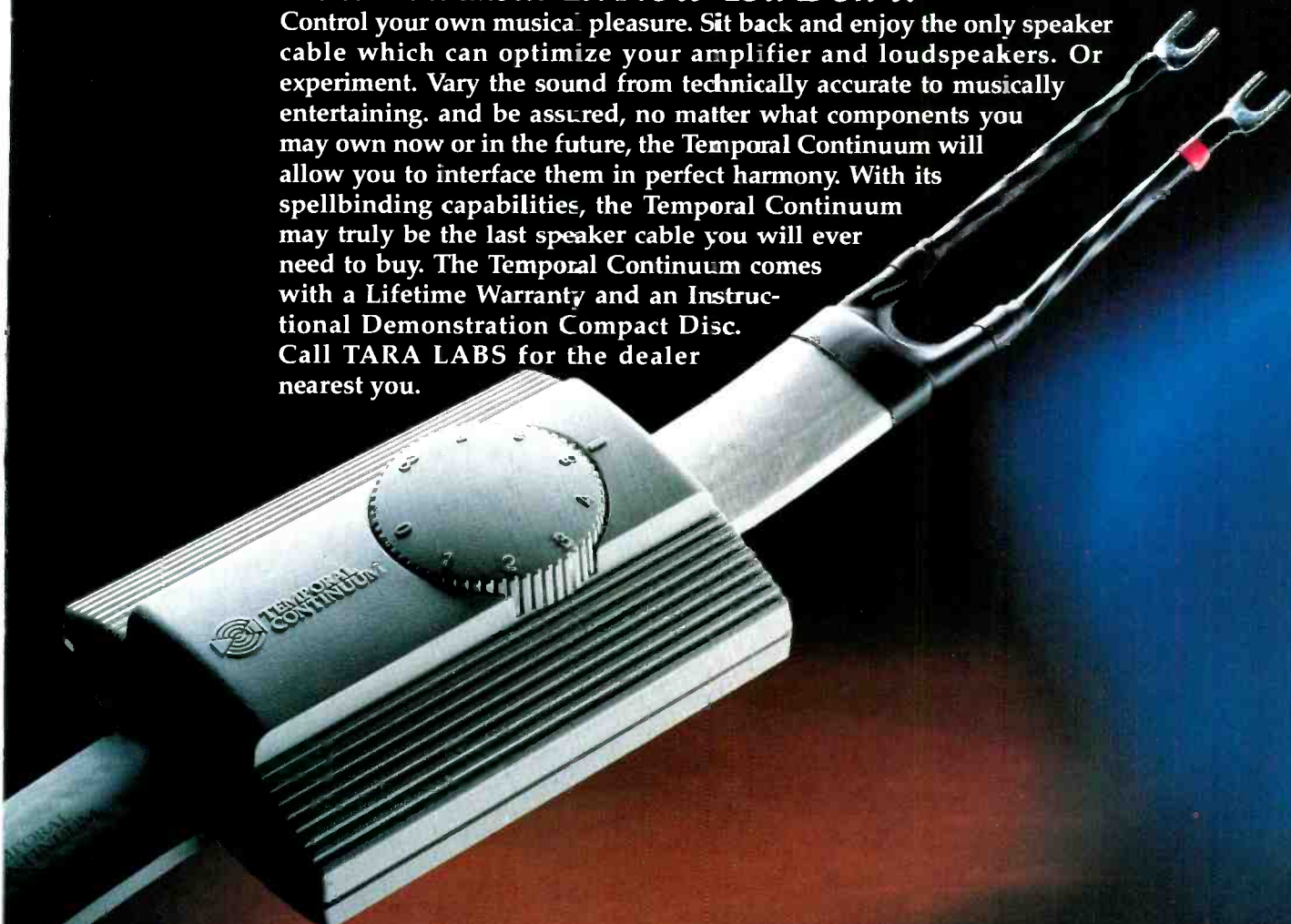
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MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = X2, Quad = X4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance, 1 kHz, Ohms: Balanced - B	Operating Range, Hz to kHz	Open-Circuit Sensitivity, 1 kHz, -dB, re: 1 Volt/√ubar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen, W, Off Switch = S Switched Low or Proximity Filter = F	Price, \$	Notes
SHURE	Beta 58M Beta 57M VP88	Super Card. Super Card. Card. M-S	Dynamic Dynamic Condenser	Steel Steel Brass & Alum.	Vocal Instr. Vocal Video Prdn.	150B 150B 100B	50-16 50-16 40-20	71 71.5 66.0	A3M A3M A5M			9.3 9.2 14.7	W	258.00 258.00 995.00	Battery or phantom powered; includes Y cable.
	SM7	Card.	Dynamic	Alum. & Steel	Vocal/Record	150B	40-16	79	A3M			2.7	F	550.00	Four-way response-tailoring switch.
	SM11-CN SM18-CN	Dmni Hemi. Card.	Dynamic Dynamic	Alum. Foam & Plastic	Vocal Vocal	200B 180B	50-15 150-10	85 73.0		4 9	A3M A3M	0.28 3.9		107.50 108.00	Lavalier.
	SM48-LC	Card.	Dynamic	Die-Cast	Vocal	270B	55-14	77.5	A3M			13.1		130.80	
	SM57-CN	Card.	Dynamic	Die-Cast	Instr.	310B	40-15	75.5	A3M	25	A3M	10		160.00	
	SM57-LC	Card.	Dynamic	Die-Cast	Instr.	310B	40-15	75.5	A3M			10		137.00	
	SM58-CN	Card.	Dynamic	Die-Cast	Vocal	310B	50-15	75.5	A3M	25	A3M	10.5		199.00	
	SM58-LC	Card.	Dynamic	Die-Cast	Vocal	310B	50-15	75.5	A3M			10.5		176.00	
	SM59-LC	Card.	Dynamic	Zinc & Steel	Vocal/Instr.	150B	50-15	83.0	A3M			7.6		220.00	
	SM62-LC	Card.	Dynamic	Alum. & Steel	Vocal	180B	100-10	82.0	A3M			4		156.00	
	SM63-LC SM63L-LC SM77EB-LC SM78EB-LC SM81-LC SM83-CN	Dmni Dmni Card. Card. Card. Dmni	Dynamic Dynamic Dynamic Dynamic Condenser Condenser	Alum. Alum. Alum. Alum. Steel Brass	Speech Speech Instr. Vocal Studio Vocal	270B 270B 250B 250B 85B 90B	50-20 50-20 50-15 50-15 20-20 80-20	76.0 76.0 79.0 79.0 65 69.0	A3M A3M A3M A3M A3M			3.5 4.3 6 7.2 8 1.58	WF W	133.00 152.00 122.00 147.00 398.00 248.00	Switchable -10 dB pad.
	SM84 SM85-LC SM87-LC SMB9	Super Card. Card. Super Card. Hyper Card.	Condenser Condenser Condenser Condenser	Brass Alum. Alum. Alum.	Vocal Vocal Vocal Dis-tant	90B 85B 85B 100B	80-20 50-15 50-18 60-20	72.0 74 74 53	A3M A3M A3M	10-10	A3M	1.58 6.3 6.3 6.9	W	300.00 305.00 329.00 900.00	Shotgun.
	SM90	Dmni	Condenser	Die-Cast & Steel	†	90B	20-20	66.0	Tiny QG	25	A3M	9.9	F	310.00	†Surface mount. Boundary mike, includes preamp; battery or phantom powered.
	SM91	Hemi. Card.	Condenser	Die-Cast & Steel	†	90B	20-20	69.0	Tiny QG	25	A3M	9.3	F	310.00	All as above.
	SM94-LC	Card.	Condenser	Steel & Brass	instr.	200B	40-16	69	A3M			8.8		250.00	Optimized for sampling.
	SM96-LC	Card.	Condenser	Steel & Alum.	Vocal	200B	70-16	74	A3M			9.2		250.00	
	SM98	Card.	Condenser	Brass	Instr.	90B	40-20	80.0	Tiny QG	15	A3M	0.4	WF	250.00	Optional A98SPM super-cardioid pattern modifier.
	SM99	Super Card.	Condenser	Steel & Brass	Podium	90B	80-20	73.0	A3M			5.8	W	240.00	Gooseneck miniature.
	55SH Series II 515SB-G18	Card. Card.	Dynamic Dynamic	Die-Cast Die-Cast	Vocal Vocal	270B 170B	50-15 80-13	78.0 82.0	A3M			22 29	S S	189.50 66.75	18-inch gooseneck.
	515SD-LC	Card.	Dynamic	Die-Cast	Vocal/Music	170B/Hi-Z	80-13	†	A3M			9	S	54.00	†At lo-Z, -82.5 dB; at hi-Z, -59.0 dB.
	520D	Dmni	Controlld. Magnetic	Die-Cast	Harmonica	160B/Hi-Z	100-5	†		20	None	22		104.00	†As above but -73.0 and -56.0 dB. "Green Bullet."
	545D-LC	Card.	Dynamic	Die-Cast	Vocal/Instr.	275B/Hi-Z	50-15	†	A3M			9	S	115.00	†As above but -78.0 and -55.0 dB.
	545L	Card.	Dynamic	Die-Cast	Vocal	250B	50-15	77.5		20	None	12.5		115.00	Lavalier.
	545SD-LC	Card.	Dynamic	Die-Cast	Vocal	275B/Hi-Z	50-15	†	A3M			9	S	120.00	†At lo-Z, -78.0 dB; at hi-Z, -55.0 dB.
	545SD-CN	Card.	Dynamic	Die-Cast	Vocal	250B/Hi-Z	50-15	†	A3M	20	A3M	9	S	142.50	†As above.
	565D-LC	Card.	Dynamic	Die-Cast	Vocal	250B/Hi-Z	50-15	†	A3M			10.5	S	128.00	†As above but -76.0 and -54.0 dB.
	565SD-LC	Card.	Dynamic	Die-Cast	Vocal	250B/Hi-Z	50-15	†	A3M			10.5	S	130.00	†As above.
	565SD-CN	Card.	Dynamic	Die-Cast	Vocal	250B/Hi-Z	50-15	†	A3M	20	A3M	10.5	S	155.00	†As above.
	570S 575SB 579SB-LC 587SB-LC	Dmni Dmni Dmni Card.	Dynamic Dynamic Dynamic Dynamic	Steel Alloy Alum. Die-Cast	Vocal Vocal Vocal Vocal	180B 200 200B 270B	50-12 40-15 50-14 55-14	81.5 79.0 78.5 77.5		30 7	None	4 5 5.5 13.1	S S S S	160.50 57.50 96.50 102.00	Lavalier. As above. Lockable switchplate. As above.
	588SD-LC	Card.	Dynamic	Die-Cast	Vocal	180B/Hi-Z	80-13	†	A3M			10	S	60.00	†At lo-Z, -82.0 dB; at hi-Z, -59.5 dB. As above.
	802HF	Super Card.	Condenser	Die-Cast	Cellular	†	300-10	†		9		1.8		134.75	†-17 to -59 dB. Includes preamp.
	809	Dmni	Condenser	Die-Cast & Steel	†	600B	50-20	68.0	Tiny QG	25/10	A3M	9.9		220.50	†Surface mount. Boundary effect; includes preamp.
	819	Hemi. Card.	Condenser	Die-Cast & Steel	†	600B	60-20	71.0	Tiny QG	25/10	A3M	9.3		220.50	All as above.

(Continued)

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- QUASAR HIFI** \$279
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MTS, 2/31 Day
- JVC HRD860** \$419
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Real Time, Go-To, Duet Editing
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- JVC AV3589S** \$1929
35", 700 Lines, Learning Remote
180 Ch, A/V In/Out, Best Buy

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Quad = 4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance, Balanced = B	Operating Range, 1 kHz, Ohms;	Open Circuit Sensitivity, 1 kHz, -dB re: 1 Volt/1 μbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wired Screen = W, Unshielded = S, Switched Low or Proximity Filter = F	Price, \$	Notes
SHURE (Continued)	839	Dmni	Condenser	Brass	Vocal	600B	80-20	70.0		5/10	A3M	0.21		135.00	Lavalier; battery or phantom powered.
	849-LC	Card.	Condenser	Steel & Alum.	Instr.	600B	40-16	70.0	A3M			8.8	S	177.60	Powering as above.
	869-LC	Card.	Condenser	Steel & Alum.	Vocal	600B	70-16	76.0	A3M			9.2	S	177.60	Powering as above.
	PE100-LC	Card.	Dynamic	Zinc	Instr.	Lo/Hi-Z	80-13	†	A3M			11	S	78.00	†At lo-Z, -82.5 dB; at hi-Z, -59.0 dB.
	PE150-LC	Card.	Dynamic	Zinc	Vocal	Lo/Hi-Z	80-13	†	A3M			12	S	99.00	†As above but -82.0 and -59.5 dB.
	PE65L-LC	Card.	Dynamic	Zinc	Instr.	150B	50-15	77.5	A3M			9	S	142.00	
	PE66L-LC	Card.	Dynamic	Zinc	Instr.	150B	40-15	75.5	A3M			9	S	142.00	
	PE85L-LC	Card.	Dynamic	Zinc	Vocal	150B	50-15	77.5	A3M			10.5	S	164.00	
	PE86L-LC	Card.	Dynamic	Zinc	Vocal	150B	50-15	75.5	A3M			10.5	S	164.00	
	Prologue 10H-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	80-10	59.5	A3M			9.1	S	49.50	
	Prologue 10L-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	80-10	76.5	A3M			9.1	S	43.75	
	Prologue 12H-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	80-10	59.5	A3M			9.7	S	66.25	
	Prologue 12L-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	80-10	76.5	A3M			9.7	S	61.00	
	Prologue 14H-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	40-13	59.5	A3M			10	S	79.50	
	Prologue 14L-LC	Card.	Dynamic	Die-Cast	Home Record	Hi-Z	40-13	76.5	A3M			10	S	74.50	
	Prologue 16L-LC	Card.	Condenser	Alum.	Instr./Record	600B	50-15	69.5	A3M			4.7	S	120.00	
	Prologue 22H-LC	Super Card.	Dynamic	Steel	Vocal	Hi-Z	40-13	59.0	A3M			9.5	S	82.00	Lockable switchplate; also available with cable.
	Prologue 22L-LC	Super Card.	Dynamic	Steel	Vocal	Lo-Z	40-13	76.5	A3M			9.5	S	76.50	As above.
	Prologue 24H-LC	Super Card.	Dynamic	Steel	Vocal	Hi-Z	40-13	59.0	A3M			9.3	S	95.00	Also available with cable.
	Prologue 24L-LC L2/58	Card.	Dynamic	Armo-Dur	Vocal		40-16					10.4	S	382.00	Wireless, hand-held transmitter; SM96 head also available.
WL83	Dmni	Condenser	Brass	Vocal	1.2k	50-16	65.5		4	4-Pin Mini	0.21	W	165.00	Wireless; lavalier only.	
WL84	Super Card.	Condenser	Brass	Vocal	1.2k	50-16	68		4	4-Pin Mini	0.21	W	190.00	As above.	
WM98	Card.	Condenser	Brass	Instr.	1.2k	40-20	74.0		2.7	4-Pin Mini	0.4	W	165.00	Wireless; mike only.	
SDNIC STUDIOS	DSM-A1	x2	Back Electret Condenser	Rbbr/Plastic	†	1k	20-20	75	Mini	5½	None	0.18	W	285.00	†Canon A1 video camera.
	DSM-5	x2	Back Electret Condenser	Rbbr/Plastic	Video/Music	1k	20-20	75	(2)Phone	6½	None	0.18	WSF	349.00	Clips to eyeglasses.
	DSM-6	x2	Back Electret Condenser	Rbbr/Plastic	Concert		20-20	77	Mini	5½	None	0.18	W	159.00	For Sony WM-D6C and D3; matched to 1 dB.
	DSM-6P	x2	Back Electret Condenser	Rbbr/Plastic	Record	1k	20-20	75	Mini	6½	None	0.18	WSF	295.00	For Marantz, JVC, Sony, and Aiwa portable decks.
	DSM-7P	x2	Back Electret Condenser	Rbbr/Plastic	Stage Record	1k	20-20	75	(2)Mini	6½	None	0.18	WSF	305.00	For Sony and JVC video and portable recorders.
	DSM-10	x2	Back Electret Condenser	Rbbr/Plastic	Instr./Film/Studio Stage/Brdcst.	10k, B	20-20	75	(2) 3-Pin XLR	6½	None	0.18	WSF	425.00	For Sony and Technics DAT recorders.
	DSM-12B	x2	Back Electret Condenser	Rbbr/Plastic		600B	10-20	†	(2) 3-Pin XLR	6½	None	0.18	WSF	1200.00	†D.c.-servo preamp.
SONOTRIM	STR-PPS	Dmni	Electret Condenser	Plastic	Speech	250B	50-15		XLR-3M	9	XLR-3M	2	W	265.00	Lavalier.
SPEIDEN	SF-12	Fig. 8 x2	Ribbon	Iron	Concert Hall Instr.	200B	30-16	77	Neutrik A3M	20	Neutrik A3M x2	12		1050.00	Single-point stereo.
	MF-12	Figure 8	Ribbon	Iron	Instr.	200B	30-16	77	Neutrik A3M	20	Neutrik A3M	8		600.00	
TECHNICS	RP-V340	Card.	Dynamic	Alum.	Video		100-10					9	W	39.00	
	RP-V370	Card.	Dynamic	Alum.	Vocal/Instr.		40-12					12	W	59.00	

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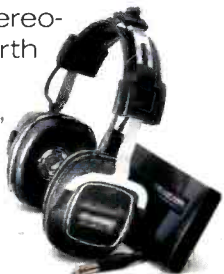
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HEADPHONES

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity, dB SPL for 1 mW Input	Maximum Input, mV	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style, Feet	Plug Type: 3.5-mm Mini = M, 1/8" Phone = P, Adapter Included = A	Individual Volume Controls?	Chromalox A Super-Aural S Headband Design: 0 In Ear, 1 Adjustable = A, Folding = F	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes	
AIWA	HP-X35	Dynamic	5-35	40	102	1V		26.2	F	M/P/A	No	C	A	Foam	4.9	60.00	
	HP-A300	Dynamic	10-20	32	97	100		4.9	F	M/P/A	No	D	A	Foam	1.7	20.00	
	HP-J7	Dynamic	8-25	16	105	40		3.9	F	M/A	No	I	N	Plastic	0.02	50.00	
	HP-A550	Dynamic	7-20	40	103	200		6.5	F	A	No	C	A	Foam	3	33.00	
	HP-X80	Dynamic	5-25	40	102	1V		9.0	F	A	No	C	A	Foam	4.9	95.00	
	HP-X50	Dynamic	5-24	40	102	1V		8.1	F	A	No	C	A	Foam	4.9	70.00	
	HP-X30	Dynamic	5-23	40	102	1V		8.1	F	A	No	C	A	Foam	4.9	50.00	
	HP-A350	Dynamic	10-20	40	103	200		4.9	F	M/A	No	D	A	Foam	2.8	27.00	
	HP-A250	Dynamic	20-20	40	97	100		4.9	F	A	No	D	A	Foam	1.7	17.00	
	HP-A150	Dynamic	20-20	32	97	100		4.9	F	A	No	D	A	Foam	1.6	12.00	
	HP-V88	Dynamic	8-25	16	105	40		3.9	F	A	No	I	N	Plastic	0.32	60.00	
	HP-V57	Dynamic	10-25	16	104	40		3.9	F	A	Yes	I	N	Plastic	0.21	35.00	
	HP-V53	Dynamic	10-25	16	104	40		3.9	F	A	No	I	N	Plastic	0.21	28.00	
	HP-V25	Dynamic	15-30	16	105	40		3.9	F	A	No	I	N	Plastic	0.18	22.00	
	HP-V12	Dynamic	15-30	16	105	40		3.9	F	A	No	I	N	Plastic	0.18	12.00	
	AKG	K-270S	Dynamic	20-20	75	92	4V	0.2	10	R	P	No	C	A	Metal & Plastic	9.6	195.00
K-1000		Dynamic	20-20	120	74	1W	0.05	15	R	XLR	No	D	A	None	10	895.00	
K-2		Dynamic	30-18	200	92	6.3V	0.9	9	R	M/A	No	S	A	Plastic	3.2	45.00	
K-45		Dynamic	30-18	200	92.5	6.3V	0.9	10	R	P	No	S	A	Plastic	4.5	60.00	
K-135S		Dynamic	25-18	150	92	8.9V	0.7	10	R	P	No	S	A	Plastic	5.6	85.00	
K-141M		Dynamic	20-20	600	97.5	11V	0.5	10	R	P	No	S	A	Metal & Plastic	6.9	100.00	
K-145S		ES/Dyn.	20-24	200	89	8.9V	0.5	10	R	P	No	S	A	Metal & Plastic	8	110.00	
K-240M		Dynamic	15-20	600	88	11V	0.3	10	R	P	No	C	A	Metal & Plastic	8.5	120.00	
K-240DF		Dynamic	15-20	600	88	11V	0.3	8 1/2	R	P	No	C	A	Metal & Plastic	8.5	150.00	
K-260		Dynamic	10-20	600	88	11V	0.2	10	R	P	No	C	A	Plastic	9.2	170.00	
K-340		ES/Dyn.	15-25	400	88	10V	0.1	10	C/R	P	No	C	A	Metal & Plastic	13.5	235.00	
K-280		Dynamic	20-20	75	94	4V	0.2	10	R	P	No	C	A	Metal & Plastic	9.6	195.00	
K-55	Dynamic	25-18	150	92	5.5V	0.9	10	F	M/P	No	S	A	Metal & Plastic	3.2	50.00		
K-21TV	Dynamic	25-17.5	150	92	5.5V	0.9	20	F	M/P	Yes	S	A	Metal & Plastic	3.2	60.00		
K-270	Dynamic	20-20	75	92	4V	0.2	10	R	P	No	C	A	Metal & Plastic	9.6	165.00		
AUDIO-TECHNICA	SG410	Dynamic	40-20	4-16	92			3.5	R	M/A	No	D	A	Foam	1	9.95	
	SG430	Dynamic	35-20	4-16	96			3.5	R	M/A	No	I	N	Foam	0.3	12.95	†Over-the-ear earbud.
	SG440CD	Dynamic	100-15	4-16	86			4	R	M/A	No	†	A	Plastic	1	24.95	
	SG450	Dynamic	20-20	4-16	96			3	R	M/A	No	†	A	Foam	0.5	14.95	†Detachable earbud.
	SG600CD	Dynamic	20-20	4-16	89			6	R	M/A	No	S	A	Vinyl	2.8	18.95	
	SG800CD	Dynamic	20-20	4-16	89			6	R	P	Yes	S	A	Vinyl	6.4	28.95	
	ATH908	Dynamic	20-20	4-16	100			9.8	R	P	No	C	A	Cloth	7.2	88.95	
	ATH909	Dynamic	20-20	4-16	100			9.8	R	P	No	C	A		6.9	79.95	
	ATH910	Dynamic	20-22	4-16	100			9.8	R	P	No	C	A		7.2	99.95	
	ATH609	Dynamic	20-20	4-16	98			10	R	P	No	C	A		9.5	49.95	
	ATH610	Dynamic	20-22	4-16	100			10	R	P	No	C	A		9.5	59.95	
	ATH611	Dynamic	20-23	4-16	101			10	R	P	No	C	A		9.5	69.95	
AZDEN	DM-90	Dynamic	4-26	32	105	800	0.2	10	F	A	No	S	A	Vinyl		100.00	
	DM-70	Dynamic	4-24	32	103	500	0.3	10	F	A	No	S	A	Vinyl		80.00	
	DSR-18	Dynamic	15-22	60	103	200		10	C	A	No	S	A	Plastic		70.00	
	DSR-12	Dynamic	20-20	200	105	100		8	F	P	No	S	A	Cloth		80.00	
	DSR-48	Dynamic	15-24	40	97	100		8	F	A	No	D	A	Foam		70.00	
DSR-42	Dynamic	20-20	50	102	100		8	F	M	No	D	A	Plastic		40.00		
BANG & OLUFSEN	Form 1	Dynamic	20-20	35	94			10	C	M/A	No	D	A	Foam	8	120.00	
	Form 2	Dynamic	40-20	30	94			10	F	M/A	No	D	A	Foam	2 1/2	60.00	
BEYERDYNAMIC	DT48A	Dynamic	16-20	5	1V			10	F	P	No	S	A	Rubber	14	299.95	
	DT48K	Dynamic	16-20	†	4.4V			10	F	P	No	S	A	Vinyl	14	289.95	†Available with 8, 25, or 200 ohms.
	DT48WK	Dynamic	16-20	†	4.4V			5	C	P	No	C	A	Vinyl	14	299.95	
	DT96AK	Dynamic	30-17	50	12V			10	F	P	No	C	A	Vinyl	4 1/2	144.95	
	DT96AWK	Dynamic	3-17	50	12V			5	C	P	No	C	A	Vinyl	4 1/2	154.95	
	DT100K	Dynamic	30-20	††	20V			10	F	P	No	C	A	Vinyl	12 1/2	149.00	††Available with 8, 50, 100, 200, 400, 600, or 800 ohms.
	DT100WK	Dynamic	30-20	††	20V			5	C	P	No	C	A	Vinyl	12 1/2	149.00	
	DT102K	Dynamic	30-20	††	20V			10	F	P	No	C	A	Vinyl	9	99.95	
	DT102WK	Dynamic	30-20	††	20V			5	C	P	No	C	A	Vinyl	9	99.95	
	DT880	Dynamic	5-25	600	94	7.75V	0.5	8	C	P	No	C/C	A	Vinyl	7	172.95	
	DT880ST	Dynamic	5-35	600	94	7.75V	0.5	8	C	P	No	C/C	A	Vinyl	7	229.95	
	DT990	Dynamic	5-35	600	96	7.75V	0.5	8	C	P	No	C/C	A	Terry	8	209.95	Pro version, Model DT990P, \$259.95. Pro version, Model DT770P, \$239.95.
	DT770	Dynamic	5-35	600	96	7.75V	0.5	8	C	P	No	C	A	Vinyl	9	189.95	
	DT550	Dynamic	10-22	600	95	7.75V	1.0	8	C	P	No	C/C	A	Vinyl	7	147.95	
DT220	Dynamic	20-20	†††	102	6.4V	1	8	C	P	No	C	A	Vinyl	9	129.95	†††Available with 20 or 400 ohms.	
DT340TV	Dynamic	20-20	50	108	2.24V		22	F	P	Yes	C	A	Vinyl		85.00		
DT303TV	Dynamic	20-20	50	112	2.24V				P	Yes	S	A	Foam	2 3/8	69.95		
DT330MKII	Dynamic	15-18	40	85	2V	1	8	F	M/A	No	C/C	A	Vinyl	7	89.00		
DT320MKII	Dynamic	20-20	40	88	7.75V	1	6	F	M/A	No	C/C	A	Vinyl	4	82.95		
DT325	Dynamic	20-20	40	88	7.75V	1	3	F	M/A	No	C/C	A	Foam	4	67.95		
IRS690	Dynamic	20-20	600	114					M	Yes	C/C	A	Fabric	8	399.95	Infrared, wireless.	
DENON	AH-D900	Dynamic	3-31	32	106	6.2V		10	F	M/A	No	C	A	Plastic	8	140.00	
	AH-D700	Dynamic	3-30	32	106	5.7V		10	F	M/A	No	C	A	Plastic	8	120.00	
	AH-D500	Dynamic	4-28	32	105	5.1V		10	F	M/A	No	S	A	Plastic	5.3	80.00	
(Continued)	AH-D300	Dynamic	4-26	32	105	5.1V		10	F	M/A	No	S	A	Plastic	5	70.00	

STAX Knows.

STAX knows how important your music is to you. So we design our electrostatic earspeakers with the idea of bringing you closer to the original performance in every way.

Our Lambda Signature is the benchmark earspeaker by which all other headphones are judged. The Signature employs the most accurate

acoustical transducer in the world today. That is why the Lambda Signature reproduces all of your music with perfection and grace.

STAX electrostatic transducers not only give the Lambda Signature a sound that is "next to none," but this design principle gives all our models a distinct sonic advantage over other headphones. They are comfortable, too – thanks to thoughtful ergonomic design.

So before you purchase just any headphone, think

about it. You're serious about your music. Go to a STAX dealer and enjoy it as never before – truly for the first time.



Pictured top : SR-Lambda Signature earspeaker with SRM-T1 Direct drive amplifier.
Center: SR-Gamma Pro earspeaker with SRD-7 Pro adaptor.
Bottom: SR-80 Pro earspeaker with SRD-4 adaptor.
Stax Kogyo, Inc. 20620 S. Leapwood Ave., Carson, CA 90746.

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HEADPHONES

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity, dB SPL for 1 mW Input	Maximum Input, mV	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style: Flat = F, Coiled = C, Round = R	Plug Type: 3.5 mm Mini = M, 1/4" Phone = P, Adaptor Included = A	Individual Volume Controls?	Cromenual = A, Super-Card = S, Open-Ar Design = O, In-Ear = I, Adjustable = A, Folding = F	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes	
PICKERING	CD-5	Dynamic	20-20	35	100	100mW	0.5	7 1/2	C	P	No	O	A	Foam	8.8	79.95	Mono/stereo switch. Two speakers per earpad. Includes extra set of ear cushions. As above.
	CD-4	Dynamic	20-20	32	105	100mW	0.5	7 1/2	C	P	No	O	A	Foam	3	66.00	
	CD-2	Dynamic	20-20	32	112	100mW	0.5	7 1/2	C	P	No	O	A	Vinyl	5	50.00	
	CD-1	Dynamic	20-20	32	105	100mW	0.5	7	F	M/P	No	O	A	Vinyl	2.5	35.00	
	F-108	Dynamic	20-20	18	105	50mW	0.5	5	F	M/P	Yes	O	A	Foam	0.5	45.00	
	F-104	Dynamic	20-20	32	98	50mW	0.5	4	F	M	No	O	A	Foam	0.5	30.00	
	F-102	Dynamic	20-20	32	92	50mW	0.5	5	F	M	No	O	A	Foam	1.1	25.00	
	2+2	Dynamic	10-25	35	106	50mW	0.5	4	C	M/P	No	O	N	Foam	0.42	60.00	
	PC-100	Dynamic	20-18	35	100	50mW	0.5	4	C	M/P	No	O	N	Foam	0.21	20.00	
	PC-60	Dynamic	20-15	35	100	50mW	0.5	4	C	M	No	O	N	Foam	0.21	15.95	
DA-44	Dynamic	20-18	32	90	100mW	0.5	4	C	M	No	O	A	Foam	1.1	3.95		
PIONEER	SE-M10	Dynamic	3-50	32	103	1W		16 3/8	F	A	No	C	A		9	100.00	
	SE-M50	Dynamic	3-50	32	103	1W		16 3/8	F	A	No	C	A		8.1	70.00	
	SE-72	Dynamic	3-28	32	105	1.5W		16 3/8	F	M/P/A	No	S	A	Foam	4.8	72.00	
	SE-62	Dynamic	8-25	28	103	1W		9 7/8	F	M/P/A	No	O	A	Vinyl	4.2	60.00	
	SE-52	Dynamic	10-25	40	100	150mW		8 1/8	F	M/P/A	No	O	A	Vinyl	3.7	45.00	
	SE-32	Dynamic	12-22	40	96	100mW		8 1/8	F	M/P/A	No	O	A	Vinyl	3.3	35.00	
	SE-22	Dynamic	30-18	36	96	40mW		6 5/8	F						2.2	30.00	
	SE-12	Dynamic	80-20	30	94	40mW		4 7/8	F						2.1	22.00	
	SE-C5	Dynamic	12-22	40	100	150mW		6 5/8	F						2.6	40.00	
	SE-205	Dynamic	20-20	10	102	500mW		8 1/8	F	P					16	45.00	
SE-M90	Dynamic	3-50	32		1W		16 3/8	F	A					9			
REALISTIC	33-1010	Dynamic	15-25					8	R	P	No	C	A	Vinyl	18.9	69.95	†At 100 dB. †At 109 dB. †As above.
	33-993	Dynamic	30-18	8			10	R	P	No	C	A	Vinyl	1.4	24.95		
	33-976	Dynamic	50-20	40	30	0.5†	4	R	M	No	O	A	Foam	9	11.95		
	33-1019	Dynamic	50-15		15	0.5†	6 1/2	R	P	Yes	C	A	Vinyl	9	19.95		
	33-1004	Dynamic	20-20		50	0.5†	10	C	P	No	C	A	Foam	9	39.95		
	33-999	Dynamic	15-35	90	50	0.5†	10	C	P	No	C	A	Foam	7.7	49.95		
	33-1012	Dynamic	50-15		20		6 1/2	C	P	No	C	A	Vinyl	12	16.95		
	33-1021	Dynamic	20-20	32	16		6 1/2	R	M/A	No	O	A	Foam	3.3	24.95		
	33-2002	Dynamic	40-20	32	100		4	R	M	No	O	A/F	Foam	2	8.95		
	33-2004	Dynamic	20-20		50	0.2†	10	C	P	No	C	A	Foam	3	29.95		
	33-1025	Dynamic	20-20				10	C	P	No	C	A	Foam	3	34.95		
	33-981	Dynamic	50-20				5	R	M	No	O	A/F	Foam	3.3	24.95		
	33-2003	Dynamic	50-20				4	R	M	No	O	A	Foam	2	15.95		
	33-1022	Dynamic	15-25				6	R	M	Yes	D	A	Foam		39.95		
	33-991	Dynamic	10-22				3 3/8	R	M	Yes	I	N			29.95		
33-370	Dynamic	50-20				4	R	M	No	I	N		0.6	15.95			

“The M-200 power amplifier is a smashing success by any standard, and an absolute steal at the price.”

Kent Bransford

Hi-Fi Heretic, Autumn 1989

Highlights of the review:

Over the years, B & K Components, Ltd. has become one of America's leading manufacturers of affordable, high-quality audio electronics. B & K has done an admirable job of providing musical, reliable preamplifiers and power amplifiers within the budget of virtually any music lover.

The M-200 can drive virtually any loud-speaker load in existence. Rated at 200 watts into 8 ohms and 400 watts into 4 ohms, the M-200 can drive loads as low as .75 ohms and still pump out its rated 200 watts! Rated peak current output of the M-200 is an incredible 150 amperes.

“I was floored by the M-200's sense of pace and drive.”

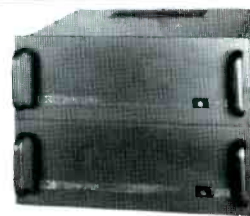
Internal construction is most impressive—a massive, shielded toroidal transformer centrally sited within the steel chassis. Four filter capacitors offer nearly 70,000 mfd of

storage capacitance. The input and driver circuits are carried on a single glassfibre board that sits atop the power supply caps. A gold-plated premium input jack is included, with gold-plated 5-way binding posts handling speaker cable connection.

“I was bowled over by its combination of smoothness (a B & K hallmark) and detail.”

All too often extremely powerful amps excel on bombastic symphony works, but fall down when it comes to conveying the subtlety and nuance of “smaller” music. The M-200 proved to be a glorious exception. Yes, the massed brass and great whumping bass drum shots in “Uranus, the Magician” were appropriately startling, but equally satisfying were the quiet flute and violin passages. Delicate instrumental shadings and nuances that are so important in communicating the emotion of the music were never glossed over or homogenized. The M-200 had that essential

ability to draw me further and further into the music, rather than hurling it in my face. Equally impressive was the M-200's soundstage width and depth.



While offering the tonal naturalness that characterizes all B & K products, the M-200 goes far beyond previous B & K amps in its outstanding bass quickness and definition, as well as its excellent retrieval of low-level detail and recording acoustic.

The M-200 power amplifier is a smashing success by any standard, and an absolute steal at the price.

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B & K Sonata Series

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HEADPHONES

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity, dB SPL for 1 mW Input	Maximum Input, mW	TWD at 95 dB SPL, %	Cord Length, Feet	Cord Style: Flat = F, Coiled = C, Round = R	Phone Type: 3.5-mm Mini = M, 1/8" Phone = P, Adaptor Included = A	Individual Volume Controls?	Circumference of Ear Pad, in. (Ear = E)	Headband Design: D, Int. Ear = I, Adjustable = A, Folding = F	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes
RECOTON	ST101	Dynamic	20-20	32	98	0.1W	6	F	M/A	Yes	S	A/F	Foam	1.25	19.99		
	ST103	Dynamic	30-20	32	98	0.1W	4	F	M/A	No	S/O	A	Foam	0.9	13.99		
	ST104	Dynamic	20-22	32	98	0.1W	25	F	M/A	Yes	O	A/F	Foam	1.5	24.99		
	ST105	Dynamic	20-20	32	100	0.1W	4	F	M/A	No	S	A/F	Foam	1.5	24.99		
	ST106	Dynamic	20-22	32	100	0.1W	4	F	M	No	S	A/F	Foam	1.02	13.99		
	ST107	Dynamic	20-23	40	102	0.1W	4	F	M	No	S	A/F	Foam	3.88	39.99		
	ST108	Dynamic	50-22	32	99	0.1W	3	F	P/A	No	C	A	Foam	1.8	9.49		
	ST109	Dynamic	20-20	32	98	0.1W	6	F	M	No	I	N	Foam	1.13	22.99		
	ST110	Dynamic	20-20	32	90	0.3W	4	F	M	No	C	A	Foam	1.5	5.99		
	ST82	Dynamic	20-20	32	90	0.1W	4	F	M	No	O	A	Foam	1.41	8.99		
	ST92	Dynamic	20-20	32	90	0.1W	4	F	M	No	S	A	Foam	1.41	8.99		
	ST77	Dynamic	20-25	25	96	50mW	7	F	M	No	S	A	Foam	1.23	15.99		
	ST93	Dynamic	20-22	32	90	0.1W	5	F	M/A	No	S	A	Foam	1.02	11.69		
	ST97	Dynamic	20-23	35	100	0.3W	7	F	M/A	No	S	A	Foam	2.8	31.99		
	ST98A	Dynamic	50-22	32	102	0.1W	6	F	M	No	C	A	Foam	1.8	13.99		
	ST100	Dynamic	20-20	38	98	0.1W	4	F	M	No	I	N	Foam	0.53	20.99		
SENNHEISER	HD40	Dynamic	22-18	50	90		1	4	F	M/A	Dpt.	S/O	A	Foam	2.1	59.00	
	HD450	Dynamic	20-20	70	94		1	10	F	M/A	Dpt.	S/O	A	Foam	4.8	89.00	
	HD450 Studio	Dynamic	20-20	600	94		1	10	F	P	Dpt.	S/O	A	Foam	4.8	99.00	
	HD480	Dynamic	18-22	70	94		1	10	F	M/A	Opt.	S/O	A	Foam	4.8	109.00	
	HD490	Dynamic	18-22	70	94	0.1		10	F	M/A	Opt.	S/O	A	Foam	4.8	119.00	
	HD520	Dynamic	18-22	600	94	0.3		10	F	P	Opt.	C/O	A	Vinyl	7.5	159.00	
	HD530	Dynamic	20-25	600	94	0.3		10	F	P	Opt.	S/O	A	Vinyl	8.3	179.00	
	HD25	Dynamic	30-16	70	105	0.5		10	F	M/A	Opt.	S/O	A	Vinyl	5.0	219.00	
	HD250	Dynamic	10-25	600	94	0.2		10	F	P	Opt.	C	A	Vinyl	8.8	225.00	
	HD540	Dynamic	16-25	600	94	0.4		10	F	P	Opt.	C/O	A	Vinyl	8.8	199.00	
	Reference HD540	Dynamic	16-25	600	94	0.4		10	F	P	Opt.	C/O	A	Vinyl	8.8	349.00	Matched elements.
	Reference Gold	Dynamic	16-30	300	94	2.5V	0.2	10	F	P	Opt.	S/O	A	Velvet	8.8	269.00	
HD560 Ovation	Dynamic	16-30	300	94	2.5V	0.2	10	F	P	Opt.	S/O	A	Velvet	8.8	269.00		
SIGNET	EP700	Dynamic	20-23	32	92		10	F	P	No	C	A	Cloth	8	150.00		
	EP500	Dynamic	20-22	32	92		10	F	P	No	C	A	Vinyl	8	125.00		
	EP400	Dynamic	20-22	40	92		10	F	P	No	C	A	Cloth	5	100.00		
	EP350	Dynamic	20-22	32	110		10	F	M/A	Yes	S	A	Cloth	6	60.00		
	EP300	Dynamic	20-22	40	112		10	F	P/A	No	S	A	Cloth	6	45.00		
	EP100	Dynamic	20-20	32	105		10	F	M/A	No	O	A	Cloth	1.7	30.00		

“It’s a runaway bargain and a stellar performer.”

Description:

The B&K ST-140 is a solid-state amplifier with a class A predriver circuitry and a class AB MOSFET output stage. It has a toroidal transformer to speed up delivery of current to power supply and has the power output into 8 ohms of 105 watts per channel.

A handsome unit with a black anodized faceplate, the ST-140 measures 6"x17"x17" (hwd, including projection of front handles and fins on back) and weighs about 23 pounds.

Operation:

The instructions said nothing about warm-up or burn-in, but I gave the ST-140 several days of both and felt it benefitted sonically. The ST-140 produced no transients when turned on or off. Upon being turned on, it was ready to use immediately, as it has no delay circuitry. Speaker hook-up was straightforward, but input jacks are somewhat inconveniently squeezed in under the heatsink fins on the back. The ST-140 ran coolly and quietly.

In sum, the ST-140 excels in so many areas — bass, clarity, imaging, dynamic — and seems rather more powerful than its specs indicate.

The Sound:

In many ways (but not all), the B&K was the best of the three amps on review here. Particularly impressive was the B&K's ability to separate and distinguish instrumental lines in both soft and high-volume, complex passages. On the Bach, for example, the differing lines carried trumpet, flute, viola, continuo, etc., were readily heard. On the Bartok, the fugal passage of the last movement was extraordinarily clear, with each voice distinct and readily identifiable. In this characteristic, clarity and distinguishability of line, the ST-140 bettered the other two amps (Adcom GFA-555 and Sumo Polaris) and also the NAD 2220 reviewed earlier.

The ST-140 also excelled in another area, that of location and relative positioning of instruments and voices. While the Polaris was also an excellent imager, the ST-140 gave not only a rather more precise idea of where instruments and/or voices were, but also imparted to them a "roundness", a sort of three-dimensional quality.

Another strength was bass response. On the Basie and Gabriel cuts, drums and piano had a more realistic sense of size and weight than



through either the Polaris or the Adcom (but not the NAD 2200). Although these instruments lacked the initial sharply-struck quality of the Polaris, which excelled at transients, the 140's bass was more powerful and had more impact and size, yet was never too prominent. The ST-140's bass, then, was outstanding but never took on even a hint of the sort of indistinct "boom" that sometimes passes for powerful bass.

In sum, the ST-140 excels in so many areas — bass, clarity, imaging, dynamic — and seems rather more powerful than its specs indicate, that I would not hesitate to recommend it highly and strongly at \$600 or even \$650. But at just \$498, it's a runaway bargain and a stellar performer.

Highlights from H-Fi Heretic, No. 5

ST-140 power amplifier

Music brought to you by B&K

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HEADPHONES

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity dB SPL for 1 mW Input	Maximum Input, mW	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style: Flat = F, Coiled = C, Round = R	Plug Type: 3.5-mm Mini = M, 1/4" Phone = P, Adaptor Included = A	Individual Volume Controls?	Circumference A, Supra-aural = S, Over-ear Design = O, In-ear = I, Headband Mount = A, Folding = F, H.	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes	
STANTON	SRS-265	Dynamic	5-22	100	96	100mW	0.5	10	F	P	No	D	A	Vinyl	8.6	135.00	
	SRS-245	Dynamic	10-22	100	94	100mW	0.5	10	F	P	No	O	A	Vinyl	8.5	110.00	
	SRS-225	Dynamic	10-22	100	94	100mW	0.5	10	F	P	No	O	A	Vinyl	8.5	80.00	
	SRS-215	Dynamic	20-20	50	98	100mW	0.5	10	F	M/P	No	O	A	Vinyl	2.1	60.00	
	ST-1	Dynamic	25-20	32	110	100mW	0.5	7 1/2	F	P	No	O	A	Foam	3.2	24.95	
	ST-3.5	Dynamic	20-20	35	103	100mW	0.5	7 1/2	F	P	No	O	A	Foam	5	39.95	
	ST-2	Dynamic	20-22	32	100	100mW	0.5	7 1/2	F	P	No	O	A	Foam	8.8	29.95	
	ST-5	Dynamic	20-20	35	100	100mW	0.5	7 1/2	F	P	No	O	A	Foam	8.8	69.95	
	ST-10	Dynamic	10-20	50	98	100mW	0.5	7	C	M/P	No	C	A	Foam	9.3	110.00	
	ST-Surround	Dynamic	20-20	32	103	100mW	0.5	7 1/2	F	P	No	O	A	Foam	9.8	69.95	
	LS-1	Dynamic	20-20	32	92	100mW	0.5	5	F	M/P	No	O	A	Foam	1	34.95	
	LS-2	Dynamic	20-20	32	100	100mW	0.5	5	F	M/P	No	O	A	Foam	1	24.95	
	LS-3 Turbo	Dynamic	20-20	18	105	100mW	0.5	5	F	M/P	No	O	N	Foam	0.5	29.95	
	LS-4	Dynamic	20-20	32	102	50mW	0.5	3	F	M/P	No	O	N	Foam	0.25	34.95	
	30M/SR	Dynamic	20-22	100	110	250mW	0.25	12	C	P	No	N	N	Foam	3.8	49.95	
35M/HB	Dynamic	20-22	100	110	250mW	0.25	12	C	P	No	N	N	Foam	3.8	55.00		
45M/MC	Dynamic	20-18	400	96	500mW	0.25	12	F	(2)P	No	C	A	Vinyl	7	125.00	Includes unidirectional mike.	
STAX	SR-Lambda	ES	8-35	8	102		0.005	7	F	A	No	C/O	A	Vinyl	15.1	599.95	Includes Model SRD-7SB adaptor.
	SR-Lambda Pro #1	ES	8-35	8	108		0.005	7	F	A	No	C/O	A	Vinyl	15.1	749.95	Includes Model SRD-7 Pro adaptor.
	SR-Lambda Pro #2	ES	8-35	12.5k	108		0.005	7	F	A	Yes	C/O	A	Vinyl	15.1	799.95	Includes Model SRD-P portable adaptor.
	SR-Lambda Pro #3	ES	8-35	50k	108		0.005	7	F	A	Yes	C/O	A	Vinyl	15.1	1199.95	Includes Model SRM-1/MK2 Pro Class-A amp.
	SR-Lambda Signature	ES	7-41	50k	108		0.001	7	F	A	Yes	C/O	A	Vinyl	15.1	1999.95	Includes Model SRM-T1 tube amp.
	SR-Sigma Pro	ES	30-35	50k	110		0.001	7	F	A	Yes	C/O	A	Vinyl	18.2	2299.90	As above.
	Alpha 1	Dynamic	20-20	50	100		0.3	7	F	M	No	C/O	A	Vinyl	6.9	99.95	
	Alpha Pro	Dynamic	20-20	50	100		0.3	7	F	M	No	C/O	A	Vinyl	6.9	149.95	
	SR-34 Pro	ES	20-25	8	95		0.02	7	F	A	No	C/O	A	Vinyl	8	199.95	Includes Model SRD-4 Pro adaptor.
	SR-84 Pro	ES	20-25	8	95		0.02	7	F	A	No	C/O	A	Vinyl	7.5	299.95	As above.
SR-5NB	ES	15-25	8	97		0.05	7	F	A	No	C/O	A	Vinyl	13	349.95	Includes Model SRD-6SB adaptor.	
SR-Gamma	ES	10-35	8	97		0.05	7	F	A	No	C/O	A	Vinyl	7.5	399.95	As above.	
SR-Gamma Pro 1	ES	10-35	8	100		0.005	7	F	A	No	C/O	A	Vinyl	7.5	699.95	Includes Model SRD-7 Pro adaptor.	
TECHNICS	EAH-X15	Dynamic	15-20	40	105	400	0.01	6 1/2	F	M/P/A	No	S	A	Foam		119.00	
YAMAHA	YHD-1	Orthodyn.	20-20	45	100	1W	8	8	F	P/A	No	O	A/F	Screen	5.1	80.00	
	YHD-2	Orthodyn.	20-20	125	97	700mW	8	8	F	P/A	No	O	A/F	Screen	4.7	60.00	
	YHD-3	Orthodyn.	20-20	125	97	500mW	8	8	F	P/A	No	O	A/F	Screen	4.2	40.00	

“Quite simply, the MC-101 is a superb preamplifier.”

Highlights of Hi-Fi Heretic, Summer 1989 review.

B&K's Sonata Series is a new line of upmarket electronics, consisting of two preamplifiers: the MC-101 (on test here) and the Pro-10MC, \$698; two power amplifiers, the M200 monoblock (200 watts into 8 ohms, \$898 each) and the EX-442 stereo amplifier (200 watts per channel into 8 ohms, \$948).

As with B&K's other preamplifiers, the MC-101 is a full-featured design. Included are (take a deep breath) two source selectors for "listen" and "record" functions, a tape monitor function, an external processor loop, high-quality Noble volume and balance controls, a mono switch, a line amplifier bypass switch, bass and treble controls (defeatable), a high frequency filter, and a headphone socket. There are inputs provided for a turntable (selection between MM and MC stages via a switch mounted on the main circuit board) DAT recorder, CD player, VCR, tuner, and tape recorder. (Obviously, any auxiliary source can be connected to the DAT and VCR inputs.)

One thing is certain: the B&K MC-101 is without a doubt the best full-featured amplifier I have heard in this price range.

Resistance and capacitance on the phono input can be adjusted by inserting resistors or capacitors in gold-plated sockets on the main circuit board. Moving to the rear of the unit, all inputs and outputs utilize Premium RCA jacks. There are two sets of main outputs. For only \$200 extra, the MC-101 is available with balanced outputs. The unit's power switch is,

As such, it easily qualified for "BEST BUY" status.

in fact, an output muting circuit, as the preamplifier is always energized when connected to an AC outlet. The headphone output is only activated when the power switch is turned off.

A rather impressive list of features, eh? Construction quality is equally noteworthy. Built into an exceptionally sturdy steel case, the MC-101's circuitry is laid out on a single glass-fibre board, with an auxiliary board carrying the input/output jacks. Parts quality is extremely high, with all controls and selectors of premium quality. 1% metal film resistors and polypropylene film capacitors are liberally used throughout. The active circuitry is completely discrete, with ICs used only in the servo circuits to control DC offset. The B&K utilizes a remote power supply, with connection to the preamp via a high-quality Cannon

plug. All told, the MC-101 is remarkably well made for the price.



The MC-101 is quite attractive, though a bit bulky when compared to the slimline Forte and PS Audio units. New silk screening on the front panel makes the MC-101 far more attractive than B&K's other preamps. Both the control knobs and obligatory rack mount handles are black rather than B&K's usual gold, another cosmetic bonus. Overall, a worthwhile improvement over earlier B&K efforts.

Quite simply, the MC-101 is a superb preamplifier. I had expected it to offer the traditional B&K virtue of smooth tonal balance, but I was not prepared for its amazing sense of detail and clarity. Through the MC-101, music has a combination of warmth and immediacy that is all but unprecedented in this price range.

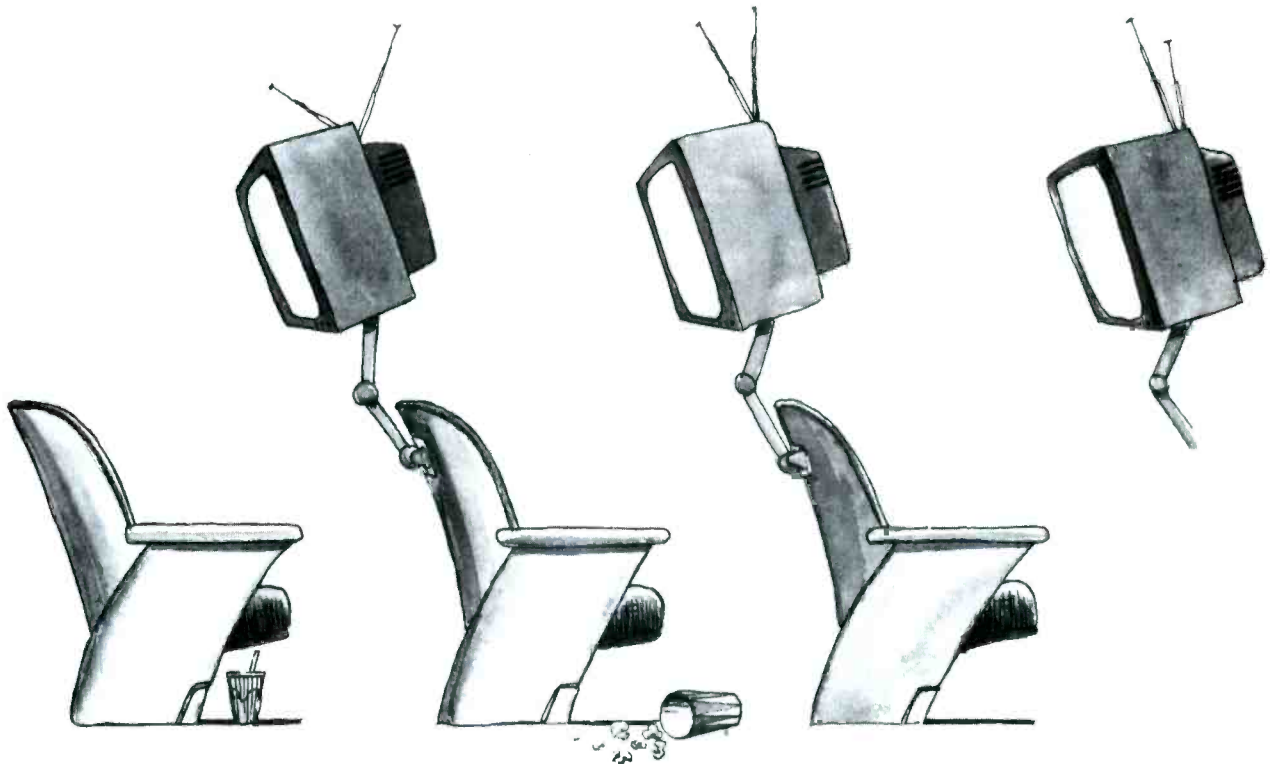
One thing is certain: the B&K MC-101 is without a doubt the best full-featured preamplifier I have heard in this price range. As such, it easily qualified for "BEST BUY" status.

Sonata Series

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be clearly heard. And it works with the thousands of titles that already exist on disc and tape—in fact, the closer the disc or tape sounds to the original, the better Home THX makes it sound.

Home THX starts with components that are designed to rigid specifica-

tions for excellent *audio* performance. The components are also uniquely well matched to one another. Proprietary technology is added to make a transparent transition from listening in the dubbing stage to listening in your home.

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The Home THX System is uniquely poised to offer what we think is the absolute best in music reproduction as well. The loudspeaker developments alone improve the enjoyment of music—it is easier to localize sources like the different parts of a drum kit in a jazz recording.

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- Brings a new sense of localization and envelopment to home theater sound.
- Enhances the presentation of the thousands of readily available video discs and tapes.
- Improves music listening with excellent frequency range and balance.
- Available as individual components or complete systems.

EQUALIZERS

MANUFACTURER	Model (RD) = Remote Included (RO) = Remote Optional	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Tape EQ?	Limby Gain Control?	Rated Output?	THD at Rated Output, rms V	S.N. - dB at Rated Output, %	Variable Center Frequencies?	Boost/Cut Range, ±dB	Real-Time or Spectrum Analyzer?	Test Generator? Pink Noise P	With Calibrated Mikes?	Number of Memories	Number of Tape Monitors	Subsonic Filter?	Video Inputs?	Price, \$	Notes	
ACCUHASE	G-18	2	33	1/3	No	No	2	0.002	110	No	No	12	No	No	No	0	0	No	No	5450.00	
ADC	SoundShaper 90	2	10	1	Yes	Yes	4	0.03	100	No	No	12	Yes	No	No	0	1	No	No	129.95	
	SoundShaper 200	2	10	1	Yes	Yes	4	0.003	100	No	No	15	Yes	No	No	0	1	No	Yes	149.95	
	SoundShaper 310	2	10	1	Yes	Yes	4	0.003	100	No	No	12	Yes	Yes	Yes	0	2	Yes	No	199.95	Tape-to-tape dubbing.
	SoundShaper 910(RI)	2	12	2/3	Yes	Yes	4	0.01	90	No	No	12	Yes	Yes	Yes	4	2	No	No	399.95	As above.
ANODYNE GROUP	Turbo EQ	2						0.008	124	No	No	+6					0	Yes		695.00	Bass alignment filters; for B & W 801 and 802 speakers.
	Turbo EQ Mono	2						0.008	124	No	No	+6					0	Yes		1495.00	As above; balanced/single ended inputs and outputs.
AUDIO CONTROL	C-131	1	30	1/3	No	Yes	7.5	0.005	105	No	No	15	No	No			1	Yes		549.00	Constant Q; balanced and RCA inputs and outputs.
	The Architect	2	6	Var.	No	No	7.5	0.005	110	No	Yes	15	No	No			1	Yes	No	189.00	For wall-mount speakers.
	Octave	2	10	1	Yes		7.5	0.008	118	No	No	12	No	No	No	0	1	Yes	No	159.00	
	Ten	2	10	1	Yes		7.5	0.005	120	No	No	15	No	No	No	0	1	Yes	Yes	229.00	
	Series Two	2	10	1	Yes		7.5	0.005	120	No	No	15	Yes	W	Yes	0	1	Yes	Yes	329.00	Stepped warble generator; 0-dB indicator.
	Ten Plus	2	10	1	Yes		7.0	0.009	116	No	No	15	Yes	P	Yes	0	1	Yes	No	429.00	SPL display; rumble reducer.
	Series Two	2	10	1	Yes		8.0	0.005	120	No	No	12	Yes	W	Yes	0	1	Yes	No	349.00	Includes 24 dB/octave crossover and bridging adaptor.
	C-101	2	10	1	Yes																
	Series Two	2	6	1/2	Yes																
	Richter Scale																				
	Series III																				
AUDIOSOURCE	EQ Eight II	2	10	1	Yes	Yes	11	0.03	85	No	Yes	12	Yes	No	No	0	1	Yes	Yes	159.95	
	EQ Nine	2	12	1	Yes	Yes	12	0.008	99.7	No	Yes	12	Yes	No	No	4	2	Yes	No	299.95	
	EQ Ten	2	12	1	Yes	Yes	12	0.008	99.7	No	Yes	12	Yes	Yes	Yes	4	2	Yes	No	429.95	Auto EQ; remote controlled; reverse EQ.
	EQ Eleven	2	10	1	Yes	Yes	6	0.03	80	Yes	Yes	12	Yes	No	No	0	2	Yes	Yes	199.95	Tape-to-tape dubbing.
BIAMP SYSTEMS	Advantage 301	1	30	1/3	No	Yes	7.7	0.01	†	No	No	12	No			0	0	Yes	No	629.00	†Unweighted, 108 dB.
	Advantage 152	2	15	2/3	No	Yes	7.7	0.01	†	No	No	12	No			0	0	No	No	629.00	
	Micro 301	1	30	1/3	No	Yes	7.7	0.01	†	No	No	12	No			0	0	No	No	399.00	
	Micro 152	2	15	2/3	No	Yes	7.7	0.01	†	No	No	12	No			0	0	No	No	399.00	
CARVIN	EQ2029	1	29	1/3	No	Yes	7.8	0.01	104	No	Yes	15	No	No	No	0	0	Yes	No	319.00	Balanced and unbalanced inputs and outputs.
CELLO	Audio Palette	2	6																	12.000	Specs available on request.
CERWIN-VEGA	DB-108	2	1				2	0.025				10					1	Yes		59.95	Operates at 30 Hz with subsonic filter below 20 Hz.
CREATIVE DIMENSIONS	BAF-1	2	1	1	Yes	Yes	10	0.01	90	Yes	Yes	†	No	No	No	0	1	Yes	No	495.00	†Boost, +3 to +12 dB. Bass alignment filter for sealed-boxed speakers.
DAX	3110	1	31	1/3	No	Yes		0.01	90	Yes	Yes	12	No	No	No	0	0		No	349.00	
	3111	1	31	1/3	No	Yes		0.01	90	Yes	Yes	12	No	No	No	0	0		No	479.00	
	1520	2	15	2/3	No	Yes		0.01	90	Yes	Yes	12	No	No	No	0	0		No	349.00	
DB SYSTEMS	DB-5	2	6				4	.0008	108	Yes		15								380.00	Model DB-2A power supply or DBP-1 cable required.
DISTECH	EQ-2	2			No	No	8	0.001	100	No	No	+6	No	No	No	0	Yes	No		950.00	Bass alignment filter; for B & W 801 and 802 speakers.
	EQ-1	2			No	No	8	.0005	100	No	No	+6	No	No	No	0	Yes	No		1600.00	As above; dual mono; external battery supply optional.
ESOTERIC SOUND	Re-Equalizer	2	2	10	No	No	3.5	0.02	85	No	No	16	No	No	No	36	0	No	No	265.00	For replay of early LPs, 78s, and transcriptions.
FDSTEX	3030	2	10			Yes		0.03	90	No	No	12	No	No	No					250.00	
HARMAN KARDON	EQ8	2	10	1/3	Yes	Yes	2	0.02	†	No		12	No	No	No		1	††	No	329.00	†105 dB re: 0.5 V out, ††Variable subsonic filter.
JRM	Remote Unit	2	6	1	Yes	Yes	7	0.001	110	No	No	8						Yes	Yes	625.00	JRM preamp or 3PBP crossover required; continuously variable loudness.
JVC	SEAM770BK (RI)	2	7		Yes	No	1	0.03	100	No	No	12	Yes			12	1	No	No	400.00	
KENWOOD	GE-7020	2	14									12	Yes			30	0			369.00	Graphic-parametric EQ.
	GE-5020(RD)	2	7		Yes			0.009	100			12				10	1			249.00	
	GE-49	2	7		Yes			0.009	96			10				1	1			129.00	
	GE-29	2	7					0.009	96			10				0	0			79.00	
KLARK-TEKNIK	DN 360	2	30	1/3	No	Yes	†	0.01	††	No	No	12	No	No	No	0	0	Yes	No	1795.00	† +4 dBm, ††-90 dBm, unweighted.
	DN 332	2	16	2/3	No	Yes	†	0.01	††	No	No	12	No	No	No	0	0	Yes	No	1095.00	
	DN 300	1	30	1/3	No	Yes	†	0.01	††	No	No	12	No	No	No	0	0	Yes	No	1150.00	
	DN 410	2	5	0.8-2	No	Yes	†	0.01	††	Yes	Yes	+15, -25	No	No	No	0	0	Yes	No	1195.00	Parametric EQ.
	DN 405	1	5	0.8-2	No	Yes	†	0.01	††	Yes	Yes	+15, -25	No	No	No	0	0	Yes	No	775.00	As above.

EQUALIZERS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Traps	Unity Gain EQ?	Rated Output?	THD at Rated Output, rms V	S/N, -dB, at Rated Output, %	Variable Center Frequencies?	Boost/Cut Range, ±dB	Real Time or Spectrum Analyzer?	Tape Generate? Pink Noise = P, White Noise = W	With Calibrated Mikes?	Number of Memories	Subsonic Filter?	Video Inputs?	Price, \$	Notes			
McINTOSH	MQ107	2	7	1/3,1	No	Yes	2.5	0.02	95	Yes	Yes	12,15	No	No	No	0	0	Yes	No	650.00		
ONKYO	EQ-100	2	7	1	Yes	No	0.15	0.01	100	No	No	12	No	No	No	0	1	No	No	150.00		
	EQ-240	2	7	1	Yes	No	0.15	0.01	100	No	No	12	Yes	No	No	0	1	No	No	240.00		
	Integra EQ-35	2	12	1	Yes	Yes	0.15	0.01	100	No	No	12.6	No	P	No	0	2	No	No	330.00		
	Integra EQ-540	2	12	1	Yes	Yes	0.15	0.01	100	No	No	12.6	Yes	W	Yes	0	2	No	No	400.00		
PAC	C.P.R. EQ-1	2			No	No	10	0.01		No	No	+7		No	No			Yes		895.00	Low-frequency alignment filter for B & W 801 Matrix speaker.	
	C.P.R. EQ-2	2			No	No	10	0.01		No	No	+7		No	No			Yes		895.00	As above but for 802 Matrix.	
PIONEER	GR-777	2	10			Yes	0.02		110	Yes			Yes			5	0			370.00		
	GR-555	2	7			Yes	0.03		104	Yes			Yes			1	0			225.00		
	GR-470	2	7			Yes	0.03		106	Yes			No			0	0			120.00		
PLEXUS AUDIO SYSTEMS	ABE-2	2			Yes		4	0.02	95			+12				1	Yes	No		195.00	Active EQ for Plexus SWS-2 subwoofer or other speakers.	
RADIO SHACK	33-2020	2	10		Yes	Yes	10	0.015	95	No	No	12	Yes	No	No	0	2	No	No	139.95		
RANE	GE14	2	14	2/3	No	Yes	.775	0.02	89	No	No		No			0	Yes	No	499.00	Constant Q.		
	GE27	1	27	1/3	No	Yes	.775	0.009	94	No	No		No			0	Yes	No	499.00	As above.		
	ME15	2	15	2/3	No	Yes	.775	0.009	108	No	No		No			0	Yes	No	369.00	As above.		
	ME30	1	30	1/3	No	Yes	.775	0.009	108	No	No		No			0	Yes	No	359.00	As above.		
	MPE14	2	14	2/3	No	Yes	.775	0.008	108	No	No		No			0	Yes	No	799.00	†128. Programmable.		
	MPE28	1	28	1/3	No	Yes	.775	0.009	104	No	No		No			0	Yes	No	749.00	As above.		
	MPE47	4	7		No	Yes	.775	0.02	105	No	No		No			0	Yes	No	799.00	As above.		
	PE15	1	5		No	Yes	.775	0.02	92	Yes	Yes		No			0	Yes	No	399.00	Parametric EQ.		
	SP15	1	5		No	Yes	.775	0.006	102	Yes	Yes		No			0	Yes	No	599.00	As above.		
	RE27	1	27	1/3	No	Yes	.775	0.009	92	No	No		P	Yes		0	Yes	No	849.00	Constant Q.		
	RE14	2	14	2/3	No	Yes	.775	0.009	92	No	No		Yes	P	Yes	0	Yes	No	749.00	As above.		
SHERWOOD	EQ-1330	2	9		Yes	Yes	1	0.025	95	Yes	No	12	No	No	No	0	1	No	No	129.95		
SOUNDCRAFTSMEN	PRO-EQ 22	2	10	1	Yes	Yes	10	0.01	114			15				1				349.00	Differential comparator system; C-MOS; also available with 17-inch-wide front panel; optional test CD.	
	DC2215	2	10	1	Yes	Yes	10	0.01	114			15				1				449.00	True inductor-coil circuitry; optional test CD.	
	PRO-EQ 44	2	21	1/3-2/3	Yes	Yes	10	0.01	114			15				1				549.00	Differential comparator system; C-MOS; also available with 17-inch-wide front panel; optional test CD.	
SOUND ENGINEERING	PFM-8	2	3	Adj.	Yes	Yes	17	0.03	118	Yes	Yes	+4, -12	No	P	No	0	3	Sel.	No	2050.00	Tilt control; peak/average level meters.	
STAX	ED-1				Yes			0.05	90	No	No		No	No	No	0	0	No	No	799.95	Diffuse field EQ; for Stax headphones.	
SYMETRIX	SX201	1	3	.05-3.3	No	Yes	†	0.02	101	Yes	Yes	+15, -30	No	No	No	0	0	No	No	239.00	†15.8 V (+24 dBm into 600 ohms). Parametric EQ preamp.	
TEAC	EQA-3	2	10	1	Yes	No	0.03		70	No	No	12	No	No	No	0	1	No	No	99.95		
	EQA-6	2	10	1	Yes	No	0.03		70	No	No	12	No	No	No	0	1	No	No	119.95		
	EQA-22	2	10	1	Yes	No	0.01		90	No	No	12	Yes	No	No	0	2	No	No	169.95		
TECHNICS	SH-GE70	2	7	1/3	Yes	No	1	0.005	105	No	No	12	Yes	No	No	12	0	1	No	No	199.95	
	SH-8038	2	7	1 1/3	Yes	No	1	0.005	107	No	No	12	No	No	No	0	1	No	No	119.00		
	SH-8017	2	7	1 1/3	Yes	No	1	0.005	107	No	No	12	No	No	No	0	1	No	No	89.00		
VECTOR RESEARCH	VQ-115	2	10	1	Yes	Yes	1	0.009	109	No	No	12	No	No		1	No	No		139.00		
VTL	Manley Enhanced Pultec	1	2	Var.	No					Sel.			No	No	No	0	0		No	2000.00	Tube; high-cut filter.	
	Manley Equalizer/Line Preamp	1	2		No							8	No	No	No	0	0		No	2000.00	Tube; midrange tilt control; selectable polarity; 5-input selector (see also "Preampifiers").	
	Ultimate Equalizer and Preamp	2	2		No							8	No	No	No	0			No	3950.00	As above but stereo.	
	Manley Mid-Frequency Equalizer	1			No					Yes			No	No	No	0	0		No	2000.00	Tube.	
	Manley Contour Shelf Equalizer	1			No								No	No	No	0	0		No	2000.00	As above; midrange boost.	
YAMAHA	EQ-1100U(RI)	2	10	1	Yes	No	1	0.006	107	No	No	12	Yes	P	Yes	†	2	Yes	No	599.00	†Three curves factory-set, four curves user-set.	
	EQ-630(RI)	2	10	1	Yes	No	1	0.006	105	No	No	12	Yes	No	No	†	1	No	No	469.00	†Four curves factory-set, four curves user-set.	
YAMAHA	EQ-500U	2	10	1	Yes	Yes	1	0.005	105	No	No	12	Yes	P	Yes	0	1	Yes	No	399.00		
	EQ-70	2	10	1	Yes	Yes	5.4	0.005	105	No	No	12	Yes	No	No	0	1	Yes	No	159.00		
	EQ-550	2	10		Yes	Yes	1		105	No	No	12	No	P	Yes	0	1	Yes	No	399.00		

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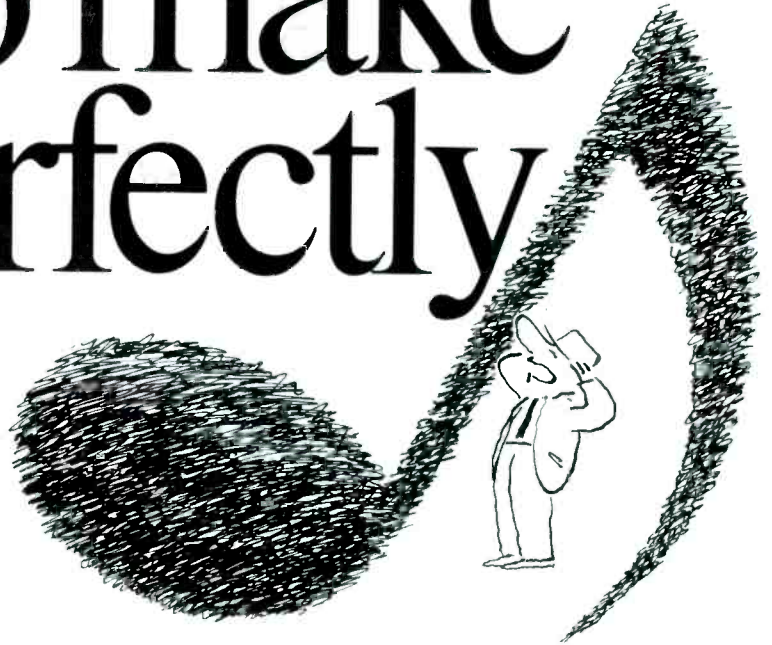
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MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	UNIT TYPE				DELAY FUNCTIONS										Price, \$	Notes
		Matrix—See Code	Time Manipulation: Delay = D, Reverb = R	Other Manipulation Techniques: Frequency Shaping = F, Low Filter = C, Phase Manipulation = P, Other = O	Number and Use of Outputs—See Code	Delay Time, ms	Number of Hall Room Simulations	Hall Room Measurements: Volume = v, Shape (Height:Width Ratio) = s	Continuous Amp Power, Watts	THD, %	S/N Ratio, A1 Wtd., -db	Channel Separation, db	Stereo Simulation?	Number of Tape Monitors	Video Inputs?		
ARCHER	15-1279	D	D		2F, 2B	20			10 x 2, 5 x 4	0.5	70		Yes	2	No	129.95	
ATLANTIC TECHNOLOGY	Pattern Surround Home Theater	DP	D	P	3F, 2B, SW	30	1		15 x 5, 60 x 1	0.085	85	60	No			1499.00	Includes speakers.
AUDIOSOURCE	SS One/II	D/O	D	F/P/D	2B	10-30			30 x 2	0.01	85	60	Yes	1	No	199.95	100-Hz and 10-kHz boost; front/rear fader, master volume.
	SS Two(RI)	D/O	O	F/P/D	2B	10-30			30 x 2	0.01	85	60	Yes	1	No	249.95	As above.
	SS Three(RI)	SQ	D	F/P	3F, 2B, SW	10 or 30	1	V	30 x 2	0.01	90	60	Yes	1	No	399.95	Automatic balance calibration; selectable crossover frequency; subwoofer level control.
CARVER	DPL-33	DP	D	P/O	3F, 2B	20 or 30	2		25 x 3	0.05	85	80	Yes	1	No	399.00	Master volume control; surround-channel level display.
DENON	AVC-3000(RI)	DP	D		3F, 2B	0-40	6		80 x 2, 35 x 1, 35 x 2	0.08, 0.4, 2.0			No	5	8	1000.00	Five-channel amp (see also "Amplifiers"); digital delay; S-video inputs and outputs; video detail and sharpness controls; on screen TV display.
	AVC-1000(RI)	DP	D		3F, 2B, SW	0-40	3		55 x 2, 25 x 2, 25 x 2	0.08, 0.4, 2.0			No	5	5	700.00	Four- or six-channel amp (see also "Amplifiers"); S-video inputs and outputs; on-screen TV display.
	AVC-700(RI)	DP	D		2F, 2B	15, 20, 30	1		55 x 2, 18 x 2	0.4, 2.0			Yes	1	5	600.00	Four-channel amp (see also "Amplifiers"); five-channel preamp outputs; digital delay; S-video inputs and outputs; on-screen TV display.
	AVR-1010(RI)	DP	D		3F, 2B	0-40	3		100 x 2, 35 x 2, 35 x 2	0.08, 0.4, 2.0			No	4	5	1000.00	AM/FM tuner and four- or six-channel amp (see also "Receivers"); S-video inputs and outputs.
DYNACO	QD-1 Series II	H		P	2B								No	0	No	50.00	Passive ambience retrieval.
FISHER	ASR-975	DP/O	D	F/P/D	2F, 2B	10-30	5		20 x 3	0.4	85	70	Yes	3	5	599.95	Includes three speakers.
FDSGATE-AUDIOIONICS	DSL One	D/O	D	F/C/P/D	3F, 2B, SW		8	V/S	20 x 2	0.05	90	45	Yes	1	No	699.00	Proprietary logic steering.
	DSL Two(RI)	D/DP/O	D	F/C/P/D	3F, 2B, 2S, 3SW	15-32	8	V/S	20 x 2	0.05	90	45	Yes	1	No	1199.00	As above; Dolby Time Link digital delay.
	3610 Pro-Plus(RI)	D/D	D	F/C/P/D	3F, 2B, 2S, SW	16-32	3	V		0.10	90	60	Yes	1	Yes	1429.00	Proprietary logic steering; Class-A audio circuitry.
HITACHI	HA V5EX	A/D/DP/SQ	D		3F, 2B	0-30	6	V	†	0.09	90	60	Yes	1	Yes		†In Dolby modes, 45 watts x 2 and 15 watts x 2; other modes, 50 watts x 2.
JVC	XPA1010(RI)	O	D/R	F/D	4F, 2B	0-200	20	V/S		0.002	110		No	1	No	1200.00	Compensation for listening room size, listening room reverb time, and source reverb.
	SUA400(RI) SUA30	D/O D/O	D D	F/P F/P	2F, 2B 2F, 2B	15-30 15-30	2 2		10 x 2 10 x 2	0.5 0.5	85 85		Yes Yes	1 1	No No	305.00 235.00	
KENWOOD	SS-79	D	D		2B	20 or 30	2		15 x 2	0.9	62					249.00	
LEXICON	CP-1	D/DP/D	D/R	F/C/P/D	3F, 2B, 2S, SW	†	21	V/S		0.05	85	40	Yes	1	No	1395.00	†0 ms to 14 S. True digital decoding; auto azimuth; auto input balance.
	CP-2	D/DP/O	D	F/O	3F, 2B, SW	0-32	0			0.05	85	40	Yes	0	No	895.00	As above.
	CP-3(RI)	DP/O	D/R	F/P/D	3F, 2B, 2S, SW	†	9	V/S		0.01	90	85	Yes	1	Yes	2500.00	As above; high-frequency attenuation of reverb signal; THX; on-screen TV display.
LIRPA LABS	U8-IT	D/D/D W/D/P	D†	D	3F, 2F, 2B, 3B, 16SW	†	††		Var.	50.3	2.5	1/2	Var.	1/2	No	19.95	†15 mins. inbound, 20 outbound (75 on L.I.E.). ††Presets include "Concert Hall, Coughs" and "Jazz Club, Drunks at Bar."
LUXMAN	F-116	D/DP	D	O	3F, 2B	0-32	0			0.05	80		Yes	0	No	950.00	
MEMOREX	DSS-100		D		2F, 2B	20			5 x 4, 10 x 2				Yes	1	No	249.99	Includes pair of Series 10 speakers.

Adcom would like to make this perfectly clear.



Regardless of how sophisticated your stereo and video system is, it may never achieve its full performance if plugged directly into an AC outlet. Raw and unprocessed AC power can severely diminish the clarity of audio signals and reduce the resolution of your video picture.

ADCOM's ACE-515 AC Enhancer significantly improves the performance capabilities of your system by filtering and processing raw AC power, unveiling a pure, noise-free power source.

Listen To The Critics

"...the effective suppression of AC 'RF hash' by the ACE-515 improved clarity and lowered noise in all three CD players. . . .the significant improvements in instrumental and vocal harmonic retrieval and hall ambience are superb. . . . it simply appears to allow musical information to be passed through to the listener with less veil and electronic 'haze.'"

—Lewis Lipnick, *Stereophile*, Vol. 11 No. 4, April 1988.

Recommended accessory in *Stereophile*, Vol. 12 No. 4, April 1989.

Line Protection: It Pays For Itself

The ACE-515 also protects your valuable equipment from harmful high-voltage spikes and surges. And, its sequential turn-on/turn-off control circuit guards your speakers from disturbing, damaging thumps.

Again, The Critics Agree

"Electronic equipment (especially digital audio gear) is vulnerable to both annoying and catastrophic power-line problems. Your stereo gear should have line spike and surge protection, with hash filters thrown in too. Line protection—you can pay a little for it now, or you can pay a lot for it later."

—Ken Pohlman, *AUDIO*, November 1987.

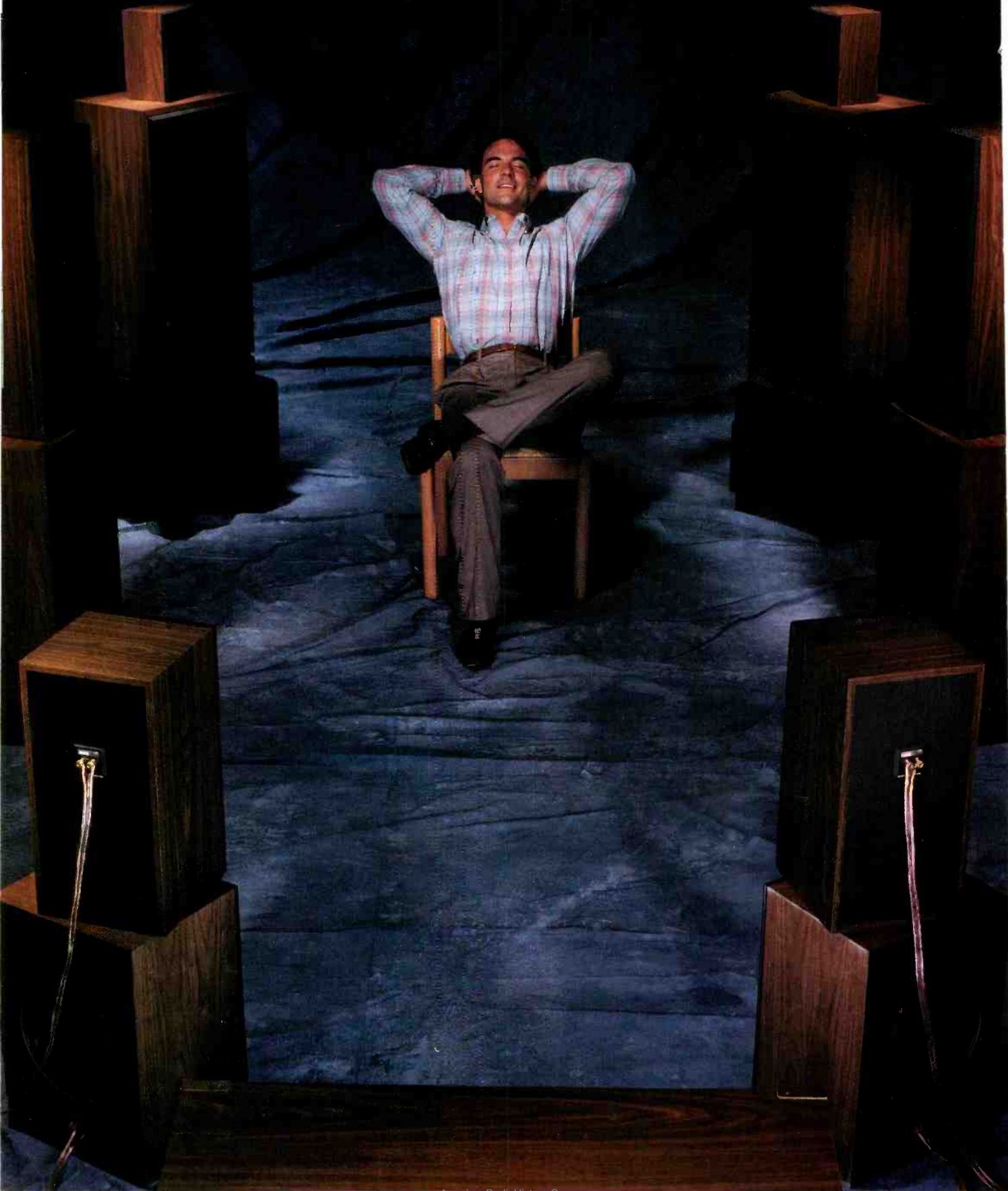
For a modest investment, the ADCOM ACE-515 enhances both audio and video clarity while protecting your equipment from damaging line voltage disturbances. Once again, ADCOM lives up to its reputation of offering superior performance at a reasonable cost. For complete technical data, please visit your Adcom dealer. You'll discover the ACE-515 is more than an accessory. It's a necessity.



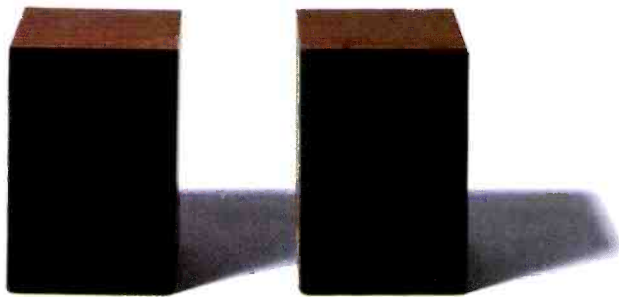
ADCOM®

details you can hear

This is what ™ sounds like.



This is what (●)™ looks like.



(●) is the symbol for the new *Sound Retrieval System* that lets you experience true 3-D sound from two ordinary loudspeakers. Read that last sentence again. You probably still won't believe it. But it is real.

In fact, (●) won the Grand Award for Audio Technology in the "Best of What's New", *Popular Science*, December, 1989.

Until now the quest for life-like 3-D sound has involved ever more sophisticated, complicated and expensive arrays of hardware.

Until now. Because the engineers at Hughes Aircraft Company began asking some new questions about sound itself. Instead of concentrating on hardware, they analyzed the way the ear processes sound. They discovered that the subtle restoration of certain frequencies in recorded audio can duplicate the way your ears locate sound. Ah ha!

Then they fiddled around with their new technology until they not only perfected it, they made it affordable for commercial applications.

To experience the uncanny realism of this new kind of sound is . . . well, uncanny. You can get up and walk around the room and the sound image doesn't change. You don't have to stay in the "sweet spot" created by delay arrays and surround-type matrices. And you won't find the "hot spots" you get with multi-

ple speaker arrays. Will (●) replace all those speakers? Len Feldman, in the September 1989 issue of *Radio Electronics* wrote, "The demonstration was so dramatic and effective that people couldn't help but look for additional hidden speakers."

So forget expensive surround-type speaker matrices. You don't need to buy a roomful of speakers and sacrifice a lot of square feet of living space to house them. All you need is (●).

We'll bet you're still skeptical, and will be until you actually hear (●) for yourself. Which you can, today, on Sony TV sets. Imagine that. You can buy a Sony TV with built-in sound that will make you want to throw rocks at your stereo system. Several other major electronics companies are poised to announce (●) on their products.

So, when you do look for your new audio system, look for (●).

HUGHES

Subsidiary of
GM Hughes Electronics

AMBIENCE & SURROUND SOUND PROCESSORS

MANUFACTURER	Model (RI) = Remote Included (RO) = Remote Optional	UNIT TYPE										DELAY FUNCTIONS					Price, \$	Notes
		Matrix—See Code	Time Manipulation: Delay = D, Reverb = R	Other Manipulation Techniques: P = Comb Filter = C, Phase Manipulation = P, Other = O	Number and Use of Outputs—See Code	Delay Time, ms	Number of Hall/Room Simulations	Hall Room Measurement Volume = V, Phase (High/Low) = H/L	Continuous Amp Power, Watts	THD, %	S/N Ratio, "A" Wtd., -dB	Channel Separation, dB	Stereo Simulation?	Number of Tape Monitors	Video Inputs?			
ONKYO	ES-300	D	D		2B	20 or 30	2			30 x 2	0.9	79	No	No	279.95			
OPTONICA	SMA-75(RI)	D/O	D	O	2F, 2B	0-92	14	V/S		35 x 2, 25 x 4	0.8	82	50	No	†	4	400.00	†Two VHS, one audio tape.
PANASONIC	SY-DS1	O	R							8 x 2	10			No	0	No	279.95	Built-in stereo speakers; 16-bit digital processing; reverb time, 0.9 to 2.4 S; headphone jack.
PARAMOUNT PICTURES	135	O	D		3F, 2B, SW	15-30		V/S	†		0.05	85	50	Yes	0	Yes	269.00	†20 watts x 1 into 8 ohms, 25 watts x 1 into 4 ohms.
PHILIPS	AV-1001(RI)	DP	D/R	O	3F, 2B	1-99	10	V/S							2	Yes	2000.00	Bitstream D/A conversion; digital signal processing; matrix switching for nine A/V inputs, including S-video.
PIONEER	VSP-555(RI)	O					3			38 x 2	0.05	90		Yes	4		375.00	Dolby, stadium, and simulated surround.
	SP-7000	O/DP	O	F/P	3F, 2B, 2S, SW	1-50	5	V/S				90		Yes	No		700.00	
	SP-91D	D/DP	D	F/P	3F, 2B, 2S, SW	1-50	8	V/S				95		Yes	No		1000.00	18-bit D/A conversion.
PROTON	SD-1000(RI)	O		F/P	3F, 3B, SW						0.008	100	58	No	1	No	1000.00	
SANSUI	RZ-9500AV (RI)	DP	D	P	3F, 2B	0-350	3	V/S		100 x 2, 30 x 2, 40 x 1	0.02	85	70	Yes	2	Yes	769.95	AM/FM tuner and five-channel amp (see also "Receivers").
	RZ-7500AV (RI)	D	D	P	2F, 2B	20 or 30	1	V/S		100 x 2, 20 x 2	0.02	85	70	Yes	2	Yes	579.95	As above but four-channel.
SHERWOOD	ES-1280	D/O	D		2F, 2B	15-30	4	V		20 x 2	0.3	86		Yes	1	No	199.95	
SHURE HTS	HTS5300(RI)	DP	D	O	3F, 2B, SW	16-36					0.1	90	65	Yes	1	No	999.00	Logic steering; digital delay.
SONY ES	SDP-777ES (RI)	DP/O	D	O	3F, 2B, SW	0.1-80	3				0.008	90		Yes	1	4	850.00	
	TA-E1000ESD (RI)	DP/O	D/R	F/O	3F, 2B, SW	0.1-2500	20	V/S			0.003	110		Yes	2	5	1000.00	Digital preamp/surround processor (see also "Preamplifiers").
SOUND CONCEPTS	SSD550	D	D/R		2F, 2B	5-100		V			0.1	92	80	Yes		No	869.00	Music/film mode switching.
SSI SURROUND SOUND	System 1000	D	D		3F, 2B, SW	10-30	0			20 x 2	0.05	85	50	Yes	1	No	199.00	With speakers, \$249.00.
	System 3000(RI)	DP	O		3F, 2B, SW	10-30	0			25 x 2	0.02	80	65	Yes			349.00	
	System 4000(RI)	D/O	O		3F, 2B, SW	10-30	0			45 x 2	0.03	95	70	Yes	4	4	549.00	Logic steering; amp switchable for center channel or surround channels.
	System 4500(RI)	D/O	D		3F, 2B, 4S, SW	10-30	0				0.03	95	70	Yes	4	4	599.00	Logic steering; adjustable center-channel balance.
TECHNICS	Home THX Sound System	O								100 x 6						Yes	12,000.	Includes one controller, three stereo power amps, three front speakers, two surround speakers, and one subwoofer.
YAMAHA	DSP-3000(RI)	D/O	D	O	5F, 3B, 2S, SW	1-150	35	V/S			†	110		No	1	Yes	1899.00	†Main channels, 0.002%; effects channels, 0.005%. Digital sound-field processing.
	OSP-A700(RI)	DP/O	D/R	O	5F, 2B	1-99	12	V/S		60 x 2, 15 x 5	0.012	105	60	No	1	Yes	1099.00	Digital sound-field processing; active servo amplification; for use with AVS-700 source selector.
	DSP-E300(RI)	DP/O	D/R	O	3F, 2B	1-99	12	V/S		15 x 5	0.02	98	65	No	1	Yes	799.00	As above.
	AVX-700(RI)	DP/O	D/R	C	3F, 2B	5-30	3			65 x 2, 14 x 3	0.02	98	65	No	2	4	649.00	Active servo amplification.
	AVX-500(RI)	DP/O	D	C	3F, 2B		1			80 x 2, 15 x 3	0.01	96	65	No	1	3	549.00	As above.
	DSR-70 PRD	DP	O		3F, 2B, SW	20 or 30					0.02						No	249.00
SR-50B	D/O	O	C	2B	10-30	5			25 x 2	0.03	103	47	Yes	1	No	299.00		

SIGNAL PROCESSORS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Type of Processing	Function: Closed Loop = C, Open Loop = O, Transient = T	Application: Tape Rec. = R, Phone = P, FM = F, Video = V, Universal = U	Simultaneous Encode/Decode?	Degree of Noise Reduction, dB @ Hz	Record = R, Play = P, Both = RP	THD, %	Frequency Response, Hz to Hz, ±dB	Price, \$	Notes
ACE AUDIO	4000	Subsonic Filter		R/P/F	No	†	RP	0.002	20-20 +0,-3	98.50	†18 dB/octave slope below 20 Hz. †Low, 18 dB/octave slope; high, 12 dB/octave. †Low, 24 dB/octave slope. †Low, 24 dB/octave slope; high, 12 dB/octave.
	4100	Infra/Ultrasonic Filter		R/P/F	No	†	RP	0.002	20-20 +0,-3	108.50	
	4000-X24	Infra/Ultrasonic Filter		R/P/F	No	†	RP	0.002	20-20 +0,-3	132.00	
	4100-X24	Infra/Ultrasonic Filter		R/P/F	No	†	RP	0.002	20-20 +0,-3	142.00	
APHEX SYSTEMS	103A Aural Exciter	Enhancer		U	Yes		RP	0.01	10-100 ±0.5	299.00	
	250 Aural Exciter	Enhancer		U	Yes		RP	0.01	10-100 ±0.5	995.00	
	300 Compellor	Compressor/Leveller		U			RP	0.008	5-65 ±0.5	1195.00	
	720 Dominator II	Multiband Peak Limiter		U			RP	0.008	5-65 ±0.5	1350.00	
ATHENA	ML-1 PolyPhasor	Group Delay/Phase	T	U			RP		0.1-40	800.00	Works on all line-level sources.
	ML-5 PolyPhasor	Group Delay/Phase	T	U			RP		0.1-40	1000.00	For CD players only.
	ML-10 PolyPhasor	Group Delay/Phase	T	U			RP		0.1-40	1400.00	Works on all line-level sources.
AUDIO CONTROL	Phase Coupled Activator	Proprietary	O	U	No		RP	0.005	25-20 ±0.5	259.00	Restores lower frequencies; includes programmable crossover.
BBE SOUND	BBE 1002	Sonic Detail Restoration	O	U	No		RP	0.1	20-20	229.00	Tape/external processor loop.
CARVER	H-9AV	Sonic Hologram Generator	O	U			P	0.01	1-60 +0,-0.3	299.00	Independent outputs for L - R and L + R; vocal centering; switchable vocal "presence" EQ; High-frequency EQ; variable bass Q; soundstage distancing.
	ECS-U	Sonic Hologram Generator, Sub-Bass Restoration, EQ	O	U			P	0.01	1-60 +0,-0.3	299.00	
DB SYSTEMS	DB-7	Phase Inverter	O	U				.0008	20-20 ±0.1	290.00	Polarity reversal switch; subsonic and supersonic filters; bridging output.
OBX	38X-DS	Dynamic Range Controller	C	R/P/F			RP	0.15	20-20 ±0.5	499.00	
	18X-DS	Dynamic Range Controller	C	R/P/F			RP	0.15	20-20 ±0.5	279.00	
	120X-DS	Subharmonic Synthesizer	C	R/P/F			RP	0.05	25-20 ±0.1	299.00	
	SNR-1	Single-Ended NR	C	R/P/F		40 dB Max.	RP	0.1	20-20 ±0.5	279.00	
MARCHAND	WM8	Bass Correction	O				P	0.01	2-20	345.00	For use with subwoofers and full-range speakers; kit, \$225.00.
PACKBURN	323 A	Transient, Dynamic NR	O/T	U	No	Varies	RP	0.05	Sel.	2650.00	Mono/stereo; has three NR processors.
SOUND CONCEPTS	IR2100(RI)	Image Enhancer	O	U			RP	0.01	20-25 ±0.1	300.00	Includes wired remote. Kit, Model KIR-1, \$95.00. Kit, Model KVSP-1, \$90.00.
	IR2200	Image Enhancer	O	U			RP	0.01	20-20 ±0.3	189.00	
	VSP-1	Stereo Synthesizer	O	U			RP	0.01	20-20 ±0.3	169.00	
SYMETRIX	501	Limiter/Compressor		U			RP	0.035	20-20 +0,-1	279.00	Two processors, rms compressor and peak limiter. Two processors per channel, program-controlled compressor/limiter and expander/noise gate. Four independent channels; switchable between expansion and gating. Expander has dynamic filter.
	525	Dual-Gated Limiter		U			RP	0.035	20-20 +0,-1	495.00	
	544	Compressor Expander/Noise Gate		U			RP	0.035	20-20 +0,-1	649.00	
	511A	Single-Ended NR, Downward Expander		U		30 dB Max.	RP	0.035	20-20 +0,-1	629.00	
VTL	Manley High-Frequency Limiter	Limiter	D	R			R			2000.00	Tube; mono; limits level above any user-set frequency above 5 kHz.
	Manley Peak-Limiting Line Amplifier	Limiter	O	R			R			2000.00	Tube; mono; selectable gain and recovery speed; 10-dB limiting.
	Manley 10 dB Compressor	Compressor	O	R			R			2000.00	Tube; mono.

CROSSOVERS

MANUFACTURER	Model	Type: Active = A, Passive = P, Combined Active & Passive = C			Number of Frequency Bands per Channel	Crossover Frequencies, Hz	Independent High- and Low-Pass Frequency Selection?										Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
		Mono = M, Stereo = S, Stereo with Mono Subwoofer Output = X, Diver = D	Frequency Setting Variable = V, Auto in Modules = P	Subwoofer Output, Stereo = S, Mono = M, Inherent to Mono Modeling = B			Level Controls, High-Pass = H, Midrange = M, Low-Pass = L (for Total Number of Controls)	S/N Ratio, -dB	Distortion, %	100	20k	100	4200.00	18 V maximum. Balanced and unbalanced inputs and outputs (specs shown are unbalanced).							
ACCUPHASE	F-15L	A	S	3	20-20k	Yes	P	S	H/M/L	100	0.003	†	20k	100	4200.00	18 V maximum. Balanced and unbalanced inputs and outputs (specs shown are unbalanced).					
ACE AUDIO	6500-DSB	A	M/S/X	2	30-200	Yes	P	S/M	H or L	90	0.002	1.0	100k	100	175.00	Optional subsonic filter, \$25.00.					
	6000	A	S	2	200-15k	Yes	P	S/M	H or L	90	0.002	1.0	100k	100	175.00	As above.					
	6000-6	C	S	2	30-18k	Yes	P	S/M	H or L	90	0.002	1.0	100k	100	204.00	As above; transient-perfect filter.					
A/D/S/	CX2	A	S	2	20-20k	Yes	P	S/M	L	100	0.005	1.0		100	400.00						
AMERICAN HYBRID TECHNOLOGY	AHT-X	A	S	2	Custom	No	F		H	120	0.005		10k	100	5200.00	Line-level preamp/crossover (see also "Preamplifiers"); external power supply.					
ANALOG RESEARCH	Custom	A	S	2	Custom	Yes	F	S	L	90	0.01		10k	500	From \$600.00	External power supply required.					
APOGEE ACOUSTICS	DAX	A	S	2	330	No	F	No	H/L	100	0.003	1	Adj.	8	3995.00	For Apogee Diva, Duetta Signature, and Caliper Signature.					
	DAX II	A	S	2	330	No	P	No	H/L	95	0.005	1	Adj.	8	1995.00	As above.					
ARANT	Jen 34A	P	M	2	3.5k	Yes	F		H				8	8	18.00	On p.c. board.					
ATC	EC23	A	S	3	Custom	Yes	P	No	H/L			1.0	10k	47k	2500.00	Balanced inputs and outputs; adjustable delay on low and high bands; switchable mid-band polarity inversion; adjustable active gain limiting.					
ATHENA	DF-10	A	S	2	15-15k	No	V	S	H/L	96	0.001	1.0	100k	560	2500.00	Custom order. As above.					
	DF-100	A	S	3	15-15k	Yes	V	S	H/M/L	96	0.001	1	100k	560	5000.00						
	DF-1000	A	S	4	15-15k	Yes	V	S	4	96	0.001	1	100k	560	7500.00						
AUDIO CONTROL	Phase Coupled Activator Richter Scale Series III	A	S	2	20-20k		P	S	L	118	0.005	1.0	100k	150	259.00	Proprietary bass restoration circuits; subsonic filter (see also "Signal Processors"); Linkwitz-Riley alignment; 1/2-octave bass EQ and analyzer (see also "Equalizers").					
		A	S	2	20-20k		P	S/M/B	L	120	0.005	1.0	100k	150	349.00						
AUDID RESEARCH	EC-22	A	S	2	30-5k	Yes	P		L	120	0.01	1	50k	250	1995.00	Independent high- and low-pass slope selection; bypass outputs; muting switch.					
BIAMP SYSTEMS	SX23	A	M/S	†	100-1k, 1k-10k	No	V	No	H/L	85	0.015	.775	10k	150	499.00	†Usable as stereo 2-way or mono 3-way.					
BRYSTON	10B	A	M/S/D	†	70, 100, 140, 200, 300, 400, 700, 1k, 1.4k, 2k, 3k, 4.5k	Yes	S	S	H/M	90	0.005	1	20k	100	1095.00	†Usable as stereo 2-way, mono 2-way, or mono 3-way. With optional balanced inputs and outputs, \$1295.00.					
CARVIN	XC1000	A	M/S	†	90-1.6k, 700-16k	Yes	V	M	H/M/L	112	0.01	4	600	270	319.00	†Usable as stereo 2-way or mono 3-way.					
CASCADE AUDIO SYSTEMS	CXF-55	C	X	2	Custom	Yes	P	S/M	L	92	0.025	1	24k	130	399.00	Requires BPS-50 external power supply (\$69.00) or HCS-51 high-current supply (\$199.00).					
CROWN INTERNATIONAL	FFX-2	A	S	2	Variable		V			100	0.05		20k	600†	345.00	†Balanced.					
DAX	321	C	M/S	†	100-800, 1k-16k	Yes	V	B	H/M/L			20 dBV	33k	300	319.00	†Usable as stereo 2-way or mono 3-way.					
DB SYSTEMS	DB-3-18	A	S/X	2, 3	Optional	Yes	F	S/M/B	H/M/L	100	0.0008	1	90k	1.4k	From 400.00	18-dB/octave slope; 6 or 12 dB available. Linkwitz-Riley alignment. 36-dB/octave slope.					
	DB-3-24	A	S/X	2	Optional	Yes	F	S/M/B	H/L	100	0.0008	1	90k	1.4k	575.00						
	DB-3-36	A	S/X	2	Optional	Yes	F	S/M/B	H/L	100	0.0008	1	90k	1.4k	650.00						
DeCOURSEY	120-B4	A	M/S/X	2	Optional	Yes	P	S/M/B	Dpt.	90	0.002	1	100k	100	167.50	Optional rack and panel; optional summing circuit and subsonic filters. As above.					
	120-T8	A	M/S/X	3	Optional	Yes	P	S/M/B	Dpt.	90	0.002	1	100k	100	262.50						
	120-Q8	A	M/S/X	4	Optional	Yes	P	S/M/B	Dpt.	90	0.002	1	100k	100	352.50						
DENNESEN ELECTROSTATICS	Activ	A	S	2	200	No	F	S	H	90	0.01	1	50k	100	375.00	For Dennesen Class A.					
DYNAMIC ELECTRO ACOUSTICS	Music Box	A	S		35	No	F	No	No	95	0.008	0.75	28k	400	199.00						

"BBE® is the most hearable advance in audio technology since high-fidelity itself."

- Music Connection Magazine



The BBE 1002 for Home Audio / Video Systems

BBE® professional systems are used around the world in major broadcast corporations, recording studios and at concerts of world famous musicians. The BBE® system dynamically compensates for phase and amplitude distortion in electronically amplified sound. We could tell you how wonderful it can make your system sound, but instead we'll let some of the world's most respected consumer audio and professional music magazines tell you:

"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**

"Everything we heard from it sounded good, and it had no discernible flaws. Not too many products we test can justify the same conclusions."
- **Julian Hirsch, Stereo Review**

"The sonic maximizer provides an audio system with a clearer spatial relationship between instruments. Plus, it seems to restore a recording's original depth. ... Music seems brighter and more alive. ... Particularly interesting is how good a cassette recording sounds when processed through the BBE."
- **Hector G. La Torre, Audio Magazine**

For your car's sound system, the BBE® 3012 will provide the same dramatic improvement. Available at Rockford Fosgate, Perfect Interface & Hafler dealers across the US and Canada. For the dealer near you call: (800) 366-2349

"This piece is impressive. The system sounded cleaner, a lot crisper, brighter, and —simply put— better. The improvement on compact discs, is indescribable. I am not going to tell you that the signal sounded live, but it sure got pretty close."
- **DJ Times**

To us, the sound was immediately brighter, airier, and more sparkling, with added punch and snap to transients, more bite to sharp attacks, and more sheen to strings and vocals.... The result is nothing short of - using the term literally - sensational."
- **Car Stereo Review**

"Forgive us if we rave unabashedly about BBE Sound's Sonic Maximizer... And what does it do? Well, it makes just about everything sound marvelous. With virtually no effort. No kidding."
- **Keyboard Magazine**

"BBE® restores a proper stereo imaging and separation. As much as 15-20% increase in apparent openness and separation... brighten almost any input source and move the soundstage forward."
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Sound Inc.**

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A-10

CROSSOVERS

MANUFACTURER	Model	Type: Active = A, Passive = P, Combined Active & Passive = C				Number of Frequency Bands per Channel	Crossover Frequencies, Hz	Independent High- and Low-Pass Frequency Section		Frequency Setting: Fixed = F, Switchable = S, Variable = V, Plug-in Modules = M		Subwoofer Outputs: Stereo = S, Mono = M, Inverted for Mono Bridging = B		Level Controls: High-Pass = H, Midrange = M, Low-Pass = L (0 = Total Number of Controls)		S/N Ratio, -dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
		A	S	P	C			F	S	V	M	H	M	L	H							
EXPOSURE	V-2 V-3	A A	S S	2 3	Custom Custom		F		H/L H/M/L											1175.00 1175.00	Requires power supply. As above.	
GOLD SOUND	GS224	A	S	2	40-4.2k	No	V	S	6	108	0.01	2	20k	300	399.00	24-dB/octave slope; Linkwitz-Riley alignment.						
	GS224EQ	A	X	2	40-4.2k	No	V	M	6	108	0.01	2	20k	300	469.00	As above; bass EQ and subsonic filter.						
	GS224SEQ	A	S	2	40-4.2k	No	V	S	6	108	0.01	2	20k	300	519.00	As above.						
	GS424	A	S/O	†	40-4.2k 40-9k	No	V	S	12	108	0.01	2	20k	300	479.00	†Usable as stereo 3-way or four channel 2-way. 24-dB/octave slope.						
	GS424EQ	A	X/O	†	40-9k	No	V	M	12	108	0.01	2	20k	300	549.00	As above; bass EQ and subsonic filter.						
GS424SEQ	A	S/O	†	40-9k	No	V	S	12	108	0.01	2	20k	300	599.00	As above.							
JANIS	Interphase 1A Interphase 3/A	A A	X X	2 2	100 100	No No	F F	M M	L L	98 96	0.01 0.02	0.60 0.60	200k 200k	100 100	750.00 †	Integral 100-watt bass amp. †Included with Model 3/A subwoofer. As above but 50 watts.						
JBL	BX63A	C	X		63-125		V	M/B	L	90	0.01			180	379.00	Amp bridging capability; woofer impedance matching.						
JRM	3BPB/X8	A	S/X	†	75-600, 180-1.5k, 1.2k-10k	Yes	P	S/M/B	8††	110	0.001	Sel.	20k	100	1125.00	†Usable as stereo 2-, 3-, or 4-way. ††0.5-dB steps. Cascaded 18-dB/octave filters; stereo and bridging outputs for all sections; infrasonic and ultrasonic filters; optional EQ for each band.						
	3BPB/X4	A	S/X	2	Optional	Yes	P	S/M/B	4†	110	0.001	Sel.	20k	100	750.00	†0.5-dB steps. As above but 2-way only.						
KINETIC AUDIO	Three-Point	P	M	†	60 90/180	Yes	S	M	H/M	95	0.01		8	Var.	150.00	†High-pass only.						
	Four-Point	P	M	†	60 90/180 350	Yes	S	M	H/M	95	0.01		8	Var.	150.00	†Low-pass only.						
KRELL	KRX-3	A	S	2	20-20k		P	No	H/L	93	0.004	1.1	47.5k	5	2000.00							
LEGACY	Signature Electronic Crossover	A	S	2	20-5k	No	V	S	H/L	100	0.01	0.75	50k	100	796.00	24-dB/octave slope; Linkwitz-Riley alignment; digital frequency display.						
MARK LEVINSON	LNC-2	A	M/S	†	20-20k	Yes	P	S	H/M/L	102	0.002		10k		3700.00	†Usable as stereo 2-way or mono 3-way.						
LINN HI-FI	Aktiv	A	S	3	375, 3k	No	F								1995.00	For Linn DMS.						
MADISOUND	24CX-2	A	M/S	†	60-7k	No	V	S/M	H/L	108	0.01	1.95	20k	300	499.00	†Usable as stereo 2-way or mono 3-way. Linkwitz-Riley alignment.						
	24CX-4	A	M/S	†	60-700, 600-7k	No	V	S/M	H/M/L	108	0.01	1.95	20k	300	599.00	†Usable as stereo 3-way, mono 5-way, or four channel 2-way. Alignment as above.						
MARCHAND	XM1	A	M	2	50-5k	No	P			100	0.001	8	100k	100	23.95	24-dB/octave slope; kit, \$19.95						
	XM6	A	S/X	2	20-5k	No	V	S/M/B	H/L	100	0.001	4	50k	20	495.00	24-dB/octave slope.						
	XM9	A	M	2	50-5k	No	P		H/L	100	0.001	4	25k	50	49.95	As above.						
	XM16	A	M	2	50-5k	Yes	P		H/L	100	0.001	4	25k	50	79.95	48-dB/octave slope.						
M & K	LP-1S	P	S	†	100	No	F	S	H/L						325.00	†High-pass only, to match low-pass filter in M & K powered subwoofers. Line level.						
	VF-100	P	S	†	100	No	F	S							75.00	As above.						
MSB TECHNOLOGY	Passive Control Center	C	O	1	40-120	Yes	P	S	H/L	100			20k	20k	4000.00	Line-level preamp/crossover (see also "Preamplifiers"); passive input selector and attenuator; active 4th-order low-pass subwoofer outputs.						
MUSIC REFERENCE	RM-3	A	S	2	20-20k	Yes	P	S	H/L	100	0.001	0.5	100k	600	1200.00	Selectable filter slopes.						
NAIM AUDIO	NAX03-6	A	S	3	Custom	Yes	F		H/M/L	90	0.1	1	20k	47	1075.00	Requires power supply.						
	NAX02-4	A	S	2	Custom	Yes	F		H/L	90	0.1	1	20k	47	1075.00	As above.						
NELSDN-REED	AC 1204	C	S	2	65		F	S/M	L	118	0.007	1	22k	100	620.00	For Nelson-Reed subwoofers.						
NESTROVIC LABS	NL12A	A	S	2	200	No	F	S	H/L	90	0.01	1	50k	100	850.00							
RANE	AC22	A	S	2	75-3.6k	No	V		H/L	92	0.02	.775	20k	100	389.00	Fourth order with time correction.						
	AC23	A	S	3	70-1k, 450-7k	No	V		H/M/L	92	0.02	.775	20k	100	499.00	As above.						
	FAC24	A	M	2	60-12k	No	V		H/L	95	0.02	.775	20k	100	339.00	Fourth order with phase correction.						
	FAC28	A	M	2		No	V		H/L	95	0.04	.775	20k	100	449.00	Eighth order with time correction.						

The perfect electronic crossover for the audio perfectionist.

The EC22 two-way, fully active electronic crossover was designed for the audio performance enthusiast who demands the highest levels of definition, dynamics and transparency from a quality loudspeaker system. It can be used to actively biampify main speakers having the necessary inputs, or a satellite-subwoofer system.

The EC22 is entirely solid-state in design. Through the use of field-replaceable filter contour circuit boards, the EC22 can be reconfigured for various crossover points and slopes (6, 12 or 18 dB), both top and bottom, for maximum flexibility and non-obsolence. Useful features like a mute switch (in addition to automatic

muting provisions), separate "bypass" outputs (for use with a subwoofer having its own internal crossover), and precise level matching, controllable in .5 dB increments, make the EC22 a friendly, responsive component.

Attention to detail in design and manufacture is typical of Audio Research: extensive dual-mono electronic regulation, a low-noise toroidal power transformer, wide-trace, hand-soldered circuit boards using the finest discrete parts, and sonically selected gold-plated connectors. Used with ancillary equipment of appropriately high caliber, the EC22 will provide its owner with many years of accurate, satisfying music reproduction.

20
classic years

1970 - 1990



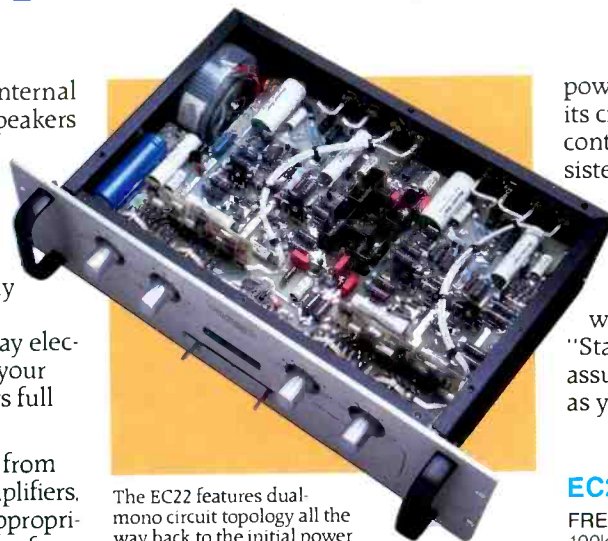
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Unlock the performance of your loudspeakers.

It's commonly known that the internal passive crossovers of most loudspeakers are the biggest hindrance to better performance — in both dynamics and resolution. The simple fact is that with actively controlled filter contours, many loudspeakers are capable of truly amazing improvements. The Audio Research EC22 active 2-way electronic crossover can help bring your music reproduction system to its full potential.

By dividing the low-level signal from the preamplifier to the power amplifiers, the fully active EC22 allows an appropriate speaker system to easily outperform the same system using the best passive crossover components. When actively bi-amplifying speakers, each amplifier is called upon to amplify a limited frequency range or bandwidth, which makes its job more specific and thus easier. Since the amplifiers are not losing any of their power into passive crossover components, their effective power is seemingly doubled or even tripled. With the amplifiers "feeding" the speaker drivers directly, the speaker system is controlled in a much more linear fashion, yielding higher resolution, lower distortion and musical dynamics which are explosively lifelike.

And, as your system changes, your EC22 can change with it. If you should decide to change loudspeakers, simply order a new set of crossover modules from your Audio Research dealer, plug them in the computer-grade receptacles in each channel, and enjoy. Or, you may have the modules rebuilt to new specifications by Audio Research.



The EC22 features dual-mono circuit topology all the way back to the initial power supply, insuring maximum channel separation and more precise, 3-dimensional imaging from your loudspeakers. Parts are rigorously selected for sonic purity and long-term consistency.

The EC22 also offers a level of operational convenience and flexibility almost unique in an electronic crossover of this caliber. Gold-plated inputs and outputs specially selected for their sonic purity include a pair of Direct Outputs which pass the input signal through without alteration or boost—for subwoofers using their own internal crossover, or for running a second set of loudspeakers. Automatic start-up and "brown-out" muting are further supplemented by a manual Mute switch on the front panel. Precise matching of output between bass and treble amplifier is easy with the "coarse" (3 dB steps) and "fine" (.5 dB steps) bass level controls. And, although the EC22 has a dedicated

power-on switch, it is all solid-state in its circuit topology and may be left on continuously for years of reliable, consistent performance.

In short, the Audio Research EC22 active 2-way electronic crossover may be the only such component on the market today which truly deserves the appellation "State-of-the-Art." Its design virtually assures that it will remain so as long as you choose to own it.

EC22 SPECIFICATIONS

FREQUENCY RESPONSE: ± 5 dB, 1Hz to 100kHz, -3dB points below .02Hz and above 450kHz

DISTORTION: Less than .01% at 1V RMS output. (Typically less than .005% in midband)

GAIN: Input to Direct output: 0dB
Inputs to Bass output: +9, -10.5dB
Input to Treble output: 0dB

INPUT IMPEDANCE: 50K ohms

OUTPUT IMPEDANCE: 250 ohms main output. Recommended load 60K ohms and 100pF. (20K ohms minimum and 1000pF maximum)

MAXIMUM INPUT: 15V maximum

RATED OUTPUTS: 1V RMS 5Hz to 50kHz, all outputs 100K ohm load (main output capability is 17V RMS output at 1/2% THD at 1kHz into a 100K ohm load with 17V RMS input)

POWER SUPPLIES: Electronically-regulated low and high voltage supplies. Shielded toroid transformer. Line regulation better than .01%

NOISE: Less than 1uV RMS maximum residual unweighted wideband noise at main output. (120dB below 1V RMS output)

POWER REQUIREMENTS: 100-135VAC 60Hz (200-270VAC 50/60Hz) 55 Watts maximum

DIMENSIONS: 19" (48cm) x 5 1/4" (13.4 cm) H (standard rack panel) x 10 1/4" (26 cm) D
Handles extend 1 5/8" (4.1 cm) forward of front panel. Rear chassis fittings extend 7/8" (2.3 cm)

WEIGHT: 12 lbs. (5.5 kg) Net; 20 lbs. (9.5 kg) Shipping



Three-Year Limited Warranty

All Audio Research products are backed by a Three-Year Limited Warranty. For one year from date of purchase, Audio Research pays round-trip freight charges on any equipment requiring warranty service at the factory. See your authorized Audio Research dealer for details.

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CROSSOVERS

MANUFACTURER	Model	Type: Active = A, Passive = P Combined Active & Passive = C Mono = M, Stereo = S Stereo with Mono Subwoofer Output = X Other = D		Number of Frequency Bands per Channel	Crossover Frequencies, Hz	Independent High- and Low-Pass Frequency Selection?	Variable = V	Subwoofer Output: Fixed = F, Switchable = S, Inverted for Mono Bridging = B	Level Control: High-Pass = H, Midrange = M, Low-Pass = L (Or Total Number of Controls)	S/M Ratio, -dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
		A	M													
ROGERS	AF510	A	M												599.00	
SNELL MULTIMEDIA	PLP500	P	S	1	80	No	F	S								Low-pass filters for Snell Multimedia Home THX Audio System 500 stereo subwoofers. High-pass filter for Snell Multimedia Home THX Audio System 500 left, center, or right speakers; one required per speaker.
	PHP500	P	D	1	80	No	F									
SONOGRAPHE	SX-1	A	S	2	110	No	F	S/M	L		0.75				495.00	
SOUND ENGINEERING	PFM-9	A	X	3	40-160, 400-3.2k	No	S/V	S/M	L†	118	0.03	Var.	20k	50	1750.00	†Subwoofer.
SUMO	Delilah	A	S/X	2	50, 63, 80, 100, 125	Yes	S	S/B	L	95	†	2	50k	75	549.00	†0.007% from 20 Hz to 20 kHz. Class-A high-output buffers.
THRESHOLD	PCX	A	S/X	2	75-1.6k	No	P	S/M/B	H/L	98	0.01		20k	1.5k	1800.00	18-dB/octave slopes sum flat without phase inversion. As above.
	PCX x10	A	S/X	2	750-16k	No	P	S/M/B	H/L	98	0.01		20k	1.5k	1800.00	
UNITY AUDIO	PARM Reference	A	S	2	130	No	F	S	L	95	0.01	1	100k	10	2750.00	
VANDERSTEEN AUDIO	WX-4	C	S	2	80	Yes	F	S	L	90	0.01	0.75	100k	400	450.00	For Vandersteen 4A.
WESTLAKE AUDIO	HR-X	A	S	4	25-10k		P		4	93	0.005	†	10k	100	6850.00	†0.775 to 1.38 V.
	MRX-2	A	S	2	25-10k		P		H/L	97	0.005	.775	10k	1.1k	2995.00	

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HI-FI VCRs

MANUFACTURER	Model	Format	M	Standard Audio Rec. Mono = M, Stereo = S		Frequency Response, Hz to kHz, ±dB	Audio S/N Ratio, -dB, re 0 dB	THD, %	Separation, dB, at 1 kHz	Simulcast Recording?	Dynamic Range, dB	Wow & Flutter, Wtd. Peak, %	On-Screen Programming?	Programmability: Number of Days	Number of Events	Phone Jack?	Volume Control on Phone Jack?	Number of Tape Spreads Record/Play	Price, \$
				20-20 ±3	90 dB														
BANG & OLUFSEN	Beocord VX5000	S-VHS HQ	M	20-20 ±3		0.5	55	Yes	80	0.005	Yes	365/8	Yes	Yes	Yes	Yes	2/3	1995.00	
FISHER	FVH-7600	VHS	S	20-20 ±3	90 dB	0.4	45	Yes	90	0.005	Yes	365/6	Yes	No			3/3	529.95	
	FVH-Z1	S-VHS HQ	M	20-20 ±3	90 dB	0.3	50	Yes	90	0.005	Yes	365/6	Yes	Yes	Yes	Yes	3/3	1499.95	
	FVH-S6800	S-VHS	M	20-20 ±3	90 dB	0.4	45	Yes	90	0.005	Yes	365/6	Yes	Yes	Yes	Yes	3/3	899.95	
GE	VG4200	VHS HQ	M	20-20 +0.3	75 dB	0.5	70	Yes	90	0.005	Yes	31/4	No	No			3/3	469.00	
	VG4202	VHS HQ	M	20-20 +0.3	75 dB	0.5	70	Yes	90	0.005	Yes	365/8	No	No			3/3	499.00	
GRUNDIG	VS-900A	VHS HQ	S	20-20 +0.3	90 dB	0.005	60	Yes	90	0.02	Yes	31/8	No	No			3/3	499.00	
	VS-9600	VHS HQ	S	20-20 +0.3	90 dB	0.05	60	Yes	90	0.02	Yes	31/8	No	Yes	Yes	Yes	3/3	599.00	
HITACHI	VT-F441A	VHS HQ	M	20-20 ±3	70	0.3	60	No	90	0.005	Yes	365/8	No	No			2/3	599.95	
	VT-F445A	VHS HQ	M	20-20 ±3	70	0.3	60	No	90	0.005	Yes	365/8	Yes	Yes	No		2/3	649.95	
	VT-F540A	VHS HQ	M	20-20 ±3	70	0.3	60	No	90	0.005	Yes	365/8	Yes	Yes	Yes	Yes	2/3	699.95	
	VT-S730A	S-VHS HQ	M	20-20 ±3	70	0.3	60	No	90	0.005	Yes	365/8	Yes	Yes	Yes	Yes	2/3	1099.95	
JVC	HR-S5500U	S-VHS	S	20-20	40			Yes	90	0.005	Yes	14/8	Yes	Yes	No		2/3	1299.00	
	HR-S6600U	S-VHS	S	20-20	40			Yes	90	0.005	Yes	14/8	Yes	Yes	No		2/3	1499.00	
	HR-SC1000U	S-VHS	M	20-20	40			Yes	90	0.005	Yes	14/8	Yes	Yes	No		2/3	1599.00	
	HR-S1000U	S-VHS	S	20-20	40			Yes	90	0.005	Yes	14/8	Yes	Yes	No		2/3	3500.00	
	HR-D780U	VHS	S	20-20				No	90	0.005	Yes	31/8	No	Yes	Yes	2/3			
	HR-D860U	VHS	S	20-20				No	90	0.005	Yes	31/8	No	Yes	Yes	2/3			
	HR-D960U	VHS	S	20-20				Yes	90	0.005	Yes	31/8	Yes	Yes	Yes	2/3			
	HR-D970U	VHS	S	20-20				Yes	90	0.005	Yes	31/8	Yes	Yes	Yes	2/3			
	MITSUBISHI	HS-U82	S-VHS HQ	M	20-20 ±3		0.3	60	No	90	0.005	Yes	28/8	Yes	Yes	Yes	Yes	2/3	1699.00
		HS-U62	S-VHS HQ	M	20-20 ±3		0.3	60	No	90	0.005	Yes	28/8	Yes	Yes	Yes	Yes	2/3	999.00
HS-U53		VHS HQ	M	20-20 ±2		0.3	60	No	90	0.005	Yes	28/8	Yes	Yes	Yes	Yes	2/3	699.00	
HS-U52		VHS HQ	M	20-20 ±2		0.3	60	No	90	0.005	Yes	28/8	Yes	Yes	Yes	Yes	2/3	649.00	
OPTONICA	VC-G980U	VHS HQ	S	20-20			60	Yes	90		Yes	365/8	Yes	Yes			3/3	500.00	
	VC-G990U	S-VHS HQ	S	20-20			60	Yes	90		Yes	365/8	Yes	Yes	No		2/3	900.00	
PANASONIC	PV-4060	VHS	S	20-20					90	0.005	Yes	31/2	No	No			2/2	429.00	
	PV-4062	VHS	S	20-20					90	0.005	Yes	31/4	No	No			2/2	499.00	
	PV-4066	VHS	S	20-20					90	0.005	Yes	31/8	No	No			2/2	549.00	
	PV-4070	VHS	S	20-20					90	0.005	Yes	31/8	Yes	No			2/2	729.00	
	PV-S4080	S-VHS	S	20-20					90	0.005	Yes	31/8	Yes	No			2/2	829.00	
	PV-S4986	S-VHS	S	20-20					90	0.005	Yes	31/8	Yes	Yes	Yes	Yes	2/2	1099.00	
	PV-S4990	S-VHS	S	20-20					90	0.005	Yes	31/8	Yes	No			2/2	1599.00	
PHILIPS	VR 6605	VHS HQ	M	20-20	95				90		Yes	31/8						599.95	
	VR 6705	VHS HQ	M	20-20	95				90		Yes	31/8						749.95	
	VR 6995	S-VHS HQ	M	20-20	95				90		Yes	31/8						1799.95	
PIONEER	VH-930SD	S-VHS HQ	S	20-20			60	Yes	90		Yes	21/8	Yes	Yes	Yes	Yes	3/3	1500.00	
QUASAR	VH6205	VHS HQ	M	20-20 +0.10	60			Yes	90	0.015	Yes	31/2	No	No			3/3	459.95	
	VH6405	VHS HQ	M	20-20 +0.10	60			Yes	90	0.015	Yes	31/4	No	No			3/3	529.95	
	VH6408	S-VHS HQ	M	20-20 +0.10	60			Yes	90	0.015	Yes	31/8	No	Yes	Yes	Yes	3/3	819.95	
	VH6505	VHS HQ	M	20-20 +0.10	60			Yes	90	0.015	Yes	31/8	Yes	Yes	Yes	Yes	3/3	779.95	
RCA	VR671HF	VHS HQ	M	20-20 +0.3	73 dB	0.1	60	Yes	83	0.005	Yes	365/8	No	No			3/3	529.00	
	VR675HF	VHS HQ	M	20-20 +0.3	73 dB	0.1	60	Yes	83	0.005	Yes	365/8	No	No			3/3	579.00	
	VR685HF	VHS HQ	M	20-20 +0.3	73 dB	0.1	60	Yes	83	0.005	Yes	365/8	Yes	Yes	Yes	Yes	3/3	699.00	
	VR740HF	S-VHS HQ	M	20-20 +0.3	73 dB	0.1	60	Yes	83	0.005	Yes	365/8	Yes	Yes	Yes	Yes	3/3	899.00	
REALISTIC	16-616	VHS HQ	M	20-20 +3.6	43			Yes	80		Yes	365/8		No			3/3	499.95	
	16-617	VHS HQ	M	50-20 ±3	43			Yes	65		Yes	365/6		No			3/3	449.95	
SANYO	VHR9670	VHS HQ	S	20-20 ±3	90 dB	0.4	45	Yes	90	0.005	Yes	365/6	Yes	No			3/3	449.99	
	VHR9500	VHS HQ	M	8-52 +0.3	78 dB	0.57	72	Yes	80	0.032	Yes	21/6	Yes	No			3/3	399.99	
	VHR9600	VHS HQ	M	8-52 +0.3	78 dB	0.57	72	Yes	80	0.032	Yes	21/6	Yes	No			3/3	499.99	
SHARP	VC-H860U	VHS	M	20-20				Yes	90		Yes	365/8	No	No			3/3	499.00	
	VC-H870U	VHS	M	20-20				Yes	90		Yes	365/8	No	No			3/3	499.00	
SDNY	SLV-575	VHS HQ	M	20-20	90 dB				90	0.005 wrms	Yes	31/8	Yes	Yes	Yes	Yes	2/3	600.00	
	SLV-676	VHS HQ	M	20-20	90 dB				90	0.005 wrms	Yes	31/8	Yes	Yes	Yes	Yes	2/3	700.00	
	SLV-757	VHS HQ	M	20-20	90 dB				90	0.005 wrms	Yes	31/8	Yes	Yes	Yes	Yes	2/3	1200.00	
TOSHIBA	M-641	VHS HQ		20-20		0.005	60	Yes	90	0.005	Yes	365/8	No	Yes	Yes	Yes	2/3	499.00	
	SV-771	S-VHS HQ		20-20		0.005	60	Yes	90	0.005	Yes	365/8	Yes	Yes	Yes	Yes	2/3	799.00	
	SV-F990	S-VHS HQ		20-20		0.005	60	Yes	90	0.005	Yes	14/8	Yes	Yes	Yes	Yes	2/3	1799.00	
ZENITH	VRG520HF	VHS	S	20-20 ±6	40		60	Yes	80	0.008	Yes	31/8	Yes	No			2/3	649.00	

Pair Powered Partners with musical instruments, computers and portable cassette players for true high fidelity sound.

Powered Partners amplified speakers offer sound superiority in a versatile package.

At right is an example, Powered Partner 570. With 40 watts of power in each speaker, the 570 uses a 5" polypropylene woofer and liquid-cooled tweeter to deliver better bass and sweeter high-frequencies. Plus it's shielded to prevent screen distortion when used with video or computer.

The 570 offers more music source options, and provides treble, bass and volume controls. It adapts to any listening environment with a simple universal mounting bracket. The automatic on/off switch turns off soon after the music stops—a convenience for hard-to-reach mountings.

Another side of the 570's versatility is the portability of AC/DC power. A battery pack, car cigarette lighter adapter, and carrying case are available. DC input voltage from 12V to 25V can be used.

For more information and free literature on the complete line of Powered Partners, call 1-800-288-AR4U.

**Powered Partners.
Superior Sound Simplified.**



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Movie.



Movie Theater.

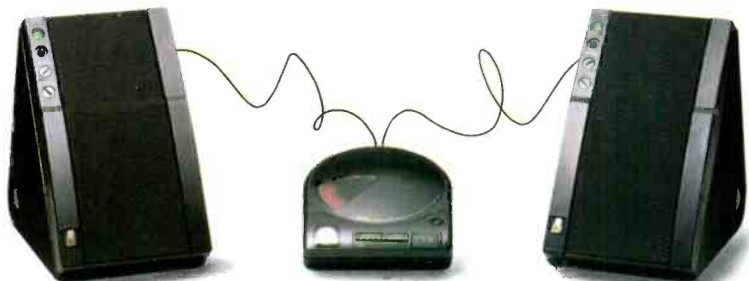
AAAAHHHHH! Outside of a movie theatre, never has a scream been so chilling. Powered Partners amplified speakers turn a TV or VCR into true high-fidelity sound. Plus they're shielded to prevent distortion. Watch out! Neighbors may drop in. Free literature, call 1-800-288-AR4U. **Powered Partners. Superior Sound Simplified.**



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Disc.



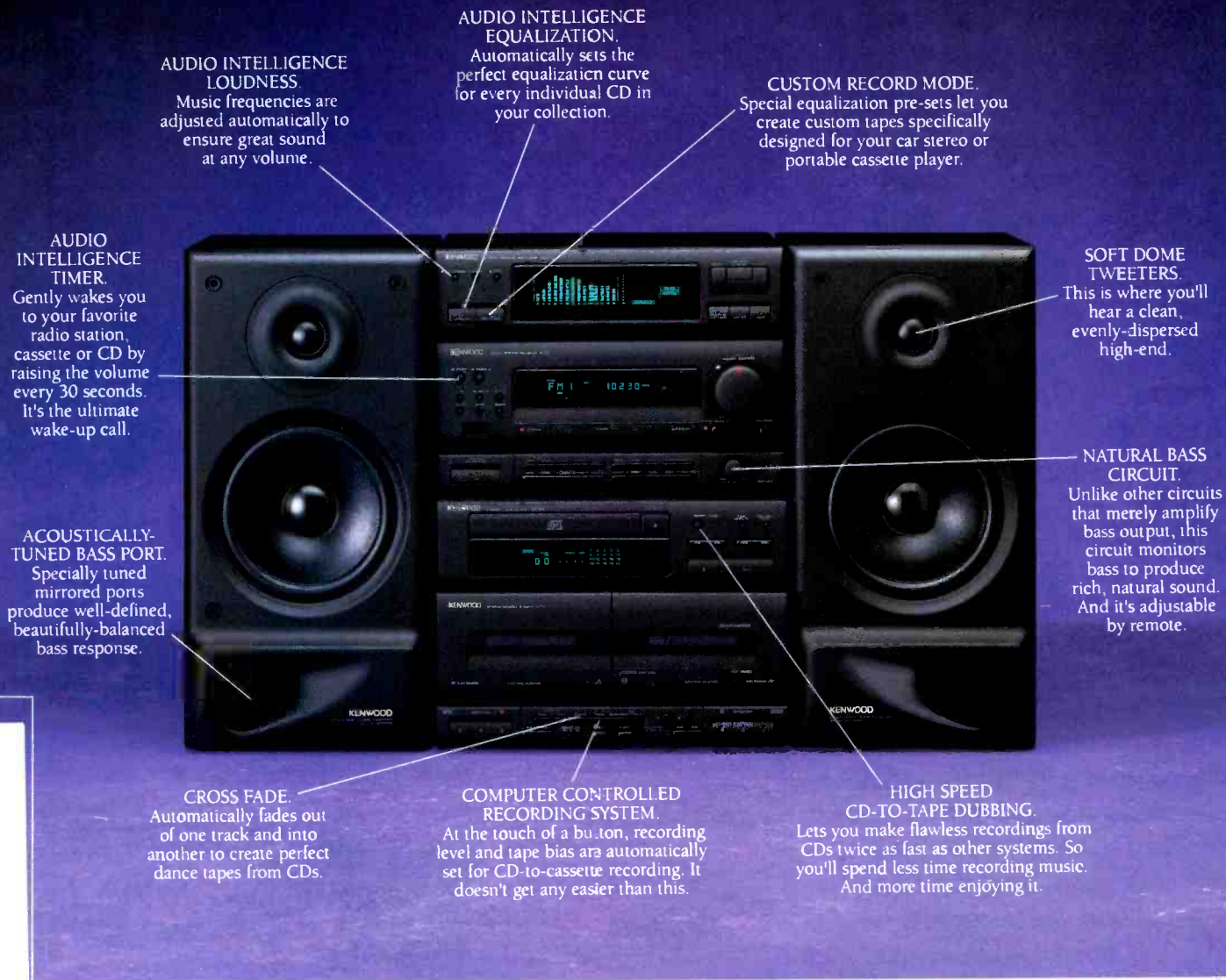
Disotheque.

Get out your dancing shoes. Now your portable disc player can easily fill a whole room with music. Plug Powered Partners amplified speakers into it or into your portable cassette's headphone jack, and feel the room come alive. After all, it takes more than one to tango. Free literature, call 1-800-288-AR4U. **Powered Partners. Superior Sound Simplified.**



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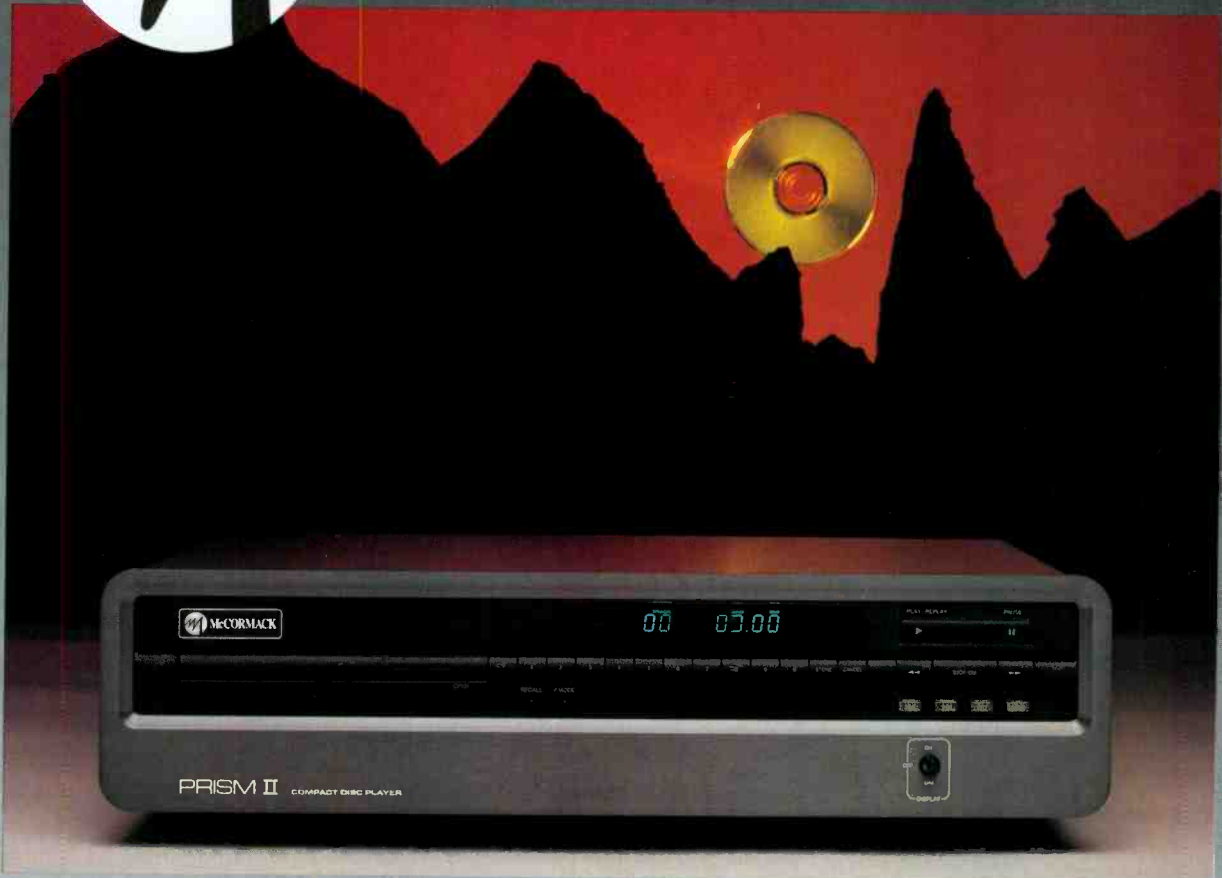
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2Ci Hi-Fi Answers, April 1990
Alvin Gold

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1B Son Hi-Fi Video
Laurent Racicot and
Claude Gervais

"The 2Ci is one heck of a fine speaker at its price ... Always musical ... Enthusiastically recommended as an affordable loudspeaker for Everyman."

2Ci Stereophile, May 1989
John Atkinson

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1B Bound for Sound,
May 1989 Martin G. DeWolf

"You'll surely rediscover your record collection."

2W Ultra High Fidelity Magazine
Odette L. Roy

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DIMENSIONAL PURITY

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer W, Midrange M, Tweeter T, Superwoofer ST	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance Ohms, Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
ACCLAIM/ MAVRICK	Ebony Seven	Aperiodic Pressure Release	6		1	Dome			50-20 ±3	90	25		6/5	10 x 8 x 16	Black Oak	Black Knit	700.00	Pair
	Ebony Eleven	Aperiodic Pressure Release	6		1	Ribbon			45-22 ±3	90	25		6/5		Black Oak	Black Knit	1100.00	Pair
	Ebony Seventeen	Aperiodic Pressure Release	6		1	Ribbon			35-22 ±3	90	30		6/5		Black Lacq.	Black Knit	1700.00	Pair; East, 1777.00
	Ebony Twenty-five	Aperiodic Res. Line	12		1	Ribbon			25-35 ±3	90	35		8/7		Black Lacq.	Black Knit	2500.00	Pair; East, 2599.00
	Wallspeaker Ribbon WP9	In-Wall, Aperiodic Pressure Release	6		1	Ribbon			40-22 ±3	91	20		5/4	15 x 1 x 16		Opt.	900.00	Pair
	Wallspeaker Ribbon WP16	In-Wall, Aperiodic Pressure Release	6			Ribbon			40-40 ±3	91	20		5/4	15 x 1 x 16		Opt.	1600.00	Pair
	Wallspeaker Ribbon WP26	In-Wall, Aperiodic Pressure Release	(4) 6x6			Ribbon			40-40 ±2	88	50		5/4	15 x 1 x 36		Opt.	2600.00	Pair
	Wallspeaker Ribbon WP66	In-Wall, Aperiodic Pressure Release	(8) 6x6	(8)	Ribbons	Ribbon			35-40 ±2	90	50		5/4	15 x 1 x 60		Opt.	6600.00	Pair
	Wallspeaker Ribbon Custom					Ribbon										Opt.		
	Quake Maker Three	Aperiodic Res. Line Subwoof.	12			W			22-100 ±2	92	50	100	8/7		Black Lacq.	Black Knit	3000.00	Pair; East, 3200.00
	Quake Maker Two	Aperiodic Res. Line Subwoof.	(2)12			W			20-100 ±2	92	50	100	5/4		Black Lacq.	Black Knit	4000.00	Pair; East, 4200.00
	Quake Maker One	Aperiodic Res. Line Subwoof.	(4)12			W			17-100 ±2	92	50	100	8/7		Black Lacq.	Black Knit	7000.00	Pair; East, 7200.00
	Nonspeaker Ribbon Monitor	Aperiodic Pressure Release	6			Ribbon			40-40 ±3	91	20		5/4		Oak	Black Knit	2200.00	Pair; East, 2222.00
	Nonspeaker Ribbon Tower	Bipolar Ribbon Res. Line	(4) 6x6			Ribbon			40-40 ±2	88	50		5/4	14 x 11 x 52	Black Lacq.	Black Knit	3300.00	Pair; East, 3444.00
	Nonspeaker Ribbon Reference Five	Aperiodic Res. Line	12			Ribbon	W		28-40 ±2	91	50		8/5	14 x 12 x 61	Opt.	Black Knit	4400.00	Pair; East, 4544.00
	Nonspeaker Ribbon Reference Four	Aperiodic Res. Line	12	(4)	Ribbons	Ribbon	W		22-40 ±2	88	50		8/5	Four Pieces	Opt.	Black Knit	6600.00	Sys.; East, 6800.00
	Nonspeaker Ribbon Reference Three	Aperiodic Res. Line	12	(8)	Ribbons	Ribbon	W		22-40 ±2	88	50		8/7	Four Pieces	Opt.	Black Knit	8800.00	Sys.; East, 9000.00
	Nonspeaker Ribbon Reference Two	Aperiodic Res. Line	(2)12	(16)	Ribbons	Ribbon	W		20-40 ±2	90	50		5/4	Four Pieces	Opt.	Black Knit	12,000.00	Sys.; East, 12,222.00
	Nonspeaker Ribbon Reference One	Aperiodic Res. Line	(4)12	(25)	Ribbons	Ribbon	W		17-40 ±2	91	50		8/5	Four Pieces	Opt.	Black Knit	22,000.00	Sys.; East, 22,222.00
	ACONTI	A300	Bass Ref.	6¾		1	Dome			48-22 ±3	88	25	2.4k	8/6	22 x 12 x 11	Gloss Black	Black Foam	25
A500		Comp. Twin Ref.	6¾		1	Dome			36-22 ±3	88	40	2.3k	8/6	44 x 12 x 11	Gloss Black	Black Foam	43	649.00
A700		Comp. Twin Ref.	8½		1¾	Domes			32-22 ±3	90	40	2.4k, 10k	8/6	47 x 13 x 15	Gloss Black	Black Foam	55	849.00
A1000		Comp. Twin Ref.	10	(2)4	Cones	1¾	Domes		29-22 ±3	90	40	300, 3k, 10k	8/4	46 x 16 x 14	Gloss Black	Black Foam	64	1399.00
A2000		Sat. & Subwoof.		(2)5	Cones	2x½, ¾	Leaf, Dome		25-30 ±3	90	40	200, 5k, 10k	/4	Two Pieces Per Side	Gloss Black	Black Foam		

"Model Eleven...Exquisite Sound...Dwarfs Any Portable Stereo...A High Tech Wonder...Thumbs Up!"

Doug Simmons—*The Village Voice*

MODEL ELEVEN

BY HENRY KLOSS

Cambridge SoundWorks' Model Eleven is the world's first *transportable* full-range, high performance component system. It consists of a powerful 3-channel amplifier and two "satellite" mid/high-frequency speakers—all packed in a rugged "BassCase"™ that, when empty, serves as the system's subwoofer. Model Eleven's performance, when coupled with your portable CD or tape player,** rivals that of the most expensive component systems. And because we market it directly from our factory, it costs hundreds less than it would in stores.



Made In U.S.A.

- Fits under airline seats—23 lbs.
- Can be checked as luggage.
- Works on all electrical systems.
- Delivers the full range of music.
- Is backed by a unique 5-year warranty.

- Perfect for boating, camping & vacations anywhere in the world.

The Ideal "Second Stereo" Use It 52 Weeks A Year

sound virtually identical to our acclaimed Ensemble® speaker system.

Model Eleven can be used virtually anywhere in the world—115- or 230-volt, 50 or 60 Hz AC or 12-volts DC. Because the entire system fits under an airline seat—or can be checked as baggage—you can take it just about anywhere. But Model Eleven's sound is so good, so "big," you may want to keep it home. It's an ideal second (or first) music system for a study, bedroom or kitchen. At \$749† we don't know of any combination of components near its price (transportable or not) that approaches its sound quality.



Henry Kloss created the dominant speaker models of the '50s (AR), '60s (KLH) and '70s (Advent)—as well as our highly acclaimed Ensemble and Ambiance™ speakers. While packing a stereo system into a suitcase before a vacation, he realized that an amplifier, a CD player and two small speakers take up the same space required for an acoustic suspension woofer to reproduce really deep bass. That was the inspiration for BassCase, Model Eleven's bass speaker enclosure which doubles as the entire system's carrying case.



The drivers used in Model Eleven's two-way satellite speakers are no-compromise, high-performance components—just like you'd expect to find in the finest home speaker systems.

work with a room's acoustics for optimum performance. Remove the satellite speakers, amplifier and your portable CD player from BassCase. Place the satellites where they create a musical "stage" near ear level. Put the BassCase where it reinforces low frequency output—on the floor, even behind furniture. The result is musically accurate



Performance that rivals the best home component systems.

Until now portable music systems were, at best, a compromise. Even the most expensive ones lack the deep bass necessary for full, natural sound. But Model Eleven delivers the all-out performance previously found only in high quality home component systems. Its three speakers are designed to

"We Know Of No Small Speaker That Surpasses The Overall Sound Of Ambiance" —Stereo Review

Ambiance

BY HENRY KLOSS

Ambiance is an ultra-compact speaker that proves high performance, small size and low cost need not be mutually exclusive. Ambiance is ideal for bedrooms, dens, dorm rooms...or for use as an extension speaker or in surround sound systems. While no speaker of its size can provide the same low bass as our Ensemble and Model Eleven systems, Ambiance has more output in the

40Hz region than any "mini speaker" we've encountered. Stereo Review magazine described Ambiance as "...beautifully balanced, delivering a full-size sound image with not a hint of its origin in two small boxes...very few small speakers we have heard can match the overall sound of Ambiance, and we know of none that surpass it." Available in Nextel or primed for painting for \$109 each†, or in solid oak for \$129 each†—backed by our 30-day money-back guarantee—direct from Cambridge SoundWorks.



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

David Clark—*Audio Magazine*

Ensemble

BY HENRY KLOSS

Ensemble is 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, it costs hundreds less than it would in stores.

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.

Your listening room works *with* Ensemble, not against it.

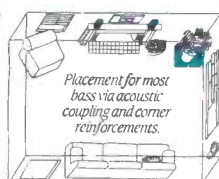
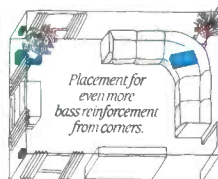
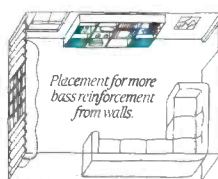
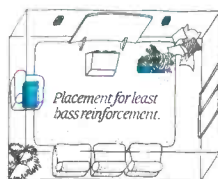
No matter how well a speaker performs, at home the listening room takes over. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa. Ensemble, on the other hand, *takes advantage* of your room's acoustics. The ear can't tell where bass comes from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furni-



New Ensemble System With Utility Woofer Cabinets.
\$499*

Made In U.S.A.

ture. 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.



You can put Ensemble's low-frequency units exactly where they should go for superb bass. You can't do this with conventional speakers because you have to be concerned about the upper frequencies coming from the same enclosures as the low ones.

Not all the differences are as obvious as our *two* subwoofers.

Unlike seemingly similar systems, Ensemble uses premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustic performance. We even gold-plate all the connectors to prevent corrosion.

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

30-day money-back satisfaction guarantee.

At only \$499†—complete with all hardware and 100' of speaker cable,—Ensemble is *the* value on today's speaker market. *Esquire* magazine describes them by saying, “You get a month to play with the speakers before you either return them or keep them. But you'll keep them.” *Stereo Review* said “It's hard to imagine going wrong with Ensemble.” For literature, reviews or to order, write us at the address in the coupon, or call 1-800-AKA-HIFI.*

Try Model Eleven...

Or Ensemble...

Or Ambiance...

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Our toll-free number connects you to a Cambridge SoundWorks audio expert. He or she will answer all your questions, send literature and reviews—or take your order (you can use Visa, MasterCard or American Express) and arrange shipment via UPS. Your Cambridge SoundWorks audio expert will continue as your personal contact with us.

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*CD player not included in Model Eleven system.

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- Send _____ (qty.) Ambiance (Oak), for \$129 ea. †

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†Original black-laminate bass cabinet version \$599. All prices plus freight (Ensemble \$8-\$27, Model Eleven \$6-\$16, Ambiance \$4-\$12). Delivery time usually 2-7 days. We ship worldwide, including APO & FPO.

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer W Midrange M, Tweeter T, Superwoofer ST	Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
			Woofer	Midrange																	
ACOUSTAT	Spectra 1100	Hybrid ES	8					ES	T		35-20 ±3	88	75	250	8.3	68 x 16 x 17	Opt.	Opt.	1499.00	Pair	
	Spectra 11	ES	8					ES			40-20 ±3	88	75	250	8.3	72 x 15 x 3	Opt.	Black	999.00	Pair	
	Spectra 4400	ES						ES			28-20 ±3			100	4.3	94 x 23 x 4	Opt.	Opt.	220	3500.00	
	Spectra 6600	ES						ES			26-20 ±3			100	6.3	94 x 33 x 4	Opt.	Opt.	294	5800.00	
	Spectra 2200	ES						ES			30-20 ±3			100	4.3	66 x 22 x 3	Opt.	Opt.	165	2250.00	
	Spectra 3300	ES						ES			30-20 ±3			100	4.3	78 x 33 x 3	Opt.	Opt.	205	2600.00	
	SP Woofer	Vented Subwoof.	(4)6½									30-20 ±2	100	100			Opt.	Opt.	55	600.00	
ACOUSTIC INTERFACE	Angstrom	Ac. Sus.	6½			1		Dome			78-20 ±2.5	90	15	5k	8/6	13 x 7 x 6	Black Enam.	Black Cloth	10	125.00	
	Tremor	Vented Subwoof.	(2)12						M, T		29-200 ±2.5	95	15	100	8/6	62 x 26 x 16	Oiled Wal.	Black Cloth	150	1090.00	
	Shadow	Ac. Sus.	8			1		Dome			69-20 ±2.5	91	15	5k	8/6	25 x 9 x 9	Black Cloth	Black Cloth	18	190.00	
	Intimate	Ac. Sus.	10			1		Dome	T		49-20 ±2.5	93	15	5k	8/6	19 x 12 x 12	Oiled Oak	Black Cloth	29	290.00	
	Transcendant	Vented	12	1¼	Dome	1¼		Dome	M, T		38-20 ±2.5	94	15	1.9k	8/6	24 x 16 x 14	Oiled Wal.	Black Cloth	51	490.00	
	Professional Series II	Vented	12	2	Dome	1		Dome	M, T		29-20 ±2.5	95	15	800, 6.6k	8/6	36 x 16 x 19	Oiled Oak	Black Cloth	80	890.00	
	Studio Reference	Vented	12	4x15	Horn	2x5½		Horn	M, T		22-20 ±2.5	98	15	880, 5k	8/6	48 x 16 x 19	Oiled Wal.	Black Cloth	102	1590.00	
	Sound Portal	Horn	24x32	24	Horn	5x6		Horn	M, T		15-20 ±2.5	101	15	800, 5k	8/6	72 x 26 x 24	Oiled Oak	Black Cloth	175	5000.00	
	Sound Prism	Triamped, Horn	24x52	26	Horn	3x7¼		Horn	M, T		10-20 ±1	105	100, 300, 1.5k Inc.		8/6	80 x 27 x 36	Oiled Wal.	None	1000	30,000.00	
ADC	SoundImage 3010	Pas. Rad.	4			½		Dome			85-24 ±3	88	10	5k	6/	11 x 7 x 6	Gray Plast.	Black Knit	5½	269.95	
	SoundImage 3015	Vented Subwoof.	8								41-165 ±3	88	10	110	4/	11 x 8 x 17	Vinyl	Black Plast.	15½	229.95	
	SoundImage 3025	Pas. Rad. Sat. & Vented Subwoof.	4, 8			½		Dome			41-24 ±3	88	10	110, 5k	6/4	Three Pieces	Gray Plast. Vinyl	Black Knit, Black Plast.	26½ Sys.	499.95	
	SoundImage 3160	Sat. & Subwoof.	8	¾	Cone	½		Dome			45-18 ±3	88	10	200, 5k	6/4	Three Pieces	Opt.	Opt., Knit	30 Sys.	399.95	
	SoundImage 5500	Pas. Rad.	8	4	Cone	(2)½		Domes			44-20 ±3	90	30	600, 3.5k	6/4	30 x 14 x 11	Opt.	Opt., Knit	37	599.95	
	SoundImage 5200	Pas. Rad.	6	¾	Cone	(2)½		Domes			49-20 ±3	90	30	1.65k, 4k	6/4	27 x 12 x 8	Opt.	Opt., Knit	25	499.95	
SoundImage 5000	Pas. Rad.	6	¾	Cone	(2)½		Domes			65-20 ±3	89	30	1.65k, 4k	6/4	15 x 12 x 8	Opt.	Opt., Knit	13	399.95		
A/D/S/	SUB10	Powered Servo Subwoof.	12						W		24-100		Inc.	63, 80, 100, 125 (Adj.)		22 x 19 x 19	Opt.			1100.00	
	SUB12	Powered Servo Subwoof.	10						W		28-100		Inc.	63, 80, 100, 125 (Adj.)		18 x 19 x 19	Opt.			1500.00	
	SW5	Powered Ac. Sus. Subwoof.	12								20-125 ±3		Inc.	63, 80, 100, 125 (Adj.)	45k	18 x 14 x 16	Black	Metal	65	1000.00	
	SW4	Bandpass Subwoof.	10								32-100 ±3	87	20	100		18 x 14 x 16	Opt.	None	49	600.00	
	SW2	Bandpass Subwoof.	10								32-100 ±3	87	20	100		9 x 14 x 28	Gray	None	48	400.00	
	M15/90	Ac. Sus.	10	5/8	Cone	1		Dome			26-20 ±3			200, 2k		48 x 11 x 16	Opt.		110	1300.00	
	M12/90	Ac. Sus.	8½	5/8	Cone	1		Dome			34-22 ±3			200, 2k		44 x 11 x 14	Opt.		83	900.00	
	M9/90	Ac. Sus.	8½	1½	Dome	1		Dome			38-22 ±3	88	15	700, 4k	4/	31 x 10 x 12	Opt.		40	500.00	
	750iL	In-Wall Inf. Baf.	7	1½	Dome	1		Dome			35-20	90	50	1k, 4k		18 x 10		Perf. Metal			1200.00
	SAT 5	Ac. Sus.	5			1		Dome			60-20 ±3	86	15	2k	4/	10 x 6 x 7	Opt.	Black Perf. Metal	14	650.00	
	SAT 6	Ac. Sus.	6			1		Dome			50-20 ±3	87	15	2k	4/	13 x 8 x 9	Opt.	Black Perf. Metal	22	800.00	
	SAT 7	Ac. Sus.	8	1½	Dome	1		Dome			40-20 ±3	87	15	700, 4k	4/	17 x 9 x 11	Opt.	Black Perf. Metal	38	1400.00	
	L400e		7			1		Dome			60-20 ±3	88	35	2k		12 x 8 x 8	Opt.	Perf. Metal	19	650.00	
	L300e	Sat.	5¼					Dome			70-20 ±3	88	30	2k	4/	9 x 6 x 6	Opt.	Perf. Metal	19	510.00	
	L200e	Sat.	4			1		Dome			85-20 ±3	86	15	2k		7 x 5 x 9	Opt.	Perf. Metal	12	400.00	
L7e	Ac. Sus.	7			1		Dome							4/	17 x 10 x 9	Opt., Vinyl	Perf. Metal	23	500.00		
L8e	Ac. Sus.	8			1		Dome							4/	20 x 12 x 10	Opt., Vinyl	Metal	28	600.00		
L9e	Ac. Sus.	8	1½	Dome	1		Dome							4/	22 x 11 x 10	Opt.	Metal	35	800.00		

(Continued)

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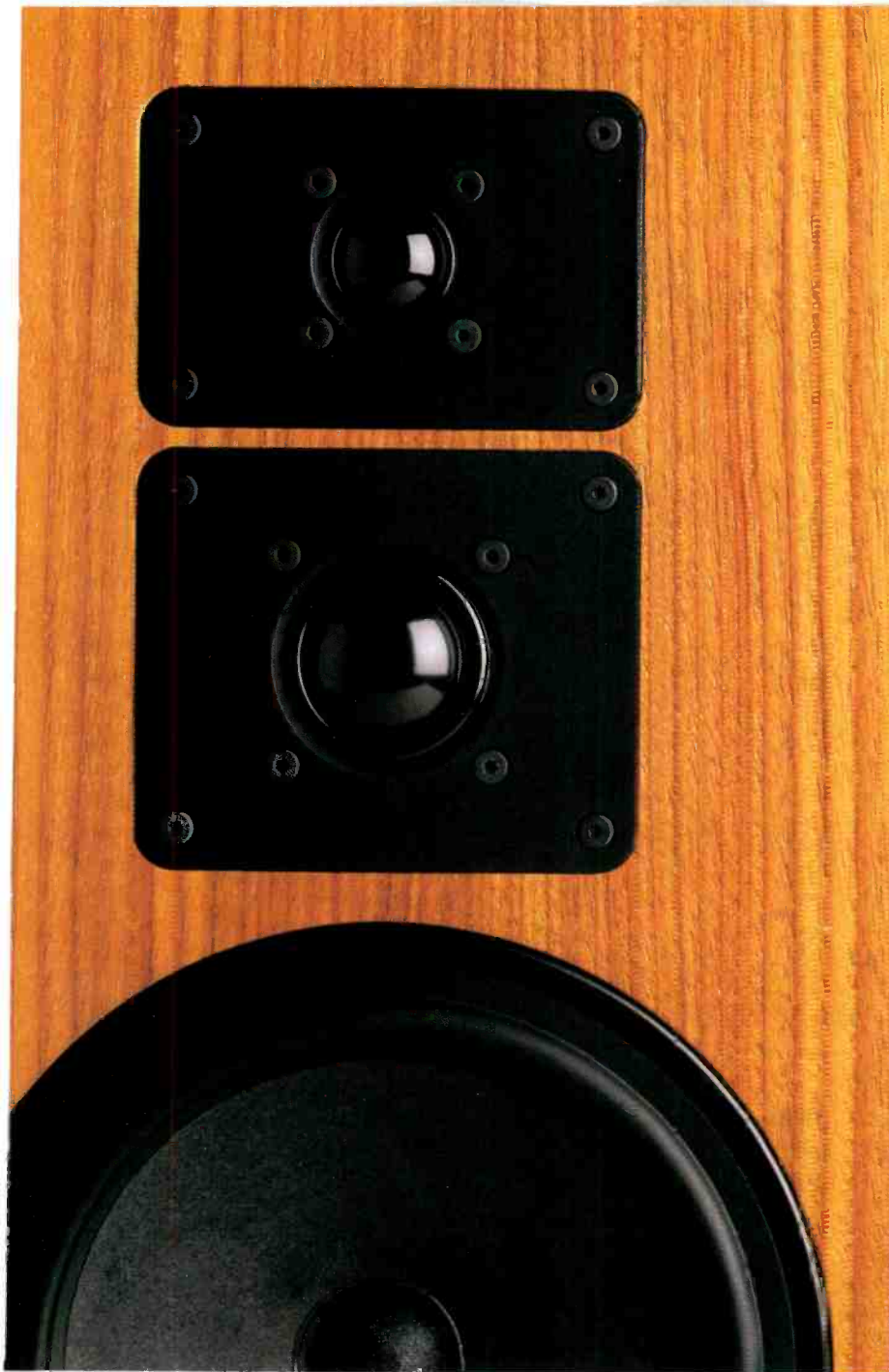
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer W. Midrange M., Tweeter T., Super-tweeter ST	Aperiodic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt, 1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance Ohms: Nominal/Minimum	Dimensions: Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
A/D/S/ (Continued)	C300i/s	In-Wall Inf. Bat.	5¼			1	Dome		50-20 ±3	90	5	2.5k	4	7 x 9	Opt.	Opt. Metal	10 Pair	380.00 Pair
	C400i/s	In-Wall Inf. Bat.	6			1	Dome		42-30 ±3	91	5	1.6k	4	7 x 11	Opt.	Opt. Metal	13 Pair	560.00 Pair
ADVANCED AKUSTIC	RC 201 Compact Monitor	Aperiodic	7			¾	Dome	No	45-40 ±2	86	50	3.15k	8/6	14 x 9 x 10	Opt., Wood	Black Knit	25	925.00 Pair
	RC 401 Akustic Monitor	Aperiodic	(2)7			¾	Dome	No	40-40 ±2	90	50	3.15k	4/3	36 x 9 x 10	Opt., Wood	Black Knit	45	1575.00 Pair
	RC 701 Reference Monitor	QB3 Vented	9			1½	Dome	No	35-22 ±2	89	50	1.75k	8/6	40 x 10 x 12	Opt., Wood	Black Knit	60	1975.00 Pair
	RC 1001 Akustic Reference Monitor	QB3 Vented Aperiodic	(2)12	(2)7	Cones	¾	Dome	No	25-40 ±2	90	50	125,3.15k	4/3	72 x 16 x 22	Opt., Wood	Black Knit	150	4500.00 Pair
ADVANCED ELECTRO-DYNAMIC SYSTEMS	Cybele DLS-73	Inf. Bat.	12			2x6	Cyl.	No	30-20 ±3	87	40	1.5k	8/7	15 x 10 x 44	Cloth	Opt. Knit	60	2195.00 Pair
ADVANCED SOUND	Bi-Polar	Bipolar Sat.	(2)8	4½	Cone	3	Dome	No	100-22 ±3	94	200	1k,6k	6/4	50 x 30 x 6	Opt., Wood	Opt. Knit	360 Pair	2500.00 Pair
	Bi-Polar Amplified	Powered Subwoof. Tuned Port	(2)10					W	30-100 ±3	94	100	100	3/4	50 x 17 x 23	Opt., Wood	Opt. Knit	440 Pair	2200.00 Pair
	Ziggurat	Tuned Port	10	4½	Cone	3	Dome	No	32-20 ±3	91	100	900,6k	6/8	41 x 17 x 15	Opt., Wood	Opt. Knit	150	1900.00 Pair
	Campanile	Tuned Port	(2)8	4½	Cone	3	Dome	No	38-20 ±3	92	100	900,6k	6/4	36 x 13 x 13	Opt., Wood	Opt. Knit	80	1500.00 Pair
	Monolith Amplified	Powered Tuned Port Subwoof.	10					W	27-100 ±3	91	100	100	6/8	22 x 20 x 20	Opt., Wood	Opt. Knit	70	1300.00 Pair
	Monolith	Tuned Port Subwoof.	10					No	32-150 ±3	91	100	150	6/8	22 x 20 x 20	Opt., Wood	Opt. Knit	70	900.00 Pair
	Cornerstone Satellite	Sat.		(2)4½	Cones	3	Dome	No	120-20 ±3	94	35	6k	4/6	18 x 8 x 12	Opt., Wood	Opt. Knit	23	425.00 Pair
	Cornerstone 8 Amplified Subwoofer	Powered Tuned Port Stereo Subwoof.	(2)8					W	45-150 ±3	91	100	150	6/8	22 x 20 x 20	Opt., Wood	Opt. Knit	80	675.00 Pair
Cornerstone 12 Amplified Subwoofer	Powered Tuned Port Stereo Subwoof.	12					W	38-150 ±3	91	100	150	6/8	22 x 20 x 20	Opt., Wood	Opt. Knit	80	750.00 Pair	
Cornerstone 8 Subwoofer	Tuned Port Stereo Subwoof.	(2)8					No	45-150 ±3	91	50	150	6/8	22 x 20 x 20	Opt., Wood	Opt. Knit	80	475.00 Pair	
Megolith	Tuned Port	(2)10	(2)8	Cones	3	Dome	No	32-22 ±3	91	100	900,3k	4/8	50 x 17 x 23	Opt., Wood	Opt. Knit	250	2700.00 Pair	
ADVENT	Heritage	Ac. Sus.	(2)8			1	Dome		42-23 ±3	89.5	10	3.5k	6/4	38 x 10 x 13	Oiled Pecan	Brown Knit	46	699.95 Pair
	Legacy II	Ac. Sus.	10			1	Dome		42-23 ±3	90	10	2k	6/4	28 x 16 x 10	Oiled Pecan	Brown Knit	46½	459.95 Pair
	Mini Advent	Ac. Sus.	5¼			½	Dome		110-21 ±3	88	10	4.5k	6/4	11 x 6 x 5	Oiled Pecan	Brown Knit	10	199.95 Pair
	Mini Advent Subwoofer	Ac. Sus. Subwoof.	(2)5¼						60-220 ±3	91	10	220	6/4	7 x 12 x 7	Oiled Pecan	Brown Knit	11	179.95 Pair
	Baby II	Ac. Sus.	6½			½	Dome		60-21 ±3	89	10	4.5k	6/4	17 x 11 x 6	Black Vinyl	Brown Knit	13	249.95 Pair
	Prodigy Tower	Ac. Sus.	8			¾	Dome		45-23 ±3	89	10	3k	6/4	28 x 10 x 8	Oiled Pecan	Brown Knit	25¼	349.95 Pair
	Maestro	Ac. Sus.	10	2	Dome	1	Dome		42-23 ±3	90	10	900,4.5k	6/4	33 x 16 x 10	Oiled Pecan	Brown Knit	50	699.95 Pair
	Indoor/Outdoor Mini Prodigy II	Ac. Sus.	5¼			½	Dome		110-21 ±3	88	10	4.5k	6/4	11 x 6 x 5	Oiled Pecan	Black Knit	10	199.95 Pair
	Ac. Sus.	8			¾	Dome		45-23 ±3	89	10	3k	6/4	23 x 13 x 8	Pecan	Black Metal Brown Knit	25¼	350.00 Pair	
AES	1	In-Wall Sat.	6			2¼	Cone		55-20 ±3	90	10	2.8k	8/6	8 x 12 x 3	Matte White	White Perf. Steel	6	249.98 Pair
	2	In-Wall Sat.	6			1	Dome		40-20 ±3	91	10	2.5k	8/6	8 x 12 x 4	Matte White	White Perf. Steel	7	359.98 Pair
	3	In-Wall Subwoof.	6x9						28-90 ±3	90	10	90	8/6	8 x 12 x 4	Matte White	White Perf. Steel	9	459.98 Pair
	4	In-Wall Subwoof.	6x9						28-90 ±3	90	10	90	8/6	8 x 12 x 4	Matte White	White Perf. Steel	10	295.00 Pair
	5	In-Wall Sat.	5¼			2¼	Cone		65-20 ±3	90	10	2.8k	8/6	8 x 11 x 3	Matte White	White Perf. Steel	5	199.98 Pair
ALLISON ACOUSTICS (Continued)	IC-20 (With remote control)	Ac. Sus.	(2)10	(4)3½	Inv. Cones	(4)1	Inv. Cones			87	30	350,3.75k	8/5.5	48 x 21 x 12	Opt., Wood	Black Cloth	100	5200.00 Pair



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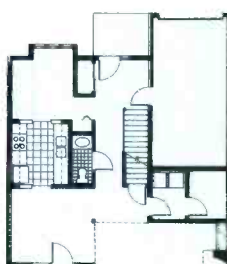
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Frequency Driver, W. Midrange - "H. Tweeter - "L. Super-tweeter - ST	Acoustic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
ALLISON ACOUSTICS (Continued)	IC-10 (Optional remote cntrl.)	Ac. Sus.	(2)8	(2)3½	Inv. Cones	(2)1	Inv. Cones			87	20	350,3.75k	8/5	40 x 19 x 11	Opt.	Black Knit	73	1100.00		
	IC-9	Ac. Sus.	(2)8	3½	Inv. Cone	1	Inv. Cone			87	20	350,3.75k	6/4	40 x 16 x 11	Opt.	Black Knit	58	750.00		
	IC-8	Ac. Sus.	10	4	Inv. Cone	1	Inv. Cone			87	20	350,3.75k	6/4	36 x 16 x 11	Opt.	Black Knit	53	500.00		
	IC-7	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	27 x 11 x 11	Opt.	Black Knit	24	350.00		
	IC-6	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	11 x 11 x 11	Opt.	Black Knit	17	250.00		
	IC-5	Ac. Sus.	4		Inv. Cone	1	Inv. Cone			87	10	2.5k	6/4	8 x 7 x 7	Opt.	Black Perf. Metal	8	150.00		
	LC 110R	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	18 x 12 x 8	Opt., Vinyl	Black Cloth	16½	145.00		
	LC 120R	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	22 x 14 x 8	Opt., Vinyl	Black Cloth	21¼	175.00		
	LC 145R	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	25 x 16 x 8	Opt., Vinyl	Black Cloth	25	210.00		
	Mini 1SW	Ac. Sus. Subwoof.	8		Inv. Cone		Inv. Cone			87	10	150	6/4	11 x 11 x 11	Opt., Vinyl	Black Cloth	16½	300.00		
	AL 100	Ac. Sus.	6½		Dome	1	Dome			87	15	2.5k	6/4	13 x 9 x 8	Opt., Vinyl	Black Enam. Plast.	11	99.95		
	AL 105	Ac. Sus.	6½		Dome	1	Dome			87	15	2.5k	6/4	15 x 10 x 8	Opt., Vinyl	Black Knit	13	120.00		
	AL 110	Ac. Sus.	6½		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	16 x 10 x 9	Opt., Vinyl	Black Knit	16	170.00		
	AL 115	Ac. Sus.	8		Inv. Cone	1	Inv. Cone			87	15	2k	6/4	20 x 11 x 10	Opt., Vinyl	Black Knit	22	220.00		
	AL 120	Ac. Sus.	(2)6½		Inv. Cone	1	Inv. Cone			87	15	100,2k	6/4	24 x 11 x 11	Opt., Vinyl	Black Knit	33	300.00		
	AL 125	Ac. Sus.	(2)6½	3½	Inv. Cone	1	Inv. Cone			87	15	450,4k	6/4	31 x 11 x 12	Opt., Vinyl	Black Knit	40	450.00		
	AL 130	Ac. Sus.	(2)8	3½	Inv. Cone	1	Inv. Cone			87	15	450,4k	6/4	38 x 13 x 14	Opt., Vinyl	Black Knit	57	550.00		
MS 200	Ac. Sus.	4		Inv. Cone	1	Inv. Cone			87	10	2.5k	6/4	10 x 5 x 4	Opt., Vinyl	Black Enam. Knit	5	225.00			
MS 205	Ac. Sus.	8	(2)4	Cones	(2)1	Cones			87	10	150,2.5k	6/4	Three Pieces	Opt., Vinyl	Black Enam. Knit	28 Sys.	499.00			
ALTEC LANSING	ITW 265	In-Wall, Inf. Baf. Sat.	6½			¾	Dome		40-20 ±3	90	10	3.5k		12 x 9 x 4	Plast.	White	10	300.00		
	ITW 260	In-Wall Subwoof. Sat. & Subwoof.	(2)6½			¾	Dome		32-250 ±3	90	30	180		20 x 13 x 4	Black Vinyl Opt.	White	45	400.00		
	System 3	In-Wall Subwoof. Sat. & Subwoof.	(2)8	(2)3		¾	Dome		32-20 ±3	90	30	180,4.5k		Three Pieces	Black Vinyl Opt.	White	40 Sys.	600.00		
	Bias 550	Ac. Sus.	(2)10, 8	6	Cone	1	Dome	W, M, T	20-22 ±2	90				71 x 19 x 24	Wal. Ven.	Black Steel	437	1200.00		
	512	Ac. Sus.	(2)10	6½	Cone	1	Dome		20-22 ±3	90	75	180,1.5k, 3.5k		57 x 13 x 14	Black Steel	Black Steel	125	4500.00		
	511	Ac. Sus.	(2)10	6½	Cone	1	Dome		20-22 ±3	92		180,1.5k, 3.5k		57 x 13 x 14	Opt.	Black Steel	110	3000.00		
	510	Ac. Sus.	(2)10	2	Dome	1	Dome		20-22 ±3	92		550,3.5k		49 x 12 x 14	Opt.	Black Steel	100	1600.00		
	508	Ac. Sus.	(2)8	2	Dome	1	Dome		24-22 ±3	90.5		550,3.5k		40 x 11 x 11	Opt.	Black Steel	63	1100.00		
	505	Ac. Sus.	10	3½	Cone	1	Dome		28-22 ±3	92		250,3.5k		34 x 12 x 4	Opt.	Black Steel	54	850.00		
	305	Ac. Sus.	10	2	Dome	1	Dome		28-22 ±3	93		550,3.5k		27 x 15 x 12	Opt.	Black Steel	50	800.00		
	205	Ac. Sus.	8	3½	Cone	1	Dome		33-22 ±3	91		250,3.5k		22 x 12 x 9	Opt.	Black Steel	35	600.00		
	105	Ac. Sus.	6			1			40-22 ±3	91		2.5k		17 x 10 x 9	Opt.	Black Steel	40	375.00		
	95	Ac. Sus.	8	4	Cone	¾	Dome		33-21 ±3	91		350,3.5k		22 x 12 x 9	Opt., Vinyl	Black Steel	28	300.00		
85	Ac. Sus.	6½			¾	Dome		40-21 ±3	91		3.5k		17 x 10 x 9	Opt., Vinyl	Black Steel	35	200.00			
55	Ac. Sus.	4			¾	Dome		50-22 ±3	85		3.5k		9 x 7 x 5	Opt., Vinyl	Black Steel	11	250.00			
AMBLÉ	Bravo	Tuned Port	6½			1	Dome		53-18 ±3	92	10	3.2k	8/6	16 x 10 x 8	Oak	Black Knit	17	375.00		
	Encore II	Tuned Port	8			1	Dome		40-20 ±3	89	10	2.5k	8/6	25 x 11 x 12	Oak	Black Knit	33	495.00		
	Viola	Tuned Port Aperiodic	6½			1	Dome		42-25 ±3	88	20	2.6k	8/6	16 x 9 x 12	Black Lacq. Oak	Black Knit	22	650.00		
	Liberty	Tuned Port	12	5¼	Cone	1	Dome		37-20 ±3	91	20	500,4k	8/6	38 x 15 x 12	Black Lacq. Oak	Black Knit	60	1295.00		
	SW 1200	Subwoof.	12						39-100 ±3	91	20	100	6/5	18 x 19 x 18	Oak	Black Knit	52	395.00		
AMBRIA	Design One	Inf. Baf. Sat. & Subwoof.	(2)5¼, (2)6½	3	Cone	(2)¾	Domes		32-20 ±3	92	20	120,3k	8/	Three Pieces	Opt., Lacq.	Opt., Knit	43 Sys.	585.00		
	Design Two	Inf. Baf. Sat. & Subwoof.	(2)6½	3	Cone	(2)¾	Domes		36-20 ±3	92	20	120,3k	8/	Three Pieces	Opt., Lacq.	Opt., Knit	20 Sys.	395.00		
	C300	In-Wall Inf. Baf.	6½			1	Dome		45-20 ±3	90	15	2.5k	8	9 x 12 x 3	White ABS	White Steel	4			
	C200	In-Wall Inf. Baf.	5¼			¾	Dome		60-20 ±3	89	10	3k	/4	8 x 11 x 2	White ABS	White Steel	2½			



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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Control, Woofer, W Midrange, M, Tweeter, T, Subwoofer, ST	Acoustic Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
AMERICAN ACOUSTICS	D2550		6½				Dome		65-22	91.5	3k	4/8	13 x 10 x 7	Opt., Wood	Opt., Knit	12	229.95	
	D3550		8				Dome		60-22	94.5	3k	4/8	18 x 11 x 8	Opt., Wood	Opt., Knit	19	279.95	
	D4550		10	5	Cone		Dome		45-22	95.5	2.7k, 6k	4/8	24 x 15 x 10	Opt., Wood	Opt., Knit	34	209.95	
	D5550		12	5	Cone	1,3	Dome, Cone		43-22	96.5	1.7k, 6k	4/8	27 x 15 x 10	Opt., Wood	Opt., Knit	40	259.95	
	D8550		15	5	Cone		Dome		37-22	98.5	700, 5k	4/8	31 x 18 x 14	Opt., Wood	Opt., Knit	62	374.95	
	O9550		12	(2)5	Cones	1,3	Dome, Cone		32-22	99.5	1.7k, 6k		41 x 16 x 15	Opt., Wood	Opt., Knit	76	439.95	
	AAL 62	Vented	6½			¾	Cone Piezo		90-20 ± 3	90		4/	13 x 9 x 7	Oak	Black Knit		199.90	
	AAL 83	Vented	8	3	Cone	¾	Piezo		75-20 ± 3	92			18 x 11 x 8	Oak	Black Knit		229.90	
	AAL 103	Vented	10	4	Cone	¾	Piezo		55-20 ± 3	91.5			24 x 15 x 10	Oak	Black Knit		179.95	
	AAL 124	Vented	12	3,4	Cones	¾	Piezo		50-20 ± 3	90			27 x 15 x 11	Oak	Black Knit		199.95	
	AAL 154	Vented	15	3,4	Cones	¾	Piezo		40-20 ± 3	92			29 x 18 x 15	Oak	Black Knit		249.95	
	DS66	Bass Ref.	(2)6			1	Dome		42-22 ± 3	93	550, 3.5k	4/	21 x 10 x 11	Black Ash	Black Knit		149.95	
	DS88	Bass Ref.	(2)8			1	Dome		38-22 ± 3	93	400, 1.8k	4/	26 x 12 x 13	Black Ash	Black Knit		249.95	
	DS1010	Bass Ref.	(2)10	5		1	Dome		34-22 ± 3	94	650, 3.7k	4/	37 x 14 x 15	Black Ash	Black Knit		374.95	
	DS1212	Bass Ref.	(2)12	6½		1	Dome		23-22 ± 3	95	350, 2.8k	4/	44 x 15 x 18	Black Ash	Black Knit		499.95	
AMRITA AUDIO	The AMRIT-Reference Standard	Inf. Baf.	12	(2)6½	Cones	1	Dome	No	34-20	92	30	180, 4k	4/3.4	49 x 17 x 15	Opt.	Opt.	110	3675.00
	The AMRIT-Summit Towers	Ported	(2)10	6½	Cone	1	Dome	No	28-20	91	30	180, 4k	4/3	42 x 16 x 14	Opt.	Opt.	85	1875.00
	The AMRIT-Allegro Towers	Ported	10	3	Dome	¾	Dome	No	32-20	90	30	600, 4k	4/3	37 x 17 x 13	Opt.	Opt.	73	1375.00
	The AMRIT-HeartLand Towers	Bass Ref.	(4)8			1	Dome	No	31-20	96	30	3.4k	4/2	36 x 13 x 17	Opt.	Opt.	72	1275.00
	The AMRIT-Mini-Towers	Bass Ref.	(2)8			1	Dome	No	40-20	92	30	2.5k	4/3	35 x 11 x 12	Opt.	Opt.	52	1075.00
	The AMRIT-MiniMonitors	Bass Ref.	(2)8			1	Dome	No	40-20	92	30	2.5k	4/3	17 x 11 x 12	Opt.	Opt.	37	875.00
	The AMRIT-Elan Towers	Bass Ref.	8			1	Dome	No	36-20	90	30	2k	6/5	35 x 11 x 12	Opt.	Opt.	50	675.00
	The AMRIT-Troppo Towers	Bass Ref.	6			1	Dome	No	46-20	90	30	3.5k	6/5	35 x 10 x 8	Opt.	Opt.	31	545.00
The AMRIT-Ariel	Bass Ref.	6			1	Dome	No	58-20	90	30	3.5k	6/5	15 x 10 x 8	Opt.	Opt.	16	395.00	
The AMRIT-Prospero	Powered Conjugate Subwoof.	(2)15					W			175 Inc.		4/3	30 Dia.	Opt.	Opt.	110	1875.00	
ANALOG ONE	Audio Mirror	Powered Planar Dynamic	12	(3)4½	Cones	1	Dome	W, M	30-16	92	Inc.	80, 2k	8/4	3 Speakers, 1 Processor, 2 Amps	Oak	Blue Cloth	70 Sys.	2400.00
	Reference Set	Powered Hybrid	(6)12	(3)3	Domes	1	Dome	W, M, T	18-18	92	Inc.	350, 4k	8/6	3 Speakers, 1 Processor, 6 Amps	Oak	None	180 Sys.	11,500.00
	Super-Sub	Aperiodic Dipole Subwoof.	(4)12					W	20-200		100	Var.	8/8	36 x 48 x 12	Oak	None	125 Pair	3400.00
	Modular Subwoofers	Powered Subwoof.	(16)12					W	20-200	102	Inc.	Var.	8/8	16 Speakers, Crossovers, 4 Amps	Opt.	None		12,500.00
ANGSTROM	Radix 606	Tuned Port	(2)8	3	Dome	¾	Dome		40-20 ± 2	89	15	500, 2.8k	6/4	18 x 10 x 50	Gloss Black	Black Knit	85	2100.00
	Radix 500	Tuned Port	(2)8			1	Dome		45-20 ± 2	89	15	300, 2.5k	6/4	10 x 9 x 44	Gloss Black	Black	49	990.00
	Radix 400	Tuned Port	(2)6			1	Dome		45-20 ± 2	89	15	2.5k	6/4	9 x 9 x 38	Gloss Black	Black	40	800.00
	Radix 300	Tuned Port	8			1	Dome		55-20 ± 2	88	15	2.5k	8/6	10 x 9 x 25	Gloss Black	Black	26	570.00
	Radix 200	Tuned Port	6			¾	Dome		60-20 ± 2	87	15	2.8k	8/6	9 x 9 x 19	Gloss Black	Black	18	430.00
APOGEE ACOUSTICS	Centaur	Ribbon Dipole Hybrid	8			0.7x26	Ribbon	T	38-20		50	500	5/3	15 x 46 x 11	Opt.	Black Knit	130 Pair	1495.00
	Duetta Signature	Ribbon Dipole	12x47			0.8x47	Ribbon	T	30-20		100	600	4/3	25 x 57 x 3	Opt.	Fbgls	225 Pair	3995.00
	Caliper Signature	Ribbon Dipole	12x37			0.8x47	Ribbon		30-20		100	600	4/3	24 x 48 x 2	Opt.	Fbgls	140 Pair	2995.00
	Diva	Ribbon Dipole	12x67	0.9x67	Ribbon	0.2x67	Ribbon	W, M, T	30-25		100	500, 10k	4/3	31 x 73 x 3	Opt.	Fbgls	300 Pair	8995.00
	Stage	Ribbon Dipole	12x26			0.7x26	Ribbon	T	35-20		50	600	4/3	26 x 37 x 2	Fabric & Wood	Fbgls	120 Pair	1995.00



LUXMAN

At Home in The 90's

Receiver Technology

Luxman receivers are carefully designed to deliver the purity and warmth of the original source, plus the high dynamic power necessary to drive any speaker load.

- **Purity and Musical Warmth** – Conventional receivers measure well in standard laboratory tests, but tend to alter the overall harmonic structure of the original musical instruments. Luxman receivers incorporate a voltage-driven amplification configuration that faithfully reproduces the harmonics of the original source.
- **High Dynamic Power** – Luxman receivers also incorporate massive power supplies with high energy reserves to ensure distortion-free transients into a variety of speaker loads.
- **Long-Term Reliability** – High-speed, high-current Darlington output transistors, large heat sink assemblies, and over-sized power transformers combine to ensure long-term reliability.



R-117 AM/FM Stereo Receiver (160 Watts/Ch.)



R-115 AM/FM Stereo Receiver (70 Watts/Ch.)



R-114 AM/FM Stereo Receiver (50 Watts/Ch.)



R-113 AM/FM Stereo Receiver (35 Watts/Ch.)

The **R-117** is Luxman's most powerful receiver, combining a high-current high-speed power amplifier with a dual-gate MOSFET FM design. In addition, STAR circuit topology, Voltage Driven Amplification and Duo-Beta circuitry are included to achieve a level of sonic performance previously found in more expensive separate components. A variety of features such as full remote control are included for convenient operation and versatility in many different applications. (17-1/4"W x 5-1/2"H x 16-11/16"D; 35.2 Lbs)

For the **R-115**, Luxman has combined their design talents and manufacturing skills to achieve their goal — a receiver that sounds better. A simple goal, perhaps, but few manufacturers have attained it. Increased dynamic range and expanded headroom are among the more important factors contributing to the sonic superiority of the R-115. Includes remote control. (17-1/4"W x 5-1/2"H x 16-11/16"D; 25.5 Lbs)

The **R-114** is Luxman's newest receiver. This model offers Luxman performance, with all of the circuit designs found in the R-115. The R-114 is ideal when used in systems where a limited amount of power is needed and remote control is desired. For the future, Main-in, Pre-outs are also included to allow the addition of larger power amplifiers if needed. Multi-room remote control, record out selectors and tape dubbing are available for improved system flexibility. Includes remote control. (17-1/4"W x 4-3/4"H x 14-3/4"D; 17.2 Lbs)

The **R-113** receiver, ideal for smaller or "starter" systems, continues the Luxman tradition of sonic excellence. A high-efficiency toroidal power transformer is used to supply the dynamic power reserves necessary for the most demanding music transients. Video sound inputs are also available to enhance the enjoyment of watching a movie, concert or sporting event. (17-1/4"W x 4-5/16"H x 13-1/2"D; 13.4 Lbs)

Surround Sound

Luxman's commitment to sonic excellence continues into the category of Surround Sound. Offering the most sophisticated digital technology available and backed by Luxman's exclusive 5 year parts and labor warranty, surround sound by Luxman not only sounds great but is easy to use. Plus, operation with Luxman receivers and tuner preamplifiers is quick and simple, making a total Luxman system available for every application possible.



F-116 Dolby Pro-Logic® Surround Sound Processor

The **F-116** is a fully digital Dolby Pro-Logic® surround sound processor, using the highest quality parts to achieve a level of sonic realism previously available only in movie theaters. By digitally "steering" the information to each speaker, discrete localization is achieved so that the excitement of concerts, movies and sporting events are re-created in your own home. The F-116 creates Concert Hall and Stadium Sound to help you duplicate the same live sound as in the environment where the event took place. Time delay is also available for additional versatility. Includes remote control. (17"W x 2-1/2"H x 12-1/2"D; 11 Lbs)

Compact Disc Technology

For 65 years, Luxman components have earned the highest accolades for their musical warmth and transparency. Maintaining this reputation in the compact disc category requires total understanding of this digital storage medium. Unlike previous analog sources, the compact disc contains a computerized representation of musical waveforms that require complex new technologies. The engineers at Luxman fine tune every aspect of this total conversion process to ensure the "musicality" of the original source. Several innovative technologies are utilized in all models.

- **Precision-molded Laser Housings** never warp and increase the light-output of the laser pick-up. This improved readability provides a more accurate tracking of the compact disc.
- **Error Concealment** "interpolates" missing data when the laser cannot read the CD correctly due to scratches or dirt. This eliminates digital mistakes and creates a more accurate reconstruction of the analog waveforms.
- **STAR Circuit Topology** provides independent circuit paths to all parts on the circuit board. This eliminates low-level distortion and improves low-level resolution.



D-105u Compact Disc Player ("Brid" Tube Circuitry)



DZ-122 Compact Disc Player



DZ-121 Compact Disc Player



DZ-111 Compact Disc Player (16 Bit-4X Oversampling)



DZ-92 Compact Disc Player

All Luxman Compact Disc Players and Changers include a remote control.

The **D-105u** utilizes Luxman's "Brid" circuit design. A unique combination of tubes and FET's that epitomizes the musicality of live performances. The D-105u uses two 18 bit, 8 times oversampling D/A converters to achieve the most accurate processing of all digital information. With remote volume control, programming and edit features, this model is easy to operate and enjoy. (17-1/4"W x 5-7/16"H x 13-1/2"D; 18.7 Lbs)

The **DZ-122** re-creates musicality to satisfy even the most demanding audiophiles. Luxman's exclusive circuit designs including STAR Circuit Topology and factory trimmed dual D/A converters combine to achieve a sonic purity only found in Luxman equipment. The DZ-122 also offers edit and fade functions for creating professional quality tape recordings. (17-1/4"W x 3-3/8"H x 12-1/4"D; 9.3 Lbs)

The **DZ-121** offers true fidelity with only the most essential features. Dual D/A converters and STAR Circuit Topology contribute to the warmth and musicality of this model. A high rigid lock mechanism stabilizes the disc for more accurate laser pick-up. A full function remote control is included for easy operation. (17-1/4"W x 3-3/8"H x 12-1/4"D; 9.3 Lbs)

The **DZ-111** offers quality performance with easy to use features. Dual D/A converters are used for improved phase accuracy. A high rigid lock mechanism prevents external vibrations from reaching the pickup through the chassis. Also, the DZ-111 offers 16-track random memory play and repeat play functions. (17-1/4"W x 3-3/8"H x 12-1/4"D; 9.3 Lbs)

The **DZ-92** is Luxman's entry level CD player. This model offers four times over sampling, dual D/A converters, random play and repeat functions. (17-1/4"W x 3-5/8"H x 9-1/8"D; 6.8 Lbs)

Compact Disc Changers

By combining musicality with the convenience of a multi-disc format, the Luxman engineers have created two very special CD changers.



DC-114 6-Disc CD Changer (Single Play Capability)



DC-113 6-Disc CD Changer (Single Play Capability)

The **DC-114** achieves single play performance in a multi-disc format by utilizing sophisticated circuit designs such as Duo-Beta and Voltage Driven Amplification. In addition, the DC-114 "CD Shuttle" is the only changer compatible to the Alpine 5952 "CD Shuttle" for the car. A single "magazine", holding 6 discs can be played in either the 5952 or the DC-114 "CD Shuttle". Now moving your CD's from the car to your home (and back again) is simple! (17-1/4"W x 4-7/8"H x 13-1/2"D; 15.1 Lbs)

The **DC-113** offers most of the same sophisticated circuitry found in the DC-114, but without the compatibility to Alpine. The DC-113 also has a single play drawer plus 32 selection programmed play for easy operation. (17-1/4"W x 4-1/2"H x 13"D; 13.4 Lbs)

All Luxman CD players/changers come with an exclusive 5 year parts and labor warranty.



Home Entertainment in the 90's. . .

Several trends have emerged from the 80's:

- *The overall cost of owning a home in the United States has continued to soar.*
- *The admission price of concerts, movies and sporting events has continued to escalate.*
- *And, the performance quality and operating convenience of home audio and video components has dramatically improved.*

Entering the 90's these three factors will combine to fuel an increasing enthusiasm to entertain "at home." Simply stated, it has become more practical and more desirable to invest in high quality audio/video systems that deliver a whole new dimension in "home entertainment." With the proper combination of audio and video components, you can:

- *Enjoy music as if you were attending a "live" concert.*
- *Experience films like you do in a movie theatre.*
- *Observe sporting events as if you were at the stadium.*

Virtually every type of "live" entertainment can be faithfully reproduced in the home of the 90's, providing you design a system tailored to your individual needs.

Luxman Home Audio Components. . .

There are two basic elements of a home entertainment system:

Picture - Several manufacturers concentrate on improving picture quality with advanced technology in the area of large-screen televisions, Laserdisc video players, V.C.R.'s, and soon, high-definition picture screens.

Sound - Luxman audio components satisfy the "sonic requirements of each system and deliver the emotional impact of the original performance.

Every component is carefully designed to meet three performance criteria:

Sonic Realism - All efforts are made to reproduce music with all of the warmth and transparency of the original source.

Ease of Operation - Each component is designed for optimum convenience, both on the control panel and on the remote handpiece.

Long-Term Reliability - Every model incorporates proven circuit designs and exhaustive quality evaluations to provide uncompromising durability.

The trend towards high-quality home entertainment systems is a focal point in the 90's, and the audio components are the heart of each system. That's why Luxman is *at home in the 90's*.

Luxman at home in the 90's

... in every room

The Luxman remote controlled receivers (R-114, R-115, R-117) and preamplifiers (TP-114 and TP-117) include a handpiece that operates all Luxman CD players and cassette decks, eliminating the need for multiple remotes. And these system control centers are equipped to feed information to any part of the house, enabling multiple-room enjoyment of both audio and video sources.

For example, a remote sensor eye (RC-501) can be installed in another part of the house, allowing you to add an extra pair of speakers and operate the entire system in that room. This eliminates the need for another complete audio system in that listening area. And with a procedure for running cable through the house, you can ultimately carry your handpiece into any room and turn the main system on and off, adjust volume, change radio stations, fast forward a compact disc, and more.

... in every wall

The **S-505** and **S-503** loudspeakers bring true high fidelity sound to any wall or ceiling installation. Designed primarily for home entertainment rooms, S-505 and S-503 loudspeakers are also moisture resistant and work well in the higher humidity of a kitchen, bathroom ... anywhere where in-wall speakers are desired. The speakers accommodate the RC-501 sensor eye for easy "hidden" installation and can be painted to match any environment.



Each room in your home can connect to the main system with S-505 or S-503 speakers, eliminating the need for another audio system in that room.

... introducing "multi-zone" remote

For the ultimate installation, the TP-117 "multi-zone" preamplifier adds the extra convenience of independent source select.

Most multiple room combinations have a limitation: The source selected in one room must be fed to all rooms simultaneously. "Independent source select" means that you can listen to a compact disc in the bedroom, while someone else plays the radio in the living room, at the same moment, independent of each other.

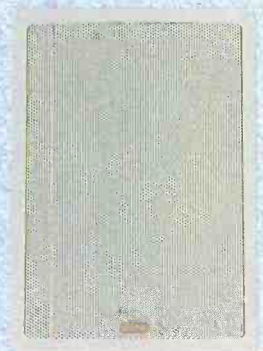
With the proper connections, the video signal coming from the main system can also travel down the same cables

used for the "multi-room" installation. This enables remote televisions to receive the video signals from the main V.C.R. or Laserdisc player.

Custom Installation

Your Luxman Dealer has custom installation experts available to coordinate and set up your Luxman equipment. The specialists that install Luxman products have been carefully trained to ensure proper installation of all components. They will answer any questions you might have before the work begins and they will be there to service your needs after the work is finished. For the installation specialist in your area, please call, 1-800 4-LUXMAN.

To assist you in choosing the right products customized for your needs, Luxman has developed the Home Installation Planner. If you are beginning a home installation project, this Planner will help you save time and money. To receive your free copy, call 1-800 4-LUXMAN and ask for "The Planner".



S-505 Wall Mount Loudspeakers w/hidden sensor eye (8" Woofer)



S-503 Wall Mount Loudspeakers w/hidden sensor eye (6 1/2" Woofer)

Integrated Amplifiers

Luxman Integrated Amplifiers all employ voltage-driven amplification for optimum dynamic performance with negligible transient inter-modulation or slew induced distortion. In addition all use High Energy power supplies with high filter capacitance to provide the steady state and dynamic power necessary for proper reproduction of even the most demanding musical transients.



LV-105u "Brid" Stereo Integrated Amplifier (80 Watts/Ch.)

The **LV-105u** is a hybrid of tubes and transistors with reproduction accuracy not previously attainable using either technology separately. The "BRID" concept, introduced by Luxman, combines J-FET's, twin-triode tubes and high-current MOSFET output devices to utilize the best features of both vacuum-tube and semiconductor technologies — for true musicality and sonic realism over the entire audio spectrum.

(17-1/4"W x 5-13/16"H x 13-7/8"D; 25.3 Lbs)



LV-117 Stereo Integrated Amplifier (110 Watts/Ch.)

The **LV-117** employs some of the most innovative and advanced technology available to achieve Luxman's constant goal of sonic purity. Using voltage-driven amplification, Digital Direct inputs with a built-in D/A converter, and high power output stages capable of driving speakers with low impedance ratings, the LV-117 re-creates the purity of the original music with impeccable precision.

(17-1/4"W x 6-1/2"H x 17-1/8"D; 34.5 Lbs)



LV-113 Stereo Integrated Amplifier (65 Watts/Ch.)

The **LV-113** retains many of the design features of the LV-117, including Coaxial/Optical Digital Direct inputs and video amplification for video switching capabilities. Plus a built-in Phono Preamplifier is included.

(17-1/4"W x 5-3/8"H x 15"D; 21.6 Lbs)



LV-112 Stereo Integrated Amplifier (55 Watts/Ch.)

The **LV-112** presents such Luxman features as a subsonic filter to remove very low frequency components resulting from warped records, tone arm resonances or other causes, and "Line Straight" which bypasses tone and other controls for the shortest direct path to the power amplifier ensuring the best possible fidelity, imaging, and sonic impact.

(17-1/4"W x 5-3/8"H x 14-3/8"D; 19.8 Lbs)



LV-111 Stereo Integrated Amplifier (40 Watts/Ch.)

The **LV-111**, although rated at a modest 40 watts per channel, sacrifices no quality. The LV-111 features voltage-driven amplification, high energy power supply, CD Straight and a subsonic filter.

(17-1/4"W x 4-3/8"H x 11"D; 14.3 Lbs)



LE-109 Stereo Phono Preamplifier

The **LE-109** is an uncompromised design, integrating dual differential full complementary amplifiers, adjustable gain and load impedance switches for compatibility with MC or MM cartridges, and independent dual power supplies for complete channel isolation.

(17-1/4"W x 2-1/2"H x 12-3/16"D; 9.9 Lbs)

Tuners

Luxman tuners offer Computer-Analyzed Tuning which continuously samples the incoming FM signal. The audio output is automatically switched to "high-blend" when the level is too low for noise-free stereo. In this way, audio quality is improved for most receivable stations.



T-117 AM/FM Stereo Tuner

The **T-117** utilizes twin FM detectors for unequalled performance. A calibration button improves the quality of recording from FM broadcasts.

(17-1/4"W x 2-1/2"H x 12-1/4"D; 9.9 Lbs)



T-111 AM/FM Stereo Tuner

The **T-111**, as the T-117, employs computer-analyzed tuning, and with an external timer both units allow automatic selection of up to 5 stations and/or programs to be sequentially recorded.

(17-1/4"W x 2-3/8"H x 8-5/8"D; 5.1 Lbs)

Separate Components

For 65 years, Luxman "Separate" components have won numerous awards for their innovative circuit designs and sonic superiority. The latest generation of Luxman Separates further advance the "state-of-the-art" in terms of performance and flexibility.



TP-117 Multi-"Zone" Remote Tuner/Preamplifier)



TP-114 Multi-"Room" Remote Tuner/Preamplifier)



M-117 Voltage-Driven Power Amplifier (200 Watts/Ch.)



M-113 Voltage-Driven Power Amplifier (50 Watts/Ch.)

The **TP-117** is a tuner/preamplifier in a class of its own. As a single, stand alone audio component the sonic quality rivals the finest tuners and preamplifiers in the world. As a master control center, it accommodates the most sophisticated audio/video applications. With two separate, high-quality preamplifiers combined into one chassis, the TP-117 allows multiple-room remote operation, independent from the main system. This unique design enables separate control over source, volume, and power in each connected zone with five external sensor inputs for "two-zone" operation in up to fifteen rooms. *Two remote controls are included.* (17-1/4"W x 4-3/8"H x 13"D; 11.4 Lbs)

The **TP-114** is the little brother to the TP-117. Offering single-zone, multi-room operation, the TP-114 delivers the versatility of a tuner pre-amplifier without the sophisticated two-zone switching of the TP-117. This model is ideal when used in an application where there are a limited number of rooms involved and where video is located only in the main entertainment room. *Includes remote control.* (17-1/4"W x 4-3/4"H x 14-3/4"D; 11.2 Lbs)

The **M-117** power amplifier is a "no-frills" black box with enormous power and minimal distortion. Designed for the most difficult speaker loads, the M-117 measures an incredible 820 watts per channel (dynamic power - 2 ohms) and yields a memorable, seductive sound that surpasses all competitive models. (17-1/4"W x 6-1/2"H x 17-1/2"D; 52.0 Lbs)

The **M-113** is a smaller version of the reference model M-117. Rated at 180 watts per channel (dynamic power - 2 ohms), this power amplifier is perfect for speakers in a main system and is often recommended in multi-room combinations for each remote pair of speakers. (17-1/4"W x 5-3/8"H x 14-7/16"D; 18.7 Lbs)

Cassette Decks

In the tradition of Luxman "Ultimate Fidelity" components, all cassette recorders incorporate sophisticated technologies like Duo-Beta, STAR Circuitry, Hexalam Heads and HX-PRO for optimum sonic accuracy. Each model is designed for a specific application.



K-110W "Dual Well" Auto-Reverse Cassette Deck (HX-PRO)

The **K-110W** offers the ultimate record/playback convenience while maintaining excellent sonic reproduction. This "double" auto-reverse transport allows high-speed duplication, simultaneous playback of two tapes, and dual deck programmability. (17-1/4"W x 4-5/16"H x 10-11/16"D; 10.6 Lbs)



K-110 Auto-Rev., Bi-Directional Record Cassette (HX-PRO)

The **K-110** features a single auto-reverse transport with bi-directional record capability. This cassette deck is a simplified version of the K-110W with no compromise in recording quality. The K-110 also includes stereo microphone inputs for convenient "live" recording. (17-1/4"W x 4-5/16"H x 10-11/16"D; 8.6 Lbs)



K-112 3 Head, Double Dolby Cassette Deck (HX-PRO)

The **K-112** is a three-head, double Dolby configuration that allows monitoring of the "just-recorded" signal, while the recording is being made. This cassette deck is specially designed with a superb "single-direction" transport to ensure professional-grade recording. (17-1/4"W x 4-5/16"H x 12-9/16"D; 9.5 Lbs)



K-111 2 Head, Full Logic Cassette Deck (HX-PRO)

The **K-111** is a 2-head version of the K-112 for excellent recording at a more affordable price. A high-quality, full logic transport and twin motor drive system maintains Luxman's reputation for sonic accuracy and durability. (17-1/4"W x 4-5/16"H x 10-1/2"D; 7.7 Lbs)

LUXMAN

	DAC Quantization	Oversampling	Frequency Response	Total Harmonic Distortion (2 V out, 1kHz, 20Hz-20kHz BPF)	Signal/Noise Ratio (80 kHz IFF, 1 kHz A, Emph on)	Dynamic Range (80kHz LTP, 1kHz A)	Channel Separation (1kHz)
D-105u	18 bits	8x	5Hz-20kHz (± 1.0dB)	0.05%	105dB	92dB	90dB
DZ-122	18 bits	8x	5Hz-20kHz (± 0.5dB)	0.005%	105dB	90dB	95dB
DZ-121	18 bits	8x	5Hz-20kHz (± 0.5dB)	0.005%	105dB	90dB	95dB
DZ-111	16 bits	4x	5Hz-20kHz (± 0.5dB)	0.06%	105dB	90dB	95dB
DZ-92	16 bits	4x	5Hz-20kHz (± 0.5dB)	0.06%	105dB	92dB	95dB
DC-114	18 bits	8x	5Hz-20kHz (± 0.5dB)	0.005%	104dB	95dB	95dB
DC-113	16 bits	8x	8Hz-20kHz (± 0.5dB)	0.008%	104dB	92dB	95dB



	Bass Driver	Tweeter	Cross-Over Frequency	Impedance	Frequency Response
S-505	8-in. woofer	1-in. soft-dome tweeter	3kHz	8 ohms nominal 5.6 ohms min	50Hz-22kHz (± 2.5dB)
S-503	6 1/2-in. woofer	1-in. soft-dome tweeter	7kHz	8 ohms nominal 5.6 ohms min	60Hz-22kHz (± 2.5dB)

	Rated Continuous Power Output (20-20kHz, 8 ohms @ Rated THD)	Dynamic Power Output (4 ohms)	Dynamic Power Output (2 ohms)	Peak & Short-Circuit Current (400Hz, 100ms, 5% duty cycle)	Total Harmonic Distortion (20Hz-20kHz, 8 ohms, Full Power)	Intermodulation Distortion (60Hz + 7kHz ± 1.0 ohms, Full Power)	Signal-to-Noise Ratio	Frequency Response	Video Bandwidth	Signal-to-Noise Ratio (1kHz, IFF on)	FM Usable Sensitivity (1kHz)	FM Sensitivity 30 dB Quieting	FM S/N Ratio (1kHz A)	FM Total Harmonic Distortion (1kHz)	FM Stereo Separation (1kHz)	Output Voltage Impedance
R-117	160W	600W	700W	50A	0.03%	0.03%	Phono MC (re 0.5mV) 70dB Phono MM (re 5mV) 88dB CD, Tape, Video (re 0.5V) 100 dB	Phono (RIAA, 20Hz-20kHz) ± 0.5dB CD, Tape, Video (@-3dB) 5Hz-180 kHz	6Hz-10MHz (± 1dB)	62dB	Mono 10.3dB	Mono 13.2 dB Stereo 35.6dB	Mono 80dB Stereo 75dB	Mono 0.08% Stereo 0.10%	Wide I.F. 50dB Narrow I.F. 35dB	—
R-115	70W	200W	270W	35A	0.03%	0.03%	Phono (re 5mV) 88dB CD, Tape, Video (re 0.5V) 98dB	Phono (RIAA, 20Hz-20kHz) ± 0.5dB CD, Tape, Video (@-3dB) 5Hz-180 kHz	6Hz-10MHz (± 1dB)	62dB	Mono 10.3dB	Mono 13.2 dB Stereo 36.6dB	Mono 80dB Stereo 75dB	Mono 0.08% Stereo 0.10%	Wide I.F. 50dB Narrow I.F. 35 dB	—
R-114	50W	100W	130W	20A	0.05%	0.01%	Phono (re 5mV) 78dB CD, Tape, Video (re 0.5V) 95dB	Phono (RIAA, 20Hz-20kHz) ± 0.5dB CD, Tape, AV, AUX (@-3dB) 5Hz-160 kHz	—	—	Mono 10.8dB	Mono 14.0 dB Stereo 36.0dB	Mono 80dB Stereo 74dB	Mono 0.15% Stereo 0.20%	47dB	—
R-113	35W	84W	100W	16A	0.08%	0.03%	Phono (re 5mV) 88dB CD, Tape, Video (re 0.5V) 96dB	Phono (RIAA, 20Hz-20kHz) ± 0.5dB CD, Tape, Video (@-3dB) 5Hz-200 kHz	—	—	Mono 10.8dB	Mono 14.0 dB Stereo 38.0dB	Mono 80dB Stereo 74dB	Mono 0.15% Stereo 0.18%	45dB	—

TP-117	—	—	—	—	—	—	—	Phono (RIAA) 20Hz-20kHz (± 0.5dB) CD, Tape, Video 4.5Hz-350 kHz (± 3.0dB)	6Hz-10MHz (± 1dB)	—	Mono 10.8dB	Mono 14.8 dB Stereo 72dB	Mono 78dB Stereo 72dB	Mono 0.15% Stereo 0.15%	48dB	Rated 1.0 V/500 ohms Maximum 8V
TP-114	—	—	—	—	—	—	—	Phono (RIAA) 20Hz-20kHz (± 0.5dB) CD, Tape, Video, A/V 5Hz-160 kHz (± 3.0dB)	—	—	Mono 11.3dB	Mono 14.8 dB Stereo 38.0dB	Mono 77dB Stereo 72dB	Mono 0.15% Stereo 0.20%	47dB	Rated 1.0 V/600 ohms Maximum 8V
T-117	—	—	—	—	—	—	—	—	—	—	Mono 8.8dB	Mono 16.0 dB Stereo 36.0dB	Mono 88dB Stereo 78dB	Mono 0.05% Stereo 0.06%	55dB	—
T-111	—	—	—	—	—	—	—	—	—	—	Mono 10.8dB	Mono 19.0 dB Stereo 38.0 dB	Mono 75dB Stereo 70dB	Mono 0.15% Stereo 0.20%	50dB	—
F-116	—	—	—	—	—	—	—	10 Hz-16kHz (± 1, -3dB)	—	—	—	—	—	Max Level <0.05%	—	Max 4.5V/500 ohms
M-117	200W	550W	820W	150A	0.03%	0.007%	(IHF-A, 200W out) 120 dB	5 Hz-100kHz (-1dB) 2.4 Hz-200kHz (-3dB)	—	—	—	—	120dB	—	—	—
M-113	50W	140W	180W	40A	0.03%	0.005%	(IHF-A, 50W) 116 dB	5 Hz-80kHz (-1dB) 2.4 Hz-160kHz (-3dB)	—	—	—	—	116dB	—	—	—

LV-105u	80W	170W	140W	—	0.25%	0.03%	Phono MM (re 5mV) 90dB Phono MC (re 0.5mV) 70dB CD/Tuner/Tape/AV (re 500mV) 96dB	Phono (RIAA) 20Hz-20kHz (± 0.3dB) CD/Tuner/Tape/AV 3.5Hz-300kHz (-3dB)	6Hz-10MHz (-1dB)	62dB	—	—	—	—	—	—
LV-117	110W	250W	300W	70A	0.05%	0.02%	Line Straight (re 500mV input, IHF-A) 97dB	Audio, Line Straight 3.5 Hz-150kHz (-3dB)	6Hz-10MHz (-1dB)	62dB	—	—	—	—	—	—
LV113	65W	150W	190W	30A	0.05%	0.02%	Phono MM (re 5mV) 84dB Other Analog Inputs (Line Straight, re 500mV) 96dB	Phono MM 20Hz-20kHz (± 0.3dB) Other Analog Inputs 6 Hz-150 kHz (-3dB)	6Hz-10MHz (-1dB)	62dB	—	—	—	—	—	
LV-112	55W	120W	150W	25A	0.05%	0.02%	Phono MM (re 5mV) 84dB Other Inputs 95dB (Line Straight, re 500mV)	Phono MM 20Hz-20kHz (± 0.5dB) Other Inputs 6.5Hz-150 kHz (-3dB)	—	—	—	—	—	—	—	
LV-111	40W	90W	60W	9A	0.05% (1kHz) 0.008%	0.02%	Phono (re 5mV) 82dB Other Inputs 95dB	Phono 20Hz-20kHz (± 0.5dB) Other Inputs 5.8 Hz-100kHz (-3dB)	—	—	—	—	—	—	—	—
LE-109	—	—	—	—	—	—	Input 1 (MC Straight) 86dB Input 2 (MM, Odb) 101dB Input 2 (MC, 22dB) 88dB Input 2 (MC, 32 dB) 78dB	20Hz-20kHz (± 0.3dB)	—	—	—	—	—	—	—	—

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls/ Woofer W Midrange M Tweeter T Super Tweeter ST	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
AR	Spirit 112	Ac. Sus.	6			1	Dome/Cone	W,T	65-25 ±3	90	10		8/	14 x 8 x 7	Black Ash Vinyl	Black Knit	9¼	299.90 Pair	
	Spirit 122	Ac. Sus.	6			1	Dome/Cone	W,T	62-25 ±3	90	10		8/	15 x 8 x 9	Black Ash Vinyl	Black Knit	11¼	349.90 Pair	
	Spirit 132	Ac. Sus.	8			1	Dome	W,M,T	55-22 ±3	90	10		8/	18 x 9 x 10	Black Ash Vinyl	Black Knit	15⅞	449.90 Pair	
	Spirit 142	Ac. Sus.	8	6	Cone	1	Dome/Cone	W,M,T	52-25 ±3	90	10		4/	26 x 9 x 11	Black Ash Vinyl	Black Knit	23⅜	800.00 Pair	
	Spirit 152	Ac. Sus.	8	6			Dome		55-22 ±3	89	25		4/	17 x 9 x 11	Wood Ven.	Black Knit	19½	950.00 Pair	
	Spirit 162	Ac. Sus.	(2)8	6	Cone	1	Dome	(2)W,M,T	45-22 ±3	91	25		4/	37 x 9 x 14	Wood Ven.	Black Knit	43⅜	1200.00 Pair	
	TSW 110-A	Ac. Sus.	6½		Cone	¾	Dome		68-40 ±3	88	10	5k	8/5	15 x 10 x 8	Black Vinyl	Black Knit	14	280.00 Pair	
	TSW 210-A	Ac. Sus.	8		Cone	¾	Dome		54-40 ±3	87	10	5k	8/6	17 x 10 x 8	Black Vinyl	Black Knit	15	380.00 Pair	
	TSW 315-A	Ac. Sus.	(2)6½		Cone	¾	Dome		48-40 ±3	89	10	450,5k	4/3.6	23 x 12 x 12	Black Vinyl	Black Knit	30½	550.00 Pair	
	TSW 410-A	Ac. Sus.	8	6½	Cone	¾	Dome		46-40 ±3	86	10	450,3.8k	4/3	24 x 12 x 12	Black Vinyl	Black Knit	30½	600.00 Pair	
	TSW 510-A	Ac. Sus.	10	6½	Cone	¾	Dome		44-40 ±3	87	15	700,5k	4/3.6	30 x 14 x 13	Black Vinyl	Black Knit	49	800.00 Pair	
	TSW 610-A	Ac. Sus.	12	6½	Cone	¾	Dome		40-40 ±3	87	15	700,5k	4/3.6	33 x 14 x 13	Black Vinyl	Black Knit	57	1000.00 Pair	
	TSW 710-A	Ac. Sus.	(2)8	6½	Cone	¾	Dome		40-40 ±3	90	15	250,5k	4/2.9	39 x 14 x 13	Black Vinyl	Black Knit	46	1200.00 Pair	
	TSW 910-A	Ac. Sus.	(2)12	8, (2)6½	Cones	1	Dome		28-32 ±3	87	35	200,550, 5.5k	4/3.2	53 x 16 x 19	Black Vinyl	Black Knit	140	2200.00 Pair	
	AR 102	Ac. Sus.	6½		Cone	1				88	10	6k	6/5.2	12 x 7 x 6	Gray Vinyl	Black Knit	6⅜	200.00 Pair	
	Powered Partner 850	Powered	8			1¼	Cone	W,T	55-22 ±3		Inc.	2k			11 x 6 x 8	Black Vinyl	Black Cloth	17	470.00 Pair
	Powered Partner 570	Powered	5			1	Dome	W,T			Inc.	5k			6 x 10 x 7	Black Vinyl	Black Cloth	8	475.00 Pair
	Powered Partner 420	Powered	4			2	Cone	W,T	60-20 ±3		Inc.	5k			6 x 10 x 7	Black Vinyl	ABS Plast.	8	275.00 Pair
	Patio Partner		4			1	Dome/Cone		90-25 ±3	91	7	4k			6 x 10 x 7	ABS Plast.	Cloth	8	220.00 Pair
	Rock Partner	Ac. Sus.	8			1¼	Cone		65-22 ±3	88	10	4k			11 x 6 x 8	Black Vinyl	Cloth	15	300.00 Pair
1MS 660	Sat. & Subwoof.	6	6	Cone	¾	Dome		55-25 ±3	86		250,2.8k	4/4		Three Pieces	Black Vinyl	Metal	39 Sys.	500.00 Sys.	
STC 660	Ac. Sus. & Series-Tuned Cavity Subwoof.	6	4	Cone	¾	Dome		55-40 ±3	87		250,5k	6/4		Three Pieces	Black Vinyl	Black Knit	39 Sys.	500.00 Sys.	
ARANT	A-50	Vented	4½			¾			60-20 ±4	89	10	3.5k	6/	11 x 6 x 5	Wal. Vinyl	Black	11	175.00 Pair	
	A-60	Vented	6½			⅞	Dome		49-22 ±3	92	10	2.7k	6/	17 x 10 x 8	Oiled Wal.	Black	15	300.00 Pair	
	A-80	Vented	8			⅞	Dome		38-22 ±3	93	10	2.2k	6/	19 x 11 x 10	Oiled Wal.	Black	17	450.00 Pair	
	A-140	Pas. Rad.	8	6½	Cone	1	Dome		36-20 ±3	89	15	2.5k	6/	19 x 11 x 11	Oiled Wal.	Black	24	550.00 Pair	
	A-200	Vented	10	3½	Dome	⅞	Dome	M,T	32-22 ±3	94	15	800,3k	8/5	26 x 16 x 12	Oiled Wal.	Black	36	770.00 Pair	
ARCAM	One +	Bass Ref.	8			1	Dome		35-20	89	30	2.5k	8/6	10 x 13 x 20	Opt.	Black Foam	28	799.95 Pair	
	Two +	Bass Ref.	8			¾	Dome		42-20	88	30	3k	8/6	9 x 11 x 15	Opt.	Black Foam	18	599.95 Pair	
	Three +	Bass Ref.	5¼			½	Dome		47-20	88	25	3.5k	8/5	7 x 9 x 13	Opt., Vinyl	Black Foam	10⅝	349.95 Pair	
ARISTON	"Q" MKII	Bass Ref.	6			1⅝	Dome		38-20 ±3	85	30		8/	14 x 10 x 10	Black	Black Foam	19	970.00 Pair	
	Image MKII	Bass Ref.	6¾			¾	Dome		45-20 ±3	88	20		6/	16 x 8 x 10	Black Vinyl	Black Foam	15	499.00 Pair	
ARTEMIS SYSTEMS	AS 1.0 EOS	Ported	7			1	Inv. Dome		50-30 ±2	90	40	2.5k	6/4	13 x 16 x 16	Opt.	Black Foam	50	4500.00 Pair	
ASB	AB-150	Ac. Sus.	6			1	Dome		70-20 ±3	88	20	2k	8/6		Oiled Wal.	Black Knit	30 Pair	250.00 Pair	
	AB-250	Ac. Sus.	6			1	Dome		60-20 ±3	90	20	2k	8/6	8 x 12 x 7	Oiled Wal.	Black Knit	34 Pair	400.00 Pair	
	AB-650	Ac. Sus.	6			1	Dome		45-20 ±3	90	20	2k	8/6	10 x 16 x 8	Oiled Wal.	Black Knit	60 Pair	800.00 Pair	
	AB-750	Ac. Sus.	8	4½	Cone	1	Dome		38-20 ±3	90	30	100,2k	8/6	14 x 25 x 12	Oiled Wal.	Black Knit	80 Pair	1000.00 Pair	
	SR-I	Trans. Line	(2)6	2	Dome	1	Dome		32-20 ±3	90	40	400,5k	8/6	12 x 44 x 14	Oiled Wal.	Black Knit	80 Pair	2800.00 Pair	
	SR-II	Trans. Line	(2)8	(2)2	Domes	1	Dome		28-20 ±3	91	40	400,5k	8/6	12 x 60 x 16	Oiled Wal.	Black Knit	90	4500.00 Pair	

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Crossover Midrange M. Tweeter T. Super Tweeter ST	Aperiodic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms, Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
ATC	SCM20		7		1	Dome			83	75	2.8k	8/6		Opt.	Black Knit	50	3800.00		
	SCM50	Ported	9	3	Dome	1	Dome		30-20	85	50	400,4k	8/6	28 x 16 x 12	Opt.	Black Knit	85	7500.00	
	SCM100	Ported	12	3	Dome	1	Dome		25-20	88	50	350,4k	8/6	33 x 19 x 16	Opt.	Black Knit	115	9000.00	
	SCM50A	Triamped	9	3	Dome	1	Dome		30-20		350	380,3.8k	10k	28 x 16 x 12	Opt.	Black Knit	95	8500.00	
	SCM100A	Triamped	12	3	Dome	1	Dome		25-20		350	380,3.8k	10k	33 x 19 x 16	Opt.	Black Knit	125	10,500.00	
	SCM200	Triamped, Ported	(2)12	3	Dome	1 1/4	Dome		20-20	91	Adj.			33 x 39 x 16	Opt.	Black Knit Opt.	300	14,000.00	
	SCM400	Triamped, Ported	(4)12	3	Dome	1 1/4	Dome		20-20	94	1.6k	Adj.		67 x 39 x 16	Opt.	Opt.	450	Pair w/Xover 16,000.00	
	SCM500	Triamped, Ported	(2)15	3	Dome	1 1/4	Dome		20-20	94	1.2k	Adj.		54 x 35 x 22	Opt.	Opt.	400	Pair w/Xover 17,000.00	
ATLANTIC TECHNOLOGY	Pattern	Powered Sat. & Subwoof.	(2)6 1/2		(2)3	Cones	W		38-20 ±3	93	Inc.	100	10k/2k	Three Pieces	Black Plas., Black Vinyl	Black Metal, Black Plas.	35 Sys.	499.00 Sys.	
AUDIO CONCEPTS	S2R	Aperiodic	7		1	Dome			65-20 ±3	89	30		8/6	16 x 10 x 10	Opt.	Black Knit	15	Kit, 299.00	
	CMR	Aperiodic	7		1	Dome			43-20 ±3	86	50		8/6	16 x 10 x 10	Opt.	Black Knit	19	Kit, 499.00	
	Sapphire II	Aperiodic	7		1	Dome			65-20 ±3	89	50		6/4	16 x 10 x 10	Opt.	Black Knit	26	Kit, 699.00	
	G2R	Aperiodic	10	4	Cone	1	Dome		36-20 ±3	89	30		8/6	28 x 14 x 13	Opt.	Black Knit	59	Kit, 499.00	
	Premier Wallspeaker	In-Wall	7		1	Dome	T		60-20 ±3	89	30		8/6	12 x 8	White	Opt.	Opt.	10	Pair, 249.00
	Little V Satellite	Sealed Sat.	5 1/4		1	Dome			80-20 ±3	89	30		8/6	11 x 7 x 10	Opt., Oak	Opt.	Opt.	10	Pair, 399.00
Little V Subwoofer	Sealed Subwoof.	12						35-100 ±3	89	30	100	8/6	25 x 13 x 14	Opt., Oak	Opt., Oak	50	Pair, 319.00		
Premier System One	Sealed Aperiodic Sat. & Subwoof.	10	5 1/4	Cone	1	Dome		35-20 ±3	89	50		8/6	Four Pieces	Opt., Oak	Opt.	160 Sys.	1999.00 Sys.		
AUDIO INNOVATIONS	Series 200	Ported					No	50-18	91	10		8/	11 x 9 x 18	Opt.	Black Knit	26	595.00		
	Series 500	Ported					No	40-20	93	10		8/	13 x 10 x 23	Opt.	Black Knit	35	895.00		
	Series 800	Ported					No	35-20	91	12		8/	13 x 11 x 35	Opt.	Black Knit	50	1250.00		
AUDIO SOURCE	LS One	Inf. Baf.	4		1	Dome		80-20	87	10	2.5k	4/3	7 x 5 x 5	Black Metal	Black Metal	5 1/4	199.95		
	LS One W/T	Inf. Baf.	4		1	Dome		80-20	87	10	2.5k	4/3	7 x 5 x 5	White	White	5 1/2	219.95		
	LS One Walnut/Oak	Inf. Baf.	4		1	Dome		70-20	87	10	2.5k	4/3	8 x 5 x 5	Opt., Wood	Black Metal	5 1/4	229.95		
	LS Two	Inf. Baf.	5 1/2		1	Dome		60-20	89	10	2.5k	6/4	9 x 6 x 5	Opt., Metal	Black Metal Opt., Metal	5 3/4	259.95		
AUDIOMATIC	ES300	ES	57					25-22	89	50		8/	2 x 17 x 76	Opt.	None	66	5000.00		
	ES600	ES	(2)57					20-22				8/		Opt.	None	132	10,000.00		
	ES900	ES	(3)57					10-22				8/		Opt.	None	198	15,000.00		
AUDIRE	Image I	Planar Ribbon						30-20 ±3	92	50		2/2	72 x 36 x 3	Oiled Wal.	Black Knit	150	6500.00		
	Image II	Planar Ribbon						35-20	90	75		3/3	72 x 32 x 3	Oiled Wal.	Black Knit	125	4500.00		
	Image III	Planar Ribbon						40-20	88	75		8/8	60 x 24 x 2	Oiled Wal.	Black Knit	60	2700.00		
	Image IV	Planar Ribbon						50-20 ±3	86	75		4/4	24 x 60 x 2	Oiled Oak	Black Knit	50	1500.00		
	Image V	Planar Ribbon						45-20 ±3	87	75		6/6	72 x 27 x 2	Oiled Wal.	Black Knit	64	2300.00		
AUDIX	HR-1	Bass Ref.	6 1/2		1	Dome		50-18 ±2	88	50	3k	8/3	16 x 10 x 7	Black Oak	Black Cloth	15	499.00		
	HR-2	Bass Ref.	(2)6 1/2		1	Dome		47-18 ±2	94	50	3k	4/3	19 x 12 x 10	Black Oak	Black Cloth	24	649.00		
	HR-3	Bass Ref.	(2)6 1/2		1	Dome		38-20 ±2	94	50	3k	4/3	19 x 12 x 10	Black Oak	Black Cloth	26	899.00		
AVALON ACOUSTICS	Ascent MK. II	Inf. Baf.	11	2	Dome	1	Dome	36-24 ±2	88	50		6/5.5	13 x 18 x 45	Maple	Black Knit	230	15,000.00		
	Eclipse	Inf. Baf.	8 1/2		1	Dome		46-24 ±2	86	30		6/5.5	11 x 15 x 39	Maple	Black Knit	105	7200.00		

There can be no standard of quality without a Reference.



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Only the KEF Uni-Q driver places the tweeter inside the woofer's voice coil.

For twenty years, the KEF Reference Series has been a standard by which all other loudspeakers have been judged. The latest benchmark for loudspeakers is the KEF Reference Series Model 105/3.

The 105/3's draw upon KEF's ground-breaking research into the interaction

of speakers and room acoustics: coupled-cavity bass loading for deep bass from the smallest possible enclosures; conjugate load matching, which uses amplifier power to its full advantage and KUBE, KEF's proprietary bass equalizer, which produces the bass of cabinets *eight* times as large. The four-way 105/3's are the first Reference Series speakers to use Uni-Q technology.

Uni-Q: the first coincident-source drivers.

KEF Uni-Q is an engineering breakthrough: the first truly coincident-source driver.

Many audiophiles know that an ideal speaker would be a point source; unfortunately, multiple-driver systems often fall far short of this ideal. With Neodymium-Iron-Boron, the most powerful of all magnetic materials, KEF has created a tweeter so small that it can be placed inside the woofer's voice coil. In effect, every Uni-Q driver is a point source.

Moreover, the woofer cone acts as a wave guide for the tweeter and controls its dispersion. The entire frequency range arrives at the listener's ears at exactly the same time, producing seamless sound no matter where the listener sits. Unwanted reflections within the room are actually reduced, and the music you hear is less colored.

If you appreciate music, audition the Reference 105/3's. For any audiophile system, they are "standard" equipment.



The Speaker Engineers.

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer W Midrange M, Tweeter T, Super-tweeter ST	Amplifier Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
AVID DYNAMIC LOUDSPEAKER	60AD	Ac. Sus.	6½			1	Dome			70-20 +0, -3	87	10	3.5k	8/	14 x 9 x 8	Birch Vinyl	Knit	250.00 Pair	
	80AD	Ac. Sus.	8			1	Dome			53-20 +0, -3	88	10	3k	8/	19 x 12 x 9	Birch Vinyl	Knit	300.00 Pair	
	102AD	Ac. Sus.	10			1	Dome			43-20 +0, -3	89	10	2.5k	8/	25 x 15 x 10	Birch Vinyl	Knit	360.00 Pair	
	232AD	Vented	12	4½	Cone	1	Dome			40-20 +0, -3	90	8	650,5k	8/	28 x 15 x 10	Birch Vinyl	Knit	450.00 Pair	
AXIDM AUDIO	AX 1.5 Bookshelf	Tuned Port	6½			¾	Dome			50-22 ±2	89	15	3.5k	8/6	15 x 8 x 8	Dpt., Dak	Black Knit	30 Pair	299.00 Pair
	AX 1.5	Tuned Port	6½			¾	Dome			45-22 ±2	89	15	3.5k	8/6	19 x 8 x 8	Dpt., Dak	Black Knit	36 Pair	349.00 Pair
	AX 2 Bookshelf	Tuned Port	8			1	Dome			43-22 ±2	89	15	3.2k	8/6	19 x 10 x 10	Dpt., Dak	Black Knit	44 Pair	459.00 Pair
	AX 2	Tuned Port	8			1	Dome			40-22 ±2	89	15	3.2k	8/6	24 x 10 x 10	Dpt., Dak	Black Knit	50 Pair	569.00 Pair
	AX 3	Tuned Port	8,5			1	Dome			36-22 ±2	88	30	3k	6/4	36 x 10 x 10	Dpt., Dak	Black Knit	66 Pair	899.00 Pair
	AX 1.5 Wallmount	In-Wall	6½			¾	Dome			45-22 ±2	89	15	3.5k	8/6	14 x 19 x 1	Opt.	Black Knit	16 Pair	328.00 Pair
	AX 5 Reference	In-Wall	10,5			1	Dome			29-22 ±2	87	40	3k	6/4	36 x 12 x 12	Opt., Dak	Black Knit	80 Pair	1649.00 Pair
	AX 1 Reference	Tuned Port	5			1	Dome			70-22 ±2	87	30	3k	6/4	11 x 6 x 6	Opt., Dak	Black Knit	30 Pair	599.00 Pair
	AX SUB Reference	Subwoof.	(2)10							29-250	87	40	Sel.	6/4	15 x 33 x 16	Opt., Dak	Black Knit	80 Pair	1099.00 Pair
	AX SUB Center Channel	Subwoof. & Ctr. Channel	(2)10,5			1	Dome			29-22 ±3	87	40	120,250, 3k	6/4	15 x 33 x 16	Opt., Dak	Black Knit	90 Pair	1449.00 Pair
	BANG & OLUFSEN	Beovox 3000	Bass Ref.	5			1	Dome			75-20 +4, -8	87	20	3.5k	8/8	18 x 15 x 3	Steel	Opt.	16 Pair
Beovox 5000		Bass Ref.	(2)5			1	Dome			60-20 +4, -8	89	20	3.5k	8/8	18 x 34 x 3	Steel	Opt.	30 Pair	548.00 Pair
Beolab 3000		Powered Bass Ref.	5			1	Dome			75-20 +4, -8	Inc.	3.5k	47k	18 x 21 x 3	Steel	Opt.	50 Pair	848.00 Pair	
Beolab 5000		Powered Bass Ref.	(2)5			1	Dome			60-20 +4, -8	Inc.	3.5k	47k	18 x 40 x 3	Steel	Opt.	78 Pair	1048.00 Pair	
Beovox Cona		Bass Ref. Subwoof.	8							40-195	89	20	195	8/8	17 Dia. x 11	Opt.		16½ Pair	395.00 Pair
Beovox CX50		Pressure Chamber	4			1	Dome			80-20 +4, -8	89	20	2.5k	6/6	5 x 8 x 8	Opt.	Opt.	7¾	165.00 Pair
Beovox CX100		Pressure Chamber	(2)4			1	Dome			50-20 +4, -8	89	20	2.5k	6/6	5 x 13 x 8	Opt.	Opt.	11	215.00 Pair
Red-Line 35		Bass Ref.	5			¾	Dome			48-20 +4, -8	92	20	3.5k	8/8	16 x 13 x 5		Gray Cloth	7¾	190.00 Pair
Red-Line 60.2		Bass Ref.	(2)5			1	Dome			45-20 +4, -8	93	20	2.5k	8/8	21 x 16 x 7		Gray Cloth	19¾	275.00 Pair
Red-Line 140		Bass Ref.	(2)6½	5	Cone	1	Dome			40-20 +4, -8	93	20	800,3k	8/8	28 x 20 x 10		Gray Cloth	33	495.00 Pair
Beovox Penta		Bass Ref.	(4)5	(4)3	Cones	1	Dome			40-20 +4, -8	92	20	700,5k	8/8	59 x 13 x 15	Steel	Gray Cloth		1100.00 Pair
Beolab Penta 2	Powered Bass Ref.	(4)5	(4)3	Cones	1	Dome			40-20 +4, -8	Inc.	700,5k	22k, 15k		64 x 13 x 15	Steel	Gray Cloth	53	1648.00 Pair	
BIC AMERICA	Venturi V62	Venturi Vented	6			¾	Dome			55-20 ±3	91	10	4.5k	8/8	14 x 9 x 9	Opt.	Black Knit	31 Pair	219.00 Pair
	Venturi V620	Venturi Vented	6			¾	Dome			49-20 ±3	90	10	3k	8/8	23 x 9 x 11	Med. Oak	Black Knit	48 Pair	329.00 Pair
	Venturi V820	Venturi Vented	8			1	Dome			40-22 ±3	91	15	2.5k	8/8	26 x 10 x 12	Med. Oak	Black Knit	59 Pair	439.00 Pair
	Venturi V630	Venturi Vented	6	6	Cone	1	Dome			49-22 ±3	90	15	800,3k	6/6	34 x 9 x 11	Med. Oak	Black Knit	37 Pair	599.00 Pair
	Venturi V830	Venturi Vented	8	6	Cone	1	Dome			40-22 ±3	91	20	800,3k	6/6	40 x 10 x 11	Med. Oak	Black Knit	45 Pair	799.00 Pair
	BLAKELY	Osiris	Tuned Port	8	4	Cone	¾	Dome	No		36-30 ±2	89	25	800,6.5k	8/8	25 x 12 x 12	Opt., Marb.	Opt., Knit	66
BOSE	901 VI	Ac. Matrix	(9)4½									10		8/	21 x 13 x 13	Wal.	Brown Knit	35	1499.00 Pair w/EQ
	601 III	Ported	(2)8			(4)3	Cones				87	10	1.5k,2.5k	8/	12 x 12 x 30	Wal.	Brown Knit	45	999.00 Pair
	501 IV	Ported	10			(2)3	Cones					20	1.5k,2.5k	8/	16 x 14 x 25	Wal. Vinyl	Brown Knit	40	699.00 Pair
	401	Ported	(2)6½			2	Cone					10	2.2k	4/	12 x 12 x 30	Opt., Knit	Opt., Knit	31	599.00 Pair
	301 II	Ported	8			(2)3	Cones					10	1.5k,2.5k	8/	10 x 17 x 10	Wal. Vinyl	Brown Knit	19	399.00 Pair
	201 II	Ported	6			3	Cone					5	1.5k,2.5k	8/	9 x 15 x 8	Wal. Vinyl	Brown Knit	10	269.00 Pair
	101 Music Monitor	Ported	4½								89	10		4/	6 x 9 x 5	Opt.	Opt.	10	219.00 Pair
	RoomMate II	Powered	4½								102	Inc.			7 x 10 x 7	Black	Black Perf. Metal	10½ Pair	339.00 Pair
	Video RoomMate Acoustimass 5	Powered	4½								100	Inc.			6 x 9 x 5	Gray	Silv. Cloth	12 Pair	339.00 Pair
Acoustimass SE-5	Acousti- mass	(2)6½			(4)2½	Cones				89	10		6/	Three Pieces	Opt.	Opt.	33 Sys.	799.00 Sys.	
Acoustimass SE-5	Acousti- mass	(2)6½			(4)2½	Cones				89	10		6/	Three Pieces	Black	Black	33 Sys.	799.00 Sys.	



A RARE BREED

Like fish in the sea, the audio market is loaded with flashy specimens. And shopping for hi-fi can be much like venturing into foreign waters, you've got to be careful not to get stung.

At Naim Audio we've been taking the sting out of buying a hi-fi system for twenty years. We build carefully constructed equipment using quality components. Each piece is rigorously tested, and yes, we really do listen to each and every unit before it leaves our factory.

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LOUDSPEAKERS

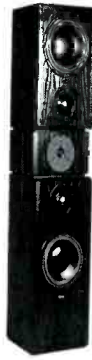
MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low Control? Woofer, W. Midrange, M. Tweeter, T. Superwoofer, ST	Acoustic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	System																
BOSE (Continued)	Acoustimass 3 Freestyle	Acoustimass Ported	5 1/4				2 1/2	Cone			88	10		6/	Three Pieces	Opt.	Opt.	15 Sys.	499.00 Sys.	
	10.2 II	Acoustimass Ported	4 1/2							89	10		6/	10 x 8 x 5	Opt.	Dpt., Cloth Brown Cloth	46	339.00 Pair		
	6.2	Acoustimass Ported	8			(2)2				88	10	140, 1.8k	8/	39 x 12 x 12	Teak Ven.			1299.00 Pair		
	4.2	Ported	8			(2)3		Cones		10		1k-3.2k, 8k	4/	20 x 10 x 10	Teak Ven. Teak Vinyl	Brown Knit Brown Knit	19 1/2	599.00 Pair		
	2.2	Ported	8			2 1/2		Cone		10			8/	18 x 10 x 9	Teak Vinyl		15	399.00 Pair		
			Ported	6		2		Cone		10			8/	10 x 15 x 8	Teak Vinyl		12	289.00 Pair		
BOSTON ACOUSTICS	T1030	Ac. Sus.	(2)8	6 1/2	Cone	1	Dome		40-20 ±3	90	15	250, 2.5k	8/	43 x 10 x 12	Opt.		65	1200.00 Pair		
	T930	Ac. Sus.	10	6 1/2	Cone	1	Dome		42-20 ±3	90	15	350, 2.5k	8/	37 x 11 x 12	Opt.		50	800.00 Pair		
	T830	Ac. Sus.	8	3 1/2	Cone	1	Dome		45-20 ±3	88	15	800, 4k	8/	33 x 10 x 10	Black Ash Vinyl		40	500.00 Pair		
	HD7	Ac. Sus.	7			1/4	Dome							14 x 9 x 7				200.00 Pair		
	HD5	Ac. Sus.	5 1/4			1/4	Dome							10 x 6 x 7				150.00 Pair		
	380	In-Wall	8			1	Dome		48-20 ±2	90	5	2.7k	8/	10 x 13 x 4	Matte White				500.00 Pair	
	380	In-Wall	6 1/2			1	Dome		58-20 ±2	5	3k	8/	12 x 9 x 3	Matte White		4	400.00 Pair			
	350	In-Wall	5 1/4			1	Dome		68-20 ±2	90	5	3.5k	4/	10 x 7 x 3	Matte White		3	300.00 Pair		
	325	In-Wall	5 1/4			1/4	Cone		68-20 ±3	90	5		8/	7 x 7 x 2	Matte White		2	200.00 Pair		
	305	In-Wall	5 1/4				Cone		68-17 ±3	90	5		8/	7 x 7 x 2	Matte White		2	130.00 Pair		
	SubSat Six	Sat. & Subwoof.		4	Cone	1/4	Cone		48-20 ±3	87	15		8/	Three Pieces	Black Ash Vinyl	Black Perf. Steel	30	500.00 Sys.		
	PowerVent 12	Subwoof.	(2)6 1/2						46-140 ±3	87	15		8/	14 x 16 x 7	Matte Black Vinyl		19	250.00		
	SW10	Powered Subwoof.	10						34-95 ±3		Inc.			20 x 11 x 16	Black Ash Vinyl	Black	49	600.00		
	A120	Pas. Rad.	10	6 1/2	Cone	1	Dome		40-20 ±3	90	15	2.5k	8/	25 x 12 x 10	Black Ash Vinyl		25	420.00 Pair		
	A70 Series II	Ac. Sus.	8			1	Dome		45-20 ±3	90	15	2.5k	8/	23 x 13 x 9	Black Ash Vinyl		24	320.00 Pair		
	A60 Series II	Ac. Sus.	8			1	Dome		52-20 ±3	90	10	3k	8/	18 x 11 x 8	Black Ash Vinyl		16	240.00 Pair		
A40V Series II	Ac. Sus.	5 1/2			1/4	Cone		65-20 ±3	90	5	3.5k	8/	14 x 8 x 7	Black Matte		9	190.00 Pair			
B & W	Matrix 800	Vented	(2)12	(2)4 1/2	Cones	1 1/2	Dome		20-20 ±2	91	100				Rawd.	Black Knit	240	18,000.00 Pair		
	801 Matrix Series 2	Vented	12	4 1/2	Cone	1	Dome		20-20 ±2	88	100	400, 3.5k	8/4	40 x 17 x 22	Opt., Wood	Black Knit	110	5500.00 Pair		
	802 Matrix Series 2	Vented	(2)8	4 1/2	Cone	1	Dome		27-20 ±2	90	100	400, 3k	8/4	41 x 12 x 15	Opt., Wood	Black Knit	70	4000.00 Pair		
	803 Matrix	Vented	7 1/2	7 1/2	Cone	1	Dome		30-20 ±2	90	100		8/4		Opt., Wood	Black Knit		3000.00 Pair		
	V201	Vented	6			1/4	Cone		66-20 ±3	90	20		6/	14 x 9 x 8	Black	Black Knit	9	250.00 Pair		
	V202	Vented	8			1	Dome		48-20 ±3	90	20		5/	20 x 10 x 9	Black	Black Knit	13	350.00 Pair		
	DM310	Vented	8			1	Dome		70-20 ±2	90	20	2.5k	4/		Opt., Wood	Black Knit		500.00 Pair		
	DM620	Pas. Rad.	8			1	Dome		68-20 ±2	91	25	400, 2.5k	4/		Opt., Wood	Black Knit		800.00 Pair		
	DM630	Vented	(2)8			1	Dome		53-20 ±2	91	25	400, 2.5k	4/		Opt., Wood	Black Knit		1000.00 Pair		
	DM640	Vented	(2)8	4 1/2	Cone	1	Dome		46-20 ±2	91	25	400, 2.5k	4/		Opt., Wood	Black Knit		1300.00 Pair		
	CM1	Inf. Bat.	4 1/2			1	Dome		90-20 ±1.5	85	30	3k	8/4	10 x 7 x 9	Opt.	Black Mesh	4	800.00 Pair		
	CM2	Vented	(2)4 1/2	4 1/2	Cone	1	Dome		48-20 ±1.5	87	50	150, 3k	8/4	40 x 7 x 9	Opt.	Black Mesh	35	1900.00 Pair		
	CWM6	In-Wall	6			1	Dome		45-20 ±3	89	10	3k	6/	12 x 8 x 3	White	Opt.				
CWM8	In-Wall	8			1	Dome	T	35-20 ±3	90	10	3k	4/	13 x 10 x 3	White	Opt.					
CADAWAS ACOUSTICS	TC-1	Auto Damping	8, 10	5 1/4	Cone	1.2	Dome, Cone	M, T		87	25	250, 3.5k, 8k	8/8.5	24 x 15 x 11	Oiled Wal.	Brown Cloth	44	1195.00 Pair		
	Mobile Monitor One	Auto Damping	(2)5 1/4			1	Dome	T		87	15	2.5k	8/	14 x 8 x 8	Oiled Wal.	Brown Cloth	15	595.00 Pair		
	TC-2	Auto Damping Subwoof.	8, 10					W	20-125	87	25	125	8/	24 x 15 x 11	Oiled Wal.	Brown Cloth	40	650.00 Pair		

The Recipe for the Finest Speakers ...



The Xennon 3-100 resembles a traditional 3-way system; but its awesome power and precise reproduction soon makes the listener compare the Xennon to the very best systems in the world. As with all Dynaudio products, it is the dynamic range that makes the first favorable impression; other speaker systems play loud, but only Dynaudio can reproduce all output levels with an identical sonic balance and no evidence of compression. The Xennon 3-100 is a good choice for the listener who listens to large symphonic works but also wants the intimacy of small ensemble pieces.

The Xennon 3-100 is available in kit form with cabinets for under \$1000. Drivers, crossovers and plans are available for under \$700.



The MYRAGE is a superlative system. It has multiple chambers with two 100 mm voice coil woofers, two advanced three inch dome midranges, and the legendary ESOTAR limited production high frequency transducer. The bass is awe inspiring; vocals are silky; the imaging is well defined. The dynamic range can approach 125 db, yet the MYRAGE responds effortlessly. If you wish to own the best, and you want the satisfaction of assisting in the creation, the MYRAGE is the system for you.

The Myrage system is available in kit form with cabinets for under \$1700. Drivers, crossovers and plans are available for \$1300.



The IMAGE II is a state of the art system designed especially for audio enthusiasts who have space limitations or budgetary restraints. If you are willing to give up a half octave of the the deepest bass (from 35 to 50 Hz), you may experience the wonder of Dynaudio for a price so modest it borders on the miraculous. With the IMAGE II, you have superb imaging, a result of precise phase and time delay, refined in a very sophisticated 12 element filter. The dynamic range and lack of compression will startle you. After assembly, you will enjoy the overall smoothness and clarity which has earned Dynaudio drivers a world-wide reputation for excellence.

The Image II is available in kit form with cabinets for under \$500. Drivers, crossovers and plans are available for under \$350.

Begins with the Finest Ingredients



Model	D28AF
Diameter mm	110
Voice Coil Diameter mm	28
Frequency Range Hz	1.8K—20K
Resonance Freq. Hz	700
Sensitivity 1w/1m db	91
Power Capability DIN w	300@3K



Model	17W75
Diameter mm	177
Voice Coil Diameter mm	75
Frequency Range Hz	45—3.5K
Resonance Freq. Hz	42
Sensitivity 1w/1m db	89
Power Capability DIN w	150



Model	Esotar T330
Diameter mm	140
Voice Coil Diameter mm	28
Frequency Range Hz	1.8K—22K
Resonance Freq. Hz	800
Sensitivity 1w/1m db	91
Power Capability DIN w	300@3K



Model	D52AF
Diameter mm	145
Voice Coil Diameter mm	54
Frequency Range Hz	600—7K
Resonance Freq. Hz	350
Sensitivity 1w/1m db	91
Power Capability DIN w	200@800



Model	30W100
Diameter mm	300
Voice Coil Diameter mm	100
Frequency Range Hz	25—900
Resonance Freq. Hz	24
Sensitivity 1w/1m db	91
Power Capability DIN w	450



Model	24W100
Diameter mm	240
Voice Coil Diameter mm	100
Frequency Range Hz	35—3K
Resonance Freq. Hz	32
Sensitivity 1w/1m db	90
Power Capability DIN w	120



Model	D21AF
Diameter mm	110
Voice Coil Diameter mm	21
Frequency Range Hz	2.5K—30K
Resonance Freq. Hz	600
Sensitivity 1w/1m db	91
Power Capability DIN w	600@5K



Model	15W75
Diameter mm	145
Voice Coil Diameter mm	75
Frequency Range Hz	60—5K
Resonance Freq. Hz	55
Sensitivity 1w/1m db	88
Power Capability DIN w	120



Model	D76AF
Diameter mm	145
Voice Coil Diameter mm	75
Frequency Range Hz	500—5K
Resonance Freq. Hz	180
Sensitivity 1w/1m db	88
Power Capability DIN w	180@600



Model	Varlovent
Diameter mm	125
Voice Coil Diameter mm	125
Frequency Range Hz	As per application
Resonance Freq. Hz	As per application
Sensitivity 1w/1m db	As per application
Power Capability DIN w	As per application

Aperiodic damping device. Used for sealed box alignments to lower system Qtc, effectively allowing the use of a smaller box. Diameter 125mm.

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low Control	Woofer W. Mhz	Superwoofer ST	Anchoic Frequency Response	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power	Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms	Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange																				
CAMBER	1.0II	Bass Ref.	6			3/4	Dome			60-20 ± 2	90	10	3k	8/8	9 x 15 x 12					Black Ash Vinyl	Black Knt	35	349.00	
	2.0II	Bass Ref.	7			3/4	Dome			55-20 ± 2	90	10	2.5k	8/6	10 x 16 x 12					Black Ash Vinyl	Black Knt	42	449.00	
	3.0II	Bass Ref.	8			3/4	Dome			50-20 ± 2	90	15	2.5k	8/6	11 x 18 x 12					Black Ash Vinyl	Black Knt	55	549.00	
	3.5II	Bass Ref.	8			1	Dome			45-23 ± 2	90	15	2.5k	8/8	11 x 24 x 12					Black Ash Vinyl	Black Knt	35	699.00	
	5.0II	Bass Ref.	8			1	Dome			40-23 ± 2	90	20	2.5k	8/6	11 x 36 x 12					Black Ash Vinyl	Black Knt	55	899.00	
	6.0II	Bass Ref.	(2)8	8	Cone	1	Dome			30-23 ± 2	91	20	2.5k	8/6	11 x 48 x 15					Black Ash Vinyl	Black Knt	75	1499.00	
	BSM Series 3	Inf. Baf.	8	3	Cone	2	Cone			48-20	92	15	2k,6k	8/4	24 x 11 x 9					Black Ash Vinyl	Black Knt	15	198.00	
	BSM Series 4	Inf. Baf.	10	3	Cone	2	Cone			40-20	93	15	2k,6k	8/4	24 x 14 x 11					Black Ash Vinyl	Black Knt	18	238.00	
	BSM Series 7	Inf. Baf.	12	4	Cone	2	Cone			30-20	94	15	2k,6k	8/4	27 x 15 x 13					Black Ash Vinyl	Black Knt	27	278.00	
	BSM Series 12	Bass Ref.	(2)12	4	Cone	2	Cone			30-20	95	15	2k,6k	8/4	41 x 15 x 13					Black Ash Vinyl	Black Knt	39	398.00	
	Laser Series LS3	Bass Ref.	6			1/2	Dome			50-20 ± 2	89	10	3k	8/8	16 x 8 x 9					Black Ash Vinyl	Black Knt	17	249.00	
	Laser Series LS7	Bass Ref.	8			3/4	Dome			40-20 ± 2	90	10	2.7k	8/6	24 x 10 x 11					Black Ash Vinyl	Black Knt	35	449.00	
	Laser Series LS9	Inf. Baf.	(2)8			3/4	Dome			40-22 ± 2	91	10	2.5k	8/6	36 x 10 x 11					Black Ash Vinyl	Black Knt	55	649.00	
CAMBRIDGE PHYSICS	G7 II	Vented	6 1/2			3/4	Dome			60-20 ± 3	90	10		8/5	16 x 12 x 5					Oak Vinyl	Brown Knt	12	290.00	
	G11 II	Ac. Sus.	8			1	Dome			38-22 ± 3	90	12		8/4	19 x 12 x 8					Oak	Brown Knt	18	400.00	
	G33 II	Pas. Rad.	8,10			1	Dome			34-22 ± 3	91	12		8/4	29 x 18 x 8					Oak	Brown Knt	28	700.00	
	G66 II	Vented	(2)8	3	Dome	1	Dome			24-22 ± 3	93	10	400,4k	8/5	44 x 18 x 12					Oak	Brown Knt	81	2000.00	
	KSW	Subwoof.	(2)8																		Dark Gray Vinyl			300.00
CAMBRIDGE SOUNDWORKS	Eleven	Powered	7	3	Cone	3/4	Dome					Inc.	200,2.2k			20 x 17 x 6				Black		23	749.00	
	Ensemble	Ac. Sus. Sat. & Subwoof.	(2)8,4			5/8,13/4	Dome, Cone	No			85	25	140,1.9k	6/	Four Pieces				Nxtl., Lam.	Black Metal	52	599.00		
	Ensemble Utility	Ac. Sus. Sat. & Subwoof.	(2)8,4			5/8,13/4	Dome, Cone	No			85	25	140,1.9k	6/	Four Pieces				Nxtl., Vinyl	Black Metal	52	499.00		
	Ambiance	Ac. Sus.	6 1/2			1	Dome	No			83	15	1.8k	8/	7 x 11 x 5				Opt.	Black Metal	10	218.00		
CANTON	Plus S	Ac. Sus.	4			1	Dome			45-30	87		2.2k	4/	8 x 5 x 4				Opt.	Opt., Metal	6	350.00		
	GL 260	Ac. Sus.	6			1	Dome			42-30	87		1.7k	4/	10 x 7 x 5				Opt.	Opt., Metal	8	500.00		
	GL 300F	Ac. Sus.	6			1	Dome			48-30	87		1.7k	4/	13 x 9 x 3				Opt.	Opt., Metal	9	500.00		
	Plus C	Ac. Sus. Subwoof.	12							22-120	89		120	4/	14 x 14 x 13				Opt.	Opt., Metal	26	800.00		
	Plus E	Ac. Sus. Subwoof.	12							18-120	91		120	4/	22 x 14 x 14				Opt.	Opt., Metal	60	900.00		
	Plus Beta	Powered Ac. Sus. Subwoof.	12					W		20-140			Inc. 70,90,120 (Sel.)	4/	15 x 15 x 14				Opt.	Opt., Metal	42	2000.00		
	Fonum 250	Bass Ref.	6			1	Dome			42-24			2.5k	8/	7 x 12 x 8				Black Vinyl	Black Metal	10	300.00		
	Fonum 300	Bass Ref.	8			1	Dome			38-26			2.5k	8/	9 x 14 x 8				Black Vinyl	Black Metal	14	450.00		
	Fonum 400	Bass Ref.	9	1 1/2	Dome	3/4	Dome			35-26			900,5k	8/	10 x 18 x 10				Black Vinyl	Black Metal	20	600.00		
	Fonum 600	Bass Ref.	9	2	Dome	3/4	Dome			30-26			900,5k	4/	10 x 32 x 11				Black Vinyl	Black Metal	37	900.00		
	Inwall 6	In-Wall	6			1/2	Dome			45-22	89		2.5k	8/	7 x 7 x 3					Opt.	Opt.	5	450.00	
	Inwall 9	Inf. Baf. In-Wall	9			1	Dome			34-22	89		2.5k	8/	10 x 10 x 3					Opt.	Opt.	7	600.00	
	Inwall Sub	Inf. Baf. Subwoof.	9							25-150	89		150	8/	10 x 10 x 3					Opt.	Opt.	7	350.00	
	Karat 920	Bass Ref.	8			1	Dome			36-30	91		2.8k	4/	9 x 13 x 10					Opt.	Opt., Metal	12	750.00	

M A T R I X
800

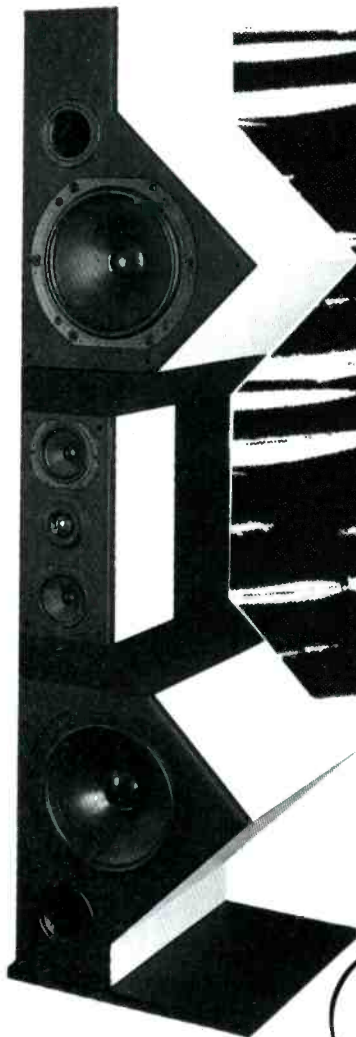
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer, W. Midrange - W, Tweeter, T, Subwoofer - ST	Angular Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms, Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
CANTON (Continued)	Karat 930	Bass Ref.	9			1	Dome		30-30	92	2.8k	4/	10 x 17 x 10	Opt.	Opt., Metal	22	1000.00 Pair	
	Karat 940	Bass Ref.	9	4 3/4	Cone	1	Dome		26-30	92	450,3.5k	4/	11 x 20 x 11	Opt.	Opt., Metal	29	1250.00 Pair	
	Karat 960	Bass Ref.	10	4 3/4	Cone	1	Dome		24-30	93	450,3.5k	4/	12 x 23 x 12	Dpt.	Opt., Metal	36	1500.00 Pair	
	Karat 980	Bass Ref.	12	4 3/4	Cone	1	Dome		20-30	94	400,4k	4/	14 x 26 x 13	Opt.	Opt., Metal	46	2000.00 Pair	
	ERGO 70	Bass Ref.	6 1/4	6 1/4	Cone	1	Dome		28-30	91	300,3.5k	4/	8 x 35 x 10	Opt.	Opt., Metal	38	1500.00 Pair	
	ERGO 80	Bass Ref.	8	8	Cone	1	Dome		22-30	92	300,3.5k	4/	9 x 37 x 11	Opt.	Opt., Metal	42	2000.00 Pair	
	ERGO 90	Bass Ref.	(2)8	6 1/4	Cone	1	Dome		20-30	93	300,3.5k	4/	10 x 40 x 12	Opt.	Opt., Metal	50	2500.00 Pair	
	ERGO 100	Bass Ref.	(2)9	6 1/4	Cone	1	Dome		18-30	93	300,3.5k	4/	11 x 45 x 14	Opt.	Opt., Metal	79	3500.00 Pair	
	ERGO 120	Bass Ref.	(2)10	6 1/4, 1 1/2	Cones	1	Dome		18-30	94	300,3.5k, 7k	4/	13 x 51 x 17	Opt.	Opt., Metal	110	5000.00 Pair	
CARRERA	CSP-230	Sat. & Subwoof.	8	3 1/2	Cone	2 1/2	Cone		28-20 ±3	90	150,3.5k	8/	Three Pieces	Black Vinyl	Black Alum. Mesh	17 Sys.	499.00 Sys.	
CARVER	Amazing Loudspeaker Platinum		(4)12			60	Ribbon		23-40 ±3	89	60	120	8/8	30 x 66 x 10	Opt.	Black Knit	110	2199.00 Pair
	Amazing Loudspeaker Silver		(3)12			40	Ribbon		23-40 ±3	89	60	120	8/8	22 x 54 x 10	Opt.	Black Knit	75	1799.00 Pair
CASCADE AUDIO SYSTEMS	SPS-215AD	Vented	5 1/4			1	Dome	T	65-20 ±4.5	84	25	1.5k	8/2	12 x 8 x 7	Black Oak	Black Knit	20	738.00 Pair
	SPS-216B	Vented	6 1/2			3/4	Dome	T	60-18 ±4.5	88	15	2.8k	8/5	16 x 10 x 8	Black Oak	Black Knit	22	458.00 Pair
	SPS-417R	Vented	(2)6 1/2	1 1/2	Dome	(4)1	Ribbons	M,T	42-25 ±3	90	30	420,2k, 7.3k	4/2	38 x 8 x 12	Black Oak	Black Knit	62	1498.00 Pair
	SWS-225	Subwoof.	(2)10					SW	22-200 ±4.5	91	30		8/5	38 x 14 x 12	Black Oak	Black Knit	79	629.00 Pair
CASTLE ACOUSTICS	Winchester	Folded Horn	(2)6			1	Dome		35-22	90	30	3k	8/	43 x 10 x 17	Wood Ven.	Black Foam	80	2000.00 Pair
	Trent	Bass Ref.	5			1	Dome	No	70-22	89	10		8/8	13 x 7 x 8	Wood Ven.	Black Foam	17 Pair	279.00 Pair
	Clyde	Bass Ref.	5			1	Dome	No	65-22	89	10		8/8	15 x 9 x 9	Wood Ven.	Black Foam	22 Pair	350.00 Pair
	Warwick	Bass Ref.	6			1	Dome	No	55-22	89	10		8/8	18 x 10 x 10	Wood Ven.	Black Foam	34 Pair	495.00 Pair
	Durham	Bass Ref.	6			1	Dome	No	60-22	89	15		8/8	16 x 9 x 9	Wood Ven.	Black Foam	33 Pair	575.00 Pair
	Pembroke II	Bass Ref.	8			1	Dome	No	48-22	89	15		8/8	22 x 10 x 12	Wood Ven.	Black Foam	62 Pair	750.00 Pair
	Stirling	Bass Ref.	(2)8			1	Dome	No	48-22	89	15		8/8	22 x 10 x 13	Wood Ven.	Black Foam	66 Pair	1095.00 Pair
CDE	Mini Monitor IV	Inf. Baf.	5 1/2			1	Dome		50-20	90	20	1.6k	/4	7 x 11 x 9	Lacq. Teak	Black Knit	15	850.00 Pair
	Mini Monitor V	Inf. Baf.	5 1/2			1	Dome		50-32	86	20	1.6k	/4	15 x 6 x 9	Lacq. Teak	Black Knit	15	950.00 Pair
	Tower I	Pass. Rad.	8	7	Cone	1	Dome		40-20	91	20	200,1.6k	/8	8 x 37 x 12	Black Lacq.	Black Knit	47	2700.00 Pair
	Mini Tower & Double Subwoofer	Inf. Baf. Sat. & Ported Subwoof.	8	5 1/2	Cone	1	Dome		22-32	91	40	160,1.5k	4/16	Four Pieces	Black Lacq.	Black Knit	100 Sys.	5200.00 Sys.
	Reference	Inf. Baf. Sat. & Ported Subwoof.	(2)10	(2)5 1/2	Cones	1	Dome		20-32	90	50	100,1.5k		Four Pieces	Black Lacq.	Black Knit	500 Sys.	35,000.00 Sys.
	Colossus	Inf. Baf. Sat. & Ported Subwoof.	(2)8, (8)10	6 1/2	Cone	1	Dome		15-32	91	50	85,300, 1.6k		Four Pieces	Black Lacq.	Black Knit	1100 Sys.	55,000.00 Sys.
CELESTION	3	Ac. Sus.	5			1	Dome		75-20 ±3	86	25	5k	8/	12 x 7 x 9	Opt., Vinyl	Black	8 1/2	280.00 Pair
	5	Ac. Sus.	8			1	Dome		70-20 ±3	88	25	4k	8/	14 x 8 x 10	Opt., Vinyl	Black	10 1/2	400.00 Pair
	DL 4	Ac. Sus.	6 1/2			1	Dome		70-20 ±3	89	25	3k	8/	15 x 8 x 9	Opt., Vinyl	Black	10 1/2	359.00 Pair
	DL 6	Ac. Sus.	8			1	Dome		60-20 ±3	89	25	3.5k	8/	18 x 10 x 10	Opt., Vinyl	Black	15 1/2	449.00 Pair
	DL 8	Ac. Sus.	8			1	Dome		50-20 ±3	89	35	3.5k	8/	20 x 11 x 10	Opt., Vinyl	Black	22	589.00 Pair
	DL 12	Transfer Bass Loading	(2)8			1	Dome		58-20 ±3	90	35	800,3.5k	8/	33 x 11 x 12	Opt., Vinyl	Black	37 1/4	899.00 Pair
	SL 6Si	Ac. Sus.	6			1/4	Dome		75-20 ±3	84	35	2.8k	8/	15 x 8 x 11	Opt.	Black	18 1/2	999.00 Pair
	SL 600Si	Ac. Sus.	6			1/4	Dome		75-20 ±3	82	35	2.3k	8/	15 x 8 x 9	Nxtil.	Opt.	11 1/4	1999.00 Pair
	SL 12Si	Ac. Sus.	(2)6			1/4	Dome		70-20 ±3	86	35	600,2.8k	8/	21 x 8 x 12	Opt.	Black	29 1/4	1599.00 Pair
	SL 700SE	Ac. Sus.	6			1/4	Dome		63-20 ±3	82	35	3k	8/	8 x 10 x 14	Nxtil.	Opt.	14	3299.00 Pair
	System 6000	Double-Dipole Subwoof.	(2)12						20-100	35	100		8/	18 x 15 x 21	Nxtil.	Black	76	2999.00 Pair

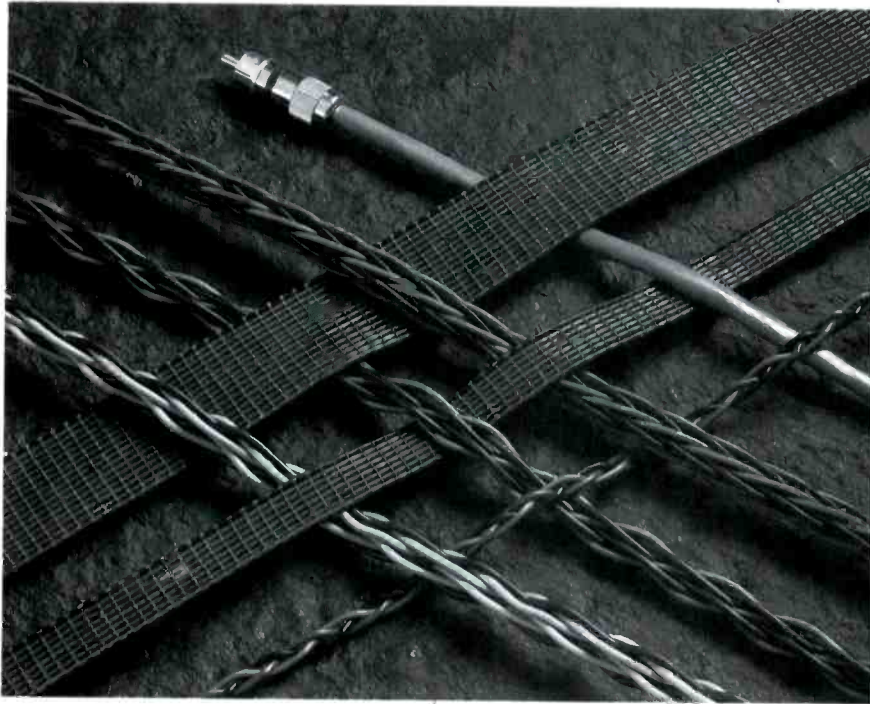
CROSS TALK

RAY KIMBER

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CABLE CONTROVERSIES

A brief history of politics, ego and differing opinions.



AUGUST 1989: *Audio Magazine* publishes an article that is very critical of special audio cables. An excerpt of that article states "The use of special cables, including normal coaxial cable, is not warranted..."

• SEPTEMBER 1989: *Audio Magazine* delivers another kick with an article by Frank Van Alstine. An excerpt states: "Nobody is willing to stand up and shout 'Bullshit!'"

• FALL OF 1989: KIMBER KABLE and others cry foul, lots of letters back and forth.

• JANUARY 1990: Frank Van Alstine again, this time in *Audio Basics* (a monthly newsletter not related to *Audio Magazine*). Frank throws down the gauntlet, in the form of "The Great Wire Challenge". An excerpt states: "So there, dear cable manufacturer, help us eat crow. Put some action where your mouth is. Don't just write letters to *Audio* complaining that we have slurred you. Send us some cable

and speaker wire samples... However, unfortunately, I suspect you won't. I am going to be surprised if we see even a single sample of wire... I think many esoteric suppliers would rather complain about my *Audio* editorial than provide me with the evidence to change my mind."

• MARCH 1990: KIMBER KABLE decides that even though Frank Van Alstine is an outspoken critic, that at least Frank would keep his word about giving the cables a fair and honest evaluation.

• MAY 1990: Frank Van Alstine publishes the results of his challenge in *Audio Basics*, here is a paragraph from the center of his article: "It is possible that they are only sugar pills, but sometimes sugar pills taste pretty good. If you have the spare cash to play with — go ahead and experiment with cables — you may find something you like and I would recommend that you experiment with Kimber Kables first because they were the only company to respond to my challenge and because their cables certainly are built to high mechanical standards and

because Ray Kimber, their president, is a really nice and rational person. I think you will be satisfied in doing business with his company because he is going to make sure that you are."

Hello! I'm Ray Kimber and I would like to invite you to circle the reader service card. I will send you a copy of the complete text of the wire challenge in *Audio Basics* and, of course, the complete test results. You will also receive our very nice color brochure, a price list, and the name of a dealer near you. In closing, let me share with you parts of recent letters and magazines received here at KIMBER KABLE:

• AUGUST 1990: "So far nearly every demo has resulted in a sale of some KIMBER product. Bravo, Ray! Keep the good ideas coming!" — Pete Marshall, *Stereo Shop*, Smyrna Georgia.

• AUGUST 1990: "In making a long story short, your cable is totally unbelievable, fantastic; whichever adjective you choose to use. IT WORKS!!! Boy does it..." — Steve Barbaris, *Mobile Audio Electronics*, Eau Claire Wisconsin.

• JUNE 1990: *HI FI NEWS & Record Review* magazine, a review of 54 interconnects by Martin Collums. An excerpt from the article: "The results are detailed in the table, from which the following observations are offered: the top performer is the less expensive silver KIMBER KCAG, which set new records for acoustic invisibility and showed just how 'visible' most other cables are..."

As you can see, it has taken some people a full year to realize that special cables can make a difference. Take five minutes and contact a Kimber Kable dealer to arrange a demonstration. You will be convinced.

—Ray Kimber

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LOUDSPEAKERS

MONITOR 7

"What sets the Monitor 7 apart is that it has tremendous conviction. The enclosure and drive units seem somehow to pull in the same direction. The fact that the system produces so much convincing, high quality bass from such a small box is something to be wondered at, but it isn't what makes me enthusiastic. No, my enthusiasm stems from the superb performance standards achieved from so few cubic centimetres.

This model is destined to be the greatest success Monitor Audio have had on their hands for years. Mark my words!"

Hi-Fi Answers

MONITOR 9

"With its modern technology metal dome tweeter, the Monitor 9 brings a cleanness and dynamics to music with which the Index, in my view, simply cannot compete. The openness of vocals, the delicacy of percussion, hi-hats and cymbals, all contribute to a level of HF performance normally associated with more expensive designs.

With its high standard of build quality, superbly clean and dynamic sound, the Monitor 9 is a loudspeaker which, for \$499 can rightly be said to offer amazing value for money. Do yourself the favour of not overlooking these speakers if you've got around \$499 to spend."

Hi-Fi Review

MONITOR 11

"Listening to these, I could discern everything that was happening, follow all the instrument lines, hear the sound in full focus. Tiny transients emerged that I've never heard before, such was the clarity with which the Monitors conveyed the signals the front end was producing.....They uncover all the detail, but in a transparent way which involves and excites the listener. You hear all the components of the music, but the music is not dismantled. The flow, the timing, the continuity, all these remain intact."

Hi-Fidelity

MONITOR 14

"A compact floor standing loudspeaker using high grade drive units.....
A sophisticated and good looking enclosure that is capable of an exceptional performance....
Monitor 14 is exceptional value for money by any standards."

Audiophile

MA700 GOLD

"...when I closed my eyes I could picture the musicians and their performance. When the beat needed to be lively, it was. When things shifted down a gear, the 700s responded in kind. My toes tapped, hand slapped against knee, and I was held in my chair, engrossed, as the tracks progressed."

Hi-Fi Review

MA852 GOLD

"The MA852 Gold showed itself to be an infussy loudspeaker capable of handling anything from unaccompanied female voice....to club reggae, from Cajun to classical."

Hi-Fi Review

MA952 GOLD

"The MA952 Gold are undoubtedly fine all-rounders; they will stand high power levels on disco material.....their good tonal balance and freedom from box colourations stands them in good stead on classical recordings."

Hi-Fi News & Record Review

* Official "Recommended Component" status in Stereophile.

MA1200 GOLD

"Piano had the right balance of weight and clarity, while guitar was especially well reproduced, with almost electrostatic speed and fluency. The transient response of this speaker is as good as I have ever heard from a cone reproducer, attesting to the achievement of the design goals in the gold anodized tweeter.

Female and male voice both had a very natural character, while choral voices showed not only the clarity of inner vocal lines, but an exceptional spatiality, the image floating, and the depth palpable. There is a combination of overall coherence and detail that is very unusual in any but the most expensive speakers; in other words, with this speaker you get the whole picture in perspective, as well as all the parts clearly portrayed."

Audio Ideas Guide

MA1800 GOLD

"The R1800/Gold is, I would say, worthy of heading the Monitor Audio Reference series, a sequence of designs which has audibly gone from strength to strength as it has progressed. It is an eminently listenable loudspeaker whose impressive power handling ability leaves one in no doubt at all as to its potential (there is a quality about a reserve of power handling in loudspeakers which seems to manifest itself in terms of greater transparency even at modest listening levels). It is also beautifully styled and finished and should look relatively unobtrusive in the room, even recommended in the sensibly written booklet. Confidently recommended."

Gramophone

STUDIO 10

"The Monitor Audio Studio 10s, came out of their box, were placed on (initially non-dedicated) stands, and from the off, sounded great. I was stunned.....this was above all an *involved* speaker. The sound was very full and rounded. More importantly, it was enjoyable."

Hi-Fi Review

"...the MA's ability to project a convincing image is stunning—to say the least. Again, speaker stands are important. Set up in the manner we described, the Studio 10s transcend their existence and project a first-rate sound-stage to listeners. Focal points are correct, instrumental and vocal placements are unwavering and the illusion of a live performance is fulfilled.

To sum it all up, lets say that the Studio 10s are worthy contenders for a high-end system."

The Inner Ear Report

"I found listening to this design to be an exhilarating experience bordering on intoxicating at times, and one that didn't pull."

Hi-Fi Review

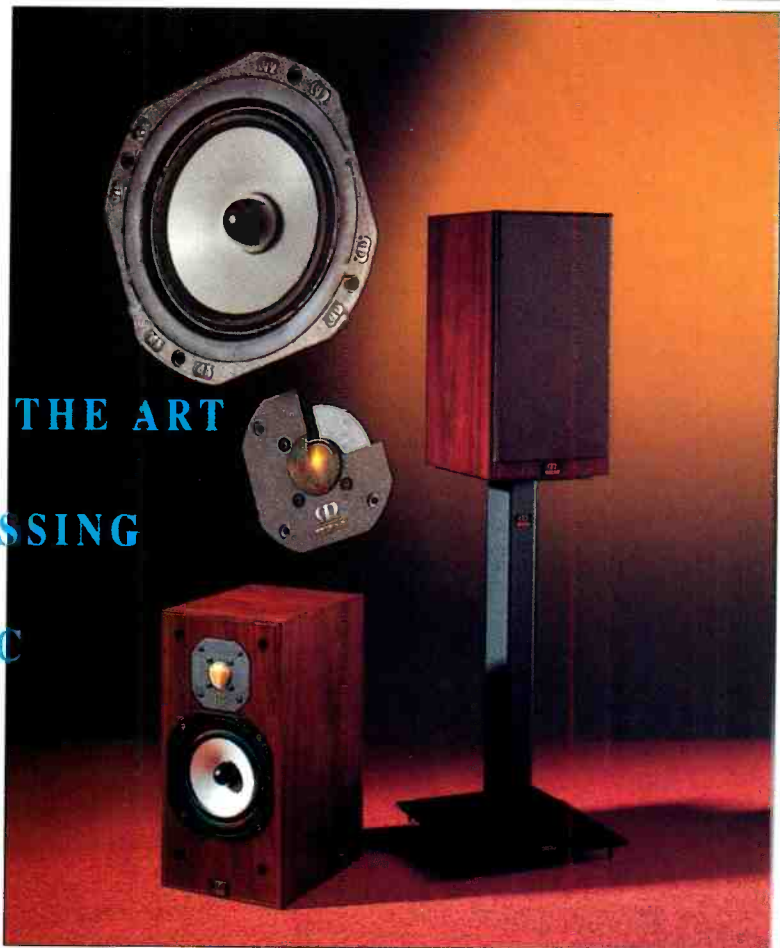
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IN
ENGLAND

(Studio 10) . . . "I found listening to this design to be an exhilarating experience bordering on intoxicating at times, and one that didn't pall."

Hi-Fi Review (Feb. 90)

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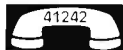
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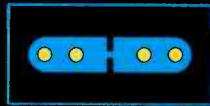
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Control? Woofer W. Midrange M. Tweeter T. Superwoofer ST	Impedance, Ohms	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange															
CELESTION (Continued)	3000	Ac. Sus.	8				21x1/2	Ribbon		66-20 ±3	86	40	900	4/	26 x 13 x 12	Black Vinyl	Black	43	1799.00 Pair
	5000	Ac. Sus.	8				21x1/2	Ribbon		66-20 ±3	86	40	900	4/	26 x 13 x 12	Wal. Ven.	Black	43	2099.00 Pair
	7000	Ac. Sus.	(2)8				21x1/2	Ribbon		45-20 ±3	86	40	900	4/	47 x 13 x 14	Wal. Ven.	Black	80	3199.00 Pair
CELLO	Amati	Ac. Sus.	10	(4)1 1/2	Domes	(4)3/4	Domes							10 x 27 x 19	Dpt.	Black Mesh		90	8800.00 Pair
CERWIN-VEGA	Q-1	Horn-Flex	10			1	Dome			30-20 ±2	100	25	3.5k	4/4	27 x 15 x 15	Oiled Wal.	Black Knit	39	799.00 w/EQ
	Sat-6	Sat. & Subwoof. Ported	10	6	Cone	1	Dome	M,T		30-20 ±3	95	5	200,3.5k	8/6	Three Pieces	Wood Vinyl	Black Knit	79	599.00 Sys.
	D-1	Ported	8			1	Horn			30-20 ±4	92	5	3k	8/5	20 x 11 x 10	Vinyl	Brown Knit	25	170.00
	D-2	Ported	10			1	Horn			30-20 ±4	94	5	3k	8/5	24 x 14 x 10	Vinyl	Brown Knit	35 1/2	220.00
	D-3	Ported	10	6	Cone	1	Horn	T		30-20 ±4	94	5	700,3.5k	8/5	27 x 14 x 11	Vinyl	Brown Knit	39	290.00
	D-5	Ported	12	6	Cone	1	Horn	T		32-20 ±4	96	5	700,3.5k	8/5	28 x 16 x 11	Vinyl	Brown Knit	44	330.00
	D-9	Ported	15	(2)6	Cones	1	Horn	M,T		29-20 ±4	101	5	500,3.5k	4/4	36 x 18 x 18	Vinyl	Brown Knit	85	525.00
	SW12B	Ported Subwoof. Ported	12							29-110	92	5	110	8/6	13 x 26 x 16	Wood Vinyl	Black Knit	48	320.00
	200SE	Ported	8			1	Dhorm			32-20 ±3	93	5	3k	6/4	22 x 11 x 12	Black Vinyl	Black Knit	32	205.00
	250SE	Ported	10	6	Cone	1	Dhorm	M,T		32-20 ±3	95	5	550,3.5k	6/4	28 x 13 x 12	Black Vinyl	Black Knit	41	300.00
	280SE	Ported	12	6	Cone	1	Dhorm	M,T		32-20 ±3	96	5	550,3.5k	6/4	26 x 15 x 12	Black Vinyl	Black Knit	44	345.00
	300SE	Ported	12	7	Cone	1	Dhorm	M,T		25-20 ±3	98	5	250,3.5k	6/4	32 x 15 x 16	Black Vinyl	Black Knit	65	450.00
	380SE	Ported	15	(2)7	Cones	1	Dhorm	M,T		29-20 ±3	102	5	250,3.5k	4/4	36 x 18 x 19	Black Vinyl	Black Knit	90	540.00
	AT-8	Ported	8			5	Dome			38-22 ±3	94	5	3k	6/4	21 x 12 x 10	Wood Vinyl	Black Knit	26	205.00
	AT-10	Ported	10	5	Cone	5	Dome	M,T		30-22 ±3	95	5	400,3k	6/4	29 x 14 x 14	Wood Vinyl	Black Knit	40	310.00
AT-12	Ported	12	5	Cone	5	Dome	M,T		28-28 ±3	97	5	400,3k	6/4	30 x 16 x 14	Wood Vinyl	Black Knit	55	345.00	
AT-15	Ported	15	(2)5	Cones	5	Dome	M,T		28-28 ±3	102	5	400,3k	4/4	37 x 19 x 19	Wood Vinyl	Black Knit	90	540.00	
CHAPMAN SDUND	T-7	Trans. Line	10	7	Cone	1	Dome	No		28-20 ±3	89	50		4/3.2	13 x 10 x 44	Oiled Oak	Black Knit	80	1495.00 Pair
	T-9	Inf. Baf.	(2)10	7.5	Cones	1	Dome	No		25-20 ±3	88	100	75.1k, 3.25k	2.2/1.9	22 x 14 x 45	Oiled Oak	Black Knit	160	2695.00 Pair
CHARID	2514	Inf. Baf.	8,10	1 1/2	Dome	1	Dome	W,M,T		40-20 ±2	85	80	100,500, 2.5k	4/	40 x 11 x 15		Black	88	2700.00 Pair
CLASSIC AUDIO REPRO- DUCATIONS	Hartfield	Horn	15	2	Horn	(2)1 3/4	Rings			35-20 ±5	108	15	500.7k	12/6	46 x 46 x 25	Oiled Wal.	Ivory Knit	300	9000.00 Pair
CLEMENTS AUDID	Little 'd'	Compr. Line	5 1/4			5	Ribbon	W,T		42-40 ±3	87	20	2.4k	6/4	16 x 7 x 10	Dpt.	Dpt.	16	795.00 Pair
	RB 6.5MKII	Compr. Line	6 1/2			7	Ribbon	W,T		36-40 ±3	90	20	1.6k	6/4	34 x 13 x 11	Dpt., Lacq. Wood	Black Knit	59	1200.00 Pair
	RB 8.0MKII	Compr. Line	8			7	Ribbon	W,T		32-40	88	20	1.6k	6/4	36 x 14 x 13	Dpt., Lacq. Wood	Black Knit	69	1600.00 Pair
	Reference RT 7	Compr. Line	8			7	Ribbon	W,T		26-40 ±3	88	20	1.6k	6/4	46 x 11 x 19	Dpt., Lacq. Wood	Black Knit	90	2595.00 Pair
CREEK	LS.50	Inf. Baf.	8			3/4	Dome			50-20 ±3	89	35		8/6.5	10 x 9 x 19	Black Ash	Black Cloth	15	500.00 Pair
CROSBY AUDIO WORKS	CAW-1	ES																53	6900.00 Pair
	CAW-LF-10	Powered Servo Subwoof.	10					W		18-180		Inc.	Adj.		12 x 16 x 24	Black Text. Lam.		70	3995.00 Pair
	CAW-LF-20	Powered Servo Subwoof.	(2)10					W		15-180		Inc.	Adj.		12 x 24 x 24	Black Text. Lam.		85	4995.00 Pair
	CAW-LF-40	Powered Servo Subwoof.	(4)10					W		12-180		Inc.	Adj.	Two Pieces Per Side	Black Text. Lam.		170 Side	7995.00 Sys.	
	CAW-LF-60	Powered Servo Subwoof.	(6)10					W		12-180		Inc.	Adj.	Three Pieces Per Side	Black Text. Lam.		255 Side	10,995.00 Sys.	
	CAW-LF-S	Servo Subwoof.	(2)10					W		18-180					12 x 24 x 24	Black Text. Lam.		70	3995.00 Pair
	CAW-LF-120	Powered Servo Subwoof.	(12)10					W		12-180		Inc.	Adj.	Six Pieces Per Side	Black Text. Lam.		510 Side	19,995.00 Sys.	
	CAW-LF-160	Powered Servo Subwoof.	(16)10					W		12-180		Inc.	Adj.	Eight Pieces Per Side	Black Text. Lam.		680 Side	29,995.00 Sys.	

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AudioQuest F-14

AudioQuest *F-14* uses four solid conductors in a practical and inexpensive configuration. Strand interaction is eliminated, skin-effect and resistance are kept to reasonable

levels, the performance is glorious and the price is practically free.

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AudioQuest *Cobalt* uses Hyperlitz® conductors. This patent pending design virtually eliminates magnetic and electrical interaction between strands while allowing for a large cross sectional area (AWG) with no skin-effect induced distortion. Best of all, every strand has identical geometry and electrical characteristics so that no discontinuity is introduced to the music signal.

These three blue cables and all the AudioQuest designs sound much more dynamic, dimensional and focused than the competitors. The midrange and highs are sweeter, more extended and less "confused" sounding, while the bass is tighter and better defined. All the AudioQuest cables use very cost effective designs which give you an absolutely incredible improvement at a minimal cost.

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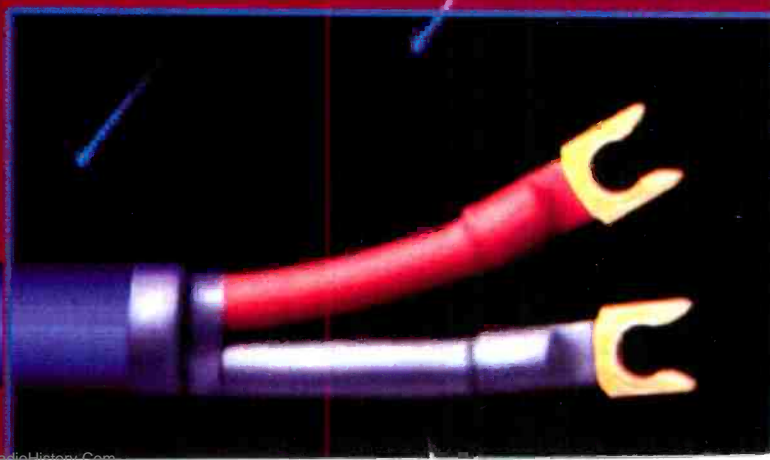
AudioQuest Blue



AudioQuest Cobalt

Tel: 714 / 498 / 2770 Fax: 714 / 498 / 5112
P.O. Box 3060, San Clemente, CA 92672 USA

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Tweeter Type		Separate Level Controls: Woofer, W. Midrange, M. Tweeter, T. Subwoofer = ST		Anchored Frequency Response, SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material		Weight, Lbs.	Price, \$
CROSBY AUDIO WORKS (Continued)	CAW-90-FR	Vented	7			1	Dome			65-20	88	25		8/	8 x 8 x 36	Opt.		35	2495.00	Pair					
	CAW-95-FR	Vented	7			3/4	Dome			65-20	88	25		8/	8 x 8 x 36	Opt.		200	5895.00	Pair					
	CAW-100K	Hybrid Ribbon Dynamic	(6)10	(9)4		(2)	Ribbons	W,T		12-45		(3)100			80 x 32 x 28	Clear Plex.		300	100,000.	Pair					
CSI	MDM-4	Ported	(2)6 1/2			3 1/2	Cone			60-17 ± 3	89	15	1.5k	8/5	19 x 13 x 10	Rswd. Lam.	Brown Cloth Alum.	50	1190.00	Pair					
	MDM-TA2	Time Align	6 1/2			3/4	Dome	T		60-20 ± 3	87	15	2.5k	8/5	16 x 12 x 9	Rswd. Lam.		40	1290.00	Pair					
	MDM-TA3	Time Align	(2)6 1/2	3 1/2	Cone	3/4	Dome	M,T		45-20 ± 3	91	15	1.8k,7k	8/4	19 x 16 x 12	Rswd. Lam.	None	70	1590.00	Pair					
	88-70	ELF Subwoof.	8							30-70 ± 1	91	100	70		16 x 19 x 12	Black Lam.	Black Cloth	60	890.00	Pair					
	E8-70	Powered ELF Subwoof.	8							30-70 ± 1	91	inc.	70		16 x 19 x 12	Black Lam.	Black Cloth	100	2790.00	Pair					
DAHLQUIST	DQ-8	Phased Array	8			1	Dome			40-20	89	30			40 x 15 x 11	Black	Black Knit	40	850.00	Pair					
	DQ-20i	Inf. Baf.	10	5	Cone	3/4	Dome			20-20 ± 4.5	86	50	400,3.5k	8/5	42 x 21 x 12	Oak	Opt.	60	2000.00	Pair					
	DQ-12	Inf. Baf.	8	5	Cone	1	Dome			35-20	86	40	450,3.5k	8/5	42 x 16 x 9	Black	Black	42	1200.00	Pair					
	M909i	Tuned Port	(2)8	5	Cone	1	Dome			30-24	92	20	125,400,3.5k	8/4	39 x 14 x 11	Opt., Wood	Black	53	1500.00	Pair					
	M907i	Ac. Sus.	10	5	Cone	1	Dome			30-24	88	40	400,3.5k	8/6	27 x 14 x 11	Opt., Wood	Black	40	1000.00	Pair					
	M905	Tuned Port	8			1	Dome			40-24	91	20	2.5k	8/6	24 x 14 x 12	Opt., Wood	Black	35	680.00	Pair					
	M905L	Tuned Port	8			1	Dome			40-24	91	20	2.5k	8/6	24 x 14 x 12	Lam.	Black	35	580.00	Pair					
	M903	Tuned Port	6 1/2			1	Dome			48-24	90	20	2.8k	8/6	17 x 9 x 10	Lam.	Black	16	450.00	Pair					
DANA AUDIO	One	Ac. Sus.	6 1/2			3/4	Dome			63-20 ± 3	88	15	3.1k	8/	15 x 9 x 8	Black Vinyl	Black Knit	25	179.00	Pair					
DBX	Soundfield 2500	Vented	6 1/2	2 1/2	Cone	(2)1/2	Domes			49-20 ± 3	90	20	1.6k,4.5k	6/4	12 x 8 x 29	Opt.	Opt.	21	600.00	Pair					
	Soundfield 5000	Vented	6 1/2	2 1/2	Cone	(2)1/2	Domes			65-20 ± 3	89	20	1.6k,4.5k	6/4	15 x 12 x 8	Opt., Vinyl	Opt.	13	450.00	Pair					
DCM	Time Window 3	Coaxial; Trans. Line	8	6 1/2	Cone	(2)3/4	Domes	M,T		24-20	90	15		8/4	39 x 16 x 12	Oak	Brown Knit	45	1499.00	Pair					
	Time Window 1A	Hybrid Trans. Line	(2)6 1/2			(2)3/4	Domes			32-20	91	10	2.8k	8/4	36 x 15 x 12	Oak	Brown Knit	32	949.00	Pair					
	Time Frame TF-1000	Trans. Line	8	3 1/2	Cone	3/4	Dome			26-20	91	20		8/4	49 x 19 x 8	Oak	Brown Knit	49	1099.00	Pair					
	Time Frame TF-600	Coaxial; Trans. Line	(2)6 1/2			(3)3/4	Domes			30-20	92	10		8/4	41 x 17 x 9	Oak	Brown Knit	46	699.00	Pair					
	Time Frame TF-350	Hybrid Trans. Line	6 1/2			3/4	Dome			38-20	89	10	2.5k	8/6	38 x 15 x 7	Oak	Brown Knit	31	499.00	Pair					
	Time Frame TF-275	Coaxial; Hybrid Trans. Line	6 1/2			3/4	Dome			42-20	91	10	3k	8/6	35 x 13 x 6	Oak	Brown Knit	44	399.00	Pair					
	Half Time	Coaxial; Ac. Sus.	6 1/2			3/4	Dome			90-20	90	10	2.5k	8/6	10 x 8 x 8	Oak	Brown Knit	18	249.00	Pair					
	Time Piece	Coaxial; Trans. Line	6 1/2			3/4	Dome			60-20	91	10	2.5k	8/6	16 x 8 x 8	Oak	Brown Knit	26	299.00	Pair					
	Triple Time System	Sat. & Subwoof.	(3)6 1/2			3/4	Dome			48-20	91	10	120,2.5k	8/4	Three Pieces	Oak	Brown Knit	44	499.00	Sys.					
	Double Time Bass Module	Trans. Line	6 1/2							48-150	90	10	120	8/6	18 x 8 x 18	Oak	Brown Knit	26	279.00	Sys.					
	Full Time Bass System	Subwoof. Trans. Line	(2)6 1/2							48-150	90	10	120	8/6	31 x 8 x 8	Oak	Brown Knit	45	429.00	Pair					
	CX-17	Subwoof. Coaxial; Trans. Line	6 1/2			3/4	Dome			45-20	92	10		8/6	17 x 9 x 10	Oak Vinyl	Brown Knit	30	349.00	Pair					
CX-27	Coaxial; Trans. Line	(2)6 1/2			3/4	Dome			35-20	93	10		8/4	27 x 10 x 11	Oak Vinyl	Brown Knit	50	499.00	Pair						
DEFINITIVE TECHNOLOGY	BP-10	Bipolar Trans. Line	(2)6 1/2			(2)1	Domes			20-28	89	20	1.8k	6/4	9 x 12 x 42	Opt.	Black	55	1100.00	Pair					
DENNESEN	Class A		10	6 1/2	Cone	(4)15 Sq. In.	ES			25-30 ± 2	90	50	200,3.5k	8/6	14 x 12 x 54	Wal.	Black Foam	80	3500.00	Pair					
	Class B	Trans. Line	6 1/2			(4)15 Sq. In.	ES			35-30	89	35	3.5k	8/6	14 x 8 x 48	Wal.	Black Foam	60	1600.00	Pair					
	Mini-Monitor	Ac. Sus.	6 1/2			(3)15 Sq. In.	ES			55-30	89	35	3.5k	8/6	10 x 9 x 16	Wal.	Black Foam	20	950.00	Pair					

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low and High Frequency Wdg. Wdg. - M. Woofer 1, Superwoofer ST	Acoustic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
DESIGN ACOUSTICS	PS-3	Sat. & Subwoof. Vented	(2)6½	3½	Cone	¾	Dome		50-20	88	20	200,3k	6/	Three Pieces	Opt.	Black	32 Sys. 6	599.95 Sys.	
	PS-55	Ac. Sus.	5¼			¾	Dome		65-20	88	10	4k	8/	7 x 10 x 6	Black Vinyl Dpt.	Black	12	219.90 Pair	
	PS-6a	Ac. Sus.	6½			¾	Dome		55-20	88	10	3k	8/	8 x 12 x 12	Opt.	Black	15	279.90 Pair	
	PS-8c	Ac. Sus.	8			1	Dome		50-20	90	15	2.8k	8/	10 x 13 x 12	Opt.	Black	15	379.90 Pair	
	PS-9	Ac. Sus.	8	5¼	Cone	¾	Dome		47-20	90	15	200,3k	8/	10 x 15 x 12	Opt.	Black	20	499.90 Pair	
PS-10a	Ac. Sus.	10	5¼	Cone	1	Dome		45-22	91	20	200,3k	8/	11 x 16 x 13	Opt.	Black	23	599.90 Pair		
DESKTOP LOUDSPEAKER	DLS-3x	Sat. & Subwoof. Sat. & Subwoof.	(8)6½	(2)2½	Cones	(2)1	Domes		22-25 ±3	88	30	170,3.3k	4/3.7	Four Pieces	Black Lacq. Opt.	Gray Knit Black Knit Black Knit	64 Sys. 42 Sys. 30 Sys.	2399.00 Sys. 899.00 Sys. 649.00 Sys.	
	DLS-2b	Sat. & Subwoof.	(2)6½	(2)2½	Cones	(2)1	Domes		38-19 ±4	87	25	170,3.3k	4/3.7	Four Pieces	Opt.	Black Knit Black Knit	42 Sys. 30 Sys.	899.00 Sys. 649.00 Sys.	
	DLS-1b	Sat. & Subwoof.	(2)6½	(2)2½	Cones	(2)1	Domes		47-19 ±4	86	20	170,3.3k	4/3.7	Three Pieces	Opt.	Black Knit Black Knit	30 Sys.	649.00 Sys.	
DUNTECH	Black Knight PCL-400	Closed Box	(2)12	(2)7	Cones	¾	Dome	No	27-20 ±2	93	50	500,4k	4/4	14 x 23 x 72	Piano Black Rswd.	Black Knit	160	3995.00 Pair	
	Sovereign 2001	Closed Box	(2)7, (2)12	(2)2	Domes	¾	Dome	No	27-20 ±2	90	50	300,2k, 6k	4/4	74 x 14 x 32	Black Rswd.	Black Knit	375	15,500.00 Pair	
	Princess PCL-1100	Closed Box	(2)10	(2)4¾	Cones	¾	Dome	No	38-20 ±2	90	50	500,5k	4/4	71 x 12 x 17	Rswd.	Black Knit Black Knit	160	8500.00 Pair	
	Crown Princess PCL-1000	Closed Box	(2)10	(2)4¾	Cones	¾	Dome	No	38-20 ±2	90	50	500,5k	4/4	71 x 12 x 15	Rswd.	Black Knit Black Knit	121	7500.00 Pair	
	Marquis PCL-500	Closed Box	(2)8	(2)4¾	Cones	¾	Dome	No	42-20 ±2	93	50	500,5k	4/4	60 x 10 x 15	Oak	Black Knit Black Knit	150	5500.00 Pair	
	Dutchess PCL-15	Closed Box	7			1	Dome	No	50-20	83	50	500	6/6	9 x 13 x 8	Black Oak Oak	Black Knit Black Knit	14	1095.00 Pair	
	Vicount PCL-200	Closed Box	(2)8			1	Dome	No	45-20	93	50	500	4/4	48 x 10 x 14	Oak	Black Knit Black Knit	85	2600.00 Pair	
	Baron	Closed Box	7			¾	Dome	No	55-20 ±1.5	90	50	1k	4/4	38 x 8 x 10	Opt., Lacq.	Black Knit	30	1800.00 Pair	
	DYNACO	A-10	Tuned Port	4			2½	Cone		100-20 ±3	89	3	6.3k	8/5	9 x 5 x 5	Opt., Oak Vinyl, Oak Vinyl, Oak Vinyl, Oak Vinyl, Oak Vinyl, Oak Vinyl, White	Opt., Knit	7	50.00
		A-15	Tuned Port	5¼			2½	Cone		80-20 ±3	90	3	6.3k	8/5	13 x 7 x 8	Opt., Knit	Opt., Knit	10	65.00
A-25		Tuned Port	6½			2½	Cone		68-20 ±3	91	3	6.3k	8/5	16 x 9 x 9	Opt., Knit	Opt., Knit	20	80.00	
A-35		Tuned Port	8			2½	Cone		50-20 ±3	92	3	3.2k	8/5	20 x 11 x 10	Opt., Knit	Opt., Knit	30	110.00	
A-40		Tuned Port	10	4	Cone	2½	Cone		42-20 ±3	93	5	3.2k,8.3k	8/5	33 x 12 x 12	Opt., Knit	Opt., Knit	40	175.00	
A-50		Pas. Rad.	10	4	Cone	2½	Cone		32-20 ±3	94	10	3.2k,8.3k	8/5	43 x 12 x 12	Opt., Knit	Opt., Knit	50	225.00	
Amazing Bass		Tuned Port Subwoof. In-Wall	8						20-150 ±3	90	10	150	8/5	16 x 13 x 8	Black Matte Vinyl White	Black Matte Vinyl White	15	100.00	
FL 650		In-Wall	6½			1	Dome		58-20 ±3	92	5	2.5k	8/6	12 x 8 x 4	White	Fabr.	7½	170.00 Pair	
FL 525		In-Wall	5¼			1	Dome		68-20 ±3	90	5	3k	8/6	11 x 7 x 2	White	Fabr.	6	150.00 Pair	
DYNAUDIO	Contour I MKII	Aperiodic	6½			1	Dome						4/3	14 x 9 x 11	Rswd.	Opt.	17	1800.00 Pair	
	Contour II MKII	Aperiodic	(2)6½	2	Dome	1	Dome						4/3	39 x 9 x 11	Rswd.	Opt.	44	4100.00 Pair	
	Contour IV	Pas. Rad.	8	2	Dome	1	Dome						4/3	52 x 11 x 15	Rswd.	Black Knit	113	10,800.00 Pair	
	Craft	Bass Ref.	6½			1	Dome	M,T					4/3	16 x 9 x 11	Gray Nxtl. Rswd.	Opt.	22	4900.00 Pair	
	Special One	Aperiodic	6½			1	Dome						4/3	16 x 9 x 11	Rswd.	Opt.	22	2500.00 Pair	
	Facette	Pas. Rad.	6½			1	Dome						4/3	40 x 14 x 10	Rswd.	Black Knit Black Knit	44	4800.00 Pair	
	MSP 110	Aperiodic	8			1½	Dome		36-25 ±3	86		3.5k	4/3	19 x 12 x 15	Rswd.	Black Knit Black Knit	30	1450.00 Pair	
	MSP 220	Aperiodic	8	2	Dome	1½	Dome		32-25 ±3	86		800,4k	4/3	24 x 11 x 13	Rswd.	Black Knit Black Knit	36	2150.00 Pair	
	MSP 330	Aperiodic	(2)8	2	Dome	1½	Dome		28-25 ±3	88		800,4.5k	4/3	42 x 11 x 13	Rswd.	Black Knit Black Knit	78	3750.00 Pair	
	Compound 2	Compound	(2)6½			1½	Dome		35-25 ±3	84		3k	8/5	14 x 9 x 11	Rswd.	Opt.	27	2750.00 Pair	
	Compound 3	Compound	(2)6½	2	Dome	¾	Dome		33-33 ±3	84		1.2k,5k	8/5	19 x 9 x 11	Rswd.	Opt.	37	3750.00 Pair	
	Compound 4	Compound	(2)8	3	Dome	1	Dome		28-26 ±3	86		600,3.5k	8/5	45 x 12 x 14	Rswd.	Opt.	93	7450.00 Pair	
	Accent 3	Powered, Triamp Compound	8	3	Dome	1	Dome	M,T				Inc.		4/3	42 x 11 x 14	Rswd.	Opt.	80	10,800.00 Pair
	Consequence	Compound	(2)12	(2)6½	Cone, Dome	1,¾	Domes		25-33 ±3	85		120,1.8k, 5k,12k	4/3	49 x 16 x 24	Rswd.	Black Knit	186	21,000.00 Pair	

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901 Classic

SERIES VI DIRECT/REFLECTING® SPEAKER SYSTEM

The most highly acclaimed loudspeaker. Then and now.

HiFi/Stereo Review
MARCH 1968 • 30 CENTS

1968

"...I must say that I have never heard a speaker system in my own home which could surpass, or even equal, the Bose 901 for overall 'realism' of sound."

— Julian Hirsch, *Stereo Review* 1968

At the Massachusetts Institute of Technology, an inquiring young assistant professor named Amar Bose began a research project in the mid-1950's. Twelve years later, he introduced the Bose® 901® Direct/Reflecting® speaker system, which soon began to win the highest acclaim ever accorded a loudspeaker.

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And since the 901 Classic system has virtually unlimited power handling capabilities and a wide dynamic range, it releases the excitement and full impact of today's digital compact discs.

The New York Times

NEW YORK, SUNDAY, MARCH 25, 1990

1990

*"The Bose 901, fortified against the rigors of the digital age, still makes the listening room seem to expand."
"It is apparent from the first note why so many listeners are captivated by this speaker."*

— Hans Fantel, *The New York Times* 1990

How is the 901 system different?



During a live performance, most of the sound you hear is reflected off the walls, floor and ceiling before reaching your ears. Only a small amount of sound energy travels to you directly.



Conventional speakers send most of their sound directly into the room, like a flashlight beam, giving you full stereo only in a small area.



Bose Direct/Reflecting® speakers re-create a natural balance of direct and reflected sound, approaching the open spaciousness of a live performance, giving you full stereo anywhere you sit in the listening area.

Hearing is believing.

We invite you to compare the 901 loudspeaker with any other, regardless of size or price. For the name of your nearest Bose dealer or for more information, call:

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(1-800-444-2673) Monday - Friday, 8:30 AM - 9 PM ET

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Better sound through research.

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Wooler Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low Cutoff? (Wooler W. Midrange - W. Tweeter - 1, Super Tweeter - ST)	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
ELECTRO-VOICE	Sentry 100A Monitor	B4 Vented	8			1½	Dome	T	45-18 ±3	91	2k	6/4.5	17 x 12 x 11	Black Vinyl	Gray Knit	28	317.00	
	Sentry 100EL Monitor	Powered B4 Vented	8			1½	Dome	T	45-18 ±3	Inc.	2k	30k/10k/8/6	17 x 12 x 12	Black Vinyl	Gray Knit	33	659.00	
	Sentry 500 Monitor	B4 Vented	12			1½	Dome	T	40-18 ±3	96	1.5k	8/6	24 x 27 x 13	Black Vinyl	Gray Knit	70	627.00	
	Sentry 505 Monitor	B4 Vented	12			1½	Dome	T	40-18 ±3	96	1.5k	8/6	19 x 26 x 19	Black Vinyl	Gray Knit	60	627.00	
EMINENT TECHNOLOGY	LFT-III	Planar Mag.	441 Sq. In.	126 Sq. In.	Planar Mag.	21 Sq. In.	Planar Mag.	M,T	35-20 ±4	83	100	400,7k	4/3.7	59 x 27 x 12	Oiled Oak	Black Poly	95	3250.00
	LFT-IV	Planar Mag.	214 Sq. In.	63 Sq. In.	Planar Mag.	21 Sq. In.	Planar Mag.	T	45-20 ±4	80	100	400,7k	8/7	61 x 18 x 12	Oiled Oak	Black Poly	60	1850.00
	LFT-VI	Planar Mag.	321 Sq. In.	94 Sq. In.	Planar Mag.	10 Sq. In.	Planar Mag.	M,T	38-20 ±4	83	100	400,10k	6/4	78 x 18 x 2	Oiled Oak	Black Poly	90	2900.00
	LFT-VIII	Planar Mag. Hybrid	8 Sq. In.	160 Sq. In.	Planar Mag.	5 Sq. In.	Planar Mag.	T	36-20 ±4	84	75	180,10k	8/6	60 x 13 x 18	Oiled Oak	Black Poly	60	1500.00
ENERGY	Veritas		(2)8	(2)6½		¾	Dome		30-23 ±3	85	100	1.9k	6/4	60 x 15 x 15	Gray Gloss Opt., Wood	Black	156	6000.00
	22.3	Vented	(2)6½			¾	Dome		30-23 ±3	87.5	50	1.9k	6/4	40 x 10 x 16	Opt., Wood	Black	67	2000.00
	22.2	Vented	7			¾	Oome		32-23 ±3	86	50	1.9k	6/4	27 x 10 x 12	Opt., Wood	Black	45	1400.00
	22.1	Vented	6½			¾	Oome		40-23 ±3	85	50	1.9k	6/4	16 x 10 x 12	Opt., Wood	Black	27	1000.00
	5.1e	Vented	(2)7			1	Dome		35-20 ±3	89	40	2.1k	6/4	33 x 10 x 16	Opt.	Black	55	1000.00
	4.1e	Vented	7			1	Dome		35-20 ±3	87	40	2.1k	6/4	24 x 10 x 12	Opt.	Black	36	750.00
	3.1e	Vented	8			¾	Oome		40-20 ±3	87	30	2.3k	6/4	19 x 10 x 10	Opt.	Black	22	450.00
	2.1e	Vented	6½			¾	Oome		45-20 ±3	86	30	2.3k	6/4	16 x 10 x 10	Opt.	Black	18	300.00
	1.1e	Vented	5¼			¾	Dome		55-20 ±3	86	30	2.6k	6/4	12 x 7 x 8	Opt.	Black	9	200.00
	ENSEMBLE	Reference	Pas. Rad.	5			¾	Dome		60-20 ±2	90	25	2.5k	4/3.2	9 x 9 x 14	Opt.	Opt., Knit	16
PA-1		Pas. Rad.	5			¾	Dome		60-20 ±2.5	89	25	2.5k		9 x 9 x 14	Opt.	Opt., Knit	15	2640.00
EPI	70, Series 2	Air Sus.	6½			2	Dome		65-20	90	20	3k	/5	15 x 10 x 7	Text. State Ven. Cloth	Gray Knit	24 Pair	168.00
	100, Series 2	Air Sus.	8			1	Dome		60-20	91	20	3.5k	8/8	20 x 12 x 9	Text. State Ven. Cloth	Gray Knit	37 Pair	249.00
	110, Series 2	Air Sus.	6½			2	Dome		65-20	90	20	3k	/5	22 x 14 x 4	Text. State Ven. Cloth	Opt., Knit	31 Pair	299.00
	120, Series 2	Ported	8	5	Cone	1	Dome		45-20	91	20	1k,5k	8/7	30 x 11 x 9	Text. State Ven. Cloth	Gray Knit	51 Pair	399.00
	150, Series 2	Ported	10	5	Cone	2	Dome		40-20	92	20	1k,5k	8/6.3	38 x 16 x 11	Text. State Ven. Cloth	Gray Knit	66 Pair	499.00
EPIK MONITOR SYSTEMS	LSM	Trans. Line Sat. & Powered Subwoof.	10, 6½	(2)6½	Cer.	(8)1½	Inv. Oomes		28-18 ±3	91	60	250	4/3	52 x 12 x 29	Opt., Wood	Black Knit	145	4495.00
	Coherent Monitor	Trans. Line Aperiodic	(4)10		Cones	(3)1½	Inv. Oomes		22-18 ±3	91	75	100,2.5k	4/3	Four Pieces	Opt., Wood	Black Knit	1200 Sys.	11,000.00
	Micro Monitor	Powered Trans. Line Subwoof.	6½		Cone	1½	Inv. Oome		35-18 ±3	88	75	2.5k	8/6	42 x 12 x 11	Opt., Wood	Black Knit	90	1295.00
	Tower Monitor	Powered Trans. Line Subwoof.	(2)6½	3	Dome	1½	Inv. Oome		100-18 ±3	88	75	380,3.8k	8/6	20 x 20 x 60	Opt., Wood	Black Knit	225	6500.00
EPOS	ES14	Inf. Bal.	8			1	Dome		36-20 ±3	86	35		8/7	20 x 19 x 12	Opt., Wood	Black Foam	25	1245.00
																		Pair; w/out Grilles, 1195.00
ESS	PS 620 Mini Monitor	Pas. Rad.	5¼			1½	Dome		60-20 ±5	86.5	10	2.5k	8/3	8 x 7 x 12	Oiled Wal.	Black Knit	9	158.00
	PS 820	Pas. Rad.	6			10½ Sq. In.	Heil AMT	No	42-23 ±1	89	5	2k	6/4	10 x 10 x 18	Black Vinyl	Black Knit	27	356.00
	PS 920	Pas. Rad.	8			10½ Sq. In.	Heil AMT	T	38-23 ±1	91	5	2k	6/4	12 x 11 x 22	Black Vinyl	Black Knit	37	438.00
	PS 1020	Pas. Rad.	10			10½ Sq. In.	Heil AMT	T	32-23 ±1	92	10	1.6k	6/4	14 x 13 x 25	Black Vinyl	Black Knit	44	498.00
	PS 1220	Pas. Rad.	12	4	Cone	10½ Sq. In.	Heil AMT	M,T	28-23 ±1	93	10	380,2k	6/4	14 x 12 x 34	Black Vinyl	Black Knit	65	598.00
	AMT 10	Pas. Rad.	10			21½ Sq. In.	Heil AMT	M,ST	35-23 ±3	91	35	800	6/3	16 x 16 x 35	Oiled Wal.	Black Knit	85	1150.00
	AMT Monitor	Pas. Rad.	12			21½ Sq. In.	Heil AMT	M,ST	35-23 ±3	91	35	800	6/3	12 x 19 x 41	Oiled Wal.	Black Knit	114	1250.00

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on Page 439

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Speaker Level Contact Woofer W. / Midrange M. / Tweeter T. / Superwoofer ST		Analogic Frequency Response, Hz to kHz, ± dB		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts Ch.		Impedance, Ohms: Nominal / Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
ESSENCE	Amethyst Gem	Trans. Line	6 1/2			1	Dome		38-21 ± 3	89	20	2k	6/4	10 x 13 x 20	Opt., Wood	Opt., Cloth	34	985.00										
	Amethyst 30	Trans. Line	6			1	Dome		32-21 ± 3	90	30	2k	8/6	10 x 14 x 33	Opt., Wood	Opt., Cloth	80	2185.00										
	Amethyst 10A	Trans. Line	9	6.2 1/4	Cone, Dome	1 3/4	Domes		24-23 ± 3	90	60	80,200, 2k, 6.5k Adj.	8/6	15 x 25 x 51	Opt., Wood	Opt., Cloth	240	12,000.00										
	Topaz Subwoofer	Trans. Line Subwoof.	6						28-300 ± 2	90	50		8/6	10 x 14 x 33	Opt., Wood	Opt., Cloth	90	2185.00										
	Reference Subwoofer	Trans. Line Subwoof.	(2)11						16-100 ± 1	90	150	Adj.	8/6	16 x 16 x 72	Opt., Wood	Opt., Cloth	300	15,000.00										
EURDSTAT	Mondrian	Thiele-Small QB3	9	3	Dome	3/4	Dome		38-22	88	50	600,3.8k	8/6.3	13 x 14 x 26	Black	Black	52	3600.00										
FIDELUS	903FL	Slot Loaded Port Subwoof.	9	5	Cone	1 1/4	Dome	No	30-22 ± 3	89	50	250,6.5k	8/5	13 x 14 x 48	Oiled Oak	Opt.	80	1995.00										
	Contra-Bass		12						16-100 ± 3	90	50	Ext.	8/4	22 x 22 x 48	Oiled Oak	None	175	1295.00										
FISHER	WS-462		6 1/2			3								7 x 9 x 12	Black Wood	Black Mesh		79.95										
	STV-420M		12	4		3								13 x 10 x 30	Oiled Oak	Black Knit		159.95										
FMS	Studio 2	Aperiodic	8			1 1/8	Dome		40-25 ± 3	90	25	1.8k	5/4	12 x 13 x 24	Opt.	Opt.	70	4900.00										
FOCUS	.5 Series II	Tuned Port	8			1	Dome		45-20 ± 2	90	30	2.5k	8/6.4	12 x 12 x 19	Opt.	Black Foam	55	650.00										
	.7 Series II	Tuned Port	8			1	Dome		37-20 ± 2	90	30	2.5k	8/6.4	12 x 12 x 28	Opt.	Black Foam	38	880.00										
	High Definition Monitor	Tuned Port	8			1 1/4	Dome		32-20 ± 2	87	30	2k	8/6.4	12 x 12 x 47	Opt.	Black Foam	66	1450.00										
FOSGATE-AUDIONICS	AS803	In-Wall Inf. Baf.	(2)8	8	Cone	1	Dome	T	38-22	89	20	2.5k	4/3	14 x 56 x 4			60	1599.00										
	AS802	In-Wall Inf. Baf.	8			1	Dome	T	48-22	89	20	2.5k	8/6	14 x 28 x 4			33	999.00										
	AS602	In-Wall	6			1	Dome	T	75-22	87	10	3k	8/6	12 x 9 x 4			12	425.00										
	AS502	In-Wall	5			1	Dome	T	85-18	87	10	3k		11 x 8 x 3			10	350.00										
FOSTEX	H1	Bass Ref.	6 1/2			1	Planar		60-40 ± 5	89	25	6k	8/6	8 x 17 x 8	Black Wal.	Black Knit	28	299.00										
	H2	Bass Ref.	8			1	Planar		50-40 ± 5	70	25	5k	8/6	10 x 22 x 10	Black Wal.	Black Knit	40	399.00										
	H3	Bass Ref.	(2)8			1	Planar		45-40 ± 5	73	25	4.5k	4/3	11 x 32 x 11	Black Wal.	Black Knit	70	499.00										
	SW112	Sat. & Subwoof.	12	4	Cone	1	Dome		40-40 ± 5	95	25	250,4k	8/5	Three Pieces	Black Wal.	Black Knit	50	599.00										
	RM800	Coaxial	6 1/2				Planar	T	55-25	89	25	7k	8/6	9 x 15 x 9	Black Matte	Black Knit	30	7k										
	RM900	Bass Ref.	8			2	Planar	T	50-23	92	25	7k	8/6	10 x 18 x 10	Black Wal.	Black Knit	38	798.00										
	RM1000	Coaxial	12			3	Planar	T		93	25		8/	15 x 25 x 12	Black Wal.	Black Knit	45	500.00										
	LS2	In-Wall	12		Compr.		Compr.								Wal. Ven.	Wal. Opt.		3300.00										
	LS3	In-Wall	(2)15		Compr.		Compr.								Wal. Ven.	Opt.		4000.00										
	LS4	In-Wall	12, (2)15		Compr.		Compr.								Wal. Ven.	Opt.		6000.00										
SH2020	In-Wall	8				Dome		48-20			2.5k		9 x 12	White	White Metal		195.00											
SH2510	In-Wall Subwoof.	6				Dome		32-250					11 x 11	White	White Metal		250.00											
FRIED PRODUCTS	O/4	Line Tun.	8			1	Dome		37-20 ± 3	89	25	3k	8/5	20 x 11 x 9	Opt.	Black Cloth	46	490.00										
	A/3a	Line Tun.	8			1	Dome		32-20 ± 3	89	25	2.8k	8/5	23 x 13 x 10	Wal. Ven.	Black Cloth	35	680.00										
	D/2	Trans. Line Subwoof.	8						28-99 ± 3	90	20	99	8/6.3	36 x 11 x 15			80	650.00										
	O/4	Trans. Line Subwoof.	8						23-99 ± 3	91	20	99	8/6.3	36 x 14 x 23			105	750.00										
	R/4	Trans. Line & Line Tun.	10	5	Cone	1	Dome	T	38-18 ± 3	90	25	250,3k	8/5	32 x 12 x 13	Wal.	Black Cloth	35	1195.00										
	C/3L	Trans. Line	6 1/2			3/4	Dome		50-22 ± 3	91	20	2.7k	8/6.3	11 x 14 x 15	Opt.	Black Foam	35	1450.00										
	G/3	Trans. Line	10	6 1/2	Cone	3/4	Dome		23-22 ± 3	91	20	99,2.7k	8/6.3	18 x 16 x 44	Wal.	Black Foam	100	2660.00										
	Beta	Pressure Release	6 1/2			2 1/2	Cone/Dome		60-20 ± 3	87	20	2k	8/6	8 x 8 x 14	Opt., Vinyl	Black Knit	30	340.00										
	The Subwoofer	Line Tun. Subwoof.	10						32-90 ± 3	89	20	90	8/6	15 x 12 x 24	Opt., Vinyl	Black Knit	35	350.00										
	Studio IV	Line Tun.	8			3/4	Dome		26-22 ± 3	90	20	2.7k	8/6	12 x 18 x 39	Oiled Wal.	Black Foam	80	1560.00										

“...an extraordinary achievement in speaker-making.”

—Larry Archibald, stereophile June 1990 Vol. 13 No. 6

The THIEL CS5

The THIEL CS5 loudspeaker system is a precision instrument uncompromisingly engineered to provide the most realistic music reproduction possible.

It provides extreme accuracy of tonality, spatial imaging, dynamic range and clarity of musical detail. The CS5 enables you to experience all of the music's subtle nuances, every delicate shading of musical timbre, and a natural, three-dimensional spaciousness... a feeling of complete musical realism. We invite you to audition them with the music you love most.



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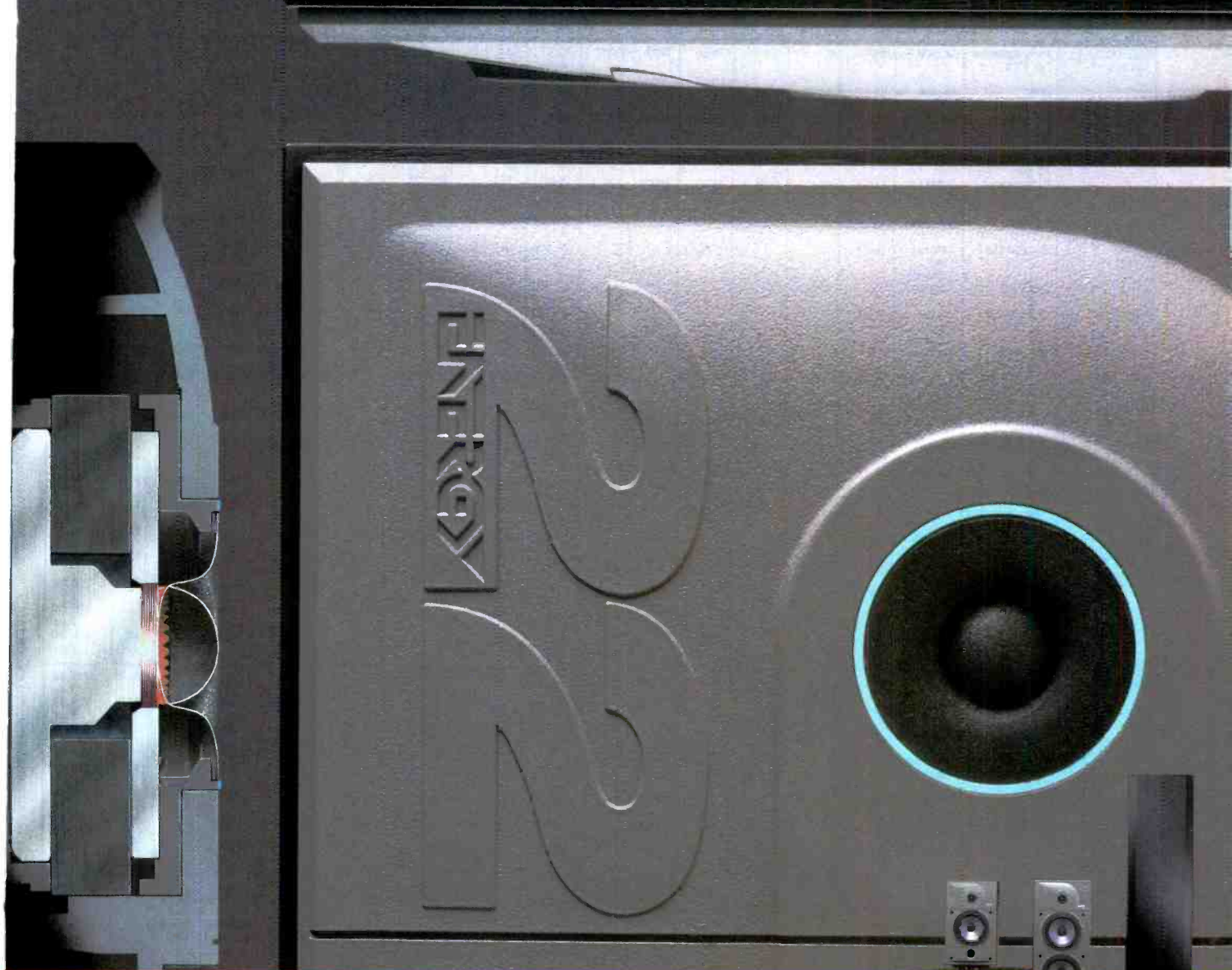
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls	Woofer W. Midrange - M., Tweeter - T., Super-tweeter - ST	Angular Frequency Response, Hz to Hz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
GC ELECTRONICS	30-3500	In-Wall	5¼		Cone	1	Dome	W,T		50-20 ±3	90	35	2.8k		8 x 11 x 2	White Plast.	White Metal	3½ Pair	87.50 Pair
GEMINI	MB-150				(5)3		Piezos			4-30 ±3		5	8/3	5 x 19 x 8	Gray Ozite		9	129.95	
	MB-160			4x10	Horn	(5)3	Piezos			3-30 ±3		5	8/3	5 x 19 x 8	Gray Ozite		10	149.95	
	MB-350		10	4x10	Horn					32-18 ±3		5	8/3	21 x 14 x 10	Gray Ozite		27	189.95	
	MB-360		12	4x10	Horn					40-16 ±3		5	8/3	25 x 16 x 12	Gray Ozite		33	209.95	
	MB-365		12	4x10	Horn	(3)3	Piezos			40-16 ±3		5	8/3	25 x 16 x 12	Gray Ozite		34	239.95	
	MB-410		15			(3)3	Piezos			40-15 ±3		5	8/3	29 x 19 x 14	Gray Ozite		52	289.95	
	MB-415		15	4x10	Horn	(3)3	Piezos			40-15 ±3		5	8/3	29 x 19 x 14	Gray Ozite		54	329.95	
	MB-425		15	15x7	Horn	(3)3	Piezos			40-15 ±3		5	8/3	29 x 19 x 14	Gray Ozite		52	399.95	
	MB-475		15	4x10	Horn	(2)3	Piezos			40-15 ±3		5	8/3	33 x 24 x 16	Gray Ozite		83	399.95	
	MB-550		(2)15	4x10	Horn	(4)3	Piezos			30-16 ±3		10	8/3	44 x 24 x 16	Gray Ozite		90	479.95	
	MB-560		(2)15	15x7	Horn					30-16 ±3		10	8/3	44 x 24 x 16	Gray Ozite		98	499.95	
MB-565		(2)15	15x7	Horn	(5)3	Piezos			30-16 ±3		10	8/3	44 x 24 x 16	Gray Ozite		101	549.95		
GNP	1	Sealed Subwoof.	8							40-125 ±3	89	20	125	4/3	25 x 12 x 12	Opt.	Black Knit	36	450.00 Pair
	2	Sealed Subwoof.	(2)6½							34-125 ±3	90	30	125	12/10	25 x 12 x 15	Opt.	Black Knit	48	600.00 Pair
	05	Sealed Sat.		5¼	Cone	1	Dome	T		100-20 ±3	89	10	3k	4/3	11 x 7 x 6	Opt.	Black Knit	19 Pair	329.00 Pair
	10	Sealed Sat.	6½			1	Dome	T		68-20 ±3	90	10	3k	8/6	12 x 8 x 7	Opt.	Black Knit	30 Pair	399.00 Pair
	25	Sealed Sat.	6½	2	Dome	1	Dome	M,T		58-20 ±3	90	20	800,3k	8/6	18 x 9 x 9	Opt.	Black Knit	48 Pair	799.00 Pair
	Valkyrie Series IV	Sealed	(2)6½	2	Dome	1	Dome	M,T		34-20 ±3	90	50	125,800,3k	12/10	Three Pieces Per Side	Opt.	Black Knit	78 Side	2295.00 Sys.
GOLOMUND	Dialogue	Tuned Port	7	7	Cone	1	Inv. Dome				96			4/	14 x 14 x 47	Black Lacq.	Black Knit	150	5990.00 Pair
	Analogue	Tuned Port	13	8	Cone	(2)1	Domes				95			4/	26 x 65 x 65	Black Lacq.	Black Knit	330	27,400.00 Pair
	Apologue	Inf. Baf.	(2)12	8	Cone	(2)1	Domes				100			4/	34 x 46 x 74	Black Lacq.	Black Knit	700	55,000.00 Pair
	Super Dialogue	Tuned Port	10	7	Cone	1	Inv. Dome				96			4/	50 x 14 x 18	Black Lacq.	Black Knit	170	9750.00 Pair
GOLO SOUND	GS.1	Ac. Sus.	5¼			¾	Dome			69-20 ±3	88	10	4k	8/4	12 x 8 x 7	Opt.	Opt.		Kit, 138.00 Pair
	GS.8	Symm. Array	(2)4½			1	Dome			61-20 ±3	89	10	3k	8/4	16 x 8 x 7	Opt.	Opt.		Kit, 288.00 Pair
	GS6	Symm. Array	(2)10	(2)5¼	Cones	1	Dome			34-30 ±3	92	10	150,5k	8/4	37 x 14 x 11	Opt.	Opt.		Kit, 849.00 Pair
	#14	Vented	18	10,8	Cone, Horn	5	Horn	M,T		28-21 ±3	98	5	100,1.2k, 5k	8/	46 x 29 x 19	Opt.	Brown Knit	392 Pair	Kit, 2249.00 Pair
	Kit #.2	Sealed	5¼			¾	Dome			68-20 ±3	91	5	3k	4/8	12 x 8 x 7	Opt.	Brown Knit	18 Pair	Kit, 169.00 Pair
	Kit #.6	Sealed	6½			1	Dome	T		58-20 ±3	92	5	3k	4/8	16 x 10 x 8	Opt.	Opt.	24 Pair	Kit, 198.00 Pair
	Kit #1	Vented	10			1¼	Dome	T		45-20 ±3	93	5	2k	4/8	25 x 14 x 11	Opt.	Opt.	58 Pair	Kit, 409.00 Pair
	Kit #2	Vented	8	4	Cone	1	Dome			45-30 ±3	91	5	90,300,4k	4/8	19 x 12 x 10	Opt.	Opt.	36 Pair	Kit, 359.00 Pair
	Kit #3	Vented	12	5¼	Cone	1	Dome			38-30 ±3	92	5	80,200,3k	4/8	25 x 14 x 11	Opt.	Opt.	69 Pair	Kit, 479.00 Pair
	Kit #4	Vented	12	(2)6	Cones	1	Dome			36-30 ±3	93	5	70,250,3k	4/8	37 x 14 x 11	Opt.	Opt.	128 Pair	Kit, 749.00 Pair
	Kit #5	Vented	15	7	Cone	1	Dome	M		28-30 ±3	95	5	60,250,3k	4/8	44 x 18 x 14	Opt.	Opt.	158 Pair	Kit, 989.00 Pair
	Kit #7	Vented	(2)12	7	Cone	1¼, 2x3	Dome, Ribbon	M,T		28-35 ±3	95	5	50,300, 3k,8k	4/8	44 x 18 x 14	Opt.	Opt.	232 Pair	Kit, 1289.00 Pair
	Kit #8	Vented	(2)12	(2)6	Cones	1	Dome			26-25 ±3	95	5	200,4k	4/8	44 x 18 x 14	Opt.	Opt.		Kit, 1489.00 Pair
	Kit #11	Vented	15	8	Cone	5x5	Horn	M,T		28-21 ±3	93	5	200,5k	8/	44 x 18 x 14	Opt.	Opt.	218 Pair	Kit, 1939.00 Pair

THE MILLION DOLLAR TWEETER.



ENERGY loudspeakers have become the personal favorites of discriminating audiophiles the world over. **O**ur Dual Hyperdome™ tweeter is the key reason why ENERGY recreates the original performance with uncompromised accuracy. **W**ith more than \$1 million in development, it exhibits better dispersion than any other tweeter on the market today. **T**hat's also why our new ENERGY 22-Series incorporates the revolutionary SPHEREX™ baffle. **I**ts smooth, sculpted surface angles gracefully out of the

way of direct radiated sound. **D**iffraction is eliminated for superior soundstage and positional imaging. **S**imply put, the ENERGY 22-Series defines a new standard in sonic precision. **T**ake a test drive today. **Y**our ears will thank you.



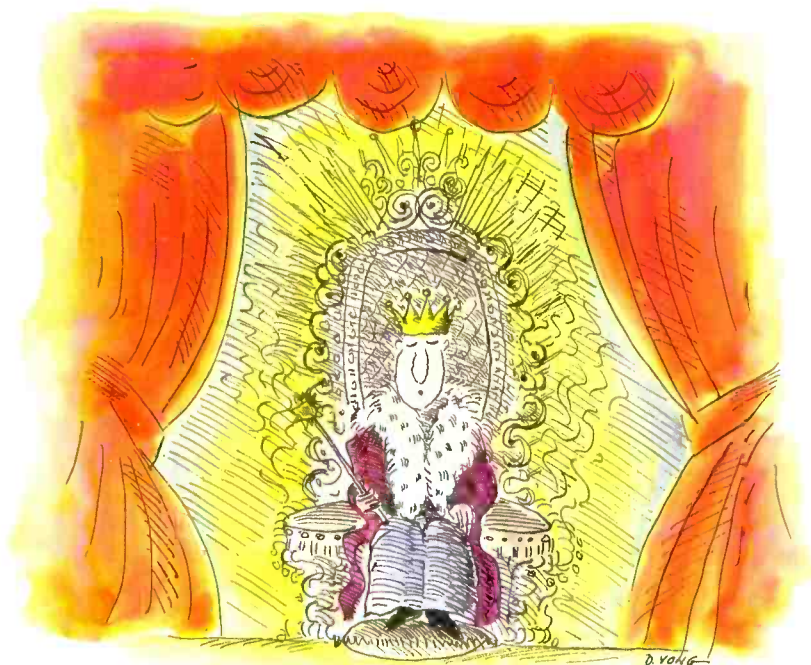
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls: Woofer W. Midrange M, Tweeter T, Superwoofer ST	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
GOLD SOUND (Continued)	Performance Pro 12 Kit	Sealed	12			3x7	Horn	T	45-21 ±3	95	5	3k	8/	20 x 16 x 15	Opt.	Black Metal	59 Pair	Kit, 119.00 Pair 249.00	
	M12	Sealed	12	7	Cone	3x7	Horn		39-21 ±3	95	5	500,5k	8/	25 x 14 x 12	Opt.	Black Metal	88 Pair	Kit, 249.00 Pair 399.00	
	Performance Pro 15 Kit	Vented	15	7	Cone	8x10, 3x7	Horns	M,T	39-21 ±3	98	5	400,5k	8/	44 x 18 x 14	Opt.	Black Metal	74 Pair	Kit, 399.00 Pair 1298.00	
	Performance Pro Double 15 Kit	Vented	(2)15	7	Cone	8x10, (2)3x7	Horns	M,T	38-21 ±3	100	5	400,5k	4/	46 x 24 x 21	Opt.	Black Metal	129 Pair	Kit, 1298.00 Pair 1499.00	
	Performance Pro Double 18 Kit	Vented	(2)18	10	Cone	8x10, 5x5	Horns	M,T, ST	29-21 ±3	101	5	200,2k, 10k	4	Two Pieces Per Side	Opt.	Black Metal	280 Side	Kit, 1499.00 Pair 198.00	
	GS12 Kit	Subwoof.	12							32-150 ±3	92	5	150	4.8	18 x 18 x 16	Opt.	Opt.	18	Kit, 198.00 Pair 299.00
	GS12(2) Kit	Compd. Load Subwoof.	(2)12							25-150 ±3	95	5	150	4.8	18 x 18 x 16	Opt.	Opt.	36 Pair	Kit, 299.00 Pair 338.00
	GS15 Kit	Subwoof.	15							32-150 ±3	94	5	150	4.8	44 x 18 x 14	Opt.	Opt.	20	Kit, 338.00 Pair 615.00
	GS15(2) Kit	Compd. Load Subwoof.	(2)15							24-150 ±3	97	5	150	4.8	44 x 18 x 14	Opt.	Opt.	40	Kit, 615.00 Pair 518.00
	JBL15 Kit	Subwoof.	15							28-150 ±3	96	5	150	8/	44 x 18 x 14	Opt.	Opt.	25	Kit, 518.00 Pair 798.00
	JBL15(2) Kit	Compd. Load Subwoof.	(2)15							23-150 ±3	99	5	150	8/	44 x 18 x 14	Opt.	Opt.	50	Kit, 798.00 Pair 1478.00
	JBL18 Kit	Subwoof.	18							28-150 ±3	95	5	150	8/		Opt.	Opt.	33	Kit, 788.00 Pair 1478.00
	JBL18(2) Kit	Compd. Load Subwoof.	(2)18							23-150 ±3	98	5	150	8/		Opt.	Opt.	66	Kit, 1478.00 Pair 199.00
	8C	In-Wall	8			1/4	Dome			40-25 ±3	92	5	4k	4/8		Opt.	Opt.	10	Pair 199.00 Pair 249.00
	8AC	In-Wall	8			2	Cone			32-20 ±3	92	5	3k	4/8		Opt.	Opt.	18	Pair 249.00 Pair 129.00
	GS10C	In-Wall Inf. Baf.	10			1	Dome	T		30-20 ±3	94	5	4k	8/4	10 Dia. x 5	Opt.	Opt.	12	Pair 169.00 Pair 229.00
	GS12C	In-Wall Inf. Baf.	12			1	Horn	T		25-20 ±3	94	5	3k	8/4	12 Dia. x 5	Opt.	Opt.	17	Pair 229.00 Pair 199.00
	GS15C	In-Wall Inf. Baf.	15			3x6	Horn	M,T		20-25 ±3	96	5	3k	8/4	15 Dia. x 6	Opt.	Opt.	20	Pair 199.00 Pair 249.00
824	In-Wall Subwoof.	8							32-2 ±3	92	5		4/8		Opt.	Opt.	16	Pair 249.00 Pair 249.00	
844	In-Wall Subwoof.	8							30-2 ±3	92	5		4/8		Opt.	Opt.	24	Pair 249.00 Pair 249.00	
GOODMANS	The Maxim II	Bass Ref.	5			3/4	Dome		65-20	86	15		8/	10 x 7 x 7	Black	Opt., Knit	9	249.00 Pair	
	Maxamp	Powered Bass Ref.	5			3/4	Dome		65-20	86	Inc.		8/	10 x 7 x 7	Black	Knit	11	329.00 Pair	
	B-Max	Trans. Line Subwoof.	(2)6						30-150	90	25	150	8/	24 x 8 x 9	Black	Knit	22	249.00 Pair	
	M-100	Bass Ref.	5			3/4	Dome		70-20	86	15		8/6	10 x 8 x 7	Black	Knit	9	189.00 Pair	
	M-300	Bass Ref.	6			3/4	Dome		60-20	15			8/6	15 x 9 x 7	Black	Knit	11	249.00 Pair	
	M-500	Bass Ref.	8			3/4	Dome		50-20	15			8/6	16 x 10 x 8	Black	Knit	14	349.00 Pair	
	HIM 110	Bass Ref.	8			1	Dome		60-20	98	10	4k	8/4	20 x 10 x 12	Black Ash	Knit	24	499.00 Pair	
	HIM 220	Bass Ref.	10			1	Dome	T	50-20	98	10	4k	8/4	30 x 13 x 16	Black Ash	Knit	44	699.00 Pair	
	HIM 440	Bass Ref.	12	4	Cone	1	Dome	M,T	40-20	98	10	1k,4k	8/4	35 x 15 x 17	Black Ash	Knit	66	899.00 Pair	
	HIM 880	Bass Ref.	15	8	Cone	1	Dome	M,T	30-20	98	10	500,4k	8/4	40 x 18 x 17	Black Ash	Knit	88	1299.00 Pair	
GOTT LABS	Studio	Ac. Sus.	5			1	Dome	T	85-20 ±3	87	20	2.7k	8/5	8 x 6 x 10	Wal.	Brown Cloth	15	158.00	
GUANCI ACOUSTICS	100	Sat. & Fifth Order Bandpass Subwoof.	6 1/2	(2)4 1/2	Cones	3/4	Dome		35-20 ±1.5	88	15	110,2k	4/3.8	Three Pieces	Oak	Black Knit	83 Sys.	1100.00 Sys.	
	200	Fifth Order Bandpass	8	(2)6 1/2	Cones	3/4	Dome		35-20 ±1.5	88	20	110,2k	4/3.8	37 x 16 x 11	Oak	Black Knit	59	1400.00 Sys.	
	300	Fifth Order Bandpass	8	(4)6 1/2	Cones	3/4	Dome		35-20 ±1.5	88	20	110,2k	4/3.8	37 x 16 x 11	Oak	Black Knit	68	1700.00 Sys.	
REUBEN GUSS	Custom Monitor System 1	Sat. & Inf. Baf.	(24)15	(48)5	Domes	(32)1, (100)3	Domes, Piezos	M,T	10-30 ±3	98	100	475,650, 950,3.5k	4/3	Eight Pieces	Opt.	Black Knit	2200 Sys.	100,000 Sys.	
	Monitor System 2	Sat. & Inf. Baf.	(12)15	(24)5	Domes	(16)1, (50)3	Domes, Piezos	M,T	15-30 ±3	98	50	475,650, 950,3.5k	8/6	Four Pieces	Opt.	Black Knit	1100 Sys.	50,000 Sys.	
	Symphony System 3	Sat. & Inf. Baf.	(4)15	(6)5	Domes	(4)1, (12)3	Domes, Piezos	M,T	20-30 ±3	96	50	475,650, 950,3.5k	4/3	Four Pieces	Oiled Wal.	Black Knit	355 Sys.	15,000 Sys.	
	Concerto System 4	Sat. & Inf. Baf.	(4)12	(6)5	Domes	(4)1, (8)3	Domes, Piezos	M,T	30-30 ±3	92	50	475,650, 950,3.5k	4/3	Four Pieces	Oiled Wal.	Black Knit	350 Sys.	9000.00 Sys.	
	Sonata	Sat. & Inf. Baf.	(2)12	(2)5	Domes	(2)1, (6)3	Domes, Piezos	M,T	30-30 ±4	88	50	600,3.5k	8/6	Four Pieces	Oiled Wal.	Black Knit	140 Sys.	4000.00 Sys.	

Real power
has always
been in
the hands of
the few.



Introducing the 300-watt mo



Adcom stereo components have a loyal and devoted following, having earned a reputation among audiophiles, engineers and musicians for extraordinary performance at affordable prices. Now Adcom introduces its newest amplifier, the no compromise GFA-565, for those in pursuit of absolute power and sonic perfection, but who prefer not paying a king's ransom.

The Evolution of Adcom's GFA-565
Adcom's new mono GFA-565 evolves from

the design of the critically acclaimed GFA-555, greatly extending its capabilities. Representing brute strength, it delivers 300 watts at 8 ohms, 450 watts at 4 ohms and an awesome 850 watts at 2 ohms.* Most significantly, it will accurately drive even esoteric loudspeakers which present loads as low as 1 ohm.

Inspired by the GFA-555, the new GFA-565's well-regulated, high-current power supply has an enormous reserve capacity to meet tremendous dynamic demands, resulting in distortion-free reproduction on a continuous basis.

Adcom GFA-565 no amplifier.



Why Use Two Mono Amplifiers?

The ability to deliver very high power into complex loads is a prerequisite for superior sound reproduction. Power supplies capable of delivering the energy necessary for high power, high-current amplifiers are massive. But there are practical limits to the size and weight of stereo amplifiers designed for home use, as well as heat dissipation and reliability constraints. Consequently, the use of two Adcom GFA-565 mono amplifiers offers optimum sound definition, detail and dynamics, satisfying even the most demanding perfectionist.

More Sound, Less Money

Like the GFA-555, the new Adcom GFA-565 sounds superior to amplifiers costing two and three times as much. It is so powerful and pure that it may be the last amplifier you ever buy, even if you upgrade your loudspeakers several times over the years. And that makes the GFA-565 an extraordinary bargain considering its exceptional performance.

**Continuous power output, 20 Hz - 20 kHz < 0.02% THD, measured in accordance with FTC specifications.*

(over please)

The Adcom GFA-565: details you can hear.

High-Current Output Stage

More and more of today's high performance loudspeakers exhibit very low impedances and particularly difficult loads. Many so-called esoteric amplifiers are incapable of delivering large amounts of undistorted power continuously into these complex loads thereby defeating the objectives of the loudspeaker's design.

The GFA-565's highly advanced, triple Darlington output stage featuring 20 rugged, discrete output transistors is designed to deliver extremely high-current at low impedances into reactive loads. No protection circuitry or current limiting devices

Specifications

Power output, watts/channel, continuous, 20 Hz - 20 kHz, <0.02% THD: 8 ohms/300
4 ohms/450
2 ohms/850

Signal-to-noise ratio, A-weighted, full output: >106 dB

Input impedance: 50,000 ohms

Input sensitivity:
For rated output: 2.15 V
For 1 watt: 130 mV

Damping factor (20 Hz - 20 kHz):
>1000 @ 8 ohms

Dynamic headroom (at 4 ohms):
1.6 dB

Voltage: 120 V/60 Hz (available in 220 V/50 Hz on special order)

Dimensions: 17" x 8 1/4" x 11 1/2" D
(432 mm x 210 mm x 292 mm D)

Shipping weight: 45 lbs (20.50 kg)

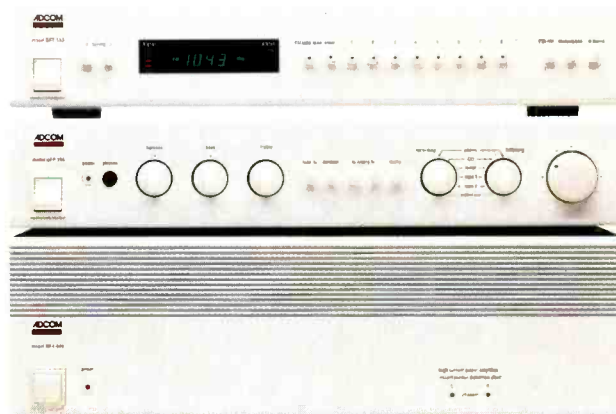
Available options:

565 FAN: Top mounted, automatically variable, ventilating fan.

565 BAL: Rear mounted, symmetrical (balanced line) input circuit.

RM-8 rack mount adaptors.

White front panel and switch.



*Adcom components are also available with white front panels.
Shown: GFA-545 with GFP-555 preamplifier
and GFT-555 AM/FM stereo tuner.*

are incorporated which would restrict the delivery of full power output. Protection against short term overloads, short circuits or long term, excessive output is achieved by non-interfering power supply fuses and thermal circuit breakers.

Well Regulated, High-Current Power Supply

Advancements in CD technology and the introduction of digital audio tape have created opportunities to reproduce the full dynamics and psychoacoustic experience of a live musical performance. To realize the full potential of this technology, amplifiers and loudspeakers must be capable of delivering tremendous energy continuously, not just for tiny fractions of a second.

The massive power supply of Adcom's GFA-565, featuring 70,000 microfarads of filter capacitance and a huge 1.25kVA toroidal power transformer, has enormous reserve power capability. This is a no compromise power supply that eliminates all audible

limitations. Hum, vibration and noise, the byproducts of lesser power supplies, have also been reduced to an absolute minimum. For most home applications, the optional variable speed cooling fan is unnecessary, making the GFA-565 a silent performer despite its formidable power.

Instantaneous Distortion Alert

A highly accurate LED on the front panel is activated by a unique monitor circuit if any form of distortion—THD, IM, TIM, SID, etc.—exceeds 1 percent. This will provide ample warning that the music system is being operated beyond its design parameters.

Ask for a Demonstration

No amount of words or technical specifications will adequately describe the experience of listening to a music system featuring a pair of Adcom GFA-565 amplifiers. If you are one of those few who are seeking real power and sonic perfection, please contact your authorized Adcom dealer for a demonstration of this most remarkable audio component.

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low Control? Woofer W Midrange: W, Tweeter: T, Super Tweeter: ST	Acoustic Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
HAFLER	200	Bass Ref.	6½			1	Dome		50-20	88	20	3k	4/4	8 x 10 x 14	Oak Ven.	Black Knit	40 Pair	450.00
	300	Tuned Trans. Line	(2)6½			1	Dome		40-20	91	20	2.5k	8/6	9 x 11 x 36	Oak Ven.	Black Knit	45	795.00
	400	Tuned Trans. Line	8	(2)6½	Cones	1	Dome		35-20	92	20	100,2.5k	8/6	10 x 12 x 41	Oak Ven.	Black Knit	60	1095.00
HALES AUDIO	System Two	Inf. Baf.	(2)7			1	Dome		45-26 ±3	89	50	2.5k	4/3	38 x 11 x 16	Opt.	Black Knit	98	2700.00
	System Two Signature	Inf. Baf.	(2)7			1	Dome		40-26 ±3	87	50	2.5k	4/3	48 x 11 x 21	Wal. Stain	Black Knit	362 Pair	4850.00
	System One	Inf. Baf.	10	2	Dome	½	Inv. Dome		34-31 ±3	50					Dpt.	Black Knit		Pair w/ Covers
HARMS LABS	Mini	Inf. Baf.	5¼			1	Dome		70-20 ±2	87	10	3k	8/7	13 x 9 x 6	Wal. Stain	Black Knit	24	280.00
	HL1	Pas. Rad.	5¼			1	Dome		45-20 ±2	87	10	3k	8/7	20 x 10 x 9	Wal. Stain	Black Knit	36	380.00
	HL1P	Pas. Rad.	6½			1	Dome		37-20 ±2	90	10	3k	8/7	22 x 10 x 10	Wal. Stain	Black Knit	44	480.00
	HL2	Pas. Rad.	8			1	Dome		30-20 ±2	91	10	3k	8/7	24 x 14 x 10	Wal. Stain	Black Knit	70	580.00
	HL3	Pas. Rad.	10	6½	Cone	1	Dome		26-20 ±2	90	10	300,3k	8/7	34 x 12 x 13	Wal. Stain	Black Knit	100	780.00
	HL4	Sat. & Pas. Rad. Subwoof.	12	(2)6½	Cones	(2)1	Domes		22-20 ±2	94	10	200,3k	8/4	Four Pieces	Wal. Stain	Black Knit	164 Sys.	1200.00
	HL5	Sat. & Pas. Rad. Subwoof.	(2)12	(4)5¼	Cones	(4)1	Domes		18-20 ±2	97	10	150,3k	8/4	Six Pieces	Wal. Stain	Black Knit	230 Sys.	3000.00
	Small Subwoofer	Pas. Rad. Subwoof.	10						To 150 ±3	91	30	125	4/4	25 x 14 x 10	Wal. Stain	Black Knit	38	249.00
Large Subwoofer	Pas. Rad. Subwoof.	12						To 150 ±3	94	50	125	4/4	32 x 17 x 13	Wal. Stain	Black Knit	53	399.00	
HARTLEY PRODUCTS	Compact Reference	Air Col.	6½			1	Dome	No	45-25 ±4	87	10	5k	8/6	12 x 12 x 16	Opt., Wood	Black Knit	30	400.00
	Reference Tower	Air Col.	(4)6½			(4)1	Domes	No	24-25 ±3	95	5	3.6k	5/4	18 x 18 x 45	Opt., Wood	Black Knit	100	1500.00
	Reference Mini-Tower	Air Col.	(2)6½			1	Dome	No	32-25 ±3	93	5	3.1k	5/4	33 x 12 x 12	Oiled Oak	Black Knit	50	660.00
	Concertmaster	Inf. Baf.	18	10	Cone	(2)7	Cones	No	16-25 ±3	92.5	25	125,3k,8k	8/5	29 x 18 x 42	Oiled Wal.	Black Knit	350 Pair	3995.00
	Reference	Inf. Baf.	24	10	Cone	(2)7	Cones	No	16-25 ±3	93	25	125,3k,8k	8/5	36 x 24 x 50	Oiled Wal.	Black Knit	600 Pair	5195.00
	SW-10	Air Col. Subwoof.	10					No	25-3.8 ±3	93	15		8/6	18 x 18 x 24	Oiled Wal.	Black Knit	70	525.00
	SW-18	Inf. Baf. Subwoof.	18					No	16-350 ±4	92.5	25		5/4	29 x 18 x 42	Oiled Wal.	Black Knit	150	990.00
	SW-24	Inf. Baf. Subwoof.	24					No	16-250 ±3	93	25		5/4	36 x 24 x 50	Oiled Wal.	Black Knit	250	1295.00
HECO	Superior 620	Inf. Baf.	7			¾	Dome		35-35	87	20	3k	4/	13 x 9 x 9	Opt.	Opt.		799.00
	Superior 740	Inf. Baf.	7	7	Cone	¾	Dome		28-35	88	40	150,3k	4/	34 x 9 x 10	Opt.	Opt.		1250.00
	Superior 840	Inf. Baf.	(2)8	5	Cone	¾	Dome		24-35	88	60	250,2.5k	4/	38 x 10 x 11	Opt.	Opt.		1700.00
	Superior 940	Inf. Baf.	(2)9	5	Cone	¾	Dome		20-35	88	60	250,2.5k	4/	43 x 10 x 13	Opt.	Opt.		2000.00
	Superior 1040	Inf. Baf.	(2)10	7	Cone	¾	Dome		18-35	88	75	150,3k	4/	50 x 12 x 14	Opt.	Opt.		3000.00
	Interior Plus 202	Inf. Baf.	6			¾	Dome		38-30	87	20	3k	4/	15 x 9 x 9	Opt.	Opt.		499.00
	Interior Plus 303	Inf. Baf.	(2)5½			¾	Dome		35-30	87	25	3k	4/	18 x 9 x 10	Dpt.	Opt.		699.00
	Interior Plus 404	Inf. Baf.	(2)6			¾	Dome		28-30	88	30	3k	4/	22 x 10 x 12	Opt.	Opt.		799.00
	Interior Plus 505	Inf. Baf.	6	6	Cone	¾	Dome		25-30	88	40	120,3k	4/	34 x 10 x 11	Opt.	Opt.		999.00
HEYBROOK	Point Fives	Inf. Baf.	6½			¾	Dome		50-20 ±3	87	15	4k	8/6	8 x 8 x 14	Black	Black Knit	28	339.00
	Solo	Inf. Baf.	6½			1	Dome		42-20 ±3	89	10	3k	8/6	9 x 9 x 15	Black	Black Knit	30	449.00
	HB-100	Inf. Baf.	8			1	Dome		42-20 ±3	89	10	4k	8/6	11 x 13 x 19	Opt.	Black Knit	39	649.00
	HB-150	Tuned Bass Ref.	6½			1	Dome		40-22 ±3	89	10	4k	8/6	8 x 8 x 16	Opt.	Black Knit	30	799.00
	HB-200	Tuned Bass Ref.	6½			1	Dome		34-20 ±3	89	10	3k	8/6	8 x 8 x 18	Opt.	Black Knit	36	999.00
	HB-3	Inf. Baf.	10	4½	Cone	¾	Dome		35-20 ±3	89	10	1k,5k	6/8	14 x 12 x 24	Opt.	Black Knit Foam	48	1598.00
HIGH BISCUIS	Kevin Ingram One	Vented	(6)7	28x13	Horn	5¼x 5¼	Horn, Leaf		40-85	94		600,3.5k, 12k	8/1	68 x 28 x 32	Mahog	None	130	1350.00

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Sensitivity		Impedance, Ohms		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Nominal	Minimum	Length	Width	Height						
HIGH TECH ASPIRIN/CIZEK	21	Sealed	6½	1½	Cone	¾	Dome	T	58-20 +1.5, -2	88	15	800,5k	4/3.5	19 x 10 x 5	Dpt.	Cloth	19	368.00			
	1	Ac. Sus.	12	1½	Cone	¾	Dome	T	30-20 +1.5, -2	88	20	800,5k	4/3.5	25 x 16 x 12	Opt.	Cloth	47	488.00			
	234	Subwoof.	12						27-100 +1.5, -3	88	20	80	4/3.5	20 x 15 x 12	Opt.	Cloth	37	548.00			
	117	Subwoof.	8						42-125 +1.5, -3	88	15	100	4/3.5	10 x 12 x 10	Opt.	Cloth	20	348.00			
	.5	Sat. & Subwoof.	12	3¼, 1½	Cones	¾	Dome	T	27-20	88	15	80,800, 5k	4/3.5	Three Pieces	Opt.	Cloth	59 Sys.	988.00			
HIGHWOOD AUDIO	Aria	Planar Dipole							40-20 ±3	86	50		4/4	60 x 30 x 3	Oak	Black Knit	70	2895.00			
ICON ACOUSTICS	Parsec	Bass Ref.	10	6½	Cone	1	Dome		25-22 ±3	87	50	350,1.5k	8/6	12 x 16 x 47	Opt.	Black Knit	93	1495.00			
	Lumen	Bass Ref.	6½			1	Dome		55-22 ±3	87	20	1.5k	8/6	10 x 11 x 18	Opt.	Black Knit	26	695.00			
INFINITY	IRS Series V	Servo	(12)12	(24) 4x6	EMIMs	(72) ½x2	EMITs	M, T, ST	16-44 ±2	87	108	70,5k	4/3	Four Pieces	Santos	Brown Cloth	1550 Sys.	50,000.00			
	IRS Beta	Servo	(8)12	(4) 16x8, (2) 4x6	L-EMIMs, EMIMs	(4) ½x2, (2) ½x1 ½	EMITs, SEMITs	M, T, ST	25-44 ±2	87	75	70,700, 4k, 8k	4/3	Four Pieces	Santos	Black Cloth		11,950.00			
	RS1001	Sealed Box	4½				Dome		70-22 ±3	89	8	4.5k	6/	13 x 8 x 6	Vinyl	Black		170.00			
	RS2001	Sealed Box	6½			¾	Dome		55-22 ±3	89	15	4.8k	6/	14 x 9 x 7	Vinyl	Black		238.00			
	RS3001	Sealed Box	8			¾	Dome	T	45-22 ±3	89	20	4k	6/	21 x 12 x 9	Vinyl	Black		398.00			
	RS4001	Sealed Box	8	2	Dome	¾	Dome	T	44-22 ±3	89	25	600,4k	6/	23 x 12 x 9	Vinyl	Black		538.00			
	RS5001	Sealed Box	8	2	Dome	2	Dome	M, T	42-45 ±3	89	25	600,4.2k	6/	31 x 12 x 9	Vinyl	Black		738.00			
	RS6001	Sealed Box	(2)8	2	Dome	2	Dome	M, T	42-45 ±3	89	35	600,4.2k	6/	37 x 12 x 9	Vinyl	Black		1058.00			
	RS Subwoofer	Subwoof.	10					W	30-200 (Var.)			50-200 (Var.)		23 x 13 x 10	Black Vinyl			600.00			
	RS 9 Kappa	Sealed Box	(2)12	3	Dome		EMIT K	M, T	29-45	89	60	80,800, 4.5k	4/2	60 x 22 x 8	Black			2998.00			
	RS 8 Kappa	Sealed Box	12	3	Dome		EMIT K	M, T	33-45	89	50	80,800, 4.5k	4/2	48 x 21 x 8	Black			1998.00			
	RS 7 Kappa	Sealed Box	12	3	Dome		EMIT K	M, T	37-45	88	40	800,4.5k	4/4	37 x 17 x 12	Black			1398.00			
	RS 6 Kappa	Sealed Box	10	3	Dome		EMIT K	M, T	39-45	88	30	800,4.5k	4/4	25 x 15 x 11	Black			998.00			
	RS 5 Kappa	Sealed Box	6½				EMIT K	T	50-45	86	25	3.5k		17 x 11 x 10	Black			798.00			
	SM 152	Ported	15	(2)4½	Cones	1	Dome	M, T	44-25 ±3	102	10	500,5.5k	8/	40 x 18 x 13	Vinyl	Black		1198.00			
	SM 122	Ported	12	4½	Cone	1	Dome	M, T	49-25 ±3	100	10	750,5.5k	8/	35 x 15 x 13	Vinyl	Black		918.00			
	SM 112	Ported	10	4½	Cone	1	Dome	T	59-25 ±3	100	10	900,5.5k	8/	30 x 14 x 13	Vinyl	Black		738.00			
	SM 102	Ported	10			1	Dome		65-25 ±3	100	10	3.3k	8/	21 x 12 x 12	Vinyl	Black		538.00			
	SM 82	Ported	8			1	Dome		72-25 ±3	98	10	2.8k	8/	18 x 11 x 11	Vinyl	Black		438.00			
	ERS800	In-Wall	8				EMIT	T	45-45	89	20	3.5k	4/3.5	16 x 11 x 4	Beige ABS	Beige Metal		600.00			
	ERS600	In-Wall	6			¾	Dome	T	55-22	89	15	4.4k	4/4	18 x 9 x 4	Beige ABS	Beige Metal		350.00			
ERS500	In-Wall	5¼			1	Cone		70-20	8	8	5k		8 x 8 x 3	Beige ABS	Beige Metal		275.00				
Modulus	Sealed Box	5				EMIT	T	82-45 ±3	84	25	4k	4/4	12 x 7 x 11	Dpt., Lacq.	Black Knit		1000.00				
Modulus Subwoofer	Subwoof.	12					W	22-200 +0,-3			Var.		19 x 18 x 18	Piano	Black		2000.00				
INTEGRAL AUDIO	Point Source 1	Pas. Rad.	10	6½	Cone	1	Dome		42-20 ±3	92	20	100,3k	4/3	16 x 12 x 10	Gloss Black	Black Knit	25	495.00			
	Point Source 2	Air Sus.	12	(2)6½	Cones	1	Dome		32-20 ±3	93	30	150,3k	4/4	42 x 16 x 10	Gloss Black	Black Knit	70	895.00			
INTERSONICS	Contra Bass	Servo Subwoof.	(2)15						16-100 ±1	90	300	80-100	4/2	18 x 23 x 37	Opt.	Black	120	2160.00			
ISLAND AUDIO	IA-700	Bass Ref.	(2)6½			(2)1	Domes	No	55-20 ±3	92	25		4/	8 x 8 x 27	Oiled Oak	Black Knit	27	675.00			
	IA-800	Pas. Rad.	8			1	Dome	No	40-20 ±3	90	25		8/	11 x 11 x 19	Diled Oak	Black Knit	23	775.00			
	IA-600	Pas. Rad.	12	1¼	Dome	(2)1	Domes	No	32-22 ±3	90	25		8/	14 x 13 x 32	Oiled Oak	Black Knit	58	1200.00			
	IA-850	Bass Ref.	12	1¼	Dome	(2)1	Domes	No	28-22 ±3	91	25		8/	15 x 12 x 25	Oiled Oak	Black Knit	45	1350.00			
	Islander	Sealed, Outdoor	6½			1	Dome	No	55-20 ±5	89	50		4/	7 x 7 x 27	Matte Black	Wire Mesh	20	800.00			
	Islander	Sealed, Outdoor	6½			1	Dome	No	55-20 ±5	89	50		4/	7 x 7 x 31	Matte Black	Wire Mesh	25	1200.00			
	Light	Sealed, Outdoor	6½			1	Dome	No	55-20 ±5	90	25		8/	8 x 8 x 13	Oiled Oak	Black Knit	12	400.00			
	IA-100R	Pas. Rad.	6½			1	Dome	No	49-20 ±3	90	25		8/	8 x 8 x 13	Oiled Wal.	Black Knit	12	475.00			

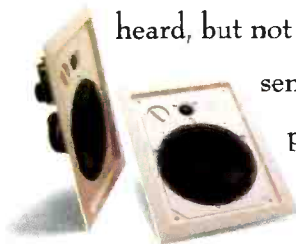
LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type				Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls		SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Superwoofer						Hz to kHz, ±dB	Hz to kHz, ±dB								
JACKSON LOUDSPEAKER	AU-3	Air Sus.	5 1/4								85-20 ±3	87	30	2.5k, 12k	8/6	14 x 7 x 7	Opt.	Opt., Knit	17 Pair	929.00	
	AU-6	Hybrid, Pas. Rad.	6 1/2, 8								48-20 ±3	87	50	2k, 10k	8/6	17 x 11 x 11	Opt.	Opt., Knit	45 Pair	1799.00	
	AU-20	Hybrid, Pas. Rad. Subwoof.	10, 15									33-100 ±3	90	100	100	8/6	18 x 17 x 18	Opt.	Opt., Knit	57 Pair	899.00
JAMO HI-FI	Concert II	Bass Ref.	6 1/2			1		Dome			40-20 ±3	88	40	2k	8/	16 x 10 x 10	Opt.	Fabr.	20	375.00	
	Concert V	Bass Ref.	6 1/2	6 1/2		1		Dome			30-22 ±3	88	55	150, 3.5k	6/	32 x 7 x 11	Opt.	Fabr.	42	599.00	
	Concert VII	Bass Ref.	(2)8	6 1/2		1		Dome			24-22 ±3	88	80	150, 4k	6/	36 x 11 x 12	Opt.	Fabr.	62	849.00	
	Jamo Art	Bass Ref.	5			1		Dome			40-20 ±3	88	35	3k	8/	14 x 16 x 4	Opt.		11	249.00	
	Jamo BX100	Bass Ref.	8	3		1		Horn			40-20 ±3	91	45	2k, 4.2k	8/	21 x 12 x 11	Black	Fabr.	22	249.00	
	Jamo BX150	Bass Ref.	10	3		1		Horn			35-20 ±3	92	60	2.3k, 5k	8/	25 x 15 x 12	Black	Fabr.	30	299.00	
	Jamo BX200	Bass Ref.	12	3		1		Horn			30-20 ±3	93	90	2k, 3k	8/	28 x 17 x 13	Black	Fabr.	39	349.00	
	Jamo CL20	Bass Ref.	8			1		Dome			40-20 ±3	92	40	3.5k	8/	18 x 11 x 10	Black		18	199.00	
	Jamo CL25	Bass Ref.	8	4		1		Dome			37-20 ±3	92	50	2.5k, 5k	8/	21 x 11 x 10	Black		25	249.00	
	Jamo CL30	Bass Ref.	8	4		1		Dome			35-20 ±3	92	50	2.5k, 5k	8/	33 x 11 x 10	Black		29	299.00	
	Jamo S60 Satellite	Bass Ref.	4			2		Cone			70-20 ±3	87	30	3k	6/	8 x 5 x 7	Opt.		4	99.00	
	Jamo S100	Bass Ref.	5			1		Dome			45-20 ±3	87.5	35	3.5k	8/	10 x 7 x 9	Opt.		8	149.00	
	System SW10	Sat. & Subwoof.	(2)6 1/2	4		2		Cone			35-20 ±3	90	45	200, 4.5k	8/	8 x 13 x 19	Opt.		29	499.00	
	System SW300	Sat. & Subwoof.	(2)8	4		3/4		Dome			30-20 ±3	90	45	200, 3.5k	8/	8 x 13 x 19	Opt.		30	599.00	
	Converta		4			2					80-20 ±3	90	30	2.5k	8/	9 Oia.	Opt.		4 1/2	199.00	
	Jamo Outdoor	Outdoor	4			3/4		Dome			80-20 ±3	90	30	4.5k	8/	8 x 5 x 3	Opt.		3	119.00	
Jamo Compact 70	Bass Ref.	6 1/2			1		Dome			70-20 ±3	91	35	2.5k		12 x 7 x 8	Opt.		8	99.00		
Jamo Compact 90	Bass Ref.	8	3 1/2		1		Dome			65-20 ±3	92	45	1.2k, 4k	8/	15 x 9 x 9	Opt.		11	149.00		
Jamo Compact 120	Bass Ref.	8	5		1		Dome			55-20 ±3	93	45	1.2k, 5k	8/	17 x 10 x 9			14	169.00		
JANIS	W1	Slot Loaded Subwoof.	15								30-100 ±1	87	60	100	8/7	18 x 22 x 22	Oiled Wal.	Wood	100	850.00	
	W3	Slot Loaded Subwoof.	12								30-100 ±1	85	60	100	8/7	18 x 18 x 18	Oiled Wal.	Wood	67	600.00	
	System 3/A	Powered Slot Loaded Subwoof.	12								30-100 ±1	85	50 Inc.	100	8/7	18 x 18 x 18	Oiled Wal.	Wood	87	950.00	
JBL	XPL90	Ported	6 1/2		Cone	1		Dome				87	20	3k	8/6	16 x 10 x 10	Opt., Lacq.	Black Knit	40 Pair	649.00	
	XPL140	Tuned Port	8	3	Dome	1		Dome	T			88	20	900, 4k	8/6	30 x 13 x 12	Opt., Lacq.	Black Knit	55	999.00	
	XPL160	Tuned Port	10	3	Dome	1		Dome	T			90	20	800, 4k	8/6	33 x 15 x 13	Opt., Lacq.	Black Knit	62	1249.00	
	XPL200	Tuned Port	12	3, 6 1/2	Dome, Cone	1		Dome	T			90	30	300, 1.1k, 4.5k	8/6	40 x 16 x 14	Opt., Lacq.	Black Knit	90	1699.00	
	JBL2500	Ported	5 1/4			1/2		Dome			90-23 ±3	88	10	3k	8/6	12 x 7 x 6	Opt., Lacq.	Gray Knit	8	99.00	
	JBL2600	Ported	6 1/2			1/2		Dome			60-23 ±3	89	10	3k	8/6	17 x 9 x 8	Opt., Lacq.	Gray Knit	12	129.00	
	JBL2800	Ported	8			1/2		Dome			55-23 ±3	89	10	2.5k	8/6	23 x 11 x 10	Opt., Lacq.	Gray Knit	20	179.00	
	JBL3800	Ported	8	5	Cone	1/2		Dome			50-23 ±3	89	10	800, 4.5k	8/6	32 x 11 x 10	Opt., Lacq.	Gray Knit	29	279.00	
	LX22	Tuned Port	6 1/2			1		Dome			50-25 ±3	90	10	3k	8/6	16 x 10 x 9	Opt., Lacq.	Gray Knit	42	189.00	
	LX44	Tuned Port	8	5	Cone	1		Dome			45-25 ±3	91	10	800, 4k	8/6	24 x 12 x 12	Opt., Lacq.	Gray Knit	33	299.00	
	LX55	Tuned Port	10	5	Cone	1		Dome			40-25 ±3	91	10	800, 4k	8/6	26 x 14 x 12	Opt., Lacq.	Gray Knit	62	419.00	
	L2013	Tuned Port	6 1/4			1		Dome			55-27 ±3	87	20	3k	8/6	10 x 16 x 8	Opt., Lacq.	Gray Knit	14	319.00	
	L4013	Tuned Port	8			1		Dome			45-27 ±3	88	20	2.5k	8/6	11 x 21 x 10	Opt., Lacq.	Wood Knit	24	419.00	
	L8013	Tuned Port	10	5	Cone	1		Dome			40-27 ±3	90	20	800, 4.5k	8/6	13 x 32 x 14	Opt., Lacq.	Wood Knit	44	579.00	
	L10013	Tuned Port	12	5	Cone	1		Dome			35-27 ±3	91	20	800, 4.5k	8/6	15 x 36 x 16	Opt., Lacq.	Wood Knit	58	729.00	
L20013	Tuned Port	12			2		Horn			40-20 ±3	94	20	1.2k	8.5, 3	15 x 36 x 16	Opt., Lacq.	Wood Knit	60	999.00		
(Continued)	Pro Performer		4 1/2								100-18 ±3	88	10		8/6	6 x 6 x 6	Opt., Matte	Opt., Metal	8 Pair	199.00	

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches		Separate Level Controls? Woofer, W Midrange, M Tweeter, T Super Tweeter, ST			Amphibic Frequency Response, Hz to kHz, ±dB		SPL, ±1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange				
JBL (Continued)	Pro Performer Plus Pro III	Tuned Port	8			4 1/2		Cone			40-18 ±3	88	10	125	8/6	Three Pieces					Opt., Matte Poly & Rubber	Opt., Metal Black Metal	30 Sys. 13 Pair	439.00 Sys. 299.00 Pair					
	Pro III Plus	Tuned Port	5			1		Dome			65-27 ±3	87	10	3k	4/3	9 x 6 x 6					Black Metal Black Metal	Black Metal Black Metal	41 1/2 Sys. 20 Pair	659.00 Sys. 429.00 Pair					
	Pro VIII	Tuned Port	8	5		1		Dome			35-27 ±3	90	10	125,3k	8/6	Three Pieces					Black Matte Poly & Rubber	Black Metal Black Metal	41 1/2 Sys. 20 Pair	659.00 Sys. 429.00 Pair					
	Pro VIII	Tuned Port	6			1		Dome			55-27 ±3	90	10	3k	6/5	15 x 10 x 9					Black Matte Poly & Rubber	Black Metal Black Metal	41 1/2 Sys. 20 Pair	659.00 Sys. 429.00 Pair					
	S115 Newport	Tuned Port	5 1/4			1/2		Dome			90-23 ±3	88	10	3k	8/6	12 x 7 x 6					Opt., Lacq.	Black Knit Black Knit	16 Pair 33	249.00 349.00					
	S116 Montauk	Tuned Port	6 1/2			1		Dome			50-25 ±3	90	10	3k	8/6	16 x 10 x 9					Opt., Lacq.	Black Knit Black Knit	16 Pair 33	249.00 349.00					
	S118 Mackinac	Tuned Port	8	5		1		Dome			45-25 ±3	91	10	800,4k	8/6	24 x 12 x 12					Opt., Lacq.	Black Knit Black Knit	42	579.00					
	S-119 Catalina	Subwoof.	8								40-200 ±3	88	10	125	8/6	34 x 10 x 10					Opt., Lacq.	Black Knit Black Knit	40	849.00					
	S-3	In-Wall Inf. Baf.	5 1/4			1		Dome			125-22 ±3	86	10	3k	4/3	11 x 7 x 4					Matte White Matte White	White Metal White Metal	14 Pair 16 Pair	269.00 329.00					
	S-4	In-Wall Inf. Baf.	6 1/4			1		Dome			125-22 ±3	88	10	3k	4/3	12 x 9 x 4					Matte White Matte White	White Metal White Metal	14 Pair 16 Pair	269.00 329.00					
	250Ti Sanibel	Tuned Port	14	5,8		1		Dome	(2)M, T			90	50	400,1.4k, 5.2k	8/6	52 x 23 x 14					Opt., Lacq. Wal.	Black Knit Black Knit	150	2499.00					
B380	Biamp Subwoof.	15									90	50	63 Ext.	8/6	20 x 28 x 17					Wal.	Brown Knit Brown Knit	70	999.00						
B460	Biamp Subwoof.	18									94	50	63 Ext.	8/6	25 x 38 x 24					Wal.	Black Knit Black Knit	126	2150.00						
JENSEN	Digital 3080	Vented	(2)8			3		Cone			43-21	91	10	7k	6/4	38 x 10 x 13				Hick Vinyl Hick.	Black Knit Black Knit	36	179.95						
	3152	Vented	15	5		3		Cone			33-21	94	10	5k,10k	8/6	32 x 18 x 11					Hick Vinyl Hick.	Black Knit Black Knit	35	199.95					
	3122	Vented	12	5		3		Cone			43-21	91	10	5k,12.5k	8/6	29 x 15 x 10					Hick Vinyl Hick.	Black Knit Black Knit	28 Pair 11	284.85 Pair 149.95 Pair					
	Concert Series 2650	Vented	6 1/2			3		Cone			55-21	90	10	10k	8/6	15 x 11 x 6					Hick Vinyl Hick.	Black Knit Black Knit	11	149.95					
	Concert Series 3100	Vented	10	5		3		Cone			48-21	90	10	5k,12.5k	8/6	20 x 13 x 11					Wal. Vinyl	Black Knit Black Knit	24	219.95					
JMLab	Micron	Bass Ref.	5 1/4			1		Inv. Dome			60-20 ±1.5	89	20	300,4k	8/4	12 x 8 x 8					Wal.	Knit	11	604.00					
	DB17K2	Bass Ref.	7			1		Inv. Dome			57-20 ±1.5	91	20	300,4k	8/4	16 x 10 x 10					Opt.	Knit	16	707.00					
	708 Olymp K2	Bass Ref.	7			1		Inv. Dome			43-22 ±1.5	93	20	200,3.8k	8/4	37 x 11 x 12					Opt.	Knit	46	1613.00					
	715 Orian K2	Bass Ref.	8,10	5 1/4		1		Inv. Dome			32-22 ±1.5	95	20	150,500,4k	8/4	45 x 14 x 15					Wal.	Knit	90	3021.00					
	SW20	Bass Ref. Subwoof.	10					Inv. Dome			40-130 ±1.5	90	40	100	8/4	20 x 14 x 12					Opt.	Knit	35	504.00					
JRM	Monitor I	Powered	(2)12, (2)6 1/2	(2)4		Cones	(2)3	Horns	W, M, T, ST		18-20		750 Inc.	150,1k,5k	20k	Three Pieces					Opt.	Opt.		4350.00					
	Monitor II	Powered	(4)12, (6)6 1/2	(2)4		Cones	(2)3	Horns	W, M, T, ST		18-20		1000 Inc.	150,1k,5k	20k	Four Pieces					Opt.	Opt.		5850.00					
	S188	QB3 Vented Subwoof.	18								30-250 ±1.5	95	200	Sel.	8/6	Opt., 8 Cu. Ft.					Opt.	Opt.	150	1100.00					
	S188-5	Powered Subwoof.	18						W, M		20-200 ±1.5		200 Inc.	Sel.	20k	Opt., 8 Cu. Ft.					Opt.	Opt.		2500.00					
	S15A	QB3 Vented Subwoof.	15								30-300 ±1.5	92	200	Sel.	8/6	Opt., 6 Cu. Ft.					Opt.	Opt.	130	875.00					
	S15A-5	Powered Subwoof.	15						W, M		20-250 ±1.5		200 Inc.	Sel.	20k	Opt., 4 Cu. Ft.					Opt.	Opt.		2200.00					
	D15A-5	Powered Subwoof.	(2)15						W, M		19-300 ±1.5		500 Inc.	Sel.	20k	Opt., 10 Cu. Ft.					Opt.	Opt.		2200.00					
	D12A	QB3 Vented Subwoof.	(2)12								27-450 ±1.5	89	200	Sel.	Opt.	Opt., 9 Cu. Ft.					Opt.	Opt.	160	800.00					
	D12A-5	Powered Subwoof.	(2)12							W, M	19-400 ±1.5		500 Inc.	Sel.	20k	Opt., 6 Cu. Ft.					Opt.	Opt.		2000.00					
VLS Satellite Tower	Triamped, Sealed	(6)6 1/2	3x26		Horn	1 7/8	Horn	W, M, T		20-20	98	200, (2)40	125,900, 7k	Opt.	78 x 16 x 8					Opt.	Opt.		2400.00						
JS AUDIO	612P	Vented	(2)12	(2)5		Cones	(4)1	Domes, Horns Domes			24-22 ±3	99	30	600,4k, 10k	8/4	74 x 16 x 12					Oak	Opt.	300 Pair 200 Pair 78	4800.00 Pair 5400.00 Pair 900.00					
	DC1	Vented	(2)10	(2)4		Cones	(4)1	Domes, Horns Domes			22-20 ±2	96	50	400,4k, 10k	8/4	61 x 8 x 16					Oak	Opt.	250 Pair 280 Pair 150 Pair 200 Pair 120 Pair 160 Pair	2800.00 Pair 3600.00 Pair 2000.00 Pair 2800.00 Pair 1500.00 Pair 1800.00 Pair					
	Subwoofer	Vented Subwoof	15								20-120	91	40	120	8/4	18 x 18 x 19					Oak	Opt.							
	412 12	Vented	(2)12	(2)5		Cones	(2)1	Dome, Horn Dome, Horn Dome, Horn Dome, Horns Dome			24-22 ±3	96	50	400,600, 4k,10k	8/	36 x 15 x 12					Oak	Opt.							
	415 15	Vented	(2)15	5		Cone	(3)1	Dome, Horn Dome, Horn Dome, Horns Dome			22-24 ±3	99	60	400,600, 4k,10k	8/	40 x 19 x 12					Oak	Opt.							
	412P	Vented	12	5		Cone	(2)1	Dome, Horn Dome, Horns Dome			24-40 ±3	98	15	600,4k, 10k	8/	27 x 16 x 12					Oak	Opt.							
	415P	Vented	15	5		Cone	(3)1	Dome, Horn Dome, Horns Dome			22-24 ±3	99	30	600,4k, 12k	8/	36 x 19 x 12					Oak	Opt.							
	310N	Vented	10	4		Cone	1	Horns Dome			32-22 ±3	91	20	700,3k	8/	24 x 14 x 10					Oak	Opt.							
	313N	Vented	13	4		Cone	1	Dome			25-22 ±3	91	20	600,3k	8/	32 x 16 x 12					Oak	Opt.							

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Crossover? Woofer W. Midrange - W, Tweeter T, Superwoofer - ST		Amplitude Frequency Response, SPL - 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Crossover Frequencies, Hz		Impedance Ohms Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$				
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	
JS AUDIO (Continued)	Mesa II	Trans. Line Ac. Sus.	12	2	Dome	1 1/2, 1	Horns			25-25 ± 2	90	40	400, 3k, 10k	8/	33 x 16 x 15	Oak	Opt.	180 Pair	4000.00												
	26J	Ac. Sus.	6			1	Dome			46-21 ± 4	94	5	2.5k	8/	12 x 8 x 8	Oak	Opt.	35 Pair	450.00												
	26P	Vented	6			1	Dome			40-22 ± 3	92	15	2.5k	8/	16 x 10 x 11	Oak	Opt.	45 Pair	600.00												
	28P	Ac. Sus.	8			1	Dome			38-22 ± 4	91	15	2.5k	8/	19 x 12 x 10	Oak	Opt.	50 Pair	600.00												
	38P	Vented	8	3	Cone	1	Dome			32-22 ± 3	93	15	700, 4k	8/	19 x 12 x 10	Oak	Opt.	65 Pair	1100.00												
	310P	Vented	10	5	Cone	1	Dome			28-22 ± 3	95	15	700, 4k	8/	24 x 14 x 10	Oak	Opt.	120 Pair	1500.00												
JS ENGINEERING	.5	Bass Ref.	8			1	Dome			65-18 ± 2	89	10	2k	8/5	18 x 9 x 11	Gloss Black	Black Knit	29	549.00												
	.6	Vented	8			1	Dome	No		45-18 ± 2	90	30	2.2k	8/6	11 x 13 x 23	Opt.	Black Knit	35	670.00												
	.8	Phase-Shift Loaded	8	8	Cone	1	Dome	No		40-20 ± 2	90	30	250, 2.2k	8/6	12 x 15 x 29	Opt.	Black Knit	50	899.00												
	1.2	Phase-Shift Loaded	(2)8	6 1/2	Cone	1	Dome			45-20 ± 2	89	20	150, 2k	8/5	34 x 13 x 15	Opt.	Black Knit	85	1250.00												
	1.8A	Phase-Shift Loaded	(2)10	6 1/2	Cone	1	Dome	No		35-20 ± 1.5	90	50	150, 2k	8/6	15 x 17 x 38	Opt.	Black Knit	110	1950.00												
	2A	Phase-Shift Loaded	10, 12	2.6 1/2	Dome, Cone	3/4	Dome	No		25-26 ± 1.5	90	50	150, 1k, 4k	8/6	17 x 17 x 45	Opt.	Black Knit	125	2700.00												
	4	Phase-Shift Loaded	(2)10	2.7	Dome, Cone	3/4	Dome	No		25-26 ± 1	89	70	110, 1k	8/6	19 x 22 x 48	Opt.	Black Knit	140	4700.00												
JUST SPEAKERS	Black Dahlia	Bass Ref.	7			1	Dome			48-20	88	30		8/6		Black Lacq.	Black Knit		525.00												
	Ken's Ten	Ac. Sus.	12	5 1/4	Cone	1	Dome			38-20	90	30	500, 4.5k	8/5.6	25 x 15 x 12	Opt.	Black Knit	45	549.00												
	AP-52	Ac. Sus.	5 1/4			1	Dome			65-20	87	30	2.2k	8/6	12 x 8 x 7	Opt.	Black Knit	20	259.00												
	Versa-5	Ac. Sus.	5 1/4			1	Dome			65-20	86	30	4k	8/6	12 x 8 x 7	Opt.	Black Knit	20	199.00												
	Versa-6	Bass Ref.	6 1/2			1	Dome			55-20	87	30	4k	8/6	16 x 10 x 18	Opt.	Black Knit	25	259.00												
	Dyno Monitor	Bass Ref.	7			1	Dome			55-20	87	30	2.2k	8/5.6	14 x 10 x 12	Opt.	Black Knit	27	520.00												
	Baby Boomer	Subwoof.	12							35-120	90	50	120	4/3	18 x 18 x 19	Opt.	Black Knit	55	325.00												
	Power Tower	Ac. Sus.	12	5 1/4	Cone	3/4	Dome			35-20	91	30	250, 4.5k	8/5.6	37 x 15 x 11	Opt.	Black Knit	68	675.00												
	D'Appolito Aria 5	Bass Ref.	(2)5 1/4			1	Dome			62-20	90	30	2.5k	4/3	19 x 9 x 10	Black Lacq.	Black Knit	30	665.00												
	D'Appolito Aria 7	Bass Ref.	(2)7			1	Dome			45-20	89	30	2.4k	4/3	45 x 9 x 10	Black Lacq.	Black Knit	55	915.00												
D'Appolito 717	Bass Ref.	6 1/2			1	Dome			50-20	87	30	2.2k	6/4	45 x 9 x 10	Opt.	Black Knit	55	1249.00													
JVC	SX911WD	Ac. Sus.	12	4 1/2	Cone	1	Dome			40-50	91		500, 4k	6/	15 x 27 x 14	Wood Vinyl	Brown Knit	63	720.00												
	SXA3	Pas. Rad.	8			1	Dome	T		35-23	88		2k	6/	14 x 25 x 12	Wood Vinyl	Gray Knit	34	400.00												
	SPXS6BK	Ac. Sus.	5		Cone					50-12	83			8/	8 x 27 x 8	Wood Vinyl		10.4	180.00												
	SPXS5WD	Ac. Sus.	5		Cone					50-12	83			8/	8 x 27 x 8	Vinyl		10.4	180.00												
KEF	Reference 107/2	Coupled Cavity	(2)10	5	Cone	1	Dome			20-20 ± 2	90	50	160, 2.5k	4/4	46 x 13 x 18	Opt., Wood	Black Knit	99	5000.00												
	Reference 105/3	Coupled Cavity	(2)8	(3)6 1/2	Cones	1	Dome			49-20 ± 2.5	93	25	150, 400, 2k	4/4	44 x 11 x 16	Opt., Wood	Black Knit	93	3500.00												
	Reference 104/2	Coupled Cavity	(2)8	(2)5	Cones	1	Dome			35-20 ± 2	92	25	160, 2.5k	4/4	36 x 11 x 17	Opt., Wood	Black Knit	71	2200.00												
	Reference 103/3	Coupled Cavity	8	6 1/2	Cone	1	Dome			50-20 ± 2	92	50	160, 2.5k	4/4	23 x 10 x 13	Opt., Wood	Black Knit	38	1490.00												
	Reference 102/2	Coupled Cavity	6 1/2	6 1/2	Cone	3/4	Dome			50-20 ± 2.5	89	20	150, 2k	4/4	20 x 9 x 10	Opt., Wood	Black Knit	24	1000.00												
	Reference 101/2	Closed Box	6 1/2			3/4	Dome			50-20 ± 2.5	88	20	3k	4/4	13 x 9 x 10	Opt., Wood	Black Knit	16	750.00												
	C95	Coupled Cavity	8	8	Cone	1	Dome			50-20 ± 3	90	20	180, 3k	4/4	34 x 10 x 13	Opt., Wood	Black Knit	42	1298.00												
	C85	Vented Box	8	8	Cone	1	Dome			40-20 ± 3	90	20	300, 3k	4/4	34 x 10 x 12	Opt., Sim. Wood	Black Knit	41	998.00												
	C75	Closed Box	(2)8			1	Dome			57-20 ± 3	91	20	300, 3k	4/4	28 x 10 x 10	Opt., Wood	Black Knit	29	798.00												
	C65	Pas. Rad.	8			3/4	Dome			55-20 ± 3	90	20	3k	4/4	28 x 11 x 10	Opt., Sim. Wood	Black Knit	26	698.00												
	C55	Pas. Rad.	8			3/4	Dome			60-20 ± 3	90	20	3k	4/4	19 x 10 x 10	Opt., Wood	Black Knit	16	598.00												
	C45	Closed Box	8			3/4	Dome			45-20 ± 3	90	20	3k	4/4	19 x 11 x 10	Opt., Sim. Wood	Black Knit	20	498.00												
	(Continued)	C35	Closed Box	8			3/4	Dome			64-20 ± 3	88	20	3k	4/4	15 x 10 x 8	Opt., Wood	Black Knit	11	398.00											

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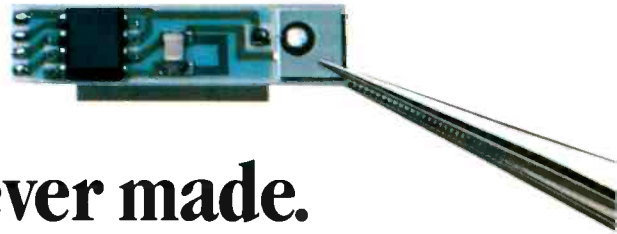
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Controls: Woofer, W. Midrange, M. Tweeter, T. Super Tweeter, ST		Analog Frequency Response, Hz to kHz, ±dB		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
KEF (Continued)	C25	Closed Box	6½			¾	Dome		65-20 ±3	87	20	3k	4/4	13 x 8 x 7	Opt., Wood	Black Knit	9	328.00				Pair		
	C15	Closed Box	5			¾	Dome		68-20 ±2	85	20	3k	4/4	10 x 7 x 6	Opt., Wood	Black Knit	7	248.00				Pair		
	C200SW	Box Coupled Cavity Subwoof.	8						40-120 ±3	90	20	120	4/4	19 x 10 x 10	Opt., Wood	None	17	498.00				Pair		
	CR200F	In-Wall or Ceiling Mount	8		1		Dome		55-22 ±2	90	10	2.5k	4/	13 x 10 x 4	White	White Metal	5							
	CR160S	In-Wall or Ceiling Mount	6½		¾		Dome		60-17 ±2	88	10	3k	4/	9 x 9 x 4	White	White Metal	4							
	CR160R	In-Wall or Ceiling Mount	6½		¾		Dome		60-17 ±2	88	10	3k	4/	9 Dia. x 4	White	White Metal	4							
	CR250SW	In-Wall or Ceiling Mount Subwoof.	10						32-150 ±2	90	10	150	4/	13 x 13 x 4	White	White Metal	8							
KENWOOD	LSK-904	Ac. Sus.	12	5	Cone	2	Cone		35-20	92		2k,5k	8/	13 x 37 x 10	Wood Grain		27.6	279.00				Pair		
	LSK-704	Ac. Sus.	12	5	Cone	2	Cone		40-20	91		2k,5k	8/	14 x 27 x 10	Wood Grain		22.5	285.00				Pair		
	LSK-504	Bass Ref.	10	4	Cone	2	Cone		45-20	90		2k,5k	8/	14 x 24 x 11	Wood Grain		19.4	220.00				Pair		
	LSK-304	Ac. Sus.	8			2	Cone		50-20	90		5k	8/	13 x 22 x 8	Wood Grain		13.9	145.00				Pair		
KINDEL AUDIO	P-55	Q.7 Box	6½			1	Dome		50-22 ±2	86	20	3k	8/8	14 x 8 x 8	White Oak	Cloth	17	299.00				Pair		
	P-105	Q.7 Box	8			1	Dome		35-22 ±2	88	20	200,3k	4/4	21 x 10 x 10	White Oak	Cloth	27	499.99				Pair		
	Purist LT, MkII	Vented	8	(2)4	Cones	1	Dome		30-22 ±2	89	35	100,2.5k	4/4	44 x 10 x 10	White Oak	Cloth	43	999.00				Pair		
KINERGETICS RESEARCH	SW 100	Powered Stereo Subwoof.	(2)10				W	20-100 ±3	94	Inc.	100	4/3	24 x 11 x 16	Opt.	Black Cloth	127	1715.00				Pair			
	SW 100.5	Powered Stereo Subwoof.	10				W	20-100 ±3	91	Inc.	100	8/6	12 x 11 x 16	Opt.	Black Cloth	75	1215.00				Pair			
	SW 800	Powered Stereo Subwoof.	(5)10				W	20-100 ±3	100	Inc.	Var.	3/2	64 x 11 x 16	Opt.	Opt.	350	4995.00				Pair			
KINETIC AUDIO	Titan	TATL (Tap. Ac. Trap. Line)	(2)12	6½	Cone	2,1,¾	Domes	(2)M, T, ST	12-22 ±1.5	90	35	60,90,350, 3k,7k	6/3	18 x 22 x 60	Oiled Wal.	Black Knit	245	5000.00				Pair		
	Trapezium	TATL	12	6½	Cone	2,1,¾	Domes	(2)M, T, ST	12-22 ±1	89	45	90,350, 3.5k,7k	8/5	16 x 20 x 60	Oiled Wal.	Black Knit	205	4000.00				Pair		
	Labyrinth	TATL	12	6½	Cone	2,1	Domes	(2)M, T, ST	16-22 ±1.5	91	35	90,350, 3.5k	8/5	16 x 18 x 48	Oiled Wal.	Black Knit	185	3000.00				Pair		
	Trapezoid	TATL	12	6½	Cone	1,¾	Domes	M, T, ST	18-22 ±1.5	92	20	90,2k,7k	8/6	16 x 14 x 40	Oiled Wal.	Black Knit	115	2000.00				Pair		
	Identity (Impulse) Stat	TATL	12	6½	Cone		Dome	M, T	18-22 ±1.5	93	15	90,2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	95	1200.00				Pair		
	Miniature Monitor Stat S/W	TAL (Tap. Ac. Line)	6½		1		Dome	T	38-22 ±2	93	5	2k	8/6	9 x 9 x 15	Oiled Wal.	Black Knit	30	900.00				Pair		
	Trapezoid S/W	TATL Subwoof.	12						18-2 ±2	93	15	180,2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	80	600.00				Pair		
KIRKSAETER	Manhattan 2	Ported	7			1	Dome		40-20	92	10	2.2k	8/4	8 x 11 x 12	Opt.	Opt., Metal	14	529.00				Pair		
	Manhattan 3	Ported	8½	5%	Cone	¾	Dome		38-23	92	10	1k,5k	8/3	10 x 11 x 17	Opt.	Black Knit	16	699.00				Pair		
	Concept 100	Ported	7			1	Dome		39-20	92	10	2.2k	8/4	9 x 10 x 18	Opt.	Opt., Metal	19	628.00				Pair		
	Concept 120	Ported	8½	5%	Cone	¾	Dome		28-30	93	10	1k,5k	8/3	10 x 11 x 21	Opt.	Black Knit	24	749.00				Pair		
	Omega Sound System Tower Monitor 140-CD	Sat. & Subwoof. Inf. Baf.	(2)7	5%	Cone	(2)2½	Cones		40-20	90	25	140,5k	8/4	Three Pieces	Opt.	Opt., Metal	38	799.00				Sys.		
	Tower Monitor 260-CD	Inf. Baf.	10½	6	Cone	¾	Dome		25-32	93	20	500,5k	8/4	11 x 11 x 37	Opt., Wood	Opt., Metal	44	1499.00				Pair		
	Tower Monitor 300-CD	Inf. Baf.	(2)10½	6,2	Cone, Dome	¾	Dome		20-32	93	30	200,1k, 5k	8/4	11 x 11 x 43	Opt., Wood	Opt., Metal	58	2499.00				Pair		
	Tower Monitor 300-CD	Inf. Baf.	(2)10½	9,2	Cone, Dome	¾	Dome		18-32	93	35	200,1.5k, 5k	8/4	13 x 13 x 50	Opt., Wood	Opt., Metal	100	3999.00				Pair		
	Amadeus 120 Tower	Inf. Baf.	8½	5%	Cone	¾	Dome		28-30	92	20	900,5k	8/3	10 x 10 x 33	Opt.	Black Knit	30	799.00				Pair		
	Amadeus 200 Tower	Inf. Baf.	(2)8½	5%	Cone	¾	Dome		27-30	92	20	900,5k	8/3	11 x 13 x 40	Opt.	Black Knit	40	1149.00				Pair		
	Amadeus 200 Tower Monitor 125-CD	Inf. Baf.	8½	5%	Cone	¾	Dome		28-32	93	20	900,5k	8/3	10 x 10 x 33	Opt., Wood	Opt., Metal	31	1299.00				Pair		
	Monitor 121	Inf. Baf.	8½	5%	Cone	¾	Dome		28-32	93	10	800,5k	8/3	11 x 10 x 20	Opt., Wood	Opt., Metal	25	999.00				Pair		
	Monitor 141	Inf. Baf.	10½	6	Cone	¾	Dome		25-32	93	10	500,5k	8/3	13 x 11 x 22	Opt., Wood	Opt., Metal	30	1299.00				Pair		

This little device makes Velodyne the best subwoofer ever made.



It's called an accelerometer. And you'll find one attached to the voice coil of every Velodyne™ Servo Subwoofer System. Our patented High Gain Servo (HGS) technology uses the accelerometer to make Velodyne's bass reproduction superior to any product on the market.

Bass is by far the most difficult music to reproduce. It puts the heaviest demands on your speakers and amplifier. In fact, most woofers can't play the lowest frequencies. Or can't play them clearly. And no conventional loudspeaker can play bass loudly without breaking up. Or without massive distortion.

HGS technology ends these problems forever.

Motional feedback makes the difference.

HGS is based on motional feedback, a process in which cone motion is monitored and, when necessary, corrected. As the woofer cone moves, the accelerometer reports the motion to our Power Servo Controller. There, it's compared to the input signal - some 3500 times per second. If the woofer cone's out of step with the input, it's instantly corrected. The result? A subwoofer that's flat to below 20 Hz. And virtually distortion-free bass that can't become boomy, muddy or out of control, especially at louder listening levels.

More muscle. Accurate bass requires large drivers and lots of amplifier power. For example, our ULD-15™ matches a 96 oz. magnet structure, 3-inch voice coil (with a full 3/4-inch peak-to-peak travel) to 350 watts of dedicated bass power. That's muscle enough to reproduce even the most demanding deep bass passages - effortlessly.



Cross-section of ULD-15 driver with accelerometer in housing (red) mounted on voice coil (blue). Circuit board contains associated HGS electronics.

Better mids and highs. Beyond adding bass power to your system, our Power Servo Controller incorporates an electronic crossover that frees your main speakers and amplifier from the burden of bass reproduction. This lets them do what they do best - play the mids and highs. And your system's output capability is virtually doubled.

Listening is believing. You owe it to yourself to audition a Velodyne Subwoofer System. Listen to its tightness on drumbeats. Its penetration on deep bass passages. Its overall clarity and punch. You'll agree it's the best subwoofer ever made.

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Controls / Woofer W. Midrange W. Tweeter = T. Subwoofer, ST	Angular Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch	Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
KLARK-TEKNIK	Jade 1 MKII	Powered Bass Ref.	8			1¼	Dome	W,T	55-17 ± 3	(2) 100 Inc.	2.5k		21 x 16 x 10	Black Epoxy	None	49	2995.00 Pair				
KLEIN & HUMMEL	098	Powered	8¼	1½	Dome	¾	Dome	W,M,T	50-16 ± 2.5	Inc.	850,5.5k	4.7k	15 x 10 x 8	Brown Enam.	Brown Knit	26½	1295.00				
	096	Powered	10	2	Dome	¾	Dome	W,M,T	50-20 ± 2.5	Inc.	600,4k	4.7k	12 x 21 x 11	Brown Enam.	Brown Knit	48½	2270.00				
	092	Powered	(2)10	3½	Cone	1	Dome	W,M,T	50-17 ± 2.5	Inc.	500,3k	4.7k	17 x 32 x 12	Brown Enam.	Brown Knit	66	4195.00				
KLH	6V	Ported	(2)6½	4½	Cone	1	Dome	No	29-20 ± 3	88 25	300,500, 1.9k	6/4	39 x 9 x 11	Opt.	Black Knit	40	1190.00 Pair w/EQ				
	17V	Ported	6½			1	Dome	No	40-20 ± 3	88 25	1.8k	6/4	19 x 9 x 11	Opt.	Black Knit	43 Pair	580.00 Pair				
	Illusion 3	Sat. & Bandpass Subwoof. Pas. Rad.	(2)4½, (2)6½			1	Dome	No	45-20 ± 3	86 50	150,3k	5/4	Three Pieces	Opt.	Black Knit	32 Sys.	499.00 Sys.				
	AV-5001	Ported	12	5	Cone	1	Dome	No	20-22	91 5	900,2.8k	10/8	43 x 15 x 12	Oak Vinyl	Brown Knit	50	299.00				
	AV-4001	Ported	12	5	Cone	1	Dome	No	24-22	91 5	900,2.8k	10/8	29 x 15 x 12	Oak Vinyl	Brown Knit	37	249.00				
	AV-3001	Ported	8			1	Dome	No	40-22	90 5	2.8k	10/8	17 x 15 x 12	Oak Vinyl	Brown Knit	47 Pair	399.00 Pair				
	AV-2001	Ported	6½			1	Dome	No	50-22	89 5	2.8k	8/6	15 x 9 x 9	Oak Vinyl	Brown Knit	33 Pair	279.00 Pair				
	AV-1001	Ported	5			1	Dome	No	80-22	87 5	2.8k	8/6	11 x 6 x 7	Oak Vinyl	Brown Knit	16 Pair	260.00 Pair				
	7701	Pas. Rad.	12	5	Cone	1	Dome	No	22-22	90 5	900,2.8k	10/8	43 x 15 x 10	Oak Vinyl	Brown Knit	48	289.00				
	7621	Ported	(2)6½	5	Cone	1	Dome	No	40-22	90 5	1k,3k	10/8	39 x 9 x 10	Oak Vinyl	Brown Knit	38	259.00				
	AV-4621	Ported	(2)6½	5	Cone	1	Dome	No	40-22	90 5	1k,3k	10/8	39 x 9 x 10	Oak Vinyl	Brown Knit	36	269.00				
	7501	Ported	12	5	Cone	1	Dome	No	24-22	90 5	900,2.8k	10/8	31 x 15 x 10	Oak Vinyl	Brown Knit	39	239.00				
	7201	Ported	8			1	Dome	No	40-22	89 5	2.8k	8/6	19 x 12 x 12	Oak Vinyl	Brown Knit	52 Pair	399.00 Pair				
	7101	Ported	6½			1	Dome	No	50-22	88 5	2.8k	8/6	17 x 9 x 10	Oak Vinyl	Brown Knit	36 Pair	289.00 Pair				
	7001	Ported	5			1	Dome	No	80-22	86 5	2.8k	8/6	11 x 6 x 6	Oak Vinyl	Black Knit	15½ Pair	260.00 Pair				
	K-831	Sat. & Subwoof. Powered	8, (2)5	¾	Dome	No	50-20	86 40	250,4k	6/4	Three Pieces	50k	11 x 8 x 8	Oak Vinyl	Black Ntl. Black Plast.	29 Sys.	399.00 Sys.				
	CS-2503	Sat. & Subwoof. Powered	(2)5¼, (2)4½	¾	Dome	No	50-20	86 40	200,4k	6/4	Three Pieces	50k	11 x 8 x 8	Oak Vinyl	Black Ntl. Black Plast.	33 Sys.	499.00 Sys.				
SA-450	Ported	4½	1½	Cone	Vol.	40-20	Inc.				50k	11 x 8 x 8	Black Plast.	Black Metal	22 Pair	99.00 Pair w/Amp					
62C	Ported	6½	1	Dome	No	50-20	88 5	2.8k	8/5			38 x 11 x 10	Oak Vinyl	Black Knit	36	249.00					
KLIPSCH	Klipschorn	Folded Horn	15	2	Horn	1	Horn		35-17 ± 3	104 20	400,6k	8/4	52 x 34 x 29	Opt.	Opt.	185	1799.00				
	Belle Klipsch	Folded Horn	15	2	Horn	1	Horn		45-17 ± 5	104 20	500,6k	8/4	36 x 30 x 19	Opt.	Opt.	133	1429.00				
	La Scala	Folded Horn	15	2	Horn	1	Horn		45-17 ± 5	104 20	400,6k	8/4	36 x 24 x 25	Black Birch	Opt.	130	978.00				
	Chorus II	Pas. Rad.	15	1½	Horn	1	Horn		39-20 ± 3	101 20	700,7k	8/4	39 x 19 x 16	Opt.	Opt.	89	895.00				
	Forté II	Pas. Rad.	12	1½	Horn	1	Horn		32-20 ± 3	99 20	650,7k	8/4	35 x 17 x 12	Opt.	Opt.	67	649.00				
	Quartet	Pas. Rad.	10	1½	Horn	1	Horn		38-20 ± 3	97 20	650,7k	8/4	31 x 16 x 12	Opt.	Opt.	52	525.00				
	Heresy II	Inf. Baf.	12	1½	Horn	1	Horn		50-20 ± 3	96 20	800,7k	8/4	22 x 16 x 13	Opt.	Opt.	37	465.00				
	KG4	Pas. Rad.	(2)8	1	Horn				38-20 ± 3	94 20	1.8k	6/4	24 x 16 x 11	Opt.	Opt.	40	336.00				
	KG2	Pas. Rad.	8	1	Horn				38-20 ± 3	90.5 20	2k	4/4	19 x 13 x 12	Opt.	Opt.	28	239.00				
KORT AUDIO	CC-8	Trans. Line	4						100-17	84 5		8/7.5	16 x 5 x 9	Opt.	Opt., Metal	15	235.00 Pair				
	CC-2	Trans. Line	(2)5			2½	Cone		55-20	92 35	4k	4/4	44 x 6 x 20	Opt.	Opt., Metal	65	625.00 Pair				
	CC-1e	Trans. Line	10			(3)3	Cones		30-20	93 60	900	6/5	44 x 12 x 31	Opt.	Opt., Metal	158	1495.00 Pair				
	Proxy 3	Trans. Line	(2)12			(6)2	Cones		17-22	96 100	550	4/1.9	Four Pieces	Opt.	Opt., Metal	800 Sys.	4500.00 Sys.				
	Surround	Ac. Sus.	3			½	Dome		200-20	88 5	4k	8/7	3 x 3 x 4	White	Black Metal	1	40.00				
KOSS	SA/30			3½	Cone			M	50-20				5 x 3 x 4	Black Plast.	Black Perf. Metal	7/8	34.99 Pair				
	SA/20			3	Cone				100-15				5 x 3 x 4	Black Plast.	Black Perf. Metal	5/8	19.99 Pair				
	SA/10			(2)2	Cones				350-15				2 x 4 x 1	Black Plast.	Black Perf. Metal	¼	15.99				
	MX/2	Subwoof.	8						45-120	75	120	6/4	10 x 19 x 13	Black Vinyl	Black Knit	25	399.95 Pair				
(Continued)																					



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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches	Midrange Diameter, Inches	Tweeter Type	Tweeter Diameter, Inches	Separate Level Control	Woofer Wt. M. Oz.	Crossover	Frequency Response, Hz to kHz	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange																
KOSS (Continued)	KCS-350	Tuned Port	(2)6½			1	Dome		50-20 ±3	92	100	2.5k	4/	36 x 9 x 10	Black Wood Vinyl	Black Knit	36			
	KCS-250	Tuned Port	(2)6½			1	Dome		55-20 ±3	88	80	2.5k	4/	23 x 9 x 10	Black Wood Vinyl	Black Knit	22			
	KCS-150	Tuned Port	6½			¾	Dome		60-20 ±3	86	60	2.8k	4/	16 x 8 x 8	Black Wood Vinyl	Black Knit	11			
	M/100 Plus	Powered Bass Ref.	(2)4½			1	Dome		50-30		Inc.	2.5k		15 x 6 x 12	Wal. Vinyl	Brown Knit	27	259.95	Pair	
	M/90 Plus	Bass Ref.	(2)4½			1	Dome		50-30	88	10	2.5k	6/4	15 x 6 x 12	Wal. Vinyl	Brown Knit	15	219.95	Pair	
	M/80 Plus	Ac. Sus.	(2)4½			1	Dome		50-30	86	10	2.5k	6/4.5	13 x 5 x 6	Wal. Vinyl	Brown Knit	8	189.95	Pair	
	M/60 Plus	Ac. Sus.	4½			1	Dome		100-30	84	10	2.25k	8/6	8 x 5 x 6	Wal. Vinyl	Brown Knit	4.9	134.95	Pair	
LAKESHORE IMPORTS	Kassel X	Ac. Sus.	(2)10½	(2)4	Domes	(2)1½	Domes	M, T	28-25 ±2	88	40	200,3k	8/6.6	50 x 32 x 22	Opt.	Opt.	280	18,500.	Pair	
	Kiser VI	Ac. Sus.	(3)8	(2)3½	Domes	1½	Dome	M, T	30-25 ±2	90	40	300,3.5k	8/6	50 x 22 x 22	Opt.	Opt.	220	12,500.	Pair	
	Joanne I	Ac. Sus.	(2)8	(2)3½	Domes	1½	Dome	T	32-25 ±2	90	30	300,3.5k	8/6	46 x 28 x 22	Opt.	Opt.	200	10,500.	Pair	
	Barnett XV	Closed Box	(4)5¼	(2)3	Domes	1½	Dome	M, T	30-25 ±2	86	40	250,3.5k	8/6	60 x 30 x 30	Opt.	Opt.	230	8900.00	Pair	
	Laakso V	Closed Box	(2)5¼	(2)4½	Domes	1	Dome	T	38-22 ±2	90	20	300,4k	8/6	42 x 30 x 22	Opt.	Opt.	110	5900.00	Pair	
	Slackmaster	Vented	8	4½	Dome	1	Cone		40-20 ±2	88	20	200,4k	8/6	36 x 20 x 24	Opt.	Opt.	80	4200.00	Pair	
	LANCER ELECTRONICS	LE-25	Vented	4			¾	Dome		55-20	87	10	3.5k	8/	8 x 8 x 10	Lacq. Oak	Black Knit	7½	110.00	
LE-50		Vented	6½			¾	Dome		49-20	88	10	3k	8/	9 x 8 x 14	Lacq. Oak	Black Knit	12	125.00		
LE-75		Vented	(2)6½			1	Dome		42-20	89	15	3.2k	8/	8 x 10 x 29	Lacq. Oak	Black Knit	30	250.00		
LE-110		Vented	10	4	Cone	1	Dome		32-20	89	25	800,4k	8/	15 x 12 x 26	Lacq. Oak	Black Knit	45	375.00		
LE-150A		Vented	10	4	Cone	1	Dome		28-20	89	25	800,4k	8/	14 x 11 x 39	Lacq. Oak	Black Knit	48	500.00		
LE-1SW		Bandpass Subwoof.	(2)6½						38-160	88	10	160	8/	8 x 15 x 21	Lacq. Oak	Black Knit	35	250.00		
LANTANA		TAD	Vented	(2)4½			2	Cone	T	50-22 ±3	91	40	2k	6/4	17 x 6 x 7	Opt., Wood	Opt., Knit	12½	450.00	Pair
	Laug Mono	Vented Mono Subwoof.	(2)8						25-90 ±3	40	90		6/4	33 x 11 x 12	Opt., Wood	Opt., Knit	47	450.00		
	Laug Stereo	Vented Stereo Subwoof.	(2)8						25-90 ±3	40	90		8/4	33 x 11 x 12	Opt., Wood	Opt., Knit	49	500.00		
	Mink	Vented	(2)6	(2)4½		2	Cone	T	30-22 ±3	90	40	90,2k	6/4	36 x 9 x 9	Opt., Wood	Opt., Knit	54	575.00		
LEGACY	Signature II	Bipolar, Slot Loaded	(3)10	(2)6½, 1¼	Cones, Dome	½x4, 1	Ribbon, Dome	M, T	20-30 ±2	95	30	100,2k, 8.5k	4/4	50 x 12 x 13	Opt., Wood	Opt., Knit	140	2696.00	Pair	
	1	Slot Loaded	8, 10	6½, 1¼	Cone, Dome	½x4	Ribbon	M, T	22-30 ±2	91.5	45	120,2.2k, 8.5k	8/4	44 x 12 x 13	Opt., Wood	Opt., Knit	100	1696.00	Pair	
	2 Plus	Vented, QB5	10	6½	Cone	1	Dome	M, T	28-22 ±2	91	30	180,2.6k	8/4	40 x 12 x 11	Opt., Wood	Opt., Knit	88	1196.00	Pair	
	3	Double Reflex	8	6½	Cone	1	Dome	T	36-22 ±2	91	30	200,2.8k	4/4	37 x 12 x 10	Opt., Wood	Opt., Knit	70	896.00	Pair	
	Signature Satellite	Vented, Fourth Order	6½	6½, 1¼	Cone, Dome	½x4, 1	Ribbon, Dome	M, T	35-30 ±2	91	30	200,2k,8k	4/4	20 x 11 x 10	Opt., Wood	Opt., Knit	44	1296.00	Pair	
	Super Satellite	Symmetrical Array	(2)6½			1	Dome	T	38-22 ±2	95	30	2.6k	4/4	20 x 11 x 10	Opt., Wood	Opt., Knit	40	748.00	Pair	
	Satellite	Aided QB5	6½			1	Dome	T	40-22 ±2	90	30	2.6k	8/8	13 x 11 x 10	Opt., Wood	Opt., Knit	32	528.00	Pair	
	Mini Monitor	Aided QB5	5¼			1	Dome	T	59-22 ±2	90	30	2.6k	4/4	9 x 7 x 7	Opt., Wood	Opt., Knit	16	428.00	Pair	
	Qual 10 Subwoofer	Vented, Fourth Order	(2)10					W	24-120 ±2	91	30	Var.	8/8	24 x 16 x 16	Opt., Wood	Opt., Knit	90	548.00		
	Qual 12 Subwoofer	Vented, Fifth Order	(2)12					W	16-100 ±2	91.5	30	Var.	4/4	27 x 16 x 16	Opt., Wood	Opt., Knit	100	748.00		
	Amplified Subwoofer	Powered, Vented, Sixth Order Subwoof.	(2)12					W	16-100 ±2	99	250 Inc.	Var.		27 x 16 x 16	Opt., Wood	Opt., Knit	115	1096.00		
	Signature Subwoofer		(3)10					W	18-100 ±2	91	30	Var.	4/4	28 x 16 x 16	Opt., Wood	Opt., Knit	90	1396.00	Pair	
LINAEM	LT 1000	Trans. Line	8				Line Source		60-18 ±3	89	30	400	4/	39 x 11 x 12	Opt., Wood	Black Knit	65	1745.00	Pair	
	LS 1000	Inf. Baf.	8				Line Source		60-18 ±3	89	30	400	4/	39 x 11 x 9	Opt., Wood	Black Knit	50	1295.00	Pair	
	LM 1000	Inf. Baf.	6½				Line Source		64-18 ±3	89	30	400	4/	19 x 11 x 9	Opt., Wood	Black Knit	26	875.00	Pair	

*The
Signature II*



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Cabinetry by Andrew C. Guy

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofers	Midrange	Tweeter	Tweeter Type	Separate Level Control	Midrange	Tweeter	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
LINAEUM (Continued)	9	Line Source Dipole	(2)8			Line Source		16-18 ±3		50	80		Four Pieces				300 Sys.	8500.00 Sys.
LINN HI-FI	Helix II	Ported	8			3/4 Dome		55-18 ±3	88		3k	8/7	20 x 9 x 12	Black Knit	Black Knit	22	895.00 Pair	
	Nexus LS250	Ported	8			3/4 Dome		50-20 ±2.5	88		2.5k	8/7	22 x 10 x 12	Ash Black Knit	Black Knit	22	1195.00 Pair	
	DMS Isobarik	Isobarik	(2) 9x12 5	(2)5	Cones	(2)3/4 Domes		25-20 ±2.5	86	50	375,3k	4/3	17 x 15 x 30	Ash Teak	Black Knit	95	5795.00 Pair	
	Kan II	Inf. Baf.	5			3/4 Dome		70-20 ±3	86	15	3k	8/6	8 x 6 x 12	Teak	Foam Black Cloth	11	875.00 Pair	
	Index II	Inf. Baf.	6			1 Dome		60-20 ±3	86	10	2k	8/6	17 x 8 x 9	Black	Black Cloth	17	595.00 Pair	
	Kaber	Inf. Baf.	(2)5			3/4 Dome		60-20 ±3	86	30	200,3k	8/6	7 x 10 x 35	Opt.	Black Cloth Black Knit	59	1995.00 Pair	
LUXMAN	S-503	In-Wall	6 1/2			1 Dome	T	60-22 ±2.5	89	20	7k	8/5.6	9 x 12 x 3	White	White		300.00 Pair	
	S-505	In-Wall	8			1 Dome	T	50-22 ±2.5	89	20	3k	8/5.6	14 x 10 x 3	White	White	6 5/8	500.00 Pair	
MAOISOUND	Image II	Aperiodic	6 1/2			1 Dome		50-20	88	50	2.5k	6/5					Kit, 450.00	
	Sub II	Aperiodic Subwoof. Sealed Box	12					36-120	89	100	120	4/3					Kit, 375.00	
	Phoenix		10	5	Cone	3/4 Dome		35-18	88	50	500,5k	8/5	15 x 25 x 12	Black Oak Nat. Oak	Black Knit Brown Knit	40	700.00 Pair; Kit, 500.00	
	Sledgling	Sealed	6 1/2			3/4 Dome			90		3.2k	4/3.5	9 x 12 x 6	Oiled Wal. Oak	Brown Knit		300.00 Pair	
	The Movie	Sealed	12	(2)6	Cones	1 Dome			95	50	400,6k	8/6	Four Pieces		Brown Knit Brown Knit		1500.00 Sys.	
	Thallic	Sat. & Sealed Subwoof.	12	6	Cone	3/4 Dome			88	100	100,4k	4/3.5	Three Pieces	Oak	Brown Knit Brown Knit		900.00 Sys.	
MAGNEPAN	SMGa	Dipole	370 Sq. In.			1 1/2x38 Planar Mag.		50-18 ±3	90	40	2.4k	4/4	19 x 48 x 2	Opt., Oak	Opt.	30	575.00 Pair	
	MG1.4	Dipole	428 Sq. In.			1 1/2x45 Planar Mag.		40-18 ±3	87	50	1k	4/4	22 x 60 x 2	Opt., Oak	Opt.	40	980.00 Pair	
	MG2.6/R	Dipole	609 Sq. In.			1/2x40 Ribbon	T	37-40 ±3	87	50	1k	4/3	22 x 71 x 2	Opt., Oak	Opt.	50	1950.00 Pair	
	MG3.3	Dipole	628 Sq. In.	3x57	Planar Mag.	1/2x60 Ribbon	T	32-40 ±3	85	75	250,1k	4/3	24 x 71 x 2	Opt., Oak	Opt.	65	2850.00 Pair	
	Tympani IVa	Dipole	1254 Sq. In.	3x60	Planar Mag.	1/4x60 Ribbon	T	30-40 ±3	87	100	250,2k	4/3	Three Panels Per Side	Opt., Oak	Opt.	115 Side	3750.00 Pair	
MARANTZ	SP2010	Bass Ref.	10	2	Dome	1 Dome		38-20	89	10		8/	28 x 14 x 11	Oak	Black Knit Black Knit	44.3	600.00 Pair	
	SP2008	Bass Ref.	8			1 Dome		42-20	89	10		8/	18 x 14 x 10	Oak	Black Knit Black Knit	30.6	400.00 Pair	
	SP2006	Bass Ref.	6 1/2			3/4 Dome		48-20	88	10		8/	16 x 10 x 9	Oak	Black Knit Black Knit	17	280.00 Pair	
	SP2005	Bass Ref.	5 1/4			3/4 Dome		55-20	85	10		8/	14 x 9 x 7	Oak	Black Knit Black Knit	14	200.00 Pair	
MARATHON AUDIO	Rhodes	Isobarik	(2)12	(2)5	Cones	1 Inv. Dome		28-20 ±3	98	100	300,3k	4/4		Dpt.	Opt.		9500.00 Pair	
	Manhattan	Vented	(2)8			1 Dome		40-20 ±3	96	100	4k	4/4		Opt.	Opt.		3000.00 Pair	
	Miracle	Inf. Baf.	8			1 Inv. Dome		60-20 ±3	91	40	3k	8/5	38 x 11 x 13	Dpt.	Dpt.		1800.00 Pair	
	MG-81	Ac. Sus.	8			1 Dome		60-20 ±3	91	25	3k	8/4	16 x 10 x 12	Matte Black	Black Knit		700.00 Pair	
	MG-61	Ac. Sus.	6 1/2			1 Dome		70-20 ±3	89	25	3k	8/6	13 x 9 x 10	Matte Black	Black Knit		450.00 Pair	
	MG-51	Ac. Sus.	5 1/4			1 Dome		85-20 ±3	89	25	3.5k	8/5	11 x 7 x 8	Matte Black	Black Knit		350.00 Pair	
MARTIN-LOGAN	The Statement	ES & Woofer	(4)12			36x72 ES	W, T	16-25 ±2	93	200	100	6/3	Two Pieces Per Side	Dpt.	Opt.	2000 Sys.	35,000.00 Sys.	
	The Monolith IIIx	ES & Inf. Baf. Subwoof.	12			24x48 ES	W, M	28-24 ±2	90	50	125	6/2	Three Pieces	Opt.	Opt.	272 Sys.	7000.00 Sys.	
	The Monolith IIIp	ES & Inf. Baf. Subwoof.	12			24x48 ES	W, T	35-20 ±2	90	50	125	4/2	Two Pieces Per Side	Opt.	Opt.	280 Sys.	6500.00 Sys.	
	The CLS II	ES & Inf. Baf. Dipole ES	24x48					35-22 ±2	85	100		6/1.5	28 x 58 x 14	Opt.		150 Pair	3500.00 Pair	
	The Sequel II	ES & Woofer	10			12x48 ES		27-22 ±2	88	50	200	6/2	14 x 72 x 13	Opt.		210 Pair	2500.00 Pair	
MASTERCRAFT AUDIO	Sound Panels SP-MK 1	Ac. Sus.	8			1 Dome	T	40-22 ±3	89	30	3.1k	8/	12 x 6 x 26	Black Oak	Black Knit	58 Pair	998.00 Pair	
	Sound Panels SP-MK 2	Ac. Sus.	(2)8			1 Dome	T	37-27 ±3	91	30	1.2k, 3.3k	4/	30 x 15 x 8	Black Oak	Black Knit	88 Pair	1399.00 Pair	
	Black Box	Ac. Sus.	8			1 Dome		45-22 ±3	91	10	3.1k	8/	14 x 10 x 8	Black Oak	Black Knit	42 Pair	469.00 Pair	
	Music Monitor	Ac. Sus.	10			1 Dome		38-21 ±3	92	15	2.5k	8/	15 x 26 x 11	Black Oak	Black Knit	60 Pair	579.00 Pair	
	SW-1	Ac. Sus. Subwoof.	12				W	28-90 ±3	89	50	90	8/	30 x 15 x 10	Black Oak	Black Knit	42 Pair	649.00 Pair	

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Tweeter Type		Separate Level Control? Woofer, W, Midrange, M, Tweeter, T Superwoofer - ST		Anchoic Frequency Response, Hz to kHz, ±dB		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts Ch.		Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
			7	12	7	12	1	2	1	2	No	Yes	40-20 ±2	32-20 ±2	87	50	4.5k	8/6	14 x 14 x 21	Dpt.	Brown Knit	49	1800.00	Pair	3975.00							
MASTON AUDIO	Full-Range Satellite Reference System	Ported Sat. Sealed	7	12	7	12	Cone	1	Dome	No	No	40-20 ±2	32-20 ±2	87	50	4.5k	8/6	14 x 14 x 21	Dpt.	Brown Knit	49	1800.00	Pair	3975.00								
	MB QUART ELECTRONICS	Quart 190	Inf. Baf.	6½				1	Dome			46-32		90				10 x 14 x 10	Dpt.	Black	15	599.00	Pair	699.00								
		Quart 290	Inf. Baf.	8				1	Dome			40-32		90				11 x 17 x 12	Dpt.	Black	22	1100.00	Pair	899.00								
		Quart 390 MCS	Dynamic Port	8				1	Dome			38-32		100				10 x 32 x 11	Matte Black Dpt.	Black	32	1500.00	Pair	2700.00								
		Quart 490 MCS	Dynamic Port	8				1	Dome			37-32		100				11 x 17 x 12	Dpt.	Black	22	599.00	Pair	899.00								
		Quart 690 MCS	Dynamic Port	8				1	Dome			35-32		100				11 x 33 x 11	Dpt.	Black	39	1500.00	Pair	2700.00								
		Quart 990 MCS	Dynamic Port	(2)8	2	Dome	1	Dome	1	Dome			30-32		120				11 x 39 x 11	Dpt.	Black	50	599.00	Pair	3000.00							
		Quart 90M	In-Wall	8				1	Dome			46-32		100				12 x 10 x 3	White	White	5	599.00	Pair	3000.00								
		Quart Pure	Dynamic Port	8	2	Dome	1	Dome	1	Dome			28-32		160				44 x 12 x 14	Dpt.	Black	82	6000.00	Pair	6000.00							
Quart Aera	Inf. Baf.	10	2	Dome	4	Sphere					20-50						13 x 48 x 16	Dpt., Lacq.	Black	65	599.00	Pair	6000.00									
McINTOSH	XR230	Inf. Baf.	10	5	Cone	1	Dome				20-20		86	30	375,1.2k	8/8	40 x 13 x 11	Dpt.	Black	56½	899.00	Pair	1199.00									
	XR240	Inf. Baf.	12	6½	Cone	1	Dome				20-20		86	30	325,1.2k	8/8	43 x 15 x 13	Dpt.	White	43	649.00	Pair	4250.00									
	WS-200	In-Wall	6								70-20		86	30	1.3k	8/8	12 x 9 x 3	Dpt.	White Metal	258	2499.00	Pair	1250.00									
	XRT22	Inf. Baf.	(2)12	8	Cone	(23)1	Domes				20-20		89	30	100,250, 1.5k	8/8	Two Pieces Per Side	Dpt., Wood	108	4250.00	Side	2499.00										
	XRT18	Inf. Baf.	12	6	Cone	(16)1	Domes				20-20		86	30	350,1.5k	8/8	Two Pieces Per Side	Dpt., Wood	108	2499.00	Side	1250.00										
	XR1052	Pas. Rad.	10	5	Cone	1	Dome				30-20		82	30	55,450, 1.3k	8/8	47 x 16 x 11	Wal.	Black	83	1250.00	Pair	799.00									
	XD717	Inf. Baf.	12	6½	Cone	1	Dome				30-20		87	30	350,1k	8/8	38 x 18 x 12	Wal.	Black	66	599.00	Pair	429.00									
	XL10	Inf. Baf.	10	5	Cone	1	Dome				30-20		86	30	375,1k	8/8	30 x 15 x 10	Wal.	Black	43	599.00	Pair	599.00									
XL1	Pas. Rad.	8								45-20		89	30	90,1k	8/8	25 x 14 x 8	Wal.	Black	25½	429.00	Pair	599.00										
XL1	Inf. Baf.	6								70-20		85	30	1k	8/8	13 x 8 x 7	Wal.	Black	15	599.00	Pair	599.00										
McNEILL ENGINEERING	McNeill Audiophile	Ac. Sus.	8				1	Dome			31-22 ±3		90	10	2k	8/5	12 x 11 x 20	Text. Black Lacq.	Dpt.	24	319.00	Pair										
MEMOREX	WM-500	Ac. Sus.	5¼				1	Dome			40-20		10	3.6k	8/8	6 x 7 x 9	Black Alum.	Black Metal	19	249.00	Pair	129.00										
	WM-200	Ac. Sus.	4				1	Dome			55-20		10	8.26k	8/8	5 x 5 x 8	Alum. Dpt.	Alum. Dpt.	10	99.00	Pair	649.00										
	WM-100	Ported	4½				1½	Cone			160-17.5		10		4/8	6 x 6 x 9	Opt., Black Lacq.	Opt., Black Lacq.	8½	399.00	Pair	399.00										
	Triumph TS-5	Sat. & Subwoof.	(2)5¼, (2)6½	(2)4	Cones	(4)1½	Cones					93	10	131	8/8	Three Pieces	Black Alum. Dpt.	Black Alum. Dpt.	28	649.00	Sys.	399.00										
	Triumph TS-3	Sat. & Subwoof.	(2)5¼, (2)6½	(2)4½	Cones	(2)2¼	Cones					89	10	172	8/8	Three Pieces	Black Alum. Dpt.	Black Alum. Dpt.	28	649.00	Sys.	399.00										
MERIDIAN	D6000 (With remote control)	Powered Inf. Baf.	(4)8	6½	Cone	1	Dome	W, M, T			20-20 ±3		(4) 75 Inc. (3) 75 Inc. (3) 75 Inc. (2) 70 Inc.	200,2.6k			56 x 12 x 15	Dpt.	Black Knit	130	12,000.00	Pair										
	D600 (With remote control)	Powered, Triamp, Vented	(2)6½				1	Dome			36-20 ±3			2.5k			36 x 8 x 12	Opt., Wood	Black Knit	71	5000.00	Pair										
	M60	Powered, Triamp, Vented	(2)6½				1	Dome			36-20 ±3			2.5k			36 x 8 x 12	Opt., Wood	Black Knit	71	3000.00	Pair										
	M30II	Powered, Biamp, Vented	6½				1	Dome			40-20 ±3			2.5k			15 x 7 x 12	Opt., Wood	Black Knit	35	1990.00	Pair										
MERLIN INTL.	1B+	Bass Ref.	6½				1	Dome	T		45-20 ±3		87	20	3k	8/4	11 x 11 x 37	Oiled Oak	Black Foam	45	795.00	Pair	1100.00									
	2B+	Bass Ref.	8				1	Dome	T		38-20 ±3		90	20	3k	8/4	12 x 12 x 42	Oiled Oak	Black Foam	65	2170.00	Pair	3585.00									
	3B+	Bass Ref.	8	4½	Cone	1	Dome	M, T			33-20 ±3		89	30	500,3k	8/4	13 x 16 x 45	Oiled Oak	Black Foam	120	2085.00	Pair	8000.00									
	4B+	Bass Ref.	(2)8	(2)4½	Cones	1	Dome	M, T			30-20 ±3		90	50	500,3k	8/4	13 x 16 x 65	Oiled Oak	Black Foam	190	2085.00	Pair	8000.00									
	S1+1	Bass Ref.	(2)6½				1½	Dome	T		40-20 ±3		89	40	3k	8/4	11 x 11 x 57	Oiled Oak	Black Foam	95	2085.00	Pair	8000.00									
	Excalibur	Bass Ref.	(2)8	(2)4½	Cones	1	Dome	M, T			28-20 ±3		90	40	500,3k	8/4	15 x 17 x 67	Oiled Oak	Black Knit	250	8000.00	Pair										
MIRAGE	M760	Bass Ref.	(2)8				1	Dome			30-20 ±3		89	50	2.2k	8/4	37 x 11 x 14	Opt., Wood Ven.	Black	62	1000.00	Pair										
	M460	Bass Ref.	8				1	Dome			35-20 ±3		87.5	50	2.5k	8/4	25 x 10 x 10	Opt., Wood Ven.	Black	32	600.00	Pair										
	M360	Bass Ref.	8				1	Dome			40-20 ±3		88	40	2.8k	8/4	20 x 10 x 8	Opt., Wood Ven.	Black	20	400.00	Pair										
	M260	Bass Ref.	6½				¾	Dome			45-20 ±3		87	30	3k	8/4	14 x 9 x 8	Opt., Wood Ven.	Black	14	260.00	Pair										



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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Sagami Low Cost? Woofer W. Midrange - M, Tweeter T, Superwoofer - ST	Mecholic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance Ohms, Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
																			Woofer
MIRAGE (Continued)	M-1	Bipolar	(2)8	(2)4½	Cones	(2)¾	Domes		25-23 ±2	83	200	100,400, 2k	6/4	60 x 20 x 10	Black Gloss	Black Knit	185	5000.00 Pair	
	M-3	Bipolar	10	(2)4½	Cones	¾	Dome		30-20 ±2	85.5	100	400,2.2k	7/4	53 x 18 x 9	Black Gloss	Black Knit	130	2500.00 Pair	
	M-5	Bipolar	(2)6½			(2)¾	Domes		32-20 ±2.5	85.5	100	2.2k	6/4	49 x 16 x 8	Black Gloss	Black Knit	100	1500.00 Pair	
MISSION	760	Bass Ref.	5¼			¾	Dome		80-20 ±2.5	89	20	5k	6/4	11 x 7 x 8	Black Ash	Black Knit		229.00 Pair	
	761	Inf. Baf.	6½			¾	Dome		58-20 ±3	89	20	4.2k	6/5	8 x 15 x 9	Black Ash	Black Knit	13.2	289.00 Pair	
	762	Bass Ref.	8			¾	Dome		50-20 ±3	93	20	4.3k	8/4	10 x 20 x 11	Vinyl Dpt., Vinyl	Black Knit	20.9	449.00 Pair	
	763	Bass Ref.	8			¾	Dome		42-20 ±3	89	20	3.2k	8/4	10 x 30 x 13	Dpt., Vinyl	Black Knit	35.2	699.00 Pair	
	764i	Bass Ref.	8¼			1	Dome		40-20 ±3	90	25	3k	8/4	34 x 10 x 13	Opt., Wood	Black Knit	44	1099.00 Pair	
	765i	Inf. Baf.	8			1	Dome		35-20 ±3	93	50	2.5k	4/2	40 x 10 x 14	Dpt., Wood	Black Knit	110		
	767	Powered Inf. Baf.	(2)8¼, (2)6½			1	Dome	W	20-20 ±3	91	20	2k	8/6	11 x 55 x 17	Opt., Lacq.	Black Metal	220	4499.00 Pair	
	Cyrus 780	Bass Ref.	5¼			¾	Dome		70-20 ±2	90	20	5k	6/4	11 x 7 x 10	Opt., Lacq.	Black Knit		379.00 Pair	
	Cyrus 781	Bass Ref.	6½			¾	Dome		47-20 ±3	90.5	20	3.5k	8/6	9 x 20 x 11	Opt., Wood	Black Knit	19.8	599.00 Pair	
Cyrus 782	Inf. Baf.	(2)6½			¾	Dome		49-20 ±3	91.5	40	3.2k	4/3	10 x 20 x 13	Opt., Wood	Black Knit	30.8	899.00 Pair		
MITSUBISHI	M-S7050	Ported	(2)6			1	Dome	T	60-22 ±3	91	10	3k	6/4.5	22 x 11 x 10	Black	Black Knit	30	350.00	
	M-S8040	Ported Subwoof.	12					M.T	38-150			63-120 (Var.)		21 x 25 x 17	Black	Black Knit	72	799.00	
	M-S5100	Ported	12	5	Cone	1	Dome	M.T	35-27	91	30	700,4k	6/6	41 x 15 x 13	Black	Gray Knit	80	800.00	
M & K	S-100	Ac. Sus. Sat.	(2)5			(3)1	Domes	M,T	65-22 ±3	93	7.5	2k	4/4	11 x 12 x 9	Dpt., Lacq.	Black Knit	20	From 850.00 Pair	
	V-100	Powered Ac. Sus. Subwoof.	12					W	20-125 ±3		200	50-125 (Adj.)	600/ 15k	16 x 15 x 18	Dpt., Wood	Black Knit	60	995.00	
	MX-100	Powered Ac. Sus. Subwoof.	(2)12					W	20-125 ±3		200	50-125 (Adj.)	600/ 15k	24 x 15 x 17	Dpt., Wood	Black Knit	85	1295.00	
	MX-2000	Powered Ac. Sus. Subwoof.	(2)12					W	20-125 ±3		200	50-125 (Adj.)	600/ 15k	23 x 19 x 26	Black Oak	Black Knit	105	1695.00	
	MX-1000CC	Powered Ac. Sus. Subwoof. Ch. & Powered Ac. Sus. Subwoof.	(2)12	(2)5	Cones	(3)1	Domes	W,M, T	20-22 ±3	93	200	50-125 (Adj.), 2k	600/ 15k, 4/4	26 x 28 x 24	Gray Lacq.	Black Knit	135	1995.00	
	MX-1000	Powered Ac. Sus. Subwoof.	(2)12					W	20-125 ±3			Inc.	50-125 (Adj.)	15k	26 x 28 x 22	Gray Lacq.	Black Knit	115	1495.00
	S1B	Ac. Sus. Sat.	(2)5			(2)1	Domes	M,T	65-22 ±3	93	7.5	2k	4/4	21 x 8 x 8	Dpt., Wood	Black Knit	18	750.00 Pair	
	S2B	Ac. Sus. Sat.	6½			1	Dome	M,T	65-22 ±3	90	10	2k	4/4	13 x 9 x 8	Dpt., Wood	Black Knit	15	575.00 Pair	
	S3B	Ac. Sus. Sat.	5			1	Dome	M,T	85-22 ±3	90	10	2k	4/4	11 x 7 x 7	Dpt.	Black Knit	9	450.00 Pair	
	SX4	Ac. Sus. Sat.	(2)5			(2)1	Domes	M,T	65-22 ±3	93	7.5	2k	4/4	20 x 8 x 7	Black	Black Knit	14	525.00 Pair	
	SX7	Ac. Sus. Sat.	4			¾	Dome		100-20 ±3	87	5	2k	4/4	8 x 5 x 5	Black Metal	Perf. Metal	6	250.00 Pair	
	V1B	Powered Ac. Sus. Subwoof.	12					W	20-125 ±3			Inc.	50-125 (Adj.)	600/ 15k	18 x 19 x 17	Opt., Wood	Black Knit	50	875.00
	V2B	Powered Ac. Sus. Subwoof.	12					W	24-125 ±3			Inc.	50-125 (Adj.)	600/ 15k	18 x 19 x 17	Dpt., Wood	Black Knit	43	725.00
	V3B	Powered Ac. Sus. Subwoof.	12					W	24-125 ±3			Inc.	50-125 (Adj.)	600/ 15k	18 x 18 x 15	Black	Black Knit	38	625.00
VX4	Powered Ac. Sus. Subwoof.	12					W	30-125 ±3			Inc.	50-125 (Adj.)	600/ 15k	19 x 18 x 14	Black	Black Knit	38	475.00	
VX7	Powered Ac. Sus. Subwoof.	8					W	40-180 ±3			Inc.	90-180 (Adj.)	600/ 15k	12 x 10 x 10	Black	Black Knit	21	395.00	
MONITOR AUDIO (Continued)	Monitor 7	Ported	4½			¾	Dome	No	60-20 ±3	88	15		8/	14 x 7 x 7	Black	Black Knit	16	399.00 Pair	
	Monitor 9	Inf. Baf.	6			1	Dome	No	55-20 ±3	88	15		8/	15 x 8 x 8	Black	Black Knit	22	499.00 Pair	
	Monitor 11	Inf. Baf.	(2)6			1	Dome	No	50-20 ±3	88	15		8/	23 x 8 x 9	Black	Black Knit	39	799.00 Pair	
	Monitor 14	Inf. Baf.	(2)6			1	Dome	No	50-20 ±3	88	15		8/	30 x 8 x 9	Black	Black Knit	57	999.00 Pair	
	MA700 Gold	Ported	6			1	Dome	No	45-30 ±3	89	20		8/	14 x 9 x 10	Opt., Wood	Black Knit	35	1100.00 Pair	

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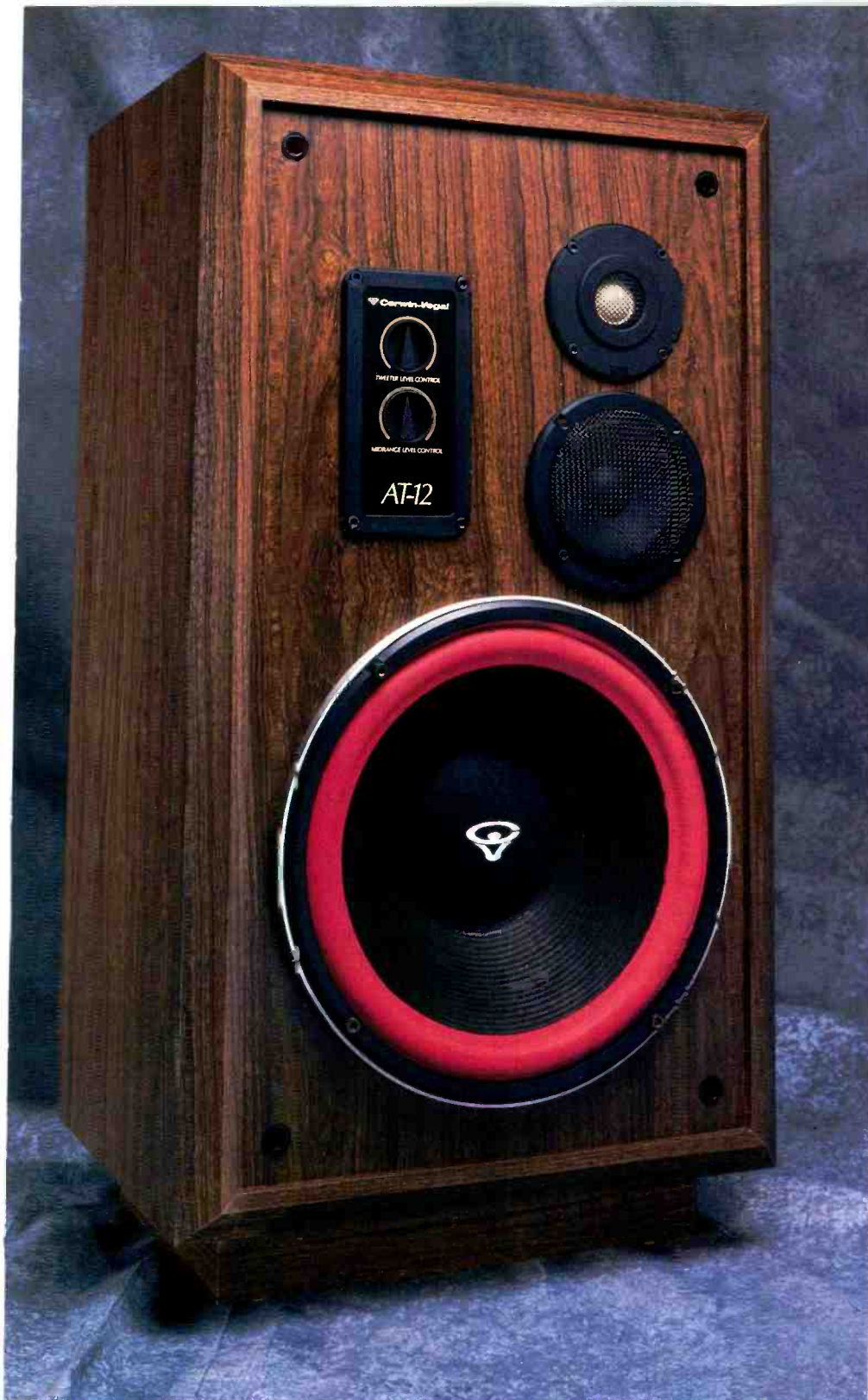
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type		Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Special Level Controls		SPL, -1 Watt/1 Meter, dB		Crossover Frequencies, Hz		Impedance, Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
		Woofer	System	Woofer	System	Midrange	System	Tweeter	System	Woofer	System	Woofer	System	Woofer	System	Woofer	System	Woofer	System				
MONITOR AUDIO (Continued)	MA852 Gold	Inf. Baf.	8			1	Dome	No		50-30 ±3	89	15		8/	18 x 10 x 11	Opt., Wood Dpt., Wood Dpt., Wood Dpt., Wood Dpt., Wood Dpt., Wood	Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit	46 Pair 40	1400.00 Pair 1800.00 Pair 2200.00 Pair 3600.00 Pair 3000.00 Pair				
	MA952 Gold	Inf. Baf.	(2)6			1	Dome	No		45-30 ±3	89	15		8/	31 x 9 x 13								
	MA1200 Gold	Ported	6			1	Dome	No		35-30 ±3	89	15		8/	36 x 8 x 10								
	MA1800 Gold	Ported	(2)6			1	Dome	No		35-30 ±3	89	20		8/	46 x 12 x 15								
	Studio 10	Ported	6			1	Dome	No		40-30 ±3	88.5	20		8/	16 x 8 x 10								
MORDAUNT-SHORT	3.10	Bass Ref.	5			3/4	Dome			75-22	88	15	5k	8/	11 x 7 x 8	Opt., Wood Dpt., Wood Dpt., Wood Dpt., Wood Dpt., Wood	Black Knit Black Knit Black Knit Black Knit Black Knit	8	249.00 Pair 349.00 Pair 449.00 Pair 549.00 Pair 899.00 Pair 2900.00 Pair				
	3.20	Bass Ref.	5			3/4	Dome			70-22	88	15	5k	8/	14 x 7 x 8								
	3.30	Bass Ref.	8			1	Dome			60-22	90	15	4k	8/	18 x 9 x 11								
	3.40	Bass Ref.	8			1	Dome			50-22	90	15	4k	8/	23 x 9 x 11								
	3.50	Trans. Line	8			1	Dome			45-22	90	15	4k	8/	35 x 9 x 15								
	442 MKII		7	7	Cone	1	Dome			50-20	87	50	250,5k	6/	37 x 10 x 15								
MOREL ACOUSTICS	Encore	Sat. & Subwoof. Ac. Sus.	(2)9	6		1.1	Dome			30-22 +1,-3	91	20	90,1.6k	4/	Three Pieces	Black Lacq. Wood Ven. Wal.	Black Cloth Black Knit Black Knit Black Cloth Black Knit Black Knit	48 Sys. 18	990.00 Sys. 640.00 Pair 400.00 Pair 498.00 Pair 395.00 Pair 545.00 Pair 695.00 Pair 995.00 Pair				
	MLP-203		6			1.1	Dome			45-28 ±3	89	15	1.8k	6/4	8 x 16 x 9								
	MLP-307	Vario-vent Ac. Sus.	(2)9			1.1	Dome			33-25 +1,-3	91	20	1k	4/	13 x 23 x 12								
	CR-7		6			1.1	Dome			70-25 ±3	90	15	1.6k	6/4	7 x 11 x 7	Black							
	MLP-201II	Ac. Sus.	9			1.1	Dome			40-20 ±3	90	10	1k	8/6	10 x 16 x 10	Wood Ven. Wood Ven. Wood Ven.							
	MLP-202II	Ac. Sus.	6			1.1	Dome			60-28 ±3	89	15	1.6k	6/4	8 x 13 x 10								
	MLP-403II	Ac. Sus.	9	3	Dome	1.1	Dome			38-25 ±3	90	20	500,5k	6/4	21 x 12 x 10	Wood Ven. Wood Ven. Wood Ven.							
	Duet	Ac. Sus.	6			1.1	Dome			40-22 ±3	91	15	1.8k	5/4	8 x 15 x 12	Wood Ven. Wood Ven. Wood Ven.							
MTX	WS 62	In-Wall	6			1	Dome			62-22 ±3	93		3.5k	6/	16 x 11 x 2	White	Cloth				174.95		
	WS 82	In-Wall	8			1	Dome			55-22 ±3	94		1.8k	6/	18 x 12 x 3	White	Cloth				174.95		
	WS 103	In-Wall	10	5	Cone	1	Dome			48-22 ±3	95		650,3.7k	6/	26 x 14 x 4	White	Cloth				224.95		
	WS 10	In-Wall Subwoof. Vented	10							38-800	93		800	4/	14 x 14 x 4	White	Cloth				149.95		
	PRO110		10	4 1/2	Cone	1	Dome			75-21	94.8	15	2k,5k	4/8	18 x 14 x 13	Gray Cptg. Gray Cptg. Gray Cptg. Gray Cptg. Gray Cptg. Gray Cptg.	Black Steel Black Steel Black Steel Black Steel Black Steel Black Steel	42	399.95				
	TA-2	Tweeter Array Vented	15	(2)5	Cones	3	Domes			5k-17k	98	15	6k	4/	7 x 12 x 7			27 Pair 77	229.95 Pair 699.95				
	PRD115		15	(2)5	Cones	3	Horn			60-21	96.6	15	2k,5k	8/	21 x 30 x 16								
	PRO210		(2)10	(2)5	Cones	3	Horn			70-21	98.6	15	2k,5k	8/	23 x 18 x 13								
	PRO215		(2)15	(2)5	Cones	3	Horn			50-21	99.2	15	2k,5k	8/	19 x 47 x 16								
MUSEATEX AUDIO	Melior One	Planar								30-20 ±5	90	30		6		Mahog	Black Knit	60	2250.00 Pair				
NAIM AUDIO	SBL		8			3/4	Dome			30-20 ±3	88		2.4k	6/6	11 x 11 x 34	Black Ash	Black Foam	60	2895.00 Pair w/ Stands				
	IBL		6			3/4	Dome			45-20 ±3	87		2.4k	6/6	10 x 11 x 32	Black Ash	Black Foam	30	1490.00 Pair w/ Stands				
NEAR	NEAR-30M	Vented	8			1	Dome			46-23 ±2	88	30	1.8k	8/6	17 x 10 x 11	Oiled Wal. Oak	Brown Knit Black Knit Black Knit	30	720.00 Pair 899.00 Pair 1540.00 Pair 338.00 Pair 598.00 Pair 998.00 Pair 1598.00 Pair 550.00 Pair 499.00 Pair 699.00 Pair 2200.00 Pair 4200.00 Pair 7500.00 Pair				
	NEAR-40M	Vented	8			1	Dome			34-23 ±2	88	30	1.8k	8/6	34 x 10 x 10								
	NEAR-50M	Vented	8	4	Cone	1	Dome			34-23 ±2	88	50	250,4k	8/5.5	48 x 10 x 11	Oiled Wal. Black Knit Black Knit	Brown Knit Black Knit	55	1540.00 Pair 338.00 Pair 598.00 Pair 998.00 Pair 1598.00 Pair 550.00 Pair 499.00 Pair 699.00 Pair 2200.00 Pair 4200.00 Pair 7500.00 Pair				
	NEAR-10	Vented	8			3/4	Dome			48-22 ±3	90	20	3.3k	8/6	20 x 10 x 10	Black							
	NEAR-20	Vented	(2)8			3/4	Dome			48-22 ±3	92	20	500,3k	8/5	34 x 10 x 10	Black							
	NEAR-60	Vented	12	4	Cone	1	Dome			38-21 ±3	93	25	800,2.5k	8/5	27 x 15 x 11	Oak	Black Knit Black Knit Black Knit	40	998.00 Pair 1598.00 Pair 550.00 Pair 499.00 Pair 699.00 Pair 2200.00 Pair 4200.00 Pair 7500.00 Pair				
	NEAR-80	Inf. Baf.	12	6	Cone	1, 3/4	Cone, Dome Dome			34-22 ±3	92	25	400,2.5k, 13k	8/5	41 x 15 x 12	Oiled Wal. White	Black Knit Black Knit White	70	1598.00 Pair 550.00 Pair 499.00 Pair 699.00 Pair 2200.00 Pair 4200.00 Pair 7500.00 Pair				
	PS-2.0	In-Wall	6			3/4	Dome			55-25 ±2	88	30	3.3k	8/5	9 x 12 x 3								
	AES-1.5	Outdoor	6			2	Cone			60-18 ±3	88	17	4k	8/6	14 x 8 x 8	Opt., Resin Opt., Resin Opt., Resin	PVC	17	499.00 Pair 699.00 Pair 2200.00 Pair 4200.00 Pair 7500.00 Pair				
	AES-2	Outdoor	8			2	Cone			45-18 ±3	88	22	2.5k	8/6	20 x 13 x 12								
	CS-302M	Inf. Baf.	12	6	Cone	2, 3/4	Cone, Dome Cones			32-20 ±2	92	25	400,2.5k, 13k	8/5	30 x 27 x 16	Oiled Wal. Oiled Wal. Oiled Wal.	Brass Mesh Brass Mesh Brass Mesh	75	2200.00 Pair 4200.00 Pair 7500.00 Pair				
	CS-4000M	Inf. Baf.	(2)12	6	Cone	(8)2	Cones			28-20 ±3	92	50	400,2.5k	8/6	44 x 27 x 16								
	CS-410M	Inf. Baf.	(4)12	(2)6	Cones	(8)2	Cones			20-20 ±2	94	50	400,2.5k	8/6	52 x 36 x 19								



Can you think of any rock and roll song that actually sounds better at a low volume?

(Well, okay, maybe *Sugar, Sugar* by the Archies).

Simply, for most of us, great rock and roll is best when it's played loud. And clear.

Which is precisely where we come in. At Cerwin-Vega, we build loudspeakers so you, and your neighbors, can hear everything from booming

bass to guitars gently weeping.

In fact, our three series of loudspeakers (the AT, SE, and D-Series) can reproduce bass all the way down to a throbbing 30 Hertz. And all the way up to 28,000 Hertz.



There are 6 models in our high-tech SE Series (above). Cerwin-Vega AT-Series loudspeakers (left) are available in 4 models.

What's more, every Cerwin-Vega speaker can run on as little as 5 watts. On the other hand, our 15" models can handle up to 400 watts of continuous power.

And reach a volume level of 127 very loud decibels.

Of course, in this magazine, every speaker sounds exactly the same. Silent.



Cerwin-Vega D-Series loudspeakers are available in 5 models: From the 8 1/2-way D-1 to the 15 1/3-way D-9.

So we suggest you take your favorite discs to your favorite store and ask to listen to Cerwin-Vega speakers.

Tell them you'd just like to hear the sound of a little live ammunition.

Cerwin-Vega!

For more information please write or call Cerwin-Vega:
555 East Easy St., Simi Valley, CA 93065 805-584-9332
Cerwin-Vega Canada: 2360 Midland Ave., Scarborough,
Ontario M1S4A9 Cerwin-Vega Europe: Grynderupvej 12,
P.O. Box 40, DK-9610 Norager, Denmark

If rock and roll is rebellion, this is live ammunition.

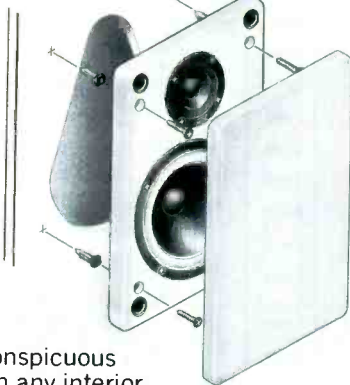
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OUR IN-WALLS WILL FLOOR YOU.

In the past the most carefully-planned home entertainment systems have been implemented using twenty-year old technology background music and paging speakers. Not so with the MTX In-Wall Loudspeaker Series. Our engineers were not satisfied with the cheap plastic frame speakers that evolved from car speaker systems. They were determined to design the best solid high fidelity In-Walls using home components. **MTX In-Walls are home stereo systems adapted for In-Wall use, not car stereo makeovers. Now you can sit back and enjoy an exceptional performance and a complete system that looks, sounds, and functions better than anything you've ever experienced. And you can enjoy the extra space because you've eliminated monster speaker cabinets in your listening area.**

Clean and accurate sonic performance. Wide dispersion. Life-like stereo imaging. All from a small, inconspicuous flush-mount speaker that blends with any interior. The supplied templates make installation a breeze and once mounted securely in the wall, the In-Walls will actually make the wall stronger and more rigid, improving the sonic quality of the system.



Choose a 6" or 8" two-way, or our 10" three-way system, **the only 10" three-way system on the market today.** Or the 10" subwoofer unit with a built-in cross-over network. This model will give you astonishing bass performance and is compatible with other in-walls that lack bass extension. MTX has the right sound and fit for any place in your home.

And because MTX builds its own components, quality is a part of each MTX In-Wall. **We back our MTX In-Wall speakers, as we do all of our loudspeakers, with an incredible 10-year warranty.** Now you can add value to your home confidently.

For the MTX dealer nearest you call 1-800-223-5266, or write us at 555 W. Lamm Road, Freeport, Illinois 61032. When calling, please refer to ad number 10977.

Find out more about MTX In-Wall Loudspeakers. The sound that'll floor you.

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Serious about sound

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Special Level Controls			Amp. Power, Watts/Ch.			Impedance, Ohms			Finish	Grille Color and Material	
			Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Woofer M. Woof.	Midrange M. Woof.	Tweeter M. Woof.	W	T	ST	Recommended Min. Amp. Power, Watts/Ch.	Nominal	Minimum	Dimensions, Inches (To Nearest Inch)	Weight, Lbs.	Price, \$				
OHM ACOUSTICS (Continued)	Ohm 16 SBA	Vented	6 1/2			3/4	Dome		46-20 ± 4	89	15		8/	17 x 9 x 11	Opt.	Black Knit	48 Pair	400.00 Pair					
	Ohm 32 SBA	Pas. Rad.	6 1/2			3/4	Dome		37-20 ± 4	90	15		8/	22 x 13 x 11	Opt.	Black Knit	38	520.00 Pair					
	Ohm 42 SBA	Pas. Rad.	8			3/4	Dome		30-20 ± 4	91	15		8/	25 x 14 x 11	Opt.	Black Knit	49	680.00 Pair					
	PRO 150	Coherent Line Source							42-20 ± 4	91	10		8/	12 Dia. x 35	Opt.	Black Knit	51 Pair	850.00 Pair					
	PRO 200	Coherent Line Source							39-20 ± 4	91	10		8/	12 Dia. x 39	Opt.	Black Knit	54 Pair	1100.00 Pair					
	PRO 250	Coherent Line Source							35-20 ± 4	91	10		8/	12 Dia. x 46	Opt.	Black Knit	57 Pair	1400.00 Pair					
	1X0	Coherent Line Source							48-20 ± 4		10		8/	32 x 11 x 11	Wal.	Black Knit	24	900.00 Pair					
	2X0	Coherent Line Source							44-21 ± 4		15		8/	32 x 11 x 11	Opt.	Black Knit	29	1150.00 Pair					
	3X0	Coherent Line Source							36-22 ± 4		18		8/	36 x 13 x 13	Opt.	Black Knit	48	1650.00 Pair					
	4X0	Coherent Line Source							32-25 ± 4		30		8/	40 x 15 x 15	Opt.	Black Knit	63	2500.00 Pair					
	Walsh 5	Coherent Line Source							25-25 ± 4		100		4/	43 x 17 x 17	Opt.	Black Knit	95	From 6000.00 Pair					
OT 18-30	Sat. & Subwoof.	12, (2) 5 1/4			1, (2) 3/4	Domes		28-20	90	40		8/	Three Pieces	Black Vinyl, Black Alum. Black Alum.	Black Knit	80 Sys.	850.00 Sys.						
OT SAT	Ac. Sus.	5 1/4			3/4	Dome		95-20	90	15		8/	7 x 6 x 5		Black Knit	6	350.00 Pair						
OMNI SOUND	TCM 1	Vented	6 1/2			1	Dome		62-22 ± 3	90	20	3k	4/3.5	8 x 9 x 13	Vinyl Lam.	Black Knit	22	500.00 Pair					
	TCM 2	Vented	8			1	Dome		50-22 ± 3	92	20	3k	8/7	11 x 12 x 20	Vinyl Lam.	Black Knit	35	560.00 Pair					
	TCM 3	Vented	8			1	Dome		36-22 ± 3	92	20	3k	8/7	11 x 13 x 36	Vinyl Lam.	Black Knit	55	660.00 Pair					
ONKYO	S-01	Ac. Sus.				1			40-15	95			8/	7 x 11 x 6	Black	Black Knit	7 Pair	79.95 Pair					
	S-05	Ac. Sus.				1			40-15	95			8/	7 x 11 x 6	Oak	Black Knit	7 Pair	79.95 Pair					
OPTIMUS	Mach Two	Tuned Port	15	5	Cone	4	Horn	M. ST	25-40	94		850,6k	8/	29 x 18 x 13	Oiled Wal.	Brown Knit	46	259.95					
	1050	Tuned Port	15	5	Cone	3	Cone		60-20	90			8/	30 x 18 x 12	Oiled Wal.	Brown Knit	44	199.95					
	990	Tuned Port	15				Piezo Horn		55-20	92			8/	23 x 20 x 11	Oiled Wal.	Brown Knit		169.95					
	950	Tuned Port	12	5	Cone	3	Cone		55-20	90			8/	30 x 14 x 11	Oiled Wal.	Brown Knit	33	169.95					
	650	Tuned Port	10	5	Cone	3	Cone		60-20	91			8/	27 x 12 x 10	Oiled Wal.	Brown Knit	24	119.95					
OWI	290	Sat. & Subwoof.	5 1/4	4		2			40-20	92	25	430,6k	8/8	Three Pieces	Alum.	Black	16 Sys.	399.00 Sys.					
PARADIGM	3se-mini	Bass Ref.	6 1/2			1	Dome		55-20 ± 2	88	20	3k	6/5	15 x 9 x 10	Opt.	Black Knit	35 Pair	130.00					
	3se	Bass Ref.	8			1	Dome		45-20 ± 2	91	15	2.5k	6/5	20 x 10 x 11	Opt.	Black Knit	44 Pair	150.00					
	5se	Bass Ref.	8			1	Dome		38-20 ± 2	90	15	2.5k	8/6	21 x 10 x 12	Opt.	Black Knit	48 Pair	185.00					
	7se	Bass Ref.	8			1	Dome		32-20 ± 2	91	15	2.3k	8/6	24 x 11 x 12	Opt.	Black Knit	55 Pair	245.00					
	9se	Bass Ref.	(2)8			1	Dome		38-20 ± 2	95	15	2k	4/4	28 x 12 x 14	Opt.	Black Knit	77 Pair	325.00					
	11se MkII	Bass Ref.	(2)8			1	Dome		33-20 ± 2	93	15	1.8k	8/4	30 x 12 x 15	Opt.	Black Knit	120 Pair	435.00					
	Compact Monitor	Bass Ref.	6 1/2			1	Dome		40-20 ± 2	88	20	2k	6/5	16 x 9 x 12	Opt., Wood	Black Knit	45 Pair	300.00					
	Control Monitor	Bass Ref.	8			1	Dome		39-20 ± 2	90	15	2k	8/6	20 x 10 x 14	Opt., Wood	Black Knit	55 Pair	350.00					
	Export Monitor	Bass Ref.	8			1	Dome		28-20 ± 2	89	15	2k	8/6	24 x 11 x 14	Opt., Wood	Black Knit	70 Pair	420.00					
	Studio Monitor	Bass Ref.	(2)8	6 1/2	Cone	1	Dome		28-20 ± 2	92	15	500,2.1k	6/5	43 x 12 x 17	Opt., Wood	Black Knit	180 Pair	975.00					
AMS-200	In-Wall Inf. Baf.	6 1/2		Cone	1	Dome		70-20 ± 2.5	88	15	2k	8/6	12 x 8 x 3	Wood White	White Steel	12 Pair	Kit, 185.00						
PARAMOUNT PICTURES	System 330	Sat. & Subwoof.	8	5 1/4	Cone	1/2	Dome		37-17	89	20	200,3.5k	4/	Three Pieces	Gray Fabr. Oak Lacq.	Gray	42 Sys.	499.00 Sys.					
	System 510	Sat. & Subwoof.	8	6 1/2	Cone	3/4	Dome		28-20	91	20	100,3.5k	6/4	Three Pieces	Oak Lacq. Oak Lacq.	Black	80 Sys.	799.00 Sys.					
	PT 2.7		6 1/2			3/4	Dome		40-20	89	20	3.5k	6/4	38 x 10 x 8	Oak Lacq. Oak Lacq.	Black	39	454.00 Pair					
	TT 3.0		6 1/2	6 1/2	Cone	1	Dome		32-20	91	20	150,3.5k	6/4	44 x 13 x 10	Oak Lacq. Oak Lacq.	Black	51	618.00 Pair					
	GS-350	Outdoor	8	8	Cone	2	Cone		80-17	88	20	4k	8/6	14 x 14 x 14	Text. Plast.	Green	11	143.00					

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches				Midrange Diameter, Inches				Tweeter Diameter, Inches				Separate Level Crossover W. M. Tweeter - Superwoofer - ST				Anchoic Frequency Response, SPL, 1 Watt/1 Meter, dB				Crossover Frequencies, Hz				Impedance, Ohms: Nominal/Minimum				Dimensions Inches (To Nearest Inch)				Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
			Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Crossover W. M. Tweeter - Superwoofer - ST	Anchoic Frequency Response, SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$																									
PARAMOUNT PICTURES (Continued)	D-350	Outdoor	8			3	Dome	60-12	93	20	4k	8/6	14 x 14 x 14	Opt., Plast. Text. White	Opt.	12	183.00																									
	Granite 377B	Outdoor	8			2	Cone	40-17	95	20	4k	8/6	14 x 14 x 14	Black	15	320.00																										
	PS-300		8			4	Horn	80-17	88	20	4k	8/6	42 x 13 x 13	None	12	122.00																										
	Series P-652	In-Wall Inf. Baf.	6 1/2			1/2	Dome	50-24	90	20	3.5k	8/6	10 x 7 x 3	Opt.	3	204.00																										
	Series P-552	In-Wall Inf. Baf.	5 1/4			1/2	Dome	65-24	89	20	4k	8/6	9 x 6 x 3	Opt.	2	190.00																										
	Series P-653-S	In-Wall Inf. Baf.	6 1/2			1/2	Dome	80-24	92	20	6k	8/6	10 x 8 x 3	Opt.	2	176.00																										
	Series Tech 6	In-Wall, Inf. Baf. Subwoof.	6 1/2					32-150	92	20		8/6	15 x 10 x 3	Opt.	Opt.	300.00																										
PARASOUND	AWS280	Outdoor Inf. Baf.	5 1/4			2	Cone	55-20 ±3	88	10	3k	8/	7 x 9 x 7	White Metal	White Steel	10	255.00																									
	AWM360	Outdoor Inf. Baf.	4			1	Dome	65-20 ±3	86	10	2.6k	8/	5 x 7 x 5	White Metal	White Steel	4 1/2	200.00																									
	AWM380	Outdoor Inf. Baf.	5 1/4			1	Dome	48-20 ±3	88	10	2.4k	8/	7 x 9 x 7	White Metal	White Steel	10 1/2	325.00																									
PASO SOUND	C-1000	Ac. Sus.	5 1/2			(1)		100-20	89		14k	16/3	17 x 6 x 4	Beige Steel Opt., Plast.	Steel Mesh	9	232.00																									
	C-90	Ac. Sus.	5 1/2			(1)		100-20	85		14k	8/3	11 x 7 x 5	Opt., Plast.	Steel Mesh	5	102.00																									
PEGASUS AUDIO	Alpha IIA	Vented	6 1/2			1	Dome	48-20 ±3	88	15	5k	8/6.6	20 x 13 x 9	Wal. Lam.	Brown Knit	26	250.00; Kit, 150.00																									
	Delta	Vented	6 1/2			1	Dome	37-22 ±3	88	25	4k	6/4	20 x 13 x 9	Opt.	Opt.	27	390.00; Kit, 275.00																									
	Trio	Sealed Sat. & Subwoof.	6 1/2	4 1/2	Cone	3/4	Dome	50-24 ±3	92	25	150,5k	8/6.8	Three Pieces	Opt.	Opt., Cloth	67 Sys.	1099.00 Sys.; Kit, 500.00																									
	Quartet	Sealed Sat. & Vented Subwoof.	6 1/2	4 1/2	Cone	3/4	Dome	46-24 ±3	92	25	150,5k	8/7	Four Pieces	Opt.	Opt., Cloth	70 Sys.	1299.00 Sys.; Kit, 600.00																									
PHASE TECHNOLOGY	335ES	Tuned Port	6 1/2			1	Dome	65-20 ±3	90	10	3.5k	8/6	8 x 14 x 8	Opt.	Black Knit	26 Pair	240.00																									
	435ES	Ac. Sus.	8			1	Dome	45-20 ±3	92	10	2.5k	8/6	11 x 12 x 23	Opt.	Black Knit	57 Pair	330.00																									
	530ES	Ac. Sus.	10			1	Dome	40-20 ±3	92	15	2.2k	8/6	11 x 13 x 24	Opt.	Black Knit	33	420.00																									
	730ES	Tuned Port	10	5 1/4	Cone	1	Dome	36-20 ±3	93	15	550,3.5k	8/6	11 x 13 x 34	Opt.	Black Knit	58	630.00																									
	PC 40	Ac. Sus.	5 1/4			1	Dome	70-20 ±3	89	15	1.8k	4/3.5	6 x 5 x 10	Opt.	Black Knit	20 Pair	380.00																									
	PC 50	Ac. Sus. Subwoof.	10					30-150 ±3	88	25	95	8/6	13 x 14 x 15	Opt.	Black Knit	33	350.00																									
	PC 60	Ac. Sus.	6			1	Dome	55-20 ±3	88	25	2.1k	6/4	9 x 8 x 13	Opt.	Black Knit	30 Pair	480.00																									
	PC 60/50	Ac. Sus.	10	6	Solid Piston	1	Dome	30-20 ±3	87	25	95,2.1k	8/6	Three Pieces	Opt.	Black Knit	65 Sys.	830.00																									
	PC 80	Tuned Port	6		Solid Piston	1	Dome	50-20 ±3	88	25	2.5k	6/4	10 x 11 x 16	Opt.	Black Knit	32	650.00																									
	PC 6.5	Ac. Sus.	8	5 1/4	Solid Piston	1	Dome	42-20 ±2	88	25	450,2k	4/4	11 x 9 x 36	Opt.	Black Knit	58	900.00																									
	PC 8.5	Ac. Sus.	10	5 1/4	Solid Piston	1	Dome	35-20 ±2	90	25	350,2k	4/4	13 x 12 x 36	Opt.	Black Knit	90	1200.00																									
	PC 90	Ac. Sus. Subwoof.	10					27-90	87	25	90	6/6	16 x 17 x 20	Opt.	Black Knit	57	550.00																									
	CI-20	In-Wall Sat.	6			2 1/4	Cone	55-18	90	15	2.8k	8/6	8 x 12 x 3	White Matte	White Perf. Steel	5	140.00																									
	CI-40	In-Wall Sat.	5 1/4			1	Dome	55-20	90	15	1.5k	4/4	8 x 12 x 4	White Matte	White Perf. Steel	8	190.00																									
CI-60	In-Wall Sat.	6			1	Dome	40-20	90	15	1.2k	4/4	8 x 12 x 4	White Matte	White Perf. Steel	8	240.00																										
CI-SUB	In-Wall Subwoof.	6x9					28-90	90	25	90	4/4	8 x 12 x 4	White Matte	White Perf. Steel	9	225.00																										
PHILIPS	FB-750	Tuned Port	7			3/4	Dome	46-20	87	10	5k	8/4	11 x 16 x 8	Rswd. Vinyl	Black Knit	10	100.00																									
	FB-770	Tuned Port	8	1	Dome	3/4	Dome	40-20	89	10	3k,10k	8/4	12 x 22 x 9	Rswd. Vinyl	Black Knit	15	125.00																									
	FB-790	Tuned Port	8	1	Dome	3/4	Dome	37-20	89	10	3k,10k	8/4	12 x 23 x 9	Rswd. Vinyl	Black Knit	16	150.00																									
	FB-815	Inf. Baf.	8	4	Cone	3/4	Dome	43-20	88	10	600,6k	8/	11 x 24 x 13	Rswd. Vinyl	Black Knit	30	250.00																									
	FB-820	Inf. Baf.	(2)7	4	Cone	3/4	Dome	38-20	88	10	350,6k	8/	11 x 35 x 13	Rswd. Vinyl	Black Knit	43	300.00																									
	FB-825	Inf. Baf.	(2)8	4	Cone	1/2	Planar Ribbon	32-20	88	10	350,5k	8/	11 x 41 x 13	Rswd. Vinyl	Black Knit	63	400.00																									
	FB-1000	Inf. Baf.	(2)8	1	Planar Ribbon	1/2	Planar Ribbon	30-40	87	30	100,2.2k, 13k	7/	14 x 55 x 16	Rswd. Vinyl	Black Knit	160	2000.00																									

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls? Woofer, W. Range; M. Woofer; T. Superwoofer; ST	Antioctic Frequency Response, Hz to MHz, ±dB	SPL, 1 Watt-1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
PHYSICS	Illusion FS		6	6	Cone	2	Ribbon		57-22	86	50	100, 150, 1.2k, 3k, 7k, 15k	4/4	12 Dia. x 35	Black Lacq. Oak	Black Knit	45	1500.00 Pair
PINNACLE	PN2 +	Ported	4			3/4	Dome		65-21 ±4	86	5	5.5k	6/	11 x 6 x 7	Black Oak Vinyl	Black Knit	14 Pair	139.00 Pair
	PN5 +	Ported	5 1/4			3/4	Dome		50-21 ±3	86	10	5k	6/	11 x 7 x 6	Black & Oak	Black Knit	17 Pair	179.00 Pair
	PN6 +	Ported	6 1/2			3/4	Dome		40-21 ±3	88	10	4.5k	6/	14 x 9 x 8	Black & Oak	Black Knit	25 Pair	229.00 Pair
	PN7 +	Ported	6 1/2			1	Dome		38-21 ±3	89	10	3.3k	6/	15 x 9 x 8	Black & Oak	Black Knit	35 Pair	299.00 Pair
	PN8 +	Dual Port	8			1	Dome		30-21 ±2.5	89	10	2.2k	6/	20 x 12 x 11	Black & Oak	Black Knit	35 Pair	429.00 Pair
	PN Sub +	Subwoof.	(2)6 1/2					W	35-150	89	20	80	4/	11 x 20 x 12	Black Oak Vinyl	Black Knit	36	279.00
PIONEER	S-T500	Bass Ref.	(2)8	4	Cone	1	Dome		20-40	88		800,4k	6/	13 x 40 x 14	Oak	Black Knit	70 3/8	1000.00 Pair
	S-T300	Bass Ref.	(2)7			1	Dome		25-40	88		2k	6/	10 x 35 x 13	Oak	Black Knit	44 1/8	700.00 Pair
	S-T100	Bass Ref.	(2)7			1	Dome		30-40	88		2k	6/	10 x 23 x 13	Oak	Black Knit	30 7/8	500.00 Pair
	CS-C300	Bass Ref.	7			2 1/2	Cone		50-20	88			8/	9 x 14 x 7	Black	Black Knit	71 3/4	70.00
	TZ-9	Bass Ref.	(2)10	2 1/2	Cone	1	Dome		20-40	91		800,4k	4/	15 x 47 x 17	Oak Ven.	Black Knit	143	4000.00 Pair
	TZ-7	Bass Ref.	(2)8	4	Cone	1	Dome		20-40	89		800,4k	4/	13 x 40 x 14	Oak Ven.	Black Knit	77	1800.00 Pair
	CS-VX110	Inf. Baf.	7			2 1/2	Cone		50-20	88			8/	6 x 8 x 5	Oak Ven. Black	Black Knit	23 1/8	160.00
	S-X7	Bass Ref.	3 1/2						100-20	90			16/	5 x 8 x 5			31 3/8	130.00 Pair
	SW-1000	Subwoof.	12						20-140				6/	20 x 21 x 17	Black	Black Knit	46 1/2	500.00
	CS-V99	Bass Ref.	10	3 3/8	Cone	2 1/2	Cone		30-30	91			8/	13 x 43 x 13	Black Vinyl	Black Knit	59	300.00
	CS-V55	Bass Ref.	7			1	Dome		30-40	88		2k	6/	10 x 23 x 13	Black Vinyl	Black Knit	34	140.00
	CS-G403	Bass Ref.	15 3/4	4 3/4	Cone	2 1/2	Cone		30-20	92		2.5k,7k	6/	17 x 29 x 12	Oak Vinyl	Black Knit	36 3/8	190.00
	CS-G303	Bass Ref.	12	4 3/4	Cone	2 1/2	Cone		35-20	91		3.5k,7k	6/	15 x 27 x 13	Oak Vinyl	Black Knit	29 3/4	150.00
CS-G203	Bass Ref.	10	3	Cone	2 1/2	Cone		40-20	90		3k,6k	6/	14 x 24 x 12	Oak Vinyl	Black Knit	21	110.00	
CS-G103	Ac. Sus.	10			2 1/2	Cone		55-20	90		5k	6/	13 x 22 x 8	Oak Vinyl	Black Knit	14 3/8	80.00	
PLEXUS AUDIO SYSTEMS	SWS-2	Slot Loaded Subwoof. Trans. Line	(2)10					W	24-100 ±2	93	30	100	8/8	30 x 15 x 22	Opt., Wood	Black Knit	50	795.00
	SW-1		(2)8	4	Cone	3/4	Dome		22-28 ±2	92	60	250,2.8k	6/4	11 x 12 x 45	Opt.	Black Knit	48	3495.00 Pair
POLK AUDIO	SRS1.2TL	Pas. Rad.	15	(8)6 1/2	Cones	(4)1	Domes		27-25 +0.3	91	50	45,2k	6/	64 x 21 x 13	Opt., Wood	Black Cloth	185	1699.95
	SRS2.3TL	Pas. Rad.	15	(6)6 1/2	Cones	(3)1	Domes		30-25 +0.3	90	50	45,2k	6/	55 x 21 x 13	Opt., Wood	Black Cloth	141	1249.95
	SRS3.1TL	Pas. Rad.	12	(5)6 1/2	Cones	1	Dome		35-25 +0.3	90	50	50,2k	6/	48 x 16 x 13	Opt., Wood	Black Cloth	101	999.95
	SRS4.1TL	Pas. Rad.	10	(2)6 1/2	Cones	1	Dome		42-25 +0.3	89	30	60,3k	6/	13 x 20 x 10	Opt., Wood	Black Cloth	36	499.95
	RTA15TL	Pas. Rad.	(2)10	(4)6 1/2	Cones	1	Dome		27-25 +0.3	90	30	60,3k	8/	43 x 13 x 16	Opt., Wood	Black Cloth	77	699.95
	RTA11TL	Pas. Rad.	(2)8	(2)6 1/2	Cones	1	Dome		29-25 +0.3	90	30	60,3k	6/	38 x 11 x 15	Opt.	Black Cloth	58	499.95
	RTA8TL	Ported	(2)8	(2)6 1/2	Cones	1	Dome		42-23 +0.3	89	20	3k	6/	33 x 9 x 12	Opt.	Black Cloth	39	324.95
	Monitor 12 Series 2	Pas. Rad.	12	(4)6 1/2	Cones	1	Dome		35-23 +0.3	91	20	60,3k	6/	38 x 16 x 12	Opt.	Black Cloth	60	499.95
	Monitor 10 Series 2	Pas. Rad.	10	(2)6 1/2	Cones	1	Dome		37-23 +0.3	89	20	60,3k	6/	28 x 15 x 12	Opt.	Black Cloth	46	369.95
	Monitor 7 Series 2	Pas. Rad.	10	6 1/2	Cone	1	Dome		40-23 +0.3	89	20	60,3k	6/	24 x 13 x 10	Opt.	Black Cloth	33	289.95
	Monitor 5 Series 2	Pas. Rad.	8	6 1/2	Cone	1	Dome		43-23 +0.3	90	20	60,3k	6/	22 x 10 x 10	Opt.	Black Cloth	24	224.95
	Monitor 5JR + Series 2	Pas. Rad.	6 1/2	6 1/2	Cone	1	Dome		46-23 +0.3	90	20	60,3k	6/	20 x 9 x 10	Opt.	Black Cloth	20	174.95
	Monitor 4.6 Series 2	Ported	6 1/2			1	Dome		48-23 +0.3	90	20	3k	6/	17 x 9 x 10	Opt.	Black Cloth	17	139.95
	Monitor 4 Series 2	Ported	6 1/2			1	Dome		53-20 +0.3	91	20	4.5k	6/	15 x 9 x 8	Opt.	Black Cloth	12	99.95
	AB900	In-Wall Sat. & Subwoof.	(2)6 1/2	2 1/2	Cone	3/4	Dome		40-20 +0.3	88	20	175,4k	6/	Three Pieces	Ivory Plast.	Opt.	45 Sys.	799.95 Sys.
	AB800	In-Wall	(2)6 1/2			1	Dome		52-20 +0.3	91	10	3k	6/	6 x 16 x 3	Ivory Plast.	Opt.	12 Pair	549.95 Pair
	AB700	In-Wall	6 1/2			1	Dome		55-20 +0.3	90	10	3k	6/	6 x 10 x 3	Ivory Plast.	Opt.	8 Pair	399.95 Pair
AB500	In-Wall	5 1/4			3/4	Dome		56-20 +0.3	91	10	3k	6/	7 x 10 x 3	Ivory Plast.	Opt.	6 Pair	249.95 Pair	
RM3000	Sat. & Subwoof.	(2)6 1/2, 10	3 1/2	Cone	3/4	Dome		42-18 +0.3	88	10	175,3k	6/	Three Pieces	Opt.	Opt.	46 Sys.	749.95 Sys.	

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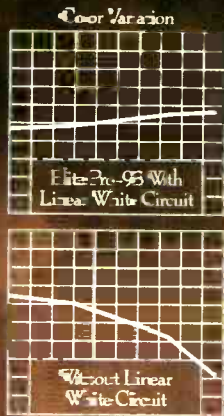
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Separate Level Controls? Woofer = W, Midrange = M, Tweeter = T, Super-tweeter = ST	Impedance, Ohms	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Nominal Minimum Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Frequency Response, Hz to kHz, ±dB												
POSH	528d	In-Ceiling	8	8	Cone	3/4	Dome					58-22	87	20	150	8/6	18 x 14 x 7	Dpt., Plast.	White	12	450.00 Pair
PRECISE ACOUSTIC LABORATORIES	Monitor 3	Tuned Port	6 1/2			1	Dome					48-22 ± 5	89	30		7/4	8 x 15 x 13	Opt., Wood	Black Knit	13 1/4	299.00 Pair
	Monitor 5	Tuned Port	8			1	Dome					32-24 ± 5	90	40		7/4	10 x 21 x 12	Opt., Wood	Brown Knit	23 1/8	399.00 Pair
	Monitor 7	Tuned Port	8			1	Dome					28-24 ± 5	91	50		7/4	11 x 28 x 12	Opt., Wood	Brown Knit	41 7/8	499.00 Pair
	Monitor 9	Tuned Port Pas. Rad.	10			1	Dome					29-24 ± 6	91	50		7/3	13 x 31 x 13	Opt., Wood	Brown Knit	50 3/4	699.00 Pair
	Monitor 10	Tuned Port	10	6 1/2	Cone	1	Dome	T				20-24 ± 4.5	90	50		4/3	15 x 44 x 13	Opt., Wood	Brown Knit	70 1/2	1599.00 Pair
	600BL	Bass Ref.	10	6 1/2	Cone	1	Dome					20-24 ± 4.5	90	50		4/3		Opt.	Opt.		1750.00 Pair
	400BL	Bass Ref.	8			1	Dome					28-24 ± 4.5	91	50		7/4		Opt.	Opt.		1200.00 Pair
	300BL	Bass Ref.	8			1	Dome					32-24 ± 5	90	40		7/4		Opt.	Opt.		750.00 Pair
200BL	Bass Ref.	6 1/2			1	Dome					48-22 ± 5	89	30		7/4		Opt.	Opt.		500.00 Pair	
PRES SPEAKERS	Mini "S"	Bass Ref.	6 1/2			1	Dome					45-21	91		2.8k	8/6	17 x 10 x 8	Opt., Wood	Black Poly	15	375.00 Pair
	Ibex	Bass Ref.	8	2	Dome	1	Dome					40-21	91		800,6k	8/8	25 x 12 x 10	Opt., Wood	Black Poly	20	590.00 Pair
	Mini Dual	Bass Ref.	10, 6 1/2	1 1/4	Dome	7x3	Horn					35-21	91			8/6		Opt., Wood	Black Poly		690.00 Pair
	Dual	Bass Ref.	12, 6 1/2			(2)1	Domes					30-21	91			6/4		Opt., Wood	Black Poly		890.00 Pair
	Quad Dual	Bass Ref.	(2)12, 6 1/2	1 1/4	Dome	7x3	Horn					30-21	91			6/4		Opt., Wood	Black Poly		1250.00 Pair
	TL	Trans. Line Subwoof.	10									20-90				8/8		Opt., Wood	Black Poly		550.00 Pair
	FH	Folded Horn Subwoof.	10									30-90				8/8		Opt., Wood	Black Poly		390.00 Pair
	PR	Pas. Rad. Subwoof.	15									30-90				8/8		Opt., Wood	Black Poly		390.00 Pair
PROAC	Super Tablette	Tuned Port	4			3/4	Dome					70-20	87	25	5k	8/	10 x 6 x 9	Opt., Wood	Black Knit	10	750.00 Pair
	Studio 1	Tuned Port	7			1	Dome					40-20	88	40	2.5k	8/	16 x 8 x 10	Opt., Wood	Black Knit	25	1250.00 Pair
	Mini Tower	Tuned Port	(2)4			3/4	Dome					40-20	88	50	5k	8/	36 x 6 x 10	Opt., Wood	Black Knit	35	1700.00 Pair
	Super Tower	Tuned Port	(2)7			1	Dome					30-20	90	50	2.5k	8/	42 x 8 x 10	Opt., Wood	Black Knit	55	2550.00 Pair
	Studio Tower	Tuned Port	10	3	Dome	3/4	Dome					25-20	90	100	450,5k	8/	43 x 12 x 13	Opt., Wood	Black Knit	100	5300.00 Pair
	Response 1	Tuned Port	4			3/4	Dome					50-20	88	30	5k	8/	11 x 7 x 10	Opt., Wood	Black Knit	20	1600.00 Pair
	Response 2	Tuned Port	7			3/4	Dome					30-20	89	50	5k	8/	18 x 9 x 11	Opt., Wood	Black Knit	35	2800.00 Pair
	Response 3	Tuned Port	(2)7			1	Dome					25-20	100	2.5k	8/	48 x 11 x 12	Opt., Wood	Black Knit	120	6000.00 Pair	
PROFESSIONAL TECHNOLOGIES	PT6521	Ported	6 1/2			1	Dome	No				45-20 ± 3	89	10	3k	8/	13 x 12 x 17	Opt.	Opt.	20	500.00 Pair
	PT821	Ported	8			1 1/4	Dome	No				31-20 ± 3	91	10	2k	8/	10 x 13 x 35	Opt.	Opt.	40	625.00 Pair
	PT8341	Ported	8	4 1/2	Cone	1	Dome	No				37-20 ± 3	90	10	300,3k	8/	13 x 12 x 27	Opt.	Opt.	55	700.00 Pair
PSB	40MKII	Bass Ref.	8			3/4	Dome					70-20 ± 1.5	90	10	2k	6/5	21 x 10 x 11	Opt., Wood	Black Knit	22	440.00 Pair
	30MKII	Bass Ref.	6 1/2			3/4	Dome					80-20 ± 1.5	87	15	3k	6/5	15 x 9 x 8	Opt., Wood	Black Knit	12	330.00 Pair
	20MKII	Bass Ref.	6 1/2			1/2	Dome					90-20 ± 2	90	10	3k	6/5	14 x 9 x 6	Opt., Wood	Black Knit	19	225.00 Pair
	HW-1	In-Wall	6 1/2			3/4	Dome					56-20 ± 2	89	5	2.4k	8/	12 x 9 x 4	Opt., Wood	White Metal		350.00 Pair
	Stratus Gold	Bass Ref.	10	6	Cone	1	Dome					36-20 ± 1	88	10	2.2k, 250	4/4	45 x 16 x 17	Opt., Oak	Black Knit	95	2000.00 Pair
	New Stratus	Bass Ref.	8			1	Dome					40-20 ± 1.5	88	10	1.8k	5/4	40 x 13 x 16	Opt., Oak	Black Knit	60	1400.00 Pair
	CS260	Bass Ref.	(2)6			1	Dome					40-20 ± 1.5	90	10	2k	6/5	38 x 12 x 11	Opt., Oak	Black Knit	50	1100.00 Pair
	CS180	Bass Ref.	8			1	Dome					40-20 ± 1.5	89	10	2k	6/5	36 x 14 x 11	Opt., Oak	Black Knit	46	900.00 Pair
	50MKII	Bass Ref.	8			1	Dome					60-20 ± 1.5	90	10	2k	6/5	25 x 11 x 13	Opt., Oak	Black Knit	28	550.00 Pair
	50MKIIW	Bass Ref.	8			1	Dome					60-20 ± 1.5	90	10	2k	6/5	25 x 11 x 13	Opt., Oak Ven.	Black Knit	28	700.00 Pair
QUAD	ESL 63	ES										36-20 ± 5	87	100		8/6.2	26 x 36 x 10	Oiled Teak	Black Knit	54	3990.00 Pair
QUANTA TECHNOLOGIES	The Amazing Mini-Monitor	Vented	5 1/4			1	Dome					54-22 ± 3	88	20	2.5k	8/6	17 x 7 x 11	Matte Black	Gray Knit	16	997.00 Pair; Kit, 650.00 Pair

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Midrange Diameter, Inches				Tweeter Diameter, Inches				Separate Low-Freq. Control				Anechoic Frequency Response		Recommended Min. Amp Power, Watts Ch.	Impedance, Ohms		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Midrange Type	Tweeter	Tweeter Type	Separate Low-Freq. Control	Woofer	Midrange	Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Crossover Frequencies, Hz	Nominal	Minimum									
QUANTA TECHNOLOGIES (Continued)	III MKII	Hybrid Line	6½			1	Dome		47-20 ±3	89	25	2k	8/6	20 x 9 x 13	Matte Black	Gray Knit	28	1490.00 Pair; Kit, 999.00						
	VII MKII	Hybrid Line	8			1½	Dome		29-20 ±3	91	40	2k		34 x 11 x 18	Matte Black	Gray Knit	58	2990.00 Pair; Kit, 2350.00						
	IX A Sub-Woofer	Hybrid Line Vented Subwoof.	8			1½, ¾	Domes		28-35 ±3	91	40	2k, 19k	8/5.2	38 x 17 x 14	Matte Black	Gray Knit	58	4990.00 Pair						
			8						30-200 ±3	89	40		8/5.3	25 x 11 x 17	Matte Black	Black Knit	45	1290.00 Pair; Kit, 799.00						
	B Sub-Woofer	Hybrid Line Subwoof.	10						25-200 ±3	92	60		8/5.2	34 x 14 x 24	Matte Black	Black Knit	78	3250.00 Pair; Kit, 2450.00						
	C Sub-Woofer (The Rock)	Vented Subwoof.	(2)10							26-200 ±3	92	60		8/5.2	24 x 24 x 37	Matte Black	Black Knit	175	6500.00 Pair					
			Baby Pyramid MKII	Vented	5¼			1½	Dome		54-20 ±3	91	40	2k	8/5.3	15 x 10 x 11	Matte Black	Gray Knit	22	3250.00 Pair				
	Baby Pyramid MKIII	Vented	5¼			1½	Dome		50-20 ±3	91	40	2k	8/	15 x 10 x 11	Black Lacq. Opt.	Gray Knit Opt.	23	4500.00 Pair						
	The Pyramid	Vented	8			1½	Dome			93	40	2k	8/					8500.00 Pair						
	Full Pyramid	Vented	10	5¼	Cone	1½	Dome		27-20 ±3	91	60	75,2k	8/5.2	Four Pieces	Matte Black Opt., Wood	Gray Knit Brown Knit	400 Sys. 500 Sys.	38,000 Sys. 78,000 Sys.						
Great Pyramid	Vented	12	6½	Cone	1½	Dome		25-20 ±3	92	60	75,2k	8/5.1	Four Pieces											
QUESTOR	One	Trans. Line	7			1	Dome		32-20 ±3	92	20	2.3k	7/3	31 x 24 x 20	Matte Black	Black Knit	58	1790.00 Pair						
	One/MBF	Trans. Line	7			1	Dome		32-20 ±3	92	20	2.3k	7/3	31 x 24 x 20	Gloss Black	Black Knit	58	1990.00 Pair						
	One/CF	Trans. Line	7			1	Dome		32-20 ±3	92	20	2.3k	7/3	31 x 24 x 20	Black Opt.	Black Knit Opt.	58	2190.00 Pair						
REALISTIC	Minimus 3.5		3						200-20				8/	6 x 4 x 3	Plast. Black	Black	1½	23.95						
	Minimus 7		4			1	Dome		50-20				8/	7 x 5 x 5	Black Alum.	Black	4½	49.95						
	Minimus 77		5			1	Dome		50-20				8/	9 x 6 x 5	Black Alum.	Black	5¾	79.95						
	Minimus 26	Ac. Sus.	5			2½	Cone		90-20	87			8/	11 x 7 x 5	Oiled Wal.	Brown Knit	5½	79.95						
	Minimus 0.3		3						240-20				8/	4 x 4 x 4	Brown Wal.	Brown Knit	1½	14.95						
	Minimus 3		5						120-15				8/	10 x 9 x 4	Vinyl Wal.	Brown Knit	2½	15.95						
	Minimus 18		4						120-18				8/	10 x 6 x 5	Vinyl Wal.	Brown	3½	24.95						
	Minimus 2.5		4						120-18				8/	7 x 5 x 4	Vinyl Wal.	Brown	2½	19.95						
	MC1800	Ac. Sus.	8			2½	Cone		70-20	89			8/	18 x 11 x 7	Vinyl Oiled Wal.	Brown Knit	12¾	59.95						
	Nova 18	Tuned Port	10			3	Cone		65-20	90			8/	23 x 12 x 8	Oiled Wal.	Brown Knit	17½	99.95						
Nova 16	Tuned Port	8			2½	Cone		60-20	88			8/	2 x 10 x 7	Oiled Wal.	Brown Knit	14	79.95							
RECOTON	SP 1	Powered Bass Ref.	5						50-20 ±5	85	12 Inc.			9 x 6 x 6	Matte Black	Black Mesh	14 Pair	169.95 Pair						
	SP 2	Powered Air Sus. Bass Ref.	5¼			2¼	Cone	W,T	50-20 ±5	85	12 Inc.	800		16 x 7 x 7	Matte Black	Black Knit	25 Pair	199.95 Pair						
	SP 3	Powered Bass Ref.	5						20-20 ±5	85	30		8/4	9 x 6 x 6	Matte Black	Black Mesh	14 Pair	99.95 Pair						
	W100	Powered Bass Ref.	5						20-20	85	12 Inc.			9 x 6 x 6	Matte Black	Black Mesh	14 Pair	249.00 Pair						
RENAISSANCE ACOUSTICS	Companion I	Ac. Sus.	6½			¾	Dome		65-20 ±3	88	15	3k	8/6	16 x 10 x 8	Opt., Ven.	Opt., Knit	36 Pair	450.00 Pair						
	Companion II	Ac. Sus.	8			¾	Dome		55-20 ±3	88	20	3k	8/6	19 x 12 x 10	Opt., Ven.	Opt., Knit	55 Pair	550.00 Pair						
	Companion Mini-Monitor	Ac. Sus. Sat.	5¼			¾	Dome		75-20 ±3	88	15	3k	8/6	12 x 8 x 7	Opt., Ven.	Opt., Knit	20 Pair	395.00 Pair						
	Companion Bass Modules	Ac. Sus. Subwoof.	10						38-95 ±3 (Opt.)	88	40	95, Opt.	8/6	25 x 15 x 12	Opt., Ven.	Opt., Knit	75 Pair	695.00 Pair						
REVOX	Emporium B	Ac. Sus.	(2)7¾	3¾	Cone	1	Dome		30-25	87	20	330,3.2k	4/4	12 x 36 x 13	Opt.	Black Knit	52	2500.00 Pair						
	Power Cube	Powered Subwoof.	12¾					W	35-90 ±3	100	Inc.	90		16 x 15 x 17	Opt., Matte Black	Black Metal	42	1600.00						
	Piccolo/Bass	Sat. & Subwoof.	10¼	4¼	Cone	1	Dome		48-22 ±3	86	20	120,1.8k	4/4	Three Pieces	Black Varn. Opt.	Black Metal	37½ Sys.	790.00 Sys.						
	Ouette	Sat. & Subwoof. Single Encl., Stereo			Cone	1	Dome		90-22	89	20		4/4	14 x 14 x 14	Opt.	Black Metal	27	695.00						
	Agora B MKII	Powered	9	1	Cone	¾	Dome		40-22		Inc.	350,3.5k		17 x 29 x 17	Black Lacq.	Black Knit	48	5900.00 Pair						

How to make an Onkyo receiver as good as its competition.

Eliminate room-to-room remote capability

Remove high capacity Onkyo transformer

Substitute smaller, less efficient heat sink

Replace metal with cheap plastic

If we wanted to make an Onkyo receiver as good as our competition, it wouldn't be too hard.

First, we'd remove our proprietary heavy duty transformer, replacing it with a commonly used smaller version. Unfortunately, this means less current capability, resulting in compromised low impedance performance and compressed musical dynamics. Sonic anemia.

Next, we'd substitute a much lighter, cheaper heat sink. Of course, this greatly increases the chance of thermal overload when the music's cooking, but since we'd already be using a low capacity transformer, the music would only be half baked anyway.

Room-to-room remote capability would have to be

sacrificed. After all, if we're not concerned with performance, why should we bother with convenience?

As a finishing touch, faceplates & chassis would be plastic instead of metal. True, that wouldn't give us the same structural integrity. But we'd be cutting so many other corners you'd probably never notice the difference.

Now, we could do all these things to an Onkyo receiver. But then we wouldn't have a component as extraordinary as our new TX-866, with 185 watts per channel of dynamic power, plus the ultimate in room-to-room musical control.

At Onkyo, all our receivers are built to be better. And, that's a difference you can hear—and see.



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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type			Wooler Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate or Conical? Woof. W. Midrange M. Tweeter T. Superwoofer, ST	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Oh.	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Powered Subwoof. Powered Subwoof.	12																
RH LABS	SB-3a SB-4a	Powered Subwoof. Powered Subwoof.	12 10						W W		20-120 ±3 27-120 ±3	168 Inc. 108 Inc.	40-120		23 x 18 x 19 19 x 16 x 16	Opt., Wood Opt., Wood		111 70	995.00 695.00	
ROGERS	LS2A LS4A LS6A LS7T Studio 1A LS3/5A LS5/9 PM510A	Tuned Port Ac. Sus. Tuned Port Bass Ref. Bass Ref. Inf. Baf. Bass Ref. Bass Ref.	5 6 6 8 8 5 8 12					Dome Dome Dome Dome Dome Dome Dome Dome			60-20 ±2 55-20 ±2 50-20 ±2 55-22 ±2 45-20 ±3 70-20 ±3 50-16 ±3 40-16 ±3	87 88 89 88 89 82.5 87 92	15 15 10 15 10 25 15 10	8/ 8/ 8/ 3k 8/6 3k 3k 2.5k	14 x 9 x 8 17 x 10 x 10 20 x 11 x 11 22 x 11 x 11 25 x 12 x 12 12 x 7 x 6 18 x 11 x 11 30 x 18 x 16	Opt., Vinyl Opt., Vinyl Opt., Wood Opt., Wood Opt., Wood Opt., Wood Opt., Wood Opt., Wood	Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit	13 1/4 17 1/8 33 38 37 3/8 12 1/8 25 5/8 68 1/4	399.00 Pair 549.00 Pair 699.00 Pair 949.00 Pair 1399.00 Pair 649.00 Pair 2500.00 Pair 3500.00 Pair	
ROHRER ACOUSTIC DESIGN	802 802K 1203K 21203K 21503K 415	Ported Ported Sealed Sealed Sealed Ported Subwoof.	8 8 12 (2)12 (2)15 (4)15				1 1/2 1 1/2 3/4 3/4 3/4	Hybrid Hybrid Dome Dome Dome	T T T T T		27-20 ±2 24-20 ±2 16-40 ±4 16-40 ±3 16-40 ±2 10-100 ±2	88 88 90 96 96 96	30 30 30 30 30 30	4.5k 4.5k 100,4.5k 100,4.5k 100,4.5k	8/7 8/7 8/6 4/3 4/4 8/7	15 x 25 x 12 15 x 37 x 12 Two Pieces Per Side Two Pieces Per Side Two Pieces Per Side 25 Dia. x B2	Opt. Opt. Opt. Opt. Opt. Black Knit	Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit		1000.00 Pair 1600.00 Pair 4000.00 Pair 6000.00 Pair 9000.00 Pair 9600.00 Pair
ROSSMAN AUDIO	SA.5 SA.8	Powered Bass Ref. Powered Bass Ref.	5 6 1/2			1 1	Dome Dome	No No			55-20 ±3 42-20 ±3	88 89	15 Inc. 15 Inc.	2.3k 2.3k	100k 100k	13 x 9 x 12 17 x 10 x 12	Black Slate Black Slate Black Slate	Black Knit Black Knit Black Knit	48 Pair 60 Pair	400.00 Pair 500.00 Pair
RUARK ACOUSTICS	Accolade Broadsword Talisman Saber Swordsmen	Bass Ref. Inf. Baf. Bass Ref. Inf. Baf. Inf. Baf.	12 7 6 1/2 6 1/2 6 1/2	3		Dome	1 1/2 1 1/2 1 1 1	Dome Dome Dome Dome Dome			30-20 ±3 50-20 ±3 50-20 ±3 60-20 ±3 70-20 ±3	90 85 88 87 87	25 25 25 20 20		8/ 8/ 8/ 8/ 8/	39 x 11 x 15 17 x 9 x 12 32 x 9 x 12 15 x 9 x 11 15 x 8 x 11	Opt., Wood Opt., Wood Opt., Wood Opt., Wood Opt., Wood	Black Knit Black Knit Black Knit Black Knit Black Knit	88 25 33 18 33	5499.00 Pair 2499.00 Pair 1999.00 Pair 1199.00 Pair 799.00 Pair
SAMMI SOUND TECHNOLOGY	Ref-703 Ref-603 Ref-503 Ref-403 Ref-402 Ref-303BK Ref-BM4W	Air Sus. Air Sus. Air Sus. Pas. Rad. Bass Ref. Sat. Subwoof.	12 10 8 (2)6 1/2 6 1/2 (2)3 (2)6 1/2	5 5 5 4 4 3 (2)6 1/2		Cone Cone Cone Cone Cone Dome	1 1 1 1/2 2 1/2 1/2	Dome Dome Dome Dome Cone Dome			40-20 ±5 45-20 ±5 45-20 ±5 45-20 ±5 50-20 ±5 130-20 ±5 30-400 ±5	90 91 90 86 88 86 86	50 30 20 30 20 10 10	650,4k 650,4k 850,4.2k 1.8k,5.5k 3.5k 5k 200	8/ 8/ 8/ 8/ 8/ 8/ 4/	16 x 35 x 12 15 x 33 x 12 12 x 30 x 13 Two Pieces Per Side 9 x 23 x 8 4 x 11 x 9 24 x 13 x 10	Oiled Wal. Oiled Wal. Oiled Wal. Oiled Wal. Oiled Wal. Oiled Wal. Oiled Wal.	Burg. Knit Burg. Knit Burg. Knit Burg. Knit Burg. Knit Burg. Knit Burg. Knit	63 1/2 56 42 23 Side 18 3/4 1 1/2 32 1/4	800.00 Pair 600.00 Pair 450.00 Pair 550.00 Pair 400.00 Pair 300.00 Pair 150.00 Pair
SANSUI	S-75U S-65U S-45U S-35U S-25U SW-S7.7U SP-X5U SP-X3U SP-X2U SP-X1U Vintage SP-100i	Ac. Sus. Ac. Sus. Ac. Sus. Ac. Sus. Ac. Sus. Sat. & Subwoof. Inf. Baf. Inf. Baf. Inf. Baf. Inf. Baf. Inf. Baf.	15 12 10 8 6 1/2 (2)6 1/2 6 1/2 10 8 6 1/2 8	4 4 4 4 4 5 5 1/4 5 5 5 8		Cone Cone Cone Cone Cone Cone Cone Cone Cone Cone Cone	3 3 3 4 2 (2)1 1/2 1 3/4 3/4 3/4 1	Cone Cone Cone Cone Cone Domes Dome Dome Dome Dome Dome			25-20 35-20 45-20 55-20 70-20 55-22 ±3 45-23 ±3 35-23 40-23 50-22 ±3 40-30	91 90 89 89 88 88 88 90 90 90 88	Max 130 Max 85 Max 65 Max 35 Max 10	4k,8k 5k,8k 5k,8k 8k 8k 200,6k 350,7k 700,5k 5k 6k 1.5k	8/ 8/ 8/ 8/ 8/ 6/ 6/ 8 8/ 8/ 6/	18 x 34 x 12 15 x 30 x 12 14 x 26 x 11 12 x 23 x 9 8 x 14 x 7 Three Pieces 12 x 38 x 12 14 x 27 x 13 12 x 21 x 10 10 x 15 x 9 11 x 18 x 13	Dak Vinyl Dak Vinyl Dak Vinyl Dak Vinyl Dak Vinyl Opt. Opt. Opt. Opt. Opt. Opt. Black Knit	Brown Knit Brown Knit Brown Knit Brown Knit Brown Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit	38 30 25 19 9 35 Sys. 36 43 28 17 44 1/2	180.00 270.00 220.00 140.00 115.00 370.00 220.00 190.00 150.00 200.00 750.00

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Controls		Analogic Frequency Response		Recommended Min. Amp Power, Watts/Ch.	Impedance, Ohms		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
														Nominal/Minimum						
SARATOGA	301	Ac. Sus.	6½			¾	Dome		50-20	88	30	3k	8/4	8 x 7 x 12	Oiled Wal.	Black Knit	26	450.00		
	301SW	Tuned Port Subwoof. Ac. Sus.	6½						40-150	87	40	150	8/4	8 x 7 x 24	Oiled Wal.	Black Knit	40	800.00		
	501	Ac. Sus.	8			¾	Dome		40-20	89	30	3k	8/4	12 x 11 x 19	Oiled Wal.	Black Knit	32	600.00		
	501SW	Tuned Port Subwoof.	8						35-150	89	40	150	8/4	12 x 11 x 38	Oiled Wal.	Black Knit	47	900.00		
SAVARD SPEAKER SYSTEMS	Precision Phase 22	Biamp	15	10, 4x10	Cone, Horn	(2) 2x6, (2) 3x4	Piezos	M, T, ST	25-30	105	5	180, 2.6k, 8k	5/4	53 x 22 x 18	Oak	Black Knit	170	1500.00		
	BMF	Bass Ref.	15	4x10	Horn	(2) 3x4	Piezos	T	28-30	104	5	700	5/4	31 x 21 x 18	Oak	Black Knit	75	750.00		
	Studio Monitor Performance	Bass Ref.	12	4x10	Horn	(2) 3x4	Piezos	T	30-30	103	5	700	5/4	32 x 18 x 15	Oak	Black Knit	59	600.00		
	Series 303	Bass Ref.	10	2x6	Horn	(2) 3x4	Piezos		36-30	101	6	2k	5/4	28 x 15 x 12	Oak	Black Knit	49	400.00		
		Bass Ref.	10			(2) 3x4	Piezo		38-30	100	6	2k	5/4	14 x 21 x 9	Oak	Black Knit	27	399.00		
	Satellite System 6	Sat.		6½	Cone	3x4	Piezo		200-30	94	10	200	5/4	13 x 9 x 7	Black	Black Knit	22	360.00		
	Subwoofer System 8	Subwoof.	8						30-200	94	10	200	5/4	12 x 23 x 14	Black	Black Knit	40	360.00		
Subwoofer System 12	Subwoof.	12						27-200	97	10	200	5/4	27 x 14 x 22	Black		86	450.00			
Bookshelf System 8	Bass Ref.	8	6½	Cone	3x4	Piezo		30-30	96	10	200, 3k	5/4	14 x 11 x 13	Black	Black Knit	32	299.00			
SCAN AMERICAN	SO-One	Inf. Baf.	4			¾	Dome		60-20	90	15	2.4k	4/	6 x 9 x 7	Wal. Ven.	Black Cloth	10	650.00		
S.C.D.	G.C. Rock Monitor II	Sealed	(2)8	3	Dome	(2)2	Ribbons	No	50-20 ±3	91	50	800, 4k	12/5	11 x 10 x 36	Wood Vinyl	Black Knit	105	899.00		
	J.C. Classical Monitor II	Sealed	12	3	Dome	(2)2	Ribbons	No	38-24 ±3	91	100	500, 4k	8/3	Four Pieces	Black None	None	235	1895.00		
SCIENTIFIC FIDELITY	Tesla	Ported	(2)6½			1	Dome		32-35 ±3	90	20	100, 1k	8/4	49 x 8 x 12	Opt., Wood	Black Knit	50	1750.00		
SCOTT	SP 28		8			3	Cone		60-20 ±3	90	5	4k	8/8	11 x 8 x 19	Black Wood Vinyl	Black Knit	25	59.95		
	SP 38B		8			(2)2	Cones		55-20 ±3	90	5	1k, 4k	8/8	21 x 10 x 9	Black Wood Vinyl	Black Knit	28	69.95		
	6.2A		6			2	Cone		60-18 ±3	90	5	3k	8/8	15 x 9 x 7	Black Wood Vinyl	Black Knit	9	79.95		
	8.2A		8			2	Cone		55-18 ±3	92	5	3k	8/8	18 x 10 x 7	Black Wood Vinyl	Black Knit	12	89.95		
	10.3A		10	4½	Cone	2	Cone		45-19 ±3	92	10	1k, 4k	8/8	23 x 12 x 9	Black Wood Vinyl	Black Knit	20	129.95		
	AS 1B		6½			1	Dome		55-22 ±3	90	15	2.2k	4/4	15 x 9 x 8	Black Wood Vinyl	Black Knit	14	149.95		
SEIXAS AUDIO	SA-2	Bass Ref.	8			¾	Dome		38-20 ±3	89	30	3.8k	4/3	36 x 10 x 11	Opt.	Black Knit		650.00		
	SA-3	Semi-Dipole	8	6½	Cone	1	Dome		38-20	90	50		8/4	48 x 10 x 12	Opt.	Black Knit		1350.00		
	SA-4	Bass Ref. Semi-Dipole & Bass Ref.	12	8, (2)6½	Cones	(2)1	Domes		28-22	90	50		4/1	Four Pieces	Dpt.	Black Knit		2700.00		
	SA-5	Subwoof. Ribbon & Piston Subwoof.	12				48x3	Ribbon		28-22	89	100	120, 12k	3/1	Four Pieces	Opt.	Black Knit		7500.00	
R. SEQUERRA ASSOCIATES	Met 7 MkII	Ac. Sus.	6½			2½	Cone	T	53-19 ±3	90	30	2.5k, 4.4k	8/5	11 x 11 x 8	Opt., Wood	Black Foam	13	490.00		
	Met 8 MkII	Ac. Sus.	10						23-70 ±4	90	50	70	8/4	33 x 13 x 18	Opt., Wood	Black Foam	72	1200.00		
	Met 9 MkII	Subwoof. Add-On Tweeter				½x9	Ribbon	T	5k-50k ±3	92	30	5k	8/8	6 x 5 x 4	Opt., Wood	Black Foam	5	600.00		
	Colossus		(8)10			92x1	Ribbon		18-80k ±3	96	250	100	8/5		Opt.	Black Silk	1800	125,000		
SHAHINIAN ACOUSTICS	Obelisk	Trans. Line, Pas. Rad.	8	(2)1½	Domes	(4)¾	Domes		28-22 +0, -3	90	50	900, 1.8k	5/4	15 x 13 x 29	Opt., Wood	Opt., Knit	56	2050.00		
	Arc	Pas. Rad.	8	1¾	Dome	1	Dome		28-18 ±3	88	30	1.9k, 10k	4/3	14 x 10 x 28	Opt., Wood	Opt., Knit	44	1200.00		
	Lyre	Pas. Rad.	8			1	Dome		32-18 ±3	90	30	3.5k	6/5	12 x 12 x 24	Oiled Oak	Opt., Knit	43	950.00		
	Elf	Vented	5¼			1	Dome	T	55-18 ±3	90	25	4.5k	6/5	7 x 8 x 13	Oiled Oak	Opt., Knit	28	450.00		
	Double Eagle	Pas. Rad. Subwoof. Sat.	(2)8						20-200 ±3	90	150	140	6/3	23 x 15 x 32	Opt., Wood	Opt., Knit	105	1150.00		
	Diapason Module	Trans. Line, Pas. Rad. Subwoof.	(4)5¼	(2)1¾	Domes	(2)¾	Domes	ST	140-25 ±2	91	150	140, 4k, 7k, 11k	4/3	15 x 22 x 7	Opt., Birch	Opt., Knit	35	4650.00		
	Hawk		8					T	25-500	90	100	250-500	6/3	30 x 15 x 11	Oiled Oak	Opt., Knit	63	1400.00		

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls: Woofer - W, Midrange - M, Tweeter - T, Supertweeter - ST		Analogic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
SHURE HTS	HTS50CF	Inf. Baf., Fourth Order	(2)6½			1	Dome			50-20 ±5	88		2.4k	5.6/	20 x 13 x 9	Wal.	Brown Knit	37	666.00
	HTS50LRS	Inf. Baf., Fourth Order	6½			1	Dome			60-20 ±5	85		2.4k	5.6/	13 x 10 x 9	Wal.	Brown Knit	24¼	444.00
	HTS50SW	Vented, Sixth Order Subwoof.	12							33-80	91		Ext.	8/	18 x 23 x 14	Wal.	Brown Knit	65	555.00
SIDEREAL AKUSTIC	Mikro	Sealed	4			1	Dome			50-20	85	20	4k	8/5	5 x 4 x 7	Cloth	None	6	470.00 Pair
SIEFERT RESEARCH	Maxim III	Ducted Port	6½			1	Dome			45-22 ±3	87	25	3.3k	8/6	13 x 11 x 9	Opt.	Black Knit	18	499.00 Pair
	Maxim IIIH	Ducted Port	6½			1	Dome			46-24 ±2	87	25	3.3k	8/6	13 x 11 x 9	Opt.	Black Knit	18	549.00 Pair
	Paragon	Ducted Port	8	4	Cone	1	Dome			33-24 ±2	88	25	3k	4/3.5	36 x 11 x 14	Opt.	Black Knit	46	950.00 Pair
	Subwoofer	Ducted Port Subwoof.	(2)8							25-110 ±3	88	25	110	4/3.5	23 x 19 x 12	Opt.	Black Knit	60	499.00 Pair
SIERRA SOUND RESEARCH	1	Trans. Line	8			1	Dome			42-20 ±3	90	15	3.5k	8/6	20 x 13 x 12	Oiled Wal.	Black Knit	80 Pair	595.00 Pair
	2	Trans. Line	8			1	Dome			35-20 ±3	90	15	3.5k	8/6	36 x 13 x 12	Oiled Wal.	Black Knit	105 Pair	795.00 Pair
	3	Trans. Line	(2)8	5	Cone	1	Dome			32-20 ±3	92	15	100,1.5k, 4k	8/5	48 x 13 x 12	Oiled Wal.	Black Knit	150 Pair	1295.00 Pair
	513	Bass Ref.	12	6x15	Horn	2x5½	Horn			40-20 ±3	92	25	500,6k	8/4	46 x 15 x 16	Oiled Wal.	Black Knit	225 Pair	2000.00 Pair
	804	Bass Ref.	15	6x15	Horn	2x5½	Horn			36-20 ±3	94	25	6k	8/6	54 x 15 x 20	Oiled Wal.	Black Knit	330 Pair	2900.00 Pair
SIGNET	SL280	Vented	8			1	Dome			35-25	89	20	2.5k	8/4	10 x 13 x 25	Oiled Oak	Gray Knit	37	900.00 Pair
	SL260	Vented	6			¾	Dome			45-25	88	20	3k	8/4	8 x 13 x 16	Oiled Oak	Gray Knit	23	650.00 Pair
	SL230	Ac. Sus. Sat. & Vented Subwoof.	(2)6	3½	Cone	¾	Dome			50-20	88	20	200,3k	6/3	Three Pieces	Oiled Oak Opt.	Gray Knit	35 Sys.	600.00 Sys.
SNELL ACOUSTICS	Type B	Bass Ref.	(2)10	5	Cone	1	Dome	T		30-20 ±1.5	89	50		8/4	46 x 25 x 20	Opt.	Black Cloth		3500.00 Pair
	K/II	Inf. Baf.	8			1	Dome	T		70-20 ±2	90	10	2.7k	6/4	18 x 11 x 9	Opt., Ven.	Black Cloth	52 Pair	465.00 Pair
	J/III	Bass Ref.	8			1	Dome	T		49-20 ±2	91	15	2.7k	6/4	23 x 13 x 10	Opt., Ven.	Black Cloth	35	680.00 Pair
	E/III	Bass Ref.	8			1,¾	Domes	T		39-20 ±1.75	91	15	2.7k	6/4	35 x 13 x 11	Opt., Ven.	Black Cloth	50	990.00 Pair
	C/III	Bass Ref.	10	5	Cone	1,¾	Domes	T		34-22 ±3	88.5	20	275,2.7k	8/4	46 x 15 x 12	Opt., Ven.	Black Cloth	90	1990.00 Pair
	A/III/i	Inf. Baf.	12	4	Cone	1,¾	Domes	T		33-20 ±1.5	86	100	275,2.7k	8/4	51 x 24 x 14	Opt., Wood Ven.	Black Cloth	320 Pair	4680.00 Pair
	Q	Inf. Baf.	6½			1,¾	Domes	T		70-20 ±1.5	90	15	2.2k	8/8	16 x 11 x 7	Opt., Ven.	Black Cloth	24	780.00 Pair
SNELL MULTIMEDIA	LCR500	Inf. Baf.	(2)6½			(2)¾	Domes	T		90-20 ±1.25	89	30	2.7k	8/5	22 x 10 x 7	Gloss Black Ven.	Black Cloth	35	799.00
	SUR500	Inf. Baf.	(2)6½			(2)1	Domes	No		80-20 ±2		15		8/4	17 x 10 x 7	Gloss Black Ven.	Black Cloth	60 Pair	1598.00 Pair
	SUB500	Bass Ref. Subwoof.	10							22-100 ±2		30		8/8	23 x 19 x 15	Gloss Black Ven.	Black Cloth	60	499.00
SONANCE	S45	In-Wall	8¼			1	Dome	T		35-22 ±2	90	5	2.7k	8/6	16 x 12 x 3	White	Opt., White	11	650.00 Pair
	S40	In-Wall	8			1	Dome	T		40-20 ±3	89	5	2.8k	8/8	16 x 12 x 3	White	Opt., White	10	499.00 Pair
	SIHc	In-Wall	6½			1	Dome	T		45-20 ±2	88	5	3k	8/6	12 x 9 x 3	White	Opt., White	9	375.00 Pair
	SIH	In-Wall	6½			1	Dome			50-20 ±3	89	5	3.2k	8/8	12 x 9 x 3	White	Opt., White	8	245.00 Pair
	SIA	In-Wall	6½			2	Cone			70-17 ±5	90	3	3k	8/8	12 x 9 x 3	White	Opt., White	7	185.00 Pair
	M30	In-Wall	4			1	Dome			70-20 ±2	86	5	4.5k	8/8	9 x 7 x 3	White	Opt., White	4	300.00 Pair
	M10	In-Wall	4							75-15 ±5	87	3		8/7	9 x 7 x 3	White	Opt., White	4	130.00 Pair
	PSW2	In-Wall	8¼							30-125 ±3	87	(2) 25	125	8/4	16 x 12 x 3	White	Opt., White	14	450.00
	ASW1	In-Wall, Powered Subwoof.	8¼							30-100 ±2	92	Inc.	50/75/100 (Sel.)	8/8	16 x 12 x 3	White	Opt., White	15	260.00
	SAM1	Sealed, Powered Subwoof.	15							26-100 ±2	94	Inc.	50/75/100 (Sel.)	4/3	20 x 20 x 15	Opt., Vinyl	Opt., Cloth	44	400.00
	SB30	Sealed	4			1	Dome			75-20 ±3	87	5	3.5k	6/3	9 x 5 x 6	Opt.	Opt.	9	299.00 Pair



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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Cutoff? Woofer W/ Midrange H. Tweeter T. Super-tweeter ST		SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Dc.	Crossover Frequencies, Hz		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
													Nominal/Minimum	(To Nearest Inch)				
SONY	SS-U310		6½		1	Cone			60-20	89		6/	10 x 16 x 9	Oak Vinyl	Black	11¼	140.00	
	SS-U5190	Ac. Sus.	12	3	Cone	2	Cone				8/	16 x 30 x 11	Oak Vinyl	Black	29	280.00		
	SS-U7190		(2)12	3	Cone	2	Cone				8/	16 x 41 x 11	Oak Vinyl	Black	35½	420.00		
	SS-TL1	Trans. Line	6½		2	Cone			40-22	88	3k	8/	9 x 37 x 12	Oak Vinyl	Black	33½	250.00	
	SS-TL3	Line Trans.	6½	5	Cone	1	Dome		35-25	89	600,5k	8/	10 x 40 x 12	Oak Vinyl	Black	39¾	500.00	
	SS-TL5	Line Trans.	8	6½,5	Cones	1	Dome		30-27	89	150,900,3k	8/	11 x 42 x 14	Oak Vinyl	Black	65½	900.00	
SOTA	Diorama	Sealed Box	7		1	Dome	No	48-22 ±3	90	25			14 x 8 x 16	Opt.	Black Foam	35	2200.00	
	Bass/Base	Sealed Box	8				No	20-150 ±3	90	50	150		36 x 12 x 18	Dpt.	Black Foam	60	Pair w/ Stands 2000.00	
	Vista	Subwoof. Sealed Box	7		Cone	¾	Dome	No	55-22 ±3	88	25	8.6	10 x 8 x 20	Opt.	Black	30	950.00	
	Panorama	Bal. Port	7		1	Dome	No	48-22 ±3	88	25		8/6	14 x 8 x 16	Black Foam	35	1600.00		
	Horizon	Sealed Box	8	4	Cone	1	Dome	No	25-22 ±3	88	25	8/6		Black Foam		3600.00		
SOUND DYNAMICS	500ti	Bass Ref.	(2)8	4½	Cone	¾	Dome		27-22 ±2	88	50	100,3k	6/4	39 x 13 x 11	Opt.	Opt.	52	1050.00
	400ti	Bass Ref.	10	4½	Cone	¾	Dome		30-22 ±2	88	40	900,3k	6/4	33 x 13 x 11	Opt.	Opt.	43	800.00
	300ti	Bass Ref.	8	4½	Cone	¾	Dome		34-22 ±2	87	35	900,3k	6/4	24 x 11 x 11	Opt.	Opt.	31	600.00
	200ti	Bass Ref.	8			¾	Dome		40-21 ±2	87	30	1.8k	6/4	20 x 11 x 9	Opt.	Opt.	18	450.00
	100ti	Bass Ref.	6½			¾	Dome		45-21 ±2	86	30	1.9k	6/4	16 x 10 x 9	Opt.	Opt.	13	300.00
	50ti	Bass Ref.	5¼			¾	Dome		55-20 ±2	85	30	2k	6/4	12 x 7 x 8	Opt.	Opt.	10	200.00
SOUND LAB	Dynastat	ES & Dynamic ES	10½			48x10	ES	W,T	28-22 ±2	88	50	150	8/6	72 x 17 x 3	Opt., Wood	Opt.	75	2500.00
	A-1	ES					ES	W,T	30-22 ±2	84	100		8/3	81 x 35 x 11	Opt., Wood	Opt.	185	10,145.00
	A-3	ES					ES	W,T	32-22 ±2	84	100		8/3	73 x 35 x 11	Opt., Wood	Opt.	145	7410.00
	A-5	ES					ES	W,T	34-22 ±2	84	100		8/3	72 x 28 x 8	Opt., Wood	Opt.	122	6500.00
	A-2X	ES	48x20			48x4	ES	T	34-22 ±2	86	100	750	8/6	57 x 28 x 3	Opt., Wood	Opt.	88	3520.00
	A-4	ES	61x20			61x4	ES	W,T	32-22 ±2	86	100	750	8/6	70 x 28 x 3	Opt., Wood	Opt.	105	4570.00
	A-6	ES	72x40			61x4	ES	W,T	22-22 ±2	86	100	750	8/5	81 x 44 x 5	Opt., Wood	Opt.	210	13,875.00
	B-1	ES Subwoof.					ES	W	20-350 ±2	86	100	To 350	16/16	81 x 44 x 5	Opt., Wood	Opt.	220	6225.00
	B-3	ES Subwoof.					ES	W	20-350 ±2	86	100	To 350	16/16	73 x 44 x 5	Opt., Wood	Opt.	210	6225.00
	B-5	ES Subwoof.					ES	W	22-350 ±2	84	100	To 350	50/50	72 x 57 x 28	Opt., Wood	Opt.	185	5445.00
SOUND SMITH	Elite	Vented	(4)6	1	Dome		Leaf		43-40 ±3	95	60	3k,8.4k	4/3	20 x 15 x 74	Oak	Black Knit	150	4600.00
	#1	Vented	(4)6	1	Dome		Leaf		43-40 ±3	95	60	3k,8.4k	4/3	15 x 21 x 74	Black	Black Knit	150	3500.00
	.5	Vented	(2)6		1	Dome			43-40 ±3	92	60	3k	4/	14 x 20 x 42	Black	Black Knit	75	2160.00
	2.0	Vented	(2)5		1	Dome			44-25 ±3	91	30	3k	8/	11 x 14 x 55	Black	Black Knit	40	2160.00
	.25	Vented	6		1	Dome			44-25 ±3	90	30	3k	8/	10 x 14 x 17	Black	Black Knit	35	1350.00
	#SWT 1.0	Vented Subwoof.	(2)12							94	60	125	8/	16 x 24 x 75	Black	Black Knit		3500.00
	#SWT .5	Vented Subwoof.	8							89	30	125	6/	54 x 14 x 10	Black	Black Knit		1420.00
	SOUNDWAVE FIDELITY	Grand Soliloquy	Ac. Sus.	(4)8		(2)1	Domes			30-20	91	100	150,2.4k	7/	19 x 14 x 44	Opt.	Opt.	107
Sonata		Ac. Sus.	(2)8		(2)1	Domes			38-20	91	50	2.4k	5/	16 x 12 x 38	Opt.	Opt.	56	2500.00
Silhouette		Ac. Sus.	(2)8		(2)1	Domes			55-20	90	30	2.4k	5/	13 x 10 x 36	Opt.	Opt.	39	1600.00
		Ac. Sus.	(2)8		(2)1	Domes			60-20	90	30	2.4k	5/	16 x 12 x 20	Black Lucite	Black	37	1100.00
SPEAKER ART	Acapella	Vented, Quasi Trans. Line	8¾		1½	Dome			24-21 ±3	90	100	2.2k	8/4	40 x 12 x 15	Opt., Wood	Black Spandex	50	4400.00
	HaLo	Vented, Fourth Order	10	1	Dome	½	Dome		30-21 ±3	89	80	1.2k,12k	8/4	25 x 12 x 14	Opt., Wood	Black Knit	42	1500.00

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls?		Woofer W. Midrange M. Tweeter T. Super Tweeter ST	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
									Hz to	Hz, ±dB								
		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Crossover Frequencies, Hz												
SPEAKERLAB	DAS2	Bass Ref.	5			¾	Dome		50-20	88	10	2.5k	8/6	13 x 7 x 9	Oiled Oak	Black Knit	13	228.00 Pair; Kit, 189.00
	DAS3	Bass Ref.	6½			¾	Dome		42-20	89	10	2.5k	4/3	21 x 8 x 10	Oiled Oak	Black Knit	23	318.00 Pair; Kit, 240.00
	DAS4	Bass Ref.	8			¾	Dome		36-20	90	10	2.5k	4/3	28 x 10 x 12	Oiled Oak	Black Knit	39	418.00 Pair; Kit, 325.00
	DAS5	Bass Ref.	6½, 8			1	Dome		34-20	92	10	180, 2.5k	4/3	31 x 11 x 13	Oiled Oak	Black Knit	47	618.00 Pair; Kit, 450.00
	DAS6	Bass Ref.	8, 10			1	Dome		30-20	93	10	180, 2.5k	4/3	36 x 12 x 14	Oiled Oak	Black Knit	62	818.00 Pair; Kit, 600.00
	DAS7	Bass Ref.	12, 10	6½	Cone	1	Dome		25-20	93	20	180, 350, 4k	4/3	39 x 14 x 16	Oiled Oak	Black Knit	86	1018.00 Pair; Kit, 729.00
	DAS Super 7	Inf. Baf.	(2)12	(2)6½	Cones	(4)1	Domes		25-21	94	30	700, 3.5k	8/7	39 x 14 x 16	Oiled Oak	Black Knit	105	1600.00 Pair
	DAS Point Eight	Bass Ref.	6½	3	Dome	1	Dome		42-21	91	10	800, 5k	4/3	21 x 8 x 10	Oiled Oak	Black Knit	30	518.00 Pair
	DAS/SW	Bass Ref. Subwoof.	10						25-180	91	10	180	8/7	18 x 18 x 18	Oiled Oak	Black Knit	62	319.00; Kit, 240.00
	SL88	Bandpass Subwoof.	(2)8						22-150	91	10	150	8/7	14 x 16 x 23	Oiled Oak	Black Knit	70	350.00
	SL210	Bandpass Subwoof.	(2)10						20-150	92	20	150	4/3	16 x 18 x 26	Oiled Oak	Black Knit	90	499.00
	Auricle 57	Sat. & Bandpass Subwoof.	(2)8			5x57	Dipole Ribbon		23-20	90	30	150	8/6	Three Pieces	Oiled Oak	Black Knit	140 Sys.	1800.00 Sys.
	Auricle 38	Bandpass	8			5x38	Dipole Ribbon Dome		23-20	88	30	150	8/4	71 x 13 x 16	Oiled Oak	Black Knit	60	1200.00 Pair
	SL3	In-Wall	6½			¾	Dome		40-20	90	10	3k	8/7	9 x 12 x 1	Oiled Oak White	White Perf. Steel	5	200.00 Pair
	ST3	Bandpass	6½	5	Cone	¾	Dome		30-20	86	40	150-3	4/3	9 x 11 x 33	Oiled Oak	Black Knit	50	499.00 Pair
ST4	Bandpass	8	5	Cone	¾	Dome		25-20	89	40	150-3	8/7	10 x 12 x 37	Oiled Oak	Black Knit	60	650.00 Pair	
ST5	Bandpass	(2)8	6½	Cone	1	Dome		20-21	92	40	150-3	4/3	12 x 14 x 42	Oiled Oak	Black Knit	75	799.00 Pair	
SPENOR	LS 3/5a	Inf. Baf.	4½			1	Dome		80-20 ±3	83	25	3k	15/8	12 x 7 x 7	Opt.	Black Cloth	12	595.00 Pair
	Prelude Series 2/2	Bass Ref.	8			1	Dome		50-20 ±3	88	20	3k	8/7	20 x 10 x 11	Opt.	Black Cloth	28	795.00 Pair
	SP-2 Series 2/2	Bass Ref.	8			1	Dome		50-20 ±3	88	25	3k	8/7	20 x 10 x 11	Opt.	Black Cloth	32	895.00 Pair
	SP-1	Bass Ref.	8			(2)¾, 1¼	Domes		45-20 ±3	88	25	3k	8/7	25 x 12 x 12	Opt.	Black Cloth	42	1295.00 Pair
	S-100	Bass Ref.	13	6½	Cone	1	Dome		38-20 ±3	89	50	600, 4k	8/7	28 x 15 x 17	Opt.	Black Cloth	80	2500.00 Pair
SPICA	SC-30	Inf. Baf.	8			1½	Cone		54-27 ±3	88	25	3k	8/	23 x 10 x 12	Opt., Vinyl	Black Cloth	31	399.00 Pair
	Angelus	Inf. Baf.	8			1	Dome		35-17.5 ±3	87	25	3.4k	8/6	46 x 21 x 10	Opt., Wood	Black Cloth	57	1275.00 Pair
	TC-50	Inf. Baf.	6½			1	Dome		58-16.5 ±3	84	25	2.7k	4/	13 x 16 x 12	Opt., Wood	Black Cloth	45 Pair	550.00 Pair
STAR AUDIO	Odyssee I	Add-On	5¼			2	Cone		60-17.5 ±3	85	20	5.5k	8/6	15 x 7 x 9	Opt., Wood	Black Knit	30 Pair	300.00 Pair
	BH-30	Tuned Port	6			½	Dome		55-18 ±4	85	15	3.5k	8/6	15 x 10 x 10	Wal. Vinyl	Black Knit	32 Pair	369.00 Pair
	WS-105	In-Wall/Ceiling	5			1½	Cone		70-17 ±3	88	10	1.9k	8/6	11 x 8	White	White Plast.	6	125.00
	WS-205	In-Wall/Ceiling	5¼			2	Cone		60-19 ±3	90	10	3.5k	8/6	13 x 10	White	White Plast.	7	212.50
SUMO	Samson	Ported Subwoof.	15						25-125 ±0.5	91	200	Set.	8/7	30 x 24 x 19	Oak	Black Knit	150	749.00
SWAN'S SPEAKER SYSTEMS	Leda/Gemini	Sealed Sat. & Sixth Order Bandpass Subwoof. Oucted	13¼	(2)5¼	Cones	1	Inv. Dome		23-30 ±1.5	86	100	100, 3.5k	8/5	Four Pieces	Oak	Foam	340 Sys.	7995.00 Sys.
	Leda II		(2)5¼		Cone	1	Inv. Dome		55-30 ±1.5	88	100	3.5k	8/5	8 x 10 x 20	Oak	Foam	80 Pair	4250.00 Pair w/ Stands

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Crossover? Woofer W Midrange M, Tweeter T, Super-tweeter ST		Algebraic Frequency Response, SPL - 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts Ch.		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
SWAN'S SPEAKER SYSTEMS (Continued)	Leda III	Compnd. Bandpass Sat. & Woofer	(2)8	(2)5 1/4	Cones	1	Inv. Dome Horn		35-30 ± 1.5	86	100	100,3.5k	8/4	8 x 10 x 40	Oak	Foam	130 Pair	5795.00 Pair				
	Swan IV		(2)12	(2)5 1/4	Cones	1	Dome		25-20 ± 2.5	90	(2) 100	200.3k	8/7	Four Pieces	Dak	Foam	240 Sys.	From 5995.00 Sys. w/Xover				
SYMDEX AUDIO SYSTEMS	Epsilon Signature	Ported	10	7	Cone	1	Dome			88		100,2.3k	8/4	13 x 13 x 48	Opt.	Black Knit	100	3000.00 Pair				
	Gamma Signature	Ported		7	Cone	1	Dome			88		2.3k	8/4	6 x 10 x 44	Opt.	Black Knit	40	1600.00 Pair				
SYNTHEDATA	D-Box B-55		4			1	Dome		65-20 ± 5	85	5	1.8k	8/4	4 x 4 x 8	Opt.	Opt., Metal	10 Pair	199.95 Pair				
	SD-1		4			1	Dome		65-20 ± 5	87	5	1.8k	6/4	4 x 4 x 8	Opt.	Opt., Metal	10 Pair	199.95 Pair				
SYNTHESIS	Reference System	Bass Ref. Sat. & Subwoof. Bass Ref.	(2)10			1, 1 1/2	Dome, Leaf	W	25-35 ± 3	91	50		8/4	Four Pieces	Oiled Oak	Opt.	350 Sys.	7350.00 Sys. w/Xover				
	LM310		10			1	Dome		28-20 ± 3	91	20	85,1.25k	8/4	14 x 15 x 44	Oiled Oak	Opt.	90	3250.00 Pair				
	LM260	Bass Ref.	8			1	Dome		42-20 ± 3	91	20	1.25k	8/4	11 x 20 x 40	Oiled Oak	Opt.	58	1695.00 Pair				
	LM210	Bass Ref.	6			1	Dome		48-20 ± 3	89	20	1.5k	8/4	11 x 11 x 34	Oiled Oak	Opt.	42	1195.00 Pair				
	CM205	Bass Ref.	6			1	Dome		54-20 ± 3	89	20	1.5k	8/4	10 x 11 x 16	Oiled Oak	Opt.	20	995.00 Pair				
TADDEO	Domestic Monitor One		6 1/2			1 1/8	Dome		50-22 ± 3	92	25	2k	8/8	9 x 40 x 11	Opt.	Black Knit	47	1095.00 Pair				
	Domestic Subwoofer One	Subwoof.	8								50	55	4/4	27 x 15 x 15	Opt.		52	995.00 Pair				
TANNOY	DC-1000	Ducted Port Inf. Baf.	8			1	Dome		48-25 ± 3	90	10	2.3k	8/5	10 x 19 x 8	Black Ash	Black Knit	17 7/8	599.00 Pair				
	DC-2000		8	8	Cone	1	Dome		44-25 ± 3	92	10	400,2.3k	6/4	10 x 28 x 10	Black Ash	Black Knit	44	899.00 Pair				
	DC-3000	Slotted Port	8	8	Cone	1	Dome		30-25	92	10	400,2.3k	6/4	10 x 36 x 12	Black Ash	Black Knit	59	1499.00 Pair				
	C-6	Ducted Port	6 1/2			3/4	Dome		59-20	90			8/6	8 x 12 x 8	Black Ash	Black Knit	10	299.00 Pair				
	C-8	Ducted Port	8			1	Dome		55-20	92			8/6	10 x 19 x 9	Black Ash	Black Knit	17 1/2	399.00 Pair				
	C-10	Ducted Port	10			1	Dome		47-20					12 x 24 x 11	Black Ash	Black Knit	27	499.00 Pair				
	E-11	Ducted Port	6 1/2			1	Dome		55-20 ± 3	88	10	3k	8/6	8 x 15 x 8	Black Ash	Black Knit	11 1/2	349.00 Pair				
	M-15	Ducted Port	8			1	Dome		48-20 ± 3	89	10	3k	8/6	10 x 19 x 8	Black Ash	Black Knit	15 1/2	499.00 Pair				
	M-20	Ducted Port	8			1	Dome		48-20 ± 3	89	10	3k	8/6	10 x 19 x 8	Opt., Wood Ven.	Black Knit	15 1/2	599.00 Pair				
	J-30	ABR	8	8	Cone	1	Dome		40-20 ± 3	90	10	3k	8/6	10 x 28 x 10	Black Ash	Black Knit	35	799.00 Pair				
J-95	Inf. Baf.	8	8	Cone	1	Dome		30-20 ± 3	90	10	400,3k	8/5	10 x 36 x 12	Black Ash	Black Knit	52	1299.00 Pair					
TARA LABS	Timekeeper 0.5	Inf. Baf.	6 1/2			3	Ribbon		50-25	86	30	5k	7/4	9 x 9 x 19	Rswd.	Black Cloth	18	1495.00 Pair				
	Timekeeper 1	Inf. Baf.	(2)6 1/2			(2)3	Ribbons		40-25	86	30	5k	7/4	13 x 12 x 36	Rswd.	Black Cloth	55	2850.00 Pair				
	Timekeeper 2	Inf. Baf.	(4)6 1/2			(2)3	Ribbons		30-25	88	30	5k	7/4	17 x 15 x 47	Rswd.	Black Cloth	70	4200.00 Pair				
TDL	Reference Standard	Trans. Line	(2) 9 1/2 x 6 1/2	(2)4 1/2	Cones	(3)1	Domes		16-35	87	50	200,3.5k, 13k	8/5	20 x 22 x 48	Wal.	Brown	154	6995.00 Pair				
	Monitor	Trans. Line	9 1/2 x 6 1/2	4 1/2	Cone	(2)1	Domes		18-35	87	40	300,3.5k, 13k	8/5	18 x 12 x 47	Opt.	Brown	103	4595.00 Pair				
	Studio 3	Trans. Line	(2)8			1	Dome		20-20	87	30	3k	8/5	16 x 12 x 39	Opt.	Brown	59	2345.00 Pair				
	Studio 2	Trans. Line	8			1	Dome		24-20	87	30	3k	8/5	15 x 11 x 35	Opt.	Brown	48	1845.00 Pair				
	Studio 1	Trans. Line	6 1/2			1	Dome		28-20	86	30	3k	8/5	13 x 9 x 28	Opt.	Brown	40	1445.00 Pair				
	Studio 0.5	Trans. Line	5			1	Dome		30-20	85	30	3k	6/5	12 x 8 x 25	Black	Black		995.00 Pair				
TEAC	ST-X3	Ac. Sus.	8			3/4	Dome		55-22 ± 3	89	15	1.5k	6/	12 x 20 x 8	Sim. Oak	Gray Knit	16 Pair	299.95 Pair				
	ST-X5	Ac. Sus.	10	5	Cone	3/4	Dome	M	45-22 ± 3	90	20	1.2k,6k	6/	13 x 30 x 8	Sim. Oak	Gray Knit	29 Pair	239.95 Pair				
TECHNI-COUSTICS	Classic 1000	Vented	10	5	Cone	1	Dome	M, T	32-20 ± 3	94	25	800,5k	8/	32 x 20 x 13	Wal. Lam.	Brown Knit	67	600.00; Kit, 300.00				
	Classic 1200	Vented	12	5	Cone	1	Horn	M, T	46-20 ± 3	95	25	800,5k	8/	32 x 20 x 13	Wal. Lam.	Brown Knit	70	800.00; Kit, 400.00				
	Rock Master Jr	Vented	15			4x11	Horn		58-20 ± 3	97	40	3.5k	8,6.3	32 x 20 x 13	Black Paint	Black Metal	70	650.00; Kit, 350.00				
	Rock Master	Vented	12			4x11	Horn	T	39-18 ± 3	92	40	3.5k	8,5.8	26 x 16 x 17	Black Paint	Black Metal	75	900.00; Kit, 500.00				

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Separate Level Controls: Woofer, W. Midrange, M. Tweeter, T. Super Tweeter, ST			Analogic Frequency Response, SPL, 1 Watt/1 Meter, dB			Recommended Min. Amp Power, Watts Ch.			Impedance Ohms: Nominal/Minimum			Dimensions, Inches (To Nearest Inch)			Finish		Grille Color and Material		Weight, Lbs.		Price, \$		
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter
TECHNICS	SB-CX700	Pas. Rad.	12	4	Cone	1	Dome	T	40-22 ±2	88	60		6/	35 x 15 x 12																			55	350.00	
	SB-CX500	Pas. Rad.	10	4	Cone	1	Dome	T	55-22 ±3	88	40		6/	32 x 13 x 12																			40	300.00	
	SB-CX300	Bass Ref.	8			1	Dome		75-20 ±3	88	40		6/	18 x 11 x 10																			20	200.00	
	SB-C250	Bass Ref.	7			1	Dome		75-20 ±4			3k	8/	9 x 15 x 8																		30	329.00		
	SB-L80	Bass Ref.	12	4	Cone	2 1/8	Cone		38-22	92		3.5k,5k	8/	14 x 27 x 13																	23.8	229.95			
	SB-L60	Bass Ref.	10	4	Cone	2 1/8	Cone		40-22	92		3.5k,5k	8/	13 x 26 x 10																		18.7	179.95		
	SB-L40	Bass Ref.	10			2 1/8	Cone		42-22	91		4.5k	8/	13 x 23 x 9																		16.3	129.95		
	SST-1	Horn	6			2	Horn		55-20	92			6/	22 x 26 x 7																		26.2	2000.00		
	SST-35Hz SB-S25	Subwoof. Ac. Sus.	4			2	Cone		35-180 68-22	92 88		9k	8/	22 Dia. x 38 7 x 9 x 6																		55	2500.00		
																																4.6	99.95		
TERPSICHORE	QT-1	Trans. Line	5 1/2				Inv. Dome		50-22 ±3	90	50	450,3k	8/4	8 x 10 x 40	Opt.	Black Knit																51	2000.00		
	QT-2	Trans. Line	7				Inv. Dome		40-22 ±3	91	75	450,3k	8/4	10 x 15 x 44	Opt.	Black Knit																100	2500.00		
	Bifocal	Trans. Line	(2)8						30-200		100		8/4	20 x 10 x 40	Opt.	Black Knit																100	1200.00		
	Big Boy	Subwoof. Trans. Line Subwoof.	12						15-200	90	100		8/6	15 x 24 x 72	Opt.	Black Knit																300	2500.00		
THIEL	CS 5		(3)6	5.2	Cone, Dome	1	Dome		23-20 ±1	87	100	50,400, 1k,3k	3/2	13 x 17 x 64	Opt.	Black Cloth																180	9200.00		
	CS 3.5	Electr.	10	4	Cone	1	Dome		20-20 ±2	88	40	400,3k	4/4	13 x 13 x 41	Opt.	Black Cloth																75	2650.00		
	CS 2	Bass Ref.	8	3	Cone	1	Dome		38-20 ±2	87	40	800,3k	6/5	12 x 12 x 39	Opt.	Black Cloth																62	1650.00		
	CS 1.2	Bass Ref.	6 1/2			1	Dome		52-18 ±2	87	40	2.5k	4/4	10 x 10 x 36	Opt.	Black Cloth																	47	1250.00	
3A AUDIO DESIGN	MM	Tuned Port	8			1	Dome		50-25 ±3	91	30	3k	8/	15 x 10 x 14	Black Lacq.	Black Knit																30	1099.00		
	M-1	Tuned Port	8			1	Dome		40-25 ±3	92	30	3k	8/	28 x 10 x 13	Black Lacq.	Black Knit																45	1299.00		
	M-3	Tuned Port	8	4	Cone	1	Dome		30-25 ±3	92	50	500,5k	8/	36 x 11 x 16	Black Lacq.	Black Knit																		1999.00	
	MS-5	Tuned Port	(2)8	(2)4	Cones	1	Dome		30-25 ±3	89	50	120,600, 7k	4/	42 x 13 x 15	Black Lacq.	Black Knit																		3999.00	
	Andante	Tuned Port	8			1	Dome		60-25 ±3	90	10	4k	4/	14 x 9 x 12	Black Vinyl	Black Knit																	17	599.00	
	Allegretto	Tuned Port	8			1	Dome		40-25 ±3	92	30	5k	8/	22 x 10 x 12	Black Vinyl	Black Knit																	28	799.00	
	Adagio	Tuned Port	(2)8			1	Dome		30-25 ±3	94	30	100,5k	8/	37 x 10 x 13	Black Vinyl	Black Knit																		53	1299.00
	TR-100	Sat. & Subwoof.	(2)8	4	Cone	1	Dome		40-25 ±3	90	40		8/	Three Pieces	Black Lacq.	Black Metal																	60	1299.00	
TOWNSHEND AUDIO	Glastonbury II		8				Leaf	T	20-35	90	75	7.5k	8/7.5	11 x 35 x 14	Paint	Black Knit																	85	3200.00	
TRIAD SPEAKERS	System Six Woofer	Powered Woofer	8					W	40-140 ±3	90	70	Inc.	8/8	10 x 10 x 10	Opt.	Opt.																	16	450.00	
	System Seven Woofer	Powered Woofer	12					W	28-110 ±3	90	70	Inc.	8/8	13 x 13 x 13	Opt.	Opt.																	24	500.00	
	System Six Satellite	Inf. Baf. Sat.		3 1/2	Cone	3/4	Dome		165-20 ±2	89	20	3.2k	8/4	4 x 4 x 7	Opt.	Opt.																	3	300.00	
	System Seven Satellite	Inf. Baf. Sat.		5	Cone	1	Dome		140-20 ±2	88	20	2.5k	8/6	6 x 6 x 10	Opt.	Opt.																	7	500.00	
	System Five	Ported	5			2	Cone		75-16 ±3	88	20	2.8k	8/6	12 x 7 x 6	Opt.	Black Knit																	7	400.00	
	System Six	Sat. & Powered Woofer	8	3 1/2	Cone	3/4	Dome	W	40-20 ±3	89	20	150,3.2k	8/4	Three Pieces	Opt.	Opt.																	23	750.00	
	System Seven	Sat. & Powered Woofer	12	5	Cone	1	Dome	W	28-20 ±3	88	20	120,2.5k	8/6	Three Pieces	Opt.	Opt.																	42	1000.00	
	In-Wall Five	In-Wall, Ported	5			2	Cone		85-16 ±3	88	25	2.8k	8/	12 x 8 x 4	White	Cloth, Metal																	9		
	In-Wall Six	In-Wall Sat. & Powered Woofer	8	3 1/2	Cone	3/4	Dome	W	42-20 ±3	89	20	160,3.2k	8/4	Three Pieces		Cloth, Metal																	20	Sys.	
	In-Wall Seven	In-Wall Sat. & Powered Woofer	12	5	Cone	1	Dome	W	38-20 ±3	88	20	120,2.5k	8/6	Three Pieces		Cloth, Metal																	40	Sys.	
	In-Wall Six Woofer	In-Wall Powered Woofer	8					W	42-160	90	70	Inc.	8/6			Cloth, Metal																	16		
In-Wall Seven Woofer	In-Wall Powered Woofer	12					W	38-120	92	70	Inc.	8/6			Cloth, Metal																	24			

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type			Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls: Woofer, W; Midrange, M; Tweeter, T; Super-tweeter, ST			Analogic Frequency Response, Hz to kHz, ±dB	SPL, -1 Watt/1 Meter, dB	Recommended Min. Amp Power, Watts/Ch.	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			8	2	1						35-20 ±3	88	40										
TRIPOD	GS-3	Outdoor	8				2	Piezo									8/3	12 x 12 x 14	Green ABS	Black Foam	12	99.00	
	CPUM3	Outdoor	8				2	Coax									8/3	12 x 12 x 14	White Marb. ABS	Black Foam	12	99.00	
ULTRA AUDIO	TS-1	Bass Ref.	8	2	Dome	1	Dome											14 x 10 x 60	Oak	Black Cloth	80	1899.00 Pair	
UNITY AUDIO	CLA 1	Bass Ref.	10	6½	Cone	1	Dome	No		34-20 ±2	89	40	175,2.2k	8/5			8/5	9 x 10 x 44	Oak	Black Knit	55	1695.00 Pair	
	CLA 2	Bass Ref.	8	6½	Cone	1	Dome	No		43-20 ±2	89	40	175,2.2k	8/5			8/5	9 x 10 x 39	Oak	Black Knit	45	1195.00 Pair	
	CLA 3 II		(2)7			1	Dome	No		43-20 ±2	89	40	2.2k	6/4			6/4	9 x 5 x 38	Opt.	Black Knit	30	950.00 Pair	
	PARM	Biamp. Sat. & Subwoof.	(2)13	(2)7	Cones	1¼	Dome	W			23-22 ±1	91		130,2.2k	6/3			6/3	Five Pieces	Cor-ian	Black Knit	400 Sys.	15,000 Sys.
	Signature Pyramid CLA Signature	Bass Ref.	11	7	Cone	1¼	Dome				28-22 ±1.5	90	50	135,2.2k	7/5			7/5	42 x 11 x 11	Cor-ian	Black Knit	90	4999.95 Pair
		Bass Ref.	11	7	Cone	1½	Dome			30-21 ±2	90	100	135,2k	7/5			7/5	9 x 10 x 43	Opt.	Black Knit	68	2750.00 Pair	
VANDERSTEEN AUDIO	1B	Trans. Line	8			1	Dome	T		38-20 ±3	90	20	2.8k	8/6			8/6	12 x 10 x 36	Opt., Wood	Opt., Knit	50	650.00 Pair	
	2Ci		10,8	4½	Cone	¾	Dome	M,T		29-29 ±3	88	40	600,5k	8/4			8/4	16 x 10 x 36	Opt., Wood	Opt., Knit	68	1195.00 Pair	
	3		10,8	4½	Cone	1	Dome	M,T		26-30 ±3	87	100	500,5k	4/2			4/2	16 x 10 x 48	Opt., Wood	Opt., Knit	98	2395.00 Pair	
	4A	Biamp. Inf. Baf. Powered	(2)12, 8	4½	Cone	1½,¾	Domes	M,T		24-30 ±3	88	100	80,500, 5k,13k	8/4			8/4	18 x 17 x 52	Opt., Wood	Opt., Knit	150	4250.00 Pair	
	2W	Inf. Baf. Subwoof.	(3)8					W		26-80 ±3	Adj.	300 Inc.	80					80	18 x 17 x 18	Opt., Wood	Opt., Knit	90	1250.00 w/Amp
VECTOR RESEARCH	VSP-230	Sat. & Subwoof.	8	3½	Cone	2½	Cone			28-20 ±3	90	10	150,3.5k	6/			6/	Three Pieces	Black Vinyl	Black Alum. Mesh	17 Sys.	499.00 Sys.	
	VSP-82	Inf. Baf.	8			2	Cone	No		40-17.5 +3,-4	91	10	2k	8/			8/	19 x 11 x 8	Oak	Black Knit	29 Pair	79.00	
	VSP-1230	Bass Ref.	12	4	Cone	3	Cone	No		20-20 +3,-2	92	10	500,3.5k	8/			8/	27 x 14 x 11	Black	Black Knit	37	199.00	
VELODYNE ACOUSTICS	VA1012	Powered Subwoof.	10					W		25-75 ±3	60 Inc.	75						18 x 18 x 16	Black	Black Knit	49	645.00 w/Amp	
	Servo 1200	Powered Servo	12					W		15-100 ±3	100 Inc.	40-100						18 x 18 x 16	Black	Black Knit	55	895.00 w/Amp	
	ULD-12	Powered Servo Subwoof.	12					W		15-85 ±3	100 Inc.	85						21 x 16 x 17	Opt.	None	51	1195.00 w/Amp	
	ULD-15	Powered Servo Subwoof.	15					W		15-85 ±3	400 Inc.	85						22 x 17 x 18	Opt.	None	76	1795.00 w/Amp	
	ULD-18	Powered Servo Subwoof.	18					W		15-85 ±3	400 Inc.	85						23 x 31 x 21	Opt.	None	105	2595.00 w/Amp	
VIDIKRON	VTS 5 + 1	Sat. & Subwoof.	12	4¼	Cone	1	Dome			20-20	87	30	90					Six Pieces	Black	Black	44¼ Sys.	799.00 Sys.	
VIETA ACUTRES	Pro-5	Bass Ref.	5½			1	Dome			51-22 ±6	93	25	5k	8/5.5			8/5.5	8 x 11 x 7	Black Lacq.	Black Cloth	11	625.00 Pair	
	L'Allegro	Bass Ref.	8			¾	Dome			32-22	94	20	3.5k	8/4.2			8/4.2	11 x 18 x 12	Black Lacq.	Black Cloth	24	740.00 Pair	
	Prestige L'Orfeo	Bass Ref.	(2)5½			¾	Dome			44-23	90	15	3.5k	4/3			4/3	9 x 31 x 9	Black Lacq.	Black Cloth	25	1052.00 Pair	
	Prestige L'Acord	Bass Ref.	12	5½	Cone	1	Dome			27-22	93	25	600,8k	8/6.5			8/6.5	15 x 40 x 14	Black Lacq.	Black Cloth	66	2065.00 Pair	
	Prestige L'Adagio	Inf. Baf.	12	(5)5½	Cones	(4)1	Domes			20-15	85	80	400,900	8/5.6			8/5.6	16 x 40 x 17	Black Lacq.	Black Cloth	86	6822.00 Pair	
	Prestige SW-01	Bass Ref. Subwoof.	(2)10							15-50	100			8/			8/	59 x 18 x 17	Black Lacq.	Black Cloth	176	3014.00	
VIOLA-RICHARDS AUDIO	VR-10	Inf. Baf.	12	5½	Cone	1½	Dome	No		31-20 ±2	87	80	175,2.15k	6/3			6/3	52 x 15 x 17	Opt.	Black Knit	140	2600.00 Pair	
	VR-9	Inf. Baf.	10	5	Cone	1½	Dome			36-20 ±2	90	50	275,2.35k	8/4			8/4	44 x 13 x 15	Opt.	Black Knit	110	2200.00 Pair	
	VR-8	Inf. Baf.	8			1½	Dome			48-20 ±2	89	50	2.15k	8/4			8/4	30 x 10 x 13	Opt.	Black Knit	70	1500.00 Pair	
VMPS	QSD 404	Ported	8			1	Dome	T		48-17 +0,-3	90	20	3.5k	8/6			8/6	18 x 12 x 9	Oiled Wal.	Black Cloth	25	229.00	
	Mini Tower IIa	Pas. Rad.	(2)10	5	Cone	(2)1	Dome, Piezo	M,T, ST		28-30 +0,-3	92	20	500,4.5k, 15k	8/6			8/6	39 x 12 x 15	Opt., Wood	Black Cloth	70	479.00	
	Super Tower III	Pas. Rad.	(2)15, 12, (2)10	(4)5	Cones	(4)1, ¾x3	Domes, Ribbon	M,T, ST		17-50 +0,-3	98	20	80,500, 4.5k,15k	8/6			8/6	72 x 17 x 19	Opt., Wood	Black Cloth	300	4795.00 Pair	
	QSD 808	Ported	12	5	Cone	1	Dome	M,T		34-20 ±3	94	20	600,5k	8/6			8/6	26 x 15 x 12	Oiled Wal.	Black Knit	50	690.00 Pair	
(Continued)	Tower II	Multiband Bass	(3)12	5	Cone	1, (1)	Dome, Piezo	M,T, ST		22-50 ±3	95	20	80,400,4k 12k	4/4			4/4	43 x 15 x 15	Oiled Wal.	Black Knit	95	1298.00 Pair	

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp Power, Watts/Ch.		Impedance, Ohms		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer W. Midrange	Tweeter	Woofer W. Midrange	Tweeter	Woofer W. Midrange	Tweeter	Woofer W. Midrange	Tweeter				
VMPS (Continued)	Tower II Special Edition Super Tower/R	Multiband Bass	(3)12	5	Cone	1,2	Dome, Ribbon	M, T, ST	22-50 ±0, -3	94	20	80,600,5k, 15k	4/4	15 x 16 x 45	Dak	Black	100	1776.00 Pair		
	Super Tower/R	Multiband Bass	(2)15, 12	(2)5	Cones	(2)1, (2)2	Domes, Ribbons	M, T, ST	20-50 ±3	96	20	80,400,4k, 12k	4/4	49 x 22 x 17	Oiled Wal. Oak	Black Knit Black	150	1998.00 Pair		
	Special Edition	Multiband Bass	(2)15, 10	(2)5	Cones	(2)1, (2)1, 2	Domes, Ribbons	M, T, ST	20-50 ±0, -3	94	20	80,600,5k, 15k	4/4	18 x 18 x 52	Oiled Wal. Oak	Black Knit Black	175	2998.00 Pair		
	Smaller Subwoofer	Pas. Rad. Subwoof.	12						28-600 ±3	92	20	Var.	8/6	26 x 15 x 16	Oiled Wal.	Black Knit	52	329.00		
	Original Subwoofer	Pas. Rad. Subwoof.	12						19-600 ±3	94	20	Var.	8/6	27 x 22 x 17	Oiled Wal.	Black Knit	95	429.00		
	Larger Subwoofer	Pas. Rad. Subwoof.	15, 12						17-250 ±3	95	20	Var.	4/3	39 x 22 x 17	Oiled Wal.	Black Knit	140	599.00		
WALLSPEAKER TECHNOLOGIES	Vista Inwall V91	In-Wall, Vented	8	4	Cone	1	Dome	M, T	38-20 ±3	87	35	200,3.5k	6/4	13 x 3 x 64	Black	Opt.	50	1600.00 Pair		
	Vista Atwall V9A	Vented	10	4	Cone	1	Dome	M, T	34-20 ±3	87	50	200,3.5k	6/4	13 x 7 x 47	Opt.	Black Knit	55	1600.00 Pair		
	Series II	In-Wall, Vented	7			1	Inv. Dome	T	42-17.5 ±3	88	25	2k	8/5	13 x 3 x 49	Gran.	Opt.	45	1650.00 Pair		
	Series III	In-Wall, Vented	8	5	Cone	1	Inv. Dome	M, T	37-18 ±3	89	25	300,3.5k	8/4	13 x 3 x 73	Gran.	Opt.	57	2450.00 Pair		
WATERWORKS ACOUSTICS	Soundpipe ONE	Sealed Sat.	5			1/2	Cone/Dome		80-20 ±3	88	10	5k	8/6	13 x 6 x 8	White	Steel	6	349.00 Pair		
	Soundpipe TWO	Sealed Sat.	(2)5			3/4	Cone/Dome		80-20 ±3	90	10	5k	4/3	22 x 6 x 8	Black	Steel	10	649.00 Pair		
	Soundpipe SUB	Sealed Subwoof.	10				Dome		30-100 ±3	90	10	100	6/3	16 Dia. x 18	Granite		30	449.00		
WAVEFORM RESEARCH	Waveform	Tuned Port	15	(2)6 1/2	Cones	1 1/8	Dome, Ribbon	W	28-20 ±1	90	150	150,2k,9k	8/4	20 x 30 x 48	Black Enam.	Black Knit	180	4695.00 Pair w/Xover		
WENGER/ALS	1104CM	Pas. Rad., Ceiling Mount	10	5	Cone	(2)1	Domes		32-20 ±3	91	100	650,5k	6/4	24 x 24 x 15	Opt.	Knit	54	859.00 Pair		
	1104	Pas. Rad.	10	5	Cone	(2)1	Domes		32-20 ±3	91	50	650,5k	6/4	16 x 13 x 9	Opt.	Black Knit	35	857.00 Pair		
	1124	Pas. Rad.	12	5	Cone	(2)1	Domes		25-20 ±3	93	50	500,5k	6/4	34 x 15 x 11	Black	Black Knit	57	987.00 Pair		
	1154SW	Pas. Rad. Subwoof.	15						20-800 ±3	95	150		6/4	34 x 19 x 15	Black	Black Knit	65	499.00 Pair		
	2154	Pas. Rad. Subwoof.	(2)15						20-800 ±3	98	150		6/4	32 x 34 x 19	Black	Black Knit	125	813.00 Pair		
	4154	Pas. Rad. Subwoof.	(4)15						20-800 ±3	101	250		6/4	33 x 33 x 33	Black	Black Knit	250	1546.00 Pair		
	1154S	Pas. Rad. Triamped	15	10	Cone	(2)5, 2	Cones, Compr.	T	32-20 ±3	94	400	125,1.4k, 5k	6/4	33 x 23 x 18	Opt.	Black Knit	165	3500.00 Pair		
WESTLAKE AUDIO	BBSM-4/4F	Ported	(2)4			3/4	Dome		65-20 ±3	89	25	1.5k	4/2	8 x 15 x 10	Opt.	Opt.	25	1400.00 Pair		
	BBSM-5/5F	Ported	(2)5			1 1/4	Dome		63-18 ±3	90	25	1.2k	4/2	11 x 18 x 10	Opt.	Opt.	35	1800.00 Pair		
	BBSM-6/6F	Ported	(2)6	3 1/2	Cone	1	Dome		60-20 ±3	91	50	600,6k	4/2	11 x 22 x 13	Opt.	Opt.	53	2300.00 Pair		
	BBSM-8/8F	Ported	(2)8	3 1/2	Cone	1	Dome		65-18 ±3	92	50	600,5k	4/2	13 x 26 x 17	Opt.	Opt.	77	3200.00 Pair		
	BBSM-10/10F	Ported	(2)10	6 1/2	Cone	1 1/4	Dome		50-16 ±3	94	75	600,4k	4/2	16 x 30 x 22	Opt.	Opt.	115	4000.00 Pair		
	BBSM-10VF	Ported	(2)10	6 1/2	Cone	1 1/4	Dome		45-16 ±3	94	75	600,4k	4/2	44 x 27 x 17	Opt.	Opt.	175	4300.00 Pair		
	BBSM-12/12F	Ported	(2)12	6 1/2	Cone	1 1/4	Dome		50-16 ±3	94	100	500,4k	4/2	19 x 34 x 23	Opt.	Opt.	160	4700.00 Pair		
	BBSM-12VF	Ported	(2)12	6 1/2	Cone	1 1/4	Dome		49-16 ±3	89	100	500,4k	4/2	48 x 30 x 19	Opt.	Opt.	240	5000.00 Pair		
	BBSM-15/15F	Ported	(2)15	10	Cone	1	Horn		50-15 ±3	98	150	350,1.6k	4/2	27 x 41 x 25	Opt.	Opt.	345	10,000.00 Pair		
	SM-1/1F	Quadamp, Ported	(2)18	12	Cone	2, 1 1/2	Horns		28-20 ±3	104	100	200,800, 3.2k, 10k	4/2	39 x 49 x 32	Opt.	Opt.	450	45,000.00 Pair w/Xover		
	TM-3/3F	Biamp, Ported	(2)15	2	Horn	2, 1	Horns		34-16 ±3	97	100	800,4k	4/2	30 x 44 x 20	Opt.	Opt.	325	17,650.00 Pair w/Xover		
	TM-3VF	Biamp, Ported	(2)15	2	Horn	2, 1	Horns		34-16 ±3	97	100	800,4k	4/2	44 x 34 x 21	Opt.	Opt.	370	18,500.00 Pair w/Xover		
	HR-1/1F	Quadamp, Ported	(2)15	10	Cone	2, 1	Horns		34-16 ±3	97	100	250,1k, 5.2k	4/2	31 x 44 x 21	Opt.	Opt.	350	25,650.00 Pair w/Xover		
	HR-1VF	Quadamp, Ported	(2)15	10	Cone	2, 1	Horns		34-16 ±3	97	100	250,1k, 5.2k	4/2	48 x 34 x 21	Opt.	Opt.	375	26,500.00 Pair w/Xover		
HR-7UF/7U/7F	Quadamp, Ported	(2)12	10	Cone	1 1/2	Horns		48-20 ±3	95	100	400,1.8k, 7.2k	4/2	24 x 38 x 18	Opt.	Opt.	185	19,000.00 Pair w/Xover			
WHARFEDALE (Continued)	System 2130	Sat. & Subwoof. Tuned Port	(2)8	4	Cone	(2)3/4	Domes		40-20 ±3	89	20	150,5.5k	8/6.4	Three Pieces	Black Vinyl	Gray Knit	40 1/2 Sys. 20 Pair	699.00 Sys. 200.00 Pair		
	504.2		4			3/4	Dome		48-22 ±3	86	20	3.5k	8/6.4	11 x 7 x 8	Black Vinyl	Black Knit				

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Controls: Woofer - W, Midrange - M, Tweeter - T, Super-tweeter - ST			Anchoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp Power, dB	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
								42-22 ±3	87	20										
WHARFEDALE (Continued)	505.2	Inf. Baf.	8			3/4	Dome			42-22 ±3	87	20	5k	8/6.4	17 x 10 x 9	Black Knit	Black Knit	25	180.00	
	Coleridge	Ported	8			1	Dome			45-20 ±3	89	30		8/	18 x 10 x 10	Black Vinyl	Gray Knit	30	800.00	
	Harewood	Ported	8			1	Dome			40-20 ±3	89	30		8/	22 x 10 x 10	Ash Black	Gray Knit	36	1000.00	
	Delta 30	Tuned Port	6 1/2			3/4	Dome			45-20 ±3	89	15	5k	8/6.4	15 x 8 x 6	Black Oak	Black Knit	17 3/8 Pair	135.00	
	Delta 50	Inf. Baf.	8			3/4	Dome			45-20 ±3	89	15	5k	8/6.4	18 x 10 x 8	Black Oak	Black Knit	26 3/8 Pair	175.00	
	Delta 70	Tuned Port	8			3/4	Dome			40-20 ±3	89	15	3.5k	8/6.4	21 x 11 x 8	Black Oak	Black Knit	33 Pair	225.00	
	Delta 90	Tuned Port	10	4	Cone	3/4	Dome			35-20 ±3	89	15	1k,5k	8/6.4	27 x 12 x 9	Black Oak	Black Knit	33 Pair	350.00	
	Diamond III	Tuned Port	4			3/4	Dome			50-20 ±3	86	20	3.5k	8/6.4	9 x 7 x 8	Black Oak	Black Knit	15 1/2 Pair	150.00	
	Active Diamond Plus	Powered Tuned Port	4			3/4	Dome			50-20 ±3	Inc.		3.5k		9 x 7 x 8	Vinyl Oak	Black Knit	18 Pair	175.00	
	Diamond IV	Bass Ref.	4 3/4			3/4	Dome			50-20 ±3	86	20	3.5k	8/6.4	11 x 7 x 7	Black Vinyl	Gray Knit	17 3/8 Pair	199.00	
	410	Twin Port	6 3/4			1	Dome			45-20 ±3	89	20	3.5k	8/6.4	14 x 9 x 9	Black Vinyl	Gray Knit	26 3/8 Pair	249.00	
	420	Bass Ref.	8			1	Dome			40-20 ±3	90	20	5k	8/6.4	19 x 10 x 11	Black Vinyl	Gray Knit	44 Pair	349.00	
	430	Bass Ref.	(2)8			1	Dome			35-20 ±3	90	20	5k	8/6.4	29 x 10 x 11	Black Vinyl	Gray Knit	41 Pair	449.00	
	440	Bass Ref.	(2)8			1	Dome			30-20 ±3	90	20	5k	8/6.4	38 x 10 x 11	Black Vinyl	Gray Knit	54 Pair	599.00	
WILSON AUDIO SPECIALTIES	WAMM Series VI	Sat. & Subwoof.	18, (2) 8 1/4 x 11 1/4 6 1/2	(2)4 1/2	Cones	(2)1, (9) 5x5	Domes, ES	W, M, T, ST		17-30 (Adj.)	99	50	55,400, 3k	4/3	Four Pieces	Opt.	Opt.	1850 Sys.	88,000 Sys. w/EQ	
	WATT II	Ported				1	Dome	No		50-20 ±3	91	30	1.8k	4/2	12 x 14 x 17	Opt.	Opt.	120 Pair	From 5900.00 Pair	
	Puppy	Ported Subwoof.	(2)8 1/2							28-125 ±3	91	30	125	4/4	12 x 24 x 17	Opt.	Opt.	162 Pair	From 3950.00 Pair	
	WHOW Universal Powered POW WHOW	Ported Subwoof. Powered Ported Subwoof.	18 18					W W		16-55 16-55	91 91	80 400 Inc.	55 55	30/11	17 x 29 x 40 17 x 29 x 40	Opt. Opt.		210 260	10,500 w/Xover 13,500 w/Xover & Amp	
WIN RESEARCH	SM-10	Flat Coaxial	8			1	Flat			38-20 ±2	95	50	2.3k	8/6.3	12 x 20 x 11	Black Lacq.		45	6750.00 Pair w/ Stands	
WOLCOTT AUDIO	Omnisphere MDF-2	Ported	(4)6 1/2			1 1/8	Dome	T		30-18 ±3	90	20	2k	8/5	21 x 21 x 49	Oiled Oak	Brown Knit	110	4500.00 Pair	
	Omnisphere MDH-2	Ported	(4)6 1/2			1 1/8	Dome	T		30-18 ±3	90	20	2k	8/5	21 x 21 x 49	Black Lacq.	Foam	110	4950.00 Pair	
YAMAHA	NS-1	Ac. Sus.	6 1/4			1 1/4	Dome	T		60-30	86	60	2.5k	6/	8 x 15 x 11	Lacq. Birch	Brown Knit	20 7/8 Pair	998.00 Pair	
	NS-10M	Ac. Sus.	7			1 3/8	Dome			60-20	90	50	2k	8/	8 x 15 x 8	Black Lacq.	Black Knit	13 1/4 Pair	398.00 Pair	
	NS-C70	Ac. Sus.	(2)4							70-20	88			6/	17 x 5 x 6	Black Lacq.	Black Knit	7 Pair	129.00	
	NS-A90	Ac. Sus.	4 1/2			2	Cone			120-18	91	5		4/	9 x 9 x 3	White	White Knit	4 3/8 Pair	69.95 Pair	
	NS-A95	Ac. Sus.	4 1/2			2	Cone			120-18	91	5		4/	9 x 9 x 3	Black	Black Knit	4 3/8 Pair	69.95 Pair	
	YST-S1	Active Servo	6 1/4			1 1/4	Dome			28-20				6/	7 x 12 x 9	Black Vinyl	Black Knit	13 1/4 Pair	700.00 Pair	
	YST-SF50	Active Servo	(4)4			1 1/4	Dome			25-30	92		2.5k	6/	12 x 20 x 3	Black Vinyl	White Knit	13 1/4 Pair	658.00 Pair	
	YST-S300A	Active Servo	6 1/2			3/4	Dome			25-40	87		2.8k	6/	8 x 17 x 11	Black Vinyl	Black Knit	15 1/2 Pair	350.00 Pair	
	YST-SE10	Active Servo	4							40-20	90			6/	8 x 11 x 3	Black Vinyl	White Knit	3 3/8 Pair	158.00 Pair	
	YST-SW100	Powered Servo Subwoof.	(2)7					W		21-180	91	70 Inc.			8 x 22 x 16	Black	Black Knit	35 1/4 Pair	399.00 w/Amp	
NS-W2	Powered Servo Subwoof.	10					W				40 Inc.			18 x 14 x 12	Black	Black Knit	26 1/2 Pair	289.00 w/Amp		
YANKEE AUDIO	FPR-72 MKII	Planar Ribbon	1020 Sq. In.							29-20 ±2	88	75		3/3	30 x 72 x 3	Opt. Wood	Opt. Knit	270 Pair	5800.00 Pair	
ZEBRA ACOUSTICS	Z-6	Ducted Port	6 1/2			2	Cone			60-20	94	3		8/6	10 x 16 x 9	Black Ash	Black Knit	22 Pair	79.95	
	Z-8	Ducted Port	8			2	Cone			45-20	93	3		8/6	11 x 19 x 10	Black Vinyl	Black Knit	26 Pair	99.95	
	Z-10	Ducted Port	10	4	Cone	2	Cone			35-20	94	5		8/6	13 x 24 x 11	Black Ash	Black Knit	22 Pair	129.95	
	Z-12	Ducted Port	12	4	Cone	2	Cone			25-20	90	10		8/6	16 x 31 x 13	Black Vinyl	Black Knit	33 Pair	149.95	

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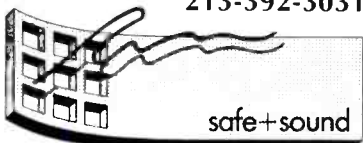
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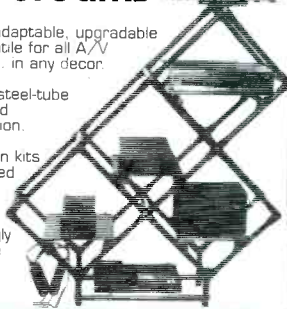
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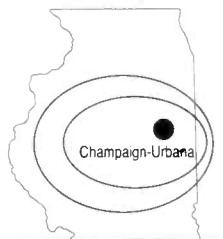


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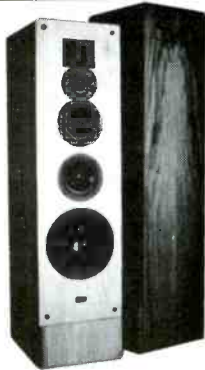
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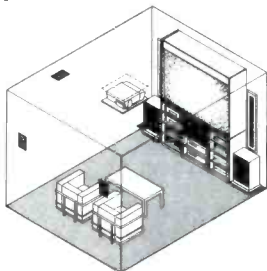
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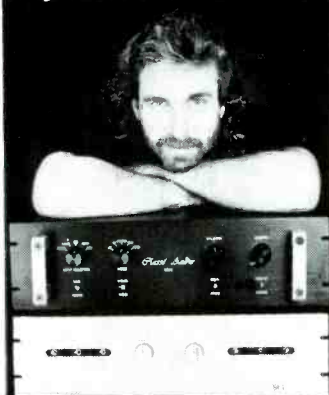
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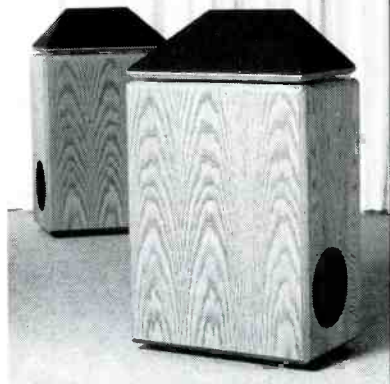
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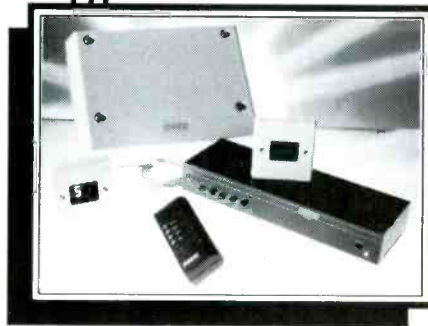
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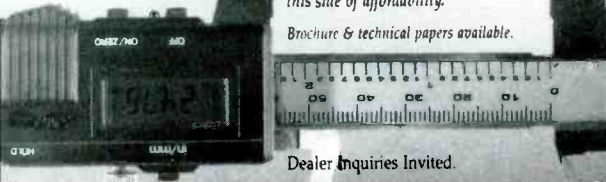
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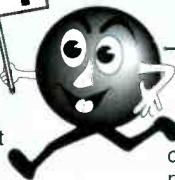
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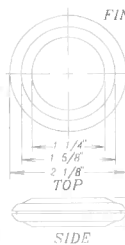
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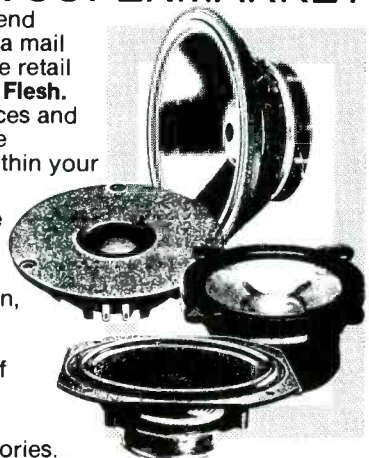
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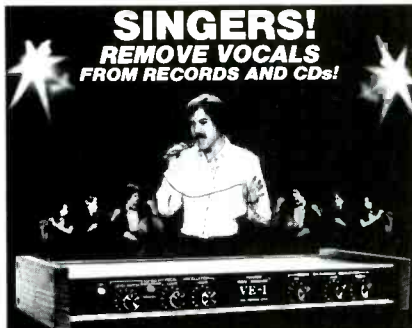


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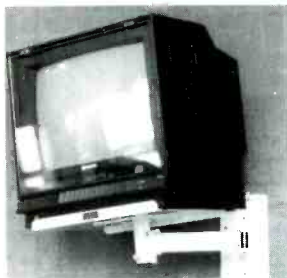
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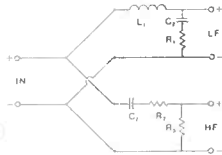
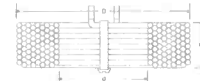
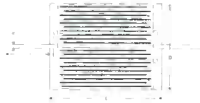
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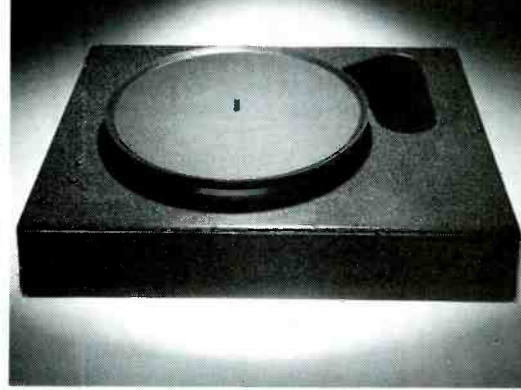
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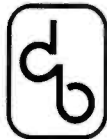


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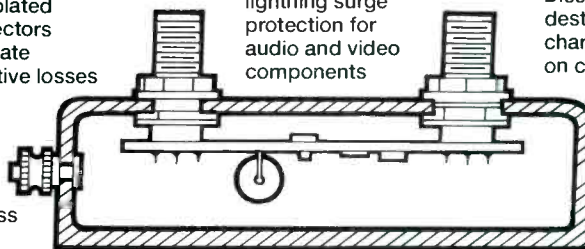
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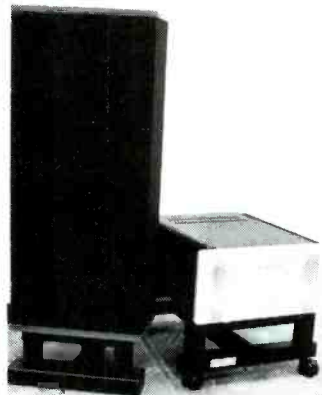
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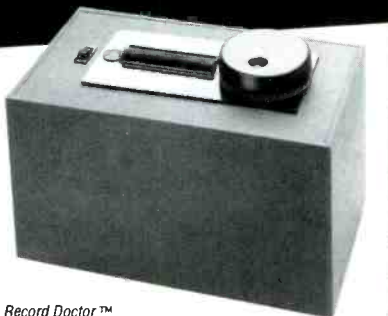
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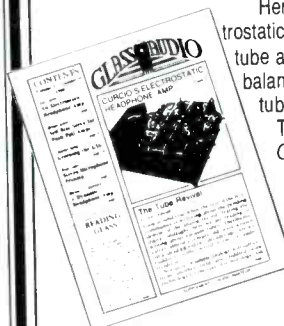
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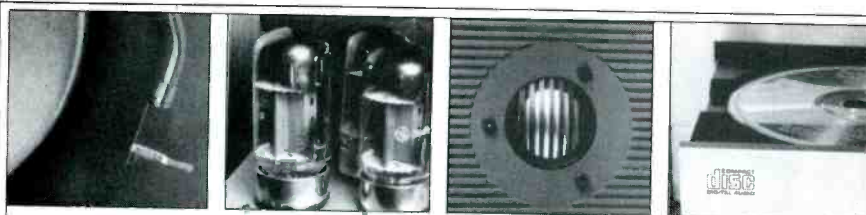
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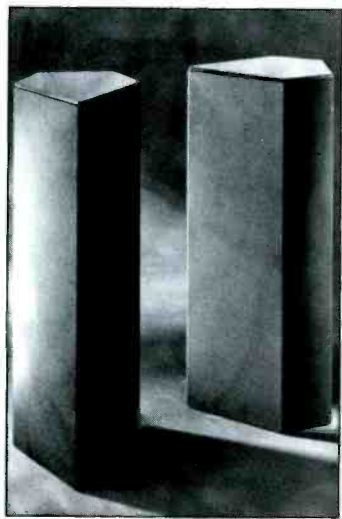
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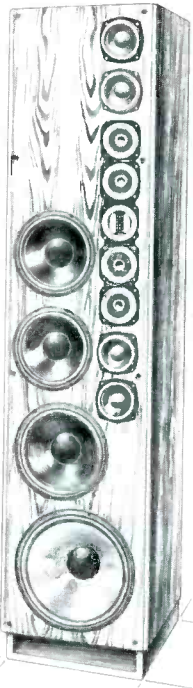


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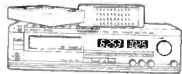
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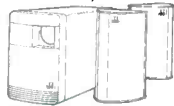


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<p>A</p> <p>Acclaim/Mavrick See Mavrick</p> <p>Accuphase See Madrigal</p> <p>Ace Audio 532 Fifth St. East Northport, N.Y. 11731</p> <p>Acont 1650 Timocuan Way Longwood, Fla. 32750</p> <p>Acostat 613 South Rockford Dr. Tempe, Ariz. 85281</p> <p>Acoustic Interface P.O. Box 6632 Santa Barbara, Cal. 93160</p> <p>Acoustic Research See AR</p> <p>ADC See Audio Dynamics</p> <p>Adcom 11 Elkins Rd. East Brunswick, N.J. 08816</p> <p>a/d/s/ One Progress Way Wilmington, Mass. 01887</p> <p>Advanced Akustic 4555 North Pershing Suite #33-184 Stockton, Cal. 95207</p> <p>Advanced Electrodynamic Systems 860 North Cypress St. Orange, Cal. 92667</p> <p>Advanced Sound 711 East Magnolia Ave. Knoxville, Tenn. 37917</p> <p>Advent 25 Tri-State Intl. Office Ctr. Suite 400 Lincolnshire, Ill. 60069</p> <p>AES Audio Electronics Systems See J & J Myers</p> <p>Air Tangent See Basis Audio</p>	<p>Aiwa 35 Oxford Dr. Moonachie, N.J. 07074</p> <p>AKG Acoustics 1525 Alvarado St. San Leandro, Cal. 94577</p> <p>Allegro Audio Designs 4 Biltmore Dr. Green Brook, N.J. 08812</p> <p>Allison Acoustics 1590 Concord Ave. Framingham, Mass. 01701</p> <p>Altec Lansing Milford, Pa. 18337</p> <p>Ambico 50 Maple St. Norwood, N.J. 07648</p> <p>Ambié Loudspeakers 200 Butler St. Milpitas, Cal. 95035</p> <p>AMBRIA See Parassound</p> <p>American Acoustics See MTX</p> <p>American Hybrid Technology 549 Centennial Ave. Trenton, N.J. 08629</p> <p>Amplifi/Mavrick See Mavrick</p> <p>Amrita Audio P.O. Box 770 Fairfield, Iowa 52556</p> <p>Analog One P.O. Box 7202 St. Paul, Minn. 55107</p> <p>Analog Research 2805 Holy Cross Garland, Tex. 75044</p> <p>Angstrom 290 Larkin St. P.O. Box 1089 Buffalo, N.Y. 14220</p> <p>Anodyne Group P.O. Box 6227 High Point, N.C. 27262</p> <p>Apax Marketing P.O. Box 8 Pleasanton, Cal. 94566</p>	<p>Apex Systems 11068 Randall St. Sun Valley, Cal. 91352</p> <p>API Audio Products International 3641 McNicoll Ave. Scarborough, Ont. Canada M1X 1G5</p> <p>Apogee Acoustics 35 York Industrial Park Randolph, Mass. 02368</p> <p>AR 330 Turnpike St. Canton, Mass. 02021</p> <p>Aragon See Mondial</p> <p>Arant International See Cambridge Physics</p> <p>Arcam See Audio Influx</p> <p>Archer See Radio Shack</p> <p>Arcici P.O. Box 1502 Ansonia Station New York, N.Y. 10023</p> <p>Argent See Direct Sound</p> <p>Ariston Acoustics See EuroSound Imports</p> <p>Artech Electronics P.O. Box 1165 Champlain, N.Y. 12919</p> <p>Artemis Systems See Waiters Sound Wave</p> <p>ASB Ltd. 11605 Basswood Dr. Laurel, Md. 20708</p> <p>A & S Speakers 3170 23rd St. San Francisco, Cal. 94110</p> <p>ATC See Magee Audio Engineering</p> <p>Athena Audio P.O. Box 210465 San Francisco, Cal. 94121</p>	<p>Atlantic Technology See Lincolnwood Ltd.</p> <p>Atma-Sphere Music Systems 160 South Wheeler St. St. Paul, Minn. 55105</p> <p>Audible Illusions See Apax Marketing</p> <p>Audioaccess 26046 Eden Landing Rd. Hayward, Cal. 94545</p> <p>Audio Advancements P.O. Box 100 Lincoln Park, N.J. 07035</p> <p>Audio Concepts 901 South 4th St. LaCrosse, Wisc. 54601</p> <p>Audio Control 22313 70th Ave. West Mountlake Terrace, Wash. 98043</p> <p>Audio Craft 14270 N.E. 18th Ave. Miami, Fla. 33181</p> <p>Audio + Design See Gotham Audio</p> <p>Audio Design Associates 610 Mamaroneck Ave. White Plains, N.Y. 10605</p> <p>Audio Dynamics 707 East Evelyn Ave. Sunnyvale, Cal. 94086</p> <p>Audio Influx P.O. Box 381 Highland Lakes, N.J. 07422</p> <p>Audio Innovations 259 North Capitol Ave. #113 San Jose, Cal. 95127</p> <p>Audiolab See Artech</p> <p>Audionics See Fosgate-Audionics</p> <p>Audiophile Systems 8709 Castle Park Dr. Indianapolis, Ind. 46256</p>	<p>Audiophore 1711 North Crilly Court, #1E Chicago, Ill. 60614</p> <p>AudioQuest P.O. Box 3060 San Clemente, Cal. 92672</p> <p>Audio Research 6801 Shingle Creek Pkwy Minneapolis, Minn. 55430</p> <p>AudioSource 1327 North Carolan Ave. Burlingame, Cal. 94010</p> <p>Audiostatic See Paul Heath Marketing</p> <p>AudioStream Box 2410 Niagara Falls, N.Y. 14302</p> <p>Audio-Technica 1221 Commerce Dr Stow, Ohio 44224</p> <p>Audire 9576 El Tambor Ave. Fountain Valley, Cal. 92708</p> <p>Audix 5653 Stoneridge Dr. Pleasanton, Cal. 94566</p> <p>Aural Symphonics 2016 Flintbury Court San Jose, Cal. 95148</p> <p>A.V.A. Audio by Van Alstine 2202 River Hills Dr. Burnsville, Minn. 55337</p> <p>Avalon Acoustics 2800-B Wilderness Pl. Boulder, Colo. 80301</p> <p>Avid Dynamic Loudspeaker See Cambridge Physics</p> <p>Axiom Audio Box 82, Hwy #60 Dwight, Ont. Canada P0A 1H0</p> <p>Azden 147 New Hyde Park Rd. Franklin Square, N.Y. 11010</p> <p>B</p> <p>Bang & Olufsen 1150 Feehanville Dr Mt Prospect, Ill. 60056</p>
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COMPANY

<p>BASF Crosby Dr. Bedford, Mass. 01730</p> <p>Basis Audio Mfg. 47 Green Heron La. Nashua, N.H. 03062</p> <p>BBE Sound 5500 Bolsa Ave. Suite 245 Huntington Beach, Cal. 92649</p> <p>Beard Audio See Gentronics Marketing</p> <p>Bedini Amplifiers 13410 Sayre St. Sylmar, Cal. 91342</p> <p>BEL Brown Electronic Labs 2530 Berryessa Rd. Suite 126 San Jose, Cal. 95132</p> <p>Belles Electronics 1237 East Main St. Rochester, N.Y. 14609</p> <p>Benz-Micro See Panther Enterprises</p> <p>David Berning Co. 11007 Candlelight La. Potomac, Mc. 20854</p> <p>Beyerdynamic 5-05 Burns Ave Hicksville, N.Y. 11801</p> <p>BGW Systems 13130 South Yukon Ave. Hawthorne, Cal. 90251</p> <p>Biamp Systems 14270 N.W. Science Park Dr. Portland, Ore. 97229</p> <p>Bib Audio/Video Products 10497 Centennial Rd Littleton, Colo. 80127</p> <p>BIC America 895E Hampshire Rd Stow, Ohio 44224</p> <p>B & K Components 1971 Abbott Rd Lackawanna, N.Y. 14218</p> <p>Blakely Acoustical Labs 4405 Shade Tree Court Raleigh, N.C. 27613</p>	<p>Bose The Mountain Framingham, Mass. 01701</p> <p>Boston Acoustics 70 Broadway Lynnfield, Mass. 01940</p> <p>Boulder Amplifiers 4850 Sterling Dr. Boulder, Colo. 80301</p> <p>British Built Audiophile Products See Panther Enterprises</p> <p>Broadcast Electronics 4100 North 24th St. Quincy, Ill. 62301</p> <p>Brüel & Kjaer 185 Forest St. Marlborough, Mass. 01752</p> <p>Bryston Ltd. 57 Westmore Dr. Rexdale, Ont. Canada M9V 3Y6</p> <p>Brystonvermont R.F.D. 4, Berlin Box 2255 Montpelier, Vt. 05602</p> <p>Burmester See EARS</p> <p>B & W Loudspeakers P.O. Box 653 Buffalo, N.Y. 14240</p> <p>C</p> <p>Cadawas Acoustics 92 Oneida Ave Staten Island, N.Y. 10301</p> <p>CAE Curcio Audio Engineering P.O. Box 8003 State College, Pa. 16803</p> <p>California Audio Labs 16812 Gothard St. Huntington Beach, Cal. 92647</p> <p>Camber Acoustics 4946 Bourg Montreal, Que. Canada H4T 1J2</p>	<p>Cambridge Physics Fisk Mill Complex Box 192 Marlboro, N.H. 03455</p> <p>Cambridge SoundWorks 154 California St. Newton, Mass. 02158</p> <p>Canton 915 Washington Ave. South Minneapolis, Minn. 55415</p> <p>Cardas Audio 1933 West 11th St., #F Upland, Cal. 91786</p> <p>Carrera See Vector Research</p> <p>Carver Corp. P.O. Box 1237 Lynnwood, Wash. 98046</p> <p>Carvin Corp. 1155 Industrial Ave. Escondido, Cal. 92025</p> <p>Cary Audio Design 101J Woodwinds Industrial Ct. Cary, N.C. 27511</p> <p>Cascade Audio Systems P.O. Box 747 Rocklin, Cal. 95677</p> <p>Castle Acoustics See May Audio Marketing</p> <p>CBM 2020 Santa Monica Blvd. Suite 410 Santa Monica, Cal. 90404</p> <p>CDE Classical Design & Engineering 7700 Old Branch Ave. Suite C-102 Clinton, Md. 20735</p> <p>Celestion Industries 89 Doug Brown Way Holliston, Mass. 01746</p> <p>Cello Ltd. 315 Peck St. Bldg. 23 New Haven, Conn. 06513</p> <p>Certron 5439 East La Palma Ave. Anaheim, Cal. 92807</p>	<p>Cerwin-Vega 555 East Easy St. Simi Valley, Cal. 93065</p> <p>Chapman Sound P.O. Box 140 Vashon, Wash. 98070</p> <p>Chario 616 North Flores. #308 Los Angeles, Cal. 90048</p> <p>Citizen See CBM</p> <p>Clarity Audio Systems 808 Post St., #709 San Francisco, Cal. 94109</p> <p>Classé Audio 9414 Cote de Liesse Rd. Lachine, Que. Canada H8T 1A1</p> <p>Classic Audio Ltd. 238 Liberty Ave. New Rochelle, N.Y. 10805</p> <p>Classic Audio Reproductions 5115 Red Fox Brighton, Mich. 48116</p> <p>Clements Audio 76 St. Clair Ave. West Fourth Floor Toronto, Ont. Canada M4V 1N2</p> <p>Don J. Cochran Inc. 1900 Embarcadero Rd. Suite 109 Palo Alto, Cal. 94303</p> <p>Coda Technologies 9233 Wausau Way Sacramento, Cal. 95826</p> <p>CompuSonic 744 San Antonio Rd. Suite 4 Palo Alto, Cal. 94303</p> <p>conrad-johnson design 2800R Dorr Ave. Fairfax, Va. 22031</p> <p>Convergent Audio Technology 24 Falcon Dr West Henrietta, N.Y. 14586</p> <p>Counterpoint 2610 Commerce Dr. Vista, Cal. 92083</p>	<p>Creative Dimensions P.O. Box 851473 Richardson, Tex. 75085</p> <p>Creek Audio Systems See Music Hall</p> <p>Crosby Audio Works 101 North First St. Suite 163 Los Altos, Cal. 94022</p> <p>Crown International 1718 West Mishawaka Rd. Elkhart, Ind. 46517</p> <p>CSI Calibration Standard Instruments P.O. Box 2727 Oakland, Cal. 94602</p> <p>Cyrus See Mission Electronics</p> <p>D</p> <p>Dahlquist 601 Old Willets Path Hauppauge, N.Y. 11783</p> <p>Dana Audio P.O. Box 1 Austin, Tex. 78767</p> <p>D'Ascanio Audio 11450 Overseas Hwy. Marathon, Fla. 33050</p> <p>DAX 10240A N.E. Marx St. Portland, Ore. 97220</p> <p>Day Sequerra Davidson Roth P.O. Box 95707 Hoffman Estates, Ill. 60195</p> <p>DB Systems Main St., Box 460 Rindge Center, N.H. 03461</p> <p>dbx 707 East Evelyn Ave. Sunnyvale, Cal. 94086</p> <p>DCM 670 Airport Blvd. Ann Arbor, Mich. 48108</p> <p>DeCoursey Engineering Laboratory 11828 West Jefferson Blvd. Culver City, Cal. 90230</p>
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Box 13686 Research Triangle Park, N.C. 27709</p> <p>Dynavector See Muse Electronics</p>	<p>E</p> <p>EARS European Audiophile Reference Standard P.O. Box 232 Morris Plains, N.J. 07950</p> <p>Eidolon Research P.O. Box 1384 Davidson, N.C. 28036</p> <p>Electrocompaniet See Music & Sound</p> <p>Electronic Visionary Systems 2531 Regent St., #17 Berkeley, Cal. 94704</p> <p>Electron Kinetics 1770 South Palo Verde Blvd. Lake Havasu City, Ariz. 86403</p> <p>Electro-Voice 600 Cecil St. Buchanan, Mich. 49107</p> <p>Emerson Radio One Emerson La. North Bergen, N.J. 07047</p> <p>Eminent Technology 225 East Palmer St. Tallahassee, Fla. 32301</p> <p>Encore Electronics 7105 East 132nd St. Grandview, Mo. 64030</p> <p>Energy See API</p> <p>Ensemble See Graham Engineering</p> <p>EPI 8400 Balboa Blvd. Northridge, Cal. 91325</p> <p>Epik Monitor Systems 1720 Lilac Dr. Walnut Creek, Cal. 94595</p> <p>Epoch See Stanton</p> <p>Epos See Music Hall</p> <p>Esoteric See TEAC</p> <p>Esoteric Audio USA R.R. 3, Box 262 Winder, Ga. 30680</p> <p>Esoteric Sound 4813 Wallbank Ave. Downers Grove, Ill. 60515</p> <p>ESS 11415 Folsom Blvd. Rancho Cordova, Cal. 95670</p>	<p>Essence 805 'M' St. Lincoln, Nebr. 68508</p> <p>Euphonic Technology 19 Danbury Rd. Ridgefield, Conn. 06877</p> <p>EuroSön 694 Ft. Salonga Rd. Northport, N.Y. 11768</p> <p>EuroSound Imports 1060 Main St. River Edge, N.J. 07661</p> <p>Eurostat 1132 East Ave. Rochester, N.Y. 14607</p> <p>Excelsior Sounds P.O. Box 353, Bushey Watford, England WD2 3XH</p> <p>Exposure See Audiophore</p> <p>Expressive Technologies P.O. Box 6401 Holliston, Mass. 01746</p> <p>F</p> <p>Fanfare International 500 East 77th St. New York, N.Y. 10021</p> <p>Fenton Audio P.O. Box 212 Yellow Springs, Ohio 45387</p> <p>Fidelus See Apax Marketing</p> <p>First Sound 833 S.W. Sunset Blvd. Suite L57 Renton, Wash. 98055</p> <p>Fisher 21350 Lassen St. Chatsworth, Cal. 91311</p> <p>FMS Favorite Music Systems 319 A St. (Rear) Boston, Mass. 02210</p> <p>Focus Speaker Systems 120 South Patterson Dayton, Ohio 45402</p> <p>Forté Audio See InConcert</p> <p>Fosgate-Audionics P.O. Box 70 Heber City, Utah 84032</p> <p>Fostex 15431 Blackburn Ave. Norwalk, Cal. 90650</p>	<p>Fried Products 7616 City Line Ave. Philadelphia, Pa. 19151</p> <p>Fuji 555 Taxter Rd. Elmsford, N.Y. 10523</p> <p>G</p> <p>GC Electronics P.O. Box 1209 Rockford, Ill. 61105</p> <p>GE See Thomson Consumer Electronics</p> <p>GE Blank Tape See Thomson Consumer Electronics (N.J.)</p> <p>Gemini Sound Products 1221 38th St. Brooklyn, N.Y. 11218</p> <p>Gentronics Marketing 1495 Bonhill Rd. Unit 14 Mississauga, Ont. Canada L5T 1M2</p> <p>German Acoustics 203 North Ingersoll Madison, Wisc. 53703</p> <p>GNP Loudspeakers 1254 East Colorado Blvd. Pasadena, Cal. 91106</p> <p>Goldmund See International Audio Technologies</p> <p>Goldring See Music Hall</p> <p>Gold Sound P.O. Box 141 Englewood, Colo. 80151</p> <p>Goodmans 1225 17th St. Suite 1430 Denver, Colo. 80202</p> <p>Gordon Instruments P.O. Box 794 Blacksburg, Va. 24060</p> <p>Gotham Audio 1790 Broadway New York, N.Y. 10019</p> <p>Gott Labs 424 Clay Pitts Rd. East Northport, N.Y. 11731</p> <p>Grado Laboratories 4614 Seventh Ave. Brooklyn, N.Y. 11220</p> <p>Joseph Grado Signature Products 921 Tice Pl. Westfield, N.J. 07090</p>	<p>Graham Engineering 1 Baron Park, #33½ Burlington, Mass. 01803</p> <p>Greencorp 1015 W. Newport Ctr. Dr. Suite 105 Deerfield Beach, Fla. 33442</p> <p>Grundig Lextronix, Inc. 3520 Haven Ave., Unit L Redwood City, Cal. 94063</p> <p>Gryphon Audio See Gentronics Marketing</p> <p>Guanci Acoustics 6630 W. Wrightwood Ave. Chicago, Ill. 60635</p> <p>Reuben Guss Enterprises 215 West 92nd St. New York, N.Y. 10025</p> <p>H</p> <p>Hafler 613 South Rockford Dr. Tempe, Ariz. 85281</p> <p>Hales Audio 43272 Christy St. Fremont, Cal. 94538</p> <p>Harman Kardon Harman Kardon Citation 240 Crossways Park West Woodbury, N.Y. 11797</p> <p>Harms Labs 2016 Laporte Ave. Fort Collins, Colo. 80521</p> <p>Hartley Products 1200 North 23rd St. Suite 105 Wilmington, N.C. 28405</p> <p>Paul Heath Marketing 217 Alexander St. Rochester, N.Y. 14607</p> <p>Heco See EuroSön</p> <p>Heybrook See D'Ascanio Audio</p> <p>High Biscuit Audio Systems P.O. Box 6476 Bethlehem, Pa. 18001</p> <p>High-End Audio Video 300 Albany St. New York, N.Y. 10280</p> <p>High Tech Aspirin/Cizek 1611 Genshaw Blvd. Suite 142 Torrance, Cal. 90501</p>
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Canada V7V 4H4</p> <p>Integral Audio 1165 East Cattlin St. Simi Valley, Cal. 93065</p> <p>International Audio Technologies 13897 Willard Rd., Suite J Chantilly, Va. 22021</p> <p>Intersonics 3453 Commercial Ave. Northbrook, Ill. 60062</p> <p>ISEM See Waters Sound Wave</p> <p>Island Audio 49 Cedar Swamp Rd Glen Cove, N.Y. 11542</p> <p>Isonics 222 Third St Suite 3331 Cambridge, Mass. 02142</p> <p>Itone Audio 3412 Eric Court El Sobrante, Cal. 94803</p> <p>J</p> <p>Jackson Loudspeaker Co. 1326 North 32nd St. Phoenix, Ariz. 85008</p> <p>Jadis See Fanfare Int'l.</p> <p>Jamo Hi-Fi 425 Huehl Rd., 3A Northbrook, Ill. 60062</p> <p>Janis See John Marovskis</p> <p>JBL 240 Crossways Park West Woodbury, N.Y. 11797</p>	<p>Jecklin See May Audio Marketing</p> <p>Jensen 25 Tri-State Intl. Office Ctr. Suite 400 Lincolnshire, Ill. 60069</p> <p>JMIlab See Waters Sound Wave</p> <p>JRM 3716 Broadway N.E. Knoxville, Tenn. 37917</p> <p>JS Audio 643 Speedwell Ave. Morris Plains, N.J. 07950</p> <p>JS Engineering 135A Sheldon Rd. Manchester, Conn. 06040</p> <p>Just Speakers 3170 23rd St. San Francisco, Cal. 94110</p> <p>JVC 41 Slater Dr. Elmwood Park, N.J. 07407</p> <p>K</p> <p>Kebschull See German Acoustics</p> <p>KEF 14120-K Sullyfield Circle Chantilly, Va. 22021</p> <p>Kenwood 2201 East Dominguez St Long Beach, Cal. 90810</p> <p>Kimber Kable 20675 Industrial Dr. Ogden, Utah 84401</p> <p>Kindel Audio 961 Calle Negocio San Clemente, Cal. 92672</p> <p>Kinergetics Research 6029 Reseda Blvd Tarzana, Cal. 91356</p> <p>Kinetic Audio P.O. Box 31075 Chicago, Ill. 60631</p> <p>Kirksaeter 4648 Evansdale Rd Woodbridge, Va. 22193</p> <p>Kiseki See Sumiko</p> <p>Klark-Teknik 200 Sea La. Farmingdale, N.Y. 11735</p> <p>Klein & Hummel See Gotham Audio</p> <p>KLH 11131 Dora St Sun Valley, Cal. 91352</p>	<p>Klimo See Audio Advancements</p> <p>Klipsch P.O. Box 688 Hope, Ark. 71801</p> <p>Klyne Audio Arts Ltd. 828 7th Ave. S.E. Olympia, Wash. 98501</p> <p>Koetsu 712 South Military Trail Deerfield Beach, Fla. 33442</p> <p>Kort Audio 1530 South 6th St., C608 Minneapolis, Minn. 55454</p> <p>Koss 4129 North Port Washington Milwaukee, Wisc. 53212</p> <p>Krell 20 Higgins Dr. Milford, Conn. 06460</p> <p>Krell Digital 20 North Plains Industrial Rd. Suite 12 Wallingford, Conn. 06492</p> <p>L</p> <p>Lakeshore Imports P.O. Box 114 Kenosha, Wisc. 53142</p> <p>Lancer Electronics 12340 McCann Dr. Santa Fe Springs, Cal. 90670</p> <p>Lantana Ltd. P.O. Box 1958 Garden Grove, Cal. 92642</p> <p>Lazarus Electronics 8130 Coldwater Canyon North Hollywood, Ca. 91605</p> <p>Lectron See Audio Advancements</p> <p>Legacy See Reel to Real Designs</p> <p>Lektrafile Systems 991 McKenzie Ave. Victoria, B.C. Canada V8X 3G8</p> <p>Mark Levinson See Madrigal</p> <p>Lexicon 100 Beaver St Waltham, Mass. 02154</p> <p>Linaeum 1238 N.W. Glisan Suite 404 Portland, Ore. 97209</p> <p>Lincolnwood Ltd. 575 University Ave. Norwood, Mass. 02062</p>	<p>Linn Hi-Fi See Audiophile Systems</p> <p>Lirpa Labs Main & Elm Sts. New York, N.Y. 10101</p> <p>Loran 10-48 Clark St Warren, Pa. 16365</p> <p>LSR&D 10415 Forest Bridge Dr. Alpharetta, Ga. 30201</p> <p>Raymond Lumley Designs See Pauli Heath Marketing</p> <p>Luxman Div., Alpine Electronics 19145 Gramercy Pl. Torrance, Cal. 90501</p> <p>Lyra Connoisseur Products 2629 Mabel St. Berkeley, Cal. 94702</p> <p>M</p> <p>MACH See Unimagnetic</p> <p>Madison Fielding 200 William St. Port Chester, N.Y. 10573</p> <p>Madisound P.O. Box 4283 Madison, Wisc. 53711</p> <p>Madrigal Audio Laboratories P.O. Box 781 Middletown, Conn. 06457</p> <p>Magee Audio Engineering 10866 Wilshire Blvd 10th Floor Los Angeles, Cal. 90024</p> <p>Magnavox See Philips Consumer Products</p> <p>Magnepan 1645 Ninth St. White Bear Lake, Minn. 55110</p> <p>Magnum Dynalab 6509 Transit Rd Unit H1 Bowmansville, N.Y. 14026</p> <p>Maplenoll Electronics 1095 Bellbrook Ave Xenia, Ohio 45385</p> <p>Marantz 700 North Commerce St. Aurora, Ill. 60504</p> <p>Marathon Audio 70 Lincoln Ave Stamford, Conn. 06902</p>	<p>Marchand Electronics 1334 Robin Hood La. Webster, N.Y. 14580</p> <p>John Marovskis Audio Systems 2889 Roebbing Ave. Bronx, N.Y. 10461</p> <p>Martin-Logan P.O. Box 741 Lawrence, Kans. 66044</p> <p>Mastercraft Audio Box 2661 Huntington Station, N.Y. 11746</p> <p>Maston Audio 6416 Via Amigos San Jose, Cal. 95120</p> <p>Mavrick Box 27120 Rancho Bernardo, Cal. 92198</p> <p>Maxell 22-08 Route 208 South Fairlawn, N.J. 07410</p> <p>May Audio Marketing P.O. Box 1048 Champlain, N.Y. 12919</p> <p>Mayware P.O. Box 58 Edgware, Middlesex England HA8 7NJ</p> <p>MB Quart Electronics 25 Walpole Park South Walpole, Mass. 02091</p> <p>McIntosh Laboratory 2 Chambers St Binghamton, N.Y. 13903</p> <p>McNeill Engineering 417 Temple Rd. Monaca, Pa. 15061</p> <p>Melos Audio 723 Bound Brook Rd. Dunellen, N.J. 08812</p> <p>Memorex Memtek Products P.O. Box 901021 Ft. Worth, Tex. 76101</p> <p>Meridian 14120-K Sullyfield Circle Chantilly, Va. 22021</p> <p>Merlin International 4705 South Main St. Hemlock, N.Y. 14466</p> <p>Merrill Audio 2125 Central Ave. Memphis, Tenn. 38104</p> <p>Meta Research/Goldmund See International Audio Technologies</p>
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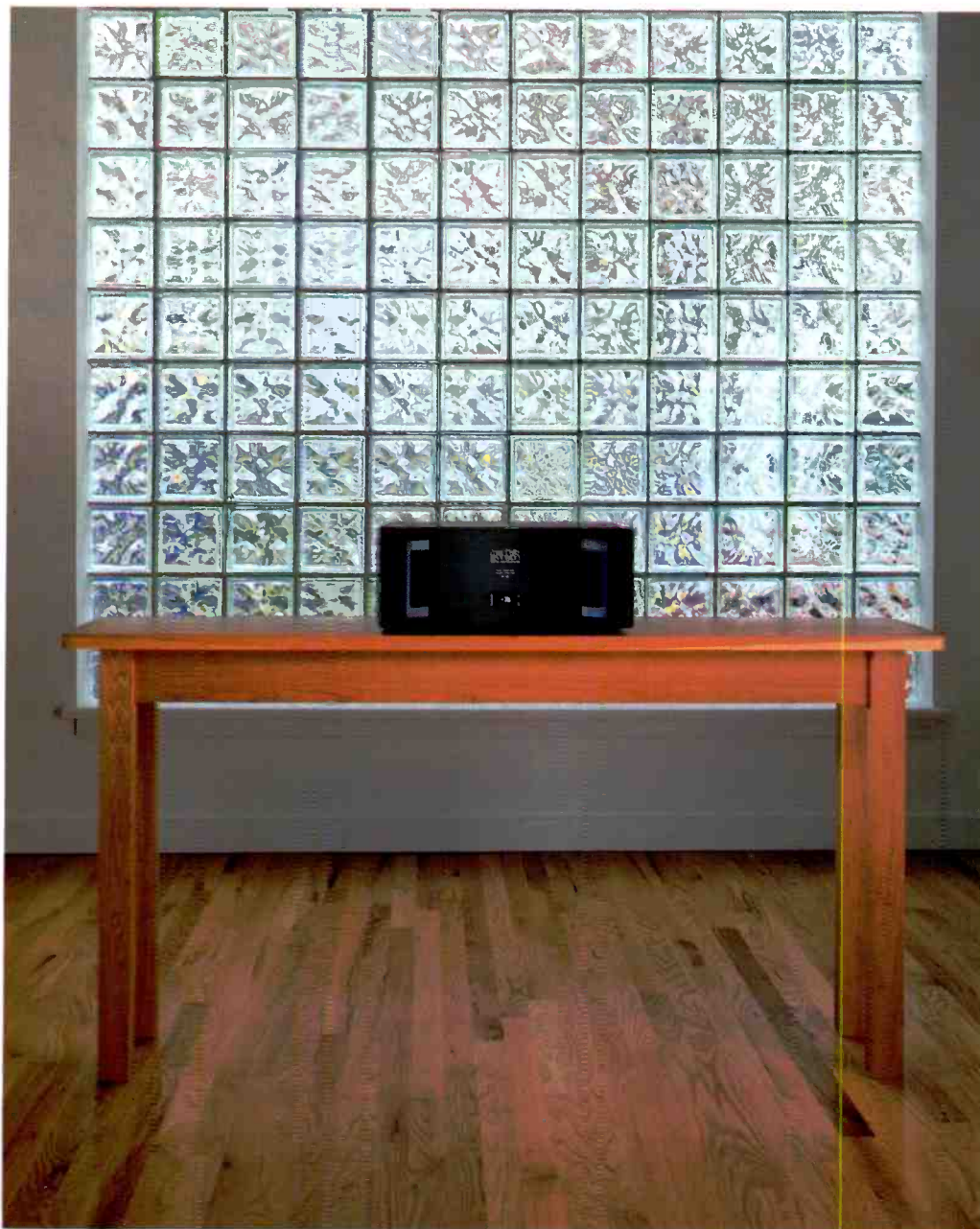
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