

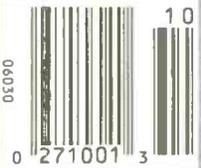
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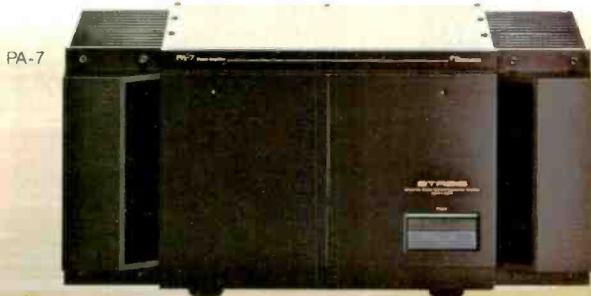
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by *N. Nakamichi*



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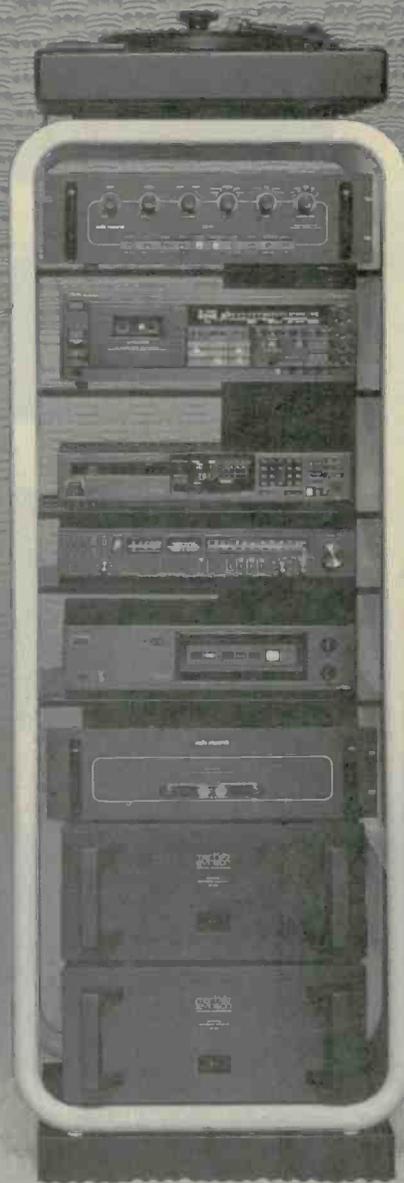
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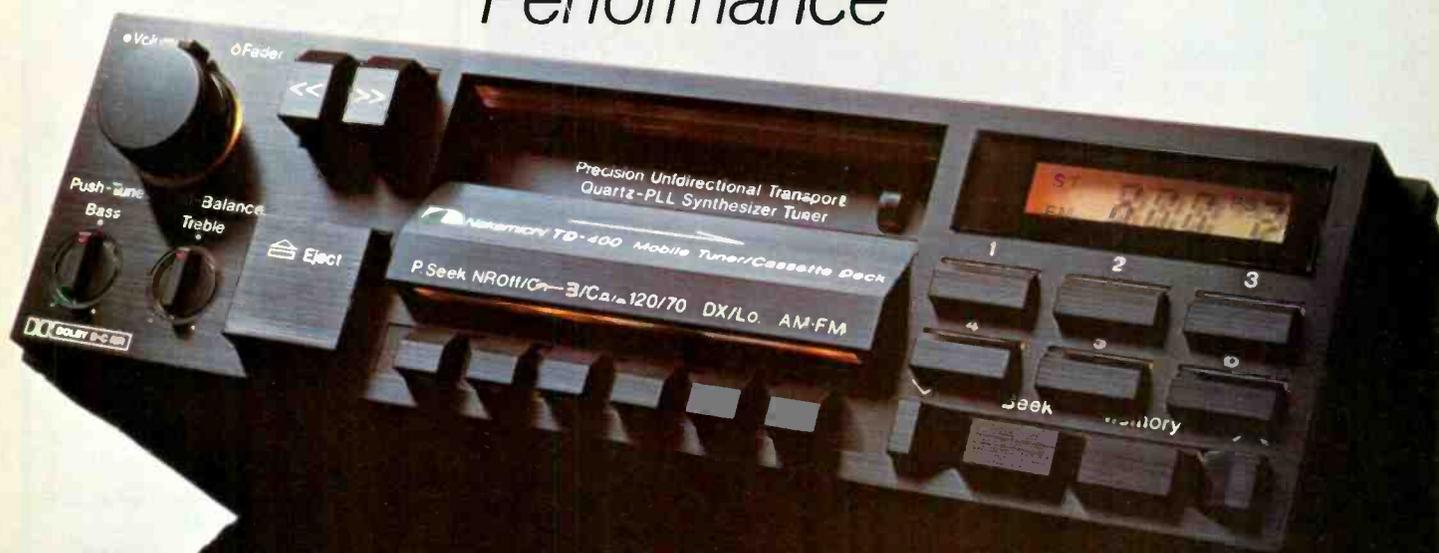


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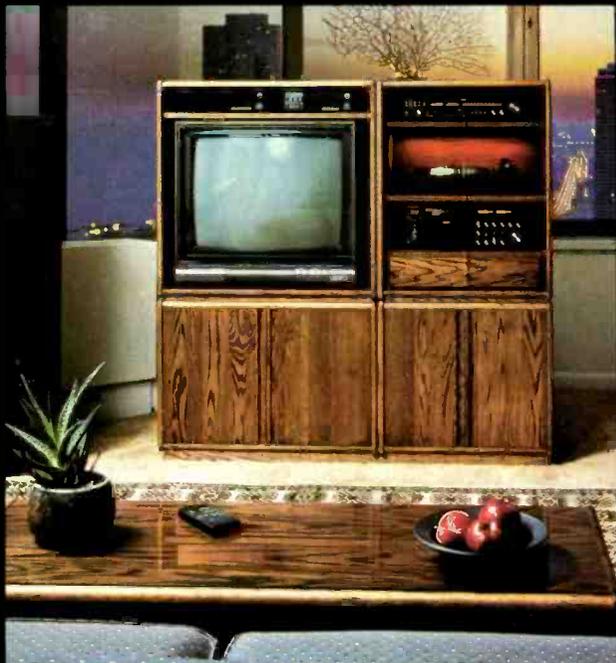
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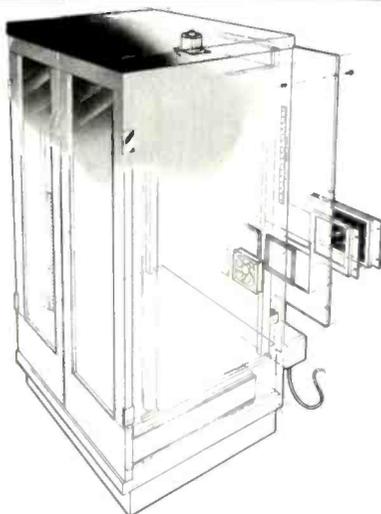
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The Speaker Specialists

"The Genius of Matthew Polk Creates Better Sounding Loudspeakers"

We Are the Speaker Specialists



"Vastly Superior to the Competition"
Musician Magazine

□ SDA Series □ Monitor Series □ Mobile Monitor Series □ VideoSound Series

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Polk Audio's dedication to quality is apparent in every detail of design, construction and performance.

"Polk's Dedication to Quality Results in Dramatically Better Sound"

State-of-the-Art Technology, Performance and Value

W

are The Speaker Specialists!

Polk speakers are designed better, built better and sound better! That should come as no surprise because high quality speakers are Polk's specialty. Appropriately Polk has been officially and exclusively authorized by the U.S. Government to call itself "The Speaker Specialists." It is common knowledge that if you want to do something better than anyone else you have to specialize. We specialize in speakers, so that we can build them better to sound better. Just ask the experts, like Musician Magazine, who said Polks are "Vastly superior to the competition."

Hear for Yourself Why Polk is #1

Last year, for the 3rd year in a row, Polk was selected as the #1 loudspeaker manufacturer (among a total of 74) in the Audio Video Grand Prix Award voting. This prestigious competition is voted on by the audio industry itself (much like the Academy Awards) to single out products that best exemplify the state-of-the-art in audio, combined with benefits and value for you, the listener. Polk builds a wide variety of superb sounding speakers to suit different needs and applications, however, the ultimate goal is always your total musical satisfaction. Musician Magazine said "Our advice is not to buy speakers until you hear the Polks." Do it soon. Hear for yourself why Polk is #1!

Polk's "You Are There" Musical Quality

At Polk we feel that the most important goal of loudspeaker performance is the ability to recreate the illusion and excitement of a live musical performance or sonic event. Objective performance tests are important, and innumerable lab tests document the outstanding measurable performance of the Polk loudspeakers. But more importantly Polk loudspeakers excel in their ability to make your music come alive. When you listen to a pair of Polks it seems like you are there at the live event. The loudspeakers disappear in a life-like, three-dimensional panorama of musicians performing in your room.

Polk's World Class Technology

You will find award winning state-of-the-art technology and performance in every Polk speaker system from the least to the most expensive. Polk Audio's many technological triumphs have been well documented by an unprecedented series of rave reviews around the world (copies are available). In addition, Polk loudspeakers have been honored by winning the Audio Video Grand Prix for the last 5 years and being selected for the prestigious CES Design and Engineering Exhibition for the last

Polk's Design Goals Give You Better Sounding Speakers

Polk Audio's design goals were all selected to achieve better sound in your home and give you the greatest listening pleasure and long term satisfaction from your music, records and hi fi.

Open, life-like, three dimensional imaging

recreates the spine tingling excitement of musicians actually playing in your room, with height, depth and placement across the sound stage.

Smooth, accurate frequency response

across the entire audible range provides you with natural, non-fatiguing, easy-to-listen-to sound.

Dynamic bass performance

Your speakers will rattle the windows when a kick drum or low organ pedal calls for it, but will also reproduce all the subtle delicacy of plucked or bowed string bass or cello.

Ultra wide sonic dispersion ensures that you will receive optimal sound through your listening room.

Instantaneous transient response means your music will be crisply reproduced with life-like clarity and detail.

High efficiency and power handling Your Polk loudspeakers can be used with virtually any amplifier or receiver, large or small. They will play very loudly if desired, but also sound exceptionally clear at low volume levels.

Optimal performance in your room Polk speakers are easy to position and are designed to provide superior performance in your listening room.

Unit to unit consistency and long-term sonic integrity are assured by completely testing every loudspeaker. Your Polk speakers will sound as good as the laboratory prototypes.

Extended Lifecycle engineering means your Polks will deliver optimum performance for many, many years.

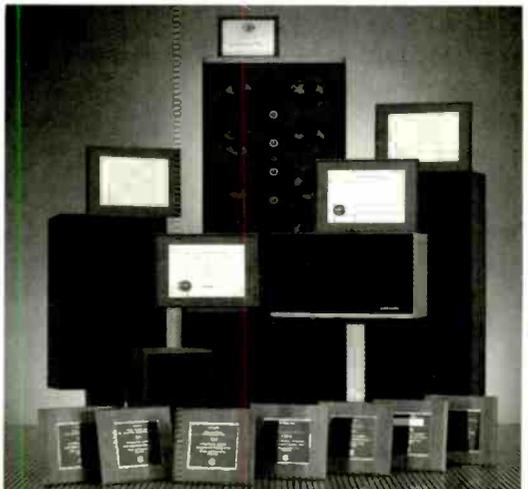
8 years in a row (an unprecedented accomplishment). What is the secret? Polk builds each and every loudspeaker with the same world class standards of construction quality and dedication to sonic performance accuracy.

Polk Delivers Unexcelled Value

There is one aspect of Polk products which is almost totally unique among high technology state-of-the-art loudspeaker systems, and that is the concept of value. In addition to superior performance and advanced technology, Polk loudspeakers also offer more uncompromised performance per dollar than any other speakers on the market. If you're looking for life-like musical quality, world class technology and unexcelled value, Polk loudspeakers are your obvious choice.

Polk Technology Serves Music and You

The ultimate goal of every Polk loudspeaker is your total musical satisfaction. Every detail is painstakingly attended to in order to achieve this. Human creativity and computer accuracy have been combined to design loudspeakers of unexcelled musical quality. The advance technology drivers and complex crossovers were all designed and are manufactured to meet exacting and rigid specifications. The beautiful cabinet work is a joy to behold. Each of the critical operations involved in constructing a Polk loudspeaker is carefully executed by skilled, highly trained technicians. Polk's unique Cidac computerized 100% quality control program checks every important performance parameter. Technology in the modern world serves many purposes. At Polk Audio, technology truly serves music, and you.



Sonic Superiority Has Made Polk Audio the Most Honored Name in Loudspeakers.



SDA SRS 2
\$995.00 ea.

SDA SRS
\$1395.00 ea.

Digital Disc Ready

Matthew Polk with his AudioVideo Grand Prix winning SDA SRS and latest Technological Triumph: the extraordinary SDA SRS 2, honored with the 1986 CES Design & Engineering Award.

"The Genius of Matthew Polk Creates The Ultimate Loudspeaker for You"

"Spectacular. It is quite an experience."

Stereo Review Magazine

For the last four years, Matthew Polk has been driven by an all consuming passion: to develop the ultimate SDA loudspeaker which fully realized the sonic potential of his revolutionary SDA TRUE STEREO technology.* Thousands of man hours and hundreds of thousands of dollars have been spent in his single-minded pursuit of this goal. The extraordinary result of his quest is now available in handcrafted limited quantities, for those discerning listeners who seek the absolute state-of-the-art in musical and sonic reproduction.

The Joy of Owning the Ultimate

The SDA Signature Reference Systems are Matthew Polk's own dream speakers. You too can share and experience his dream. He is so proud of the SRS's that each one bears his signature. The joy of owning an ultimate loudspeaker knows no bounds. Music lovers who are privileged to own a pair of SRSs will share Matthew Polk's pride every time they sit down and enjoy the unparalleled experience of listening to their favorite music through these extraordinary loudspeakers, or when they demonstrate them to their admiring friends.

A Significant Advance in State-of-the-Art Loudspeaker Technology and Sonic Performance

The SDA-SRSs are the extraordinary flagship models of Polk's critically acclaimed SDA Series which is comprised of the SDA-1B, SDA-2A, SDA-CRS +, SDA-SRS and SDA-SRS2. These remarkable sounding, 3rd generation SDA speakers combine the latest refinements in Polk's exclusive and patented TRUE STEREO technology with time-compensated, phase-coherent multiple driver vertical line-source topology. The results are high efficiency systems of awesome and seemingly limitless dynamic range and bass capabilities which reproduce music with a precise, lifelike, three dimensional soundstage which is unequalled. The SRS contains 8 Polk 6½" trilaminate-polymer drivers, a planar 15" sub-bass radiator, 4 Polk 1" Silver Coil polyamide dome tweeters and an incredibly complex and sophisticated Isophase Crossover System. The SRS2 incorporates 4 Polk 6½" trilaminate-polymer drivers, a planar 15" sub-bass radiator, 2 Polk 1" Silver Coil polyamide dome tweeters and a similar Isophase Crossover system. One of the unique features of the crossover is the progressive variation of the high frequency high-pass circuitry which maintains virtual point source operation resulting in wide horizontal and vertical dispersion. Power handling is nominally rated at 1000 watts per channel for the SRS and 750 watts for the SRS2, although the

Introducing the New SDA Signature Reference System

"At the CES (Consumer Electronics Show) among the crop of new and often innovative speaker systems, probably the most impressive was the Polk SDA Signature Reference System, which shook the walls of the Americana Congress Hotel."

Stereo Review Magazine

A Unique Combination of Features and Benefits

Exclusive, Patented SDA TRUE STEREO Technology for unequalled three-dimensional imaging and a huge, lifelike sound-stage.

Effective Bass Radiating Area Equivalent to a 40" Woofer for breathtakingly full, deep, tight, more well controlled bass and sub-bass response.

Multiple Driver Line-Source Topology for ideally focused wave propagation which minimizes floor and ceiling reflections combined with greater clarity, lower distortion, higher power handling and increased dynamic range.

Phase-Coherent, Time-Compensated Driver Alignment for better focus, lower coloration and a smoother, more coherent midrange.

Progressive Point-Source Tweeter Array for greater vertical high frequency dispersion, achieved by eliminating multiple tweeter high frequency cancellations.

Bi-Wire/Bi-Amp Capability (SRS) for greater clarity, greater dynamic range and lower I.M. distortion.

Hand Crafted Limited Production assures you that your pair of SRSs sounds and looks exactly like Matthew Polk's own.

Monocoque Cabinet Construction eliminates extraneous cabinet resonances and colorations.

high efficiency of the system allows superb performance to be realized with a good quality receiver. Bass performance, is in a word, breathtaking. The use of small active drivers coupled to the large 15" sub-bass radiator results in extraordinarily tight, quick and three dimensional mid and upper bass combined with low and sub-bass capabilities which are staggering (clean output at 25Hz exceeds 100db!) An elaborate monocoque cabinet and bracing system is employed resulting in remarkably rigid cabinets which virtually eliminates coloration due to panel resonances. Separate inputs for high and low frequency sections of the system (SRS only) allows bi-wire or bi-amp operation without the need for a separate electronic crossover. Both speakers are beautifully finished. They are elegant loudspeakers which look as good as they sound.

The Exquisite Experience of Listening to the SDA Signature Reference System

Listeners' reactions to the sonic performance of the SDA-SRS have exceeded Matthew Polk's wildest expectations. Awesome is the word most often heard to describe the sound. One highly respected critic was totally enthralled by the absolutely effortless way with which the SRS handles the most dynamic musical passages. He was astounded by the unique combination of astonishingly deep bass and sub-bass response of almost unlimited dynamic range, combined with tight quick transient performance across the entire musical spectrum, which is capable of reproducing sonic nuances of the most subtle delicacy.

*"...the best SDAs yet...
impressive and worthy of
Matt Polk's signature"*

High Fidelity Magazine

The extraordinarily lifelike three-dimensional imaging capabilities of the SRS demonstrate the full performance potential of Polk's exclusive and patented TRUE STEREO SDA technology. Music and ambience seem to surround the listener in an almost 360° panorama of sonic splendor which is, in the words of High Fidelity Magazine, "Mind boggling...Astounding...and Flabbergasting." The almost unimaginable exciting clarity of the Signatures allow you to hear every detail of the original musical performance; while the exceptionally smooth, natural, low distortion reproduction encourages you to totally indulge and immerse yourself in your favorite recordings for hours on end. Words alone can not express the experience of listening to these ultimate loudspeaker systems. You simply must hear them.



SDA SRS 2
\$995.00 ea.

SDA CRS+
\$395.00 ea.



SDA SRS
\$1395.00 ea.



SDA 1B
\$695.00 ea.



SDA 2A
\$499.00 ea.

Digital Disc ready

Matthew Polk's new generation of revolutionary TRUE STEREO SDA Loudspeakers fully realize the astonishingly lifelike three-dimensional imaging capabilities of stereophonic reproduction.

"The Genius of Matthew Polk Brings You A New Generation of Extraordinary Sounding SDAs"

"Literally a New Dimension in the Sound"

Stereo Review Magazine

They truly represent a breakthrough." *Rolling Stone Magazine*

Polk's critically acclaimed, Audio Video Grand Prix Award winning SDA technology is the most important fundamental advance in loudspeaker technology since stereo itself. Listeners are amazed when they hear the huge, lifelike, three-dimensional sonic image produced by Polk's SDA speakers. The nation's top audio experts agree that Polk SDA loudspeakers always sound better than conventional loudspeakers. Stereo Review said, "Spectacular...the result is always better than would be achieved by conventional speakers." High Fidelity said, "Astounding...We have yet to hear any stereo program that doesn't benefit." Now the dramatic audible benefits of Polk's exclusive TRUE STEREO SDA technology are available in 5 uniquely superb loudspeaker systems, the SDA-1B, SDA-2A, SDA-CRS +, SDA-SRS and the SDA-SRS2. The SDA-1B, 2A and CRS + now incorporate many of the 3rd generation advances in SDA technology pioneered in the Signature Edition SRS and SRS2 including full complement sub-bass drive, time-compensated phase-coherent driver alignment and bandwidth-optimized dimensional signal.

SDAs — The First TRUE STEREO Speakers

Without exaggeration, the design principals embodied in the SDAs make them the world's first true stereo speakers. When the big switch was made from mono to stereo, the basic concept of speaker design was never modified to take into account the fundamental difference between a mono and stereo signal. What is the difference between a mono and stereo speaker? It's quite simple. The fundamental and basic concept of mono is that you have one signal (and speaker) meant to be heard by both ears at once. However, the fundamental and basic concept of stereo is that a much more lifelike three-dimensional sound is achieved by having 2 different signals, each played back through a separate speaker and each meant to be heard by only one ear apiece (L or R). So quite simply, a mono loudspeaker is designed to be heard by two ears at once while true stereo loudspeakers should each be heard by only one ear apiece (like headphones). The revolutionary Polk SDAs are the first TRUE STEREO speakers engineered to accomplish this and fully realize the astonishingly lifelike three-dimensional imaging capabilities of the stereophonic sound medium.

How Polk SDAs Achieve True Stereo

Polk SDA Technology solves one of the greatest problems in

SDA Signature Reference System (SRS) — \$1395.00 ea.

AudioVideo Grand Prix Winner
The finest speaker that Polk manufactures. This limited production flagship model combines patented SDA TRUE STEREO technology with phase-coherent focused line-source multiple driver topology to achieve new levels of state-of-the-art imaging, detail, coherence, dynamic range and bass reproduction.

New SDA-SRS 2 — \$995.00 ea.

This new scaled down version of the SRS incorporates virtually all its innovations without significantly compromising its awesome sonic performance.

SDA 1A — \$695.00 ea.

AudioVideo Grand Prix Winner
A beautifully styled, full size floor-standing system combining Polk's state-of-the-art components with exclusive TRUE STEREO technology for extraordinarily lifelike sound. It is now available in vinyl at a new lower price. High Fidelity said "the Polk SDA 1 Loudspeaker provides startling evidence of the audio industry's essential creative vitality."

New SDA 2A — \$499.00 ea.

AudioVideo Grand Prix Winner
The new SDA 2A is a full size floor standing system which incorporates many of the latest refinements in SDA technology developed for the SRS models. It represents an extraordinary value which combines spectacular SDA performance with a remarkably affordable price. High Fidelity said listening to the SDA 2 is "an amazing experience."

New SDA CRS + — \$395.00 ea.

AudioVideo Grand Prix Winner
The new SDA CRS + is the world's best sounding bookshelf loudspeaker and now incorporates many of the latest refinements in SDA technology developed for the SRS models. It combines the extraordinarily lifelike three-dimensional sonic performance of Polk's patented SDA technology with a handsome enclosure (stand or shelf mountable) of attractively modest proportions. Stereo Review said the CRS is "an impressive achievement".

stereo reproduction. When each ear hears both speakers and signals, as occurs when you use conventional (Mono) speakers to listen in stereo, full stereo separation is lost. The undesirable signal reaching each ear from the "wrong" speaker is a form of acoustic distortion called interaural crosstalk, which confuses your hearing.

The Polk SDA systems eliminate interaural crosstalk distortion and maintain full, True Stereo separation, by incorporating two completely separate sets of drivers (stereo and dimensional) into each speaker cabinet. The stereo drivers radiate the normal stereo signal, while the dimensional drivers radiate a difference signal that acoustically and effectively cancels the interaural crosstalk distortion and thereby restores the stereo separation imaging and detail lost when you listen to normal "mono" speakers. The sonic benefits are remarkable.

"Mindboggling...Astounding...Flabbergasting"
High Fidelity Magazine

Words alone cannot fully describe how much more lifelike SDA TRUE STEREO reproduction is. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's TRUE STEREO technology. You will hear a huge sound stage which extends not only beyond the speakers, but beyond the walls of your listening room itself. The lifelike ambience revealed by the SDAs makes it sound as though you have been transported to the acoustic environment of the original sonic event. Every instrument, vocalist and sound becomes tangible, distinct, alive and firmly placed in its own natural spatial position. You will hear instruments, ambience and subtle musical nuances (normally masked by conventional speakers), revealed for your enjoyment by the SDAs. This benefit is accurately described by Julian Hirsch in Stereo Review, "...the sense of discovery experienced when playing an old favorite stereo record and hearing, quite literally, a new dimension in the sound is a most attractive bonus..." Records, CS's, tapes, video and FM all benefit equally as dramatically.

"You owe it to yourself to audition them."

High Fidelity Magazine

SDAs allow you to experience the spine tingling excitement, majesty and pleasure of live music in your home. You must hear the remarkable sonic benefits of SDA technology for yourself. You too will agree with Stereo Review's dramatic conclusion: "the result is always better than would be achieved by conventional speakers... it does indeed add a new dimension to reproduced sound."

polk audio
The Speaker Specialists®

“Polk Reinvents the Loudspeaker”

High Fidelity Magazine

“The result is always better than would be achieved by conventional speakers...”

Stereo Review Magazine



SDA SRS
\$1395.00 ea.



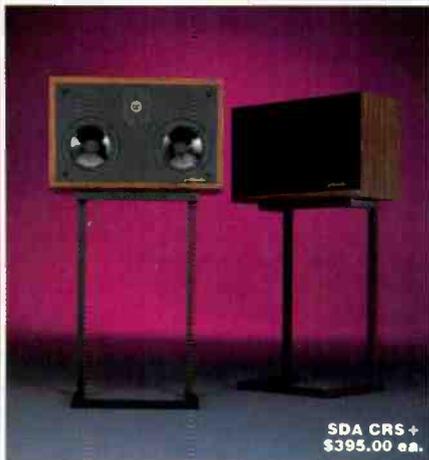
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\$395.00 ea.

Excerpts from the Experts' Rave Reviews of the Polk SDAs

SDA SRS

“Polk's No Compromise Flagship Loudspeaker”

Stereo Review

At the CES (Consumer Electronic Show) among the crop of new and often innovative speakers probably the most impressive was the Polk SDA Signature Reference System which shook the walls of the Americana Congress Hotel...

Polk's no-compromise flagship loudspeaker offers new refinements on the Stereo Dimensional Array design...the SDA system works essentially as claimed...the effect can be quite spectacular...as good as the SDA feature is we were even more impressed by the overall quality of the SDA-SRS as a speaker system. The sound is superbly balanced and totally effortless...unusually open and integrated...the composite frequency response was exceptional no matter how you look at it...only at 10,000 Hz where presumably only one driver was in use, did we reach the limits of the speaker and the amplifier at the same time — 1,265 watts into 5 ohms...almost any amplifier can drive SRS to the highest listening levels most people would want...the phase compensation of the system was exceptional...we have never measured a low bass distortion level as low as that of the SRS...we found that the passive radiator response varied only a total of 7 dB between 12 and 90 Hz. Polk calls the passive radiator a “sub-bass driver” with good reason...it is quite an experience. Furthermore, with the SRS it is not necessary to play the music loud to enjoy, the tactile qualities of deep bass...Spectacular”

SDA 1B

“Mind boggling powers of sonic persuasion”

High Fidelity Magazine

Our first, all too brief, audition simply bowled us over. The width, depth and precision of the stereo image are astounding...

after extended listening we were no less astonished...mind-boggling powers of sonic persuasion...The SDA-1's strong suit (to put it mildly) is its imaging which ranges from very good to

flabbergasting, depending on the material...devastatingly dramatic...With good classical discs, the soundstage seems to open up, presenting a greater sense of depth and enveloping the listener more fully in the recorded ambiance...But it's on fancy rock recordings that the system can really strut its stuff...it really is great good fun. We find ourselves listening to unfamiliar recordings on other speakers and saying to each other, "I wonder what this would sound like on the Polks." Get an audition...It's worth the trouble just for the experience."

"Literally a new dimension in the sound"

Stereo Review Magazine

"Hirsch-Houk Lab's tests of the SDA-1 show that it does indeed add a new dimension to stereo sound. The result is always better than would be achieved by conventional speakers...spectacular..."

The sound of the Polk SDA-1 is beautifully balanced...The smoothed and averaged frequency response was quite uniform...The bass output was exceptionally strong down to the lowest frequencies...it reaches an octave or so deeper in the bass than many speakers of similar size...The Polk SDA-1 is an unusually sensitive (efficient) speaker, delivering a sound pressure level of 95db measured at 1 meter...

Polk's SDA-1 speakers produce a broad, precisely defined soundstage, not only between the speakers, but extending appreciably beyond them laterally as well...It will (and should) be bought primarily for its acoustic properties which are unique and completely without any undesirable side effect...Even the audio purist should not cavil over the means by which this speaker achieves its spatial properties. There is no added active circuitry introduced to the signal path and the speakers sound superb in their own right...the sense of discovery experienced when playing an old favorite stereo record and hearing, quite literally, a new dimension in the sound is a most attractive bonus for the owner of the SDA-1 system."

SDA 2A
"Super Stereo from Polk Audio"

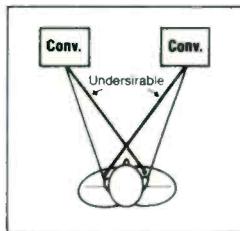
High Fidelity Magazine

An amazing experience, and quite startling the first few times you realize it's happening...we have yet to hear any stereo program that doesn't benefit...these are very fine and utterly fascinating loudspeakers...you owe it to yourself to audition them, just to see what they can do."

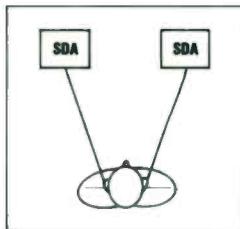
"When we reviewed Polk's first Stereo Dimensional Array we commented on what an exciting and interesting loudspeaker it was to listen to...it was capable of some extraordinary feats of stereo

"An amazing experience"
High Fidelity Magazine

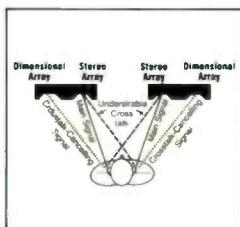
"The result is always better than would be achieved by conventional speakers..."
Stereo Review Magazine



Conventional Speakers Reproducing Stereo
When conventional speakers reproduce stereo, both speakers are heard by both ears which reduces stereo separation, obscures detail and interferes with proper imaging.



Polk's Revolutionary SDAs Reproduce True Stereo
Only Polk SDAs reproduce True Stereo by allowing each speaker and signal (L or R) to be heard by only the correct ear like headphones, which results in dramatically improved stereo separation, detail and three-dimensional imaging.



How Polk SDAs Achieve True Stereo Reproduction
Each Polk SDA incorporates a special extra set of drivers which radiates a difference signal which cancels the undesirable signal going from the wrong speaker to the wrong ear, (interaural crosstalk distortion) resulting in True Stereo reproduction.

imaging...Matthew Polk set out to make a less costly version without giving up much in sound quality. He succeeded.

With its grill on, the SDA-2 looks exactly like the SDA-1, only a little smaller...a more convincing illusion than is possible with ordinary stereo...With the SDA's the left ear hears the left speaker and the right ear hears the right...impedance is notably constant...this is beneficial in that it makes the system easier for an amplifier to drive, and we would not expect any problems in this regard...the SDA-2 accepted the full output of the labs amplifiers or 500 watts into, 8 ohms, for a calculated peak sound pressure level of 118db. Plenty loud enough for anyone we would say... Harmonic distortion is quite low. We found them quite satisfactory (and not much different) both against the back wall and out into the room...the balance of the SDA-2 is exceptionally smooth and natural. What does remain unchanged is the remarkable stereo imaging that set the first SDA's apart from the crowd.

SDA CRS +
"An Impressive Achievement..."

Stereo Review Magazine

"It was easy to forget that we were hearing speakers at all. Just the music remained, and it seems to us that this is what hi-fi is all about..."

the SDA-CRS is designed to compensate for the fact that in normal stereo playback each ear hears the sound from both speakers, which inevitably affects apparent channel separation and the stereo image...we drove the speakers as hard as our ears would tolerate, with a 350-watt-per-channel amplifier, and they never showed any signs of distress...Our measurements confirm that the Polk SDA-CRS is a very good speaker system — with a host of desirable qualities — when it is judged by the same standards one would apply to conventional speakers. But it is not a conventional system, and it deserves to be examined for the special sonic qualities that are claimed for it.

We recall the impression that the original Polk SDA-1 made on us: The system could provide a dramatic expansion of the sound stage...we found listening to it both intriguing and enjoyable...

The new SDA-CRS is capable of doing much the same thing. The SDA system presents the listener with a broad sound stage, which usually extends beyond the space between the speaker cabinets and it also seems to have an added sense of depth. These qualities were apparent from any part of the listening room...The fact that the SDA-CRS will fit in any room, works as well on pedestals as against a wall (we tried them both ways), and costs less than half as much as the revised SDA-1A says something about its intrinsic merits. It is definitely not just another speaker."



RTA 12C
\$479.95 ea.

Monitor 10B
\$329.95 ea.

Monitor 3jr.
\$129.95 ea.

Monitor 4A
\$84.95 ea.

Monitor 5B
\$189.95 ea.

Monitor 7C
\$249.95 ea.

Polk's remarkable Monitor Series Loudspeakers have received worldwide acclaim by offering state of the art technology and performance usually found only in systems which sell for many times their modest cost. (stands optional)

"Polk's Remarkable Monitors Redefine Incredible Sound/Affordable Price"

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

Polk Audio was founded in 1972 by three Johns Hopkins University graduates who were fanatic audiophiles with a common dream and vision.

Polk's Dream of Super Sound for Everyone

They believed that it was possible to design and manufacture loudspeakers of uncompromising quality which performed as well as the most expensive and exotic loudspeakers available, but in a price range which would make them affordable to virtually every music lover. The original Monitor 7 was the first product of their efforts and it was so successful that when it was shown at the Consumer Electronics Show, dealers and experts alike could not believe its superb performance and affordable price. Audiogram Magazine said, "when we heard the Polk speakers at the CES Show we were so impressed we could not believe the prices." The entire Polk Monitor Series was designed in this tradition of incredible, state-of-the-art sound and affordable prices. In large part due to the quality and value of the Monitors, Polk Audio has developed from its humble beginnings in a garage, to become one of the world's premier loudspeaker manufacturers.

Polk Audio has worked hard over the ensuing years to maintain the Monitor Series' preeminent position as *the* standard for quality and value in the audio industry. The Monitors have been continually improved and refined as a result of Polk's never ending search for better sound quality. There have been literally thousands of improvements made to the Monitors and the result is that today, as in the past, the Polk Monitors are absolutely the best sounding loudspeakers for the money available on the market. Musician Magazine said, "If you're shopping for stereo, our advice is not to buy speakers until you've heard the Polks." You owe it to yourself to follow their advice.

The Latest Generation of Polk Monitors Sounds Better Than Ever

A new generation of Polk Monitors is now available which incorporate the same high definition silver coil dome tweeter and Optimized Flux Density drivers developed for the SDAs. Polk Monitor Series loudspeakers have always had a well deserved reputation for offering state-of-the-art performance and technology usually found only in systems which sell for many times their modest cost. In fact, many knowledgeable listeners consider that outside of the SDAs, the Polk Monitors are the finest imaging conventional speakers in the world, regardless of price. They have been compared in performance with loudspeakers which sell for up to \$10,000 a pair and are absolutely the best sounding loud-

The RTA 12C –

is the finest conventional (non SDA) speaker system that Polk manufactures. Its extremely high power handling (500 watts) and efficiency (92 db 1 meter 1 watt) result in remarkable dynamic range from large or small amplifiers. It utilizes phase-coherent open air driver mounting in a mirror imaged, fullsize floor-standing configuration for superior sonic imaging and clarity. In addition to receiving many rave reviews, the RTA 12C has won the AudioVideo Grand Prix Speaker of the Year Award.

The Monitor 10B –

is considered one of the world's best sounding loudspeakers and in the words of Audiogram Magazine, "At the price they are simply a steal." The 10B offers sonic performance almost equal to the 12 at a lower cost in a more compact enclosure. Like the 12, the 10 utilizes dual Polk trilaminate-polymer bass midrange drivers coupled to a built-in subwoofer for an outstanding bass response and dynamic range.

The Monitor 7C –

is basically a smaller, less expensive version of the Monitor 10. It can be either shelf or stand mounted with excellent results. How good? Audio Alternative Magazine said, "It is Amazing."

The Monitor 5B –

similar in design and performance to the Monitor 7, however, it utilizes an 8" subwoofer (rather than 10") and is more compact.

The Monitor 5jr –

has been called the best sounding speaker of its price in the world (regardless of size). It achieves lifelike three-dimensional musical imaging which 10 years ago was not available in any bookshelf speaker at any price!

The Monitor 4A –

shares many of the same high technology components and the rewarding musical performance of the more expensive Polks. Audio Critic Lawrence Johnson called it, "an all around star of great magnitude." The 4A's uniquely affordable price means that no matter how small your budget, you can afford the incredible sound of Polk!

speakers for the money available on the market. Now they sound even better than ever.

Polk's Uncompromising Standard of Superior Sonic Performance

All the Polk Monitors regardless of price offer consistently superb construction and sonic performance. They achieve open, boxless, three-dimensional imaging surpassed only by the SDAs. The Monitors' silky smooth frequency response assures natural, non-fatiguing, easy to listen to sound; while their instantaneous transient response results in music that is crisply reproduced with lifelike clarity and detail. In addition dynamic bass performance, ultra wide dispersion, high efficiency and high power handling are all much appreciated hallmarks of Monitor Series performance.

The consistently superb performance of the Polk Monitors is in large part due to the fact that they all utilize very similar components and design features. However, more importantly, it is the elegant integration of concepts and components which results in the superior sonic performance and value which sets the Monitor Series apart. Audiogram magazine said, "How does Polk do it? We think it is mostly execution. They hear very well and they care." Audiogram is absolutely right. At Polk we take the same care with each and every product we build, whether it is our most or least expensive. We lavish the same lengthy amount of critical listening and tuning on every single Polk speaker because we know that having a limited budget does not necessarily indicate that you have a limited ability to appreciate true musical quality.

There's a Polk Monitor Perfect for You

There are six Polk Monitor Series loudspeakers. As you move up the Monitor Series the speakers get larger, more efficient, handle higher power, have greater dynamic range and better bass response. They are designed so that a smaller Polk played in a small room will sound nearly identical to a larger Polk in a large room. And, of course, a larger Polk in a smaller room will play that much louder and have even more bass. The RTA 12C also incorporates unique technology which results in improved imaging and clarity. There is a Polk Monitor which is perfect to fulfill your sonic dreams, at a price you can afford.



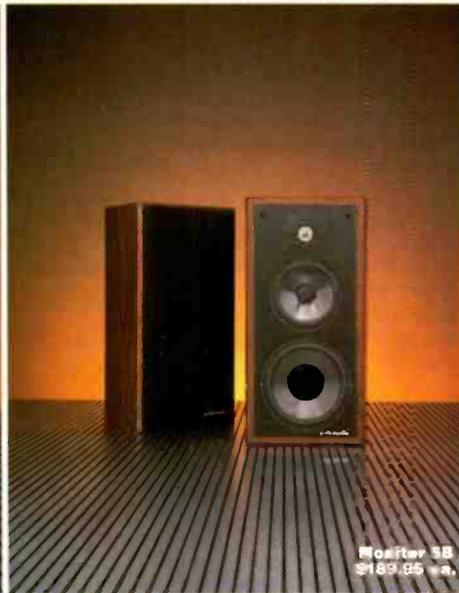
RTA 12C
\$475.95 ea.



Monitor 108
\$329.95 ea.



Monitor 7C
\$245.95 ea.



Monitor 5B
\$189.95 ea.



Monitor 5A
\$129.95 ea.



Monitor 4A
\$89.95 ea.

Excerpts from the Experts Rave Reviews of the Polk Monitor

THE MONITOR SERIES

*“Open, uncolored,
perfectly imaged sound”*

Musician Magazine

We at Musician have found the Polk Audio Monitor speakers so vastly superior to the competition in their price range we felt we had to pass the information along... The design produces a remarkably well integrated and coherent sound that adapts itself ideally to all kinds of music... the kind of open, uncolored, perfectly imaged sound we thought began at twice the price and required huge amounts of amplification... will benefit from state-of-the-art electronics, but sound quite magnificent with a good mid powered popular brand receiver... they make the other popular speakers in their price range seem dim, colored, boxy and just plain insufficient. If you're shopping for stereo, our advice is not to buy speakers until you've heard the Polks."

*“Outstanding...highly
recommended”*

Complete Buyer's Guide to Stereo/Hi Fi Equipment

“Sound beyond what would be expected...highly recommended... Polk Audio Monitor Series speakers enjoy an enviable reputation among audiophiles who don't have the golden wallet to match their golden ears... designed to appeal to the most critical audiophiles and those audiophiles have embraced them warmly... outstanding loudspeakers... deciding high end sonic characteristics... unusually pure sound. It's clear that Polk came by their excellent reputation honestly.”

MONITOR RTA 12C

“The affordable dream”

Off the Record

“It is an outstanding example of how advanced technology can be employed in the service of music... The sonic presentation of the 12's was very impressive... The 12's easily handled the dynamic passages without strain while preserving detail and depth over the entire musical spectrum... Large orchestral works were particularly impressive... Choral works were also well produced with great consistency and frequently uncanny imaging... High level rock was produced with impact and incisive quality... A remarkable quality of the 12's is their ability to

"Vastly Superior To the Competition"

Musician Magazine

"Other comparably priced speakers simply do not come close"

Audiogram Magazine

preserve excellent depth imaging while maintaining a very forward sound stage when the music calls for it. This quality helps to carry the emotional impact of great performances closer to the listener. On an absolute basis it would be difficult to criticize the RTA-12. The RTA-12 is the affordable dream; a well made exotic speaker with performance to match.... Polk's RTA-12 may well be the best high performance speaker value on the market today!"

MONITOR 10B

"Superior sound"

Stereo Review Magazine

"Polk offers an uncommon amount of superior sound at a moderate price... Open, boxless, three dimensional quality... We probably would have chosen these adjectives ourselves to describe the sound of the Model 10, but Polk has spared us the chore... the combination of good "sound sense" and a high degree of technical expertise and sophistication has resulted in some truly noteworthy products... It is easy to appreciate the advantages of using a pair of small diameter (but long throw) woofers that can radiate much of the midrange as well as the upper and mid-bass frequencies. Avoiding a crossover in the midrange (the most audibly important part of the musical spectrum) is the best way to eliminate or minimize many of the colorations that have been attributed to crossover networks. The dispersion of the one inch tweeter is exceptional... The tone burst response of the Model 10 is exceptional... the transient response of the Model 10 is absolutely first-rate, and the hemispherical dispersion is superb (we cannot recall measuring better dispersion on any forward radiating speaker)... the speaker sensitivity is adequate for use with a 10-watt amplifier, yet it could absorb the full output of a 200-watt amplifier without damage... exceptionally pleasing sonic balance."

"At their price, they are simply a steal"

Audiogram Magazine

"When we heard the Polk Speakers at the CES Show we were so impressed we could not believe the prices. The sound coming forth from the Model 10 Monitors is something really special. It is a sound that is open, well defined and very low in coloration. One does not generally expect such low coloration in a modestly priced box speaker, and certainly not anything like the definition exhibited by these speakers. How does Polk do it? We think it is mostly execution. They hear very

"The best high performance speaker value on the market today"

Off the Record

"Truly noteworthy products"

Stereo Review Magazine

"Our advice is not to buy speakers until you've heard the Polks"

Musician Magazine

"Remarkably well integrated and coherent sound that adapts itself ideally to all kinds of music..."

Musician Magazine

well and they care... Other comparably priced speakers simply do not come close to the standards set by the Model 10... at their price they are simply a steal."

MONITOR 7C

"It is amazing"

Audio Alternatives

We have found something very special. The Polk 7. It is amazing... Hundreds of manufacturers build loudspeakers but only a few in this price range really perform. The Polk 7's perform!... The bottom end of the Polk 7's is tight, fast and can actually reproduce a cello without making it sound like an electric bass... It is sturdily built and attractive. Technically the Polk 7 is a superior loudspeaker in its class. Frequency response is exceptionally flat... Horizontal dispersion is so good that you can stand in front of one 7 and hear the other!... Vertical dispersion is also excellent... It is apparent that this speaker is a real find."

MONITOR 4A

"Star of great magnitude"

Milwaukee Sentinel

"The Polk 4 creates a startling illusion of an elevated stage... the stronger and better quality the signal we fed them the more spectacular the image that blazed up... All of that would be remarkable enough if we were discussing loudspeakers in the \$1000 range. The Polk 4 carries a retail price of under \$200 a pair. In actual use the Polk 4 is an all around star of great magnitude. Not only do high frequency shine to the farthest reaches of hearing, but musical textures and colors in that stratosphere come through finely controlled and proportioned. And don't be misled by Polk's modest claim for bass response... its low register shows ample depth and clarity. At high listening levels, these pixie Polks deliver the massive brass sonorities of Mahler's Third Symphony with incredible energy, textured pliancy and, most significant, transparency. Factors of presence and stereo imaging proved just as amazing. Yet the Model 4 doesn't have to be whipped to excel... Late one night, we sat down to a quiet hour of folk music... and experienced the same thrilling detail and immediacy."



MM XIII
\$99.95 ea.



MM IA
\$39.95 ea.



MM IV
\$108.95 ea.



MM VA system
\$108.90 ea.



MM XA
\$99.95 ea.



MM IIIA
\$72.45 ea.



Digital Disc Ready

Polk Mobile Monitors allow you to experience the AudioVideo Grand Prix Award winning sound quality of Polk's home speakers in your car.

"Polk's Extraordinary Mobile Monitors Sound Like the Finest Home Speaker Systems"

They Turn Your Car Into A Concert Hall

H

Home Quality Sound for the Road

Polk Mobile Monitors are true, home quality loudspeakers for automotive, boat and other installations calling for compact, flush mount systems of the highest musical performance. They are built to the same uncompromising quality standards and are specifically engineered to achieve the same high level of sonic performance as the critically acclaimed, Grand Prix Award winning Polk home speaker systems. The combination of many design features borrowed from the Polk home systems plus Polk's unwavering dedication to achieving better, more musical sound assures a new level of sonic performance for automotive loudspeaker systems. The Mobile Monitor's rich, full dynamic bass response, high definition clarity, crisp, silky smooth high frequency response, lifelike three dimensional imaging and natural uncolored mid-range will turn your car into a mobile concert hall.

Choose From Four Discrete Systems and Limitless Exciting Combinations

The Polk Mobile Monitor Series consists of 6 discrete speaker systems: The MM1a, MM11a, MMIV, MMVa, MMXa and MMXIIa. They are all sonically and functionally compatible with each other and may be utilized individually or in any combination to realize your dream sound system. Authorized Polk Mobile Monitor dealers will be able to assist you in selecting the best combination to suit your own particular needs. Whatever you choose, you are assured of the clear, smooth, thrilling life-like musical sound that Polk is famous for.

Mobile Monitors are Ideal for Wall and Ceiling Installations

The Polk Mobile Monitors were also designed to be easily and inconspicuously mounted in walls and ceilings. The Polks are perfect when you want inconspicuous built-in decorator styling and high sonic performance in any room of your home, office or commercial facility. Just paint them to match your walls or ceilings.

The MM 1a —

4" Dual Cone Full Range System — is a versatile polymer-treated, full range 4" system. It can be used by itself in economical high quality systems or combined with any of the other Mobile Monitor systems and located in the door or kick panels of a car for fuller sound or better sonic fill.

The MM 11a —

5 1/4" Coaxial System — is a unique and remarkable speaker that achieves sonic performance almost equal to the MM IV but in a smaller package at a lower cost. The drivers used are similar to those of the MM

Design Features and Performance Benefits

Natural home quality sound
Turns your car into a concert hall.

Deep, detailed and dynamic bass response
For satisfying car filling bass performance on all types of program material which is capable of both subtle delicacy and profoundly powerful impact.

High efficiency and power-handling
Enables your Polk Mobile Monitors to deliver superior sonic performance with a wide range of head-units and amplifiers for tremendous dynamic range and high volume listening.

Smooth, accurate frequency response
Across the entire audible range provides you with natural, non-fatiguing, easy-to-listen-to sound.

Instantaneous transient response
Means your music will be crisply reproduced with life-like clarity and detail.

Moisture resistant, polymer technology drivers
For life-like high definition sound and total performance reliability.

Excellent imaging and spatial fidelity
Fills your car with sound.

Easy to install flush mount design
Assures simple and convenient installation for superb performance in your vehicle, home or office.

Full sonic compatibility between all systems
You can create the ideal combination to satisfy your needs.

Building block system concept
You can start with a modest system and build your dream super system step by step.

Wide sonic dispersion
For superb sound in all listening positions.

IV, but the more compact package makes it easier to mount in more locations in the car.

The MMIV —

Two-way plate system — consists of a polymer laminate cone 5/4" driver, 3/4" wide dispersion high frequency radiator and sophisticated crossover network, all elegantly combined in one compact and easy to install flush mount unit measuring 8 3/4" x 1 1/2" with mounting depth of only 1 3/4". The attractive housing is molded of incredibly tough, space-age Lexan to assure long-term performance and design integrity.

The MMVa —

6 1/2" two piece system — is Polk's top-of-the-line automotive sound system. It consists of two separate units per channel: a small, easy to mount 3/4" ferro-fluid damped polymer dome high frequency radiator (with built in 12 db octave crossover network) and the same basic 6 1/2" trilaminate-polymer driver with butyl rubber surround used in Polk's Grand Prix Award winning home speaker systems.

The two piece configuration allows optimum placement of each driver in the automotive environment for perfect balance and imaging. Advanced material and adhesive technology results in high power handling and long-term reliability. Polk's sonic superiority is made apparent by an extremely open, well defined, crystal clear sound with dynamic bass, rich warm timbre and lifelike depth and imaging.

The MMVaHF

Satellite Tweeter — is available separately with its own built-in 12 db/octave crossover for use in more elaborate installations. It can be mounted on the dashboard or other appropriate positions for added high frequency fill and better imaging.

The MMVaLF

6 1/2" Woofer-Midrange (also called the MMXIV) — comes with a built-in crossover for use in elaborate installations as a woofer-midrange or woofer unit for added midrange fill and better bass.

The MMXa —

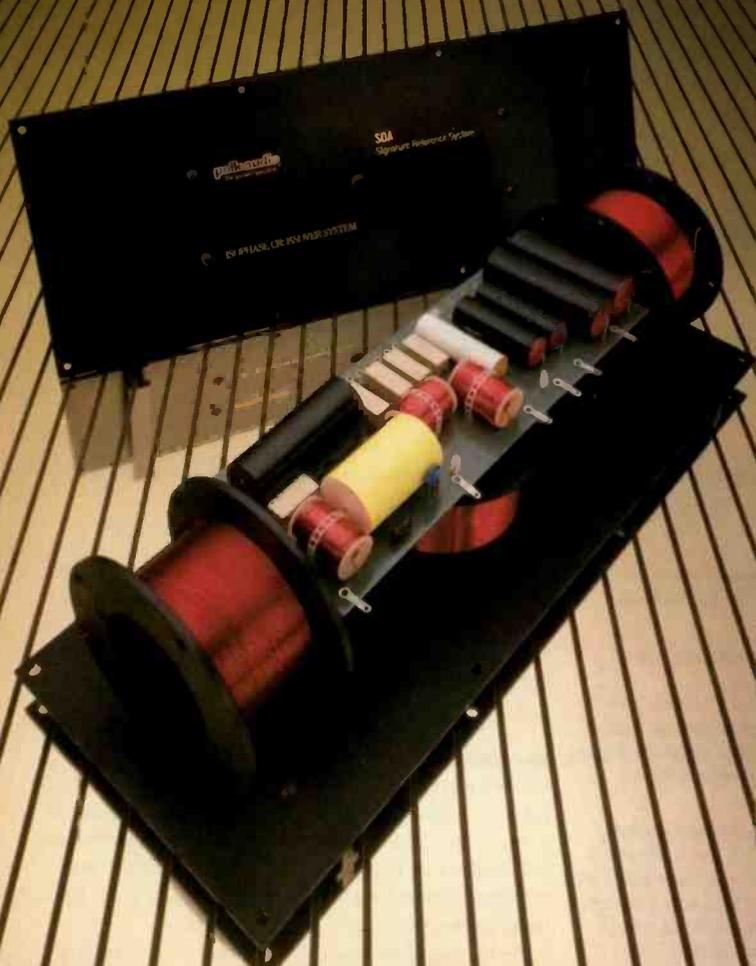
6 1/2" Coaxial System — incorporates the same drivers used in the MMVa, but combines them elegantly into a coaxial configuration which allows easy compact mounting in many areas of your car. The high quality drivers combined with a sophisticated 12/db octave crossover on the tweeter results in smooth, natural, home quality sound not found in other company's automotive speaker systems.

The MMXIIa —

6" x 9" Coaxial System — utilizes the same drivers and crossover as the MMX, but mounts them on a 6" x 9" mounting plate to allow easy installation when this size configuration is called for.

The MMXIVb —

6 1/2" Subwoofer — for Bi-amp Installations — is the same basic 6 1/2" driver with grille as used in the MMX, XII and Va, but without a built-in crossover. It is designed to be used in bi-amplified systems of the highest quality, in any quantity, when bass and sub-bass performance of the highest quality is desired.



Polk Inphase Crossover System



Polk Silver Coil Dome Radiator



Polk Fluid Coupled Subwoofer



Polk Trilaminate Polymer Driver

“Polk Builds State-of-the-Art Components For High Definition Musical Sound Quality”

Consistently Superior Technology Results In Better Sound

High Definition Reproduction

Polk loudspeakers are true high definition systems which reproduce sonic images with life-like clarity and detail, much like a high resolution camera captures a visual image with all the subtle detail and focus intact. When you listen to a pair of Polks, notice how you can hear each and every individual instrument clearly and distinctly, even when there are many instruments playing at the same time. This high resolution capability is in large part due to the consistently excellent transient response of all the drivers as well as the seamless blending achieved by the Isophase Crossover systems.

The Polk Trilaminare Polymer Drivers

These superb drivers are specifically engineered to cover the entire fundamental musical range with life-like clarity and minimal coloration. Polk's exclusive trilaminare (3 layer) polymer cone technology is responsible for a purity and naturalness of reproduction unapproachable by conventional drivers which utilize paper, or simple vacuum formed plastic cones. Polk's unique trilaminare polymer cone is made of three complimentary materials, each of which has unique performance advantages all its own. One material is very light and structurally strong, one is very stiff with a high speed of sonic wave transmission, and one very effectively removes sonic colorations by effectively damping the cone structure. The exceptional performance gained when all three are combined together could never be equalled by a simple layer cone of any single material. Polk drivers utilize costly butyl rubber surrounds for more accurate cone movement and deeper, better bass response. They incorporate high-temperature aluminum voice coils which allow high power operation without burnout. Optimized Flux Density magnet structures are used for perfectly balanced operation assuring clearer, more highly defined, more musical sonic performance.

The Polk Isophase Crossover Systems

The crossover network is the most important component in a high quality loudspeaker system. It is responsible for properly blending the sound of the individual drivers together into the homogeneous sounds of individual instruments and voices. The crossover acts like the “musical conductor” of the loudspeaker, telling each driver just when to come in and exactly how loud to play. The elaborate Polk Isophase Crossover Systems utilize huge copper coils and precision capacitors and resistors to assure the lowest possible harmonic, IM, and transient distortion with

High Performance Components Deliver Sonic Benefits to You

High Definition Reproduction allows you to clearly hear every subtle nuance and all the inner detail of the musical performance.

The Polk Trilaminare Polymer Drivers deliver many performance benefits including smoother more extended frequency response, greater clarity, wider dispersion, higher efficiency, improved phase linearity and lower distortion.

The Polk Isophase Crossover Systems are responsible for the beautifully blended, seamlessly smooth and coherent sound of the Polks.

The Polk Silver Coil Dome Tweeter achieves a unique combination of sparkling, life-like clarity and silky smooth, easy to listen to, high frequency performance.

Polk's Safety Guard Tweeter Protection Device is a distortionless, self resetting device which protects the costly tweeters from accidental damage.

The Polk Fluid Coupled Subwoofers achieve uniquely musical and dynamically awe inspiring bass performance while at the same time raising efficiency and dramatically improving depth reproduction and three-dimensionality.

Butyl Rubber Surrounds are used on all Polk drivers (except the MM1a). These extremely costly surrounds in contrast to foam rubber surrounds used by many manufacturers are more supple, allow deeper bass, terminate and damp waves transmitted through the cones and don't degenerate over time.

Air Core Coil Chokes are used in all Polk Isophase Crossover networks. Air core chokes, unlike iron core chokes used by many manufacturers, don't saturate at high power levels or change their critical performance characteristics at different power levels. The result is clearer, low distortion and more dynamic musical reproduction.

complex high level musical signals. Close tolerance, extremely costly mylar and silver mica capacitors are used in many models to achieve even higher sonic definition. In addition, driver equalization is optimized by the sophisticated and complex circuitry, while isophase (phase coherent) operation is maintained by careful control of the various phase relationships in the system. Many loudspeaker manufacturers skip on this critically important component because it is usually hidden from sight, but Polk builds crossovers correctly so that our speakers will sound better for you.

The Polk Silver Coil Dome Tweeters

This state-of-the-art transducer is the only tweeter in the world which utilizes a voice coil wound with costly silver coated wire for more extended frequency response. The extremely light polyamide dome allows exceptionally quick transient response while the inherently well damped material eliminates annoying resonances. The small diameter diaphragm assures wide dispersion of high frequencies throughout your listening room. In addition, the huge magnet structure combined with the low mass moving system results in vanishingly low distortion, superb wave form accuracy and high efficiency. A specially contoured non-resonant faceplate improves dispersion, lowers diffraction and helps eliminate resonant distortion.

Polk's Safety Guard Tweeter Protection Device

This elegant device is far superior to the circuits used by many other manufacturers, because it is totally distortionless and does not alter or degrade the sound in any way. In addition it is much more accurate and consistent in its operation than a fuse.

The Polk Fluid Coupled Subwoofers

Most Polk home speakers utilize a fluid-coupled subwoofer system for tight, quick, deep, powerful and room-filling bass response. This system realizes the performance advantages of both large and small diameter woofers at the same time. Small diameter woofers have faster transient response, better midrange and dispersion. Large diameter bass drivers couple better to your room and produce more bass. The Polk Fluid Coupled Subwoofer System excels in all these areas. It utilizes the low frequency energy produced within the enclosure by the small bass/midrange drivers to hydraulically energize the large diameter low resonance subwoofer below approximately 60 Hz. The result is remarkably clear, well-defined low frequency reproduction, exhibiting exceptional upper bass detail which extends smoothly and seamlessly down through the sub-bass and cleanly up into the midrange.



A skilled Polk quality assurance engineer checks every speaker.

“Polk’s Quality Assurance Program Guarantees Sonic Excellence and Total Satisfaction”

One Uncompromising Standard of the highest quality

P

olk Completely Tests Every Loudspeaker

We Build

There is much more involved in manufacturing a high technology product like a Polk loudspeaker than just developing a state-of-the-art design concept. This is just the beginning. Meticulous workmanship, the use of the highest quality components and effective comprehensive quality control are all necessary to make certain that every pair of Polk loudspeakers delivers all the satisfaction that they are capable of. Polk is committed to assuring you that the Polk speakers that you buy sound as good as they were designed to sound and are made as well as they were intended to be made. To achieve this we have developed a uniquely exhaustive, thorough and effective quality assurance program. Our engineers insist that designing superior sounding loudspeakers systems isn't enough. The quality of the design is meaningless unless there is a foolproof quality assurance program to make certain that your loudspeakers will deliver their full performance potential. Unlike most manufacturers Polk completely tests each and every loudspeaker we produce. In fact Polk tests each and every sub assembly and component before it is assembled into the final product.

One Standard of Quality For Every Polk Speaker

Another unusual aspect of Polk's exhaustive quality assurance program is that the same elaborate procedures are followed not only for each example of a particular model, but also for every single Polk loudspeaker, regardless of cost. In other words, a Polk 4A goes through basically the same elaborate and exhaustive quality assurance program as the top of the line SDA-SRS. Polk engineers insist on this, just as they insist on using the same quality components and putting the same care into the design and refinement of every Polk speaker regardless of cost. Why? To give you total satisfaction.

Experienced Human Judgement Plus Unfailing Computer Accuracy

Polk's comprehensive quality assurance program involves both computer testing and tests performed by trained quality control engineers. No effort is spared to assure you of total satisfaction with your new Polk Audio loudspeakers for many years to come.

Polk engineers spent many years developing the CIDAC computer program which is used in Polk's quality assurance procedure. A detailed analysis of the importance of closely held tolerances and their relationship to audible performance resulted in

Polk completely and exhaustively tests each and every loudspeaker we produce.

Polk engineers know that designing superior sounding loudspeakers isn't enough. The finest design is meaningless unless the quality is guaranteed by a foolproof quality assurance program. Polk completely tests every loudspeaker we build to assure you that your own pair of Polk speakers will be perfect in every way.

One Standard of Quality For Every Polk Speaker means that regardless of their cost, there is never any compromise in the consistent quality of any Polk speaker.

Experienced Human Judgement Plus Unfailing Computer Accuracy achieves unexcelled quality assurance in all aspects of construction and performance.

The Human Element is essential, because there are some critical quality assurance tasks for which there is no substitute for trained human judgement.

Exactlying Close Tolerances are rigidly adhered to in order to realize the full performance potential of all materials, components and technologies.

Total Testing of Every Sub-assembly before it is assembled into a finished product eliminates any possible chance of a bad component slipping through final quality control.

Total Testing of Every Finished Product assures you that your Polk speakers sound as good as the engineering prototypes, and will perform superbly out of the box and for many years to come.

The Pride of Polk Ownership that comes with every Polk loudspeaker is a very special bonus that is uniquely fulfilling.

the specification of the proper critical test comparisons essential to total sound quality performance and long term satisfaction. This effective computer procedure is used for those critical objective tests where there is no margin available for human error.

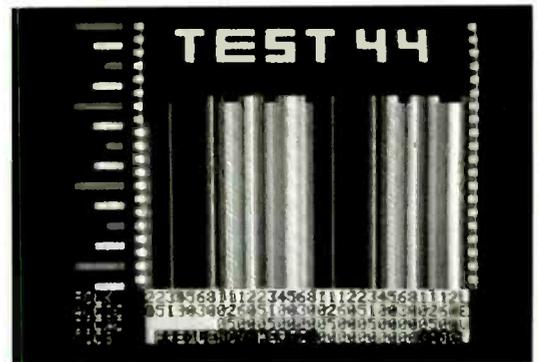
The CIDAC quality control system utilizes a high-speed dual-state parallel binary interface between a state-of-the-art control processor and a group of sophisticated data acquisition and analysis subsystems. The CIDAC master control program serves as the central control for the system, supported by a library of tightly-written machine language routines, which provide high-speed execution in the demanding signal-processing environment. This combination of powerful hardware and sophisticated software allows the system to perform high-accuracy measurements covering all relevant parameters of loudspeaker performance.

Sometimes There Is No Substitute for a Human Being

No machine can ultimately tell you how a loudspeaker sounds reproducing music and only a human being can properly inspect the myriad of small details in order to ensure that each Polk loudspeaker is cosmetically perfect and structurally correct. That is why, at Polk, we utilize a synergistic combination of unfailing computer accuracy and experienced human judgment to fully assure you of the quality of each and every pair of Polk speakers.

The Pride of Polk Ownership

Like a fine watch, camera, or outstanding motorcar; a Polk loudspeaker is meticulously constructed to perform and to last. Its intended goal and purpose is fulfilling your musical pleasure. However, like any finely crafted object, the many and varied delights of owning Polk loudspeakers transcend Polk's original design goals.



Polk's exclusive Cidac computer system precisely and accurately checks every Polk speaker in the critical areas of loudspeaker performance.

THE SDA SERIES



THE MONITOR SERIES



THE VIDEOSOUND SERIES



THE MOBILE MONITOR SERIES



Visit Your Nearest Dealer and Experience the Magnificent Sound of Polk.

	A. SDA SRS	B. SDA-SRS 2	C. SDA-1B	D. SDA-2A	E. SDA-CRS +	F. Monitor 12C	G. Monitor 10B
Driver Complement	Four 1 inch Polk SL 2000 silver coil dome tweeters Eight 6½ Inch Polk tri-laminate polymer bass-midrange drivers (6503) One 15 inch planar fluid-coupled sub-woofer	Two 1 Inch Polk SL 2000 silver coil dome tweeters Four 6½ inch Polk tri-laminate polymer bass-midrange drivers (6509) One 15 inch planar fluid-coupled sub-woofer	Two 1 inch Polk SL 2000 silver coil dome tweeters Four 6½ inch Polk tri-laminate polymer bass-midrange drivers (6600x) One 12 Inch planar fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6510) One 12 inch planar fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6510) One 10 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6501) One 12 inch planar fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6503) One 10 inch fluid-coupled sub-woofer
Size (Inches)	63½H x 21W x 13D	50H x 20½W x 12½D	43½H x 16W x 12D	39½H x 16W x 12D	12½H x 20W x 9½D	39H x 16W x 11½D	28H x 16W x 11¼D
Shipping Weight	182 pounds	142 pounds	85 pounds	80 pounds	36 pounds	75 pounds	50 pounds
Frequency Response	10 Hz-26,000 Hz	12 Hz-26,000 Hz	15 Hz-26,000 Hz	15 Hz-26,000 Hz	24 Hz-26,000 Hz	17 Hz-26,000 Hz	20 Hz-26,000 Hz
Recom. Assoc. Amplification	10-1000 watts/channel	10-750 watts/channel	10-500 watts/channel	10-500 watts/channel	10-200 watts/channel	10-500 watts/channel	10-200 watts/channel
Crossover Frequency	45 Hz and 2000 Hz	45 Hz and 2kHz	50 Hz and 2000 Hz	50 Hz and 2kHz	60 Hz and 2000 Hz	50 Hz and 2000 Hz	60 Hz and 2500 Hz
Nominal Impedance	4 ohms	4 ohms	4 ohms	4 ohms	6 ohms	4 ohms	6 ohms
Maximum Output Level	125dB	123dB	120dB	120dB	116dB	118dB	118dB
Efficiency	93dB	92dB	92dB	92dB	92dB	92dB	92dB
Warranty	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor
Price	\$1395.00 ea.	\$995.00 ea.	\$695.00 ea.	\$499.00 ea.	\$395.00 ea.	\$479.95 ea.	\$329.95 ea.

	H. Monitor 7C	I. Monitor 5B	J. Monitor 5jr	K. Monitor 4A	L. VS-12	M. VS-19	N. VS-25	
Driver Complement	One 1 inch Polk SL 2000 silver coil dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6502) One 10 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6502) One 8 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6502)	One 1 inch polymer dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6502)	One 1 inch polymer dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6504)	One 1 inch polymer dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6504)	One 1 inch polymer dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6504)	One 1 inch polymer dome tweeter One 6½ inch Polk tri-laminate polymer bass-midrange driver (6504) One 6½ inch fluid-coupled sub-woofer
Size (Inches)	24H x 14W x 9¼D	21½H x 10½W x 8½D	17H x 9W x 8¾D	14½H x 8½W x 7¾D	14¼H x 8½W x 11D	18¾ x 8½W x 11D	22¾H x 8½W x 11D	
Shipping Weight	36 pounds	29 pounds	45 pounds per pair	32 pounds per pair	19 pounds	22 pounds	25 pounds	
Frequency Response	24 Hz-26,000 Hz	28 Hz-26,000 Hz	30 Hz-26,000 Hz	31 Hz-25,000 Hz	30 Hz-25,000 Hz	28 Hz-25,000 Hz	26 Hz-25,000 Hz	
Recom. Assoc. Amplification	10-150 watts/channel	10-125 watts/channel	10-100 watts/channel	10-80 watts/channel	3-80 watts/channel	3-100 watts/channel	3-125 watts/channel	
Crossover Frequency	60 Hz and 2500 Hz	60 Hz and 3000 Hz	3000 Hz	4500 Hz	3000 Hz	3000 Hz	100 Hz and 3000 Hz	
Nominal Impedance	4 ohms	4 ohms	4 ohms	4 ohms	6 ohms	6 ohms	6 ohms	
Maximum Output Level	116dB	116dB	114dB	114dB	114dB	114dB	116dB	
Efficiency	91dB	91dB	92dB	92dB	93dB	93dB	93dB	
Warranty	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	Limited five year parts and labor	
Mounting Depth	—	—	—	—	—	—	—	
Price	\$249.95 ea.	\$189.95 ea.	\$129.95 ea.	\$84.95 ea.	\$99.95 ea.	\$149.95 ea.	\$199.95 ea.	

	O. MM Ia	P. MM IIIa	Q. MM IV	R. MM Va	S. MM Xa	T. MM XIIa	U. MM XIVa
Driver Complement	Full Range 4 inch polymer-treated system	One ½ inch ferro-fluid damped polymer dome tweeter One 5¼ inch polymer-treated bass-midrange driver	One ½ Inch ferro-fluid damped polymer dome tweeter One 5¼ inch polymer-treated bass-midrange driver	One ½ inch ferro-fluid damped dome tweeter One 6½ inch polymer-treated bass-midrange driver Driver: ¾ Diam. x 1H	One ½ inch ferro-fluid damped polymer dome tweeter One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver	One ½ inch ferro-fluid damped polymer dome tweeter One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver	One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver
Size (Inches)	5-1/4 Diam. x ½H	6½ Diam x ¾H	8¼L x 6W x 1½H	Tweeter: 2¾L x 2¾W x 1H	6¾ Diam. x 1H	9½L x 6¾W x 1H	6¾ Diam. x 1H
Shipping Weight	5 pounds per pair	6 pounds per pair	7 pounds per pair	9 pounds per pair	9 pounds per pair	9 pounds per pair	8 pounds per pair
Frequency Response	80 Hz-15,000 Hz	40 Hz-20,500 Hz	40 Hz-20,500 Hz	38 Hz-20,500 Hz	38 Hz-20,500 Hz	38 Hz-20,500 Hz	38 Hz-Variable
Recom. Assoc. Amplification	5-50 watts/channel	5-100 watts/channel	5-100 watts/channel	5-100 watts/channel	5-100 watts/channel	5-100 watts/channel	5-100 watts/channel
Crossover Frequency	—	4000 Hz	4000 Hz	4000 Hz	4000 Hz	4000 Hz	Variable
Nominal Impedance	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms
Maximum Output Level	108dB	112dB	112dB	112dB	112dB	112dB	112dB
Efficiency	94dB	90dB	88dB	90dB	91dB	91dB	90dB
Warranty	Limited one year parts and labor	Limited one year parts and labor	Limited one year parts and labor	Limited one year parts and labor	Limited one year parts and labor	Limited one year parts and labor	Limited one year parts and labor
Mounting Depth	1½ inch	2½ inch	1¾ inch	2½ inch	2½ inch	2½ inch	2½ inch
Price	\$79.90 pr.	\$124.90 pr.	\$219.90 pr.	\$219.80 pr.	\$199.90 pr.	\$199.90 pr.	\$119.90 pr.

Your choice of many beautiful cabinet finishes:

SDA SRS and SDA SRS2 are available in a beautiful hand-rolled oak or walnut finish. All other SDA and Monitor speakers come standard in furniture grade walnut or rosewood woodgrain vinyl. All models except the 4A are available at extra cost in hand-oiled oak or walnut finishes. Video Sound Loudspeakers are available in several finishes including designer black vinyl.

Specifications subject to change without notice due to design refinements and/or improvements. Prices are only approximate and may vary. Polk stands are shown in the photographs and are recommended, but optional.

Digital Disc Ready



SDA SRS
\$1395.00 ea.

Digital Disc Ready

Matthew Polk's extraordinary new SDA SRS won the 1985 Audio Video Grand Prix Speaker of the Year Award.

Matthew Polk Personally Invites You To Win A Free Pair of His Extraordinary Sounding SDA SRSs

"I hope you're the winner of my ultimate loudspeakers"
Matthew Polk

Office of Matthew Polk

Dear fellow music lover,

My life and work is dedicated to designing better sounding loudspeakers for your listening pleasure. I am certain that when you hear the remarkable sonic capabilities of my loudspeakers for yourself, you will agree. I would like to join with your nearest authorized Polk dealer in extending a personal invitation to you to audition all my superb sounding Polk speakers, the Incredible sounding/Affordably priced Monitors, the Mobile Monitors, the new VideoSound Loudspeakers and especially my revolutionary 3rd generation TRUE STEREO SDAs. When you visit your nearest Polk dealer to hear them, you will get a free chance to win a pair of my ultimate dream loudspeaker, the SDA-SRSs.

My goal in designing all Polk loudspeakers is to make listening a more satisfying and enjoyable experience for you. Polk Monitor Series speakers have been acclaimed by the world's experts as the best sounding speakers for the money available on the market. SDA technology takes music reproduction a giant step forward (or more properly allows you to correctly hear the full sonic benefits of stereo, over loudspeakers) and now all 5 SDAs incorporate the latest 3rd generation TRUE STEREO technology pioneered in my top of the line Signature Reference Systems (SRS). You must hear the SDAs for yourself to experience the sound that High Fidelity called "Mind Boggling, Astounding and Flabbergasting."

To help me in my work I very much want to know which audible benefits of SDA technology are the most dramatic and significant to you. I would sincerely appreciate this input and to thank you I will be giving away a free pair of SDA-SRSs every 3 months to someone like yourself. Imagine, you may win a free pair of SDA-SRSs just for visiting a Polk dealer and listening to my speakers! Don't pass up this opportunity to hear how much better Polk speakers can make your music sound, and maybe win a pair for free. You will enjoy visiting your local Polk dealer. They have been selected to handle our products because of the high quality of professionalism, expertise and customer service that they offer. I can personally recommend them to take care of all your audio needs. Visit them soon.

Make sure you listen to all the excellent equipment they carry including all my incredibly affordable Polk Monitor Series loudspeakers (priced from approx. \$85.00 ea.). They share many of the same components and features of the SDA and bear a strong family resemblance in sound quality as well. I look forward to hearing from you. Thanks again for your help.

Happy listening,



Matthew Polk
V.P. Engineering
Chairman of the Board

P.S. Someone will win a free pair of SDA-SRSs — I hope it's you!

ACT NOW
Free SDA-SRS Drawing

- Listen to the Magnificent Sounding Polks**
- Let Matthew Polk know what you think**
- You may win a free pair of SDA-SRSs**

**Visit Your Nearest Dealer
Before Dec 15**

This is an entry form in a nationwide drawing for a free pair of SDA-SRS loudspeakers. Simply fill out this form and leave it with your participating Polk dealer, after you audition the SDA-SRS.

Name _____
Address _____
City _____ State _____ Zip _____
Phone (please include area code) _____

What most impressed you about the sound of the Revolutionary TRUE STEREO SDAs?

- Three dimensional imaging
- Huge sound field
- Deep, tight, dynamic bass
- Lifelike ambience and clarity
- High efficiency and dynamic range
- TRUE STEREO separation

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"Sonic Superiority Has Made Polk Audio The Most Honored Name in Loudspeakers"



"Our Advice is Not To Buy Speakers Until You've Heard the Polks"

Musician Magazine

5611 Metro Dr., Baltimore, MD 21215

Polk Audio

The Speaker Specialists

Where to buy Polk Speakers

AUTHORIZED DEALER LIST

ALABAMA Auburn: Audio Warehouse • Birmingham (Homewood): Audition • Huntsville: Campbell's Audio Video • Mobile: Fidler Hi-Fi • Montgomery: The Record Shop

ALASKA Anchorage: Shimek's • Fairbanks: North Music

ARIZONA Flagstaff: Sound Pro • Mesa: Hi-Fi Sales • Tucson: Audio Emporium • Phoenix: Great

ARKANSAS Little Rock: Leisure Electronics • Fayetteville: Sound

CALIFORNIA Arcata: Arcata Audio • Bakerfield: Sound Advice • Berkeley: Sounding Board • Campbell: Sound Goods • Chico: Sounds By Dave Davis • World Electronics • Fairfield: C. & M. Stereo Unlimited • Fresno: Valley Stereo • Los Angeles: Beverly Stereo • Mill Valley: World of Sound • Napo: Fulcrum • Orange: Absolute Audio • Penngrove: California Stereo • Sacramento: World Electronics • San Diego: Sound Company • San Francisco: Stereo Store, World of Sound • San Gabriel: Audio Concepts • Santa Barbara: Stereo • Santa Cruz: Stereo Solutions • Santa Maria: Creative Stereo • Santa Monica: Shelley's Stereo • Stockton: Luskin's Camera Audio Video • Thousand Oaks: Creative Stereo • Ventura: Creative Stereo • Visalia: Metro Stereo • Walnut Creek: High Fidelity Storage • Woodland Hills: Shelley's Stereo • Yuba City: Earl Evans Electronics • Toronto: for nearest dealer 1-800-263-6395

COLORADO Arvada: Soundtrack • Aurora: Soundtrack • Boulder: Soundtrack • Wave length Stereo • Colorado Springs: Sunshine Audio • Denver: Soundtrack • Golden: Soundtrack • Pueblo: Sunshine Audio

CONNECTICUT Avon: Hi-Fi Stereo House • Bridgefield: Sounds Incredible • Fairfield: Audio Design • Greenwich: AJ Franklin's Musical World • Grafton: Robert's The Musical World • Hartford: AJ Franklin's Musical World • New Haven: Audio Den • Newington: Hi-Fi Stereo House • New London: Robert's The Music People • Norwalk: Audiolectrics

DISTRICT OF COLUMBIA Myer Emco

FLORIDA Altamonte Springs: Audio Spec-trum • Boca Raton: Audio Video • Clearwater Beach: Stereotypes • Ft. Lauderdale: Capt Video • Ft. Myers: Stereo Garage • Ft. Pierce: Sound Shack • Ft. Waller Beach: Audio International • Jacksonville: Audio Tech • Lakewood: Sound Shack • Merritt Island: Southern Audio • Miami: Audio By Caruso, Capt Video, Sympathetic Ear • Naples: Stereo Garage • Orange Park: Audio Tech • Orlando: Audio Spectrum • Pensacola: Fidler Hi-Fi • Tallahassee: Stereo Store • Tampa: Audio Vision • W. Palm Beach: Electronic Connection

GEORGIA Atlanta: Stereo Village • Augusta: Stereo City • Duluth: Stereo Village • Morrow: Stereo Village • Savannah: Audio Warehouse • Smyrna: Stereo Village • Tucker: Stereo Village

HAWAII Honolulu: Stereo Station

IDAHOWA Boise: Stereo Shopper • Moscow: AudioVision • Pocatello: Shibus Brothers • Sandpoint: Electraco • Twin Falls: Audio Warehouse

ILLINOIS Aurora: Stereo Systems • Bloomington: Alan's Creative Stereo • Buffalo Grove: Columbia Audio • Chicago: Glenn Poo's • DeKalb: Audio Plus • Hoffman Estates: Simply Stereo • Highland Park: Columbia Audio Video • Lansing: Audio Clinic • Mt. Prospect: Simply Stereo • Normal: Glenn Poo's • Northbrook: Alan's Creative Stereo • Peoria: Team Electronics • Riverdale: Simply Stereo • Stereo Designs • Rockford: Columbia Audio Video • Schaumburg: Alan's Creative Stereo, Hi-Fi Hutch • Springfield: Sundown One • Sterling: Midwest Hi-Fi • Vernon Hills: Alan's Creative Stereo • Villa Park: Hi-Fi Hutch • Waukegan: Alan's Creative Stereo

INDIANA Bloomington: Hooper Electronics • Bluffton: City TV & Stereo • Greenwood: Hi-Fi Buys • Indianapolis: Hi-Fi Buys • Lafayette: Hi-Fi Buys • Marion: Classic Stereo • Muncie: Hi-Fi Buys • South Bend: Classic Stereo • Terre Haute: Hooper Electronics

IOWA Des Moines: Audio Labs • Fairfield: Golden Ear Audio Video • Mason City: Sound World • Sioux City: Audio Emporium

KANSAS Emporia: Nelson's • Junction City: Audio Junction • Overland Park: Audio Electronics • Wichita: Audio Visions • Topeka: Nelson's

KENTUCKY Lexington: Stereo Shoppe • Louisville: Hi-Fi Buys • Owensboro: FM Hip Facility

LOUISIANA Baton Rouge: Stereo Village • Gretna: Stereo Village • Lafayette: Sound Electronics • Metairie: Stereo Village • New Orleans: Stereo Village • Opelousas: Sound Electronics • Shreveport: Audio Fidelity • West Monroe: Audio West

MAINE Bangor: Sound Source • Camden: Harbor Audio Video • Westbrook: Hawk's TV, The Sound Clerk

MARYLAND Annapolis: Spaceway Stereo • Baltimore: Soundstage • Frederick: Empress Audio • Rockville: Myer Emco

MASSACHUSETTS Fitchburg: Fitchburg Music • Gloucester: Glass Sailboat • N. Dartmouth: Creative Sound Systems • Walham (Boston): Wallman Camera & Stereo • Worcester: D Conns

MICHIGAN Ann Arbor: Absolute Sound • Birmingham: Atlas Hi-Fi • Dearborn: Atlas Hi-Fi • East Lansing: Stereo Shoppe • Farmington Hills: Atlas Hi-Fi • Grand Rapids: Sound Room • Iron Mountain: Sound North • Lansing: Stereo Shoppe • Portage: Sound Room • Royal Oak: Absolute Sound • Saginaw: Audio Shoppe • Court Street Listening Room • Traverse City: Stereo Shoppe

MINNESOTA Brooklyn Center: Audio King • Burnsville: Audio King • Duluth: Mel's TV & Audio • Edina: Audio King • Mankato: Sound World • Minneapolis: Audio King •

MINNESOTA Audio King • Rochester: Sound World • Roseville: Audio King • St. Paul: Audio King

MISSISSIPPI Gulfport: Empress • Jackson: Walters Audio • Pascagoula: Empress

MISSOURI Cape Girardeau: Stereo One • Columbia: D & M Sound • Lebanon: Sight & Sound • St. Louis: Sound Central

MONTANA Bozeman: Thrifty Ear • Great Falls: Rocky Mountain Hi-Fi

NEBRASKA Lincoln: Stereo West • Norfolk: Mid City Stereo • Omaha: Stereo West • NEVADA Las Vegas: Upper Ear • Reno: The Audio Authority

NEW HAMPSHIRE Concord: Audio of New England • Dover: Audio of New England • New London: North Star Electronics • Salem: Cuomo's

NEW JERSEY East Brunswick: Atlantic Stereo • Franklin Lakes: Franklin Lakes Stereo • Maple Shade: Bryn Mawr Stereo • Montclair: Perdue Radio • Raritan: AC Audio & Video • Ridgewood: Sounding Board • Shrewsbury: Mammola's Stereo • Toms River: Rands Camera • West Caldwell: Perdue Radio

NEW MEXICO Albuquerque: Real Time Audio • Carlsbad: Beason's

NEW YORK Albany: Clark Music • Batavia: Unicorn Audio • Buffalo: Speaker Shop • Corning: Chemung Electronics • Elmira: Chemung Electronics • Fredonia: Studio One • Glens Falls: Audio Concepts • Huntington: Audio Breakthroughs • Ithaca: Chemung Electronics • Jamestown: Studio One • Manhattan: Audio Breakthroughs • New York City: Audio Breakthroughs, Electronic Workshop • Rochester: JB Sound • Scarsdale: Listening Room • Syracuse: Clark Music • Vestal: Rands Electronics • Wappingers Falls: Rands Electronics

NORTH CAROLINA Asheville: Mt. Road's Stereo Video • Chapel Hill: Stereo Sound • Charlotte: Stereo Sound • Hickory: Sound Electronics • Pineville: Stereo Video • Raleigh: Audio Buys, Stereo Sound • Wilmington: Atlantic Audio • Southeastern Stereo • Winston Salem: Stereo Sound • NORTH DAKOTA Bismarck: Pacific Sound • Minot: Midwest Audio

OHIO Cleveland: Audio Craft • Cincinnati: Stereo Concepts • Columbus: Stereo Lab • Dayton: Micro Computer Center • Fairport: Audio Craft • Findlay: Audio Craft • Lima: Classic Stereo • Mayfield Heights: Audio Craft • Toledo: Audio Craft • Westlake: Audio Craft

OKLAHOMA Lawton: Hi-Fi Shop • Stillwater: Carlines • Tulsa: Audio Advice

OREGON Beaverton: Stereo Superstores • Eugene: Bradford's High • Medford: Stereo • Salem: Pendleton • Royal • Portland: Stereo Superstores

PENNSYLVANIA Allentown: Bryn Mawr Stereo • Altoona: Sound Concepts • Blakely: Harlan Stereo • Bryn Mawr: Bryn Mawr Stereo • Camp Hill: Bryn Mawr Stereo • Erie: Audio One • Frazer: Bryn Mawr Stereo • Indiana: Sound Concepts • Jersentown: Bryn Mawr Stereo • Kinross: Hi-Fi Electronics • Lancaster: G-T Stereo • Montgomeryville: Bryn Mawr Stereo • Natrona Heights: Stereo Land • Philadelphia: Bryn Mawr Stereo • Pottsville: Audio Junction • Quakertown: Bryn Mawr Stereo • Reading: G-T Stereo • Bellasgrove: Stereo Shop • Williamsport: Robert M. Sides • Winthrop: Hi-Fi Stereo

Puerto Rico Rio Piedras: Precision Audio

RHODE ISLAND N. Providence: Eastern Audio

SOUTH CAROLINA Charleston: Audio Warehouse • Columbia: Stereo Shop • Greenwood: Stereo Shop • Spartansburg: Stereo Shop

SOUTH DAKOTA Rapid City: Team Electronics • Sioux Falls: Sound World

TENNESSEE Chattanooga: College Hi-Fi • Cookeville: Network Entertainment • Johnson City: Mt. Road's Stereo Video • Kingsport: Mt. Road's Stereo Video • Knoxville: Lindsey Ward • McMinnville: Network Entertainment • Memphis: Opus II • Nashville: Hi-Fi Buys

TEXAS Austin: Audio Video • Beaumont: Brock Audio • College Station: Audio Video • Dallas: Arnold & Morgan • El Paso: Soundquest • Galveston: Island Junction • Garland: Arnold & Morgan • Houston: Sheffield Audio • Longview: Audio Techniques • Lubbock: Ultra Electronics • Odessa: Harold's Elec-tronics • San Angelo: Walker Audio • Sherman: Worldwide Stereo • Temple: Audio Tech • Terarkana: Sound Town • Waco: Audio Tech • Wichita Falls: Hamilton Bryan

UTAH Logan store only: Slaves Brothers • Salt Lake City: Broadway Music • Vernal: Dirk Labrum Co.

VERMONT Burlington: Audio Den • Winoona: Brian's • Fairlee: Stereo Video • Charlottesville: Sound Machine • Falls Church: Myer Emco • Franklin: Audio Showroom • Leesburg: Evergreen Audio • Richmond: Gary's Stereo • Rutland: Au-diodisco • VT. State College: Digital Sound

WASHINGTON Bellevue: Northwest Audio Video • Bellingham: QC Stereo • Lynnwood: Northwest Audio Video • Oak Harbor: QC Stereo Center • Richland: Tim Ear Stereo • Seattle: Delinive Audio, Northwest Audio Video • Spokane: Electraco (Hals) • Tuleville: Northwest Audio Video

WEST VIRGINIA Barboursville: Pied Piper • Beckley: Pied Piper • Huntington: Pied Piper • Morgantown: Sound Post • Piedmont: Sound Gallery

WEST VIRGINIA Appleton: Lakeside • Sound World • Green Bay: Sound World • Lacroce: Sound World • Madison: Happy Medium • Marquette: Sound Setter • Milwaukee: Audio Emporium • Rhinecliff: Audio Broker • Wausau: Sound World

WYOMING Cheyenne: Team Electronics • Riverton: Sound Room

SIGNALS & NOISE

Mea Culpa

Dear Editor:

In reviewing the Kenwood KRC-999 Car Stereo (April 1986) Leonard Feldman made the statement, "Azimuth error was only 53° for a 15.8-kHz signal recorded on both channels of the test tape. This is one of the lowest azimuth-error readings I have obtained for car cassette players recently."

In examining Fig. 9, which shows azimuth error as displayed on the Sound Technology ST-1500A, that statement would appear to be valid. However, one of the "problems" with the Sound Tech is that it can only directly display azimuth errors up to a maximum of 180°. In interpreting the display, it becomes necessary to look at the lower frequencies first, in order to establish a trend, so that an accurate assessment of high-frequency azimuth error can be made.

Specifically, if the azimuth error at the 2.8-kHz point is approximately -60° (as shown), the actual azimuth error at a shorter wavelength (15.8 kHz) must be greater. In this case, the correct figure at 15.8 kHz would be -307°, or almost an entire wavelength off. This large an error may explain why the data was so easy to misinterpret. It would seem that the azimuth error is not "one of the lowest . . ." but rather one of the highest in recent memory.

Michael W. Silber
Palmdale, Cal.

Editor's Note: Mr. Silber is absolutely correct; I misinterpreted the data presented on the Sound Tech. Frankly, I never expected the azimuth error to be that great, so I assumed the lower number. But upon checking the Sound Tech manual I found that this type of indication does mean an error of greater than 180°—Leonard Feldman

Setting the Records Straight

Dear Editor:

I just read Ted Fox's interview with Bob Thiele (February 1986) and enjoyed it very much. Bob is an old friend of mine and I produced several sessions for his various labels over the years.

There's just one point I'd like to correct. Bob was not the first to record Duke Ellington and Louis Armstrong together. I recorded them on my Es-

quire All Americans session for RCA in January 1946, 15 years before Bob's session. I mentioned this to Bob on the phone, and he said that it had slipped his mind.

That was one date I was particularly proud of. I've been making records even longer than Bob, starting in England in 1936 with Benny Carter. Later I produced the record debuts of George Shearing, Sarah Vaughan, Dinah Washington and quite a few others, also writing music, lyrics and arrangements for most of them. For a while I had my own company, Mercer Records, in partnership with Duke's son, Mercer Ellington.

Incidentally, I was responsible for the revival of the Impulse label five years ago and insisted they use the original cover color theme and spines. The reissues I assembled, by McCoy Tyner, Mingus, Rollins, B. B. King and others, are still in the catalog.

Thought you might like to have these details for the record.

Leonard Feather
Sherman Oaks, Cal.

Cultivating Quad

Dear Editor:

In your September 1977 issue you published a letter of mine. The letter concerned the state of quadrasonic sound and included a plea for all interested parties to gather together in a club and perpetuate the medium as best as possible.

Thanks to that one letter, I went on to publish a surround-sound newsletter through 1984. It brought together many people, from all over the world, who truly enjoyed the medium. Unfortunately, as the years have rolled by, surround-sound recordings have dwindled almost out of existence.

However, with the video craze in full swing, I have seen new hope on the horizon for this multi-channel medium and the people who still have not abandoned hope for that format. Many music videotapes are now encoded for four-channel playback, as are major motion pictures. Also, the videodisc format is fast becoming a shining star in this area.

I think a videodisc club is now in order. Not only is this one of the best video playback mediums available, but also a new breeding ground for

Remote control sounds great.

If the components sound great.



Lots of companies let you run a component hi-fi system from across the room. Some even let you do it with only one remote controller. Sound terrific? That depends... on how the components sound.

At Denon, we believe that superior sound is the only thing that makes high fidelity worth the money. We call this philosophy Design Integrity. And it's evident in every new Denon remote component — from the top of the line you see here* to our most affordable remote models.

The DCD-1500 Compact Disc Player (shown) has already been declared "Reference Class" by Germany's *Audio and HiFi Vision* magazines. In the U.S., *Digital Audio* proclaimed, "The Denon engineers who created the DCD-1500 should be honored in public."

Denon's expertise in making pro digital recorders and blank tape is reflected in the new DRM-30HX Cassette Deck. You can see it in the three-head design. In the super-smooth three-motor transport. And in the choice of Dolby® B, C, and HX Pro.

Thanks to Design Integrity, the DRA-95VR Receiver uses the same Pure Current Power Supply, Non-NFB circuitry, and MC cartridge inputs as Denon integrated amps. What's more, every Denon receiver provides switching facilities for a VCR, a video disc player and a video monitor.

So before you buy components whose most impressive feature is a remote control, get yourself to a Denon dealer. And listen to the remote control whose most impressive feature is the components it controls.

DENON
DESIGN INTEGRITY

"It amazes me how little people understand about the broadcast business, and I guess that's the fault of those of us who are in it."

surround sound to grow and prosper in. If other *Audio* readers agree with my thoughts, please write to me. I think we can all benefit from each other's input and assemble a new group of devoted quadraphiles.

Jay Frank
7424 Sylvia Ave.
Reseda, Cal. 91335

Powerful Congratulations

Dear Editor:

I rarely have been impressed enough with a story to respond with a letter, but *Audio's* two-part interview with Mitch Miller (November and December 1985) was such insightful reading that I was inspired to do so.

Ted Fox's probing questions were matched by Miller's energetic repartee, resulting in the most informative and engaging story I have ever read in a music publication. I wish all magazine articles were so wonderfully candid. And if there were more music-business administrators who shared Miller's total honesty and talent, then a new influx of songwriters and producers would have an opportunity to prove themselves. As a record producer and studio owner, I regretfully share Mr. Miller's sentiment that "it's the lawyers and accountants who make the deals today, not the producers or artists."

My congratulations to the *Audio* editorial staff for such frank reporting. Keep up the good work.

Tony Bongiovi
Co-owner, Power Station Studios
New York, N.Y.

Commercial Support

Dear Editor:

As a 20-year member of the commercial radio broadcasting field, I would like to respond to a letter, titled "FM A-OK," which appeared in the June 1986 "Signals & Noise" column.

The gentleman who wrote the letter apparently knows a lot about radio tuners, but little about how the radio stations operate that broadcast the signals. It is incorrect to say that "commercial broadcasting is designed to serve the needs of the advertiser." It is designed to attract as many listeners as possible. The station that does this gets the most advertising and can charge the highest rates. It is also totally misguided to imply that radio sta-

tions use processing of their audio so that advertisers' commercials will be louder, thus supposedly making them happy. Very often, listeners will tune in to the loudest signals on the dial, so processing is designed to get the most listeners. The advertiser has no idea whether his commercial is loud or not. All he cares about is if it gets on the air and if it brings in business.

It is uninformed to say that "the consumer does not care about quality." Every indication is that American consumers are demanding more quality, not less. Also, it is unfair to label commercial broadcasting as "mindless noise." I'm sure that some radio stations could fit into that category, but a majority of commercial broadcasters are extremely concerned about airing a good product, one that will attract the most listeners. As for "mind-numbing advertising," certainly some of it could be called that. But I should point out that the noncommercial stations regularly engage in mind-numbing campaigns for money, which can stretch on for many painful days at a time.

The writer also suggests that commercial radio station operators are not interested in hearing from listeners concerning what they want. Nothing could be farther from the truth. I have seen some radio station General Managers create almost an uproar over one listener complaint.

It never ceases to amaze me how little people understand the broadcasting business, and I guess that's the fault of those of us who are in it.

Mark Weaver
Baltimore, Md.

A Summed Output

Dear Editor:

Just thought I'd share my observations on a few items that have appeared in *Audio* over these past months. Aren't you thrilled?

I was pleased to see the "Auricle" by Anthony H. Cordesman, "One Listener's CD Player Survey," in the January 1986 issue. It was so refreshing and satisfying to see an article on the CD format that was intelligent and unbiased. I've always maintained that CD was not the horror that some critics would have us believe. On the other hand, I never accepted the premise that CDs were "perfect" and that fur-

ther improvement was unnecessary or impossible. In fact, CD proponents have probably done the most damage because of their overly enthusiastic praise. Nevertheless, for me the CD is an ideal music source.

"Digital Ptomaine" in April 1986 threw me at first. I thought that Nektami Hop was writing a serious column, and only near the end did I catch on that it was a farce. The reason for my confusion was the write-up on the Bösendorfer 290 SE system in January's "Behind the Scenes." After that, the idea of a "pure-performance" machine didn't seem so strange to me. But the joke's on Mr. Hop. He refers to research being done on a mechanical throat and mouth which, with the aid of computer control, can mimic the human singing voice. Well, the fact is, there is nothing unique about a lifeless automaton mimicking the human singing voice. Rita Coolidge has been doing it for years!

Ivan Berger should carry a pair of ear plugs with him if loud rock music causes him to put his fingers in his ears! (See April "Spectrum.") Better yet, stay out of those places. I never found excessively loud music to have any appeal. In fact, it's not music at all, in my opinion.

Francis Pivar
New Kensington, Pa.

Eagle Eye

Dear Editor:

I found Herman Burstein's article, "Build a Stereo/Balance Test Switch," in the July issue of particular interest since a vital component of his unit is an Eagle product, catalog No. 615 Knife Switch.

If any of your readers would like information regarding obtaining this switch, they may contact our Sales Dept. at (718) 937-8000.

Steven J. Nussbaum
Eagle Electric Mfg. Co.
45-31 Court Sq.
Long Island City, N.Y. 11101

Editor's Note: Mr. Nussbaum is right; we did use an Eagle product in building the test switch shown in the photo accompanying the article. However, we should note that similar switches from other manufacturers will work equally well.—E.M.

Powerful

Throughout the world Carver high fidelity audio components are acclaimed for technology, respected for execution of design, and depended upon for reliability. They are also, and perhaps this is most important of all, appreciated for musicality.

Musical

Accurate

"State-of-the-Art" is merely a point of departure for Carver Corporation. Indeed, since the introduction of its first products, the M-400 Magnetic Field Amplifier and the C-4000 Sonic Holography-Autocorrelation Preamplifier at a major trade show in January of 1979, Carver Corporation, under the direction of its founder, Bob Carver, has been said to have "redefined the state-of-the-audio art."

One reason for this is the inherent difference between Carver Corporation and the conventional mass technology company: There is a single vision behind us in the form of Bob Carver.

Certainly, Carver Corporation maintains a large and talented engineering department as capable as any other major audio manufacturer. A large staff and a great deal of complicated test equipment is only a means to an end. To attain distinction requires the sort of talent and vision which Bob Carver alone has brought to high quality electronics.

Unlike other companies, which have felt compelled to constantly release streams of me-too products incorporating scarcely discernible "breakthroughs", Carver has slowly and deliberately set out to solve previously unsolvable problems. Problems which have limited musical enjoyment and distanced the listener from a totally realistic musical experience.

One by one, Carver's insight and circuit engineering genius—combined with a deep love of music—have produced totally new technologies which stand out from the mass of electronics on your dealer's shelves.

CARVER

CRITICAL ACCLAIM

"Bob Carver is definitely an audio and r.f. genius."

(Leonard Feldman, *Audio Magazine*)

THE MAGNETIC FIELD POWER AMPLIFIER

The technology of the Carver Magnetic Field Power Amplifier solves some of the most basic problems of conventional power amplifiers: high cost, great weight, and excessive heat generation.

The Carver M-400t is the first amplifier to utilize this technological breakthrough. A 200 watt per channel amplifier in a seven-inch cube weighing less than ten pounds, the M-400t is powerful, accurate, and musical.

"Its distortion and noise levels are entirely negligible. It is hardly conceivable that a small, inexpensive, lightweight cube such as this could deliver as much clean power as any but a few of the largest conventional amplifiers on the market—but it does... An important new amplifier design."

(Hirsch-Houck Labs in *Stereo Review*)

Music reproduction was superb and completely free of any false bass coloration or muddiness. The amplifier handled the toughest transients we were able to feed it, with ease. It is, to put it mildly, quite an achievement and one that is likely to change the way many of us think of power amp design in the future."

(Leonard Feldman in *Audio*)

When *Ovation Magazine* reviewed the M-500t, they reported:

"The amplifier just doesn't look big enough or heavy enough to deliver the kind of power that it claims. But after listening to it for a while, we found ourselves opening it up "full throttle," and only then did we appreciate Bob Carver's remarkable achievement. The amplifier's sound quality is excellent; it need not take second place to even the most esoteric and costly amplifiers in that regard. Listening to its tight, clean bass and its well-balanced, uncolored midrange and treble reproduction, one tends to forget that the cost of that power—on a "dollars per watt" basis, is only \$1.11 per watt."

Of the Carver M-I.5t, Peter Aczel, Editor and Publisher of *The Audio Critic* has said, "... the equal of any power amplifier in transparency, focus and smoothness and, of course, far ahead of any other we tested in sheer gut-shaking power and dynamic range. We especially enjoy hearing spatial detail, instrumental definition and completely natural dynamics on familiar records to a degree we did not know was extractable from the grooves when we listened through lesser amplifiers. At this level of sonic performance, the astoundingly small size and cool operation of the M-I.5t become the icing on the cake, rather than the main attraction."

SONIC HOLOGRAPHY

The problems of sonic imagery inherent in conventional stereophonic reproduction have been solved by the Sonic Hologram Generator, available in three different components: The C-4000 and C-1 Preamplifiers and the C-9 Sonic Hologram Generator.

Very briefly, the Sonic Hologram presents timing and phase information that exists in

stereo program material—but is normally inaudible. With Sonic Holography, this information emerges in three-dimensional space around the listener who is thus able to establish the precise location of the instruments and voice.

The impact on the listener of Sonic Holography is best described by the most experienced and knowledgeable experts in the audio industry.

"When the lights were turned out we could almost have sworn we were in the presence of a real live orchestra."

Hal Rodgers, Senior Editor,

Popular Electronics

"The effect strains credibility—had I not experienced it, I probably would not believe it... the 'miracle' is that it uses only the two normal front speakers."

Julian Hirsch, Hirsch-Houck Labs,

Stereo Review

"... it brings the listener substantially closer to that elusive sonic illusion of being in the presence of a live performance."

Larry Klein, Technical Director,

Stereo Review

"... seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers... terrific."

High Fidelity

"Instruments and performers are located where they belong whether to the front of, between, beside or behind the speakers—in sort, anywhere in a 180 degree arc facing the listener."

Omni Magazine

"The effect is both impressive and exciting to experience."

Stereo Review

BREAKTHROUGH IN FM STEREO RECEPTION

Carver's most recent technological breakthrough is the Asymmetrical Charge-Coupled FM Detector circuit, a special feature of the Carver TX-II FM Stereo Tuner.

This unique circuit drastically reduces multipath and distant station noise, while providing fully-separated stereo reception with space, depth and ambience.

The TX-II has received unprecedented acclaim from reviewers:

"It is by a wide margin the best tuner we have tested to date."

"What distinguishes the TX-II is its ability to pull clean noise-free sound out of weak or multipath ridden signals that would have you lunging for the mono switch on any other tuner we know of."

High Fidelity

"Breakthrough in FM tuner performance: Carver TX-II."

"The significance of its design can only be fully appreciated by setting up the unit, tuning to the weakest, most unacceptable stereo signals you can find, then pushing those two magic buttons."

"Separation was still there; only the background noise had been diminished, and with it, much of the sibilance and hissy edginess so characteristic of multi-path interference."

"A tuner which long-suffering fringe area residents and those plagued by multipath distortion and interference have probably been praying for..."

Leonard Feldman

Audio

"... enjoy the music and forget about noise and distortion."

"Under conditions of weak signal stereo reception the effectiveness is almost magical."

Ovation

"A major advance..."

"Its noise reduction of stereo reception ranged from appreciable to tremendous."

"It makes the majority of stereo signals sound virtually as quiet as mono signals, yet it does not dilute the stereo effect."

Julian D. Hirsch,

Stereo Review

THE CARVER RECEIVER

The 130 watt per channel Carver Receiver which incorporates both the technology of the Magnetic Field Power Amplifier and the Asymmetrical Charge Coupled FM Detector has also received unprecedented praise from the reviewers.

"The Carver Receiver is, without question, one of the finest products of its kind I have ever tested and used."

Leonard Feldman, *Audio Magazine*

"I consider the Carver Receiver to be the 'most' receiver I have yet tested in terms of the quantitative and qualitative superiority of almost all its basic functions."

Julian D. Hirsch, *Stereo Review*

THE CARVER COMPACT DISC PLAYER WITH DIGITAL TIME LENS

The Carver Compact Disc Player has been acclaimed for its sound quality as well as for its technology.

Carver CD Player: Superb Sound plus the Digital Time Lens

(From the cover of *Audio Magazine*)

"Leave it to Bob Carver to come up with a CD player designed to please both those who love CDs and those who still have reservations about their sound quality."

"It almost goes without saying that the sound quality produced by this player was superb—without the Digital Time Lens. So, what did the Time Lens contribute? I look upon this circuit as an option, one that can and should be used with certain CDs which seem to lack the depth that I feel belongs in a musical performance."

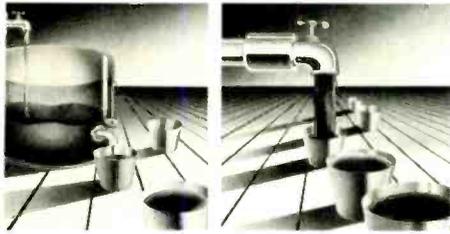
Leonard Feldman, *Audio Magazine*

"Suddenly, tonal balance seemed more correct and less strident, and what seemed like a two-dimensional stereo effect appeared to "open up" to some degree—affording the three-dimensional perspective that the musical performances demanded."

"Here, then, is an excellent CD player that provides an option you won't find on other compact disc units."

Ovation Magazine

Magnetic Field Amplifier Technology.



Early on, Bob Carver realized that virtually all available amplifiers were seriously under-powered. It took much more power to properly reproduce reality than could be produced using standard circuits. His first company, Phase Linear, became a leader in amplifier technology through the Seventies, producing the first really high-powered audio amplifiers. However, Bob was not satisfied.

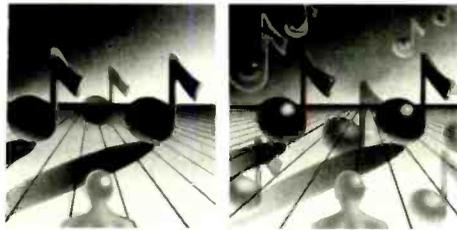
"Why do powerful amplifiers have to be

large, bulky, hot and expensive?", Bob asked himself.

The result is the Magnetic Field Power Amplifier which does the work of an eighty-pound amplifier in a compact, cool-running nine-pound cube! Suddenly, sufficient power has become both affordable and manageable for the home stereo owner.

Read about it in detail on pages 4 and 5.

Sonic Holography Technology.



Bob Carver has always been an ardent fan of all types of live music. Like any discerning listener, he realized the limitations of conventional stereo for reproducing the reality of a musical performance. No matter how good the sound source was, how distortion-free the circuit path and how elaborate the loudspeakers, stereo was a pale copy of the concert hall.

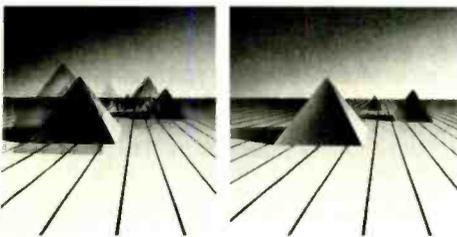
"Why can't the sound field be expanded

into three dimensions to fill a listening room—wider, higher and deeper than mere stereo?" he asked himself.

The result is Sonic Holography, a patented circuit which unlocks new dimensions of detail and spaciousness from any conventional stereo sound source.

Learn how it can redefine musical reality using your existing speakers, on pages 12 and 13.

Asymmetrical Charge-Coupled FM Detector Technology.



FM has always been the black sheep of the audio world. Unlike disc and magnetic sound sources, it is compromised by problems of transmission and reception that have often made it unacceptable as an audiophile medium.

"Why can't FM sound as good as other musical sources?", Bob wondered.

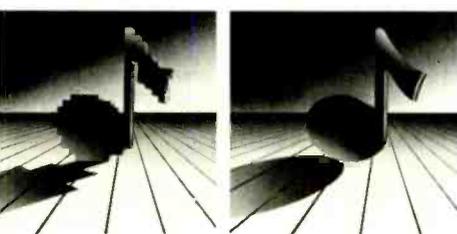
He knew that the method used to broadcast stereo FM was inherently deficient, having been designed for mono transmission and later "patched" to allow for stereo. Thus, conventional improvements in tuning circuitry were of little avail since they actually increased the

reception of certain kinds of interference, distortion and noise.

Bob went to the heart of the problem and devised a revolutionary new approach which concentrated on "repairing" a part of the FM signal which is particularly prone to distortion. The result is not only clean, clear signals from previously noisy stations but also the ability to receive weak stations which would normally have been buried in background noise.

Learn how it can improve your FM listening experience on pages 18 and 19.

Digital Time Lens Technology.



Compact Discs represent a significant improvement in frequency response and dynamic range, not to mention ease of use and permanence.

However, audiophiles' critical ears discerned differences between certain CD discs and their analog, phonograph equivalents.

"Why aren't some Compact Discs living up to their potential to reproduce music? Why is there a lack of ambience and shifting of tonality in some releases?", he dared ask.

After exhaustive electronic tests, Bob had several answers. He then set about inventing the Digital Time Lens circuitry which could return digital sound exactly as it was intended, with complete ambience and frequency balance.

Then and only then did Carver Corporation offer a Compact Disc player. Along with superb

playback capabilities and a wide range of useful features, it gives the listener the option of applying Digital Time Lens technology to CD's which require it.

Learn more about this exclusive Carver feature on pages 27 and 28.

As you can see, Carver Corporation does not merely produce electronics to fill slots in its product line. Carver is committed to the design and manufacture of audio electronics which bring the listener as close as possible to the sound of the original musical performance.

Today, in a modern factory located north of Seattle, Washington, Carver is continuing to push the audio art to unprecedented heights and price/performance standards. On the coming pages, you will learn the details of how Carver electronics can make your listening experience more Powerful, Musical and Accurate.

MAGNETIC FIELD POWER AMPLIFIER TECHNOLOGY.

All our amplifiers and receivers utilize Bob Carver's proprietary technology, the Carver Magnetic Field Power Amplifier.

Its innovative design simultaneously solves three of the most basic problems found in conventional power amplifiers: high cost, great weight, and excessive heat generation.

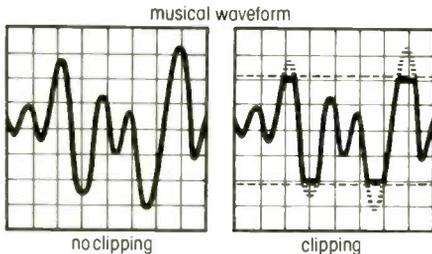
The most basic audio problem has been and always will be how to turn electrical energy into physical waves of sound.

In other words, how to use the same electrical current that powers lights and vacuum cleaners to exactly amplify and emulate faint impulses and present them to your speakers.

Speakers need electricity to move air. They use it to generate magnetic fields inside the voice coils of their drivers. As the coils are repelled by fixed magnets within the speaker, they move outward, pushing the speaker cone with them. It, in turn, transfers that movement to the air in your listening room. A drum beat sounds on the record; energy flows to your speakers; the speakers push the air in some semblance of the original drum beat's impact.

The small speaker drivers which provide treble need only move a few thousandths of an inch and do not require much power. But larger drivers such as bass woofers must move considerable amounts of room air to achieve realistic impact. They travel back and forth hundreds of times per second, often against their own internal air resistance as well. That requires power.

The plain fact is, few amplifiers have the technical capabilities to provide enough power. They can translate say, 90% of a musical waveform into the power your speakers need. But just can't deliver that last 10%. If you look at graphs of this ever-present problem, you'll notice the top of the impulse has been clipped off. That's where the phrase "clipping" comes from.

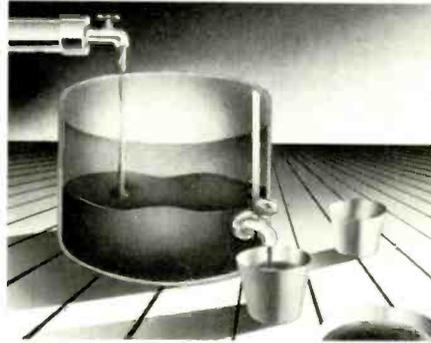


Even though most clipping happens as the amplifier is trying to complete a bass waveform, audible distortion is generated in the treble range. Called clipping distortion, these impulses are spikes of non-musical, high frequency power caused as the amplifier hits the bottom of its power reserves. At moderate levels, these spikes veil music with a thin film of distortion that occurs with every musical impulse.

At higher sound levels, they concentrate so much energy in the tweeter that it can burn out. It is important to remember this when considering amplifiers of higher power: Most speakers are destroyed by *insufficient* amplifier power—most often in the 20-50 watt range—not high power.

Before Bob Carver, the only way to get enough power to completely eliminate clipping distortion was to buy a traditional, brute-force power amplifier design. Often weighing over 100 lbs., these designs store massive amounts of power against the instantaneous demands of music. They are very costly and inefficient

because they produce a constant high-voltage level at all times—irrespective of the demands of the everchanging audio signal. Even when there is no preamplifier signal to amplify, conventional designs are drawing half power from your electrical outlet and converting it to heat!



Consider this analogy for how power supplies work. Imagine an enormous cast iron tub containing several hundred gallons of water. That's rather how conventional amplifiers store power: Huge capacitors and a gigantic power transformer soak up electricity and store it in advance.

When power is needed, it is transferred to the speakers (the bucket in our analogy) the circuitry "refills" the sink during a lull. This means there is actually **LESS POWER** during peak demands—and **MORE** wasted power during lulls.

Note that it takes an enormous "tub" to store enough water (amp power) to fulfill sudden demand. When this reserve is not being drawn on, the stored power is "evaporated" into heat.



Bob Carver set out to find a better way. A method of delivering the power speakers need without heat, bulk and distortion. The solution is elegant and effective.

Imagine a lightning-fast valve on the incoming water main line (the power outlet into which the Carver Amplifier is plugged). When water is needed, the valve senses the demand and opens, using the *water line's* pressure to quickly deliver a large quantity of water.

Note that this approach provides **ALL THE POWER NEEDED** during peak demands... without keeping excess around during lulls. Also note that the **WATER MAIN** is doing the work of storing the excess, not a huge reservoir.

The "valve" we've described is our analogy for the Magnetic Field Coil inside each Carver amplifier. By delivering power only when needed it can satisfy your speakers' need for power while generating less heat and virtually no distortion.

The patented Carver Magnetic Field Coil looks like a small transformer and yet it operates much differently than conventional transformers. Because it can deliver extremely high peak to average ratios, it is perfect for musical signal applications.

The output of a Carver amplifier is, in reality, the output of the power supply being switched on and off at a rate directly related to the incoming audio frequency. The switching is done by a commutator which supplies an amplitude-modulated, step-like approximation of the audio signal to the output. This approximate waveform is then converted to a replica of the audio input by a small feedback linear amplifier. In effect, the small linear amplifier uses as its power supply rail the changing output of the commutator.

Since the instantaneous voltage output of the commutator is very close to the instantaneous output of the power amplifier, the voltage drop across the output devices is small and the overall efficiency is high. Instead of large heat sinks, Carver amplifiers' modest cooling requirements are provided by their chassis.

Theory of Operation of the Magnetic Field Coil

Referring to Figs. B1A, B1B and B1C, TR1 is fired and turns on at time t1. Current flows into MC1 from time t1 to time t2. During this interval, current also flows in the secondary winding and charges C2 and C3 to voltage equal to V2 times the winding ratio of MC1. Since the output is clamped at + or - 80 volts by D3 and D4, C2 and C3, the difference between the reflected clamp voltage (V2) is: $V_2 = 80 (n1/n2)$. V1 must appear, because of conservation of energy, somewhere. Ordinarily, the voltage drop (V1 - V2) would appear as IR losses in the primary. However, by winding a magnetic shunt into the Carver Magnetic Field Coil, a deliberate and controlled leakage inductance L1 is formed. This cause V1 - V2 to appear across L1 in the form: $(V1 - V2) = -L di/dt$.

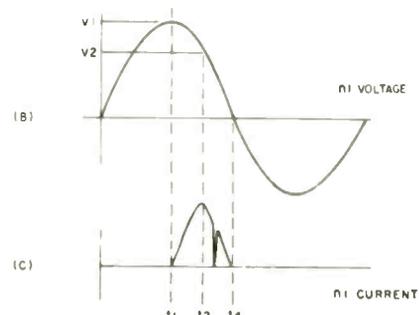
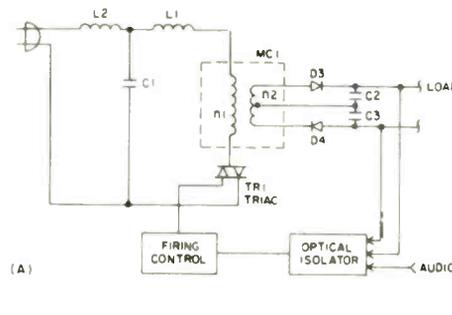


Fig. B1 — Theory of operation of Magnetic Field Coil.

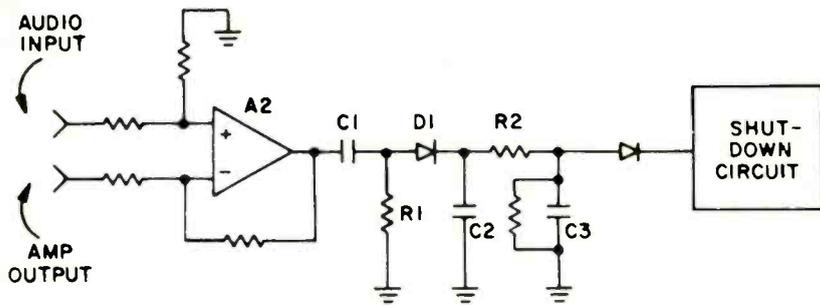


Fig. B6 — Clipping detector circuit.

for low frequencies. (Tweeters break down more easily than woofers, generally speaking.) The logarithmic junction of Q1 is used to get the product of $v \times i$ (power) delivered to the speaker.

Two other trip circuits protect against overcurrent and out-of-phase low-frequency impulses. If too much current flows in the 0.1-ohm resistors in the output circuit, transistor Q1 in Fig. B8 turns on Q2 which trips the power supply. R1C1 serve as an integrating circuit (with an approximate time constant of 200 milliseconds) to prevent shut-down during very brief overloads.

Since the output of the left-channel amplifier is 180 degrees out of phase with the right channel (see Equipment Profile), in-phase signals at the input to the left and right channels will result in a small signal at Tp1. Out-of-phase signals, on the other hand, will produce a large signal at Tp1. Accordingly, the low-frequency response at Tp1 is small for (L + R) signal components, and large for (L - R) signal components. Response for high-frequency signals is virtually zero for both (L + R) and (L - R) signals because of the bypassing effect of C1. A dropped tonearm, for example, will generate large (L - R) signals, whereas musical bass tones generate primarily (L + R) in-phase signals. Therefore, a low-frequency shutdown is arranged so that it will allow high-power, low-frequency musical signals to pass through, but will shut down for high-power, low-frequency faults. The power supply will try to come on again but will turn off almost immediately (in about 20 milliseconds) after rising in voltage only slightly.

It should be clear from all of the above that the Carver Magnetic Field Amplifier is an extremely sophisticated piece of audio equipment that has left little to chance insofar as long-term reliability is concerned. L.F.

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The Carver Magnetic Field Amplifier Clipping Detector senses the presence of high-frequency components that occur during clipping. The circuit, detailed in Fig. B6, has two inputs: The input audio signal and the output audio signal from the amplifier. So long as the output follows the input, the output of the differential amplifier, A2, will be zero. If the output fails to follow the input because of clipping or overload, A2 will have an output that is then differentiated by C1R1 and peak rectified by D1C2. This positive d.c. voltage is then time-integrated by D2C3. The voltage appearing at C3 represents the "stress history" imparted to the high-frequency driver during prolonged clipping. Too much clipping will cause the trip threshold to be exceeded, shutting off the supply.

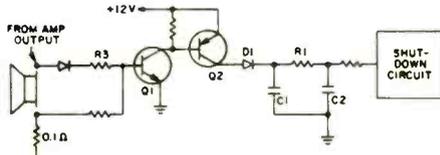


Fig. B7 — Voice-coil temperature integrating circuit.

A Voice-Coil Temperature Integrator circuit represents a first-approximation analog of a high-fidelity loudspeaker's thermal properties. The audio output of the amplifier is rectified and filtered by D1 and C1. Average voltage on C1 is related to the spectral energy distribution and to signal amplitude. C2 charges through R1. The voltage on C2 represents, to a first approximation, the thermal stress history of the loudspeaker system, taken as a whole. The integral $\int v \, dt$, the volt-amp-time product, increases faster for high frequencies than

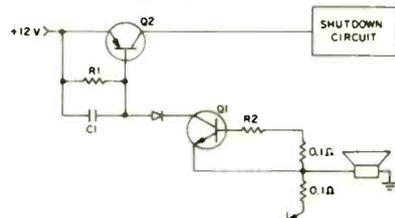


Fig. B9 — Shutdown circuit.

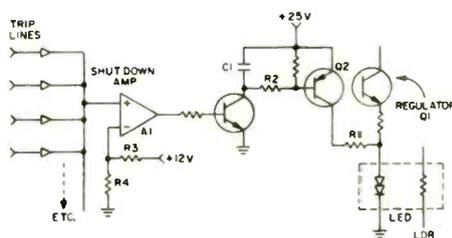


Fig. B8 — Overcurrent trip circuit.

Carver amplifiers are not merely powerful. They have been designed by a music lover with a critical ear for the nuances of natural sound.

Consider this comment by the editor of an audiophile magazine about one of the amplifiers you'll read about on the pages that follow:

"... the equal of any power amplifier in transparency, focus and smoothness and, of course, far ahead of any other we tested in sheer gut-shaking power and dynamic range. We especially enjoy hearing spatial detail, instrumental definition and completely natural dynamics on familiar records to a degree we did not know was extractable from the grooves when we listened through lesser amplifiers."

A new recording and playback medium has made the power and accuracy of Carver amplifiers even more necessary for committed music lovers. If you haven't heard the fantastic dynamic range of the new Compact Digital Audio Discs, you're in for a wonderful surprise. If you have, you'll agree that the sheer sonic impact of this recording medium makes under-powered amplifiers not only inadequate, but potentially fatal to even the best speakers.

You can increase your enjoyment of any kind of music by selecting one of four Carver Magnetic Field Power Amplifiers: The Carver M-200t (120 watts/channel), the Carver M-400t (201 watts/channel), the Carver M-500t (250 watts/channel) and the Carver M-1.5t, which provides 600 watts per channel long-time-period reserve power into 8 ohms, and up to 750 watts per channel Dynamic Headroom.

Or, you may choose from one of three Carver Receivers ranging from 200 to 90 watts per channel.

Any of these choices will open up new worlds of listening enjoyment as your speakers are finally given the freedom to fully reproduce the music you enjoy.

The energy associated with that quantity is stored in the field of L1. The amount of energy thus stored is $\frac{1}{2}LI^2$, where i is the current flowing at time t . The amount of power that would otherwise be wasted is: $\text{Power} = \text{energy}/\text{time} = \frac{1}{2}LI^2/t = \frac{1}{2}LIi^2/(t^2 - t)$.

At time t_2 , the incoming 60-Hz line has fallen below the clamping voltage, hence D3 and D4 switch off. Once D3 and D4 are turned off, the tank circuit formed by L1 (the leakage inductance) and C1 (the commutating capacitor) begins to oscillate. However, since TR1 commutates off as soon as its current passes through zero, only one half cycle of oscillation can take place. Once TR1 has commutated off, the field surrounding L1 begins to collapse. Since the flux linkages of L1 are common with n2, a flyback voltage appears on the secondary and causes D3 and D4 to switch on again, clamping the output to 80 volts. At time t_4 current is no longer maintained by L1 since the stored energy has been transferred to the secondary of MC1 and to the load. The same sequence of events takes place during the negative half of the input voltage cycle.

Commutator Details. A more detailed examination of the power supply reveals that the secondary of the Magnetic Field Coil has multiple taps which drive three full-wave bridge rectifiers to form six different levels of supply voltage: + or -25, + or -50, and + or -80 volts. A duty-cycle control circuit maintains these three voltage levels relatively constant, with some "softness" of regulation programmed into the system for good dynamic headroom of the amplifier. The output of these six voltage levels goes to the input of the commutator. The commutator delivers an output voltage that is a step-like approximation of the audio envelope. The time-varying, conjugate-output voltages of the commutator go to a pair of complementary transistors to remove the steps, or to a small 15-watt amplifier whose B+ and B- supplies vary in level with the audio signal.

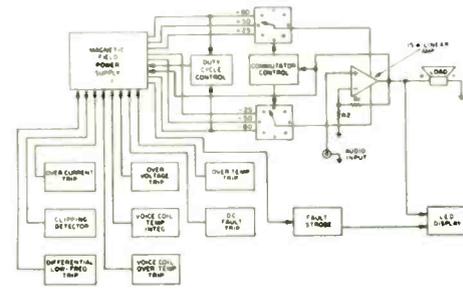
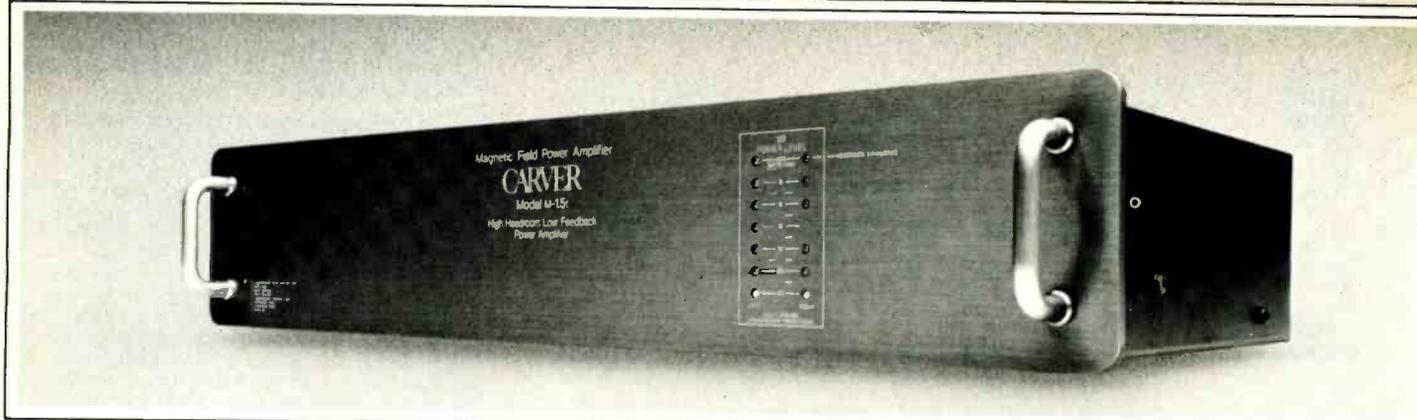


Fig. B5 — Block diagram of Carver Magnetic Field Amplifier.

Protection circuits. As indicated in Fig. B5, Carver amplifiers employ an assortment of protective circuits, all designed to make the amplifier as fail-safe as possible.



CARVER M-1.5t MAGNETIC FIELD POWER AMPLIFIER

Our M-1.5t description starts out with a story instead of the usual superlatives.

Once, Bob Carver visited a famous sound researcher who was attempting to recreate the "snip" of an ordinary pair of scissors. He used no less than TWENTY-FOUR 200-watt amplifiers for playback, yet when viewed on an oscilloscope it was apparent that the top of that instantaneous transient was being distorted. Believe it or not, he needed more power! It was evident that real-world sound occurs very quickly and requires far more power than ANY current amplifier could produce.

The M-1.5t is a culmination of Bob's search for Enough Power, the ultimate amplifier for the reproduction of music today and for years to come.

Why such massive amounts of amplifier power? Music is full of surprises such as explosive crescendos, combant crests of demand created by multiple instrument sounds and the shock levels that some well-recorded instruments can instantly attain. This is what makes music live. These incredibly intense bursts of sound don't necessarily have to be loud. They are too short in duration. But, like the scissor snip, they are intense and demand power.

Recorded music sounds dull without these constantly-occurring, high-intensity peaks.

If your amplifier cannot provide the instantaneous power to surmount these rigorous musical punches when they are presented at its inputs, it makes a sound of its own devising, literally an electronic gagging we call clipping.

The result is an audible degradation which has pervaded your listening for years. A form of distortion which has been difficult to avoid until the M-1.5t arrived.

How can the M-1.5t weigh less than some preamps and yet pack more muscle than power amps weighing FIVE times as much?

The M-1.5t vs. convention. A traditional amplifier's power supply has only two chances during each AC line voltage cycle to recharge and store energy. To meet musical demands inbetween, it must maintain a reservoir of energy, which means that as conventional amplifiers grow more powerful, their transformers and supply capacitors must grow proportionately larger, too. The result is a vast increase in size, mass, heat and expense.

Light as a preamplifier, cool as a cucumber, the M-1.5t transforms almost *all* of the energy it draws into useable audio power with a patented power regulator. Engineered to be directly responsive to the moment-to-moment power requirements of your music, it is a direct "valve" from the power circuits of your house with no need for inefficient intermediate storage. Your speakers are literally getting their energy from the power generator! This is done with a patented Triac switch and Magnetic Field Coil which actually spend most of their time stepping UP the line voltage values and only deliver maximum line voltages at times of peak musical demand.

Rating the M-1.5t. The conservative 350 watt per channel rating on the back of the M-1.5t only hints at its true capabilities. When a musical note sounds, each channel of the M-1.5t immediately puts out up to 600 watts, diminishing over several seconds to the rated 350 watts.

Several seconds is a long time in the life of a music waveform. Any peaks requiring anything like 600 watts will come and go in a few HUNDREDTHS of one second. Let the waveform subside for as little as 1/100 of a second and the amplifier resets itself, capable of providing the 600 watts per channel again. Because of the tremendous capacity of the M-1.5t's power supply, there has been no need to isolate the channels. Thus, when pressed hard, either channel is free to BORROW an additional 150 watts from the other for a total of 750 watts.

Brute power controlled. Implicit in this much power is a set of carefully designed speaker and amplifier protection circuits. Should you ever overload your amplifier, a unique clipping eliminator circuit pulls the M-1.5t out of clipping.

Next we designed a set of total shut-off mechanisms into the M-1.5t to protect against 1) temperatures above 70°C, 2) excessive out-of-phase infrasonic/low frequency signals, 3) excessive DC currents. Your speakers are protected from ungrounded line-level connections, oscillation, and real-world accidents like shorted speaker wires.

The M-1.5t's final protection mechanism is very special. While good speakers have voice coil heat dissipation safeguards, the M-1.5t also keeps track, actually averaging loudspeaker input and "remembering" for about three minutes backward in time. If it judges the amount

to exceed the safe limits for high quality loud-speaker woofer voice coils, it will momentarily interrupt power to cool them.

A window on power. Thirteen LED's on the M-1.5t's face simply monitor power. The fourteenth signals headroom exhausted. (When it blinks at high levels, you know the special antialiasing circuits are operating.)

The fifteenth LED is a diagnostical fault indicator. Along with first two LED's and an internally-generated tone, it informs you of overload problems, routine protection shut down and other occurrences.

The music of power. Of the Carver M-1.5t, Peter Aczel, Editor and Publisher of *The Audio Critic* has said, "... the equal of any power amplifier in transparency, focus and smoothness and, of course, far ahead of any other we tested in sheer gut-shaking power and dynamic range. We especially enjoy hearing spatial detail, instrumental definition and completely natural dynamics on familiar records to a degree we did not know was extractable from the grooves when we listened through lesser amplifiers. At this level of sonic performance, the astoundingly small size and cool operation of the M-1.5t become the icing on the cake, rather than the main attraction."

Power for life. The Carver M-1.5t is all the amplifier your hi-fi system will ever need. If you like the final edge of reality in your playback, no matter what sound level you choose, the M-1.5t is your answer. Are you ready?

Specifications M-1.5t

POWER: 350 W/CHANNEL INTO 8 OHMS, 20HZ TO 20kHz, WITH NO MORE THAN 0.5% THD

Long-time-period Reserve Power: 600 W/channel into 8 ohms

S/N: >100dB IHF A-weighted
Freq. Bandwidth: + 0, - 3dB 1Hz to 100kHz
I.M. Dist: 0.15% SMPTE

Slew Factor: >200
Display: LED 1 msec attack 1 sec release

Input Impedance: 100k ohms

Protection: Short Circuit, Voice Coil temperature trip, Clipping, Thermal shutdown, DC offset

Dimensions: 3 1/2" H, 19" W, 10 1/2" D, Weight 16 lbs.



CARVER M-500t

MAGNETIC FIELD POWER AMPLIFIER

Why you need more amplifier power. If you think two hundred and fifty watts a channel with peak reserves of up to 700 watts is overkill, read on. You'll change your mind. The reasons are logical and ultimately surprising.

Power is not loudness. Certainly to play music at high sound levels, speakers do require more power. But we're talking high fidelity, not sound reinforcement. Assume you don't intend to play your music any louder than you do now when you own a Carver M-500t... the improvement will *still* be audible.

LOW power kills speakers. NOT high power. A 40-watt receiver can actually burn out a speaker faster than the M-500t! Here's why.

To produce a bass note, a speaker can take up to 80% of an amp's power. If a woofer is to move faster or farther than your receiver can provide power for, the amplifier circuitry generates a high-frequency harmonic spike, a sort of electronic "cry of pain" which is routed directly to the tweeter either producing horrible distortion or eventual burn-out of the tweeter. Thus the tweeter (and your ears) are punished for the woofer's inability to get power from a *weak* amp.

Adequate power makes an audible difference. While the burned tweeter example is an extreme one, some audible clipping occurs virtually every time a low bass pulse sounds, even at moderate listening levels. The strike of a floor tom, beat of a tympani or snap of a Fender bass all can draw short peaks of over 500 watts per channel. When your modestly-powered amplifier can't handle it, there are audible consequences.

Prove it to yourself by auditioning good speakers with the Carver M-500t and any 100-watt unit. It won't take a Golden Ear to hear the tight, crisp bass notes and the sudden absence of annoying high-end distortion you previously

accepted as a normal part of music: The M-500t's power is freeing your entire signal chain from the tyranny of insufficient power!

And if the new digital Compact Discs excite you, healthy power reserves are mandatory. Digital technology's tremendously expanded dynamic range taxes the best conventional amps and makes many more obsolete.

Why you'll want the Carver model M-500t Magnetic Field Power Amplifier.

If you're wisely sold on the electronic and sonic benefits of generous power resources, now we'll explain why you needn't invest in a massive "arc welder" power amp to satisfy those needs.

While the M-500t is a bit larger than our remarkable M-400t cube amp, it weighs just 22 pounds. Less than some preamps!

No cooling fans vent its backside; no extruded fins protrude; the unit runs barely warm to the touch.

In contrast, conventional amps continually court meltdown by converting up to 60% of their energy into heat. The M-500t transforms fully 80% of its energy into useable audio energy. Thanks to a more advanced, more elegant and more practical approach to the design of power supply sections. Gone are the coffee-can sized capacitors, massive power transformers and gigantic heatsinks found in old-style high-power amps costing thousands of dollars.

In their place is a patented, compact Magnetic Field coil which stores and controls energy, eliminating all need for heavy, costly parts required by the very best traditional designs.

Instead of two mono amps with dual transformers, capacitors, etc., each channel of the M-500t can actually BORROW unused power from the other channel during peak loads. Indeed, the M-500t can be operated

as a 700-watt mono amp without any special switching!

Conventional amplifiers are crude next to the M-500t's micro-computer monitor system. Instead of controlling input stages, causing delays and distortion, the M-500t's computer acts as a FINAL gate, just before the speaker terminals, for instant overload protection. Thus sonic perfection stands no risk of being marred even while fully protecting your valuable loudspeakers against potential damage.

Dual, lighted, precision VU-ballistic meters provide a musically accurate picture of power output averaging yet react instantaneously to important transients.

We made sure the M-500t has a completely neutral signal path transparent in sonic character, resulting in zero listener fatigue. First compare the power, musicality and accuracy of the M-500t to any traditional amplifier made.

You'll be impressed by the superb, colorless sound of the cool, unruffled, light-heavy-weight M-500t.

Specifications M-500t

POWER: 251 W/CHANNEL INTO 8 OHMS, 20Hz TO 20kHz, WITH NO MORE THAN 0.15% THD

Long Term RMS Power for Music: 500 W/channel into 2 ohms; 450 W/channel into 4 ohms; 300 W/channel into 8 ohms

Bridged Power: 700W at 8 ohms

S/N: > 120 dB IHF A-weighted

Freq. Bandwidth: +0, -3dB 1Hz to 100kHz

I.M. Dist: .05% SMPTE

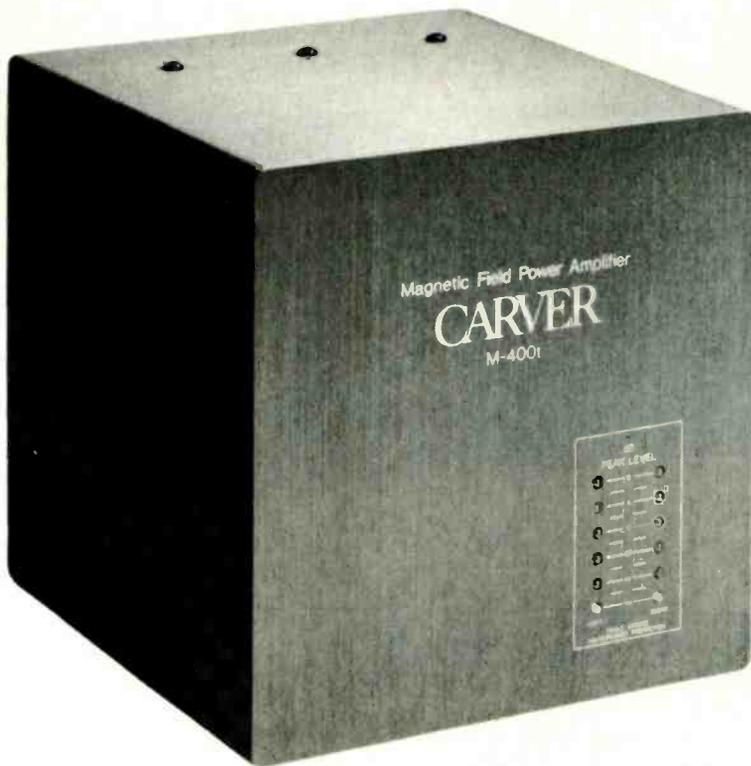
Slew Factor: > 200

Display: Peak responding meters; 5 msec attack, 1 sec decay

Input Impedance: 15K ohms

Protection: Short Circuit, Thermal shutdown, DC offset

Dimensions: 3 1/2" H, 17 1/2" W, 12 1/2" D, Weight 23 lbs.



CARVER M-400t

MAGNETIC FIELD POWER AMPLIFIER

Why 201 watts per channel? Does the remarkable Carver M-400t put out more power than you ever considered necessary for accurate music reproduction at normal listening levels? The surprising fact is, you need every watt of the power provided by this remarkable little ten-pound cube. Here's why.

Music is full of surprises such as quick transients, combinant crests of demand created by multiple music waveforms and the explosive levels that some well-recorded instruments can instantly attain. We hear all this in live music; indeed, this is what makes music live. But we don't hear these incredibly intense bursts of sound as being loud—they are too short in duration—just live!

Nonetheless these lightning-fast, high-intensity peaks MUST be reproduced to make recorded music feel real.

And that's up to the power amplifier. If the amplifier cannot provide the instantaneous power to surmount these rigorous musical peaks, it makes a sound of its own devising, literally an electronic squeal of anguish. It may be an inoffensive "click" at low levels, a sound you've come to accept as part of the music—or it may be an annoying "snap" which we call clipping, an ominous sign the amplifier's reserves are being drained with each waveform.

That sound is proof of the audible degradation of your system sound when adequate power is lacking. Prove it exists, compare the M-400t and any lower-powered amplifier with the same signal chain and speakers. One sounds crisp and fresh. The other vaguely muddled, even at low volumes.

Manufacturers of underpowered electronics have helped foster several myths we'd like to address after you've convinced your ears that 201 watts/channel is musically refreshing.

MYTH 1. Power means loudness. The point of more power is to have much of it in reserve, not to blast the neighbors. We don't expect for you to play your music any louder than you did when you under-powered your system without an M-400t.

MYTH 2. High power kills speakers. Actually, LOW power destroys many more speakers. Yes, illogical as it may seem, the lowly 40-watt receiver can "kill" a speaker far faster than the M-400t!

When an amplifier can't put out what a speaker demands, it sends a nasty spike of high frequency sound out to the speaker, which is routed to the easy-to-burn-out tweeter. Which often does. The less power your system has, the more chance there is these clipping spikes will occur when you play music with lots

of bass, compact discs, or turn up your volume to very loud levels.

MYTH 3. High power means heat and weight. The M-400t weighs less than most power amps and yet packs more muscle than power amps weighing five times as much. How?

After all, no cooling fans vent it, no extruded fins protrude and the unit runs bare warm to the touch!

The M-400t vs. convention. In a traditional amplifier, the power supply only has two chances during each AC line voltage cycle to recharge and store power. To meet musical demands in between it must maintain a reservoir of power.

This means that as conventional amplifiers grow more powerful, their transformers and supply capacitors must grow proportionately larger and court meltdown by converting up to 60% of their energy into heat.

The M-400t transforms fully 80% of its energy intake into useable audio energy with a patented power supply engineered to be directly responsive to the moment-to-moment power requirements of your music.

This is no simple feat, however, and requires a special Triac commutator and Magnetic Field Coil which actually spend most of their time stepping UP line voltage values and are only called upon to handle maximum line voltages at times of maximum demand.

Sophisticated protection for your system. The M-400t dutifully responds to musical input and will transmit those demands to your speakers... which will get quite a work-out. To prevent damage, the M-400t has an elaborate logic-controlled protection system, and to prevent clipping and over driving, the system simply shuts down output for several seconds before resumption, testing output demand before continuing. Should the problem be a short or other massive malfunction, no damage can occur.

Physically the M-400t is simplicity itself. Only a matched set of power LED's accent its front. Volume is controlled by the input signal eliminating the need for gain controls.

The M-400's back utilities are spare and to-the-point: speaker terminals and input sockets.

The most important test. Hardware, buzzwords and specmanship aside, your final decision should be made by the sound of an amplifier. Compare the Carver M-400t to any 200-250 watt/channel conventional power amplifier around, Class A, B, H, G, Z, Q or otherwise. The class that stands out will be the superb colorless sound of the cool, unruffled, light-heavyweight M-400t. Powerful. Musical. Accurate and, above all, affordable.

Specifications M400t

POWER: 201 W/CHANNEL INTO 8 OHMS, 20Hz TO 20kHz, WITH NO MORE THAN 0.5% THD

Power @ Clipping: 300 W/channel into 4 ohms; 250 W/channel into 8 ohms

Bridged Power: 500W at 8 ohms

S/N: > 100dB IHF A-weighted

Freq. Bandwidth: +0, -3dB 1Hz to 100kHz

I.M. Dist: 0.05% SMPTE

Slew Factor: > 135

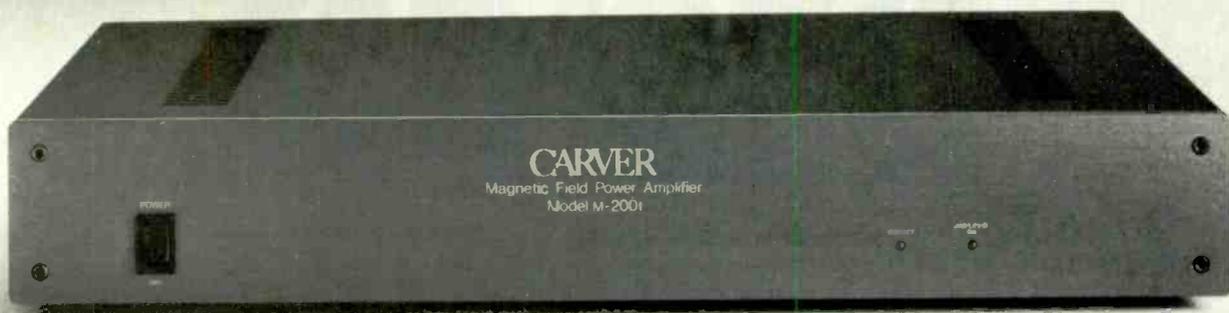
Display: LED Peak responding 1 msec. attack .5 sec decay

Input Impedance: 30k ohms

Protection: Short Circuit; Voice Coil temperature trip;

Clipping: Thermal shutdown; DC offset

Dimensions: 6 3/8" cube, Weight 9 lbs.



CARVER M-200t MAGNETIC FIELD POWER AMPLIFIER.

The smallest Carver Magnetic Field Power Amplifier is more powerful than most company's largest amplifiers!

Once you have heard the M-200t, you will wonder how you managed with less power. Because any less power regularly submits your ears to audible distortion called clipping. At moderate levels, you may not think you notice it. But that's because underpowered TV's, car radios, portable sound sources and virtually all low powered hi-fi components have made us accustomed to the haze of minute distortions which occur thousands of times per minute.

The M-200t has the reserves of power necessary to allow your speakers to complete each musical waveform... instead of snapping it off. The resulting clarity can restore a surprising amount of impact and detail to your existing records—played over your existing speakers with no further modifications.

Yet it is with the emergence of digital recording and playback technology that the

M-200t stops being a luxury and turns into an absolute necessity. When you first hear a CD, your ideas of "loudness" and "softness" are completely overturned. Digital holds surprises with every passage, ranging from utter silence to exploding power that taxes your whole hi-fi signal chain, causing clipping distortion that isn't subtle anymore. The kind of clipping which can actually damage speakers.

The simple answer is to add the M-200t with its remarkable amplifier and speaker protection circuitry. This Magnetic Field Amplifier has the ability to deliver the power needed for digital in a cool-running package a THIRD the size of traditional amplifier designs.

Its sophisticated amplifier and speaker protection circuits monitor conditions that could damage your equipment, shutting the M-200t down before problems occur. Voice coil overheating, longterm clipping, catastrophic short circuit and even excessive DC voltages are problems which the M-200t is designed to automatically circumvent.

The result is the freedom to truly enjoy Compact Discs or any other music source at realistic listening levels. If you're interested in upgrading your system with a minimum outlay of money and maximum immediately audible sound improvement, visit your Carver dealer soon. You'll discover that even a "small" Carver amplifier can make a LARGE increase in your listening enjoyment.

Specifications M-200t

POWER: 120 W/CHANNEL INTO 8 OHMS, 20Hz TO 20kHz, WITH NO MORE THAN 0.15% THD
Power @ Clipping: 200 W/channel into 4 ohms; 130 W/channel into 8 ohms
Bridged Power: 350W at 8 ohms
S/N: >100dB IHF A-weighted
Freq. Bandwidth: +0, -3db 1Hz to 100 kHz
I.M. Dist: 0.15% SMPTE
Slew Factor: >100
Display: Power/Protection LED
Input Impedance: 100k ohms
Protection: Short Circuit, Voice Coil temperature trip, Clipping, Thermal shutdown, DC offset
Dimensions: 2.55"H, 17.32"W, 9.20"D, Weight 10.25 lbs.



CARVER Z-1 WIDE BAND Z COUPLER

While CARVER Magnetic Field Power Amplifiers are usually found in systems which

are controlled by a preamplifier, a growing number of serious audiophiles with modest budgets utilize a Magnetic Field Power Amplifier (connected through a CARVER Z-1 Wide Band Z Coupler) with low-power receivers or integrated amplifiers.

The CARVER Model Z-1 Wide Band Z Coupler is an impedance matching device which enables a receiver or integrated amplifier to be used with CARVER Magnetic Field Power Amplifiers.

Many low-powered receivers and integrated amplifiers have excellent phono stages and line amplifiers. However, their power amplifier sections, in addition to being underpowered, are frequently incapable of even mediocre performance with many loud-speaker loads.

The Z-1 presents an optimum noninductive load to the power amplifier in the low-power receiver or integrated amplifier. When coupled with the Z-1, the outputs of the receiver or integrated amp are used to drive the CARVER Magnetic Field Power Amplifier. The result is awesome sonic performance from a relatively inexpensive system.

Dimensions: 2 x 2 x 2 3/4"

CHALLENGING DESIGN.

HOW BOB CARVER CREATED A NEW MAGNETIC FIELD AMPLIFIER WITH THE SOUND CHARACTERISTICS OF A \$3000 MODEL, SATISFIED SOME OF THE WORLD'S MOST HIGHLY TRAINED AUDIO EARS... AND HOW YOU CAN OWN HIS DESIGN FOR UNDER \$500.

Bob Carver's newest Magnetic Field Amplifier is sending shock waves through the staid audiophile world. Because it won a challenge that no other amplifier designer could even consider.

The M-1.0t was judged, in extensive listening tests by one of America's most respected audiophile publications, to be the sonic equivalent of a pair of legendary, esoteric mono amplifiers which retail for over five times as much.

A DESIGN FOR THE CHALLENGE OF MODERN MUSIC REPRODUCTION.

Before you learn the fascinating details of Bob Carver's unprecedented feat, let's consider the final product of that challenge. An amplifier design which stands on its own merits in any case, with astonishingly high voltage/high current output and exclusive operation features. An amplifier for the demands of compact digital discs, VHS Hi-fi and other wide dynamic range playback media.

THE M-1.0t:

- ◇ Has a continuous FTC sine-wave output conservatively rated at 200 watts RMS per channel into 8 ohms from 20Hz to 20kHz with no more than 0.15% THD.
- ◇ Produces 350-500 watts per channel of RMS power and 800-1100 watts peak power for transients. (8 ohms and 4 ohms respectively).
- ◇ Delivers 1000 watts continuous sine wave output at 8 ohms in bridging mode without switching or modification.
- ◇ Employs Bass Phase Inversion circuitry that can essentially double current output at low frequencies.

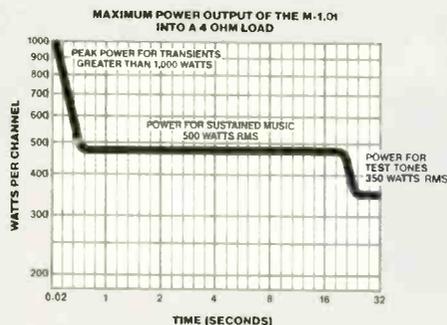
- ◇ Has a -110dB signal-to-noise ratio and no need for noisy external fan, making it exceptionally quiet.
- ◇ Includes elaborate safeguards including DC Offset and Short Circuit Power Interrupt protection.
- ◇ Is capable of handling unintended 1-ohm speaker loads without shutting down.
- ◇ Uses a power display capable of 1 millisecond peak response time and instant warning of clipping.



Accurate to as little as 1dB, the M-1.0t's 2-color power meters respond within a millisecond of a transient impulse, identify momentary clipping and serve notice of protection circuit activation.

POWER FOR THE CHALLENGES OF MUSICAL WAVEFORMS.

The rating differences between the M-1.0t's FTC and Carver's continuous



The Carver M-1.0t delivers massive power at all important output levels.

RMS power reserves represent Bob's insistence that electronic designs should address real world problems. He reasoned that the M-1.0t must excel at

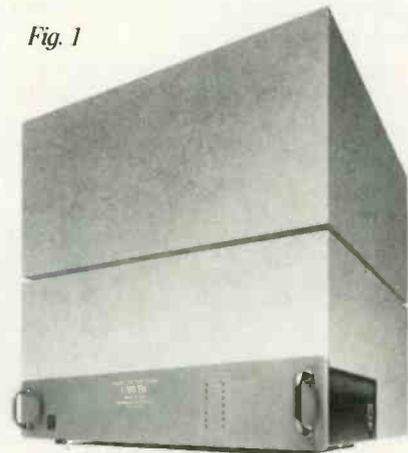
reproducing those types of power waveforms that are most essential to music's stunning impact and realism.

First there are the instantaneous peak transients—the sudden individual attacks of each musical note which demand a tremendous amount of amplifier power. While these waveforms last less than 1/100 of a second, they form the keen edge of musical reality.

Next come combinant musical crests of demand from multiple instruments and their harmonics. These longer-term power demands usually come and go in less than a second, yet can tax all but the most powerful amplifier.

Thus, even at 8 ohms and at extremely high output current levels, the Carver M-1.0t not only delivers over 800 watts of peak power for momentary musical transients, but can provide over 350 watts RMS of long-term power for demands lasting up to 20 seconds. More power, more current and more voltage than any other comparably-priced amplifier.

Fig. 1



Two distinctively different approaches to sonic excellence.

THE MAGNETIC FIELD AMPLIFIER VS. CONVENTION.

Audiophiles, critics and ultimately other manufacturers have accepted

the wisdom of Bob Carver's innovative approach to delivering power in musical terms. Yet only Carver has so elegantly translated theory into practice.

Figure 1 shows the new Carver M-1.0t Magnetic Field amplifier. It weighs 20 pounds and runs cool to the touch. Behind it is the outline of the pair of legendary mono amplifiers you'll read more about below. Even individually, they can hardly be lifted and demand stringent ventilation requirements. And yet, according to some of the most discriminating audiophiles in the world, Bob's new design is their sonic equal.

The ultimate secret lies in the patented Magnetic Field Coil (figure 2) employed in the Carver M-1.0t. Instead of increasing cost, size and heat output with huge storage circuits, Magnetic Field Amplification delivers its awesome output from this small but powerful component. The result

Fig. 2



A single Magnetic Field Coil supplants traditional heavy power supplies.

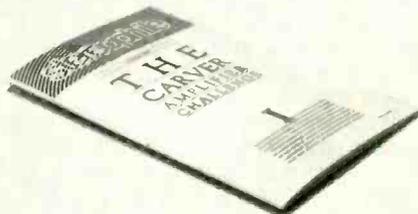
is a design capable of simultaneous high current and high voltage. A compact cool-running design that fills your room with sound, not bulk.

CARVER'S GREAT AMPLIFIER CHALLENGE.

On the merits of its enviable specifications and features alone, the M-1.0t could easily have become another industry benchmark of power, accuracy and economy.

But Bob is never satisfied. He felt that his fifth Magnetic Field Amplifier design should be even more remarkable.

So last year, he made a bold offer to the editors of *Stereophile Magazine*, one of America's most respected audiophile publications. He claimed that he could make special modifications to his new amplifier design which would enable it to sound EXACTLY like any high-priced, esoteric, perfectionist amplifier (or amplifiers) the editors could choose.



Moreover, his design work would not happen in his Lynnwood, Washington laboratory, but in a motel room near *Stereophile's* offices in New Mexico. And would match the M-1.0t's final sound to any contender in 48 hours!

As the magazine put it, "If it were possible, wouldn't it already have been done? Bob's claim was something we just couldn't pass up unchallenged."

Out of respect, ethics (and even a little bit of awe), neither *Stereophile Magazine* nor Carver will divulge the name of the legendary "world class" mono vacuum tube amplifiers that were selected as the M-1.0t's contender.

Suffice to say that what transpired in the next 48 hours is high fidelity history. It makes great reading in *Stereophile*, Vol. 8, No. 6, or in the reprint we'll send you on request.

MUSIC IS THE FINAL PROOF.

The *Stereophile* evaluation team was admittedly skeptical ("We wanted Bob to fail. We wanted to hear a difference").

They drove both amplifiers with some of the finest components in the world. Through reference speakers that are nothing short of awesome.

But it was their ears and carefully selected music ranging from chamber to symphonic to high-impact pop that led them to write, "... each time we'd put the other amplifier in and listen to the same musical passage again, and hear exactly the same thing. On the second day of listening to his final design, we threw in the towel and conceded Bob the bout. According to the rules... Bob had won."

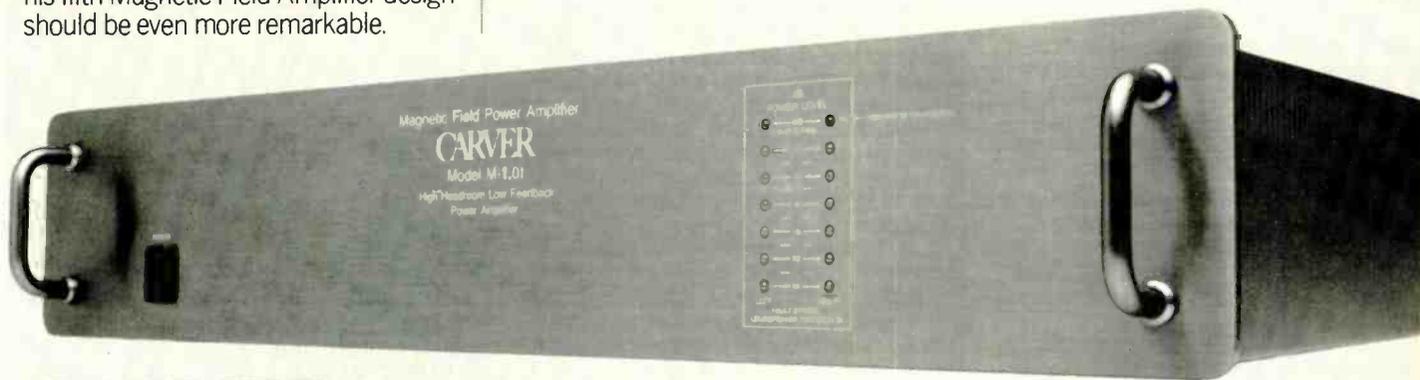
The inquiring audiophile can't help but wonder if M-1.0t production models will sound as good. Ask the man who designed it. "I promise they will sound exactly the same. And just as good. In fact, I stake my reputation and that of our company on it."

SHARE THE CHALLENGE AND THE VICTORY.

The real winner is you. Because you can own world class, superlative electronics at reasonable prices by visiting your nearest Carver dealer. Compare the new M-1.0t against any and all competition. Including the very expensive amplifiers that have been deemed the M-1.0t's sonic equivalent. But even if you can't make that comparison, you won't be surprised when the M-1.0t lives up to every other claim made in this ad.

What you will be surprised at is just how affordable this much power, musicality and accuracy can be.

SPECIFICATIONS: Power, 200 watts/channel into 8 ohms 20Hz to 20KHz, both channels driven with no more than 0.15% THD. Long term, sustained RMS power, 500 watts into 4 ohms, 350 watts into 8 ohms. Bridged Mono RMS power, 1000 watts into 8 ohms. Noise, -110dB IHF A-Weighted. Frequency Response, +0-3dB 10Hz-100KHz. Slew Factor, greater than 200. Weight, 20 lbs. Finish, light brushed anthracite, anodized.



CARVER

Corporation, PO Box 1237, Lynnwood, WA 98046

POWERFUL

MUSICAL

ACCURATE

Distributed in Canada by Evolution Technology

CLOSER TO REALITY.

THE MAGIC OF SONIC HOLOGRAPHY.

Why did stereo catch on back in the Fifties? Why aren't we perfectly content listening to mono? The answer is obvious, you say: Stereo is more lifelike.

True. Slightly more lifelike. The way a color photo is more "realistic" than a black and white photo. Yet, like these two-dimensional representations, stereo is a compromise when compared to reality. No matter how good your speakers are, no matter how good the sound source is, the results are only barely comparable to a live performance.

Conventional stereo sound is an illusion, and for some listeners not a particularly successful or convincing one. Stereo reproduction is subject to fundamental distortions of spatial perspective, sufficiently severe that no six-year-old with normal hearing will be fooled into confusing a stereo playback with a real, live sonic event.

Consider, by analogy, the illusion of depth perspective that is provided in drawings and paintings by converging straight lines and the hazy reduction of contrast in "distant" objects. The geometry of perspective is part of the perceived real world, and rendering it is an essential requirement for any realistic painting. Still, few people viewing paintings have ever been fooled into believing they were looking through a window at a real three-dimensional scene. And while stereo sound is both more realistic and more pleasing than monophonic reproduction, it is still only an attractive illusion.

Rather, the imaging of stereo is an acquired taste which audiophiles learn to be sensitive to—acclimating to its unnatural perspective in order to enjoy the portrait of sound which the stereo system paints upon the wall between the loudspeakers.

In reality, sound approaches you not just head on but from the sides and from behind. It reverberates through a room, giving you cues as to not only the position of the performers but your position as well. Incidentally, this sort of sonic information is not limited just to classical music recorded in a concert hall. Multi-track pop music also contains ambient and reverberant information. After all, a guitar amp, drum or saxophone are played and recorded in a three-dimensional space. It's just not very apparent listening to stereo.

Previous approaches to heightening the feeling of dimension concentrated on adding more sound sources, usually behind the listener. On certain kinds of recordings, the resulting reverberant effects can be very pleasing. In fact, we incorporate this type of rear channel enhancement on our C-4000 Preamplifier.

Still, using this method exclusively assumes that what is coming from the front stereo speakers is the best possible version of sonic reality. Bob Carver knew that more was possible with just two speakers and regular sound sources.

The key is Sonic Holography.

Very briefly, the Sonic Hologram presents timing and phase information that now exists in your records, but has been inaudible with normal stereo components. With Sonic Holography, this information emerges in three-dimensional space around the listener. The precise location of instruments and voice can be pinpointed.

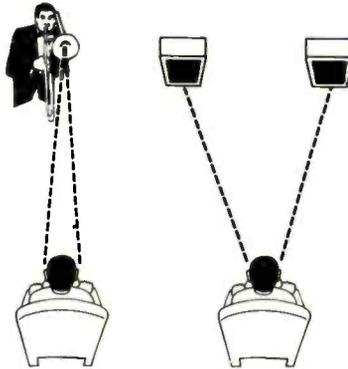
As one reviewer put it, "The effect strains credibility... the miracle is that it uses only the two normal front speakers."

Why is Sonic Holography so much more lifelike and how does it achieve the effect with normal stereo records?

First let's consider stereo. The problem is simple: Each ear hears both speakers.

To see why this is important, consider the process of recording and reproducing a sound—one musical note played by one instrument, located several feet to the left of the center of the stage. A live sound source produces one sound arrival at each ear.

What do you hear as a listener if you are located in an ideal front-and-center seat? The sound spreads out in all directions at a speed of approximately 1100 feet per second. If you are facing the center of the stage, the sound arrives at your left ear first and at your right ear very shortly afterward—how long afterward depends on its angle of arrival.



If the sound source is exactly in front of you, identical signals arrive at both ears at the same time. Since the instrument in our example is only a few feet left of stage center and so is only slightly to the left of front (rather than 90 degrees around to the left) the arrival of the sound at your right ear is delayed by a small fraction of a millisecond and since your head blocks high frequencies, but isn't large enough to be an effective barrier for lows, your right ear receives a sound that is slightly filtered by the acoustic shadow of your head.

Inside your brain is organic "circuitry" which analyzes these dual arrivals and reports just exactly where the source of the sound is. Actually, its job is infinitely more complicated since it is also receiving lots of reflections from different directions. It sorts all of these out and gives you additional information as to where you are in relation to the sound source, as well as what size the room is and what its reverberant qualities are.

If the sound is recorded and later played back via loudspeakers, the result will depend on the microphone technique employed. Consider the simplest and most common method: The sound is recorded via a single close-up microphone whose signal is "panpotted" i.e. split and recorded in both stereo channels but slightly stronger in the left channel in order to place its image slightly to the left of center. In playback the sound emerges simultaneously from both speakers (a little louder in the left).

Assume that you are sitting equally distant from the speakers, facing the mid-point between them. The sound from the left speaker arrives at your left ear, and at the same time the sound from the right speaker arrives at your right ear. There's a little difference in intensity and so your ear-brain "circuitry" pinpoints the sound a little to the left of center. Fine so far.

Unfortunately, there was one live instrument... but there are two speakers. A fraction of a millisecond later the sound from the left speaker, after filtering by the acoustic shadow of your head, arrives at your right ear; and similarly the sound from the right speaker arrives at your left ear. Not so fine.



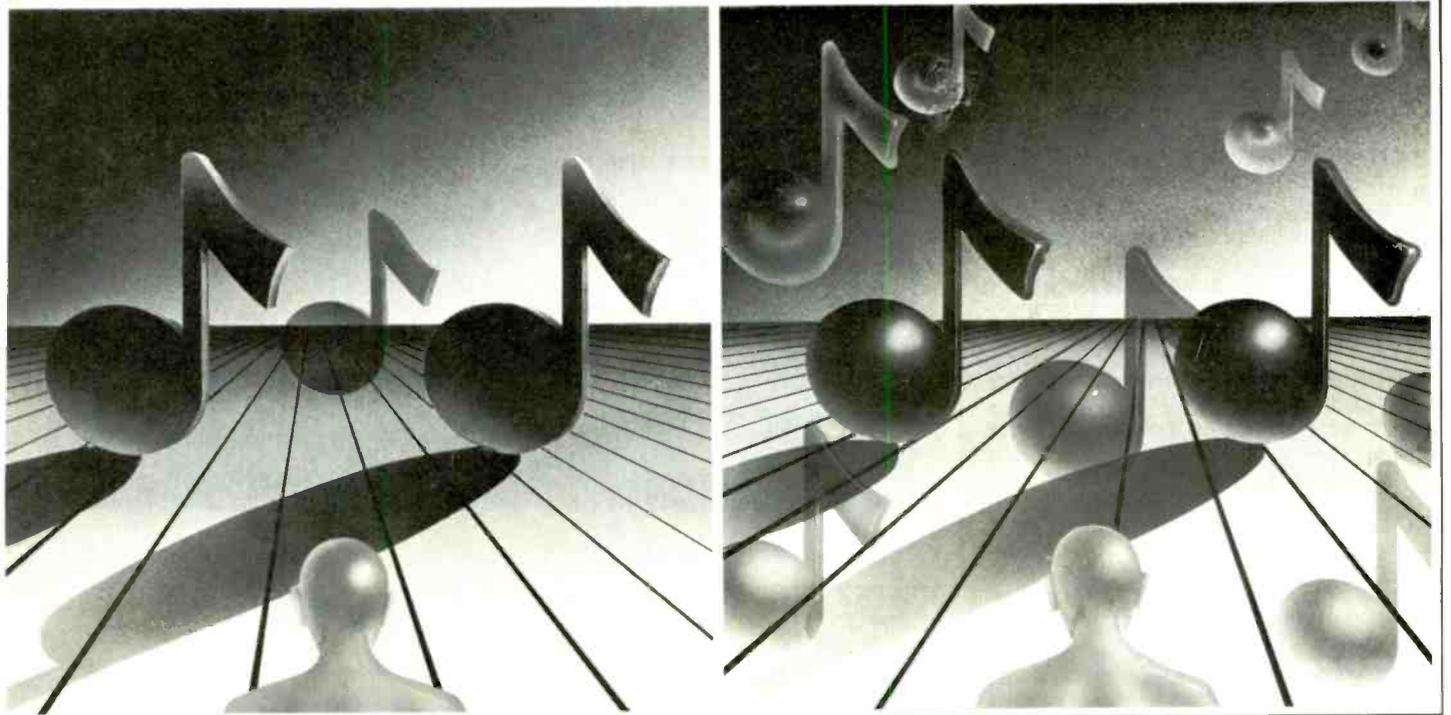
Remember that in the "live" listening experience the single sonic event produced just two arrivals at the ear; the delay and frequency spectrum differences between the arrivals at the two ears are the primary cues which the brain uses to determine the direction of the sound source.

But now the sonic event has been muddled with a total of four arrivals at the ears. Your ear-brain analysis center can't figure out where the other two sonic events are coming from. This is an undesirable side effect sometimes referred to as Interaural Crosstalk. It results in a smearing of the stereo effect because your hearing mechanism cannot properly perceive all the imaging and spatial information that is being sent out.

The goal of the Carver Sonic Hologram Generator is to eliminate the "extra" set of sonic arrivals that occur with conventional stereo playback, but which do not occur in real life.



Special circuitry analyzes and generates a third set of impulses which are calculated to exactly cancel the second, muddying set. You don't hear this audio signal. It is, instead a sort of mirror image of the extra sonic arrivals, but out of phase so that one set "neutralizes" the other. Thus restoring perception of differences in depth and ambience in the stereo image which are "masked" in ordinary stereo playback.



SONIC HOLOGRAPHY



Live performance: Note that in the concert hall setting the sound is heard with timing and amplitude cues. Three dimensional!



Conventional stereo: Note that when listening to conventional stereo the sound is heard, more or less, on a flat curtain of sound between the two speakers. Volume differences only. The timing cues are gone.



Sonic Holography: With SONIC HOLOGRAPHY, the sound is reproduced much like that of a concert performance, complete with timing, phase and amplitude cues.

- To summarize,
- A live sound event consists of One set of sonic arrivals at the ear.
 - Stereo reproduction consists of A first set of sonic arrivals plus a second set that causes interaural distortion.
 - Sonic Holography provides A special set of cancellation signals that intercept and cancel the distortion-causing sound arrivals of the second set resulting in Only one set of sonic arrivals at the ear. (Just as the live performance.)

The ear/brain system can now receive the unambiguous timing and phase information that exists when we listen to real sonic events with only two arrivals—one per ear. A great deal of the subtlety of a real performance, including a clear sense of the size or "sonic signature" of the performance environment can be recovered from the recording, which is all but lost in conventional stereo playback.

The aural sound stage expands beyond the speakers and often beyond the wall of your listening room as well. Instruments, vocalists and sound effects come into focus, each in their own, tangible position. It is if you have adjusted the focus of a telescope. What was blurred becomes sharp. What was narrow is turned into a dramatic panorama.

Can any other methods achieve exactly the same effect? No. Unlike reverberant systems or binaural add-on devices, the Carver Sonic Hologram Generator is not a signal processor per se. It does not change the existing signal, but rather adds extra, invisible cancelling signals.

Why is this process called Sonic Holography?

An optical hologram is a photograph made with a laser whose coherent beam of light is split into two beams and used to illuminate an object; the two beams are recombined, forming alternate rings of constructive and destructive interference, and the interference pattern is photographed. When the picture is developed and another laser is used to project it, a three-dimensional image of the photographed object is projected in space. By analogy, a sonic hologram generator takes the beam of sound produced by each loudspeaker and splits it so that a related beam of sound is produced by the opposite speaker in such a way that acoustic interference patterns of the sound occur in the air near each ear, revealing the true three-dimensional sound image that was hidden in the stereo recording.

Sonic Holography in action is spectacular. You don't need a trained ear to notice the difference. Suddenly the listening field extends wider, higher and deeper than the speakers. You are literally immersed in the performance. But don't take our word for it. Begin by reading what major audio magazines had to say about Sonic Holography.

"When the lights were turned out we could almost have sworn we were in the presence of a real live orchestra." Hal Rodgers, Senior Editor, *Popular Electronics*

"The effect strains credibility—had I not experienced it, I probably would not have believed it... the miracle is that it uses only the two normal front speakers". Julian Hirsch, Hirsch-Houck Labs, *Stereo Review*

"... it brings the listener substantially closer to that elusive sonic illusion of being in the presence of a live performance." Larry Klein, Technical Director, *Stereo Review*

"... seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers... terrific." *High Fidelity*

The next step is to visit your nearest Carver dealer and hear one of the four precision components which incorporate Bob Carver's patented Sonic Holography circuitry: The C-4000 and C-1 preamplifiers, The Carver Receiver 2000 and an add-on component, the C-9 Sonic Hologram Generator.

Each not only has the potential to bring your existing record collection alive but also to make Compact Discs all the more stunning. Experience Sonic Holography soon and hear what you've been missing all these years.

Under all those controls is, first and foremost, one of the finest audio preamplifiers in the world. Although the 4000t can combine as many as five separate sound enhancement functions, (plus precise shelf equalization), it begins as a fine, "straight wire" preamplifier. Dedicated to perfectly reproducing musical signals without a trace of distortion.

Phono cartridges are sensitively handled. The Carver 4000t phono section lets you match virtually any cartridge to the ultra sensitive phono pre-preamplifier stage where infinitesimal impulses from your cartridge must be perfectly translated into higher level voltages. Along with adjustable capacitance to perfectly match the 4000t with your cartridge/cable load, specially shielded circuitry helps eliminate major sources of noise and distortion before they can be passed along to the rest of your system.

As the signal passes through successive 4000t stages, it retains fidelity to the point where one watt of real-world output results in just 0.000000251 watts of distortion with no overload and within *one dB* of the theoretical noise floor of modern cartridges.

A superb range of controls. There are separate tone controls for each channel with a choice of frequencies and a defeat position for flat response listening. A 12dB infrasonic filter eliminates speaker cone flutter and distortion caused by warped records, acoustic feedback and tone arm resonances. Full dubbing (copying) is possible between two tape decks. A separate headphone amplifier allows private listening. You can instantly check speaker and cartridge phasing with a stereo/mono switch. You may mute speakers instantly to change records or answer the phone without affecting volume settings. Add sound processors and switch them from the front panel.

Sonic Holography at the touch of a button. If you have just read the previous page, you know that Sonic Holography is a complex process with a breathtakingly realistic result.

Sound will suddenly burst forth higher and wider than your speakers. Closer and farther back than ever before—even to the sides of you and behind! Instead of a tiny window, the sound image is a giant panorama, freeing you from the room's dimensions. Without special speakers, you can bring into focus each row of symphony musicians. Often you'll hear each player in a section. The effect on pop rock and country music is dynamic and exciting with a feeling of immediacy and involvement which no 2-dimensional playback system can achieve.

Surround Sound restores the hall. Just as Sonic Holography deepens the frontal hemisphere (the half circle in front of the listener), so the 4000t's Surround Sound circuitry completes the circle of sound, enlarging psychoacoustic room dimensions to nightclub, concert hall or even cathedral proportions. It works by presenting the ear with acoustic cues which it is naturally sensitive to, cues which exist because of the relatively slow speed of sound in air. This delay causes the natural reverberation by which we judge the size of a performance space. By creating rear channel information subtly different than the main front stereo channels, you can be transported to a smoky rock or jazz club, a famous performance hall or opera house...even the vast



CARVER 4000t HIGH FIDELITY CONTROL CONSOLE

spaces of a lofty cathedral. And yet you still have the immediacy of front row center, even when the walls of your living room have seemingly dissolved into the vastness of Carnegie Hall.

Eliminate hiss with the Autocorrelator Noise Reduction System. Tape recordings, vinyl, AM & FM, the thousands of CDs transcribed from analog masters and even the rest of your electronics inevitably add hiss to music. Eliminating this final veil between you and reality is achieved in the 4000t with a special circuit which discriminates between random noise and musical information. It strips away hiss from 2kHz to 20kHz. In addition, non-random, low frequency noise such as hum and rumble are removed by a level-sensitive dynamic filter operating exclusively below 200Hz. Thus music emerges from an almost silent background.

Turn video into pure excitement. Needless to say, the complete 360-degree audioscape created by Surround Sound and Sonic Holography is nothing short of stunning when used with stereo video signal sources such as VHS Hi-Fi soundtracks and MTS broadcasts. You will be transported into the movie, with action crashing around you, past you and over your head. Yet thanks to Autocorrelation Noise Reduction, quiet parts of a movie or TV show will not be plagued by the hiss that is present on virtually all video sound tracks—even commercial VHS Hi-Fi tapes.

The Digital Time Lens enhances many CDs. If you own a Compact Disc player or have listened to even a few discs, you'll be struck by the surprising dissimilarity in their tonal and ambient qualities. Carver's Digital Time Lens Circuitry turns an innovation into near perfection by restoring octave-to-octave frequency balance and correcting the ratio of L-R to L+R information (see page 26 for a complete explanation). On many CDs you will finally not only hear the greater dynamic range, quietness and richer bass you expect from digital technology, but also the warm musicality, spectral balance and special

information which may be lost in the digital process.

Exacting craftsmanship and the finest components. Carver has not stinted on any facet of the 4000t's construction. G-10 glass/epoxy circuit boards insure electrical stability year after year. 24K gold contacts on all mating surfaces provide perfect signal transfer while sealed, lubricated controls eliminate noise over the lifetime of the 4000t. High clamping pressure, hot molded external connectors give complete electrical contact. And the metal parts of the 4000t are precision machined (not stamped) for the heft and weight of absolute quality.

A complete instrument for the enjoyment of music. With Sonic Holography, Surround Sound, Autocorrelator and Digital Time Lens, the Carver 4000t presents you with the rare opportunity to enjoy truly realistic sound reproduction. It gives control over the finest nuances of the listening process and allows you to add (or delete, at your wish) remarkable sound enhancement circuitry...yet the Carver 4000t still maintains a place among the finest "purist" audiophile preamplifiers on the market. Audition it today at your Carver dealer and hear the best of many worlds.

Specifications

Distortion: THD 0.05%/IHF IM 0.003%/T.I.M. .0%

S/N: 98dB, re 2V

Phono 1: M.M. 89dB re 5mV @ 47 ohms

Phono 2: M.C. 84dB re 0.5 mV @ 47 ohm

Freq. Resp: 1.5Hz to 60kHz +0, -3dB

Dimensional Restoration:

Horizontal Degrees: +168

Vertical Degrees: +36

Z Axis %: +76%

Equalization: -+6dB @ 8kHz and 2kHz/-+6dB from 40Hz and 150Hz

Noise Reduction: 10dB from 2kHz to 18kHz/10dB from 20Hz to 200Hz

Infrasonic Filter: -3dB at 15Hz, 12dB per octave

Surround Sound: 20 msec independent R/L delay front to rear placement

Dimensions: 19" x 6 3/4" x 8 1/2", Weight 11 lbs. (5 kg)



CARVER C-1 SONIC HOLOGRAPHY PREAMPLIFIER

The C-1 as one of the world's best pre-amplifiers. Forget for a moment the miracle of Sonic Holography.

Concentrate on one of the best pre-amplifiers on the market today. And one of the best pre-pre-amplifiers.

Accurately amplifying the infinitesimal output of a moving magnetic phono cartridge (with its varying impedance and capacitance), while matching the theoretical RIAA equalization curve built into every master disc, is the true determiner of a preamplifier's "sound."

We start with two separate extended-curve phono stages utilizing the quietest multiple emitter transistors in the world. The result is zero cartridge interaction. Zero normalized phase shift. Zero group delay. And noise performance within one dB of the theoretical limit of real-world cartridges.

No slew limiting. No overload. Unmeasurably low TIM distortion. In fact, its output can drive virtually any load. No matter how resistive; no matter how capacitive.

Many esoteric preamplifiers would stop here, making a name for themselves just on the elaborate technology we have incorporated into the C-1's phono stage, pre-pre-amplifier.

Next, we paid such close attention to following stages by designing out group and phase delay that the C-1 can drive real-world loads with an input to output null in excess of 86dB.

That means a watt of output signal tracks the input signal with such astonishing precision that just 0.000000251 of the output signal is imperfect, a level absurdly lower than the molecular level of your eardrum.

Included is a precision, infrasonic filter circuit to cut power robbing, destructive cone flutter caused by warped records, floor vibrations, direct drive turntable resonances and acoustic feedback from high listening levels. They result in visible cone flopping, waste of amplifier power, and obvious distortion.

Next we added a set of variable turnover tone equalization controls, allowing general room and speaker adjustment. By providing a

way of varying the mid-point of both bass and treble controls, you can change the "shade" as well as the intensity of tone control. If you prefer you can switch out the EQ control section at any time for instant sound comparison.

A good preamplifier should also be the total nerve center of your stereo component system. So we were careful to include five important switching features besides source selection.

Not only can you operate two tape decks through the C-1, you can dub from one to the other without reconnection.

A special external processor loop allows you to add outboard devices without engaging a tape monitor circuit. A stereo/mono switch lets you check speaker and signal source phasing.

Finally, instead of simply providing a powered headphone outlet which cuts out speakers when you plug in, we designed a speaker defeat switch which lets you select speakers, headphones or both.

Put quite simply, the specifications, features and performance of the C-1 preamplifier up to this point should place it in the \$1000 to \$3000 price range.

The C-1 is your gateway to Sonic Holography.

While the best you can claim from good stereo is that it "images between the speakers," Sonic Holography expands that postcard of sound into a magnificent cycloramic mural.

Wider than your speakers. Higher than your speakers.

Extending around you, closer than, yet many feet deeper than your speakers. A true three-dimensional stage.

The difference between a porthole and picture window.

How does Sonic Holography work? Snap your finger a few feet from your right ear. That single "sonic event" resulted in two "sound arrivals." One to your right ear and one at your left ear. Now while ALL sound events in real life result in two sound arrivals, conventional stereo bombards the ear with FOUR sound

arrivals: giving you a muddled and completely different set of cues than your ear-brain system has learned to process over a millenia of evolutionary adaptation.

Bob Carver's special circuitry analyzes these spurious signals and sends out another set which exactly cancel the second, confusing set. The result is your ears get just one pair of sound arrivals and think they're actually witnessing the sound event!

High Fidelity magazine said it "seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers."

Julian Hirsch of Hirsch-Houck Labs noted, "... the effect strains credibility."

All with two ordinary stereo speakers and the C-1's Sonic Hologram section.

Quite frankly, while Sonic Holography works with virtually any speaker system, it requires precise attention to initial speaker placement. This initial set-up is made easier by detailed, lucid instructions and rewards the listener with a quantum leap in sound reality, whether you fancy Lizst or Def Leppard.

No matter what your listening tastes, the C-1 represents the ultimate combination of sheer musicality and superb value in one fine electronic instrument.

Specifications C-1

Distortion: < .04% IM (CCIR or SMPTE); < .04% THD
S/N: 96dB, IHF A-weighted, below 2V RMS
 a. Phono: M.M. 82dB IHF A-weighted below 5mV RMS
 b. Phono: M.C. 86dB IHF A-weighted
Freq. Resp: 5Hz - 200kHz, +1 - 3dB
Equalization: ± 6dB @ 40Hz and 8kHz/ ± 6dB at 150Hz and 2kHz
Infrasonic Filter: 18dB/octave below 20Hz, f3 = 15Hz
Dimensions: 3.5"H, 19"W, 10"D, Weight 6 lbs.



CARVER C-2 STEREO PREAMPLIFIER

The C-2 preamplifier joins a tradition of excellence. Imagine a sound system in your home utilizing your favorite turntable with either a moving coil or moving magnet phono cartridge being taped by your cassette deck and reel to reel.

Now imagine taping from one tape deck to another with the ease of just one click. Then, when you wish to move on to new dimensions, switch to either your digital disc player, your tuner or an extra signal processor at will.

All this flexibility is offered by the C-2 with one overriding prime directive: To reproduce your music with absolute sonic purity. This is made possible with the use of the finest quality electronic components, mounted on the highest quality, glass-epoxy circuit boards. The end result is the virtual absence of distortion.

The CARVER C-2 preamplifier offers the discriminating audiophile with a relatively moderate budget the opportunity for uncompromised sound and handsome design.

Let's take a "guided" tour of the C-2's front panel and explore the advanced features this remarkable preamplifier can bring to your system.

The **Selector** switch controls the various signal sources which you may have in your system: turntables with moving magnet and/or moving coil phono cartridges, FM tuner and an auxiliary input that's perfect for the new generation of Compact Digital Disc players, laser video disc soundtracks or VCRs. You can even hook up the audio output of many computers such as the Commodore 64, Apple or PC sound cards.

The **Selector** switch also controls which signal is sent to your cassette and/or reel-to-reel decks. In conjunction with the next switch this allows not only taping any input source but transferring the signal (dubbing) between two tape recorders.

The tape **Monitor** switch is normally left off unless you want to listen to a tape or check out how well it's being recorded. When you wish to play a cassette or open reel tape, simply click the selector from Off to Tape source

1 or 2. Ergonomically, this is a far easier approach to signal selection than the traditional "Tape Monitor" and "Dubbing" buttons often stuck off to the side of the regular controls.

A special **Mode** switch allows listening in mono, stereo, reversed-phase stereo, left-only and right-only modes. This allows enjoyment of classic monophonic transcriptions and provides a quick way of checking speaker phasing and turntable/cartridge performance.

In between these two signal selection buttons is a **Headphone plug** which allows you to enjoy the new breed of high-performance individual listening devices. Unlike some preamplifiers, this is not an underpowered afterthought. The C-2 lets you add headphone extensions of up to fifty feet and even pair up two sets of headphones *without loss of volume or degradation of sound quality.*

The C-2's **Bass and Treble Tone Knobs** control equalization circuits which allow carefully-planned increases and decreases in the overall sound spectrum. They are designed to boost and cut at the outer edges of the bass and treble frequency range without major effect to the midrange areas.

After the self-explanatory **Balance** control are four switches controlling various important functions. If you are not in need of equalization, a corresponding switch is provided which totally disengages the circuitry for "flat" response.

An **External Processor Loop** switch lets you add and enjoy equalizers, expanders, special speaker EQ boxes, open-ended noise reduction units or our own C-9 Sonic Hologram Generator.

The Mute control lets you cut off sound output without changing the volume control during record changes, telephone calls or while listening to headphones only.

Additional specialized circuits are accessed from the back of the C-2 as well. An **Infrasonic Filter** circuit helps protect your speakers from power-robbing, ultra-low bass distortions caused by turntable resonance.

warped records, acoustic feedback and other "real world" problems.

Next to the phone inputs are a second set of sockets which allow precise control of **Phono Cartridge Loading Impedances**. By adding or subtracting resistance values with special plugs, your cartridge and connecting cable can be balanced to sound their best without peakiness or hollowness caused by improper loading impedance.

Two **Line Gain Sockets** allow a *high-level* gain choice of 15 or 25 dB to ensure the best possible match with your power amplifier's input needs.

The preamplifier measures 17.3 inches wide, 9 inches deep, 2.55 inches high. Weight approximately 6.5 pounds.

Technical excellence aside, the true measure of the C-2 is its overall sonic accuracy: rich, musical, and totally uncompromised sound delivered in a truly affordable package.

Explore the promise and performance of the C-2 at your Carver dealer today.

Specifications C-2

Distortion: THD .05%; .05% IM (SMPTE); .05% IM (CCIR) 96db, IHF A-weighted re 2V

a. Phono: M.M. 83dB IHF A-weighted re 5mV @ 47k ohm

b. Phono: M.C. 77dB IHF A-weighted re 500 uV @ 47k ohm

Freq. Resp.: -3dB @ 3Hz and 80kHz

Equalization: ± 7dB @ 100Hz/ ± 7dB @ 10kHz

Infrasonic Filter: 18dB/Octave below 20Hz, f3 = 15Hz

Input Impedance: 100k ohm parallel with 150 pf

Output Impedance: 600 ohm

Dimensions: 2.55"H, 17.3"W, 9"D, Weight 6.5 lbs.

Gain Increase: +10dB boost, rear access



CARVER C-9 SONIC HOLOGRAM GENERATOR.

Now any hi-fi system, from the smallest receiver to the largest separate stack, can be used to expand your listening horizons with the magic of Sonic Holography.

We've extracted the complex Sonic Hologram circuitry found in our C-4000 and C-1 audiophile pre-amplifiers and placed it in a compact outboard unit.

It connects in minutes to any receiver, pre-amplifier or integrated amplifier which has a tape monitor loop or external processor circuit.

True realism with Sonic Holography. The illusion of stereo imaging is an acquired

taste which audiophiles learn to be sensitive to—acclimating to its unnatural perspective in order to enjoy the portrait of sound which the stereo system paints upon the wall between the loudspeakers.

In reality, sound approaches you not just head on but from the sides and from behind. It reverberates through a room, giving you cues as to not only the position of the performers but your position as well. Incidentally, this sort of sonic information is not limited just to classical music recorded in a concert hall. Multi-track pop music also contains ambient and rever-

berant information. After all, a guitar amp, drum or saxophone are played and recorded in a three-dimensional space. It's just not very apparent listening to stereo.

Sonic Holography presents timing and phase information that now exists in your records, but has been inaudible with normal stereo components. With Sonic Holography, this information emerges in three-dimensional space around the listener. The precise location of instruments and voice can be pinpointed. You don't need a trained ear to notice the difference. Suddenly the listening field extends wider, higher and deeper than the speakers. You are literally immersed in the performance.

Specifications C-9

- Rated Output:** 2Vms
- Maximum Output:** 6Vms
- Total Harmonic Distortion:** less than 0.05% (20Hz to 20kHz)
- IM Distortion:** less than 0.05% (SMPTE)
- TIM Distortion:** less than .001%
- Noise:** less than 100µV IHF A-weighted
- Image Resolution:** 5° horizontal, 20° vertical (in THEORETICAL mode)
- Dimensions:** 1 3/4" x 3 7/8" x 1 7/8", Weight 3.5 lbs.



CARVER MC-t MIRROR-IMAGE GEOMETRY MOVING COIL TRANSFORMER

The Carver MC-t performs as well as esoteric transformers costing hundreds of dollars, making the potential of moving coil cartridges affordable for all music lovers.

Moving coil cartridges give the ear a feeling of fine-grained delicacy, of sheerness, transparency and effortlessness not found with even the best moving magnet cartridges. They have been likened to the differences between a fine silk scarf and a heavy woolen muffler, or a crisp champagne vs. a heavy-bodied vintage port.

Unlike bulky moving magnet cartridges, moving coil cartridges put the heavy magnets around a lightweight coil at the end of the cantilever, resulting in quicker response to the movement of the stylus. Unfortunately, far less energy is generated by waving a coil around in a magnetic field than by waving the magnets around a coil of wire. Some sort of pre-pre-amplifier is needed to get their output up to line level.

Some preamplifiers include electronic cir-

cuitry to perform the step-up to higher voltages. Unfortunately, even the finest active circuit cannot match a passive transformer for sheer quiet and ultimate signal to noise ratio. Because they are simply two interwoven coils of wire without any power source or other components, they are as noise-free as the metal they're composed of. A signal enters the smaller of the coils and creates a magnetic flux which is picked up by a larger coil and hence "amplified" to line voltage.

Until Bob Carver approached the problem, moving coil transformers cost as much as \$500. Handmade and often composed of exotic metals, they provided performance for a price too dear for many consumers. Less expensive transformers often exhibited ringing, phase shift and low frequency distortion.

Here, as with many other "esoteric" areas of audio, Carver has combined quality and affordability in a single product.

Dual, mirror-image transformers share a shielded space. The heart(s) of the MC-t are two

totally separate transformers. One for the right channel and one for the left, sharing a specially-designed geometric space which eliminates interaction. Each of the four coils is wound with the finest, low-oxygen wire in a proprietary configuration. Distortion and ringing are non-existent. Signals which enter and exit the MC-t differ only in their strength, not in their quality.

But we didn't stop with the coil configuration. A critical concern is shielding, since any sensitive coil of wire acts as a sophisticated antenna, collecting external signals ranging from radio transmissions and hair dryers to the very patch cords and speaker wire in your system!

To combat this interference, the MC-t is housed in a seamless, mu-metal case, which in turn is shielded by grain oriented silicon steel, based on designs used in high-performance defense and space guidance systems. The internal transformers operate in total isolation from the electronically-noisy outside world.

The MC-t can be switched to perfectly match the desired impedance of any fine moving coil cartridge.

Mixed instruments and voices resolve into individual yet interwoven points of sound. The intricacies of harmonics, overtones and ambient spring sharply into focus. Harshness melts into musical piquancy. Storm clouds of muddy bass emerge as lofty peaks of tight, well-defined fundamentals. The very bouquet of a recording rises to fill your listening room.

Audition the remarkable MC-t at your Carver dealer soon and learn what moving coil technology can do for the sound of your favorite music.

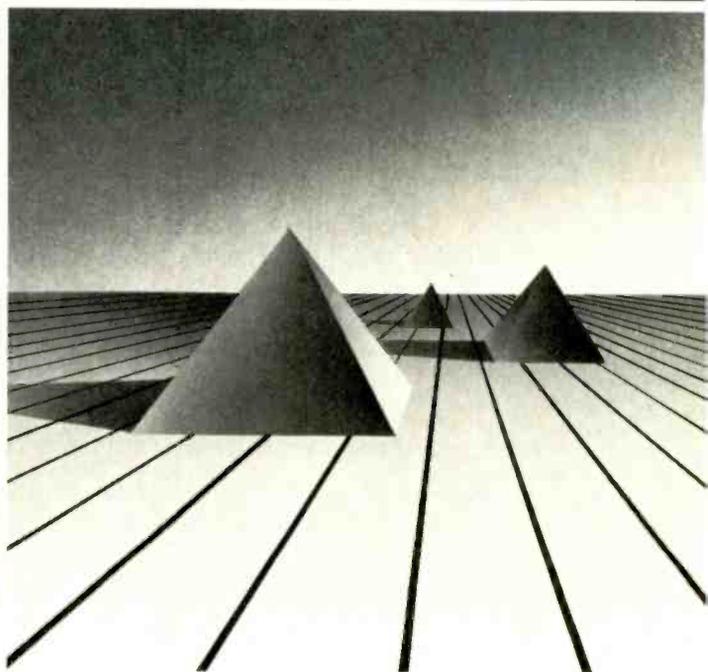
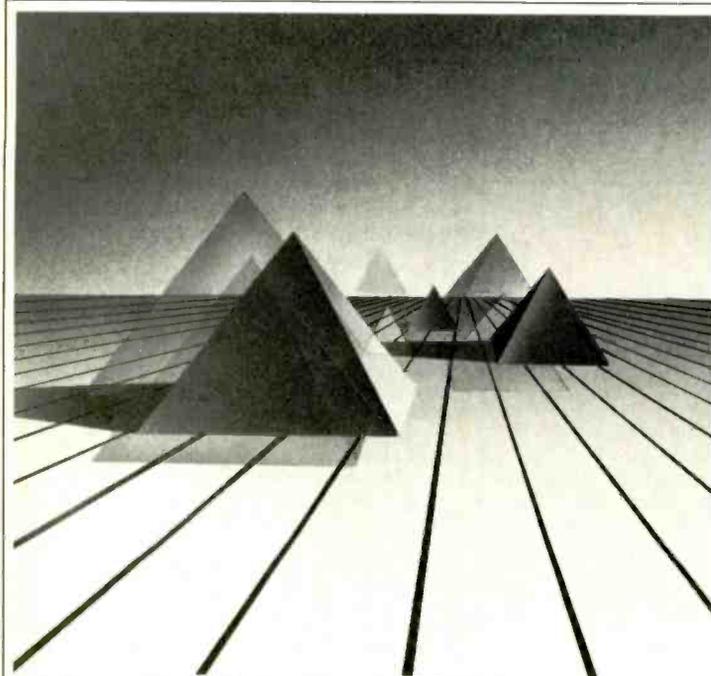
Specifications

- Dimensions:** 6" wide, 2" high, 3" deep
- Weight:** 1lb. 11 oz.
- Gain:** 24 dB
- Signal-to-noise ratio:** greater than 100 dB IHF A-weighted.
- Impedance:** 3.9 ohms, 39 ohms, 110 ohms
- Frequency response:** -3dB at 3Hz and 80 kHz

C A R V E R

THE ASYMMETRICAL CHARGE-COUPLED FM STEREO DETECTOR

CLEARING THE AIR.



The Asymmetrical Charge-Coupled FM Stereo Detector

Bob Carver's third major audio innovation has a very long name and a very simple purpose. To make FM sound as good as other stereo sound sources. Free of background hiss and annoying interference.

Unlike Sonic Holography and Magnetic Field Amplifier technology which solve problems that some of us have been unaware of, Bob Carver's third significant breakthrough solves problems you may hear every time you tune in an FM station. Non-musical sounds you've heard a thousand times. Annoying distortion that may have weighed against even spending the money for an FM tuner due to poor broadcast/reception sound quality.

FM was originally designed to broadcast rich, full-frequency mono. Frequency modulation transmitters were intended to broadcast better sound by varying frequency over a narrow, assigned band instead of changing the intensity of the signal (amplitude) the way AM did. A "carrier" frequency is modulated by music from 30Hz to 15kHz. And by other sources above that. (see sidebar) Back in the Fifties, the result was less noise, deeper lows and crisper highs. Voila! High fidelity broadcasting.

This system worked just fine—and still does if you have a mono FM receiver. However, stereo arrived in the Fifties and engineers set about finding some way to send TWO signals. They toyed with putting the left channel on FM and the right channel on AM, splitting left and right channels into two smaller bands within the assigned FM band and a number of other "discrete" approaches.

None of which impressed the FCC. "Whatever you come up with," they ruled, "has to be able to deliver the whole signal to all those folks with mono FM receivers. We're not going to allow instant obsolescence just because some audiophiles want this new-fangled stereo." (This

is the same reasoning that insured owners of black and white TV sets could still receive color transmissions.) The approach that was finally adopted is clever to say the least. It divides each FM band into blocks. The first is composed of left-channel-plus-right-channel (L + R). This is just a combination of both channels, much the way you'd hear through an FM clock radio that only has one speaker. It's mono, just like back in the Fifties.

The second band is left-minus-right (L - R), that is, all those things which differ between left and right. This second signal is assigned its own "carrier" frequency above the range of human audibility. Special summing and subtracting circuits eventually sort the signals out at your FM tuner.

A brilliant solution... if you live within sight of the transmitter. Unfortunately, this important second signal (L-R) is extremely prone to mishaps between the transmitting tower and your FM tuner. These are usually induced by multipath reflections off hills, buildings and the ground, causing more than one L - R signal to arrive at your tuner to confuse things.

The effect is much like that of TV picture ghosting which increases with the number of skyscrapers and tall hills between you and the tower. In both cases, the main signal deviates in frequency, "beating" with the reflected signals (phase modulation), causing destructive interference patterns which bear no resemblance to the original signal. Even the most expensive FM tuners are tricked into reading this phase modulation as frequency modulation. In fact, the better the tuning circuit, the more easily it is deceived!

Audio Ghosting. To get stereo FM perfectly, you'd have to be the only house in the middle of a vast flat plain with no other buildings anywhere on the plain.

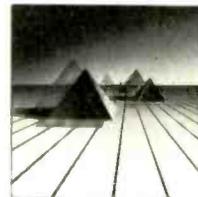
Because any protruding mass—hills, mountains, skyscrapers, other antennas, even bridges—looms up to reflect signals while on their way to your tuner.

Then you get TWO signals. One directly, and one or more a fraction of a second later, after it's taken a longer angular path of bouncing off something. (This happens with TV and AM, too. AM isn't audibly affected, but you can see the frustrating result on TV: a second, third and fourth image.)

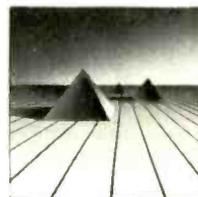
These additional images are disastrous to FM reception because they reinforce and then remove part of the signal alternately. As the main signal deviates in frequency, it beats with the reflective signal, causing constructive and destructive interference patterns which bear no resemblance to the original signal. An engineer calls these "beats" *phase modulation*.

While stereo FM receivers have made much of cancelling one component of this interference, they have never addressed the truly audible distortion caused by phase modulation.

Without waxing too technical, suffice to say that your FM receiver is tricked into reading phase modulation as frequency modulation, which is decoded and made into a brand new signal. The better your current tuner, the more faithfully it's deceived!



Multipath is caused by multiple reflections of the L - R signal



Charge-coupling circuitry cancels all but the true L - R signal

Thus instead of just degrading the existing signal, multipath reception problems actually

AUSE NEW AUDIBLE SOUNDS. And we've all heard how bad these sounds sound.

How, then, can the Carver ACCD circuitry improve this theoretically unsolvable problem? The first portion of the design can be thought of as the "Search and Destroy" section. It takes advantage of the fact that almost all noise and distortion is in the L - R signal portion. And, for very instantaneous noise or distortion voltage in one channel, there is a replica in the opposite channel.

The Carver Charge-Coupled circuit detects these dirty, mirror images and cancels them before they can reach your ears. They are in effect, "played off against each other" before being compared and combined with the L + R signal and decoded into stereo.

The results are a dramatic reduction in hiss, clicks, pops, picket-fencing and the myriad indescribable, unpredictable noises which often disturb FM listening. But just cancelling out parts of a signal is not enough. If Carver ACCD circuitry merely eliminated objectionable portions of L - R, it could potentially suppress so much that no signal would exist at all. It would have thrown the baby (the stereo characteristics) out with the dirty bathwater (the noise and multipath).

Luckily, 85% of the L - R signal duplicates the L + R signal, so quite a bit can be cancelled without losing imaging and ambience. The other 15% is totally different and represents the instantaneous phase relationships which produce stereo listening experiences. Rather than compromise and leave 15% of the signal at the mercy of topography, architecture and distant transmitters, Bob invented another circuit which could "treat" this last critical 15% of the L - R signal while maintaining its sonic integrity.

It's called the Leading Edge Detector.

Bob Carver performed extensive psychoacoustic research to bring us Sonic Holography. During these experiments, he discovered that, if properly matrixed, only 1/3 of the remaining non-redundant 15% of the L - R signal is required to convince our senses of a fully separated stereo experience. That may sound complicated, but it just means that out of 100% of the fragile L - R signal, only 15% of it is different than the sturdy L + R signal. And out of that, only 5% is really telling our ear-brain center anything important about imaging, spatial relationships or ambience.

The Leading Edge Detector circuit operates only on this final 5% of the L - R signal necessary for our ears and brain to construct true stereo localization. By processing this narrow segment and then carefully interleaving it into the FM tuner's receiver matrix, a net noise and distortion reduction of 93.5% (over 20dB) is achieved.

But for the vast majority of American FM listeners, multipath distortion from building, hills and even just plain flat ground are the cause of most listening woes. For them, ACCD circuitry can deliver a stereo signal as noise-free as mono.

When first introduced in our TX-11 tuner, reviewers substantiated Bob's theory with down-to-earth raves over the improvement in sound quality. For example, "Distinguished (by) its ability to pull clean, noise-free sound out of weak or multipath-ridden signals that would have you lunging for the mono switch on any other tuner we know of." *High Fidelity*

"Breakthrough in FM tuner performance. A tuner which long-suffering fringe area residents and those plagued by multipath distortion have probably been praying for.

"The significance of its design can only be fully appreciated by setting up the unit, tuning the weakest, most unacceptable stereo signals you can find, then pushing those two magic buttons. Separation was still there; only the background noise had been diminished, and with it, much of the sibilance and hissy edginess so characteristic of multipath interference." *Audio*

"... if you are way out in the suburbs or in a 'deep fringe' area, the Carver TX-11 tuner may well make a difference between marginal reception of the station signals you've been yearning to hear and truly noise-free reception of those same signals, permitting you to enjoy the music and forget about noise and distortion." *Ovation*

"The Carver TX-11 is one of the few important circuit developments in FM radio to come along in the past several years." *Audio*

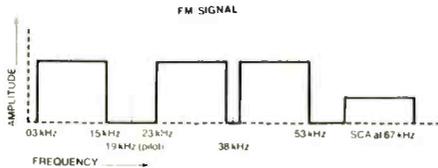
"Its noise reduction for stereo signals ranges from appreciable to tremendous. It makes the majority of stereo signals sound virtually as quiet as mono signals, yet it does not dilute the stereo effect." Julian Hirsch, *Stereo Review*

Now there are five ways to hear what they heard. Our Asymmetrical Charge-Coupled FM Detector circuit is available in the TX-2 Tuner, Carver Receiver, Receiver 2000 and Receiver 900 as well as the breakthrough TX-11 Tuner.

Visit your Carver dealer soon and tune into the only significant improvement in FM since the Fifties.

Tuning in on FM. How it works.

The FCC assigns FM channels every 200 kHz across the FM dial at odd decimals, like 101.7 and 98.3. Each of these bands contains a number of different signal components.



One we don't have to be concerned with is a special subcarrier at 67kHz called the Subsidiary Communications Authorization (SCA) signal. It is leased by FM stations to background music companies. Special receivers decode it and fill your local elevator, department store or grocery market with audible anesthetic. More recently, the band has been used to transmit coded financial information, news and other text, as well as for special programming for the visually impaired and foreign language translations.

At the opposite end of the frequency modulation spectrum is the mono L + R signal. This is the cornerstone of FM: the summed signal. You need to receive nothing else to get a nice, wide-frequency mono sound.

But in order to receive stereo, a lot more has to happen. A difference signal also has to be generated. This

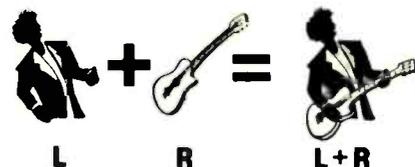
L - R signal is encoded into a subcarrier at 38kHz, two and a half octaves above the upper range of human hearing. In the encoding process, this subcarrier is cancelled out leaving two sidebands. Each is 15kHz wide and also well above the range of human hearing.

Now, you'll also note a "pilot" signal at 19kHz. What's THAT for? If the two L - R sidebands are broadcast with the 38kHz subcarrier, audible interference is caused. Yet it has to be there in some form. So the encoder first makes a "copy" of it at half the frequency (19kHz) and then eliminates it from the signal. At the receiver, the 19kHz signal is doubled back to 38kHz and used to decode the L - R signal. Note that this whole nifty plan goes awry when we get to the 19kHz pilot signal which is audible without special signal processing.

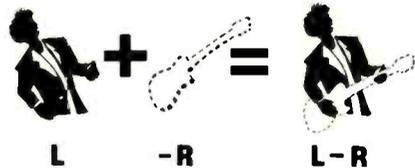
At the receiver the signal is added and subtracted to produce two different channels.

A good way to think of this whole L - R / L + R process is to consider a stereo transmission with a guitar on one channel and a singer on the other.

When the signals are added together, you get L + R, both singer and guitar together.



Now one signal is combined with a "negative" version of the other signal, resulting in L - R, or those components found in one channel but not the other.



Your FM receiver gets both of these signals, one at 30 Hz to 15kHz and the other in the two sidebands up at 23-38kHz and 38-53kHz. After decoding them, they are processed two different ways.

L + R and L - R are subtracted from each other to get just the channel with the guitar.

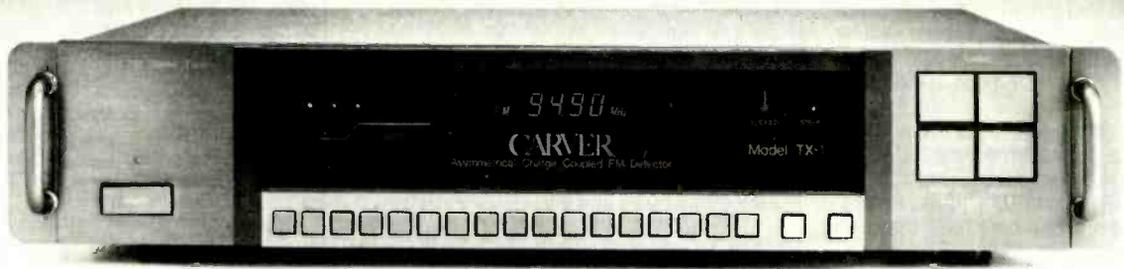


And the signals are combined which cancels out the guitar, leaving just the channel with the vocalist.



Mathematically, it's represented as:
 $(L + R) + (L - R) = L + R + L - R = 2L$
 $(L + R) - (L - R) = L + R - L + R = 2R$

Of course the L and R sources are much more complicated than that since single instruments aren't on single channels. But in general you can begin to understand just how "jury-rigged" the whole FM broadcasting process is, just how complicated the decoding process within an FM receiver is... and just how remarkable it is that we can get stereo at all, much less at anything approaching hi-fi quality.



CARVER TX-11a

STEREO FM TUNER WITH ASYMMETRICAL CHARGE-COUPLED FM STEREO DETECTOR.

- **Ultra-High Fidelity Wide-Band AM Stereo**
- **Asymmetrical Charge-Coupled FM Stereo Detector**
- **13 Random AM/FM Station Presets**
- **Multipath Elimination Circuitry**
- **Noise Reduction**

The Carver TX-11a is a technical tour de force which further distances Bob Carver's unique products from traditional components — and which can vastly enhance your enjoyment of the myriad kinds of music and entertainment available from the airwaves.

It dramatically reduces FM multipath and distant station noise while providing stereo reception with space, depth, ambiance, and full separation. The TX-11a also opens up whole new sonic possibilities through the incorporation of the world's finest AM stereo reception section. AM signals sound as good as FM!

Two technical innovations. One inventor. With the TX-11a, you *can* receive FM stereo stations so fraught with interference and distortion that you may be tempted to return to mono. That's why the new TX-11a includes the legendary Asymmetrical Charge Coupled FM Detection Circuitry which removes hiss, "picket fencing" and multipath interference, and the many other unpredictable noises which often disturb FM listening. Without reducing stereo imaging, frequency response or dynamic range.

Understanding FM's inherent problems. Thirty years ago, the FCC turned clear mono FM into a standard stereo medium (with 15 times poorer signal-to-noise ratio), by approving a broadcast system that is extraordinarily prone to multipath and distant station noise.

This system separates stereo into two different bands. But not just Left and Right, like a cassette. Instead, one band is comprised of those parts of a stereo signal which are common to both channels (L+R, or mono); the other, those fragile differences between Left and Right (L-R).

When the (L-R) signal careens off buildings, hills, bridges and even large trucks, an

extra signal arrives at your antenna, rather like audio "ghosting." The result is not only scratchy reception, but rhythmic pulsing of the sound (called "beating"), plus a whole repertoire of rude sounds, as conventional tuner/receiver circuitry vainly tries to sort out the signals.

Not even the most expensive traditional tuner circuitry can conquer these problems. Because none of them approach a solution the way Bob Carver did.

The silent treatment. The TX-11a starts with an incredibly precise quartz synthesis circuit which generates an exact replica of the desired FM frequency and then matches it to the incoming signal for perfect, drift-free reception. Then the real magic begins.

Almost all noise and distortion is exactly 180 degrees out of phase with itself. In other words, for every instantaneous noise voltage, there is a replica in the opposite channel. The TX-11a's Charge-Coupled circuit detects the tell-tale, dirty mirror images and cancels out to 85% of them before they reach your ears.

We weren't satisfied with merely 85% and knew that you wouldn't be either. Another Carver development, the Leading Edge Detector, goes a step further by taking advantage of the L-R signals remaining 15%. Operating on this critical 15%, the Leading Edge Detector filters out even more noise and reconstructs the stereo effect.

The result is a net reduction of 93%. That's better than 20dB of noise reduction! 10 times quieter!

A cleaner, wider window on the world. Owning the TX-11a may actually change your listening habits. Instead of being confined to strong, relatively interference-free stations, your choices are vastly expanded to stations previously buried in hiss or prone to sudden tantrums of noise.

Len Feldman in *Ovation Magazine* observed that the circuit "... may well mean the difference between marginal reception of the station signals you've been yearning to hear and truly noise-free reception of those same signals."

Audio Magazine called it, "An FM tuner breakthrough."

The first audiophile AM stereo circuitry. Contrary to popular belief, most

AM stereo stations have frequency response (20-15kHz), separation (35dB) and signal-to-noise ratios (70db) *audibly indistinguishable* from FM stations of equal strength.

Unfortunately, the AM sections in even many deluxe tuners have been given short shrift. They sound terrible because they are limited to frequencies scarcely higher than 3kHz, signal-to-noise ratios of only 30dB, and distortion as high as three to eight percent.

Only Carver offers the quality technology to fully take advantage of AM stereo's hidden performance. The innovations include a unique de-emphasis circuit, pilot signal and whistle-stop cancelling circuits, an ultra-low noise balanced station detector, and very wide band, minimum-phase intermediate frequency amplifiers. What all this means to you is simply true high fidelity AM Stereo sound.

At a major press conference, Bob Carver unveiled this remarkable new design. To dramatically demonstrate the TX-11a's AM stereo fidelity, he also unveiled an AM stereo broadcast source. This same CD player was also routed directly so comparison could be made between the direct signal from the CD player and the same signal being received by the TX-11a.

In front of America's most respected audio critics, Bob switched back and forth between the transmitted signal and the direct signal. Many listeners had difficulty distinguishing between the two. *Most could tell no difference at all.*

If the TX-11a can receive AM that well, think of how well it will receive your favorite FM stations.

Human-engineered features and convenience. Many tuners with far less exclusive circuitry have far more complicated exteriors than the Carver TX-11a. Instead of impressing you with flashing lights and keypads, Bob Carver simply wanted to make it easy for you to tune stations.

Engage the Auto Tune control, by touching the UP or DOWN button and let the TX-11a find each and every receivable station while displaying the signal strength of each with six pinpoint LEDs. Or manually advance across the AM or FM band with total precision.

When you find a station you want to regularly listen to, touch MEMORY. It then enters

one of 13 presets that allow you to select any combination of AM and FM signals. Select them in any order "on the dial," and then recall them instantly. (If you don't presently have 13 favorite stations, just wait until you discover how many more previously poor signals suddenly come in clear and hiss-free with a TX-11a). And remember, the TX-11a will remember all 13 presets even when unplugged for up to three weeks. In fact, it even returns you to the last station you were listening to each time you turn it on.

Controls for the serious listener.

Carver's Asymmetrical Charge-Coupled FM Stereo Detection circuitry, two handy AM signal circuits and Wide/Narrow band selection are all switchable for the precise control that audiophiles and recordists often demand.

A Narrow Band FM setting eliminates bleed-through when strong stations are extremely close on the dial without losing frequency response. Wide Band can be used when such interference is not a problem to receive slightly greater dynamic range.

While in AM mode, the ACCFM Detector controls double as a +12dB RF Gain Switch, which increases sensitivity of weak or distant AM stations, and a Noise Switch to eliminate periodic interference caused by fluorescent lights, thermostats, dimmers, etc.

Clear the air by visiting your nearest Carver Dealer. Ask to hear the most famous, expensive and/or esoteric tuner they sell. (It won't be the Carver TX-11a). Tune a multipath-ravaged, hiss-filled FM station on it. Excruciating. Then the same station on the TX-11a Stereo AM-FM Tuner. Not much better. NOW press the Carver Multipath and Noise Reduction buttons. Ahhhh. You'll hear why *High Fidelity Magazine* called it, "By far the best tuner we have tested."

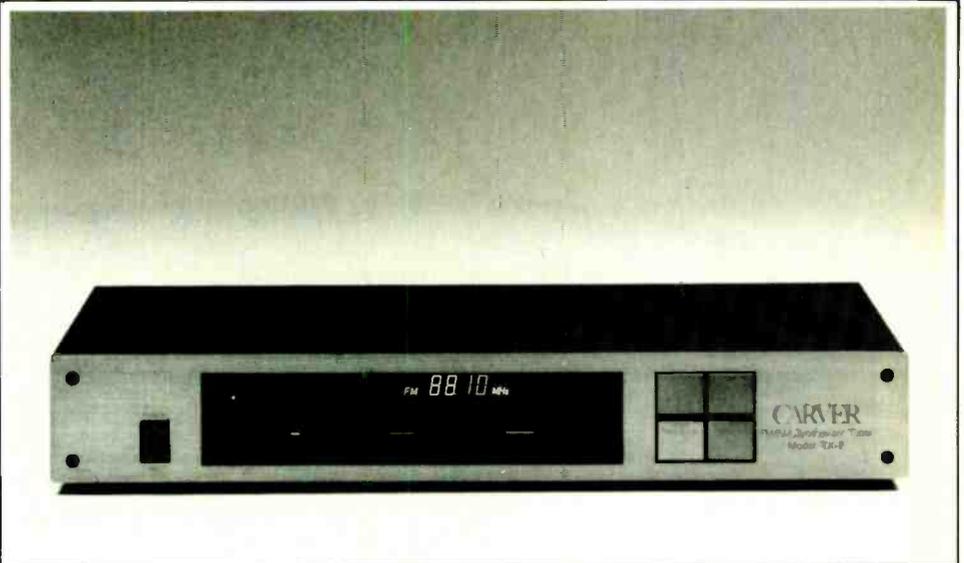
Specifications

FM

IHF Sens: 1.0 μ V
50dB Quiet in Stereo: 3.57 μ V
Distortion: 0.05% THD
S/N: 82dB
Freq. Resp.: 20Hz to 15kHz \pm 1dB
Stereo Separation: 45dB
Capture Ratio: 1.0dB
Noise Reduction: Up to 23dB
Multipath Reduction: Up to 14dB

AM

Sensitivity: 20 μ V
Image Rejection: 45dB
AM Stereo Separation: 40dB
AGC Figure of Merit: 90dB
Frequency Response: 20Hz to 15kHz \pm 1dB
S/N: 75dB
Dimensions: 3.5"H, 12.5"W, 12.5"D
Weight: 11.25 lbs.



CARVER TX-2

AM/FM STEREO TUNER WITH ASYMMETRICAL CHARGE-COUPLED FM STEREO DETECTOR

If you're tired of having to treat AM and FM as mere background music due to the quality of the signal, you should seriously consider the Carver TX-2. The TX-2's Asymmetrical Charge-Coupled FM circuit makes stereo FM the sonic equal of phonograph records and good cassettes.

Even if the TX-2 *didn't* have this special circuit, it would be the rival of any tuner you find on the market today. Sleekly styled and ergonomically designed, it has the features which make tuning, holding and adjusting stations as easy as touching a single button.

Not a single knob interrupts the front of the TX-2, for all controls are activated by large, inlaid pressure pads. Touch the power switch and watch the tuning panel come alive. You'll see a crisp, easy-to-read digital tuning read-out.

Automatic scanning and 16-preset memory. Press AUTO, then touch the UP or DOWN button and watch the TX-2 search the dial for strong stations. The LOCKED light will indicate perfect tuning. If it's one of your favorites, just enter it on one of the eight pre-sets pushbuttons. The LED above the button will light, so you can remember its position. Continue until you've picked eight FM stations.

That's probably more than you listen to right now. Because you probably can't GET eight perfect FM signals right now. With the TX-2, you probably can. That under-powered but well-programmed college station. The FM station behind the hill you could never tune just right... they're all waiting to become presets on the TX-2.

Manual tuning and superb AM, too. The Asymmetrical Charge-Coupled circuit does more than just clear away the hash caused by multipath distortion. It also lets you tune distant stations using the MANUAL control. Find a fascinating but faint signal buried in the background hiss? The TX-2's circuitry goes to work. Like a curtain rising, the annoying hiss falls away, leaving a clear signal, as accurate and well-modulated as stronger, local stations.

How about AM? You probably don't listen because the quality has been so low. You'll be

surprised just how good many stations sound when received through the TX-2. That's why we give you eight AM presets!

Most tuners and receivers treat AM like a poor afterthought with only token investment made in circuitry. The TX-2 uses components and design as good as those in its FM section, cutting distortion to below 1% for a crystal-clear signal.

Everything you need to make broadcast part of your listening experience. From the six-stage signal strength indicator to 75 and 300-ohm inputs, the TX-2 gives you everything you need to clean up AM and FM stations' acts. We even provide an easy-to-read manual written like a textbook on how to get the best reception through antenna selection and placement.

Whether you live in a rural area where the FM signals you really like have been too far away or in a crowded urban sculpture of skyscrapers, highrises and factories which deflect FM like mirrors, the TX-2 represents an opportunity to enlarge your listening horizons.

The TX-2 has also been designed to function as a superb companion to the Carver C-2 preamplifier and the Carver M-200t Magnetic Field Power Amplifier.

Visit your nearest Carver dealer for a personal audition of the Carver TX-2.

Specifications TX-2

FM TUNER:

IHF Sens: 1.8 μ V
50dB Quiet Sens in Stereo: 5.0 μ V
Distortion: .2% THD
S/N: 74dB
Freq. Resp: 20Hz to 15kHz + .5dB
Stereo Separation: 42dB
Alt. Channel Select: 58dB
Capture Ratio: 1.0dB
Noise Reduction: up to 23dB
Multipath Reduction: 13dB

Dimensions: 2.55"H, 17.3"W, 9"D, Weight 9 lbs.

AM TUNER:

IHF Sens: 20 μ V
S/N: 55dB
Distortion: 0.9%
Selectivity: 42dB
Image Rejection: 45dB
I.F. Rejection: 34dB
AGC Figure Merit: 50dB



THE CARVER RECEIVER 2000.

Magnetic Field Amplifier technology.
Sonic Holography.
Asymmetrical Charge-Coupled FM Detector technology.

Three major Carver technologies in one exquisitely full-featured, remote-control receiver.

Everything necessary for music enjoyment. Settle back in your chair and pick up the Carver Receiver 2000's infrared remote control.

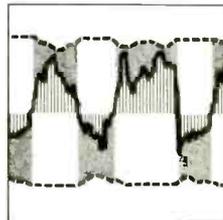
Press the POWER button. Two hundred watts RMS per channel comes alive. Enough to give Compact Discs the impact and clarity they deserve. As the music comes to life, you realize it would be a superb candidate for Sonic Holography. Another touch of the remote control and you're suddenly at the performance, a part of the musical experience. Later on, you select one of your favorite FM stations from the six presets. And then switch to AM stereo for a ball game. All from the comfort of your chair.

The Carver Receiver 2000 has inputs for phono, compact disc player and even video sound sources. It allows 2-1 and 1-2 dubbing through dual tape deck inputs and outputs and selection of two sets of speakers or a combination.

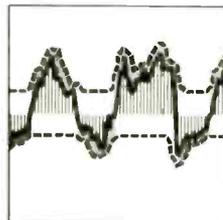
Defeatable tone controls are provided for bass, midrange and treble as well as a preset "loudness" equalization curve for accentuation during low level listening.

The bright digital readout and signal strength LED's are only a hint of the high quality quartz synthesized FM section and AM STEREO circuitry within. Choose from six FM and six AM station presets, tune manually or use the Receiver 2000's automatic station search feature.

From the silky feel of the large, easy-to-use knobs, to the unswitched power sockets on the Receiver 2000's back, you'll find that no detail has been overlooked. Even if it didn't have three of Bob Carver's major innovations tucked inside it, the Receiver 2000 would be one of the finest receivers you could own.



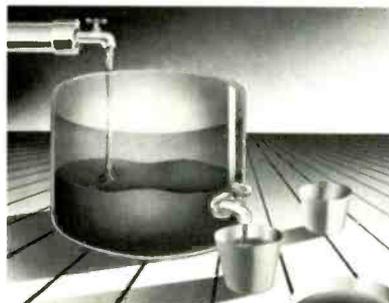
Conventional power amplifier.



The Carver Receiver's Magnetic Field Amplifier.

Solid line: audio output signal. Broken line: power supply voltage. Shaded area: wasted power. Vertical lines: power to speakers.

Ample Power for Digital. Even before Compact Disc players, clipping distortion has been the critical listener's enemy. Speakers need electricity to move air. They use it to generate magnetic fields inside the voice coils of

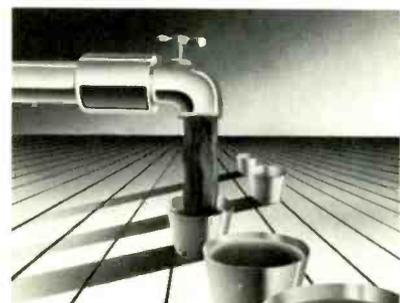


Conventional amplifiers must store massive amounts of power in reserve.

their drivers. As the coils are repelled by fixed magnets within the speaker, they move outward, pushing the speaker cone with them. It, in turn, transfers that movement to the air in your listening room. A drum beat sounds on the record; energy flows to your speakers; the speakers push the air in some semblance of the original drum beat's impact.

The plain fact is, few receivers have the technical capabilities to provide enough power. They can translate say, 90% of a musical waveform into the power your speakers need. But just can't deliver that last 10%. Check out the graph in the Magnetic Field Amplifier section of this brochure. You'll notice the top of the impulse has been clipped off. That's where the phrase clipping comes from.

Even though most clipping happens as the receiver is trying to complete a bass waveform, audible distortion is generated in the treble range. Called clipping distortion, these impulses are spikes of non-musical, high frequency power caused as the amplifier hits the bottom of its power reserves. At moderate levels, these spikes veil music with a thin film of distortion that occurs with every musical impulse.



The Magnetic Field Amplifier draws directly from the source, eliminating bulky power supplies.

Before Bob Carver, the only way to get enough power to completely eliminate clipping distortion was to buy a traditional, brute-force power amplifier design or one of the very few adequately powerful receivers. They are very costly and inefficient because they produce a constant high-voltage level at all times—irrespective of the demands of the everchanging audio signal. Even when there is no signal to amplify, conventional designs are drawing half power from your electrical outlet and converting it to heat!

The Carver Receiver 2000 uses a better way. A method of delivering the power speakers need without heat, bulk and distortion. The solution is elegant and effective.

Imagine a lightning-fast valve on your incoming power outlet. When power is needed, the valve senses the demand and opens, actually using the power of the actual power generator to deliver the needed current and voltage.

Note that this approach provides VAST POWER WHEN NEEDED during peak demands... without keeping excess around during lulls. The "valve" we've described is the Magnetic Field Coil inside the Carver Receiver 2000. By delivering power only when needed, it can satisfy your speakers' need for power while generating less heat and virtually no distortion.

The finest receiver FM section ever offered. The Carver Receiver 2000 employs Asymmetrical Charge-Coupled Detector technology which makes FM sound as good as other stereo sound sources. Free of background hiss and annoying interference. Even on stations which were previously too weak to enjoy.

FM was designed to be mono, that is. Left plus Right Channel added together (L + R). Later on, when stereo became the rage, an additional signal was added, L - R, which carries stereo and ambient information and is decoded by your FM receiver.

Unfortunately, this important second signal (L - R) is extremely prone to mishaps between the transmitting tower and your FM tuner. These are usually induced by multipath reflections off hills, buildings and the ground, causing more than one L - R signal to arrive at your tuner to confuse things.

The effect is much like that of TV picture ghosting which increases with the number of skyscrapers, and tall hills between you and the tower. Even the most expensive FM tuners are

tricked into reading this phase modulation as frequency modulation. In fact, the better the tuning circuit, the more easily it is deceived! The Receiver 2000 can cut through this frustrating problem, though.

It takes advantage of the fact that almost all noise and distortion is in the L - R signal portion. And, for every instantaneous noise or distortion voltage on one channel, there is a replica in the opposite channel.

The Carver Charge-Coupled circuit detects these dirty, mirror images and cancels them before they can reach your ears. They are in effect, "played off against each other" before being compared and combined with the L + R signal and decoded into stereo.

The results are a dramatic reduction in hiss, clicks, pops, picket-fencing and the myriad indescribable, unpredictable noises which often disturb FM listening.

The effect is astonishing. As it was described in a leading audio magazine, "The significance of (this) design can only be fully appreciated by setting up the unit, tuning the weakest, most unacceptable stereo signals you can find, then pushing those two magic buttons. Separation was still there; only the background noise had been diminished, and with it, much of the sibilance and hissy edginess so characteristic of multipath interference."

True realism with Sonic Holography. The illusion of stereo imaging is an acquired taste which audiophiles learn to be sensitive to—acclimating to its unnatural perspective in order to enjoy the portrait of sound which the stereo system paints upon the wall between the loudspeakers.

In reality, sound approaches you not just head on but from the sides and from behind. It reverberates through a room, giving you cues as to not only the position of the performers but your position as well. Incidentally, this sort of sonic information is not limited just to classical music recorded in a concert hall. Multi-track pop music also contains ambient and reverberant information. After all, a guitar amp, drum or saxophone are played and recorded in a three-dimensional space. It's just not very apparent listening to stereo.

Sonic Holography presents timing and phase information that now exists in your records, but has been inaudible with normal stereo components. With Sonic Holography,

this information emerges in three-dimensional space around the listener. The precise location of instruments and voice can be pinpointed. You don't need a trained ear to notice the difference. Suddenly the listening field extends wider, higher and deeper than the speakers. You are literally immersed in the performance. But don't take our word for it. Begin by reading what major audio magazines had to say about Sonic Holography.

As one reviewer put it, "The effect strains credibility... the miracle is that it uses only the two normal front speakers."

The best of everything in one compact component. There has never been a more complete method of enjoying music than the Carver Receiver 2000. With the power, the tuning ability and the miracle of Sonic Holography this is by far the most capable receiver ever offered. From its remote control to the wealth of tone and switching features, the 2000 lacks only speakers and your choice of sound sources to propel you into the fantastic world of sonic reality.

Specifications The Receiver 2000

POWER AMP:

Power: 200 W/channel into 8 ohms, with no more than .15% THD
Slew Factor: >100
Frequency Bandwidth: 1Hz to 30kHz ± .1dB

Protection:

Short Circuit
DC Offset
Low/High Frequency Trip

FM TUNER:

IHF Sens: 1.8uV
50dB Quieting Sens in Stereo: 4.5uV
S/N: 78dB
Distortion: .1%
Freq. Resp: 20Hz to 15kHz ± 1dB
Stereo Separation: 45dB
Capture Ratio: 1.5dB
Noise Reduction: 7dB
Multipath Reduction: 13dB

AM TUNER:

Sens: 20uV
S/N: 55dB
Distortion: .6%
Selectivity: 42dB

PREAMP:

Distortion: .05%
S/N: 90dB
Freq. Resp: 20Hz to 20kHz + 0.5dB
Phono S/N (MM): 85dB
Phono S/N (MC): 76dB
Phono Input Impedance: 47K ohm

Dimensions: 5.5"H, 19"W, 17.9"D, Weight 33 lbs.

	MONO	STEREO W/O CHARGE-COUPLED DETECTOR	STEREO WITH CHARGE-COUPLED DETECTOR
USABLE SENSITIVITY	75 ohms, 11.3 dBf/1.0 μV 300 ohms, 11.3 dBf/2.0 μV	34 dBf/1.4 μV 34 dBf/2.8 μV	16.3 dBf/1.78 μV 16.3 dBf/3.57 μV
50 DB QUIETING SENS.	75 ohms, 16.1 dBf/1.7 μV 300 ohms, 16.1 dBf/3.4 μV	37 dBf/1.9 μV 37 dBf/3.9 μV	23.5 dBf/4.0 μV 23.5 dBf/8.0 μV
SIGNAL/NOISE RATIO	75 ohms, 82 dB @ 85 dBf 300 ohms, 82 dB @ 85 dBf	74 dB @ 85 dBf 74 dB @ 85 dBf	85 dB @ 85 dBf 85 dB @ 85 dBf
STEREO SEPARATION (WIDE)		1 kHz: 45 dB 100 Hz: 36 dB 10 kHz: 36 dB	45 dB 30 dB 25 dB



ALL SPECIFICATIONS OR FUNCTIONS SUBJECT TO CHANGE WITHOUT NOTICE.



THE CARVER RECEIVER

WITH ASYMMETRICAL CHARGE-COUPLED FM STEREO DETECTOR

Meet the original Carver Receiver, the one that has stunned critics and audiophiles with its combination of power, features and finesse.

To give you the RMS watts you need for today's recording advances plus virtually noise-free stereo FM reception. Carver has designed a receiver with astonishing performance. An instrument designed to make the most of innovations such as stereo/hi-fi video and digital audio discs. An extraordinary synergy of circuitry incorporating two of the high fidelity art's most advanced technological breakthroughs: Bob Carver's Magnetic Field Power Amplifier and his Asymmetrical Charge Coupled FM Detector.

With the Carver Receiver you command 150 watts per channel and a fully digital quartz synthesized AM-FM stereo tuner through a highly sophisticated and meticulously engineered pre-amplifier section.

At your fingertips, the comprehensive control of your entire system. On the front panel: control for turntable, video/audio disc player selection, an auxiliary input selector, and two tape input selectors.

Not only can you individually control bass, treble and midrange tone, but the loudness contour as well. And all tone controls can be taken totally out of the preamplifier circuit for "flat" response.

Choose from two sets of speaker outputs, a combination of both or eliminate them entirely for headphone listening through the Carver Receiver's special headphone amplification circuitry.

Monitor and dub between two sets of tape decks. Match the meter output range to your listening levels. Even switch to mono to detect speaker and cartridge phasing problems instantly.

Pick up to six FM and six AM stations at the touch of a button without having to tune all over the dial. Even activate a special AM filter circuit to cut hiss and sharpness. All in a compact unit no larger than any other conventional receiver lacking the innovations and human engineering Carver has become famous for.

Consider, there are very few 150 watt-per-channel receivers on the market today. Frankly, no other company has discovered how to make adequate amplifier power as affordable, light, compact and cool to operate as Carver. Their loss is your gain.

Only the Carver Receiver can surmount the inherent problems of sound reproduction which plague lesser powered receivers at all listening levels.

You see, even at modest listening levels your speakers are making peak power demands which cannot be fulfilled with your existing amplifier. Lightning-fast transients, combinant crests of demand created by multiple waveforms and high intensity-peaks.

Conventional, weaker receivers never deliver enough power, and somewhere, just before each sound pulse is finally formed, it gives out and sends a sort of electronic "note of regret," called clipping. This sharp high-end distortion veils the sound terribly, undoing all the accuracy of recording, cartridge and electronics as well as speakers.

At moderate listening levels, you may not have noticed it. Yet when you sonically compare the Carver Receiver to any other receiver in straight A/B comparisons, you'll INSTANTLY notice the improvement which adequate power makes.

Because it's patented Magnetic Field Amplifier and ultrasophisticated speaker protection circuitry delivers 150 watts per channel of pure, clean power. So you can truly appreciate your favorite music.

Unlike conventional amplifiers which produce a constant high voltage level at all times, irrespective of the demands of the ever-changing audio signal and indeed even when there is no audio signal in the circuit at all, the Magnetic Field Amplifier's power supply is signal responsive and highly efficient. It produces exactly and only the power needed to carry the signal with complete accuracy and fidelity.

At all times the Carver Receiver monitors your speakers for conditions that could cause damage, allowing them to cool off long before they reach a state which could be damaging. The same circuits also guard against surges caused by shorts and accidental dropping of the tonearm on a record when the volume is turned up.

These built-in precautions afford you new listening freedom because you don't have to be afraid to unchain the power of the Carver Receiver. Whether you're spinning your original copy of Dark Side of the Moon or a state-of-the-art Compact Digital Disc of the 1812 Overture, you can play it at the volume you want without compromising sound quality or your speakers.

The resulting spaciousness, sonic impact and sheer musicality will invigorate your existing speaker's system, your own ears and those of your friends.

The Carver Receiver also gives you FM stereo performance unmatched by that of any other receiver. As it is transmitted from the station the stereo FM signal is extremely vulnerable to distortion, noise, hiss and multipath interference. In fact, because of the transmission system in use today, the signal to noise ratio of FM stereo has been degraded fifteen times (more than 23 dB!).

However, when you engage Carver's Asymmetrical Charge Coupled FM Detector circuit, the stereo signal arrives at your ears virtually noise-free. The result is fully separated

C A R V E R

tereo with space, depth and ambience!

You'll suddenly pull in stations in surprisingly distant cities and suburbs. Underpowered but interestingly programmed college FM stations will be noise and distortion-free. Stations previously overpowered by strong adjacent signals will sound as steady as if they were alone on the dial. Stations which threw intermittent intrusions of intolerable racket will be pacified. The special circuitry can't make weak stations louder—you'll have to do that with your volume control—but when you crank up a feeble station it will not be submerged in a sea of hiss and multipath.

You will also appreciate the AM section. Meticulous attention to a very aspect of tuner performance gives you an AM section with true high fidelity response. You will not find another receiver with such high performance anywhere.

The Carver Receiver has been designed for serious music listeners who seek fidelity, accuracy and musicality.

We know you will want to visit your nearest Carver dealer for a personal audition of this remarkable instrument.



THE CARVER RECEIVER 900 WITH ASYMMETRICAL CHARGE-COUPLED FM STEREO DETECTOR

Specifications The Carver Receiver

POWER AMP:

POWER: 150 W/CHANNEL INTO 8 OHMS,

WITH NO MORE THAN .05% THD

Power at Clipping: 157 W/channel into 8 ohms

Slow factor: >80

Frequency Bandwidth: 1Hz to 30kHz ± 1dB

Protection:

Short Circuit

DC Offset

Low/High Frequency Trip

FM TUNER:

IHF Sens: 1.8uV

50dB QuietIng Sens. In Stereo: 4.5uV

S/N: 76dB

Distortion: .2%

Freq. Resp: 20Hz to 15kHz ± 1dB

Stereo Separation: 42dB

Capture Ratio: 1.5dB

Noise Reduction: 7dB

Multipath Reduction: 13dB

AM TUNER:

Sens: 20uV

S/N: 55dB

Distortion: 0.9%

Selectivity: 42dB

PREAMP:

Distortion: .05%

S/N: 90dB

Freq. Resp: 20Hz to 20kHz + .5dB

Dimensions: 5.7"H, 17.3"W, 17.9"D, Weight 28.6 lbs.

The Carver 900 is—in terms of power—the smallest of the Carver Receivers. However no other product currently offered by any other manufacturer delivers the same amount of power, features, specifications or out-and-out performance found in the Carver Receiver 900.

The Carver Receiver 900 sets standards which are unapproachable by any other comparably priced receiver. Because even with their "smallest" receiver, Carver has created a component which is truly powerful, musical and accurate.

No other receiver in this class has a clean 100 watts per channel FTC. Moreover, no other receiver can deliver a stunning 180 watts during the dynamic peaks that Digital demands.

And no other non-Carver receiver can resolve noisy FM into a clean, clear signal comparable to disc sources.

How many stations do you normally listen to? The Carver Receiver 900 can remember eight AM and eight FM stations. Just touch a button to switch between your favorites. Is the station noisy or weak? Engage the Carver Asymmetrical Charge-Coupled Detector and resolve interference-prone and distant stations into rich, full stereo. Suddenly your listening possibilities are vastly increased. No other brand of receiver has the technology to combine quartz-synthesized digital FM with added circuitry to solve the real-world interference problems that are present across the landscape. Naturally the 900 includes memory preset, auto-seek and manual scan as well as an accurate LED signal strength meter and stereo indicator.

At 100 watts per channel RMS, the Carver 900 provides serious power for today's new acoustic suspension speaker designs. Power to resolve records and tape with new impact and clarity. Power to ignite your imagination with a digital disc! Either way, Carver's "smallest" receiver will deliver pyrotechnic dynamics and freedom from clipping distortion that will render your favorite music with new clarity.

And of course the Carver 900 Receiver has The Right Features. You've eschewed separates

because you like the combination of controls and features found on an all-in-one receiver, right? You'll soon discover that the Carver 900 delivers them all. Generous, human-engineered volume control with a silky feel you won't find on anything but larger Carver receivers. Defeat-able center-detented bass and treble control. Large easy-to-use program source controls for CD's, FM, AM, Phono, and VIDEO sound inputs. Tape dubbing for 1:2 and 2:1 sources. Precision balance, loudness control and mono button. Dual speaker outputs. Switched and unswitched AC receptacles. Even a separate headphone circuit and output jack. The Carver 900 gives you everything you need to out-distance any comparably-priced receiver. Moreover, the 900 once-and-for-all settles the argument as to which modestly-priced receiver gives you the most features, power and noise-free FM reception.

Specifications Receiver 900

POWER AMP:

POWER: 100 W/CHANNEL INTO 8 OHMS, 20Hz

TO 20kHz, WITH NO MORE THAN 0.15% THD

Power at Clipping: 108 W/channel at 8 ohms

Slow Factor: >68

Frequency Bandwidth: 1Hz to 30kHz ± 1dB

Protection:

Short Circuit

DC Offset

Low/High Frequency Trip

FM TUNER:

IHF Sens: 1.8uV

50dB QuietIng Sens in Stereo: 5uV

S/N: 74dB

Distortion: .2%

Freq. Resp.: 20Hz to 15kHz ± 1dB

Stereo Separation: 40dB

Capture Ratio: 1.0dB

Noise Reduction: 7dB

Multipath Reduction: 13dB

AM TUNER:

Sens: 20uV

S/N: 55dB

Distortion: 0.9%

Selectivity: 42dB

PREAMP:

Distortion: .05

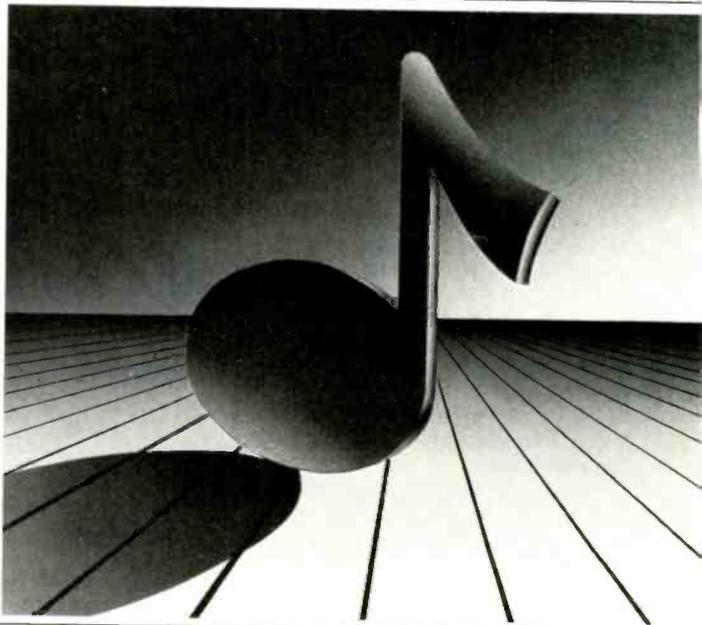
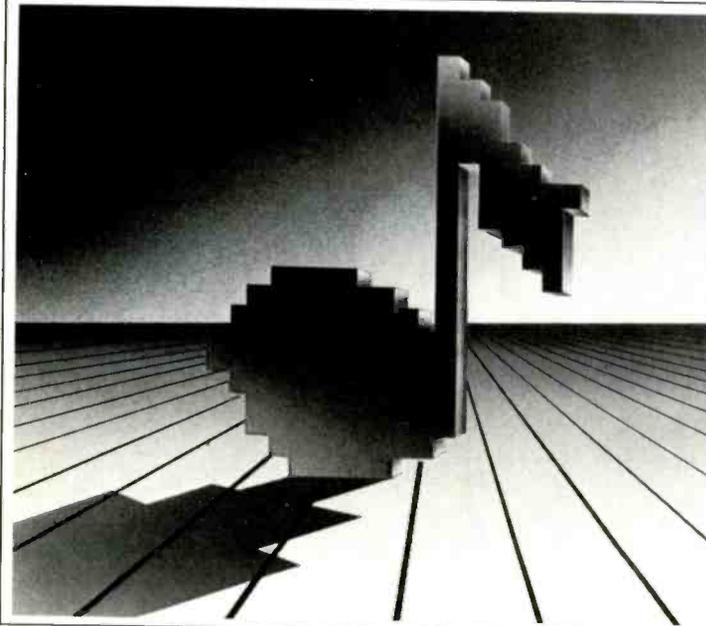
S/N: 90dB

Freq. Resp.: 20 Hz to 20kHz ± 1dB

Dimensions: 4.33"H, 19"W, 17.9"D, Weight 26 lbs.

	MONO	STEREO W/O CHARGE-COUPLED DETECTOR	STEREO WITH CHARGE-COUPLED DETECTOR
USABLE SENSITIVITY	75 ohms, 11.3 dBf/1.0 μV 300 ohms, 11.3 dBf/2.0 μV	34 dBf/14 μV 34 dBf/28 μV	16.3 dBf/1.78 μV 16.3 dBf/3.57 μV
50 DB QUIETING SENS.	75 ohms, 16.1 dBf/1.7 μV 300 ohms, 16.1 dBf/3.4 μV	37 dBf/19 μV 37 dBf/39 μV	23.5 dBf/4.0 μV 23.5 dBf/8.0 μV
SIGNAL/NOISE RATIO	75 ohms, 82 dB @ 85 dBf 300 ohms, 82 dB @ 85 dBf	74 dB @ 85 dBf 74 dB @ 85 dBf	85 dB @ 85 dBf 85 dB @ 85 dBf
STEREO SEPARATION (WIDE)		1 kHz: 45 dB 100 Hz: 36 dB 10 kHz: 36 dB	45 dB 30 dB 25 dB

DIGITAL TIME LENS TECHNOLOGY AND COMPACT DISCS.



Compact Discs represent the first significant improvement in audio sound sources since the stereo phonograph record. You don't have to be a "golden ear audiophile" to instantly perceive the remarkable sonic improvement.

Still, one must view digital sound with the same historical perspective applied to such breakthroughs as stereo, transistor amplification and FM broadcasts. Each was demonstrably better than what preceded it. And yet each had shortcomings which were improved later on, when the initial blush faded.

Just as Bob Carver has enhanced FM reception, power amplification and the effect of stereo, so he has taken digital Compact Disc sound to its next plateau with Digital Time Lens Technology.

While hundreds of articles and reviews have been written on the digital audio recording process, it is valuable to review just how the process works in theory to better appreciate the Digital Time Lens' further contribution.

Analog recording uses magnetic tape to record varying amounts of musical signal. The more musical impulses in a given passage of music, the more magnetism is imparted on that portion of tape passing the recording head.

While this recording method has given us thirty years of memorable recordings, it labors under at least five physical limitations which cause audible degradation of the signal. 1) Tape has finite limits as to the amount of energy it can record. Saturation and distortion occur when the limit is reached, yet musical dynamics extend far louder and softer than the medium can handle. 2) Magnetic tape, by its very composition, imparts some internal energy which we hear as hiss. Thus quiet parts of recordings can suffer from annoying background noise. 3) It is very hard for tape to deal with extremely high and extremely low frequencies, again due to physical realities of tape oxide composition, speed and head configuration. 4) Even if problems 1-3 are minimized, the result gets scratched into the surface of a piece of plastic and played back by letting a small diamond wiggle around in the

groove. Not theoretically the best method by any stretch of the imagination. 5) Even if said grooved plastic disc is the best virgin vinyl and the wiggly diamond is a \$1000 handmade cartridge on a \$2000 turntable, the record can come to a bad end in seconds at the hands of a) a five-year-old with a peanut butter sandwich, b) an inquisitive pussycat, c) your best friend after half a bottle of Cabernet.

Digital recording gets around all of these problems. The musical signal is sampled and analyzed by a computer which, in effect, impartially measures the signal with a ruler. It is recording impartial digital comments such as, "This segment is VERY loud +98dB -and goes down to 20Hz." "This segment is extremely quiet and contains a flute solo with harmonics to 19,000Hz." "This segment increases in dynamics by 60dB in less than a hundredth of second, etc."

Instead of trying to make a physical model of these measurements the way analog tape does, digital recording simply "prepares a report," coded in 1's and 0's much the way a floppy disc can contain the text of a book encoded in binary language.

The Compact Disc playback unit "reads" the report and changes the sound back to analog musical impulses which are fed into your hi-fi just like a tuner, cassette deck or phonograph source. Except that the digital source will be free of background hiss, contain the full range of frequencies from deepest fundamentals to almost inaudible highs and provide dynamics ranging from gossamer-soft to thunderstorm loud.

Since it's not limited by actually trying to emulate the musical signal, more sheer excitement, sonic impact and definition of individual instruments reaches your preamplifier. Unquestionably digital has proved a quantum leap ahead of previous recording and playback methods. You might compare it to a good stereo disc versus an Edison wax cylinder. That's how much better a Compact Disc can be than the average vinyl recording. Still, this wonderful process has

received some qualified criticism from experts who have extremely good ears. Many professional musicians, audiophiles and audio journalists, while praising the quietness and dynamic range of Compact Discs, have often expressed a lingering disappointment in the way music itself sounds on many commercial examples. This is particularly evident when the compact disc is compared with a well-executed analog counterpart. The complaint boils down to a lack of ambience and spatial detail, along with a mid-range which often has been described as sounding bright, hot and harsh.

When Bob Carver received his first Compact Disc player, he too was not prepared for the compromises in sound he heard on some discs. The three-dimensional perspective which his analog system provided in lush abundance on phono discs evaporated into a flat, brittle wasteland. The next day, he purchased no less than 23 Compact Discs and their analog, vinyl counterparts and set about quantifying the differences.

As expected, the CD discs were quieter, exhibiting better dynamic range and richer, tighter bass. But testing uncovered two inherent flaws: 1) **Different spectral energy balance.** The overall frequency response was shifted on the CD towards more midrange above 400 Hz; 2) **The amount of Left-minus-Right channel information versus the amount of Left-plus-Right differed by about 1.25dB between analog and digital.**

It is important to understand that the Left-minus-Right (L - R) component of stereo carries the three-dimensional part of sound field information, much as is done with FM stereo (refer to the section on Carver's tuner circuitry). A deficiency of 1.25dB doesn't sound like much. But since power goes up as the square of the voltage, it means that analog records carry a whopping thirty-three percent more ambience information than digital discs. That's a noticeable reduction in three-dimensionality, imaging and other psychoacoustic factors that put the realism into music.

How does the Digital Time Lens correct these problems? Bob Carver's circuitry adjusts

ratio of $L - R$ to $L + R$ and restores the octave-to-octave balance originally intended by the musician and recording engineer as evidenced by the analog recording.

More specifically, Bob discovered that the $L + R$ component of a digital disc had to be equalized somewhat differently than the $L - R$ component of the digital disc so that it would match the analog disc (the analog version of the same musical recording). There were two equalization curves necessary to make the digital disc sound the same, exactly the same as its analog counterpart. In addition to equalizing the $L + R$ band and the $L - R$ band independently, it was necessary to increase the level of the $L - R$ band so that it would match the $L - R$ level that was on the analog disc.

Now, since the equalizations were different for the two bands, it was necessary to introduce a time correction in the $L + R$ band because the equalization was steeper in the $L - R$ and so the signal would go through the $L - R$ with a greater group delay than it would go through the $L + R$ signal chain and would arrive out of step, so a compensating delay, just micro-seconds, is employed in the $L + R$ signal chain so that when the two signals arrive at the matrix to be turned back into left signal and right signal, they arrive without time domain errors.

The Digital Time Lens, Theory and Practice.

Bob Carver, along with many others, was displeased by the sound of the earliest CD's and decided to find out why some didn't sound the same as the LP versions of the same recordings. Unlike many who have complained about poor stereo imaging, lack of depth and strident, harsh treble — and who have blamed the CD digital system itself — Carver was enough of a mathematician and engineering theorist to know that the system itself was inherently blameless.

After extensive comparison tests between LP's and their CD versions, which included time-synched playings of both types of record while measurements and observations were made, Bob concluded that there were two major differences between certain CD's and their LP equivalents. The first had to do with stereo depth or separation. In any stereo program, the stereo effect is transmitted by the difference between left and right signals. Bob discovered that many CD's have less relative $L - R$ information than do the LP's for the same programs at the same musical moment.

In order to see it, Bob devised a special test circuit that would amplify the difference. The figures show the Lissajous patterns obtained from the same instant of musical program in its LP (fig B2) and CD (fig B3) versions.

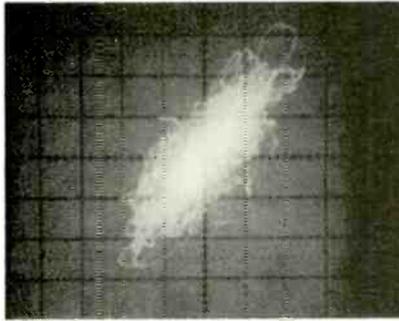


Fig. B2—Lissajous pattern showing $(L - R) / (L + R)$ ratio from an LP record.

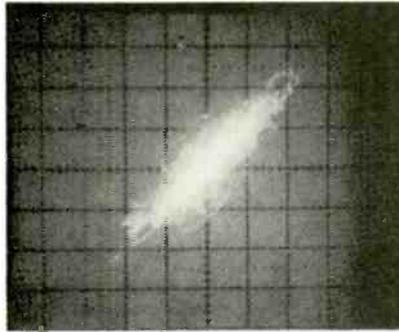


Fig. B3—The same instant of music as in Fig. B2 but taken from the CD version. Note the decreased difference $(L - R)$ content, as shown by the narrowed trace.

In this type of display, a straight, thin diagonal line from the lower left to the upper right would represent a purely monophonic signal. The more stereo "difference" information there is, the more the line spreads out into an ellipse.

Notice that there is significantly more difference $(L - R)$ signal in the LP version of the music! The second major difference noted by Bob Carver between some CD's and their LP counterparts was a difference in equalization, or the overall frequency response. Using a fine moving-coil cartridge to play the LP versions of certain programs, Carver noted that there was a slight BOOST in the mid-bass region and a slight CUT in the mid-treble region compared with the response obtained when playing the CD version of the same program.

Bob's objective in designing the Digital Time Lens was to give the user the ability to introduce the converse of the two effects at will. That essentially is what he has done: If there is a deficiency of $L-R$ signal in some CD's, the user can interpose a form of matrix-dematrix circuitry that will put back some of the extra $L-R$ signal. If there is overly bright mid-treble and somewhat diminished mid-bass in a CD, the user can add a little mid-bass and attenuate some mid-treble frequencies by means of a switchable circuit. L.F.

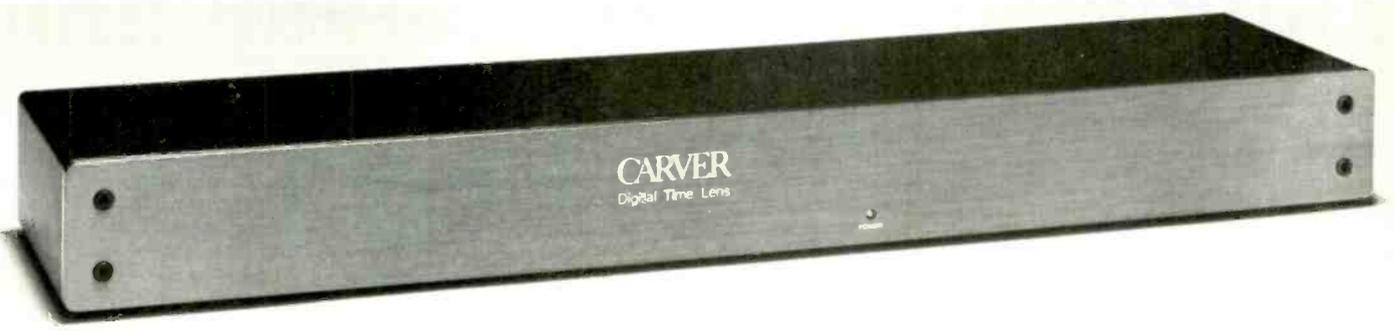
Reprinted by permission from Audio Magazine, © CBS Publications, 1985.

If you have read the excerpt from Audio Magazine included on this page, you will note that the reviewer qualified his comments by noting that not all CD's need the beneficial effect of the Digital Time Lens.

We concur. Later on in the review, the same reviewer noted, "I suspect that many owners will ... put little marks on their CDs that indicate whether they should be played with the Time Lens or not. I find nothing wrong with such an arrangement."

Again, we concur. It took a lot of courage on Bob Carver's part to play the part of the truthful child confronted with the Emperors's new clothes, the part of the person with the courage to point out that digital could often sound better.

But unlike a mere critic, Bob Carver has done something about the shortcomings he perceived. He has given every music lover the final tool necessary to open up an exciting new world of sound.



CARVER DIGITAL TIME LENS

You can't buy a better CD Player than the Carver CD Player. Impartial magazine reviews prove it. Qualified listeners prove it. Your own ears will prove it in a demo at your Carver Dealer.

Unfortunately, some of you already own Compact Disc Players. There is a solution.

The outboard Digital Time Lens adds the finishing touches of sonic accuracy and realism to Compact Digital Audio Discs. It turns an

innovation into near musical perfection.

If you are willing to make a commitment to vastly improving your sound source with a Compact Digital Disc player, you should also go the short extra step that lets digital realize its true potential.

That step is a Carver Digital Time Lens, connected between your CD player and pre-amplifier.

Visit your nearest Carver dealer and ask

for a demonstration of how we've "focused" digital playback into a crystal-clear image of the original performance.

- Input: 2 v. 50k ohms
- Impedance Output: 2 v.
- Distortion: 0.005%
- Frequency Response: 20 Hz-20 kHz
- Dimensions: 17 3/4" w/d, 4" deep, 1 1/2" high.
- Line Voltage: 120 VAC 60 HZ Dither signal: OdB. - 70 dB adjustable.

CARVER DTL-200

COMPACT DISC PLAYER



The DTL-200 and DTL-50 use the latest laser pick-up systems, sophisticated over-sampling and digital filtering technology, and well-engineered mechanical transport designs which ensure fast track access time and increased freedom from feedback.

The more samples, the more accurate the music. Carver Compact Disc Players begin with the most advanced digital-to-analog D/A translation circuitry available. Along with an audible signal ranging up to 20kHz, endless images of the signal at 40K, 80K, 160K etc. exist which must be removed from the signal to prevent harmonic problems. Many budget model Compact Disc Players place a simple anti-imaging filter after the digital/analog converter stage. Carver uses DIGITAL filtering ahead of the D/A converter through a process called double oversampling. The signal is passed through a shift register which delays the samples, so that the weighted average of a large number of signals is generated. Through a complex process, frequency bands are suppressed between 20kHz and 160kHz, eliminating harmonic distortion problems early on before the complicated D/A translation.

The exclusive Digital Time Lens. Both the DTL-200 and DTL-50 have the remarkable Carver Digital Time Lens to further enhance your listening enjoyment.

When Bob Carver first listened critically to CDs, he immediately detected differences between the digital version and well-mastered analog versions. (See the story of the Digital Time Lens on page 26 of this publication.) These differences continue to exist on many new Compact Disc releases, depending on the mastering facility, condition of the original tape (remember, over 80% of all CDs begin with a reel-to-reel tape master!) and engineer's tastes.

The Digital Time Lens restores both the lost ambience and the octave-to-octave balance originally intended by the musician and recording engineer as evidenced by the analog recording, and enhances ambient effects found on corresponding analog discs. The result is a sound with more of the three-dimensional ambient information that places us in the same space with performers.

Sometimes more is not better. If one laser pick-up is good, many manufacturers have reasoned that customers will assume that three lasers must be better. The DTL-200 and DTL-50, along with several other of the world's finest CD players, use a sophisticated *single* laser system. (Sometimes Less is More.) Through a beam splitting process using aerospace-grade optics, a single laser's output is received by SIX diode pick-ups and monitored through ultra-high speed servo tracers. This approach increases Carver Compact Disc

Players' ability to correct for mistracking caused by production flaws, fingerprints and dust.

DTL-200

COMPACT DISC PLAYER WITH DIGITAL TIME LENS AND TIME DOMAIN CORRECTION

- 14-function infrared wireless remote
- Digital Time Lens
- Time Domain Correction
- 12-track programmability

The DTL-200 is replete with easy-to-use features, the latest digital-to-analog translation technology, Carver's exclusive Digital Time Lens circuitry and an important new innovation, Time Domain Correction, which can actually adjust for imperfections in digital source material and disc manufacturing!

A built-in quality control computer. Time Domain Correction constantly monitors the incoming digital signal for imperfections and "glitches." These high frequency harmonics may be caused in the recording process, during the incredibly intricate Compact Disc mastering process or as part of the final production of the CD. Such errors in the digital bit-stream cannot be corrected by conventional tracking correction or D/A circuitry because they are part of the actual information being read off the CD. Yet they can add to overall harmonic distortion and cause audible changes in sound quality.

The DTL-200 constantly performs a complex, 25-bit digital calculation on passing digital data. This high speed error correction code, in conjunction with a 121-pole digital filter, terminates distortion-generating high harmonics. (In effect, this circuit acts as a "121st Order Crossover," rolling off distortion products by a whopping 728dB/octave!) The result is frequency response within 1/1000 of a dB of the original and reduction of distortion to 0.007%.

The DTL-200's slim, 14-function wireless remote duplicates all front panel operations — even power on and off.

Along with the ability to skip forward or backward, song-by-song, a touch of a key allows you to *audibly* review a disc, backward or forward, at many times normal speed.

This is especially useful in conjunction with the DTL-200's A-B Specific Phrase Replay/Repeat feature. If you wish to carefully analyze one section of a performance, make out indistinct lyrics or just repeat an incredible musical passage of any length repeatedly, you need only mark the beginning and end with one remote control key.

Naturally the DTL-200 also lets you repeat any specific track, or a whole Compact

CARVER DTL-50

COMPACT DISC PLAYER



Disc for uninterrupted enjoyment. Select as many as twelve songs from a CD in any order. Delete the tracks you don't want to hear. Repeat your favorites several times. Or just rearrange their order. For classical music lovers, the DTL-200 also has complete indexing capabilities as well.

All functions are displayed on an easy-to-read but subtle LCD display including programming sequence, current selection number, total CD playing time, individual track playing time and total CD elapsed time.

CARVER DTL-50

COMPACT DISC PLAYER WITH DIGITAL TIME LENS

- 9-function infrared wireless remote
- Digital Time Lens
- 9-track programmability

Most manufacturers would be content to present the DTL-50 as their top-of-the-line CD player — it's that good. Incredible sonic performance, and the equally remarkable restorative capabilities of the Digital Time Lens are brought to your ears through an impressive list of features that make CD listening an exercise in comfort and precision.

Pick up the 9-function wireless remote control and power-up the DTL-50. It will now automatically play a pre-loaded CD while you remain in the comfort of your chair. Its Programmable Random Access Playback System makes track search and programming of up to nine different selections a snap, as is automatic repeat of a previous selection or an entire CD. The DTL-50 also features repeat of individual songs or the whole CD as well as precise index access.

Large, easy-to-use feather-touch controls include pause, fast forward and reverse. You can even monitor music at high speed to find a certain portion of a selection.

Superbly styled, sonically the equal of any CD player on the market today, the DTL-50 offers you Carver innovation and musicality at a most affordable price.

Specifications

- Frequency Response:** DTL-200 5Hz-20kHz @ 0dB ± 0.2dB / DTL-50 5Hz-20kHz @ 0dB ± 0.5dB
Total Harmonic Distortion: DTL-200 0.007% @ 1kHz
 DTL-50 0.008% @ 1kHz
S/N: DTL-200 100dB / DTL-50 96dB
Channel Separation: DTL-200 90dB @ 1kHz
 DTL-50 86dB @ 1kHz
Dynamic Range: DTL-200 100dB / DTL-50 96dB
Wow & Flutter: DTL-200 Unmeasurable
 DTL-50 Unmeasurable
Output Voltage: DTL-200 2.0V (FS.) / DTL-50 1.9V (FS.)
Size: DTL-200 3.5" H x 19" W x 11" D
 DTL-50 2.56" H x 17.25" W x 11" D
Weight: DTL-200 14 lbs. / DTL-50 13 lbs.

THE CARVER CAR AMPLIFIER

THE CARVER CAR AMPLIFIER introduces Magnetic Field Amplifier technology to automotive high fidelity. Finally, the traditional weak link between car stereo decks and modern speaker design has been replaced with Carver technology. Into 1/10th of a cubic foot, Bob Carver has engineered a complete 120 watts RMS per channel amplification system with the fidelity, accuracy and musicality demanded by the most critical reviewers and audiophiles.

ESSENTIAL POWER. Even before the exciting advent of car Compact Disc players, an abundance of power has been necessary to reproduce, without distortion, the frequency and dynamic range produced by modern decks.

Unfortunately, conventional amplifier technology is particularly unsuited to delivering this needed power to the specialized car interior environment. Like their home stereo counterparts, traditional car designs produce a constant high voltage level at all times, irrespective of the demands of the ever-changing audio signal—even those times when there is no audio signal at all! Because automotive amplifiers must, obviously, derive their power from the host vehicle, such an approach results in substantial drain to delicately balanced automobile electrical systems.

The Carver Magnetic Field Car Amplifier is signal responsive. Highly efficient, it produces only the exact amount of power needed to deliver each musical impulse with complete accuracy and fidelity. Thus the Carver Car Amplifier not only reduces overall long-term power demands, but produces the large amount of power necessary for reproduction of music at realistic listening levels without the need for oversize power supply components. Important considerations in the minuscule spaces which quality car design allocates to add-on electronics.

INTELLIGENT POWER. A hallmark of all Carver amplifiers is the careful integration of sophisticated speaker and amplifier protection circuitry. The Carver Car Amplifier is no exception.

Speakers are protected with a DC offset internal fault protection design which turns off

the power supply at first hint of overload. An overcurrent detector mutes audio within microseconds of a short circuit, as does an output short circuit monitoring circuit. Together, these three circuits eliminate the potential need to replace fuses, revisit your autosound installer, or worse yet, replace expensive speakers due to a moment's indiscretion with your deck's volume control.

ASSIGNABLE POWER. Integrated bi-amplification and bridging circuits, along with The Carver Car Amplifier's compact configuration make it ideal for multiple-amplifier installations.

The built-in 18dB/octave electronic crossover allows use of two amplifiers in a pure bi-amplification mode without addition of extra electronics. Or, at the touch of a button, one Carver Car Amplifier can become a mono amplifier for subwoofers while the other Carver Amplifier handles full range. Or, for astonishing dynamic and frequency response, two Carver Car Amplifiers may be operated in mono mode into 8 ohms for a 240 watt per channel car system which will truly do justice to digital without taxing your car's electrical generation system.

INNOVATIVE POWER. Can 1/10th of a cubic foot of space hold yet more innovations? Yes.

Carver has addressed the ongoing problem of head-end/power amplifier level matching: Output of current car decks varies widely from brand to brand and model to model. The result can be a less than perfect match. The Carver Car Amplifier incorporates circuitry which compensates for variations in head-end output, reducing noise and optimizing signal-to-noise ratio. In addition, Carver has added a subsonic filter which removes inaudible power-robbing infrasonics before they can tax the amplifier and speakers. Finally, a delayed

turn-on circuit activates the Carver Car Amplifier after your head-end unit has powered up, to eliminate starting pops and thumps.

ACCURATE POWER. It goes almost without saying that a product Bob Carver designs for the road carries the same superb electronic specifications that his home audio products are known for.

The Carver Car Amplifier is flat from 20Hz to 20kHz, down -3dB at 16Hz and 30kHz. Not coincidentally, the usual specifications given for Compact Discs. A signal-to-noise ratio of over 100dB means that, in even the most quiet luxury sedan, you will never be annoyed by hiss. The other specifications are equally as impeccable. You may peruse them in our literature or in independent reviews soon to appear.

ACQUIRABLE POWER. The remarkable Carver Car Amplifier is currently available for audition at Carver dealers across the country.

It is worth the journey. Whether you have a car system in need of the sonic excitement possible with abundant power, or are in search of the perfect complement to a new high-performance automobile, you owe it to yourself to experience the logical extension of Carver technology—The Carver Car Amplifier M-240.

Specifications

POWER OUTPUT STEREO MODE: (CONTINUOUS RMS POWER OUTPUT PER CHANNEL, BOTH CHANNELS DRIVEN, AT 13.8 VDC INPUT), 120 W INTO 4 OHMS, 20HZ TO 20kHz WITH NO MORE THAN 0.15% THD

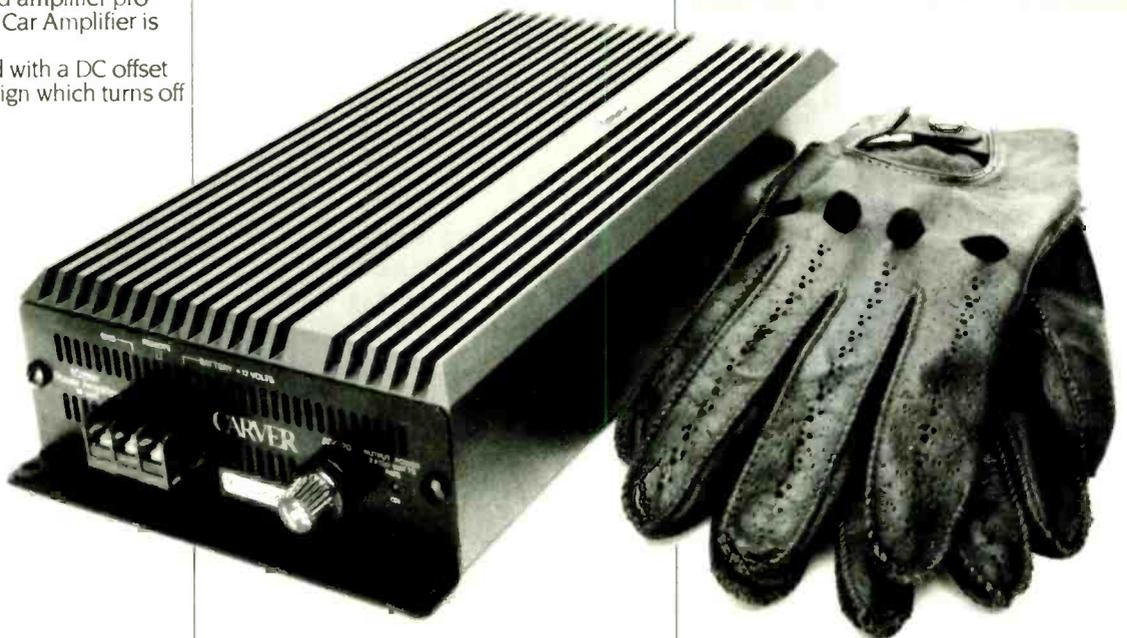
Power Output Bridged Mono Mode: (Referenced to 13.8 VDC input) 240 W into 8 ohms, 20 Hz to 20kHz with no more than .15% THD.

Input Sensitivity: Variable 250mV to 4V.

Signal to Noise Ratio: (Referenced to 120 W, A weighted into 4 ohms.) Greater than 100 db.

Crossover: 115 Hz, 18 dB/octave.

Weight: 4.7 lb.



SILENT RUNNING.



**INTRODUCING THE ONLY AM/FM TUNER/
CASSETTE DECKS CAPABLE OF CUTTING
MULTIPATH INTERFERENCE UP TO 92.9%!
FROM CARVER, NATURALLY.**

The new TX-Seven and TX-Nine auto-reverse AM/FM tuner/cassette audiophile decks represent yet another example of Carver's ability to solve previously insoluble audio problems and deliver you more musical enjoyment.

CARVER TUNER TECHNOLOGY TAKES TO THE ROAD.

Each deck employs the same Asymmetrical Charge-Coupled FM Detection circuitry as Carver's revolutionary TX-11a home tuner, along with an ingenious automatic computer logic-controlled antenna switching system that further vanquishes multipath distortion.

In point of fact, no other autosound tuner/cassette decks in the world — regardless of price — even begin to approach the TX-Seven and TX-Nine's ability to maintain a hiss-free,

glitch-free, interference-free FM listening environment in your car.

Both also possess a multitude of other useful, state-of-the-art features which will recommend them to the most discriminating autosound audiophile.

COLLIDING WITH MULTIPATH DISTORTION.

By its very definition as a moving exception point, a car's FM tuner constantly falls prey to signal reflections from hills, skyscrapers, bridges and even other vehicles. These extra phase modulating signals trick conventional tuners into producing audible sounds we call multipath.

Startling outbursts of clicks, pops, "picket fencing" and other rude and indescribable sounds.

The trouble is, by its very nature, multipath distortion cannot be cured by conventional circuit "improvements." In fact, the better an autostereo tuner is, the more faithfully it is deceived into converting phase modulation into ghastly-sounding interruptions in your favorite station.

COMPUTER LOGIC-CONTROLLED DIVERSITY ANTENNA SWITCHING DRIVES AROUND MULTIPATH.

One way to get temporary relief from interference at home is to move the antenna around slightly. That is in effect what the Carver TX-Seven and TX-Nine do with sophisticated circuitry in your car. Instead of physically moving one antenna, they turn your rear defroster into a second *separate antenna*, 180 degrees out of phase with the first. When multipath occurs, a special smart circuit automatically switches (at the speed of light) to the other antenna, automatically correcting phase and eliminating the multipath before you ever hear it. In serious cases, the circuit actually uses both antenna inputs at once, deriving a signal through sum and difference principles.

ASYMMETRICAL CHARGE-COUPLED FM DETECTION CIRCUITRY BRINGS IT ON HOME.

What little multipath distortion gets through the TX-Seven and TX-Nine's unique smart antenna system runs headlong into the remarkable tuner innovation *High Fidelity Magazine* described as "distinguished (by) its ability to pull clean, noise-free sound out of weak or multipath-ridden signals."

It specially treats the critical, multipath-prone left-minus-right (L-R) signal with a Charge-Coupled circuit that detects "dirty mirror image" signals and cancels them before they can reach your ears. Then the Leading Edge Detector circuit processes the final 5% of the L-R and interleaves it with the tuner's receiver matrix.

Alone, without antenna diversity switching, the TX-Seven and TX-Nine's Asymmetrical Charge-Coupled FM Detection Circuit

delivers a *net noise and distortion reduction of 92.9%*. Together, they set a new standard for clear, clean FM autostereo reproduction.

THE MULTIPATH MARATHON: REAL WORLD CONFIRMATION IN THE MISTS OF THE NORTHWEST.

Bob Carver is both a theorist and a practical inventor. Circuits that work on paper get exhaustively tested in the field before release.

So he assigned a hapless engineer to map out the ultimate multipath-ridden route for confirmation of the TX-Seven and TX-Nine's special circuitry. With mountains, hills, huge evergreen trees, skyscrapers, large steel bridges, good robust traffic jams and a few assorted six-story-tall Boeing hangars, it didn't take long to map out a 6-mile course that could regularly deliver at least *287 separate multipath occurrences*.

Engaging the Asymmetrical Charge-Coupled FM Detection circuit and automatic antenna switching reduced occurrences to an average of *two* during the same 6-mile course while listening to the same stations!

Although results may vary in your locale, the same 90+% reduction in multipath has been confirmed in other widely diverse portions of the U.S.: The TX-Seven and TX-Nine work, and work well.

OTHER REMARKABLE TUNING FEATURES, TOO.

First, the TX-Seven and TX-Nine also receive Long Wave and Short Wave stations. And of course, both tuner/cassette decks have plenty of random presets...you can tune any fifteen AM, FM, SW or LW stations quickly for instant recall. Plus auto-scan and manual tuning.

But they also have a system that makes setting up all fifteen presets virtually instantaneous. Just press the button marked BEST and the tuner's logic circuitry will *automatically select* the fifteen cleanest, strongest signals and lock them in on the presets!

And that's *in addition* to your fifteen individual random presets.

As with all Carver products, the TX-Seven and TX-Nine do not sacrifice ease of use for useless, complicated frills. Instead, they answer every possible need without resorting to elf-sized buttons or glitzy flashing light displays.

Their metal-compatible, Dolby® NR, auto-reverse cassette sections rival any in the world. Both the TX-Seven and TX-Nine have separate bass, treble, balance and loudness

controls and a full-function LCD display with night illumination.

All operations are signaled with a gentle "beep" that keeps your eyes on the road, not on the compact, ergonomically-styled deck.

There's even a security code system that renders the TX-Seven or TX-Nine inoperable to anyone but you (and a window sticker to impart this discouraging information to others).

Or, if you prefer, use the quick removal system that slips out your TX-Seven or TX-Nine in seconds for storage in trunk or house.

THE BEGINNING OF THE PERFECT AUTOSOUND LISTENING ENVIRONMENT.

Out of the hundreds of tuner/cassette models currently available, only the TX-Seven and TX-Nine deliver home-stereo quality FM in your car. They achieve it with unique technology. And they are built to outlast your car, no matter what kind of climate you live in.

Coupled with a clean amplifier, such as The Carver M-240 Car Amplifier and state-of-the-art speakers, your ability to transform your car into a concert hall is almost unlimited.

We urge you to audition the TX-Seven and TX-Nine at your Carver dealer soon. They can put you in the driver's seat of a unique, interference-free musical experience.



THE TX-SEVEN AND TX-NINE

TUNER: ♦ Asymmetrical Charge-Coupled FM Stereo Detector ♦ Automatic Computer-Controlled Diversity Antenna Switching ♦ AM, FM, Long Wave and Short Wave Bands ♦ 15 Random Presets ♦ BEST Circuit for Auto-Selection of 15 Strongest Stations (in addition to 15 individual presets) ♦ Preset Frequency Auto-search ♦ Auto-scan Tuning ♦ Manual Tuning ♦ LCD Frequency Read-out. CASSETTE: ♦ Auto-reverse ♦ Programmable Music Search (TX-Nine only) ♦ Computer Logic Activated Controls ♦ Dolby BNR ♦ Dolby C NR (TX-Nine only) ♦ Metal Tape Bias Selector. GENERAL: ♦ Security Code System ♦ Audible Confirmation of All Functions ♦ Separate Bass, Treble, Balance and Loudness Controls ♦ Full-function LCD Read-out w/Night Illumination ♦ CD Line Level Input (TX-Nine only) ♦ Quick Release Removal System ♦ Year Warranty. SPECIFICATIONS: ♦ Tuner S/N: 7.6dB ♦ S/N: 65dB with Dolby BNR: 70dB with Dolby C NR ♦ Tape Frequency Response 20 Hz - 15 kHz ♦ Dimensions: 180mm W x 51mm H x 160mm D (DIN mount)

Dolby is a registered trademark of Dolby Laboratories.

CARVER

Corporation, PO Box 1237, Lynnwood, WA 98046

POWERFUL

MUSICAL

ACCURATE

THE AMAZING LOUDSPEAKER

DIRECT DRIVE FULL RANGE RIBBON SYSTEM WITH UNIDRIVE PLANAR SUBWOOFER SYSTEM

- Flat Panel Design
- 25Hz to 40,000Hz Response
- 85dB (@ 2.83 volts, 1 meter efficiency)
- 1000 Watt RMS Power Handling
- Black Lacquer Piano Finish
- Superlative Sound

Expecting the unexpected. When Bob Carver designs a loudspeaker, you can be assured of three things. First, it will be out of the ordinary. Bob simply does not approach design problems in stale, traditional ways. Second, the result will be powerful, musical and accurate. And finally, it will deliver superlative performance at an affordable price.

The Amazing Loudspeaker is all this and more. A pure, uninterrupted line source of proprietary ribbon drivers edge-mounted in a trapezoidal panel. With an array of state-of-the-art planar subwoofer drivers delivering solid bass support.

How Bob Carver broke the rules. One look at The Amazing Loudspeaker and you know you're not dealing with conventional speaker design. In the process of achieving incredible imaging, ruler-flat frequency response, steel-fisted dynamics and surprising efficiency, he has broken free of many of the "rules" which are responsible for the endless spectrum of similar sounding rectangular boxes which line dealers' sound rooms.

RULE: A speaker must have an enclosure. Virtually all conventional drivers are designed to resonate within a finite volume. Unfortunately, a box contributes its own resonances and negates other acoustic opportunities which a flat panel design can take advantage of. Now, Bob Carver is not the first to eliminate the traditional enclosure. The very few designers to break this rule have produced some of the finest—the most expensive—speakers in the world. Bob shared their fascination with the flat panel design's ability to cancel all sounds 90 degrees off axis, allowing a strong, uncluttered first arrival of sound. Our earbrain system then uses this pristine phase coherent arrival to create a sharply focused and stunning image that floats majestically in space. In addition, a flat panel design can make special use of room acoustics by reflecting the rear sound waves from the back wall. The resulting 4-12 millisecond delay, combined with the pristine first arrival produces an uncanny sonic image with a large soundstage and a wonderfully believable sense of acoustic space. But to produce such a design has, until now, been limited by some rules of its own.

RULE: Ribbon drivers are inefficient. A single transducer surface that can reproduce all frequencies from 25Hz up to 40,000Hz is a breathtaking experience. The infinitely detailed, high end, pure midrange and sonorous high bass have a coherency and immediacy which is at once musical and yet totally transparent and uncolored. Unfortunately, previous fullrange ribbon designs required vast power to achieve even modest volume. Carver went back to the drawing boards to design a

special ribbon driver with the most intense magnetic force field ever produced in this type of driver. Coupled with a Carver power amplifier, the results are intense peak momentary levels above 106dB Sound Pressure Level that helps give music the lifelike quality we all search for.

RULE: Ribbon drivers are acoustically difficult to mount in a speaker. On one hand, to act as a dipole radiator (and cancel off-axis sounds) a ribbon should be mounted in free space, away from reflective surfaces. Yet it must be mounted in a baffle to smooth and extend its response. By mounting it along the extreme inside edges of The Amazing Loudspeaker, the best of both worlds has been achieved.

RULE: A flat panel speaker can't produce as much bass. Even some very expensive flat panel speakers are a bit shy in the lowest octave. Bob wanted awesome sound pressure levels as far down as 25Hz. To do so he gave enough displacement to The Amazing Loudspeaker's four Unidrive Planar Subwoofers to produce stunningly tight low bass without a trace of the resonant box boom usually produced by normal enclosures. Full 440 cubic inches of displacement (an average 12" woofer has less than 60 cubic inches) capable of delivering 108dB Sound Pressure Level AT 25Hz!

RULE: A flat panel speaker can't be placed close to the wall. You may be asking yourself how your living room can hold a speaker 66 inches high. The answer is because The Amazing Loudspeaker is just 1½ inches thick and can be placed almost flat against the wall. Other flat panel designs rely on fragile drivers which can't tolerate a powerful reflected backwave. However, The Amazing Loudspeaker has been designed to be almost totally impervious to the degradation caused by strong reflected waves. So it actually takes up less floor space than other, more expensive flat panel speakers or less capable box designs.

RULE: Flat panel speakers are expensive. Indeed, most of the world's most costly esoteric models take advantage of the free field doubler design which has the ability to deliver flawless first arrival sound with realistic ambiance from rear wall reflections. Bob's contribution to loudspeaker technology is his uncanny ability to make the exquisite affordable. In critical listening evaluation with the finest sound sources, we think you will agree that The Amazing Loudspeaker holds its own with legendary designs costing two to five times as much. And we are virtually assured that you will leave your auditions of The Amazing Loudspeaker convinced that no other speaker in its immediate price range even approaches it in coherency, detail of imaging, richness of sound field, bass response and overall musicality.

It looks as dramatic as it sounds.

Amaze yourself soon. If words could suffice to describe the exhilarating uplift that springs from the musical experience, then Beethoven could have merely written descriptive memos instead of composing whole sym-

phonies. We could expend thousands more words extolling the musical virtues of The Amazing Loudspeaker, but (thankfully) print is a pale substitute for the spine-tingling reality that awaits you at your nearest Carver dealer.

Suffice to say that The Amazing Loudspeaker was designed for the demanding ears of the uncompromising. With great pride, several broken rules and a remarkably affordable design, we invite you to listen and experience the musical joy of The Amazing Loudspeaker.

Specifications

Frequency Response: 25Hz to 40kHz, -3.0 dB from reference level

Impedance: 4.0 ohms, resistive

Sensitivity: 85dB, 1 meter, 2.82 Vrms

Maximum SPL: 113dB, symphonic music power spectrum, 110dB, rock music power spectrum

Crossover: Ribbon operates from 25Hz to 40,000Hz. Subwoofer system augments ribbon below 90Hz.

Finish: Ebony lacquer with gold and anthracite highlights

Recommended Power: 100 watts to 350 watt/channel, 8 ohm rating

Dimensions: 66"H, 30"W, 1½"D (panel size)

Weight: 145 lbs. each



AUTHORIZED CARVER DEALERS*

*A relatively but not, necessarily, completely accurate listing of AUTHORIZED CARVER DEALERS. The following is subject to on-going change. (Summer 1986)

ALABAMA

Huntsville
Sound Stage
Mobile
Fidler Hi Fi

ALASKA

Anchorage
Pyramid Audio
Fairbanks
Hotlits Stereo & Strings

ARIZONA

Mesa
Hi Fi Sales
Phoenix
Buzz Jensen's Sound Advice
Jerry's Audio Exchange
Tucson
Jerry's Audio Exchange

ARKANSAS

Fayetteville
Stereo One
Fort Smith
Stereo One
Harrison
Listening Room
Little Rock
Walloch Home Center

CALIFORNIA

Bakersfield
Sound Advice
Canoga Park
Rogersound Labs
El Torro
Genesis Audio
Encino
Sound Factor
Glendale
Marconi Radio
Huntington Beach
Haven's and Hardesty Audio
Irvine
Soundquest Audio/Video Gallery
Lancaster
California Sound Works
Los Angeles
Ameltron
Paris Audio
Royal Sound
Newport Beach
Newport Audio
North Hollywood
Sound Factor
Orange
Absolute Audio
Orlando
Audio Spectrum
Pasadena
Rogersound Labs
Redondo Beach
Systems Design Group
Riverside
Speakercraft
San Clemente
Electronic Dreams
San Diego
Sound Company
San Luis Obispo
Audio Ecstasy
Santa Monica
Rogersound Labs
Sherman Oaks
Paris Audio
Systems Design Group
Torrance
Paris Audio
Rogersound Labs
Van Nuys
Rogersound Labs
Ventura
Dexter's Camera and Hi Fi
Westminster
Rogersound Labs

COLORADO

Arvada
Soundtrack
Aurora
Soundtrack
Boulder
Listen Up Audio
Soundtrack
Wave Length Stereo
Colorado Springs
The Sound Shop

Denver
Listen Up Audio
Soundtrack
Soundtrack/Dashboard
Durango
Gramophone Audio/Video
Grand Junction
Sound Company
Littleton
Soundtrack
Thornton
Soundtrack

CONNECTICUT

Avon
Hi Fi Stereo House
Brookfield
Sounds Incredible
Danlen
Music Box
Fairfield
Audio Design
Greenwich
AUDVID
Manchester
Sounds Great
Newington
Hi Fi Stereo House
Sounds Great
New Haven
Take 5 Audio
New London
The Stereo Lab
Orange
Sounds Great
Stamford
County Audio

FLORIDA

Altamonte Springs
Audio Spectrum
Boca Raton
Vern's Stereo and Electronics
Bradenton
Kuban's
Daytona Beach
Audio Video Analysts
Stereotypes
Ft. Lauderdale
MAE
Ft. Meyers
Stereo World
Hialeah
Brandsmart U.S.A.
Hollywood
Audio Encounters
Jacksonville
Audio Tech
Lakeland
The Sound Factory
Melbourne
Audio Trend
Merritt Island
Southern Audio
Miami
Electronic Equipment
Infinite Audio Systems
Ritz Shop - Las Fabricas
Sounds Great Center
Sunday Electronics
Naples
House of Hi Fi
North Miami Beach
Harris Audio Systems
Orange Park
Audio Tech
Orlando
Audio Spectrum
Panama City
World Wide Stereo
Pensacola
All Pro Audio
Sarasota
Kuban's
St. Augustine
Audio Design
Tallahassee
Stereo Store
Tampa
Sensuous Sound Systems
Vero Beach
Lake Audio
West Palm Beach
The Sound Shack

GEORGIA

Athens
Hi Fi Buys

Atlanta
Hi Fi Buys
Duluth
Hi Fi Buys
Kennesaw
Hi Fi Buys
Marietta
Hi Fi Buys
Macon
Georgia Music
Morrow
Hi Fi Buys
Riverdale
Hi Fi Buys
Tucker
Hi Fi Buys
Union City
Hi Fi Buys

HAWAII

Honolulu
Bose Home Entertainment Center

IDAHO

Boise
Good Ear Audio/Video
Burley
The Sound Company
Hailey
Sentinel Fire & Security
Sandpoint
Electracraft
Twin Falls
The Sound Company

ILLINOIS

Champaign
Appletree Stereo
August Systems
Charleston
Mr. D's
Chicago
Musicraft
United Audio Centers
Decatur
Appletree Stereo
Deerfield
United Audio Centers
Dekalb
Appletree Stereo
Evergreen Park
Musicraft
Hoffman Estates
Electronics Exchange
Homewood
Musicraft
Morton Grove
Musicraft
Mount Prospect
Simply Stereo
Niles
United Audio Centers
Normal
Appletree Stereo
Oak Park
Musicraft
Palatine
Musicraft
Palos Hills
Gill Custom Sound
Riverdale
Simply Stereo
Rockford
Appletree Stereo
Sidney
August Systems
Springfield
Sundown One
Vernon Hill
United Audio Centers
Villa Park
Hi Fi Hutch
Musicraft

INDIANA

Bloomington
Hoosier Electronics
Carmel
Sound Productions
Evansville
Risley Electronics
Fort Wayne
Lehman Electronics
Indianapolis
IRC Audio
Lafayette
Pro Audio
South Bend
Audio Specialists

Terre Haute
Hoosier Electronics
Valpariso
Audio Junction
Vincennes
Risley Electronics

IOWA

Ames
Stereo Sound Studios
Des Moines
Stereo Sound Studios
Triad Productions
Iowa City
Glaser Audio
Marshalltown
John's Hi Fi & Sound
Mason City
Sound
Sioux City
Audio Emporium

KANSAS

Great Bend
Audio Electronics
Hays
Touch Feeling of Sound
Hutchinson
Hayes Sight & Sound
Junction City
Audio Junction
Lawrence
University Audio
Mission
Accent Sound
Overland Park
Audio Electronics
Sallina
Electronics
Electronics Unlimited
Wichita
Audio Visions

KENTUCKY

Bowling Green
Bowling Green Audio
Glasgow
Bowling Green Audio
Lexington
Ovation Audio/Video
Louisville
Music City Of Kentucky
Madisonville
Risley Electronics
Owensboro
Risley Electronics
Paducah
Risley Electronics

LOUISIANA

Baton Rouge
Kadair's
Harahana
New Sound Trek
Gretna
New Sound Trek
Lafayette
Sound Electronics
Lake Charles
Video Trends
Matarie
New Sound Trek
New Orleans
New Sound Trek
Shreveport
Products Unlimited

MAINE

Westbrook
Sound Cellar

MARYLAND

Annapolis
Midshipmens Store
Spaceways Sound
Baltimore
Soundscape
Bethesda
Audio Associates
Professional Products
Langley Park
Audio Associates
Laurel
Audio Associates

MASSACHUSETTS

Belmont
Trolley Stereo

Boston
New England Audio
Brighton
New England Audio
Brockton
Sound Track Audio
Burlington
New England Audio
Cambridge
Lechmere
New England Audio
Chestnut Hill
New England Audio
Danvers
Lechmere
Liberty Tree
Dedham
Lechmere
New England Audio
Framingham
Lechmere
Natural Sound
New England Audio

Hyannis
New England Audio
Sound Dynamics
Littleton
Radioshack
Needham Heights
Rodger's Organ of New England
Northampton
Sound & Music
Pittsfield
Taylor's Sound
Seekonk
Lechmere
Sounds Great
Shrewsbury
Integrated Tech Systems
Springfield
Lechmere
W. Springfield
Sounds Great
Woburn
Lechmere

MICHIGAN

Ann Arbor
Hi Fi Buys
The Stereo Center
Birmingham
The Gramophone
Flint
The Stereo Center
Grand Rapids
Stereo Showcase
Grosse Pointe Woods
Point Electronics
Kalamazoo
Stereo Showcase
Lansing
Hi Fi Buys
Midland
Hi Fi Buys
Muskegon
The Stereo Showcase
Potoskey
Kurtz Music
Traverse City
Kurtz Music Center
Saginaw
Listening Room

MINNESOTA

Brooklyn Center
Audio King
Burnsville
Audio King
Edina
Audio King
Minneapolis
Audio King
Minnetonka
Audio King
Rochester
Mountain Electronics
Roseville
Audio King
St. Cloud
Sound Electronics
St. Paul
Audio King

MISSISSIPPI

Jackson
Hooper Sound
Meridian
Hooper Sound

C A R V E R

MISSOURI

Cape Girardeau
Stereo One
Jefferson City
The Stereo Buff
Rolla
End of the Rainbow
Springfield
House of Sound
Stereo Buff
St. Louis
Antech Labs
Best Sound Company

MONTANA

Great Falls
Rocky Mountain Hi Fi
Helena
The Stereo Shop

NEBRASKA

Columbus
Good Music
Lincoln
Stereo West
Omaha
Custom Electronics
Stereo West

NEVADA

Las Vegas
Import Audio
Reno
Audio Authority

NEW HAMPSHIRE

Concord
Sound Waves
Hanover
Hanover Audio
Manchester
Lechmere
Re: Sound
Nashua
Re: Sound
Newington
Re: Sound
Salem
Cuomo's

NEW JERSEY

Deptford
Hi Fi Connection
Franklin
Franklin Lakes Stereo
Lawrenceville
Hi-Fi Stereo
Maple Shade
Bryn Mawr Stereo
Marlton
Hi Fi Connection
Morristown
Sight & Sound
New Brunswick
Hi Fi Haven
Northfield
Sound Incorporated
Paramus
Harvey Electronics
Leonard Radio
Toms River
Rand's Camera & Hi Fi
Upper Montclair
CSA Audio
Wyckoff
Conklin's

NEW MEXICO

Albuquerque
Sound Ideas
West Coast Sound Systems
Las Cruces
The Sound Room
Sante Fe
The Candyman
West Coast Sound

NEW YORK

Albany
Mom's Stereo Warehouse
Sounds Great
Alfred
Jericho Audio
Amherst
Sounds Great
Binghamton
JSG Audio
Brooklyn
Innovative Audio

Cedarhurst
Audio Exchange
Commack
Sound Approach
Dapew
Sounds Great
Fresh Meadows
Sound Stage Audio
Glens Falls
Audio Genesis 8
Greece
Sounds Great
Henrietta
Sounds Great
Hicksville
Audio Exchange
Designatron's Stereo Store
Ithaca
Sound Image
Nanuet
Eardrum of New Jersey
New York
Audio Exchange
Cosmophonie Sound
Grand Central Radio
Harvey Electronics
Leonard Radio
Lyric Hi Fi
Thalia Hi Fi
Sound Stage Audio
Oneonta
Soundtrack Hi Fi
Patchogue
Square Deal Radio & TV.
Potsdam
Northern Music Company
Queensbury
Drivers Seat
Rochester
Maynards Sound World
Salamanca
The Soundtrack
Syracuse
Sounds Great
Tanawanda
Stereo Plus
Vestal
Hart Electronics
Wappingers Falls
Sound Odyssey
Westbury
Audio Exchange
West Seneca
Stereo Plus
White Plains
Audio Experts
Harvey Electronics
Lyric Hi Fi
Williamsville
Stereo Plus
Woodside
Leonard Radio

NORTH CAROLINA

Asheville
Sound One
Conover
Tri-City Electronics
Durham
Tart's
Fayetteville
Tart's
Greenville
Todd's Stereo
High Point
Sound Source
Morehead City
Anderson Audio
Raleigh
Hi Fidelity International
Rocky Mount
Tart's
Wilmington
Tart's

NORTH DAKOTA

Bismark
Egger's Audio
Minot
Midwest Audio

OHIO

Akron
Audio Craft
Golden Gramophone
Cambridge
Stereo Limited
Canton
Audio Corner
Metradyne Corporation

Cleveland
Audio Craft
Cincinnati
Swallen's
Columbus
Digital Sights & Sounds
Palmer Electronics
Dayton
Carlin Audio
Findlay
Audio Craft West
Heath
Threshold Audio
Lima
Hart Audio
Lorain
Grasso's Audio
Mansfield
Swallen's
Mayfield Heights
Audio Craft
Middleton
Swallen's
Parma Heights
Phil Reddish Stereo
Reynoldsburg
Digital Sights & Sound
Sandusky
Audio Force
Toledo
Audio Craft West
Westlake
Audio Craft
Wooster
Far East Audio

OKLAHOMA

Barlottesville
Copeland Appliance Center
Edmond
K and F
Lawton
Audio Tech
Midwest City
Audio Midwest
Shawnee
Rave Electronics Sound System
Stillwater
Audio Sound
Tulsa
Audio Advice

OREGON

Beaverton
High Technology Systems
Bend
Audio Video Labs
Corvallis
Good Guys Stereo
Eugene
Good Guys Stereo
Gresham
Fred's Sound of Music
Klamath Falls
Sound Chamber
La Grande
La Grande Stereo & Music
Medford
Larsons Home Appliance
Portland
Fred's Sound of Music

PENNSYLVANIA

Bryn Mawr
Bryn Mawr Stereo
Camp Hill
Bryn Mawr Stereo
Clearfield
Mack Audio Electronics
Erie
House of Records
Frazer
Bryn Mawr Stereo
Gibsonia
The Listening Post
Greensburg
Pat's Stereo Outlet
Jenkintown
Bryn Mawr Stereo
Lewisburg
M & M Stereo
Montgomeryville
Bryn Mawr Stereo
Natrona Heights
Stereo Land
Philadelphia
Bryn Mawr Stereo
Pittsburgh
Audio Junction
The Listening Post
World Wide Stereo

Quakertown
Bryn Mawr Stereo
Throop
Shehadi Stereo
Washington
Stereo Outlet
West Reading
DS Audio
Whitehall
Bryn Mawr Stereo
Winber
Pro Audio

RHODE ISLAND

East Providence
New England Audio
Providence
New England Audio
Warwick
Lechmere
New England Audio
Sounds Great

SOUTH CAROLINA

Anderson
John B. Lee 'For Music'
Charleston
Read Brothers Stereo
Columbia
Images Video & Electronics
John B. Lee 'For Music'
Florence
Tart's
Greenville
John B. Lee 'For Music'
Greenwood
John B. Lee 'For Music'
Rock Hill
Visionex

SOUTH DAKOTA

Brookings
Stereo Town/Media Marketing
Rapid City
Team Electronics
Sioux Falls
Pro Audio

TENNESSEE

Nashville
Audio Systems

TEXAS

Beaumont
Beaumont Sound Company
Bryan
Sound Waves
College Station
Audio Video
Corpus Christi
Tape Town Audio Video
Dallas
Digital Center
Labute Professional Sound
Ft. Worth
Marvin Electronics
Houston
B&M Electronics
Groove Audio & Video
Horizon Satellite Center
Shelfield Audio
Laredo
Metex International
Longview
Stereo & Record Center
McAllen
El Centro Sound
Nacodoches
Spinnet Music
Odessa
Harold's Electronics
Richardson
Stereo Dallas/Richardson
San Antonio
Bill Case Sound
Stereo International
San Marcos
Discovery Audio Video
Texarkana
Audio Center
Sound Towne
Tyler
Stereo & Record Center
Waco
Audio Video of North America Sound
Wichita Falls
Audio Tech

UTAH

Logan
Lynn's Audio Video

Ogden
The Hi Fi Shop
Saint George
Arrow Audio Video
Salt Lake City
Audio Works

VERMONT

Essex Junction
Creative Sound
Rutland
Sound Directions
South Burlington
Audio Den

VIRGINIA

Alexandria
Excalibur Audio
Arlington
Audio Associates
Charlottesville
Stereotypes
Franklin
Audio Showroom
Hampton
Sound Shop
Harrisonburg
Ace Music'n Electronics
Leesburg
Evergreen Audio
Norfolk
Sound Shop
Richmond
Gary's
Roanoke
Lee Hartman & Sons
Springfield
Audio Associates
Virginia Beach
Sound Shop

WASHINGTON

Bellevue
Magnolia Hi Fi
Bellingham
QC Stereo Center
Bremerton
Bremerton Stereo Center
Ellensburg
Stereocraft
Lynnwood
Magnolia Hi Fi
Marysville
Bry's TV
Oak Harbor
QC Stereo Center
Seattle
Definitive Audio
Magnolia Hi Fi
Spokane
Hupp'n's
Tacoma
Magnolia Hi Fi
Paulson's
Walla Walla
Stereocraft
Yakima
Stereocraft

WEST VIRGINIA

Huntington
Mack & Dave's
Morgantown
Sound Investments
Wheeling
Look & Listen

WISCONSIN

Appleton
American TV of Marquette
Green Bay
Hi Fi Heaven
Madison
American TV of Madison
Manitowish
Ray's World of Electronics
Marinette
The Sound Seller
Marquette
American TV of Madison
Wauslesha
American TV of Wauslesha
Wisconsin Rapids
Salon 1

WYOMING

Cheyenne
Electronics Unlimited

CARVER

POWERFUL

MUSICAL

ACCURATE



conrad-johnson CD Player

The Sonographe SD-1 uses four-times oversampling, digital filtering, and separate D/A converters for each channel. The analog audio circuits include an active

final filter using FETs and polypropylene capacitors. Features include programmable play and forward and reverse search. Price: \$695. For literature, circle No. 102

Ortofon MC Cartridges

Ortofon's new line of moving-coil cartridges have prices and output levels comparable to moving-magnet designs. The X-series cartridges use a new samarium cobalt magnet design and a coil of extra-thin (18- μ m) copper wire wound by a new automated process. Output is 2.0 mV for 5 cm/S at 1 kHz; recommended tracking force is 2.0 grams, and recommended load impedance is 47 kilohms. Frequency response is 20 Hz to 40 kHz for the



fine-line-stylus X3-MC, and 20 Hz to 30 kHz for the elliptical-tipped X1-MC. Prices: X3-MC, \$140; X1-MC, \$75. For literature, circle No. 101

Alpine Head Unit

Alpine's 7267 head unit incorporates four power amplifiers, each rated at 8 watts per channel from 40 Hz to 20 kHz at 0.8% THD, as well as preamp-level outputs and

faders. The unit has preamp inputs too, allowing the amplifiers to be used with external crossover networks or to amplify an external CD player. The cassette-deck section incorporates Dolby B NR,

ignition key-off pause, automatic metal/normal EQ setting, and a music sensor. The tuner section includes 12 station presets, auto seek, and manual local/distant and stereo/mono switches. The tuner's 50-dB quieting sensitivity is 20.7 dBf and its selectivity is 80 dB; the tape deck is rated at 0.06% wow and flutter (wtd. rms), 64-dB S/N with Dolby NR, and frequency response of 30 Hz to 20 kHz, \pm 3 dB. Price: \$480. For literature, circle No. 103



American Acoustics Loudspeaker

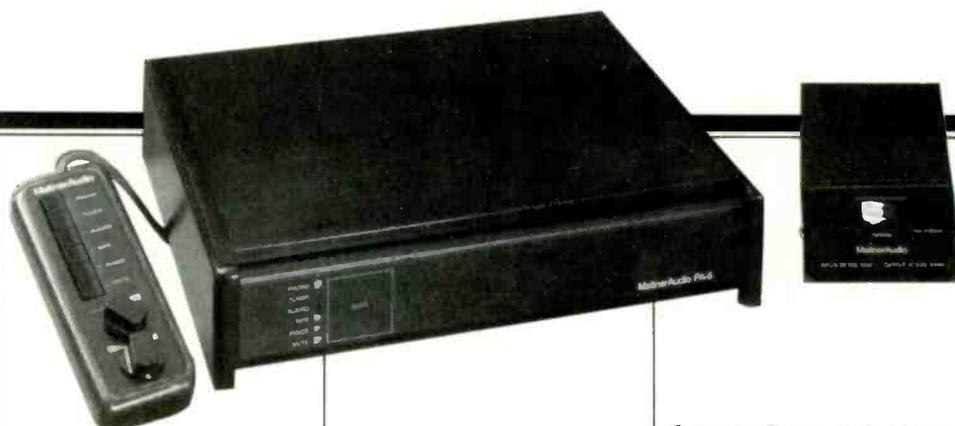
The D8500 is a three-way system featuring a 15-inch woofer, a 5-inch midrange driver with a sealed back, and a 1-inch soft-dome tweeter. Frequency response is specified as 37 Hz to 22 kHz, with sensitivity of 98.5 dB (1 watt, 1 meter) and power-handling of 205 watts rms, 410 watts peak. To minimize diffraction, the cabinet fronts are bevelled and the grille is flush-mounted with a bevelled-edge frame. Price: \$489.50 each. For literature, circle No. 100



WHAT'S NEW

Meitner Audio Preamp

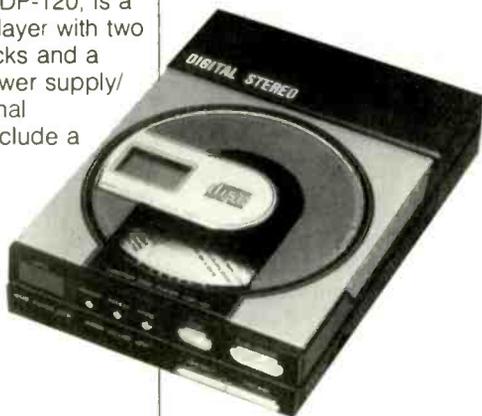
The controls of Meitner's PA-6 preamplifier are not found in the usual place, the front panel. Instead, the switches that select the signal source, tape monitor, muting and phasing, and the pots which control each channel's level, are on a wired remote control. Only control signals pass between the remote and the preamp, so the cables can be extended without



affecting the sound. Three user-interchangeable phono circuits are available. Price: \$1,650. For literature, circle No. 104

Citizen CD Player

Citizen's first audio product, the CDP-120, is a portable CD player with two headphone jacks and a built-in a.c. power supply/charger; optional accessories include a



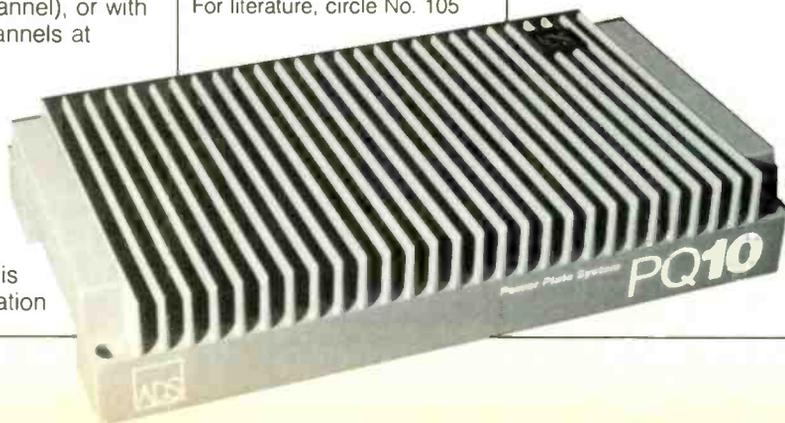
rechargeable battery pack and a car-battery adaptor.

Available in black or blue, the unit has 16-selection programming and track-number and time displays. If left in pause mode for more than 5 minutes, it will automatically shut off. Price: \$249.95. For literature, circle No. 106

ADS Car-Stereo Amplifier

Flexible in its operation, the PQ10 can be used three ways—as a four-channel amplifier (30 watts per channel into 4 ohms), as a stereo amplifier (80 watts per channel), or with two of its channels at 30 watts each and the other two bridged for 80-watt monophonic output. With an external crossover, this last configuration

can be used to power a stereo system with a mono subwoofer. The amp is also rated to handle 2-ohm loads. Dynamic headroom is 2.2 dBA, augmented by soft clipping. Price: \$440. For literature, circle No. 105



Geneva Group CD Album

Storage space designed for LP records is common, but storage for CDs is still in short supply. The Model PF-400 CD Storage Album therefore holds four CD jewel boxes in a 12-inch square designed to fit wherever LPs do. The clear plastic PF-400 has a carrying handle, plus labels which can be used to display the contents of all four discs on the Storage Album's spine. Price: \$7.99. For literature, circle No. 107

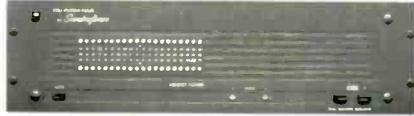


1987 BUYERS' GUIDE to SEPARATES

19" RACK-MOUNT AUDIO COMPONENTS FOR THE SERIOUS AUDIOPHILE

A CONDENSED GUIDE LISTING FEATURES, SPECIFICATIONS, SIZES AND PRICES...

Power Amplifiers



PRO-POWER FOUR, MOSFET stereo power amp **300** Continuous RMS Watts per channel @ 4 ohms, 205 Continuous RMS Watts per channel @ 8 ohms, 20-20kHz, **450** Watts RMS @ 2 ohms, **900** Watts RMS @ 4 ohms Bridged. THD < 0.05%, Hum and Noise: -105 dB, Front Panel switching for 2 pair of speaker systems. 40-LED 0-1600 Watt Power Meters. 19"W x 5 1/4"H x 11"D, 30 lbs. **\$699**

PRO-POWER THREE MOSFET stereo power amplifier, same as Pro-Power Four, except no 40-LED power meters. 30 lbs. **\$599**

PRO-POWER EIGHT MOSFET stereo power amp. **600** watts per channel continuous RMS power into 4 ohms; 375 watts per channel continuous RMS power into 8 ohms, 20-20,000 Hz with no more than 0.05% THD; 900 watts per channel RMS into 2 ohms; Freq. resp. 20-20,000 Hz ± 0.1 dB; S/N -105dB; slew rate 50V/microsec; TIM unmeasurable; IM 0.05%. 19"W x 5 1/4"H x 16 1/2"D, 67 lbs. **\$1,399**

PM840 Power Amplifier, MOSFET stereo, features no-current-limiting power supply, **300** w/p/c RMS into 4 ohms; 450 w/p/c RMS into 2 ohms; 205 w/p/c into 8 ohms @ <0.05% THD; Freq. resp. 20 to 20,000 Hz ± 0.1 dB; S/N >105dB; slew rate 50 V/microsec; TIM unmeasurable; damping factor 200. 8 1/2"W x 5"H x 12"D; 22 lbs. **\$499**



PCX-1, 5 1/4" x 19" Rack Mount/Cabinet kit, for PM840, shown installed. 11 lbs. **\$49**

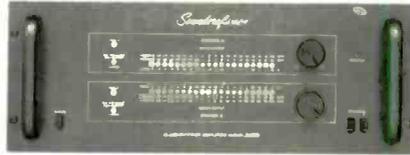
PCX-2 19" Rack Mounting kit for two PCR800 or PM840's, 2 lbs. **\$49**



PCR800 Power Amplifier, MOSFET stereo, 205 watts per channel continuous RMS 20-20,000 Hz into 8 ohms <0.05% THD; TIM unmeasurable; S/N -105dB; 8 1/2"W x 5"H x 12"D; 22 lbs. **\$449**



DDR1200 Power Amplifier, with 100-LED frequency spectrum analyzer display. Features Class-H Vari-Portional circuitry; Autobuffer circuitry for continuous 2-ohm operation; 40-LED power output Meters from 0.02 up to 2,000 Watts; Truclip indicators for each ch; Mono Bridging switch on rear panel. TIM <0.02%; 250 W/ch into 8 ohms; **375** W/ch into 4 ohms continuous RMS, 20-20,000 Hz, THD <0.09%. 19"W x 7"H x 12"D; 52 lbs. **\$1,199**



A5002 Power Amplifier, Class-H Vari-Proportional circuitry and Autobuffer for continuous operation into 2 ohms. Features auto crowbar protection circuit for output protection without current limiting; 40-LED 0-1,000 Watt power output Meters; Front-Panel switching for 2 pairs of speakers; True Clipping indicators; Input Level controls. Output power 250 W/ch into 8 ohms, **375** W into 4 ohms continuous RMS, 20-20,000 Hz at <0.09% THD; S/N >105 dB; slew rate >50 V/microsec; TIM <0.02%. 19"W x 7"H x 12"D, 50 lbs. **\$899**

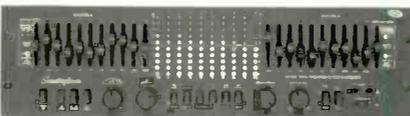
A5001 Power Amplifier, Same as A5002 except no Meters and no Input Level controls. 50 lbs. **\$749**



A2502 Power Amplifier, MOSFET stereo with 40-LED 0-500 Watt power Meters. Features Front Panel switching for 2 pairs of speakers; Input Level controls; True Clipping indicators. Output power 125 W/ch into 8 ohms, **190** W/ch into 4 ohms, continuous RMS, 20-20,000 Hz at <0.05% THD; S/N >105 dB; damping factor 200. 19"W x 5 1/4"H x 10 1/2"D, 30 lbs. **\$649**

A2801 Power Amplifier. Same as A2502 except no Meters and no Level Controls, 28 lbs. **\$549**

Signal Processors



AE2000 Real Time Analyzer/Equalizer, World's most accurate (**0.1dB**) Real-Time Analyzer/Equalizer. The first and only analyzer with Two Independent real-time analysis systems. (a Direct **100-LED** display with **2dB** readout and a **0.1dB** readout Differential/Comparator) Pink-noise generator, 10-octave Real-Time Display with Adjustable Decay rate, Mic. preamp, input for analysis for any Signal Processor, Autoscans mode. Center frequencies 32, 64, 125, 250, 500, 1k, 2000, 4,000, 8,000, 16,000 Hz; display accuracy 0.1dB; Auto-Scan sweep rate 0.1-10 secs/octave; Mic. preamp input impedance 2K ohms; Frequency response 20-20,000 Hz ± 0.1 dB; includes 20-Band all-Passive-Coil Equalizer, with boost/cut range ± 15 db, max. 22db, 0.1dB Differential/Comparator readout accuracy LED's for instantaneous and precise in/out signal balancing, THD <0.01%, TIM unmeasurable, Hum and Noise -114dB at full output. EQ Bypass/Defeat, Monitor and Record selectors on front panel. 19"W x 5 1/4"H x 11"D, 21 lbs. **\$799**



DC4415 Third-Octave Equalizer, stereo with 21 controls/channel. Center frequencies 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1,000, 1,600, 2,500, 4,000, 6,300, 10,000, 16,000 Hz. Features EQ defeat; Infrasonic filter; Tape Monitor and Tape Record;

Differential/Comparator[®] circuitry for Unity Gain setting to within **0.1db** accuracy for highest Dynamic Range capability. THD and IMD 0.01% at 2 V; S/N 114dB at full output; input imp 47,000 ohms. 19"W x 5 1/4"H x 11"D, 16 lbs. **\$599**

DC2215 Differential/Comparator[®] Equalizer, Stereic 10-band, with Differential/Comparator[®] True-Unity-Gain circuitry for Input-to-Output balancing accuracy to within **0.1dB**. Equalizer filter circuits use precision wire-wound Passive-Coil inductors for high gain, low noise and distortion. Front panel controls include Tape monitor, LED defeat/EQ defeat and EQ Tape Record. THD and IMD <0.01% at 2 V; S/N ratio 144 db at 10V; boost/cut range ± 15 db, max 22dB. Includes Frequency Spectrum Analyzer Test Record, Computone Charts, Cables. 19"W x 5 1/4"H x 11"D, 17 lbs. **\$399**

DC2214 Differential Comparator Equalizer. Same as DC 2215 except equalizer filter circuits have op-amp synthesized inductors. THD and IMD <0.01% at 2 V; S/N ratio 106 dB at 10 V; boost/cut range ± 12 dB, max 18 dB. 19"W x 3 1/2"H x 9"D, 13 lbs. **\$299**

Preamplifiers



DX4200 Preamplifier/Equalizer, with Compact Disc Player and Video/Audio inputs. Phono preamp has Variable Cartridge Loading (50-800 pF, 100/47,000 ohm); phono level controls for adjustable ± 20 dB gain; MC variable reluctance or MM cartridge inputs; 3-way Tape Dubbing; 2 external Signal-Processor Loops; conventional line outputs plus separate Autobridge Line Outputs for Mono Bridging of Most Amps; EQ S/N 114 dB; Passive-Coil filters with 15 dB boost or cut for each octave, max 22 dB; Differential Comparator circuitry for True **0.1 dB** Unity-Gain EQ balancing; includes Frequency Spectrum Analyzer test record and instant reset Computone Charts. 19"W x 5 1/4"H x 11"D, 20 lbs. **\$699**

DX4100 Preamplifier/Equalizer, with built-in conventional line outputs plus separate bridging line outputs for mono bridging of most amps. Features 2 external signal-processor loops; 2 phono inputs; 2 tape inputs with 3-way dubbing; phono S/N 97 dB, THD 0.01%; 12 dB EQ boost and cut for each octave, max. 18 dB; Differential/Comparator circuitry for **0.1 dB** Unity Gain; includes Frequency Spectrum Analyzer test record and instant reset Computone charts. 19"W x 5 1/4"H x 11"D, 19 lbs. **\$549**

DX4000 Preamplifier. Same as DX4100 without graphic equalizer but with 3 external signal-processor loops. 19"W x 3 1/2"H x 11"D, 15 lbs. **\$399**



DX3000 Preamplifier, Inputs for CD player, Video/Audio, Tuner, Phono, Two Tape Decks with dubbing, Bass and Treble controls, and signal processor loop. THD <0.01%, S/N 95 dB. 19"W x 2 3/4"H x 10"D, 10 lbs. **\$299**

Tuners



T6200 AM/FM Stereo Digital Tuner Digital quartz PLL tuner with 16 Station presets, 5-digit Station Readout, Auto-Scan tuning, active High Blend filter. Broad-Band AM switch, 19" rack-mount front panel. IHF sens 1.6 μ V; S/N 75 dB; distortion 0.08%. 19"W x 2 3/4"H x 12"D, 10 lbs. **\$299**

All Prices and Specifications are subject to change without notice.

Soundcraftsmen Inc., 2200 So. Ritchey, Santa Ana, CA 92705 PH: 714-556-6191 TELEX/TWX 910-595-2524 CANADA: E.S. Gould, Montreal, Quebec, H4T1E5

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the Soundcraftsmen STORY

Soundcraftsmen Celebrates it's 17th Year of Manufacturing Audio Components for the Discriminating Audiophile... Right Here in Santa Ana, California

From the introduction of our first Equalizer in 1969, through to our present-day product line of 26 models of U.S. Made Amplifiers, Pre-amps, Equalizers, and Analyzers, all made right here in Santa Ana, our goal has been to Design and Manufacture very affordable State-of-the Art "SEPARATES" with all of the unique and necessary features that audiophiles demand... and to assure the highest level of performance, 35% of Soundcraftsmen's Production Staff is involved in Quality Control procedures... 100% Quality Control is seen on EVERY unit manufactured, and EVERY transistor and EVERY circuit board is put through an individual test.

More Importantly, EVERY completed unit is final Q-C Tested 3 TIMES!... First, EVERY unit is electronically tested for specification accuracy... and Second, EVERY unit is connected to a High Fidelity system and listened to—just like you would at home... and Third, if your unit meets or exceeds the critical standards set forth on these tests, it is then hooked up and tested again on the final packing line, before it is packaged for shipment. EVERY unit, absolutely no exceptions, is FINAL-TESTED 3 SEPARATE TIMES, in 3 SEPARATE DEPARTMENTS, to assure you unsurpassed Reliability as well as superb Performance.



PRODUCTION AREA, MAIN PLANT



PRECISION COIL-WINDING



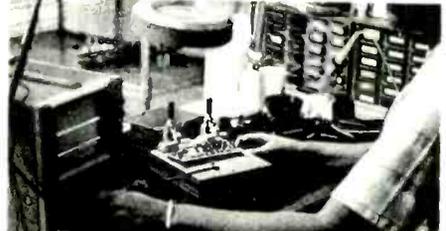
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QUALITY CONTROL #1



Meet Paul Rolfes, Chief Engineer, V.P., and inventor of Soundcraftsmen's many "FIRSTS" in amplifier technology...

His inventions in electronic power circuitry have resulted in more than a dozen original patents, plus all of the following Audio industry "FIRSTS":

- FIRST**—with signal-tracking multiple-rail power supplies.
- FIRST**—with fully electronic automatic resetting crowbar circuitry.
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- FIRST**—with automatic low-impedance power supply selection.

The Audio Industry's Most Complete line of Power Amplifiers— 16 Models of Power Mosfet and Class H Amplifiers, from 125 Watts p/c to 375 Watts p/c @ 8 ohms, 20-20kHz, < 0.05% THD.

Our newest Power Mosfet Amplifier is the PCR800, a phenomenal value in High-Current and High-Power... 205 watts per channel output at 8 ohms, 20Hz to 20kHz with less than 0.05% THD, and with a Performance/Value ratio that is unmatched... a total of 410 watts RMS at 8 ohms, over 600 watts RMS at 4 ohms, and over 900 watts RMS at 2 ohms **\$449.00**



Shown above: A2502 Power Mosfet 125 Watts per Channel

Yes, rush me the name of my nearest dealer, 1986 Buyer's Guide, and info on FREE 16-page color Brochure and 12" LP Test Record System Evaluation Kit. Mail to Soundcraftsmen, 2200 S. Ritchey, Santa Ana, CA 92705.

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16-PAGE FULL COLOR BROCHURE, AND \$19.95 SYSTEM EVALUATION KIT: 1-12" LP Spectrum Analysis Test Record, 2-sets of Computone Charts, 1-Connector Cable for comparison test, 1-instruction folder for use with your present stereo system. Send coupon for FREE SPECIAL OFFER DETAILS.



PRO-FORMANCE COUNTS!

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NEW PRO-SYSTEM ONE

SEPARATES OR SYSTEMS?
Soundcraftsmen is the only manufacturer to give you a choice of Professional quality 19-inch rack mount Separates, a moderately priced high powered System, or a convenient and flexible stack of Separates to match or mix with your present components...

SYSTEM ONE FEATURES
Our new PM840 410-watt Power Mosfet amplifier at only 499 dollars, with matching tuner and preamplifier, the total system just over 1,000 dollars at retail!

OUR 19 INCH RACK-MOUNT
Professional separates give you a clear choice of the finest American quality separate components, to add to your present system, or to start a new system. 410-watt amplifiers from 449 dollars to our 1,399 dollar PM1600, incredibly powerful at 900 watts RMS per channel into 2 ohms, and over 3,000 watts of instantaneous peak reserve power into 2 ohms! The PM840 provides 205 WPC @ 8 ohms, 20 Hz to 20 kHz, less than 0.05 percent THD, and over 1600 watts instantaneous peak reserve power into 2 ohms!

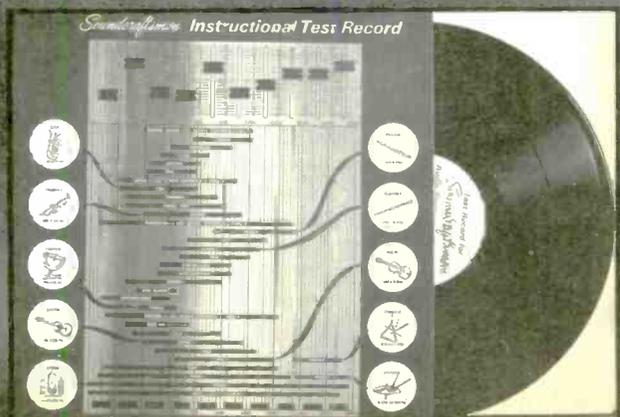
You MUST see and HEAR this rib cage-rattling superb audio system, to know how great your music can sound when played through Professional components...Ask your nearest dealer for a CD demonstration on a Soundcraftsmen system, for a full realization of CD's tremendous Dynamic Range and its outstanding contribution to a new dimension in Stereo listening enjoyment.

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Test Record, 2-sets of Computone Charts, 1-Connector Cable for comparison test, 1-instruction folder for use with your present stereo system. **JUST WRITE TO US OR CIRCLE READER SERVICE CARD** for FREE SPECIAL OFFER DETAILS.



BIG POWER FOR YOUR RECEIVER

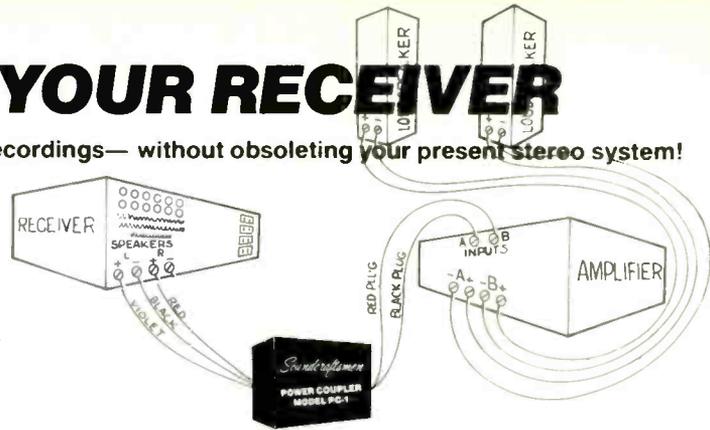
Add the power you need for the new digital, dbx or Dolby recordings— without obsoleting your present stereo system!

PC-1...just \$39.00!

Don't sell or trade in your stereo receiver just because you need more power!

The Preamp/Tuner section of your receiver can now be instantly coupled to a Soundcraftsmen high-power amplifier with the amazing new PC-1 Power Coupler.

The PC-1 connects to your receiver (or integrated amplifier) speaker terminals, —perfectly matching the inputs of any Soundcraftsmen amplifier!



**THE WORLD'S SMALLEST, LIGHTEST,
MOST POWERFUL CONTINUOUS POWER
STEREO AMPLIFIER!**

410 watts—MOSFET— \$449.00
205 watts per channel
 @ 8 ohms, 20 Hz—20 KHz, less than 0.05% THD...
300 watts per channel @ 4 ohms...

“PHASE-CONTROL-REGULATION”®

Soundcraftsmen's research into Digital Audio Technology has resulted in a major advance in amplifier design—Phase Control Regulation®. The world's first PCR amplifier, the PCR800, sets continuous performance and reliability standards never before possible in audiophile equipment.

**You must HEAR it, to believe it!
The improvement is fantastic!**

You'll love it!



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However, many additional Dealers—too numerous to list here—are located throughout the U.S. with many models on display. If no dealer is shown near you, or you encounter any difficulty, please phone us at 714-556-6191, ask for our “Dealer Locator Operator.”

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- Sacramento
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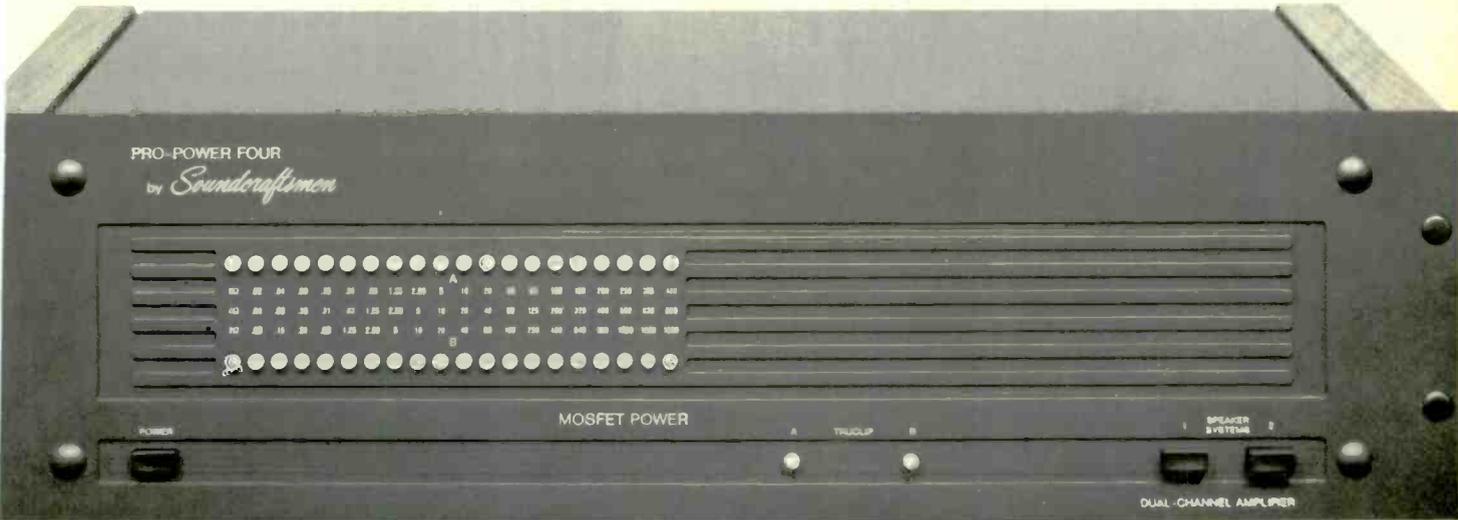
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- Sheboygan
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- Waukesha
- AMERICAN TV



“EXPLOSIVE” MOSFET POWER... CLEARLY A BEST BUY

THE NEW *Soundcraftsmen* ^{MADE IN U.S.A.} “PRO-POWER FOUR”
MOSFET AMPLIFIER IS YOUR BEST BUY, AND HERE ARE
A FEW REASONS “WHY”:

REASON #1: Dynamic Power to spare, up to 550 watts into 2 ohms.

REASON #2: High Current where it's really needed. 50 Amps per channel available for instantaneous peak output capability of 2500 watts per channel.

REASON #3: Pure tube-like sound... smooth, clean, no “edginess,” through the superb—and costly—MOSFET fully-complementary power output stages. You MUST hear this rib-cage-rattling superb new Audio Amplifier... hear the MOSFET difference, so pure it outperforms even the “esoteric,” “price-no-object” amplifiers!

REASON #4: Distortion-free performance, typically 0.02% THD and IMD, with TIM unmeasurable. Continuous FTC total power of 410 watts at 8 ohms, 20Hz to 20kHz, 205 watts channel, < 0.05% THD.

REASON #5: Precision-Calibrated 40-LED Power Meters, allowing continuous and accurate monitoring of each channel's performance at 2 ohms, 4 ohms, and 8 ohms.

REASON #6: It is guaranteed to improve and enhance your present receiver or Integrated Amplifier, with our \$39.00 Power Coupler, the PC1. It enables you to plug In any Soundcraftsmen Amplifier to your existing stereo system, whether Receiver, or Integrated Amplifier.

REASON #7: The Pro-Power Four is an ideal “main component” for up-grading—or starting—a High Powered stereo system. It is capable of fully reproducing, with distortion-free, spine-chilling sonic clarity, all of the demanding high dynamic peaks inherent in the new Compact Discs and Hi-Fi VCR's.

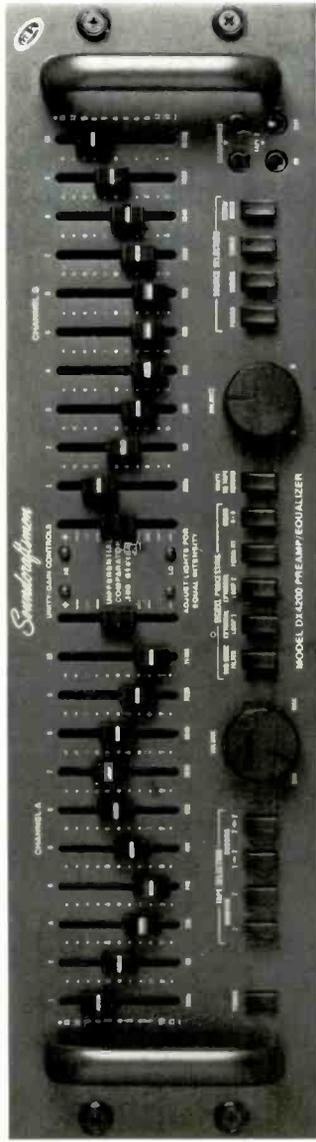
REASON #8: Full-size 19" Rackmount panel with dark charcoal off-black finish, is a standard feature, as shown, with optional hardwood side panels available.

REASON #9: Speaker System switching, 1, 2, or both... plus the High Current low impedance power to drive Multiple Speaker Hookups in addition to Systems 1 and 2.

REASON #10: It shares the outstanding Performance/Value rating of all 16 Soundcraftsmen Professional and Hi-Fi amplifiers, ALL designed AND manufactured right here in Santa Ana, California. Our 410-watt total FTC continuous power Basic Amplifiers start as low as \$449.00, and a complete 410-watt system, including our AM-FM Tuner and Control Center Preamplifier shown above, has a list price of just over \$1,000.00.

For a FREE 16-page FULL-COLOR, FULL-LINE BROCHURE with the Soundcraftsmen Story, and the Why's and How's of Equalization, plus details on our FREE 12" TEST RECORD offer and name of nearest Dealer, please phone our “Dealer Locator” operator at 714 556-6191—or write to us at 2200 So. Ritchey, Santa Ana, CA 92705. In Canada: Tri-Tel, 105 Sparks Ave., Ontario M2H 2S5.

PRE-AMPLIFIERS by Soundcraftsmen



DX4200 \$699.



DX4100 \$549.



DX4000 \$399.

DX4200 DESCRIPTION

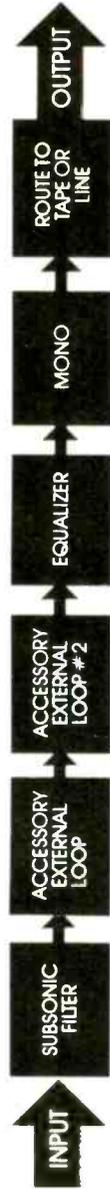
The new DX4200 Preamp/Equalizer is the most versatile preamplifier available. It was designed for the most demanding audiophile who takes a "hands-on" approach to his or her music system. The preamp section includes specially-designed "overload-proof" inputs for the latest CD players, with their potential for unsurpassed wide dynamic range. The phono preamp utilizes fully-discrete circuitry instead of the more common IC "chips," eliminating coloration and making it exceptionally quiet. It accommodates most moving-coil cartridges and even permits adjustment in capacitance loading from 50 picofarads to 800 picofarads, in 50 picofarad steps, for exact matching of virtually any phono cartridge. Soundcraftsmen's exclusive AutoBridge® circuitry permits the user to start with one stereo amplifier, and then to add a matching amplifier at a later date, operating both amplifiers in "bridged mono mode," thereby TRIPLING per-channel power output with no loss in performance. Ideal for meeting the power demands of digital audio. Only the finest available parts, such as the legendary Noble 31-position resistance-loaded volume control, are used in Soundcraftsmen preamps. Three-way tape dubbing and two external signal-processor loops add to the DX4200's versatility.

The equalizer section is identical to the DC2215, described on pages 3 and 4, considered to be the finest octave-band equalizer available. The DX4100 and DX4000 include many of the features of the DX4200, as the comparison chart below indicates.

	DX4200	DX4100	DX4000
<input type="checkbox"/>	Dual 10-Band ± 15 dB equalization.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Dual 10-Band ± 12 dB equalization.	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Differential/Comparator® Unity Gain/LED adjustments	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Sub Sonic Filter: -3 dB @ 15Hz, 12dB/octave rolloff	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Auto/Bridge®	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Variable cartridge loading	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Individual phono input level adjustments	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Moving-coil cartridge inputs	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Two mono phono preamplifiers	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	CD Digital Audio Inputs	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Noble 31-position volume control	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Inputs for audio portion of video source	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Three-way tape dubbing	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Two-way tape dubbing	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Low-impedance headphone output Jack w/amplifier	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Front-Panel tape inputs & outputs	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Three signal-processor loops	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Two signal-processor loops	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Handles	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	19" rack-mount front panel	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Frequency Spectrum Analyzer Test Record	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Compufone Charts	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/>	Genuine Walnut or Oak side panels available	<input type="checkbox"/>	<input type="checkbox"/>

DX4200 SPECIFICATIONS

SIGNAL PROCESSING



Four useful and individually costly components are combined in each Soundcraftsmen Preamp/Equalizer: a Ten-Band Stereo Equalizer, a superb Phono Preamplifier, a versatile Patch-Bay Switching Box and a stereo amplifier Bridging Adaptor. With the growing number of excellent signal-processing devices available, it has become extremely difficult to connect these components to a stereo system and then be

able to route any desired combination to loudspeakers and/or tape recorders. With Soundcraftsmen preamps it is as simple as pushing a button! No more cable-switching; add-on devices are permanently connected to the patch-bay section of the preamp. For the serious tape recorderist, this one feature can eliminate hours of frustration associated with the interconnecting of add-on specialty components.

PREAMP SECTION

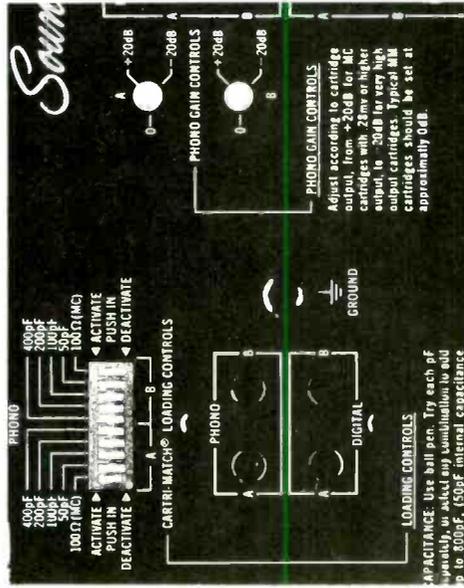
FREQUENCY RESPONSE: Hi-level $\pm 1/4$ dB, 5 Hz to 100 kHz Phono $\pm 1/2$ dB, 20 Hz to 20 kHz
TOTAL HARMONIC DISTORTION: 0.1% at 1 Volt
IM DISTORTION: Less than 0.1% at 1 Volt
PHONO IMPEDANCE: 47K or 100 Ohms
PHONO SIGNAL-TO-NOISE: 97 dB
PHONO CARTRIDGE SENSITIVITY: Any High Fidelity cartridge 0.28 millivolts or greater output
PHONO PREAMP DESIGN: Two separate mono preamp circuits
PHONO LEVEL ADJUSTMENT: Individual ± 20 dB gain controls
HEADPHONE LEVEL: Capable of driving 8 Ohms to 2000 Ohms

EQUALIZER SECTION

IN-OUT MONITORING: Differential/Comparator[®] circuit with LED's, for 0.1dB accuracy
HARMONIC DISTORTION: Less than 0.1% at 2 V
IM DISTORTION: Less than 0.1% at 2 V
SIGNAL-TO-NOISE: 114 dB at 10 V output
100 dB at 2 V output
OCTAVE CONTROLS: ± 22 dB boost or cut - each octave (all other octaves set at maximum) ± 15 dB boost or cut - each octave (all other octaves set at zero)
GAIN CUT CAPABILITY: ± 32 dB / -38 dB - all controls maximum
UNITY GAIN CONTROLS: 18dB range
FILTER TYPE: Precision tuned passive wire-wound coil inductors
DIMENSIONS: 5 1/4" x 19" x 11"
WEIGHT: 2.3 LBS.
SIDE PANELS: Genuine Oak or Walnut, optional

CARRI-MATCH[®]

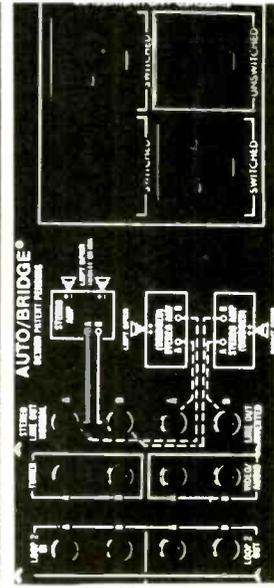
Every magnetic phono cartridge is designed to operate optimally only when it "sees" the correct capacitance and impedance loads at the phono preamp. Improper loading results in degraded frequency response and inaccurate reproduction of recorded material. The Soundcraftsmen DX4200 Carri-Match[®] permits proper loading of virtually any magnetic phono cartridge, in 50 picofarad increments up to 800 picofarads. We know of no other preamplifier which makes this crucial matching possible. Carri-Match[®] also accommodates any moving-coil-type phono cartridge whose output level is at least .28 millivolts, and independent input level controls are included for precise balancing of left and right phono cartridge channels, and to match the phono level to the other program sources.



AutoBridge[®]

The new Digital Audio Discs have, for the first time, the capability of recreating the dynamic range of a live musical performance. A stereo system's ability to reproduce this tremendous dynamic range ultimately depends upon one thing: the availability of adequate amplifier power. Even if one listens to music at an average listening level requiring only *one watt* of power, *over 300 watts* may be needed to reproduce dynamic "peaks" in the music! Soundcraftsmen has developed an active circuit called AutoBridge[®] to deal with this

problem. AutoBridge[®] allows the normal connection of a stereo amplifier to a Soundcraftsmen DX-series preamp, with the option of adding a second, identical amplifier at a later date, and operating both stereo amplifiers in "bridged mono mode," one for each channel. Bridged operation *triples* the 8-ohm power per channel of Soundcraftsmen stereo amplifiers with absolutely *no* degradation of any aspect of performance. AutoBridge[®] assures non-obsolescence no matter how elaborate your music system becomes in the future.



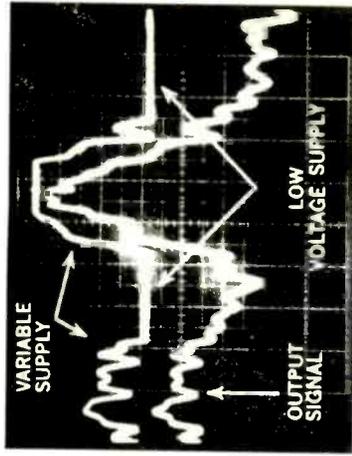
AMPLIFIERS by Soundcraftsmen

CLASS H

Soundcraftsmen's exclusive CLASS H amplifier circuitry establishes a new standard for high-power stereo amplifier technology. Several integral design elements make up CLASS H: the Vari-Portional® dual signal-tracking power supply, Auto-Buffer® and Auto-Crowbar. The Soundcraftsmen DDR1200, A5002 and A5001 amplifiers are CLASS H designs. Here is a brief explanation of CLASS H and its benefits.

VARI-POROTIONAL® SYSTEM: Conventional amplifiers utilize a single power supply which supplies whatever level of voltage is necessary at any given moment to produce the required power output, up to the supply's maximum. This design is inherently inefficient since most of the time the supply is operating at only a small percentage of its potential. This operating condition causes high heat buildup with its related increase in distortion, as well as high wear and tear on amplifier components. The Soundcraftsmen Vari-Portional® system utilizes a low-power supply which operates very efficiently continuously, and a second, "signal-tracking" supply which operates only when actually needed, and only to the degree needed. In this design, no power is wasted in heat dissipation. The amplifier runs cool, distortion is reduced to almost unmeasurable levels, and reliability is dramatically improved. Please see scope photo showing Vari-Portional circuit in action.

AUTO-CROWBAR: The Soundcraftsmen Auto-Crowbar protection circuit is unique among amplifiers. It uses no fuses, relays or circuit breakers. Auto-Crowbar detects any condition which might be harmful to the amplifier or loudspeakers and instantly disconnects all A.C. power to the amplifier. Every few seconds Auto-Crowbar samples the output. If the problem which triggered the Auto-Crowbar has been resolved,



the amplifier resumes its normal operation. Conventional current-limiting is *not* used as part of the protective circuitry, as it is in most amplifiers, because current limiting can seriously degrade sound and even damage loudspeakers.

AUTO-BUFFER® SYSTEM: Provides automatic sensing and control of low impedance (2 + ohms) operation. Enables continuous *non-current-limited-output*, without switches or protection-circuit turn off, when driving parallelized speakers and/or low-impedance loads.

CLASS H amplifiers are particularly suitable for playback of Digital program sources because of their unique ability to produce very high power continuously, with huge power reserves available for musical "peaks."

FEATURES

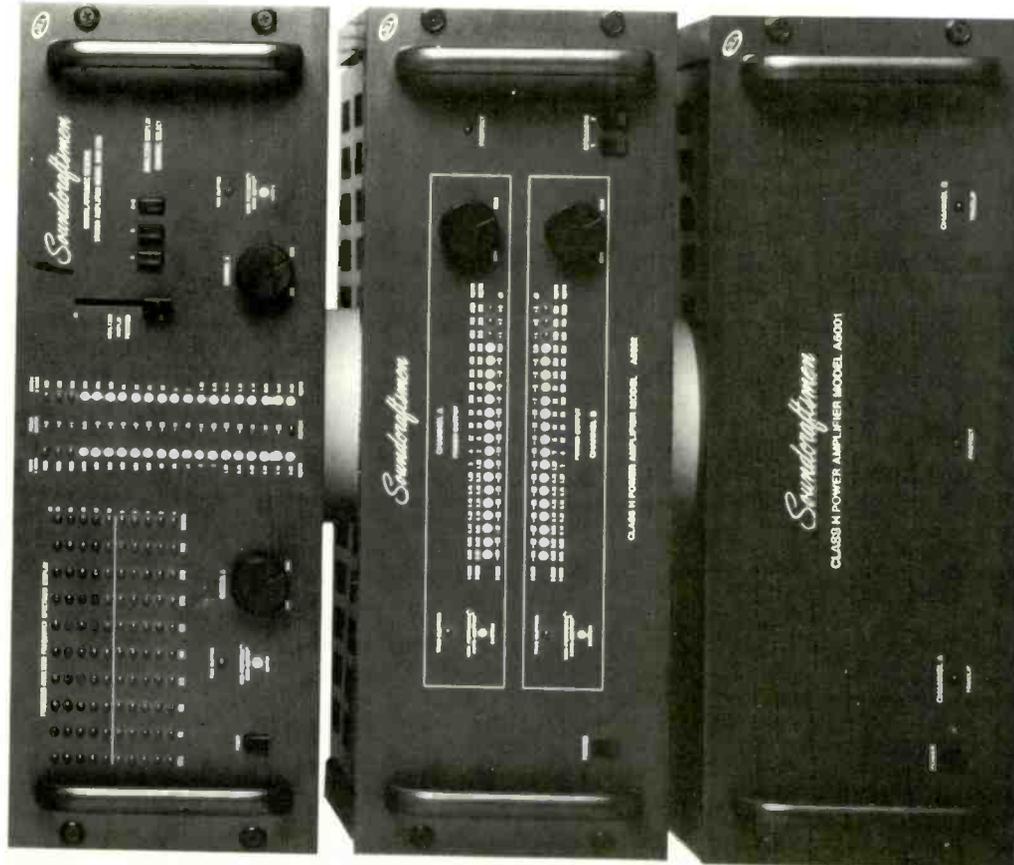
CLASS H CIRCUITRY (all models): Amp. runs cooler, no fan needed, through increased efficiency of Vari-Portional® circuitry... PROGRAM INPUT SPECTRUM ANALYZER (DDR1200): Graphically displays input program material frequency response, in real-time, for critical adjustments to phono cartridge, tape deck/ tape matching, component analyzer... BRIDGED MODE OPERATION (DDR1200) Rear panel switch converts to 750-watts @ 8 ohms mono amplifier. All other Soundcraftsmen amplifiers bridgeable with external actuator... CALIBRATED 20-LED POWER OUTPUT METERS (DDR1200, A5002)... INPUT LEVEL CONTROLS (DDR1200, A5002)... TRUE CLIPPING INDICATORS (all models): Indicate actual onset of waveform distortion... POWER TURN-ON SURGE DELAY (all models): Eliminates loudspeaker turn-on "thump"... MODULAR CONSTRUCTION (all models): 1/6-gauge triple-braced steel chassis with plug-in circuit boards for ease of servicing... TEST DATA CERTIFICATE (all models): Individually serialized, signed by final inspector.

GUARANTEED SPECIFICATIONS

THD and NOISE: Less than .09% (Typically less than .02%)
 FREQUENCY RESPONSE: ±0.1dB, 20Hz to 20KHz
 SIGNAL-TO-NOISE RATIO: 110dB (a-weighted)
 SLEW RATE: 50V per microsecond
 STABILITY: Any load 2 ohms or greater
 IM DISTORTION: Less than .05%
 TIM DISTORTION: Unmeasurable

POWER Output:

250 watts per channel @ 8 ohms
 (20Hz/20KHz, Less than .05% THD)
 375 watts per channel @ 4 ohms
 750 watts @ 8 ohms Mono Mode
 1200 watts Total Dynamic RESERVE



DDR1200 \$1199, A5002 \$899, A5001 \$749.

PHYSICAL: OUTPUTS: Five-way binding posts (banana type)... SIZE: 7" x 19" x 15" deep... SHIPPING WEIGHT: 55 pounds... LINE CORD: Heavy-duty 3-wire grounded plug... WARRANTY: Two years limited warranty, parts and labor... SIDE PANELS: Genuine Oak or Walnut, Optional.

PROFESSIONAL PRODUCTS by *Soundcraftsmen*



1987 BUYER'S GUIDE TO PRO MODELS

Available for Purchase or Rental only at Pro Audio and Musical Instrument Dealers

A CONDENSED GUIDE LISTING FEATURES, SPECIFICATIONS, SIZES AND PRICES...

Power Amplifiers



450X2 Power Amplifier, MOSFET Dual Channel, 315 Continuous RMS Watts per channel @ 4 ohms, 210 Continuous RMS Watts per channel @ 8 ohms (1kHz), 450 Watts RMS @ 2 ohms, 900 Watts RMS @ 4 ohms Bridged. THD < 0.05%, Hum and Noise: -105 dB, Rear Panel Level Controls, Bridging Switch, XLR, 1/4" Phone and Barrier Strip inputs, Balanced or Unbalanced, Front Panel circuit breaker, True Clipping indicators. Will drive 70-volt lines when bridged, no transformer needed. 19"W X 5 1/4"H X 11"D, 30 lbs. **\$699.00**

450X2M Power Amplifier, same as 450X2, 315 w/ p/c @ 4 ohms, plus 40-LED Dual Channel 2, 4, and 8 ohm Precision-Calibrated Power Meters, 31 lbs. **\$799.00**



PM860 Power Amplifier, MOSFET Dual Channel, 315 Continuous RMS Watts per channel @ 4 ohms, 210 Continuous RMS Watts per channel @ 8 ohms (1kHz), 450 Watts RMS @ 2 ohms. THD < 0.05%, Hum and Noise: -105 dB, True Clipping indicators. Will drive 70 volt lines when bridged, no transformer needed. 8 1/2"W X 5"H X 14"D, 23 lbs. **\$549.00**



PCX-1, 5 1/4" X 19" Rack Mount/Cabinet kit, for PM860, shown installed. 11 lbs. **\$49.00**



PCX-2, 19" Rack Mounting kit for two PM860's, shown installed, 2 lbs. **\$49.00**



RA5501 Power Amplifier, MOSFET Dual Channel, 210 Continuous RMS Watts per channel @ 4 ohms, 145 Continuous RMS Watts per channel @ 8 ohms (1kHz). THD < 0.05%, Hum and Noise: -105dB, True Clipping indicators. 19"W X 5 1/4"H X 10 1/2"D, 28 lbs. **\$549.00**



RA5502 Power Amplifier, same as RA5501, 210 w/p/c, plus 40-LED Dual channel 2, 4 and 8 ohm Power Meters and Level Controls, 30 lbs. **\$649.00**



RA6501 Power Amplifier, Class H Signal-Tracking Dual Channel, 420 Continuous RMS Watts per channel @ 4 ohms, 275 Continuous RMS Watts (1kHz) per channel @ 8 ohms. True Clipping indicators, THD < 0.09%, Hum and Noise: -110dB. 19"W X 7"H X 13"D, 50 lbs. **\$799.00**



RA7502 Power Amplifier, same as RA6501, 420 w/p/c, plus 40-LED Dual Channel 2, 4 and 8 ohms Precision-Calibrated Power Meters, True Clipping indicators, Level Controls, Selectable Bridging, Bal. or Unbal. inputs. 19"W X 7"H X 13"D, 52 lbs. **\$999.00**



RA7503 Power Amplifier, same as RA7502, 420 w/p/c, plus 100-LED Spectrum Bar-Graph display providing performance information for Electronic Crossovers, Equalizers, and other Signal Processors, 53 lbs. **\$1199.00**



RA7501 Power Amplifier, same as RA7502, 420 w/p/c, without LED power meters, 51 lbs. **\$899.00**



900X2 Power Amplifier, MOSFET Dual Channel, 675 Continuous RMS Watts per channel @ 4 ohms, 375 Continuous RMS Watts per channel @ 8 ohms (1kHz), 900 Watts RMS per channel @ 2 ohms, 1800 Watts RMS @ 4 ohms Mono. THD < 0.09%, Hum and Noise: -105dB Recessed Level Controls, Rear panel selectable Compressor/Limiter and Mono Bridging switches. XLR, 1/4" Phone and Barrier Strip inputs, Balanced or Unbalanced, Front Panel circuit breaker and True Clipping Indicators. 19"W X 5 1/4"H X 16 1/2"D, 69 lbs. **\$1499.00**

Signal Processors



AE2000P Real Time Analyzer/Equalizer, World's most accurate (0.1dB) Real-Time Analyzer/Equalizer. The first and only analyzer with: Two independent real-time analysis systems, (a Direct 100-LED display with 2dB readout and a 0.1dB readout Differential/Comparator.) Pink-noise generator, 10-octave Real-Time Display with Adjustable Decay rate, Mic. preamp, input for analysis of any Signal Processor, Auto-scan mode. Center frequencies 32, 64, 125, 250, 500, 1k, 2000, 4,000, 8,000, 16,000 Hz: display accuracy 0.1dB; Auto-Scan sweep rate 0.1-10 secs/octave; Mic. preamp input impedance 2K ohms; Frequency response 20-20,000 Hz \pm 0.1dB; Includes 20-Band all-Passive-Coil Equalizer, with boost/cut range \pm 16dB, 0.1dB Differential/Comparator readout accuracy LED's for instantaneous and precise in/out signal balancing, THD < 0.01%, T/M unmeasurable, Hum and Noise -114dB at full output. EQ Bypass/Defeat, Monitor and Record selectors on front panel. 19"W X 5 1/4"H X 11"D: 18 lbs. **\$799.00**



G2241 20-Band Graphic Equalizer, Dual channel 20-band with exclusive 0.1dB accuracy Differential/Comparator[®] true-unity-gain circuitry for precise in/out balancing. Features EQ defeat, Pre-EQ Loop, External Loop. Filter circuits use precision solid-state inductors for high gain, low noise and distortion. Bandwidths one octave on standard ISO centers. THD and IMD < 0.01% at 1V; S/N ratio 114dB at 10V; max boost/cut \pm 16dB. 19"W X 3 1/2"H X 9"D; 13 lbs. **\$299.00**



TG3044C Third Octave EQ, Two channel, 42 band (21 per channel). Bandwidths are 1/3 octave below 1kHz, 2/3 octave above 1 kHz, Center frequencies 40, 50, 63, 80, 100, 125, 160, 200, 250, 315, 400, 500, 630, 800, 1,000, 1,600, 2,500, 4,000, 6,300, 10,000, 16,000 Hz, Separate switching for each channel: Sub-Sonic Filter, EQ defeat, Pre-EQ Loop, External Loop input. Exclusive 0.1dB Differential/Comparator balancing circuits with LED's for instantaneous and precise in/out signal balancing. Balanced or Unbalanced inputs and outputs. 19"W X 5 1/4"H X 11"D, 16 lbs. **\$689.00**

Tuners



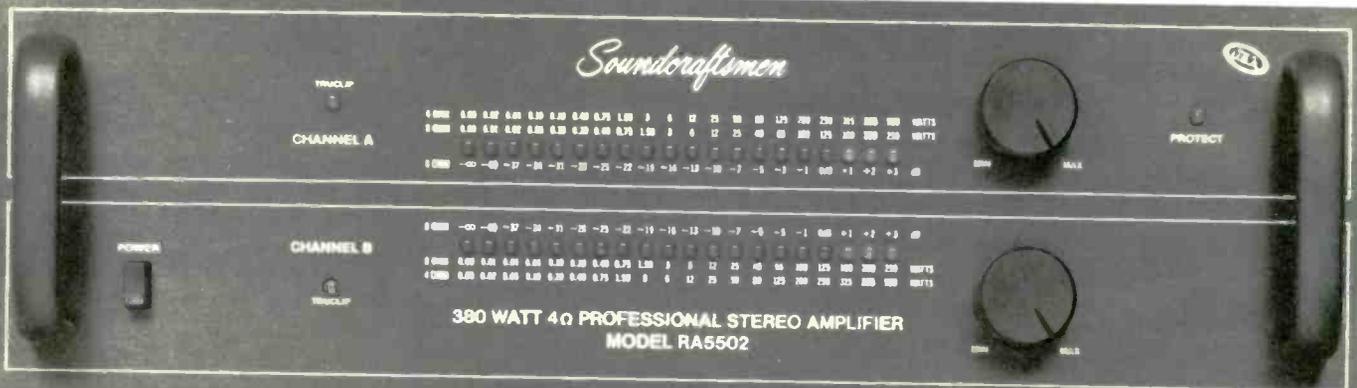
T6200 AM/FM Stereo Digital Tuner, Digital quartz PLL tuner with 16 station presets (8 AM and 8 FM), Broad-Band AM switch, 5-digit station readout, Auto Scan tuning and active high blend filter. 19" Rack Mount front panel. IHF Sens 1.6 μ V; S/N 75 dB; THD < 0.08%. 19"W X 2 3/4"H X 12"D, 12 lbs. **\$299.00**

All Prices and Specifications are subject to change without notice.

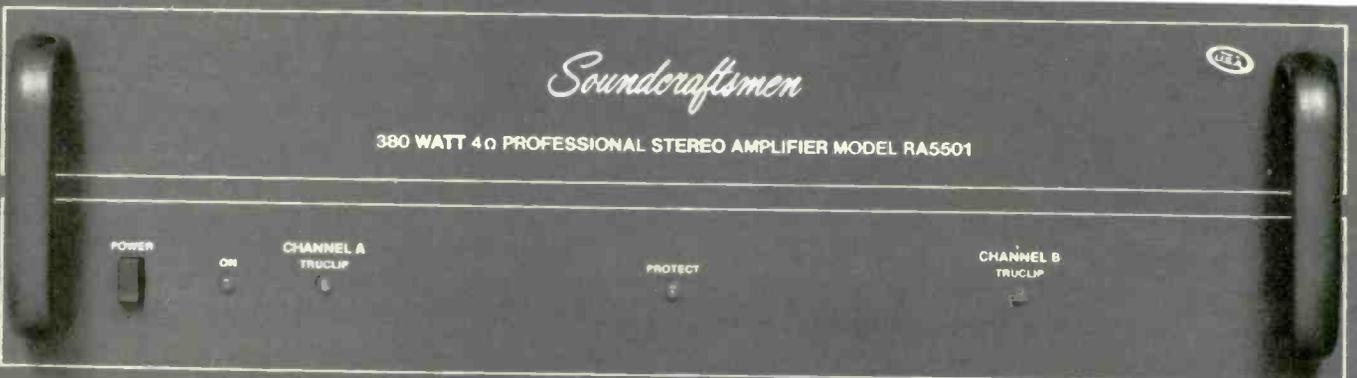
PROFESSIONAL PRODUCTS by *Soundcraftsmen*

MADE IN U.S.A.

200 WATTS PER CHANNEL PROFESSIONAL AMPLIFIER



RA5502: Calibrated LED power meters, input level controls, True Clipping indicators.



RA5501: Basic power amplifier, True Clipping indicators.

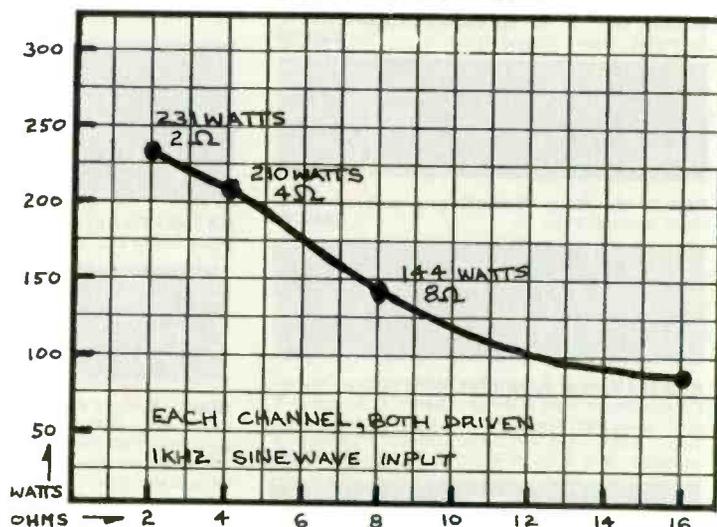
DESCRIPTION

The RA5500 series Professional Stereo Amplifiers represent a major advancement by Soundcraftsmen in the current State-of-the-Art. Through the use of new POWER MOSFET output circuit technology, they offer heretofore unattainable levels of reliability under adverse operating conditions, coupled with unmatched sonic purity. Conventional current-limiting protection circuitry, known to cause many forms of distortion, instability, and even speaker damage, is completely eliminated. The unique new output circuitry designed into the RA5500-series exhibits extremely linear transfer characteristics and superior high frequency capability. This drastically reduces all forms of distortion while providing excellent transient reproduction. All RA amplifiers are compatible with 70V distributed sound systems utilizing external 70V line transformers. For demanding Professional and Commercial applications requiring extreme reliability, moderate to high power, and exceptional sound quality, the RA5500 series offers superb value.

FEATURES

- Input Level Controls.
- Calibrated LED Power Meters.
- Continuous 2-ohm operation
- Direct-coupled circuitry throughout.
- Modular construction for ease of service
- 19" x 5 1/4" rack-mount front panel
- Heavy duty handles
- 16-gauge steel wrap-around chassis
- True-Clipping® indicator LED's
- Thermal protection circuitry
- 1/4" unbalanced line input jacks
- 5-way binding post output jacks
- 3-wire grounded plug A.C. cord
- Test Data Certificate with Lab measurements, signed by Inspector
- * RA5502 Only.

RMS POWER VS. IMPEDANCE

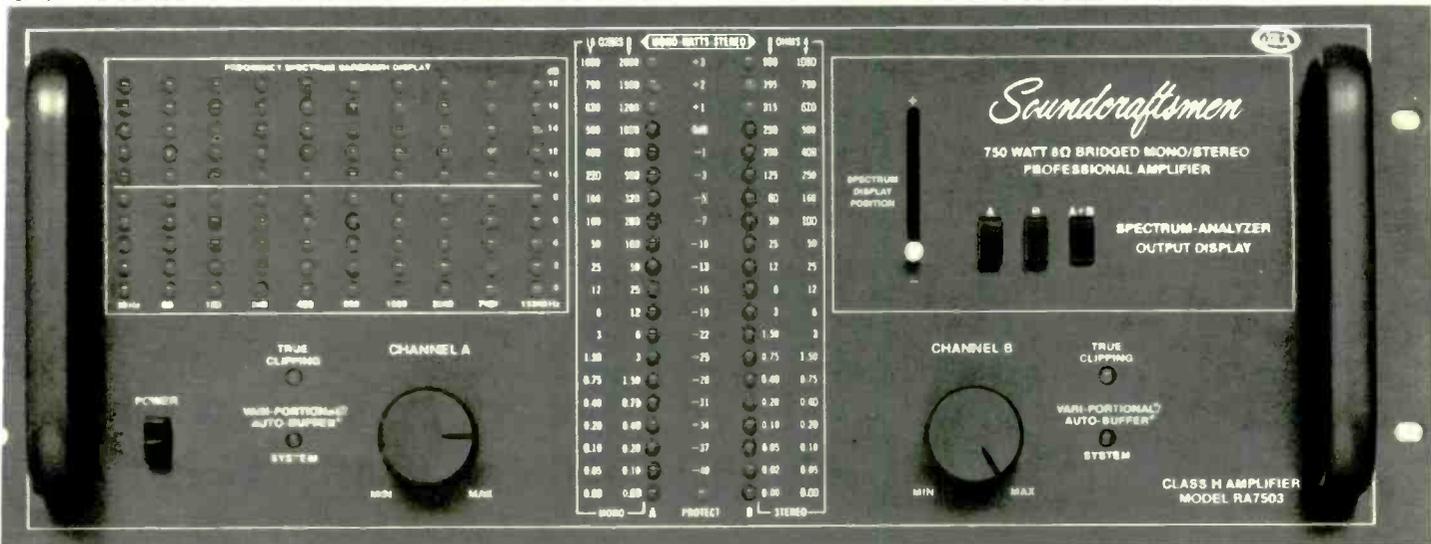


The above power output vs. impedance curves show clearly the enormous power reserves available in the extremely conservatively-rated RA5500-series amplifiers. Stated in terms of "headroom," these amplifiers produce more than 2dB above their rated output, assuring distortion-free performance even with the most dynamic of source material.

PROFESSIONAL PRODUCTS by *Soundcraftsmen*



100 WATTS PER CHANNEL PROFESSIONAL AMPLIFIERS



RA7503: Bar-Graph Spectrum Display-shows output in discrete octaves, 2dB steps, and with Pink Noise Test Record applied provides spectrum performance information for: Electronic Crossovers... Weighted Curves... Component comparison... Equalizers... Signal Processors... etc.

840 WATTS/8 OHMS @ 1 KHz BRIDGED MONO MODE. RUGGED, RELIABLE, AFFORDABLE HIGH POWER



7501: Basic Power Amplifier, with Gain controls, True Clipping lights.



RA7502: Same as RA7503, but without Bar-Graph Spectrum Display.

DESCRIPTION

The RA 7500 Series of professional amplifiers are designed for extreme reliability under difficult road conditions. Each of the amplifiers has the same specifications, but the operating features vary, depending upon the requirements of the application. The RA 7500 Series is ideal for demanding commercial sound installations where loudspeaker impedances fluctuate down to 2 ohms and where extremely high power output is needed. All RA amplifiers are compatible with 70V distributed sound systems utilizing external 70V line transformers. The professional musician will appreciate the unusually low distortion apparent in the sound of the amplifier.

CLASS "H" CIRCUITRY:

Amp runs cooler, no fan needed, through increased efficiency of the Vari-Portional circuitry.

TRUE CLIPPING INDICATORS :

Fast-attack L.E.D.'s instantaneously show actual wave form distortion.

LEVEL CONTROLS:

Control level from zero to full volume.

POWER TURN-ON SURGE DELAY:

Allows 3-second turn-on delay through triac, for remote switching from mixer, etc.

* DOES NOT APPLY TO RA6501

FEATURES

TEST DATA CERTIFICATE:

Individually serialized with Lab Measurements signed by final inspector.

RUGGEDIZED CONSTRUCTION:

16 gauge steel mainframe structure, 3/16" aluminum front panel, black anodized.

MODULAR DESIGN:

Provides easy access to all component parts.

STEREO OR BRIDGED MONO OPERATION:

Rear panel selectable.

BALANCED OR UNBALANCED INPUT:

Selectable, according to type of 1/4-inch input plug configuration.

RA6501 DESCRIPTION

The RA6501 professional amplifier combines the high reliability and performance of the RA7500-Series amplifiers with a "no-frills" approach to basic amplification requirements.

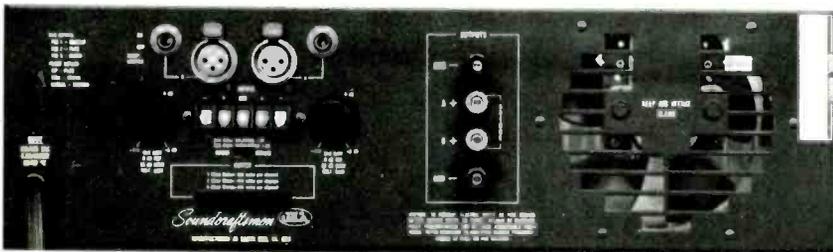
The RA6501 is identical in every way to the RA7501, with the exception of three features that are unneeded in many applications: 1—balance line inputs, 2—mono-bridged mode, 3—input level control. In the many professional and commercial applications where these features are not required, the RA6501 represents an outstanding value at its substantially lower price, while providing all of the rugged road amp performance, superb audio quality, and modular construction serviceability of the higher priced 7500 series amps.



PROFESSIONAL PRODUCTS by *Soundcraftsmen*

MADE IN
U.S.A.

300 WATTS PER CHANNEL PROFESSIONAL AMPLIFIER



This NEW amplifier has
MORE power,
MORE features,
MORE pure performance
per dollar...
PLUS the reliability
and sonic perfection
of MOSFETS!

This new series of power amplifiers was designed for the utmost in reliability and performance even under the most demanding conditions and installations. It is well recognized that the load impedance in many commercial sound applications can be as low as **2 ohms**, and the 450X2 can handle it!

This new **ULTRA-HIGH-CURRENT** design allows the amplifier to perform effortlessly under these most demanding conditions. **MOSFET** output stages offer the utmost in audio clarity and distortion-free reproduction. **315 watts per channel @ 4 ohms—\$699.**

FEATURES AND SPECIFICATIONS

Output Devices	POWER MOSFET fully complementary circuit design.	Sensitivity	1.0 v (Level Controls = +6dB) 2.0 v (Level Controls = 0dB)	Frequency Response	20Hz to 20kHz, ± 0.1 dB
Mono Bridging	Rear panel switchable.	Impedance	22K Ohms Balanced 32K Ohms Unbalanced	Hum & Noise	-105 dB
Distributed Lines (mono)	Will drive 70 volt lines with no transformer required.	Outputs	5-way binding posts.	Rise Time	2.2 microseconds
Protection	Anti-Surge turn on delay Multi-Sensor PCR Thermal protection. Front Panel mounted circuit breaker	Controls	Rear Panel Gain Controls—∞ to +6dB 0dB Ref = 26dB (20X) Voltage gain	Slew Rate	50 volts/microsecond
Cooling	Forced air, rear to front, utilizing thermal controlled 2-speed fan.	Indicators	True clipping, each channel.	IMD	From 250 Milliwatts to rated output (60Hz-70kHz, 4:1) SMPTE
Inputs	XLR, 1/4" phone, and 5-terminal barrier strip.	Continuous RMS Power Output (per channel) at 1kHz	2 ohms stereo: 450 watts 4 ohms stereo: 315 watts 8 ohms stereo: 210 watts	THD	Less than 0.05%
				Size	5 1/4" H x 19" W x 11 3/4" D,
				Weight	30 pounds

ARCHITECT'S AND ENGINEER'S SPECIFICATIONS

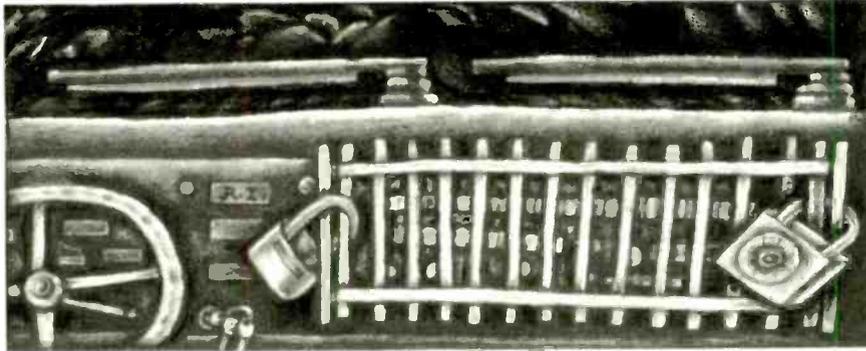
The power amplifier shall be solid-state with **POWER MOSFET** output stages. Each channel shall be capable of producing at least 205 watts into 8 ohms or 300 watts into 4 ohms, with both channels driven. The amplifier shall be bridgeable into mono mode through a secure switching device located on the rear panel. The amplifier shall produce at least 600 watts into an 8 ohm load in the mono mode. (Total Harmonic Distortion and I.M. Distortion shall not exceed 0.05% over a bandwidth of 20Hz to 20kHz at these power ratings). The amplifier shall have internal protection against possible shorted, mismatched and open circuits. Thermal protection shall be provided by Multi-Sensor Phase Control regulation as well as two-speed fan forced air cooling. Air flow shall be from rear to front. Input sensitivity shall be 1.0V for rated output with adjustable gain capability of 26dB per channel (0dB REF = 20X voltage gain, stereo). Noise level shall be -105dB relative to full output. Rise time shall be 2.2 microseconds and slew rate shall be 50V per microsecond with an 8 ohm load. Damping factor shall be greater than 200 in stereo mode and greater than 100 in mono mode. **The amplifier shall be designed to operate continuously at load impedances as low as 2 ohms.**

Input configuration shall be XLR, Barrier Strip and 1/4" phone, balanced or unbalanced. Internal construction shall be semi-modular to ease field serviceability. The amplifier shall be fitted with a heavy-duty front panel containing AC power switch/circuit breaker, true-clipping indicators for each channel, and carrying handles. Main chassis shall be 14 gage welded steel. The dimensions shall allow for standard 19" EIA Rack mounting. It shall be 5 1/4" high and 11 3/4" deep including input/output connectors. It shall weigh 30 pounds net. Output connectors shall be dual 5-way binding posts. Power requirements shall be 105-125VAC (210-250VAC for export models), 50/60 Hz, and the amplifier shall be fitted with a 3-wire ground plug. **The power amplifier shall be a Soundcraftsmen 450X2.**

MODEL 450X2 \$699.

MODEL 450X2M \$799.
(With 40-LED Meters)

STEAL ME, STEAL ME NOT



The Ins and Outs of Slide-Outs

As I've mentioned before, making car-stereo head units removable only renders them theft-resistant if you remember to remove them when you park. If you don't, someone will eventually come and do it for you.

The thief who takes your slide-out won't leave you with a chewed-up dash, which is some comfort. But he won't leave you with an insurance claim, either—car insurance, as reader Frank Toth of Stratford, Conn. reminds me, normally covers only stereo equipment that's permanently mounted in the car. With a slide-out, the only components permanently mounted are the amplifier, crossovers, and speakers.

Even if you do take your stereo out of the dash, your car may be broken into. An empty dashboard slot won't deter a thief who thinks you probably just hid the stereo beneath the driver's seat; chances are, he'll be right too.

There are measures both owner and manufacturer can take to lower the theft rate. Taking your stereo with you at least limits your loss to the glass of your side window, plus whatever valuables can be found in

the car by someone searching for the missing head unit. If you just stick the unit in your trunk, do it around the corner from where you park. A dummy cover for the gaping stereo slot—a panel with dummy gauges, maybe?—might also help; I think I'll try that when I get the slide-out version of my own car's stereo, now in the works.

Manufacturers could help in several ways. First, they could add an alarm that beeps if you don't remove the stereo within a few seconds of shutting the ignition off. You could shut off the alarm by removing the head unit or by pressing a reset switch, in case you were still sitting in the car or had parked it in a safe location. As a second line of defense, manufacturers could make illicitly removed head units unusable, and hence unsalable. In previous columns, I've discussed several which have digital lockouts that disable the unit until a secret code is punched into its station buttons.

In Europe, Blaupunkt has shown a "security cassette" which locks into the tape slot to render the system useless until it's unlocked and removed. The cassette is brightly

colored, with luminous flashers, to help thieves get the message from outside the car.

Another method was suggested to me, indirectly, by a manufacturer. He says that customers who have lost their slide-out units are asking him for "bare" replacements—no need to buy another mounting sleeve, and all its hardware, if it's still in the dash.

This suggests that there's also a market for the mounting sleeves alone—a market consisting of those who've purchased purloined head units and have no other way to use them. If manufacturers of slide-out head units refused to sell mounting sleeves to anyone who couldn't prove they owned a matching head unit, the buyers of stolen goods would have no way to benefit from what they bought. (Alas, companies like Bensi, who sell aftermarket sleeves to fit all stereos, would not be able to restrict their sales this way, which might put them at a competitive disadvantage.)

Whatever the method, making a stolen stereo unusable is not enough. It might help if slide-out stereos bore prominent, permanent notice of who their original purchasers were, along with a warning that they could not be used without proper proof of ownership. But that won't do the job until enough stereos are protected against illicit reuse so that no one will bother stealing them anymore. Even if half the stereos in use were protected this way, thieves wouldn't be deterred, but if *most* stereos were not worth stealing, few would be stolen.

Crooks being crooks, they'd probably just shift to new lines of criminal endeavor. Trying to mug karate instructors is what I'd suggest to them.

Smart Shells

Tape manufacturers are beginning to realize that car stereo is operated by drivers. The new Triad tapes and Fuji's GT-I and GT-II have asymmetric shell designs that let you tell side A from side B at a quick glance. Fuji takes the idea a bit further than Triad does, using a concave "A" marker and a convex "B" to help you identify the sides by touch. Both shell designs have ribbing at the corners for a

better grip; Fuji's is also ribbed on the top and bottom.

Dashboard temperatures can go as



high as 214° F (101.1° C) in cars parked in the sun on a 108° F day, according to Fuji, so the GT shells are rated to withstand up to 230° F (110° C) without deformation. A dual-spring pressure pad and an extra tape guide in the shell are designed to keep the tape properly on track in a vibrating vehicle. And since the car can be a dirtier environment than the home, the leader cleans the tape heads.

Continued on page 88

ANDROMEDA. The need for power is undeniable. But raw power is no measure of a great amplifier. At Sumo, we recognized the need but approached the problem in new ways. Andromeda, for example, is a differential amplifier employing a unique full wave balanced bridge output circuit. This provides impressive statistics as well as awesome performance.

The power is 200 watts RMS per channel into 8 ohms at less than 0.05% THD. There is no current limiting. As a consequence Andromeda is capable of delivering 80 amp peaks at 1 ohm instantaneously.

Music has definition and detail. Sonic texture is smooth and transparent. Bass is tight, mid-range natural, and highs clean. Instrumental timbre is accurate through the top two octaves. Soundstage is wide, instrument placement consistent. The reviews are consistent too. Your Sumo dealer will show them to you.

POLARIS. Polaris takes advantage of the most recent advances in MOSFET technology. These output devices have long held the promise of tubelike performance. But they have in fact typically delivered something less, due primarily to distortion that results from transconductance error. This distortion is heard as harshness or stridency in the high frequency. Polaris eliminates transconductance distortion products by employing a proprietary active bias output circuit. And the absence of protection circuitry introduces no additional distortion. The result. Clean, pure sound.

Polaris generates 100 watts RMS per channel into 8 ohms at less than 0.05% THD. There is no current limiting. The result is a conservatively rated amplifier capable of driving 4 ohms, even 2 ohm loads comfortably.

Audiophile analog pressings reveal new nuances of sound. Compact Digital discs display dynamic range without high end pain. Electrostatic loudspeakers bloom. Dynamic loudspeakers sound tight yet natural. Subwoofers rise to new depths. There is power for the subtlest pianissimo and the stickiest perfectionist.

Sumo products are manufactured in the USA. Among the select group of dealers stocking them are:

JONAS MILLER SOUND
2336 Santa Monica Blvd.
Santa Monica, CA 90404
Tel. 213 828-5613

MUSICAL IMAGES OF KENTUCKY
11027 Buckeye Trace
Goshen, KY 40026
Tel. 502 228-3200

THE BALANCE OF POWER.





ANDROMEDA

CLASS BB

DIFFERENTIAL POWER AMPLIFIER

SUTRA

POLARIS

CLASS BB

SUTRA

OPUS TWO/THREE. The loudspeaker is at the telling end of a complex audio chain. It is here that electrical energy becomes sound. That magnetic energy is translated to mechanical, then to acoustical energy, and music. It is here, more than at any other part of the acoustic chain, that we find the delicate balance of art and science.

Opus Two and Three benefit from an understanding of the overall system as well as fundamental loudspeaker design. They are a careful balance of measurement and extended listening. Of computer modeling and trial and error. Opus Two and Three are not breakthroughs. They are simply stunningly realistic, very musical loudspeakers that will please the most demanding audio purist.

Utilizing common componentry, Opus Two and Three represent visual variations on the same acoustic theme. Opus Two is floor standing. Opus Three is a bookshelf, or standmount, loudspeaker. At the heart of both systems is an extremely quick 6½ inch 3 pound magnet structure. Innovations such as a symmetrical magnetic motor structure and a copper clad pole piece reduce distortions significantly. A composite dome delicately balances the desirable internal damping of the best soft domes with the rigidity found in well designed hard domes. And conjugate crossover design, hard wiring, and by-pass capacitors contribute to a network that integrates the system seamlessly. With exceedingly low group delay.

Solo voices are fixed in space. Orchestras are spread laterally and to the rear of the speakers. And music is smooth and extended. As full range speakers they are most satisfying. In conjunction with Samson, Opus Two and Three rival the best.

Sumo products are manufactured in the USA. Among the select group of dealers stocking them are:

WAVELENGTH STEREO/VIDEO
635 D South Broadway
Boulder, CO 80303
Tel. 303 777-4449

AUDIO EXCHANGE
621 Hillsborough St.
Raleigh, NC 27603
Tel. 919 828-6369

THE DELICATE BALANCE.



SUMO PRODUCTS GROUP, 21300 Superior St., Chatsworth, CA 91311 Tel. 818/407-2427
SUMO CORP. CANADA, 1305 Odium Drive, Vancouver, B.C. V5L 3M1 Tel. 604/254-5148



Continued from page 81

Hype-Power Amplification

Writing ads is the art of dramatic oversimplification. You have a lot to tell, and very little space in which to tell it. So you try to get in, lay enough hints for the audience to flesh out your story for themselves in their minds, and then get out before your readers flip the page.

That, plus common misconceptions about power, is why a car-stereo ad I read recently stated that cutting the product's 30 watts down to a competitor's 20 would "cut [our] full, rich sound by one-third."

Real life is not so simple. No matter how powerful or mild an amp we have, we use its power on a sliding scale. When we set the volume low, hardly any of its power is in use (I've registered average power levels of 1 or 2 watts in home background listening, on speakers of average efficiency). Peaks range above that level, of course; some peaks use 10 times the average power, or more—but very briefly. Other peaks exceed the average by smaller margins, but occur more often.

If you turn the volume up loud enough to use all the amplifier's

power all the time, you get nearly constant distortion, so you're likely to turn the volume down again. If you turn the volume up just high enough to handle the music's average levels cleanly, you clip some of the peaks (how many depends on the music, the recording, and your amplifier's headroom). That clipping usually passes too fast to be consciously perceived as distortion, but our subconscious gets tired of mentally cleaning up the sound, and we get



"listener fatigue"—the sound seems okay, but we grow tired of listening.

All other aspects of performance being equal, the more powerful the amp and the higher its headroom, the fewer peaks it clips and the louder and longer we can listen before such fatigue sets in. Even discounting headroom, however, there's no linear relationship between power output and our perception of the sound. Cutting power back from 30 watts to 20 will "cut [the] full rich sound," but only by a smidgen—not by one-third. The difference in perceived "richness" would have more to do with our ears' abilities at the slightly lower listening levels we'd select than in the system's actual performance. Cutting back from 300 watts to 200 would have still less effect, by far. And cutting back from 3,000 to 2,000 would probably have no audible effect at all.

I say this as a guy who has about 100 watts of power in his car right now and 300 watts (900 peak) in his home system. Power is nice to have. But the difference is far less perceptible than the ads might lead you to believe.

Car Wars

"For today's California kid, it's the loudest stereo, not the fastest car, that rates prestige on Van Nuys Blvd.," said Reese Haggott, then of Alpine, some years back. Detroit-area car-stereo people refer to the same phenomenon as the "Woodward Ave. effect," after Detroit's one-time favorite drag-racing street. With speed limits lower and more rigidly enforced, and roads more clogged with traffic, it's no wonder that sound has taken speed's place among young status-seekers.

Unfortunately, the emphasis is more on sound volume than sound quality. Big sound is more macho than good sound; it's easier to achieve; and it's a lot easier to demonstrate, especially to distant listeners or to those who only catch a flash of your sound as you zip by. No wonder that the contests held by many car-stereo dealers around the country often go by the name of "Crank 'Em Up."

Not Available

Car stereo doesn't merely have more problems than home stereo; it allows fewer solutions too.

For starters, one of the home listener's favorite signal sources—the phonograph—is simply impractical for use on the road. Even the Final turntable, which plays LP by laser light (I've heard a working sample, incidentally), probably couldn't cope with a car's bouncing as well as a CD player can. And any turntable is just too big for use in anything smaller than a camper. Open-reel tape and videocassette-based PCM players could probably be made to work in a moving environment. But they're a bit on the large side too.

Space limitations also prevent the use of speakers that work best when pulled away from the wall. (Dipole speakers, however, can be used—some years back I heard a prototype system which used dipole midrange and tweeter drivers on the rear deck.)

Corner horns are likewise unlikely prospects for the car, though I hear there's at least one van equipped with Klipschorns.

Headphones are dangerous if the driver wears them. Worn by passengers, however, they might even be a safety factor, letting the driver concentrate on driving, undistracted by the music. Ford now has a van with rear-seat headphone jacks; I'm surprised I haven't yet seen rear-seat speakers with built-in headphone jacks.

Tube electronics? Not as silly as it might sound. Before transistors, all car sound equipment used tubes—some car radios even had all-tube Class-A outputs. The old tube gear worked fine too. The transistor's advantages of low operating voltage, limited heating, compactness and lower power drain, were, however, just what designers of mobile electronics had been praying for, and ICs were better yet.

DESIGNED BETTER TO SOUND BETTER



THE CRITICS AGREE:

HI FI CHOICE "Best Buys"
RA820, RA820CBX, RA870,
RB870

WHAT HI FI? Awards winner
1985, RA840BX

WHAT HI FI? (RA820BX)
"Rotel have provided hi-fi
enthusiasts and the casual
buyer alike with an amplifier
to take your breath away. A
very deserving award winner
(best amplifier, 1986)."

HI FI FOR PLEASURE calls
RA820BX "a remarkable
little amplifier which shows
the competition a clean pair
of heels. It's a gem that can
only further enhance Rotel's
reputation." Their verdict on
the RP850 turntable? "Rotel
has pulled the rug from
under the competition with a
good sounding turntable-
arm combination offering
splendid value for the
money."

STEREO REVIEW sums up
their test of RA870/RB870
(bridged): "We cannot recall
seeing any other integrated
amplifier that can match its
distinctly above-average
power-output capacity."

AUDIO MAGAZINE:
"Anyone, even the most
judgemental of golden-ears,
should find the sound
reproduction quality of the
RC870 (Pre-amp) to be
beyond reproach."

GRAND PRIX AWARD 1986
Hi-Fi Product Of The Year:
RA820BX Amplifier
WHAT HI-FI? Magazine

Find out what the
excitement is about. It's as
easy as visiting your local
Rotel dealer for a
demonstration.

ROTEL *hi-fi*

ROTEL *hi-fi*

The Smart Choice in High-Performance High Fidelity

Rotel hi-fi is an overnight success which was twenty five years in the making. Founded in 1961 as an OEM manufacturer building hi-fi equipment for many of the big names of the day, Rotel has today taken its rightful place among those respected brand names with a top-quality line of high-performance audio components designed for the serious audio enthusiast.



"After our experience with the RB880, we can better appreciate why Rotel products enjoy favour among demanding high-end audiophiles. If the RB880 is a typical example of the company's products, the reputation is well deserved."

Stereo Review April, 1986

Twenty-five years' experience manufacturing audio components shows: since its introduction, the Rotel hi-fi line has won an overwhelming number of awards and accolades from the international audio press, culminating in the selection of the RA820BX amplifier as Hi-Fi Product of the Year (1986) in the prestigious **What Hi-Fi Awards**.

Such immediate acclaim and impact on the marketplace is virtually unheard-of. It is an indication that Rotel's performance-oriented design philosophy is precisely right for today's discerning audio enthusiast.

The Rotel line is designed in Britain to suit that very demanding, purist market. The United Kingdom has spawned some of the audio industry's most famous names — product lines which have led the way in advancing the state of the audio engineering art and science. Today Rotel hi-fi is one of the most successful, sought-after and valued names in the British audio market, and has earned the respect of knowledgeable audio enthusiasts in Europe and America as well.

Critically-Acclaimed Amplifiers

The first components designed to Rotel's very high performance standards were the superb amplifiers. Rotel amplifiers are available in a variety of configurations: power amplifiers (bridgeable for triple the power in monaural mode), pre-amps of the highest quality and refined performance, and integrated amplifiers combining the technology of the separates onto a single chassis for great cost-efficiency.

Each model has since come to be regarded as a performance leader in its price range, easily out-performing even amplifiers costing considerably more.

Technically Speaking

At the heart of each Rotel amplifier is the high-voltage, high-current design. In simplest possible terms, this means Rotel amplifiers will sound much more powerful when driving real loudspeakers than conventional amplifiers of comparable rated power.

Amplifier power ratings are measured under strictly-controlled laboratory conditions, with the amplifier driving a steady-state 8-ohm resistor at a continuous power level. Once connected to loudspeakers and reproducing music, however, the amplifier faces a completely different set of performance conditions:

All loudspeakers are reactive, presenting the amplifier with an impedance which fluctuates as frequency changes, requiring up to twice the power for the same volume level. Similarly, musical transients (short-term "peaks" such as a kick-drum note) may double or triple the power demand for a short period of time. High-voltage and high-current capability are required to cope with these conditions.

Rotel amplifiers are designed to easily handle these real-world demands. Such technical refinements as large power supplies and doubled or tripled output devices give Rotel amplifiers huge power reserves, great control on complex musical passages, and the ability to drive even difficult loudspeaker loads. The difference in performance quality will be truly appreciated with today's advanced digital recordings whose extended dynamic range puts tremendous demand on the amplifier.

MODEL	POWER OUTPUT			PEAK CURRENT
	8 Ohms	4 Ohms	2 Ohms	
RA820BX Integrated Amp (rated 25 W/channel)	52 watts	92 watts	156 watts	20 amps
RA840BX Integrated Amp (rated 40 W/channel)	95 watts	171 watts	256 watts	29 amps
RA870 Integrated Amp				
RB870 Power Amp (rated 60 W/channel)	100 watts	180 watts	292 watts	30 amps
RB880 Power Amp (rated 100 W/channel)	144 watts	262 watts	362 watts	60 amps
Conventional Amp (rated 60 W/channel)	84 watts	49 watts	25 watts	3.6 amps

Specially-Selected Components

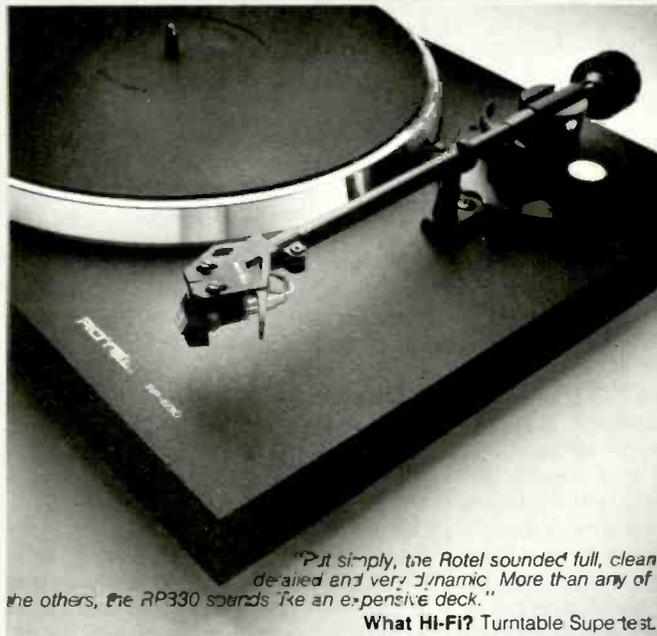
Early in the design process it was determined that design and manufacturing dollars would be spent on those components which directly affect sound quality. For that reason, all electrical components such as resistors, capacitors and transistors are sourced from Europe's finest suppliers and hand-selected to a 1% tolerance for critical circuits (20% tolerances — that is, deviations from stated electrical values — are not uncommon in audio components manufacture). Such attention to close tolerances ensures that all circuits will perform precisely as intended by the design engineer. In addition, components are selected for the lowest possible noise levels, ensuring extremely quiet operation.

Straight-Line Design

Even the world's finest components are necessarily imperfect conductors. As a result, all Rotel amplifiers, tuners and receivers typify a straight-line design approach, eliminating all components from the signal path which are not strictly necessary for performance. This straight-line design is seen most graphically in the removal of "features" and controls which make no contribution to sound quality. It is also evident in direct loudspeaker connections and the absence of conventional protection circuits.

In strictly technical terms, this straight-line design eliminates the potential for phase shift, distortion and signal-loss. In terms of your listening enjoyment, it means a very low noise threshold, improved resolution of low-level details and the most natural, accurate sound reproduction.

System-Building with Rotel hi-fi



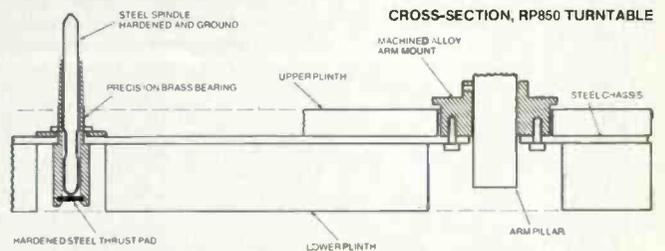
"Put simply, the Rotel sounded full, clean detailed and very dynamic. More than any of the others, the RP330 sounds like an expensive deck."

What HI-FI? Turntable Super-test.

Rotel hi-fi is a complete line, including tuners, receivers, compact disc players, cassette decks and turntables, all designed and manufactured to the very

high standards set by the Rotel amplifiers. The emphasis on pure, performance-oriented engineering has been the guiding principle in the design of every component in the line. Whether you choose to build a complete Rotel system or upgrade your current system with one or two Rotel components, you are assured of truly outstanding sound reproduction quality.

Rotel's quiet, accurate and supremely musical turntables, for example, illustrate the exhaustive attention to detail which is an integral part of every Rotel design: details like an arm-mount pillar precision machined from a solid piece of aluminum refined specifically to Rotel's high standards; details like a platter mat made of energy-absorbing Norselex, and details like silicone-filled feet to isolate the turntable from external vibrations.



The Balanced Design Concept

In the design of a high fidelity sound system, it is ultimately the weakest link in the chain, not the strongest, which sets the limit to the performance achieved.

In recognition of this fact, no single aspect of a Rotel component's design is considered paramount. Instead, each model is engineered for performance quality which is consistently high in all its aspects.

Similarly, all Rotel components are designed to complement each other in terms of sound quality and performance. This consistency has been repeatedly recognised in the selection of complete Rotel systems as top performers in their field by the British audio press. With Rotel hi-fi, the weak links simply do not exist.

Bringing You Back to What It's All About: MUSIC

In the final analysis, of course, the only criterion which truly matters in the design and selection of any audio component is its ability to reproduce music naturally, accurately and convincingly. While some "hi-fi" companies appear to have lost sight of this fact, we remember that you purchase audio components to enjoy your music to the fullest, not to read specifications. This is why the listening room remains our most important laboratory.

We invite you to put Rotel high fidelity components to the test. Visit your local Rotel authorized retailer with your favourite records or compact discs and listen to the music. A simple listening test is the best way to find out why Rotel hi-fi is the smart choice in high-performance high fidelity.

Designed in Britain, Enjoyed World-Wide

BERT WHYTE

SHOWPOURRI



Meridian CD 207 Pro CD player

Last month, I reported on several of the more unusual products introduced at the SCES in Chicago. The sheer number of introductions dictates that I be highly selective in this second part of my product round-up. Without further ado, herewith my report on items which I found interesting and innovative.

As you would expect, there were CD players all over the show, legions of them. The vast majority were garden-variety units of no particular distinction, most being cosmetic variations of the basic CD players made by a handful of giant OEM manufacturers. Fortunately, there were several notable advances.

Bob Stuart of Meridian was proudly demonstrating his new CD 207 Pro CD player, which comes in two separate cabinets. The first cabinet contains a newly designed CD transport mechanism and a massive power sup-

ply. The motor-driven, front-loading disc drawer has a very heavy front plate and when the drawer is retracted into the player, special mechanical and acoustic isolation systems are activated, virtually sealing the CD off from internal and external vibrations. The second section of the 207 contains all of the decoding electronics, D/A converters, and analog processors and controls. There are also inputs and switching for tuner and tape recorder; these are operated via a remote control, which also operates a new electronic gain control for volume adjustment. This makes possible direct connection of the CD player to Meridian's active powered loudspeakers. The dual D/A converters and analog sections are new, advanced types developed for the Model 207.

Unlike Meridian's original MCD and Pro MCD players, which were highly

modified Philips units, the 207 is designed and manufactured by Meridian—although, of course, it still uses the Philips quadruple oversampling system and its associated parts. Bob Stuart was playing the 207 through his newly redesigned M-100 active loudspeakers, and it was providing superbly clean reproduction from both classical and pop CDs. The Meridian CD player is available at a cost of \$1,550, including remote control.

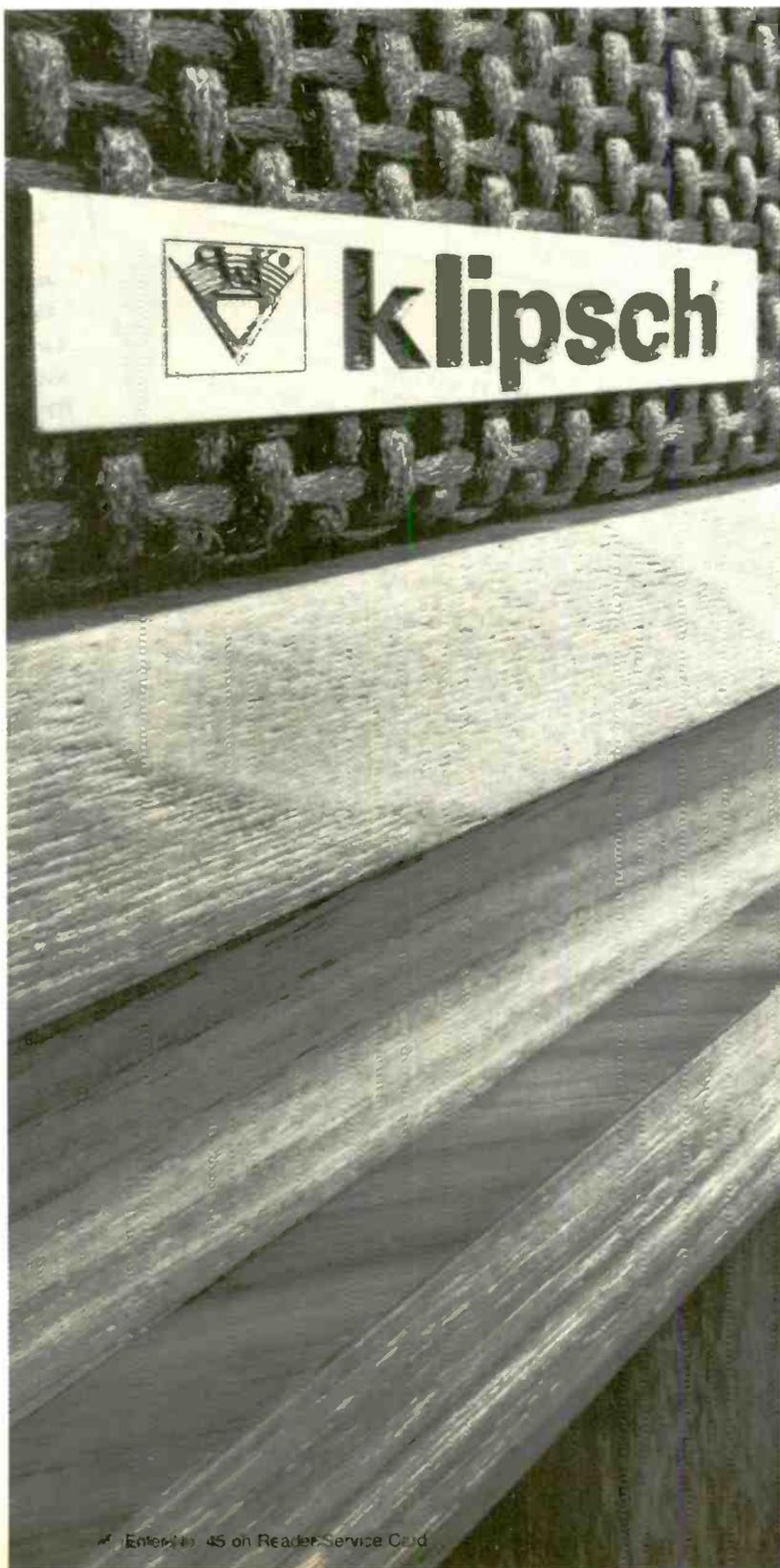
Nakamichi advanced the CD art with Mark II versions of its OMS-7A and OMS-5A CD players, which incorporate some rather innovative circuitry. Most CD players employ sample-and-hold circuits after the D/A converters. It is thought that the FET switches used in these circuits, and the memory and dielectric effects in their storage capacitors, cause digital "noise spikes" and loss of resolution at the -80 to -90 dB level. Nakamichi apparently has developed a special new D/A converter which enables them to completely eliminate the sample-and-hold circuit. This permits direct connection from the output of the converter, through the analog low-pass filter, to the output terminals. Nakamichi claims this approach eliminates the offending noise spikes without a loss of low-level resolution.

Among other improvements in the OMS-7AII and OMS-5AII is the use of six optical photo-couplers to bring digital data to the converter, thus ensuring complete isolation of all digital ground lines from the analog grounding system. Independent power and ground lines are used for display, digital, and servo circuits, as well as for the motor drive and for the conversion and analog sections. All digital circuits are synchronized to a single master clock.

Interestingly, Nakamichi uses quadruple oversampling with high-order, 16-bit digital filtering and dual, 16-bit D/A converters. Apparently, that puts these players among the first to employ the new 16-bit configuration. (As is generally known, Philips has been having problems making the 16-bit version of its quadruple oversampling system, and most other CD-player manufacturers are still using Philips' original 14-bit system.) Nakamichi is also using new discrete, two-stage,

Continued on page 97

What Your Dealer May Not Tell You About Klipsch Loudspeakers.



Torture Stories & Other Unsolicited Criticisms About Klipsch Loudspeakers.

The stories we hear about KLIPSCH® Loudspeakers are often remarkable. Some are so remarkable, in fact, that KLIPSCH dealers are reluctant to repeat them to anyone but longtime KLIPSCH owners. You see, people who have spent time with KLIPSCH speakers are no longer skeptics. They're believers.

Though we don't recommend the treatment subjected to KLIPSCH Loudspeakers in some of the letters we receive, we always like to hear from our satisfied customers.

Dear Mr. Klipsch,
This is a fan letter of sorts with some technical data thrown in for good measure. Klipsch speakers are #1 with me. I own a pair of Cornwalls and a 1984 pair of wonderful Heresys. About a year ago, I lived out at Auburn Lake, Wis., on 600 acres of wilderness — on a huge hilltop my ranch house sat, an easy target for frequent storms. People call the area Wisconsin's "tornado alley."

Well, an incident occurred that I thought I should pass on to you. I used to place my Heresys out in my combo-garage-screen porch on certain days in the summer -- so I could listen to music while I watched the red tail hawks hunt in the glen across from my driveway.

One day a couple of friends and I were listening to Jackson Browne on C.D. and having a couple of beers -- when I saw a terribly frightening squall line of black clouds coming my way. There was lots of lightning firing from the clouds so we decided to close the garage door and pull the plug on the music. Why take chances, right?

I scurried into the house and pulled the plug on all the components. I was certain I was safe. Meanwhile, my wife was pulling the Heresys back away from where they might get wet. The storm suddenly hit. Thunder was roaring. The wind blew so hard you could see the air moving. It was downright scary. Picture this: Just as my wife was pulling the last Heresy back from the screen a bolt of lightning struck a hickory tree that stood about 3 feet from my garage -- BOOM -- the tree split. Little fireballs were rolling on the ground AND because my underground service wire ran right by the tree the charge jumped into the ground wire which was connected to a sewer pipe --well at that exact moment, my wife had the Heresy in her arms and the speaker wire happened to be laying over the sewer pipe --

IT KNOCKED HER ON HER --*?!
CHARRED the speaker wire from the speaker to the components -- blowing my amp, pre-amp, tuner, equalizer -- and the power in the house went KABLOOEY. My wife was struck dumb for about 10 minutes -- but okay, insulated by the wood box of the Heresy. The storm cleared.

The Heresy wire was, as I said, charred up to the terminals on the back. I gave the Heresy up for junk. But out of curiosity, my friends and I hooked it up to a spare amp I have....and....to our astonishment....NO DAMAGE! WHATSOEVER! It sounded just as good as new and to this day, it cranks along with the best. I will never own any speaker but a Klipsch. Ever!

Sincerely,

George Wamser
George Wamser

P.S. My Heresys also accompany me out into the woods on campouts. They play nicely off my car stereo. There's nothing like Vivaldi's "4 Seasons" out on the Minnesota-Canada border waters, under a full of stars.

DEAR SIR:
MY NEW CORNWALL II SPEAKERS ARE BY FAR THE FINEST I HAVE EVER HEARD AND EASILY EXCEED MY EXPECTATIONS. I BOUGHT THEM WITHOUT EVER HEARING A PAIR BECAUSE MY DEALER WAS SO FAR AWAY I'M GLAD I DID. KEEP UP THE GOOD WORK.

ROBERT NIENABER
CINCINNATI, OHIO

Just a note to let you know how pleased I am with my new Klipsch 'Forté' speakers. After reading a test in Stereo Review and not getting an answer from your toll free #, I finally found a dealer 90 miles away in Springfield. These speakers sound great and the oak enclosures are very nice (although I had to pay a local cabinet shop \$25 each to cut the bases "square" with the enclosures). All in all, a truly outstanding product that I am proud to own. Hats off to your company!

Rick Bass
200 Lynn Street
Washington, Illinois
(6157)

Dear Mr. Klipsch,

Five years ago we bought four Klipsch Heresy's and installed them in a disco which we were opening. They sounded crystal clear. After we closed from our first night's business, the bar burned.

One partner stood and watched as a Dallas fireman hosed everything down. Later, we removed the speakers from the rubble, connected them to a new system, and they sang.

Later that year, there was a terrible freeze in Dallas and the speakers were sprayed again when pipes burst. They still sang.

Two years later, the bar was closed and the speakers put in storage. During another freeze, they sat in water, again from burst pipes. They remained in storage another year.

We just took them out of storage and hooked them up. They still sing.

Thank you for a superior product.

Jon L. East
James Spaulding
James K. Bigley
Houston, Texas

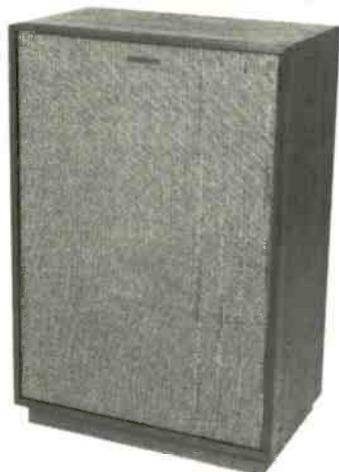
Klipsch Loudspeakers. A Legend In Sound.

kg4®

Two-way system with horn-loaded tweeter and dual 8" active woofers. Also has rear-mounted passive radiator lowering bass response to 35 Hz.



cornwall II



This is a three-way system with a horn-loaded tweeter and midrange and a large 15" woofer operating in a vented enclosure.

heresy II

For years, the most popular KLIPSCH model. Three-way system with horn-loaded tweeter and midrange. Woofer is 12" direct radiator in a sealed enclosure. A highly sensitive, very dynamic speaker.



forté®

Newest of the KLIPSCH models, the KLIPSCH FORTÉ is a three-way system with a horn-loaded tweeter and midrange. Bass is provided by a 12" woofer and a rear-mounted passive radiator.



kg2®

Compact, two-way system. Mounts on floor or shelf, vertically or horizontally. The addition of a rear-mounted passive radiator lowers bass response to 35 Hz.



la scala®



This is a three-way system, fully horn-loaded for highest sensitivity and lowest distortion. It provides listeners with the dynamic sound of the KLIPSCHORN® without requiring corner placement.

belle klipsch®



This system provides essentially the same "sound" as the KLIPSCH LA SCALA in a far more elegant cabinet.

klipschorn®



The pride and the parent of the entire KLIPSCH line, the legendary KLIPSCHORN is fully horn-loaded with a unique folded horn woofer which allows the walls of your room to become part of the speaker itself.

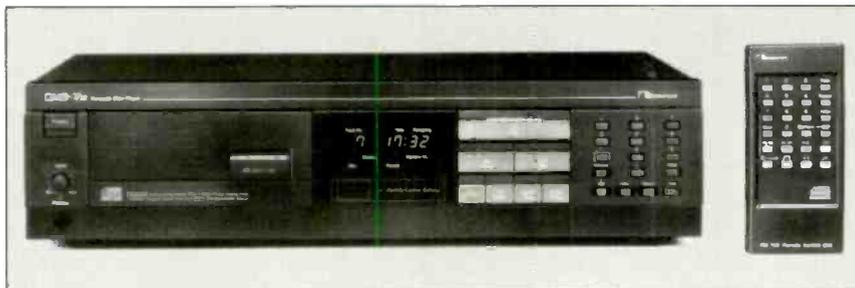
Among the legions of new CD players, most varied only cosmetically, but some manufacturers—such as Nakamichi, Meridian and Spectral—did innovate.

Continued from page 92

third-order Bessel filters following the D/A converters.

These new Nakamichi CD players will be available as you read this, the OMS-7All (with remote control) priced at \$1,650 and the OMS-5All at \$1,375.

In terms of exotic, specialized CD players, attention must be given to the new Spectral SDR-2000 Studio Reference CD player, another two-piece model. One cabinet houses the Philips Broadcast Professional CD transport. The other cabinet is a card cage holding the electronics, all of which is on standard-sized Eurocards; this permits modular upgrade of digital and analog sections to keep pace with technological advances. Spectral claims to use an improved digital process, with linearizing circuits that give precise number-to-number conversion accuracy and very quick recovery time after transients. Aperture-correction circuits—essentially, phase-compensated equalizers—correct the high-frequency losses that are incurred as audio frequencies approach the sampling frequency. Spectral also emphasizes the very low transient intermodulation levels, and the high isolation between digital and analog sections that is inherent in its design. The SDR-2000 uses a 16-bit version of the Philips quadruple oversampling system.



Nakamichi OMS-7All CD player

Spectral claims their SDR-2000 meets or exceeds the usual CD performance parameters, and they also specify several parameters not usually found on CD-player spec sheets, such as resolution, transient overshoot and settling time, and sideband suppression. Resolution is listed as 85 μ V or less—compared, Spectral says, to 100 μ V or more in other top CD players. Transient overshoot, rated at 8% or less in the SDR-2000, is 15% or more in competing players, says the company. Spectral rated their player's transient settling time at 100 μ S or less, versus a claimed 500 μ S or more in other players. Sidebands were specified as typically 64 dB down, a figure claimed to be 13 dB better than in other players. Needless to say, includ-

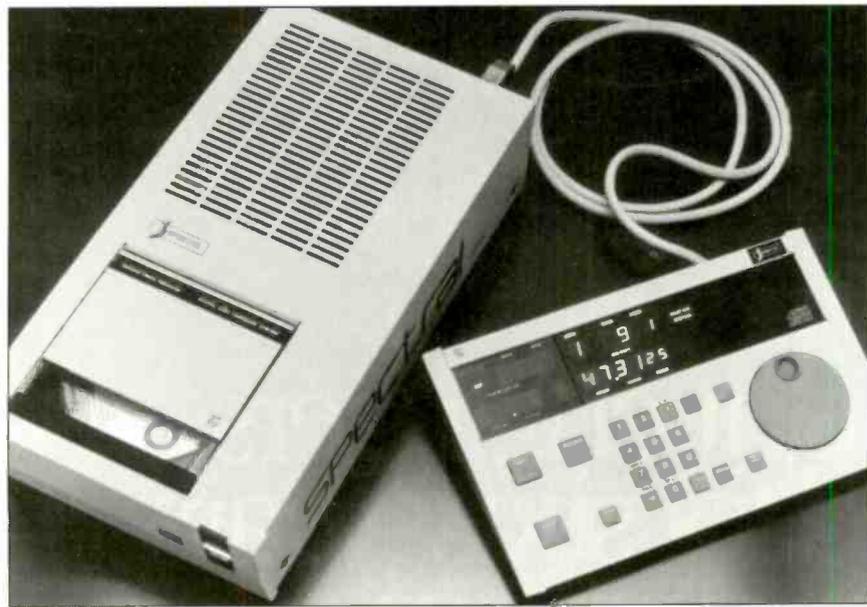
ing so much exotic circuitry in the SDR-2000 makes it a most expensive CD player; it's priced at \$5,495.

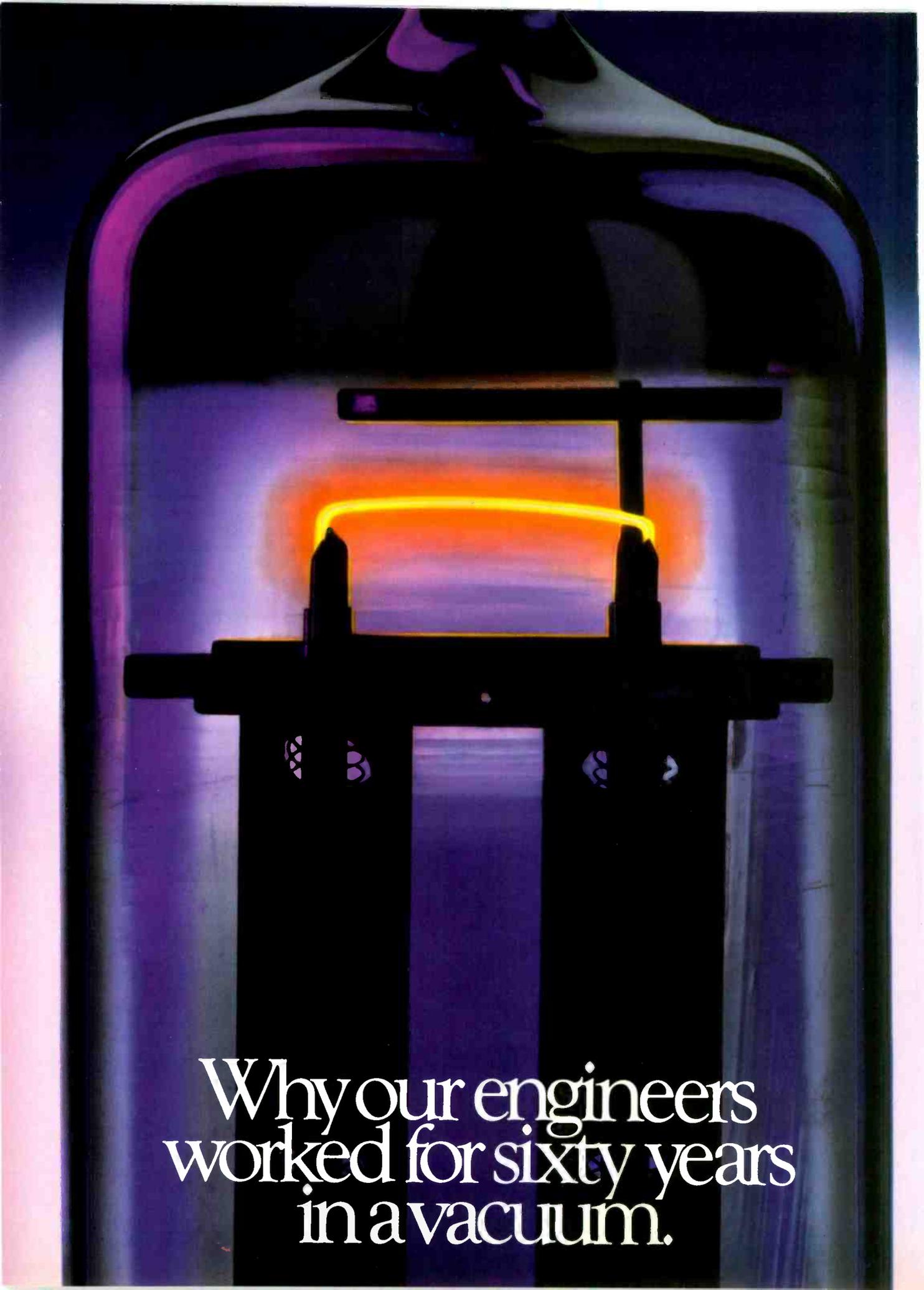
While there usually is a fair assortment of new preamplifiers and power amplifiers introduced at any CES, this 20th-anniversary show was particularly notable for the number and diversity of new designs. As always, the cutting edge of the art was most evident at the high end.

A relative newcomer, Rowland Research of Colorado Springs, has been establishing quite a reputation with its Model 7 monaural power amplifier, a 115-pound behemoth. This handsomely styled unit is a direct-coupled design with no capacitors or inductors in the signal path. FETs are used in all voltage amplification stages, and the driving stage, always powered, drives 28 high-speed bipolar transistors. The Model 7 operates in Class-A/VAB output mode. The design is totally free of negative feedback, and utilizes a massive 3.0-kVA toroidal power transformer with 126,000 μ F of capacity. Current output is in excess of 60 amperes. The Model 7 can provide 350 watts rms continuous into 8 ohms, 700 watts into 4 ohms, and a whopping 1,200 watts into 2 ohms! All this power comes with less than 0.25% rated IM and THD.

I have been using a prototype pair of Model 7s and consider them to be the best of the ultra-high powered amplifiers currently available. Usually, amplifiers with such high power output do not have particularly smooth high-end response, nor are they very transparent, nor do they exhibit much dimensionality. This does not hold true for the Model 7, where the elimination of negative feedback gives the amplifier an almost tube-like warmth and musicality while maintaining fine detailing and

Spectral SDR-2000 Studio Reference CD player



A photograph of a vacuum furnace. The interior is dark, with a bright orange and yellow arc of light between two electrodes. The furnace is surrounded by a dark, metallic structure. The text is overlaid at the bottom of the image.

Why our engineers
worked for sixty years
in a vacuum.

In an effort to push past the boundaries of conventional amplification technology and design, Luxman engineers took a daring step back, and rediscovered the vacuum tube.

The result—Luxman's LV-105 and LV-103 Brid Amplifiers. Their design is so advanced it took 1985's prestigious "Good Design Award" from the Japanese Ministry of International Trade and Industry. They are the world's first "hybrid" amplifiers—combining the warm, rich sound of vacuum tubes, with the power of transistors.

Indeed, over the years, audio engineers have been searching for a design in amplification that would reproduce that elusive quality of sound called, live performance.

To create such a design, our engineers didn't simply fine tune solid state components, but drew upon Luxman's 60 years of vacuum tube technology and found the 6CG7A Twin Triode tube. A distinction that makes the Brid Amplifiers nothing less than pure listening pleasure.

Examine the inner workings of the Brid design. You'll find Twin Triode tubes perfectly matched with MOSFET high speed semiconductors. Together they

form an extraordinary hybrid circuit which delivers sound so clear, so pure and accurate, it's virtually indistinguishable from an original live performance.

Of course the real test, is to turn on a Brid amplifier and hear it perform for yourself.

At once, your ears are treated to smooth and natural, three dimensional sound. You hear the subtleties of instruments. You hear extended highs and lows. And you hear a

warmth and fullness of sound that's truly music to the ears.

And to create a complete audio and video performance in your home, the LV-105 incor-

porates a Professional Grade video amplifier. It improves both TV picture and VCR recording quality. So you get as much pleasure viewing, as you do listening with a Brid.

At Luxman, our engineers took a bold step back to achieve a rare standard of audio/video excellence. Now you can take a remarkable step forward and enhance your listening and viewing pleasure with

Introducing the world's first hybrid integrated amplifiers.

LUXMAN
HOME ELECTRONICS SYSTEMS

Luxman's LV-105 and LV-103
Brid Series Amplifiers.

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around the house.

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This 20th-anniversary
show was notable for the

This tiny sensor from Kyocera puts high-end audio in any room.

The finer your audio system, the more you should enjoy it. So why confine your listening pleasure to just one room?

Imagine having beautiful music throughout your house. In the bedroom as you get dressed. In the family room as you relax. In the living room as you entertain. Now imagine all this music coming from a single audio system of consummate fidelity.

Not long ago, this kind of flexibility was just a dream. It would have taken several separate hi-fi systems to accomplish this feat — with tremendous expense and duplication of components. But the tiny remote sensor of Kyocera's new Full System Remote Control network has changed all that. For the cost of separate systems of marginal quality, you can assemble a single Kyocera system of audiophile quality — and enjoy that system in several rooms.



THIS IS HOW IT'S DONE.

The heart of Kyocera Full System Remote Control is the RC-101 Infrared Remote Control Center. It receives commands from the RT-102 Infrared Hand-Held Remote Controller. And it sends remote commands to the Receiver, Cassette Deck and Compact Disc Player. Just take a look at what you can do by remote control:

RECEIVER: *Volume Up/Down; input selection — Phono, Tuner, and CD/Aux; Tape Monitor; FM/AM selection; Memory Preset stations; and Tuning Up/Down plus a special Audio Mute function.*

CASSETTE DECK: *Play, Stop, Fast Forward, Rewind, Pause and Record.*

COMPACT DISC PLAYER: *Play, Stop, Pause, Skip Forward and Skip Back.*

Perhaps more important, the Control Center features inputs for Kyocera's tiny RS-103 Table-Top Sensor and inconspicuous RS-203 Wall-Mount Sensor. They enable you to control the system from the next room, from upstairs, from anywhere in the house. By adding speakers, you can bring music into several rooms. While most remote systems operate in only one room, Kyocera's multi-room network is far more advanced.

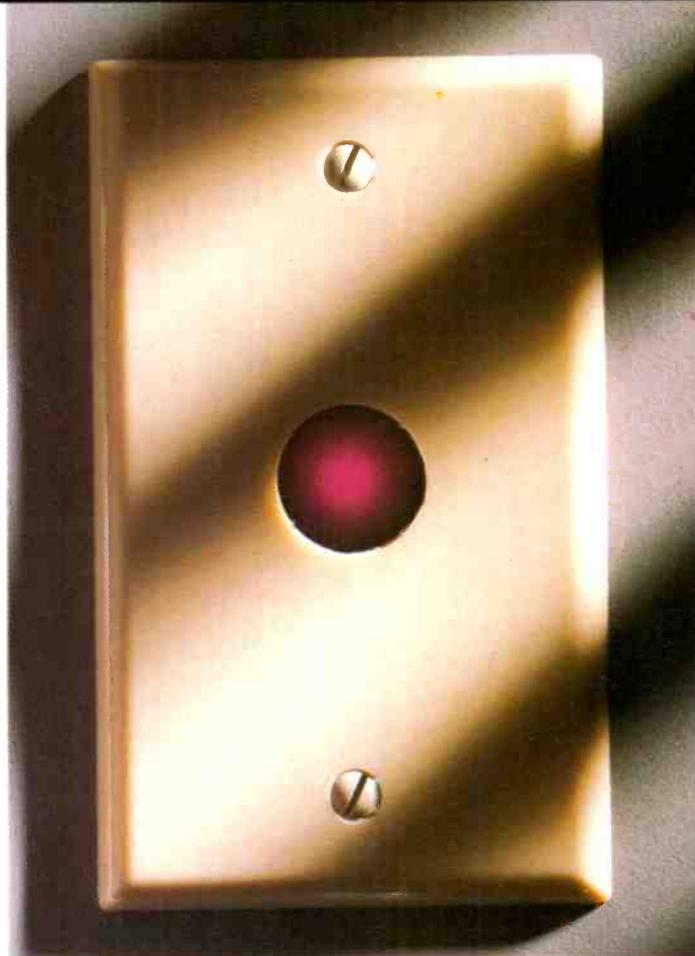
THE FIRST REMOTE CONTROL SYSTEM WITH AUDIOPHILE CREDENTIALS.

If you've been around, you know that remote control audio is nothing new. Almost all the major audio companies have at least some remote components. And total-remote systems are gaining in popularity. But even as the field gets crowded, Kyocera stands apart with three critical advantages:

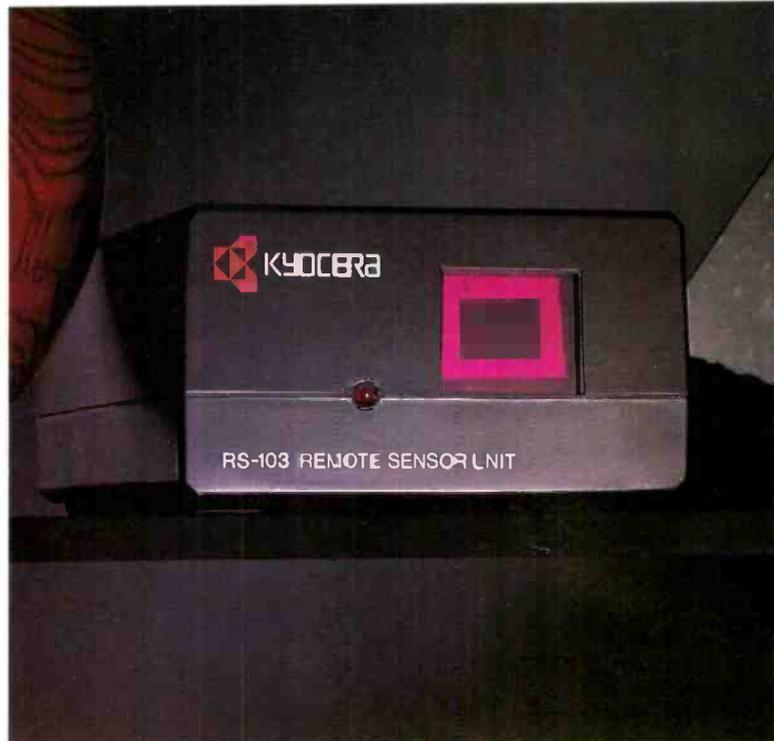
1) This Kyocera system is the world's first remote-controlled audio system with performance to please even the most ardent audiophile. Because it's built on the Receivers, Cassette Decks, and Compact Disc Players that have earned Kyocera high praise from audio critics all over the world. No other offering of remote components can match Kyocera in terms of sheer performance.

2) Kyocera uses a building-block approach so you're not locked into buying a completely new system all at once. All the Kyocera components in this brochure form interchangeable, compatible parts of the Kyocera Full System Remote Control network.

3) Unlike other systems, the Kyocera network can be operated and enjoyed in multiple rooms throughout the house. For the first time, you can carry a 100 Watt* MOS FET Receiver, a Dolby HX Pro Cassette Deck, and an anti-resonant Compact Disc player with you when you go from room to room!



Actual size of the RS-203.



Actual size of the RS-103.

This music system
is out of sight.



If you want to make your audio system the centerpiece of your living room, you'll be happy to know that Kyocera components are as beautiful as any on the

market. But if you'd rather tuck your Kyocera components discreetly away, you can still enjoy them — and operate them via wireless remote control.

RECEIVERS: We take them seriously.



If receivers have something of a bad reputation among serious audiophiles, there's a good reason. In Japan, where everybody owns component high fidelity, nobody owns one-piece receivers. In fact, North America may be the only place where receivers represent a majority of the market.

For most Japanese audio engineers, receivers are strictly for export. They're not serious components at all. So receivers are designed by the second-string engineers. This explains why even companies with decent separates tend to load their receivers up with meaningless knobs, buttons, and displays.

The irony here is that there's no reason why receivers must be second-class components. There's nothing to prevent a company from using the same common sense and judgement in receiver design as they exercise with separates. This is the guiding philosophy behind Kyocera receivers.

MOS FETS IN THE DRIVER STAGE.

A rarity in receivers, Metal-Oxide-Semiconductor Field Effect Transistors (MOS FETs) are used in the driver stages of all Kyocera receivers for their superior transient response and isolation characteristics.

PRE-OUT/MAIN-IN JACKS.

While it is hard to find a receiver with preamp-output/main amp input jacks nowadays, all Kyocera receivers have them. So you can connect outboard signal processors, use higher-powered amps, or use your receiver as part of an elaborate multi-amp system. That's particularly important considering the multi-room capability of the Kyocera Full-System Remote Control network.

THE KYOCERA R-461.

50 Watts per channel (continuous RMS, both channels driven into 8 Ohms from 20 Hz to 20 kHz with no more than 0.02% THD) ■ Compatible with Kyocera Full System Remote Control network ■ Manual/electronic volume control ■ Subsonic filter at 20 Hz with 12 dB/octave slope ■ High filter ■ Two tape

monitors with dubbing

■ Preamp Output/Main Amp Input jacks ■

MOS FETs in the amplifier driver stage for better dynamic performance ■ Low-feedback design for reduced transient

intermodulation distortion ■ Female banana jacks bypass speaker switching for straight-wire-with-gain circuit ■ Quartz frequency synthesis tuning ■ FM front end with MOS FETs and High-Q varicaps for minimum interference ■ Ceramic IF filters for high selectivity, low distortion ■ 6 AM + 6 FM station presets.

THE KYOCERA R-661.

70 Watts per channel (continuous RMS, both channels driven into 8 Ohms from 20 Hz to 20 kHz with no more than 0.02% THD) ■ ALL THE FEATURES OF THE R-461, PLUS: Toroidal transformer ■ Oxygen-Free Copper (OFC) wiring for reduced noise ■ Moving Magnet/Moving Coil phono input stage ■ Parametric bass and treble controls with continuously variable turnover frequency for sensitive and precise tonal adjustment ■ Wide/Narrow IF bandwidth switch adapts to your reception conditions ■ High-frequency FM comparator for reduced noise ■ FM quadrature detector for low distortion ■ Chopper-type FM stereo demodulator for improved stereo separation ■ High blend switch for better sound on weak FM stations ■ 7 AM + 7 FM station presets.

THE KYOCERA R-861.

*100 Watts per channel (continuous RMS, both channels driven into 8 Ohms from 20 Hz to 20 kHz with no more than 0.02% THD) ■ ALL THE FEATURES OF THE R-661, PLUS: Parametric bass, midrange, and treble controls ■ Automated IF bandwidth switching (Wide/Narrow) adapts to your reception conditions ■ Switchable de-emphasis for Dolby[®] FM broadcasts.



CASSETTE DECKS: Two heads can be better than three.



For years, cassette deck manufacturers have touted the three-head feature. Again and again, we are told that three heads are the only way to achieve frequency response to 20 kHz. So many brands have devoted so much attention to this argument that it seems heretical to suggest there's a better way. In fact, doing three heads properly is an extremely expensive proposition. And doing it poorly is a sure way to sacrifice performance.

Proponents of three-head design like to gloss over the fact that any three-head deck with pretensions to high performance must come to grips with the problem of azimuth error.

Azimuth error occurs when the playback head gap does not line up precisely with the signals laid down by the record head gap. This kind of error can never occur on two-head decks, where the record and playback gaps are exactly the same. Less than one degree of azimuth error can cause significant loss of response above 15 kHz. And that's ironic, because extended highs were supposed to be the strength of the three-head design in the first place.

Some manufacturers try to reduce azimuth error by placing the record and playback heads close together — often squeezing them through the cassette's central window. Others try to conquer azimuth error through elaborate mechanics and electronics. To be fair, the more elaborate systems do work, but only at incredible cost to the consumer. And the simpler systems? If the response falls short of 20 kHz on Type II tape, then the azimuth error correction is not completely successful.

Kyocera has a fresh approach. We maintain that a properly designed two-head deck can give you exemplary frequency response. And our decks prove it. Instead of spending money on elaborate azimuth-error correction, we consciously spent the money on reducing wow & flutter.

A TRANSPORT OF DELIGHT.

The most audible shortcoming of today's decks

is wow & flutter.

That's why Kyocera concentrated on improving the transport. On the D-811, we used two capstans, isolated by a closed-loop belt, for minimum modulation noise. We gave the take-up capstan direct drive. We supplied a separate high-torque motor to drive the reel hubs. And we even used a third motor to insert the heads into the cassette gently and precisely. The result is sound without the veil of modulation noise, wow & flutter that plagues lesser cassette decks.



THE KYOCERA D-611.

Compatible with the Kyocera Full System Remote Control network ■ Three-motor transport ■ Direct-drive FG servo motor turns the capstan without gears or pulleys — wow & flutter only 0.035% (WRMS) ■ High-torque motor drives reel hubs ■ Third motor gently inserts heads into cassette ■ Sendust-core record/play head achieves response to 20 kHz with Type I and Type II tape, to 22 kHz with metal tape ■ Dolby® B and C noise reduction ■ Switchable MPX filter ■ Fine Bias control ■ Timer recording and play ■ Automatic Program Mute Recording adds four-second blanks between songs ■ Auto Play and Repeat ■ Memory Stop and Memory Play.

THE KYOCERA D-811.

ALL THE FEATURES OF THE D-611, PLUS: Dolby HX Pro Bias Compensation for extended recording range ■ 400 Hz calibration tone for record balance ■ Closed-loop dual-capstan tape drive minimizes modulation noise ■ Wow & flutter reduced to only 0.02% (WRMS) ■ Fluorescent readout of tape time in minutes and seconds ■ LED peak level indicators with peak-hold.

CD PLAYERS: Solving the problem of resonance.



The role of air-borne vibration in degrading turntable sound is long-recognized and well understood. What is now coming to light is the effect of vibration on Compact Disc players. Because the CD's track of pits is microscopically narrow, vibration can cause mistracking and its consequent data errors. In fact, controlled tests performed for Kyocera by an independent research laboratory confirm that a non-resonant Fine Ceramics chassis incurred significantly fewer data errors than a conventional chassis of similar design. Thanks to the CD format's error-detection and error-correction systems, these data errors are not heard directly. However, the very process of error concealment introduces distortion which can be heard.

Kyocera was the first to design and construct anti-resonant CD players. Kyocera's top-of-the-line DA-910 uses massive chassis parts, mechanical isolation of the laser transport, and a cast Fine Ceramics base to minimize vibration-induced mistracking. Now, with the new DA-710CX and DA-610CX, Kyocera provides similar sophistication to a broader audience of music lovers.

These new CD players feature four Fine Ceramics spacers strategically located in the chassis to isolate the laser transport and printed circuit boards from external vibration. In addition, dual zirconia-ceramic guide shafts, newly developed by the Kyocera Gamou Works, assure smoother travel of the laser transport for superior tracking stability. Compared to molded aluminum or stainless steel, the zirconia ceramic shafts can be machined to much tighter tolerances. In addition, the shafts will stay within tolerance for more than ten times the service life of stainless steel, molded aluminum or plastic.

TOP-QUALITY ANALOG CIRCUITRY.

The ultimate quality of a CD player depends on the attention that has gone into its non-digital circuitry as well as its digital circuitry. That's why Kyocera uses DC amplification, resulting in response that extends from a low of 5 Hz to 20 kHz within a tolerance of ± 0.5 dB. Separate power transformer

secondary windings and separate voltage-regulated supplies are used for the analog and digital circuits. This precaution prevents digital noise from leaking through the power supply and contaminating analog signals.

Carefully selected capacitors and expensive Linear-Crystal Oxygen-Free Copper (LC-OFC) wiring assure the lowest possible signal loss. As an additional assurance of low noise, the line output jacks are plated with gold. And one more note: the line output level at these jacks is completely isolated and undisturbed by adjustments to the headphone volume control on the front panel.

THE KYOCERA DA-610CX.

Compatible with the Kyocera Full System Remote Control network ■ Anti-resonant construction with Fine Ceramics chassis spacers for fewer data errors, lower distortion ■ Zirconia-ceramic guide shafts for smoother laser travel, longer life ■ Three-beam laser tracking for superior tracking stability ■ 16-bit linear digital-to-analog conversion extracts the full resolution from Compact Discs ■ DC analog section ■ Ninth-order low-pass filters ■ Separate power supplies for digital and analog circuitry ■ Low-noise LC-OFC internal wiring ■ Gold-plated output jacks ■ "Dedicated" 24-function wireless remote control ■ 16-selection programmability ■ Skip Forward and Back ■ Three-Way Repeat (Track, Disc, and Program) ■ Multi-function fluorescent display.

THE KYOCERA DA-710CX.

ALL THE FEATURES OF THE DA-610CX, PLUS: Optically coupled digital signal routing to eliminate internal interference ■ Digital filtering with four-times oversampling at 176.4 kHz to minimize aliasing noise ■ Dual digital-to-analog converters eliminate interchannel phase delay ■ Digital Subcode Output Port for use with future digital components ■ Third-order Bessel-derived analog filtering for minimum high-frequency phase shift ■ Background Music function plays songs on the disc in random sequence.

SPECIFICATIONS

RECEIVERS	R-861	R-661	R-461
(Audio section)			
Power output RMS (both ch. driven into 8 ohms with no more than 0.02% THD, 20Hz-20kHz)	100W/ch	70W/ch	50W/ch
Dynamic short-term power (at 1kHz) (8 ohms) (4 ohms) (2 ohms)	120W/ch 180W/ch 230W/ch	80W/ch 110W/ch 140W/ch	80W/ch 110W/ch 125W/ch
Total harmonic distortion (at rated output)	0.02%	0.02%	0.02%
Power bandwidth (-3dB re: rated power)	10Hz-60kHz	10Hz-60kHz	10Hz-60kHz
Intermodulation distortion (at rated output) (SMPTE)	0.02%	0.02%	0.02%
Slew rate	50V/ μ sec	50V/ μ sec	40V/ μ sec
Rise time	1.0 μ sec	1.0 μ sec	1.5 μ sec
Input sensitivity			
Phono MC (100 ohms)	125 μ V	125 μ V	—
Phono MM (47k ohms/100pF)	2.5mV	2.5mV	2.5mV
Others (30k ohms)	150mV	150mV	150mV
Maximum input voltage (at 1kHz, 0.5% THD)			
Phono MC	8mV	8mV	—
Phono MM	150mV	150mV	150mV
Others (with vol. at max. position) (direct CD/AUX, AV/AUX input)	1.3V	1.3V	1.3V
Signal-to-noise ratio (IHF short circuited, A-weighted at rated output)			
Phono MC	68dB	64dB	—
Phono MM	88dB	82dB	80dB
Others	100dB	100dB	95dB
Signal-to-noise (IHF A-202)			
Phono MC	74dB	70dB	—
Phono MM	85dB	82dB	82dB
Others	90dB	90dB	89dB
Dynamic headroom	1.0dB at 8 ohms	1.0dB at 8 ohms	2.1dB at 8 ohms
Damping factor (8 ohms at 50Hz)	60	60	40
Tone control			
Bass at 100Hz	\pm 10dB	\pm 10dB	\pm 10dB
Midrange at 800Hz	\pm 10dB	\pm 10dB	\pm 10dB
Treble at 10kHz	\pm 10dB	\pm 10dB	\pm 10dB
Turnover Frequencies			
Bass control	100-500Hz	100-500Hz	—
Midrange control	0.5-2kHz	—	—
Treble control	2-10kHz	—	—
Loudness compensation (volume at -30dB at 100Hz, 0.5% THD)			
at 100Hz	+8dB	+8dB	+8dB
at 10kHz	+2dB	+2dB	+2dB
High filter (6dB/oct.) at 10kHz	-6dB	6dB	-6dB
Subsonic filter (12dB/oct.) at 18Hz	-3dB	-3dB	-3dB
Tape recording output level (at rated input sensitivity)	130mV	130mV	130mV
(FM section)			
Tuning range	87.5-108MHz	87.5-108MHz	87.5-108MHz
Usable sensitivity (MONO)	9.8dBf	10.1dBf	10.3dBf
50dB quieting sensitivity (MONO) (STEREO)	14.8dBf 35.8dBf	15.5dBf 36.5dBf	17.0dBf 37.2dBf
Capture ratio (normal IF)	1dB	1dB	1.2dB
Distortion (normal IF) (MONO) at 1kHz (STEREO) at 1kHz	0.06% 0.07%	0.07% 0.1%	0.08% 0.12%
Separation (normal IF) at 1kHz	58dB	55dB	48dB
High blend (separation at 1kHz)	20dB	—	—
Frequency response (30Hz to 15kHz)	\pm 0/-0.5dB	\pm 0/-0.5dB	\pm 0/-1.0dB
Signal-to-noise ratio (Mono A weighted) (Stereo A weighted)	82dB 76dB	80dB 74dB	77dB 72dB
Stereo threshold	20/40dBf	20/40dBf	20/40dBf
Muting threshold	20/40dBf	20/40dBf	20/40dBf
Alternate channel selectivity (Normal IF) (Narrow IF)	40dB 81dB	40dB 75dB	55dB
Spurious rejection	95dB	88dB	86dB
IF rejection	120dB	110dB	100dB
Image rejection	85dB	68dB	68dB
Subcarrier product ratio	65dB	65dB	58dB
Recording output voltage	0.75V	0.75V	0.75V
Antenna provision	Unbalanced 75 ohms 300 ohms adapter	Unbalanced 75 ohms 300 ohms adapter	Unbalanced 75 ohms 300 ohms adapter
(AM section)			
Tuning range	520-1710kHz	520-1710kHz	520-1710kHz
Usable sensitivity (S/N = 20dB) (Loop antenna) (Direct terminal)	300 μ V/m 20 μ V	300 μ V/m 20 μ V	300 μ V/m 20 μ V
Signal-to-noise ratio	50dB	50dB	50dB
IF rejection	60dB	60dB	60dB
Selectivity (+20kHz)	45dB	45dB	45dB
Distortion	0.3%	0.3%	0.3%
Recording output voltage	0.3V	0.3V	0.3V
Image rejection	40dB	40dB	40dB
(General)			
Power requirements	AC 120V 60Hz	AC 120V 60Hz	AC 120V 60Hz
Power consumption	320W	210W	175W
Dimensions			
Width	18-1/8" (460mm)	18-1/8" (460mm)	18-1/8" (460mm)
Height	5-3/16" (132mm)	5-3/16" (132mm)	4-5/16" (110mm)
Depth	14-3/16" (360mm)	14-3/16" (360mm)	13-3/8" (340mm)
Weight	27 lbs (12.3kg)	25 lbs (11.7kg)	18 lbs (8.2kg)

CASSETTE DECKS	D-811	D-611
(Electrical)		
Recording bias frequency (AC bias type)	105kHz	105kHz
Erase system	AC type	AC type
Head Record/playback Erasure	Sensodust Ferrite	Sensodust Ferrite
Frequency response (response \pm 3dB) Metal CrO ₂ Normal	20Hz-22kHz 20Hz-20kHz 20Hz-20kHz	20Hz-22kHz 20Hz-20kHz 20Hz-20kHz
Signal-to-noise ratio (DIN 45500/70 μ sec. EQ tape) NR out weighted (A) Metal Dolby B type NR effect (WTD CCIR) Metal Dolby C type NR effect (WTD CCIR) Metal	58dB 10dB 20dB	58dB 10dB 20dB
Input sensitivity 10k ohms 50k ohms Mic Line	0.5mV 70mV	0.5mV 70mV
Output OVU level at 8 ohms Line Headphone	580mV 100mV	580mV 50mV
Harmonic distortion (1kHz OVU level) Line	1.5%	1.5%
Separation (Band pass filter, 1kHz) Line	40dB	40dB
Erase effect (Band pass filter, 1kHz + 10dB VU level)	70dB	70dB
Bias adjustable range	\pm 15%	\pm 15%
APMR time	4 sec	4 sec
Recording calibration frequency	400Hz	—
(Mechanical)		
Motors Capstan drive Reel drive Head drive	Brushless FG servo Governor-less DC motor Governor-less DC motor	Brushless FG servo Governor-less DC motor Governor-less DC motor
Wow and flutter (MTT-III JIS WRMS)	0.02%	0.035%
Speed tolerance (MTT-III)	\pm 0.5%	\pm 0.5%
Rewind/fast forward time (C-60)	75 sec	75 sec
Copstans	Dual capstan	Single capstan
(General)		
Power requirements	AC 120V 60Hz	AC 120V 60Hz
Power consumption	33W	33W
Dimensions		
Width	18-1/8" (460mm)	18-1/8" (460mm)
Height	5-3/16" (132mm)	4-1/2" (114mm)
Depth	12-1/8" (308mm)	12-13/64" (310mm)
Weight	18 lbs. 1 oz (8.2kg)	15 lbs. 7 oz (7kg)
COMPACT DISC PLAYERS		
	DA-710CX	DA-610CX
Total harmonic distortion (1kHz, with 20kHz LPF)	0.005%	0.005%
Frequency response (\pm 0.5 dB)	5Hz-20kHz	5Hz-20kHz
Signal-to-noise ratio (with 20kHz LPF & IHF-A filter)	over 95dB	over 90dB
Separation (at 1kHz, with 20kHz LPF)	over 90dB	over 90dB
Dynamic range	over 90dB	over 90dB
Output level	2.0V	2.0V
Output impedance	2.0k ohms	2.0k ohms
Power requirements	AC 120V 60Hz	AC 120V 60Hz
Power consumption	13W	12W
Dimensions		
Width	18-1/8" (460mm)	18-1/8" (460mm)
Height	3-9/16" (90mm)	3-9/16" (90mm)
Depth	12-1/8" (308mm)	12-1/8" (308mm)
Weight	14.5 lbs (7kg)	13.2 lbs (6kg)

- Dolby and  mark are trademarks of Dolby Laboratories Licensing Corporation.
- Specifications and design are subject to change without notice for improvements.
- Actual color of product exterior may be slightly different from printed product photo.
- All Kyocera audio products come with a warranty. At the time of your purchase, please be sure to obtain it from your Kyocera dealer and ensure that the dealer fills it in for you.



Built right from the ground up.

For your nearest Kyocera dealer call:
1-800-633-2252 Ext. 224

Kyocera International, Inc., 100 Randolph Road,
CN 6700, Somerset, NJ 08873-1284, (201) 560-0060

Kyocera Canada, Inc., 7470 Bath Road,
Mississauga, Ontario, L4T 1L2, Canada, (416) 671-4300

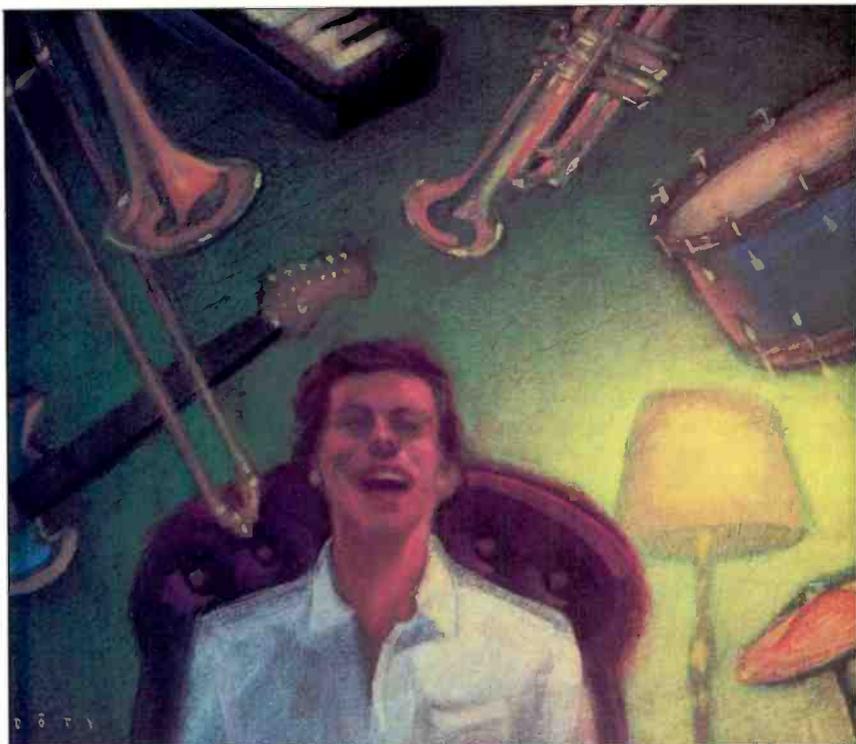
OUT OF BOUNCE

Let's try a conceptual experiment. Imagine that you've just left *Audio's* New York offices. You pause on the busy Manhattan sidewalk to blindfold yourself, then walk out into the middle of the street. Your life, of course, would be almost immediately snuffed out by a taxi. But in the brief moment prior to that, you would enjoy the miracle of aural spatiality. Your ears would hear the sounds of traffic and people all around, jet planes overhead, subway trains below. In addition to all the other received information, your brain would be able to localize the direction and relative distance of all of those sounds, thanks to the expertise of your ear/brain's psychoacoustical skills.

As I discussed last month, your ear/brain is fine-tuned to ambient information; if that information is lacking, you immediately judge sound to be less "real" than it is, or less interesting. That's where DSP—Digital Signal Processing—is playing an increasingly important role in audio. The computational clout of digital circuits and software permits unprecedented manipulation of sound. Among other audio applications, DSP number-crunching is being used to synthesize psychoacoustic cues, in order to achieve better re-created sound.

Let's try another conceptual experiment, this time in the relative safety of a rock 'n' roll concert. The lead guitarist plays a big power chord; let's carefully follow the sequence of events in time. When he plays, sound emanates in all directions; you'll eventually hear all that sound, but at different times, because it will follow paths of different lengths. The first sound you hear is the direct sound from the P.A. system, coming from the front. Next come first-order reflections: The sound of the chord that has bounced off the stage floor or proscenium, which arrives about 10 mS later; and sound from side walls or the ceiling, which come next, about 20 mS later. From behind you comes sound that is returning after bouncing off the back wall, as well as second-order reflections—that is, sound that has undergone two reflections.

At this point, only careful analysis could differentiate the sounds of the original chord as you are bombarded by a thicket of lower order reflections



arriving closely together from all directions. As the sound bounces around, it loses energy, and its amplitude slowly dies out.

In real time, you've heard the chord and hall ambience, including early reflections and reverberation. Your ear/brain has received detailed information on amplitude, relative time delay, direction, and frequency response on thousands of variations of the original chord's sound. Given that data, you have rapidly constructed a model of the hall including its size, shape, equalization, and your relative position within it.

While a good hall supplies all this free of charge, it is a different matter in the recording studio, where the engineer must create most ambient information from scratch. Using DSP, he is able to precisely create a signal-processing chain which models the desired acoustical space. Consider the block diagram shown in Fig. 1. DSP contains all the building blocks, mainly software programs, to compute the numerical equivalents of room acoustics. The engineer merely selects the desired parameters, then relaxes while the program takes over. Would you like

to put Mr. Mister in a large, live auditorium with a slightly boomy low end? No problem.

The audio computer performs computations on the data according to the program, contained in RAM or ROM, that has been selected. For concert-hall simulation, the program might be structured according to the signal flow chart in Fig. 2. Using the stereo channels as input, the computer performs equalization, delay and reverberation computations. The sonic output is the re-creation of an existing sonic environment, or the creation of an entirely new (and perhaps physically impossible) space.

Virtually all popular recordings benefit from DSP, and more than a few classical recordings undergo an acoustical facelift. But there's a catch. While the acoustical parameters of a space have been defined, the reproduced model is incomplete. If you listen to a recording at home and conclude that you are in a concert hall, it would be more than your ear/brain that was confused.

The problem, of course, is that two loudspeakers cannot re-create the acoustical ambience surrounding you

Some would employ heavy DSP in the studio so that regular playback gear could be used, while others would synthesize ambience upon playback.

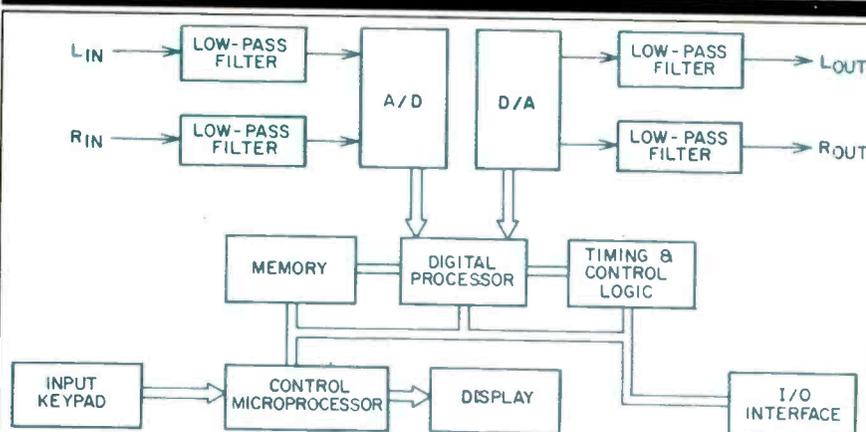


Fig. 1—Digital signal-processing hardware. Single lines represent analog signals, double lines indicate digital data; digital links are two-way unless otherwise indicated. The I/O interface is for direct connection to other digital devices.

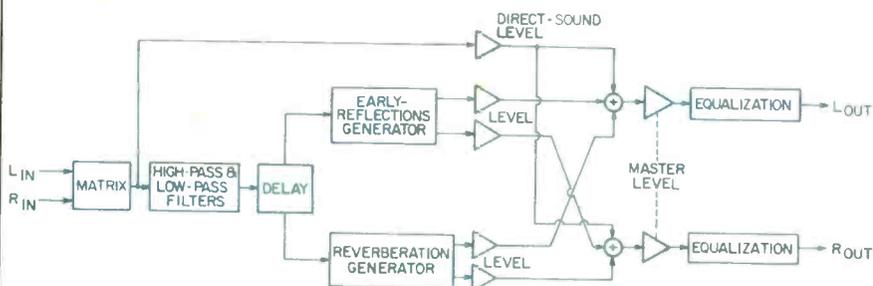


Fig. 2—Software model of digital signal processing.

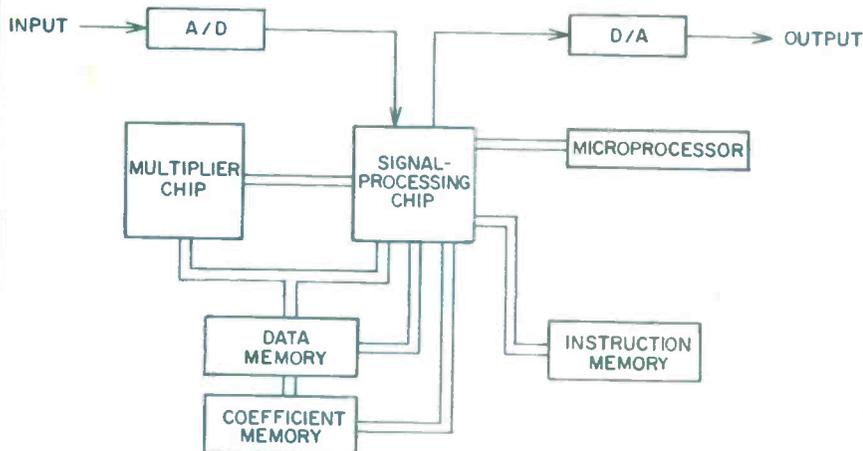


Fig. 3—A multiple-chip digital signal-processing system. All digital data paths shown (double lines) are two-way.

in a concert hall. For starters, the ambient information supplied by your listening room is incorrect; moreover, the ambient information coming from the speakers, while correct, is mostly coming from the wrong direction. So your localization cues are all screwed up. However, digital signal processing *could* be used to create concert hall-sounding aural cues. In theory, in the same way your ear/brain creates a phantom image where there is no loudspeaker, it could also create a concert hall where there is none.

There are two approaches to the problem. One school of thought believes that heavy-duty DSP in the studio could be used to encode the signal so that ambience, if not surround ambience, could be reproduced through two loudspeakers and conventional playback electronics. Through analysis of the acoustical information at each ear and the relationship between the signals each ear receives, a program could be written to duplicate the sound-pressure ratio of signals reaching each ear and the sound pressures common to both. Because the ear/brain responds only to the input at the ears, a correctly simulated input would cause the same response. Thus, a surround environment could be created from a conventional playback system.

Another school would use DSP to synthesize ambient information directly upon playback. Parameters could be set through analysis of the ambient information on the input signal, or according to the user's taste. The processor would supply a signal delayed, reverberated, and equalized precisely according to an internally consistent acoustic model. The ambient information could be mixed into the main loudspeakers or routed to additional ambient loudspeakers, as in many movie theaters.

Until recently, both ideas were impractical because the required processing system was pretty expensive. But that is changing, as DSP chips become available. Figure 3 shows a complete DSP on a few chips. The audio signal is input to a processing chip through an A/D converter and output from the chip through a D/A (these would be omitted in an all-digital system). The processor manipulates the

As the cost of ambience synthesis drops, products are appearing that put the power of psychoacoustics at our fingertips.

data with the help of peripheral chips. The processing chip includes an ALU (arithmetic logic unit) and a microprogram sequencer. The other principal chip is a parallel multiplier. This miniature DSP could be clocked at 8 MHz, executing 166 instructions within every 48-kHz sampling period.

Because of the cost reduction afforded by such integration, consumer products using DSP are appearing. Eventually, equalization, mixing, reverb, compression, expansion, time delay, sampling frequency conversion, acoustical measurements and analysis could all be accomplished with home equipment incorporating inexpensive DSP.

An early example is the Sony SDP-505ES surround-sound processor. It accepts a stereo analog signal, performs DSP on PCM data with 44.1-kHz, 16-bit specifications, and outputs a stereo analog signal. Although other applications are possible, the synthesized information is typically directed to two ambience loudspeakers. They might be placed in corners, facing a reflective surface to provide widely dispersed sound.

The SDP-505ES is programmed to add delay to an audio signal, in 0.1-mS increments, from 0 to 90 mS. For video (theatrical) software, the unit provides Dolby Surround Sound decoding with equalization and delay. Other modes provide preset ambient synthesis for concert-hall and other surround-sound environments.

The heart of the SDP-505ES is a DSP chip, the CXD-1079, which contains a multiplier and adder, and interface circuits. Delay is accomplished by writing the signal to RAM, then reading it after the prescribed time period has elapsed. Equalization and Dolby decoding follow other simple algorithms—a piece of cake for a digital processor.

The power of psychoacoustics is thus placed at your fingertips. Perhaps in the future, with the availability of consumer DSP products, music will be recorded and played back in totally anechoic rooms, with synthetic room acoustics added in real time, during playback, according to your taste. The enjoyment of recorded music would no longer be constrained by the acoustics of the recording or listening room.

Whether this created opportunity would help or harm the realism of recreated music is a matter of conjecture at this point.

"Digital audio" has thus far referred mainly to a method of audio storage, but in the near future the term will have much wider applications. Digital Signal

Processing will pervade the recording and reproduction chain, providing unprecedented clout to the manipulation of audio signals. Only when analog systems (with digital storage) are replaced by systems that are wholly digital will the true benefit of "digital audio" really become apparent. **A**

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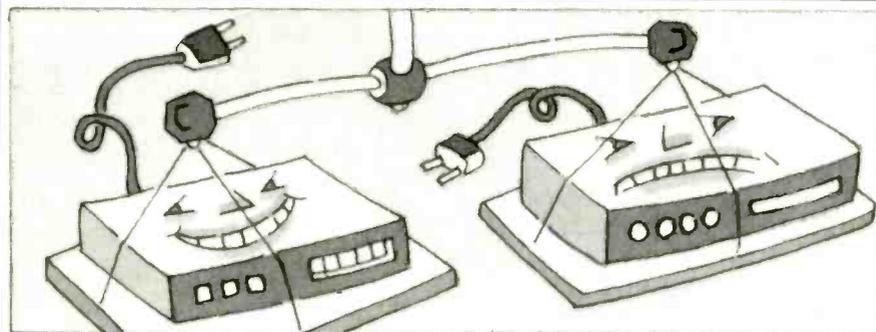
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AMPLIFIED STATISTICS



Turning Our Tables

Specification tables like those in our annual directories are actually just two-dimensional views of multi-dimensional data sets. This is easier to see when you run the information through a good computer data-base program which can organize it along any desired data dimension. Nelson Pass of Threshold did that with a selection of the audiophile amplifiers listed in last year's Directory, and came up with the following new slants. With a computer data base, and patience enough to enter all the data, you could do the same with the information listed in this year's Directory.

The 152 amplifiers Pass entered in his data base ranged in price from \$298 for the NAD 2155 to \$11,000 for the Esoteric Audio Research 529. The median price was \$1,495; as it happened, this was one of the more popular price points, shared by five amplifiers in his listing. But the most popular price point was \$995 (nine models), with \$6,000 (six models) in second place and the median price running third. Fifteen of the amplifiers Pass listed were priced at \$500 or less, 43 between that price and \$1,000, 38 between there and \$2,000, 40 more in the \$2,001 to \$5,000 price

range, and 16 amplifiers priced higher still. In reality, the price spread is even greater than the 37:1 ratio indicated, since virtually all amplifiers below \$4,000 are stereo, while virtually all those above that price are mono. You'd therefore need *pairs* of the more expensive amps for stereo, making the true spread from \$298 to \$22,000, a ratio of nearly 74 to 1.

Price per watt per channel, however, showed an even greater spread, 80:1, from \$1.10 per watt (for the Soundcraftsmen PCR800) to \$88.48 per watt for the Levinson ML-2. Two amplifiers, the Bryston 2B-LP and the Audire Otez, fell exactly at the median of \$5.50 per watt; but they were very different in other respects—the Audire has five times the Bryston's power, at five times the price. Nearly half the amplifiers cost \$5.00 per watt or less, and 111 (73% of the total) were \$10 per watt or less. Only 13 amplifiers cost more than \$20 per watt, and only four (the Audio Research D79, Classé DR-2A and DR-3, and the Levinson ML-2) were above \$30 per watt.

Price per pound covered a comparatively narrow range, a 5.75:1 spread bounded by the Adcom GFA-2, at \$12.93 per pound, and the Levinson ML-2, at \$74.40; the median

fell at about \$34 per pound, right between the Classé DR-2A (\$33.77) and the Streliaoff SC1 800 (\$34.48). As you'd expect from the small spread, there was a fairly tight correlation between weight and price, with five of the ten lightest models being among the ten lowest priced, and nine of the ten heaviest models also among the ten most expensive.

The lightest amp was a Carver, of course (the nine-pound M-400t) and the heaviest was New York Audio Laboratories' Megamoscode 1000 (300 pounds). Median weight was 45 pounds, a weight shared by seven different models; the most common weight, however, was 25 pounds (11 models) followed by 55 pounds (eight models).

Not too surprisingly, the lightest amplifiers also tended to offer the most power per pound. Carver and Soundcraftsmen were the clear winners here, with Carver's four amplifiers offering anywhere from 22.82 to 44.67 watts per pound and Soundcraftsmen's both coming in at 17.83 watts per pound. But there was no such correlation at the other end of the scale, where the Classé DR-3 and DR-2A, at 0.71 and 0.77 watts per pound, respectively, were far from the heaviest. The median value fell between the McIntosh MC2255 (6.10 watts per pound) and the Robertson Sixty Ten (6.15).

The lowest powered amplifier in Pass's sample was the Naim NAIT, a 20-watter, while the highest powered was the Streliaoff SC1 800, rated at one kilowatt. The median value was 120 watts (a rating common to five amplifiers), while the most popular ratings were 100 watts (28 models!), 200 watts (16 models), 250 watts (12 models) and 50 watts (12 models).

Timing Tricks

My college roommates and I once did an A/B comparison of the Furtwängler and Toscanini recordings of Beethoven's Ninth Symphony. To do it, we had to dub one recording onto tape, so we could run the two in parallel and switch between them. (As expected, the Furtwängler version, on four disc sides, took longer than the

Toscanini, on three. What we did not expect was that Furtwängler ran *ahead* of Toscanini in some places.) If we'd had a stopwatch, we might have quantified the timing differences between those recordings.

Had the Compact Disc system been around back then, we could have read comparative timings for each movement off the player's

display. Music reviewers are already discovering this trick, and a growing number of reviews spell out the timing differences when comparing renditions of a work. It's another small instance of the ways in which technology influences art. (*Editor's Note:* It has been widely recognized that proponents of the theory that criticism is an art are all critics.—E.P.)

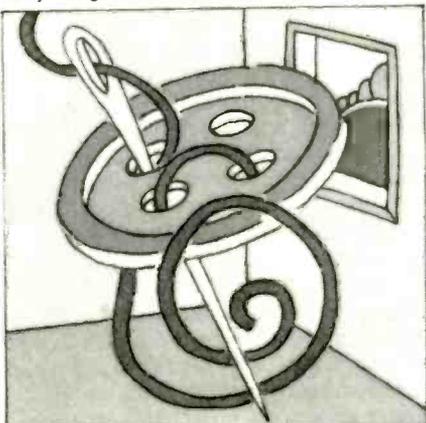
Relative Remotes

A package arrived for one of our staff members. "Oh, that's a remote control I got for my uncle," she explained. That got us wondering—wouldn't it be nice to have remotely controllable relatives? How about a "Play" button for when they get too serious? Fast forward to speed the parting of the ones we don't like, and rewind to bring back the ones we do? "Stop" for rambunctious nieces and nephews?

The system would also take care of relatives who aren't quite on the same channel as the rest of us. The most important control of all, however, would probably be "Mute." (*Editor's Note:* Readers should take the above with a grain of salt; Mr. Berger was married only a few months ago.—*E.P.*)

Button, Button

I have an equalizer, but I rarely use it. My preamp has buttons galore, to switch in tone controls, a delay system, a spatial enhancer, and a mild expander; I rarely use them, either. Yet I delight in having them—not so much because the fearsome array of controls impresses people (if anything, it scares them off), but



rather because all of these things are worth using . . . once in a while, on recordings or in situations that require them. I don't think I'd want a preamp that didn't have a tone-control bypass (I'm by no means certain, however, that I can hear the difference between the "bypassed" and "flat" settings), but I wouldn't want a preamp without tone controls, either.



Changing Times

The record changer is moribund; long live the changer.

There are still a few turntables that can play a stack of records. Dual and Technics had some multi-play models, last I looked, and there were a few cheapies available from other companies. But the heyday of the multi-play table passed years ago; now, even department-store rack systems include single-play turntables as a matter of course. Audiophiles originally spurned the changer for the drag the early automatic linkages imposed on tonearms; with the advent of the Dual 1009, the changer grew respectable again. Then, as the art of record playing advanced, its problems—some real, some imaginary, and some curable—made it anathema again.

But while the record changer is disappearing, its convenience is coming back, in multiple-play CD and cassette decks. For home use, Sony makes a multi-play cassette deck (sold in the U.S. by Benjamin), and Aiwa and Mitsubishi offer some in pre-matched audio systems. For the car, you can get an Alpine, with the probability of a Kraco soon and at least one other waiting in the wings across the Pacific.

The concept may flourish even more in Compact Disc players. Sony has matching changers for home and car, and Pioneer, Mitsubishi, and Nikko have them for the home (see article in the June '86 issue). Alpine and Denon have models in Japan, while another, announced by Technics a while back, is only now reaching the

market. And Seeburg has announced a jukebox based on a 60-disc changer mechanism made by Sony.

The CD is such a natural for automatic changing that you can expect more. The discs are less delicate than LPs, and the nature of the playback system should forestall the record changer's problem of a stylus angle that changed as the height of the record stack grew. And since CDs are recorded only on one side, there's no need to flip them. This, plus the CD's longer playing time, means fewer interruptions in the music: A three-LP album, which would be interrupted five times for changing and flipping, would be interrupted only once if it fit on two CDs, and twice if it occupied three.

Not only that, but CD permits some conveniences that LP wasn't as amenable to. Random track access, for example, is built into the system. And then there are those extra data bits, not yet firmly assigned, which could be used for graphics, song lyrics, selection titles, or what have you. Conceivably, standards will be developed to embrace all those uses and more—equivalent bits in the disc index section, for example, could be used to tell the player which way the subcode bits in a given disc should be used. If the extra bits were used for titling, a changer could scan through and memorize the titles of each selection on the disc, displaying the entire list on your video screen so you could punch in the selections you wanted without looking at the jacket.

The ultimate automation for the music lover might be something a bit harder to realize. I'd like a system which indexes themes as well as tracks, so I could hum a few bars of something into a mike and have my system tell me what it is, then play it for me. This would be more useful for classical than for pop listeners, because classical themes are usually heard without lyrics to tie them to their titles. Jazz is largely without lyrics too, but is often based on themes that originated as pop songs. Still, some jazz variations are so far from their original theme that a computer like HAL from *2001: A Space Odyssey* would be needed to trace them back to their originals.

Marshall McLuhan wrote of the value of distortion. With the arrival of CDs I've been re-reading him lately, and I think he may have had a point.

Something Gained, Something Lost

A lot has happened in the consumer audio business over the last few years. The introduction of new playback formats, including PCM, Compact Disc and hi-fi video, have, unquestionably, improved the quality of the sound available to the home listener. There is, however, a somewhat different perspective to the situation that I think is worth examining. During these times of frantic technical activity, it is all too easy to ignore the way that new developments relate to the artistic and creative work that is the true foundation of our "home entertainment" systems.

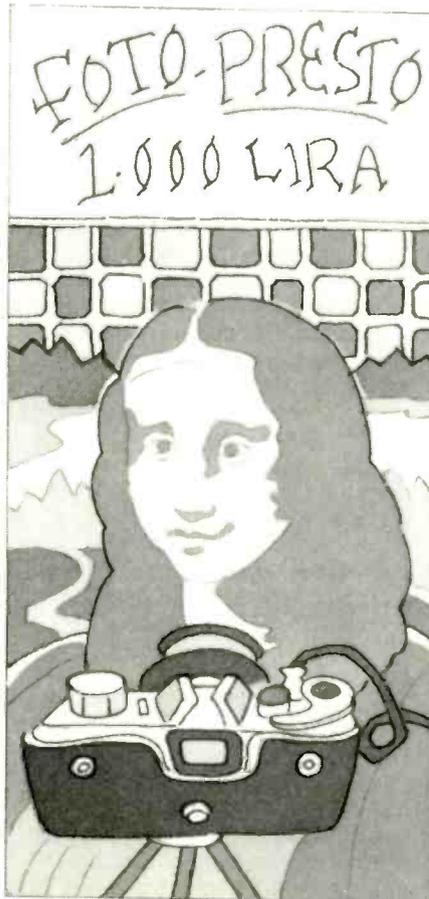
Back when I was in college, particularly in grad school, I hung around with a group of people who fancied long, involved philosophical debates about media. We, as artists and engineers, were all actively involved with electronic communications, technically and creatively. Our debates ran the spectrum from pretentious to profound, dealing with such diverse subjects as the influence of television on contemporary art, or the optimum sampling rate for a then-hypothetical digital audio recorder.

Much of the trendiness related to such dialectic was pioneered by the Canadian media guru Marshall McLuhan ("The medium is the message") more than a decade earlier. In the nature of such matters, McLuhan had gradually slipped from the front-line avant-garde into the media-theory "establishment." He was out of fashion. After all, here we were all caught up in the promise on the digital horizon: Limitless bandwidth, infinite dynamic range, pure response . . . truly realistic reproduction. How could we possibly embrace a man who spoke of the value of distortion?

McLuhan talked about how the subconscious process of mentally completing the raster television image was an involving and, possibly, a creative activity, as if a certain amount of nonrealism in the perceived image actually facilitated fantasy and imagination. I readily dismissed this notion as I worked at increasing the accuracy of audio reproduction, and dreamed of the

artistic potential of what was developing. I was fueled by the idealistic but, alas, naive notion that improving the means of human communication would somehow improve the quality of human communication.

I reacted to the commercial introduction of the audio Compact Disc with a fair amount of skepticism. This skepticism, mind you, was not of a technical nature, since I fully believe the digital format to be



audibly excellent. Rather, it focused on two nontechnical issues. First, it seemed to me that a lot of time and money had been expended to solve relatively uninteresting audio reproduction problems—noise, distortion, etc. I had hoped that the next major audio improvement would be in the area of imaging and ambience encoding. My second reservation related to the long-term availability of work with insufficient

commercial potential to warrant digital release. In any case, CD was an important advance, and I eventually purchased a player.

Much to my chagrin, I caught the bug. I began to play my few CDs over and over. Virtually all of my most treasured recordings existed only on phonograph records, but treasured recordings were apparently no match for a laser. The first time I saw a digital re-release of a much-loved album I was ecstatic. I couldn't wait to hear it. And it was good indeed, without a doubt, lows to highs. Sure, I could hear the limitations of the analog master, but so what?

As good as the audio quality of this CD was, I began to notice that something subtle was bugging me. I didn't quite hear the record I remembered. It took a while to understand what it was. Different EQ? Less compression? Pure sentimentality? No, the reproduction was simply too good.

The recording, rock music, had changed from an entity in and of itself into a reproduction of something else. I could hear words that I never heard before, studio sounds, background tracks, bad tape erasing—fascinating, but definitely different. Like the difference between a photograph and a painting. I'll never know which version the artist would have preferred, but it's clear that the choice of medium had a significant effect on the artistic results.

I had a related experience when attending a high-definition television demonstration a year or so ago. The image was truly extraordinary, and that made it much harder to accept the intruding borders of the picture tube. My mind seemed to say, "Hey, there is a real thing in the box, please let it out." I've been re-reading McLuhan lately, and I think he may have had a point.

Lest I am accused of being anti-digital or a reactionary, I do believe in progress. I will always want ever-better sound. It's just that I happen to enjoy the works of artists who struggled with a certain medium and produced works for that medium. I guess I'm destined to keep buying CDs. But I'll keep my turntable too.

Kenneth L. Kantor

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A LETTER FROM THE PRESIDENT

Bryston was incorporated in February 1962. Our original concept was the manufacture of specialty electronics with emphasis on quality of components and with extreme care in assembly. In other words, we wanted to be the best. This "ultimate-quality" commitment has only strengthened with time. Our policy is constantly to improve our products, our service, and our accessibility. Our warranty coverage, a full Five Years, reflects the excellent reliability record our products have shown, and our confidence in them.

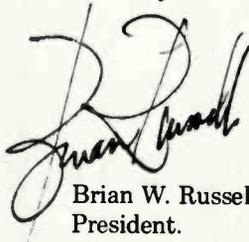
In the field of sound reproduction, Bryston maintains as its goal the achievement of complete musical accuracy. Since music is a very complex process, the technology required in its reproduction is often very involved and rich with challenge. Our continuous research into the art and science of electronic amplification of musical signals has yielded many original solutions to what seemed insurmountable obstacles.

We are proud to have been among the first "Audiophile" companies, and even more proud to remain at the forefront of excellence in audio. This book will provide some insight into the techniques and philosophies we employ.

At Bryston, the term "best" applies to the way we conduct our business as well as to the performance of our products. Bryston's integrity is and will remain uppermost in our business dealings. You will find us courteous, helpful, and fully interested in your satisfaction indefinitely.

Time has proven our original concept a valid one. Our reputation and our market strength have continuously improved. Your Bryston system will retain its musical accuracy and its value for many years to come.

sincerely,

A handwritten signature in black ink, appearing to read "Brian W. Russell". The signature is stylized and cursive, written over a light-colored background.

Brian W. Russell,
President.

POWER AMPS

MODEL 2B LP



Bryston's first exploration into audio, over a decade ago, was a power amplifier intended to prove our theory that amplification which was free of cost-cutting compromises, which displayed excellent open-loop linearity, would be audibly superior to amplification which obtained good numerical specifications from a compromised circuit by virtue of large amounts of feedback. This was, at that time, an almost heretical idea. Long term comparison tests were run at a large recording studio, using the biggest and best-known amplifiers of the day. The result was that the studio ordered Bryston amplifiers for its monitor systems, although they were hardly more than breadboard prototypes at the time. Even in this rough form, Bryston's linearity proved audibly cleaner and more musical than the most respected products on the

market. Clearly here was the beginning of a trend. Bryston has expanded on this theme ever since.

Included in our original theory were a number of design factors; independent power-supplies, very high output current capability, voltage-gain in the output section, and several other approaches intended specifically to linearize the open-loop gain, including complementary output circuitry. (Complementary means employing opposite polarities of transistor on opposing halves of the waveform. Quasi-complementary employs the same polarity of output device on each half, and requires a signal phase reversal to drive one side, compromising linearity). These advances are still in use in all Bryston amplifiers. In addition, we have expanded our concept of full complementarity to include all stages, and have adopted a novel output section

which is actually quad-complementary. This new output section, which employs both polarities of transistor on each half of the output drive circuit, yields a dramatic improvement in linearity and musical accuracy. This is reflected in extremely low distortion figures, obtained without massive amounts of feedback. I.M. distortion, which we feel is an excellent indicator of an amplifier's steady-state accuracy, is so low as to be nearly impossible to measure.

Further solidifying Bryston's low-open-loop distortion philosophy, we select and match all input transistors to less than 1% tolerance, employ only metal-film resistors, use polystyrene capacitors in signal-path circuitry. Finally, we hand adjust each and every amplifier to the absolute optimum performance.

MODEL 3B



POWER AMPS

MODEL 6B



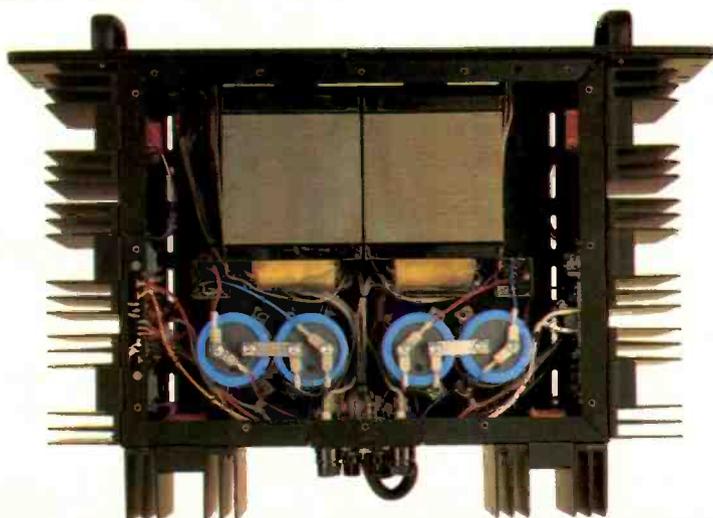
Of course, the proof is in the listening. Bryston sells over half of its production to professionals. We find that professionals are first attracted to Bryston by its reputation for reliability, but they are convinced by its sonic quality. The recording and broadcast industries, motivated by recent developments in low-distortion, wide range source material, have become very sophisticated, even audiophile-oriented. Bryston products have become so popular among these groups that there is an excellent chance that your favorite recording was monitored on Bryston equipment

at the studio and later transmitted from stations using the same Bryston components on their monitors. Our reliability is so well-known that many touring bands use Brystons on the road as well. In fact, you could be listening to a Bryston chain all the way back to the amplified instruments themselves.

The reliability to which we referred above is not a matter of luck. It is our scientific application of proven methods. We use statistical mean-time-before-failure analysis, studies of stress on component longevity, vibration-resistance in

attachment methods, even the metallurgy of, and oxygen-exclusion in, electrical connections. We know how to make a product fool-proof, and we know how to test for potential problems. Every amplifier Bryston makes is connected to a very high-stress combination of load and signal, which engages the protection mechanisms continuously. They are "burned-in" this way for more than 4 days: 100 hours. Although nearly all pass this test without incident, the point is, we don't want you to receive the one which might not have.

MODEL 4B



DUAL POWER SUPPLIES

All Bryston amplifiers, from our 50-watt per channel 2B, to the block-buster 6B at 800 watts into 1 or 4 ohms, employ separate power supplies for each channel. Each supply could be capable of powering both channels to their full 8 ohm specifications. Keeping the power separate, however, yields a worthwhile, even dramatic improvement in image firmness and overall clarity. This is because the channels cannot develop any cross-talk or intermodulation through the power-supply.

ACCESSORIES

Bryston believes that equipment which sounds cleaner will measure better, and vice versa. That's why we build all our components with the best materials and the most performance-effective technology. We feel it is important to retain this level of quality in all aspects of the signal chain. Bryston accessories maintain this link without compromise.

Moving coil cartridges display several sonic advantages over moving magnet type cartridges. The primary reason is that the magnet structure is many times larger, since the magnet is stationary, not a part of the tiny cantilever which traces the groove. A larger magnet allows more signal power to be generated, at lower electrical distortion, but since the coil is on the cantilever, and thus tiny, the voltage is lower. (The current, of course, is much higher). Since current

can be transformed into voltage, a transformer is the ideal way to capture the improved signal-to-noise ratio this high signal-power allows. The Bryston TF-1 transformer will deliver a signal from your moving-coil cartridge to your phono pre-amplifier with lower noise and lower overall distortion at these small signal levels, than any active step-up device. The TF-1 is available in two gain configurations, (16.5 or 22.5dB), and is internally restrappable. It is

identical to the internal moving-coil stage in the Bryston 12B, and is an ideal match to the .5B, or to any preamp which requires a flawless moving-coil interface.



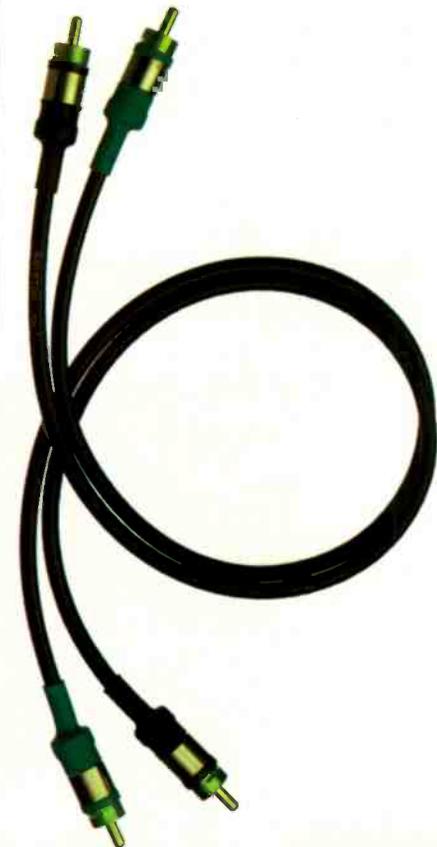
The Bryston line of speaker switchboxes uses massive switch assemblies, which stand up to the high current capabilities of Bryston amplifiers. High pressure contacts maintain ultimately low contact resistance, and gold-plated

input and output connectors assure a distortion-free interface between amplifier and loudspeaker. Separate grounds between channels allow the use of bridged amplifiers. Models are available for 2 speakers plus headphone, 3 speakers plus headphone, and 4 speakers. If you require speaker switching, don't use just "any" switchbox; use a Bryston to maintain the clarity and musical accuracy of your system.

In cable interconnects there are 4 basic parameters which can affect waveform accuracy; contact linearity, cable resistance, capacitance, and inductance. Contact linearity is a function of corrosion in the connection, which can be completely prevented by the heavy gold plating used in all Bryston connectors, since gold is an inert metal.

The cable resistance and inductance of normal interconnect wires are negligibly low in relation to the source and input resistances they contact, but capacitance can affect perform-

ance since it acts as an increasing load at high frequencies. Bryston cables have extremely low capacitance (about 15pf per foot), and in addition, the dielectric is a foamed polymer, which is largely air, (the only "perfect" dielectric). A Bryston preamplifier can feed up to a quarter mile of Bryston cable without changing its bandwidth or distortion specifications. Using Bryston cables will assure you of maintaining all the performance built into your Bryston system.



Specifications: 2B-LP, 3B, 4B and 6B power amplifiers

DISTORTION:

Harmonic:

Less than 0.01% (for 6B 0.02%) from 20 to 20kHz at rated power.

IM:

Less than 0.01% from 10 milli-watts to full rated power.

Noise:

100 db below full output.

Crosstalk:

Below noise 20 to 20kHz.

SLEWING RATE:

Greater than 60 volts per microsecond.

POWER BANDWIDTH:

Less than 1 Hz to over 100kHz.

DAMPING FACTOR:

Over 500 at 20 Hz, ref. 8 ohms.

INPUT SENSITIVITY AND IMPEDANCE FOR 2B-LP, 3B, 4B RESPECTIVELY:

.75 volt in for full output 50 k ohms.

1 volt in for full output, 50k ohms.

1.25 volts in for full output, 50 k ohms.

FEATURES:

1. Bridging switch.
2. Regulated power supplies.
3. Each channel separated back to the linecord.
4. Dual-colour LED pilotlights and clipping indicators; green changing to red at clipping.
5. Will deliver full output to any phase angle at 4 ohms or higher.
6. Warranty: 5 years parts and labour, shipping one way.

BRYSTON 2B-LP

Basic Stereo Power Amplifier

50 watts per channel, 8 ohms.

100 watts per channel, 4 ohms.

200 watts, bridged, 8 ohms.

Over 1600 cm² of heat-sinking;

(over 3200 cm² with chassis).

19" x 1.75" x 10", wt. 18 lbs.

48.25 cm x 4.44 cm x 25.4 cm,

wt. 8 kg.

BRYSTON 3B

Basic Stereo Power Amplifier

100 watts per channel, 8 ohms.

200 watts per channel, 4 ohms.

400 watts, bridged, 8 ohms.

Over 3200 cm² of heat-sinking;

(over 6400 cm² with chassis).

19" x 5.25" x 9", wt. 35 lbs.

48.25 cm x 13.33 cm x 22.85 cm,

wt. 16 kg.

BRYSTON 4B

Basic Stereo Power Amplifier

250 watts per channel, 8 ohms.

400 watts per channel, 4 ohms.

800 watts, bridged, 8 ohms.

(More than 1 horsepower).

Over 6400 cm² of heat-sinking;

(over 9600 cm² with chassis).

19" x 5.25" x 13.5", wt. 50 lbs.

48.25 cm x 13.33 cm x 34.3 cm,

wt. 23 kg.

BRYSTON 6B

Basic Mono Power Amplifier

Rated Distortion: Less than .02% I.M.

or THD from 20-20 KHz at rated

power or below.

Rated Power: 500 watts 8 ohms

800 watts 4 ohms

500 watts 2 ohms

800 watts 1 ohm

6400 cm² of heat sinking, etc.

19" x 5.25" x 13.5", wt. 50 lbs.

48.25 cm x 13.33 cm x 34.3 cm, 23 kg.

Specifications: .5B, 11B* and 12B preamplifiers

DISTORTION:

(Any Input, to any Output); Less than .005%, IM or THD, any Frequency from 20-20KHz, at rated output or below.

Rated Output:

10 volts RMS minimum, from Tape or Main Output. (Typically 14 volts RMS available).

Rated Noise: (input shorted)

Phono; -80 dBA Referred to an input of 5 millivolts RMS @ 1KHz. High Level inputs; -95 dBA referred to an input level of 500 mv at 1 KHz.

RIAA Accuracy:

Within less than \pm 50 mB (.05 dB) from 20-20KHz inclusive.

Frequency Response:

High Level Section; within less than \pm 50 mB from 20-20 KHz inclusive.

*without MC Transformer.

12B MC Transformer Section

DISTORTION:

Less than .005% 20-20 kHz with preamplifier driven to full rated output.

Noise:

Equivalent to approximately 1000 ohm metal film resistor (Thermal noise greater than -85 dB below 0.6 mv input, unweighted).

Gain:

16.5 or 22.5 dB (internally re-strappable).

Frequency Response:

Below 5 Hz to above 30 kHz, within less than \pm 0.5 dB.

Not Evolutionary, Revolutionary.

Pioneer's Revolutionary CD/LaserVision Player

If there was ever a machine ahead of its time, it's Pioneer's new CLD-909. The most remarkable machine ever invented to play compact discs, LaserVision discs and music video discs.

No longer need you buy two machines to get the best of both sight and sound. The CLD-909 does it all. And does it beautifully.

The CLD-909 represents a stretch of the engineer's imagination. It incorporates a number of technological breakthroughs. One is a laser pickup/objective lens system with the smallest aperture yet—0.55 microns. That's one thirty-four hundredths the diameter of a human hair. It takes this kind of incredibly fine laser focus to read the density of information encoded on CDs and LaserVision discs. Another is a newly-developed Constant Distance Tilt Servo that maintains high trackability even on severely warped discs.

It is this kind of advanced technology that lets the CLD-909 deliver a picture 20% sharper than live broadcast television. And 60% sharper than the latest VHS HQ VCRs.

Getting the picture? It's so sharp and accurate and faithful to life that things appear almost 3-dimensional. And unlike videotapes, optical discs don't wear out. They also give you random, immediate access to any frame or time point. Impossible with tape.

And what convenience and versatility. You can program the CLD-909 to play audio or video tracks in any order you wish. You can

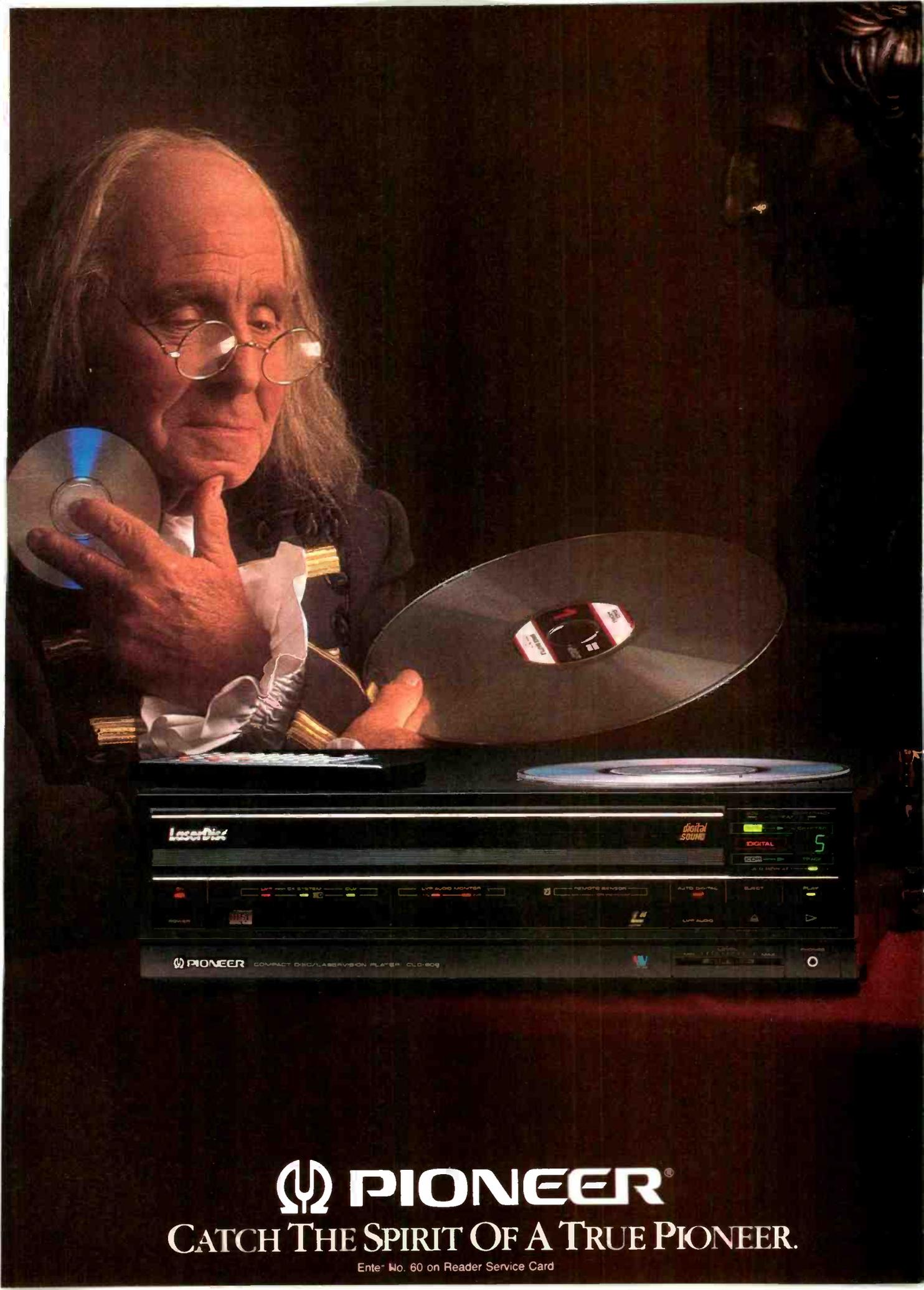
repeat programs, segments, or entire sides. The possibilities are just about endless.

The CLD-909 includes many highly sophisticated features. Like

automatic disc and digital sound detection, semi-automatic front loading, subcode output, on-screen programming, as well as on-screen function display. It is fully remote-controllable for stand-alone or system use, and has a built-in computer control port. We've also designed a new CD Motor *Swing Assembly* that lets us make the CLD-909 just 4.7 inches high. Then we added sophisticated electronics like a new Pulse Count IC and Noise Canceller to achieve a remarkable horizontal resolution of 400 lines.

The CLD-909 gives you breathtaking digital audio to match its breathtaking video. From compact discs, of course, as well as many 12-inch LaserVision discs and 8-inch music video discs. And Pioneer's exclusive Linear Servo system accurately reproduces music from even warped, scratched or dirty CDs.

Pioneer's revolutionary CLD-909. More than just a new idea. It is without a doubt the finest source of sight and sound you can possibly own. See it at your Pioneer Dealer. Or call 1-800-421-1404.



PIONEER
CATCH THE SPIRIT OF A TRUE PIONEER.

Enter No. 60 on Reader Service Card

SPECIAL-INTEREST LOBBY



Illustration: Debra White

Do we still need the live musical experience as a basis for our audio entertainment? You bet. All kinds, but especially in lobbies.

A long while ago I conducted a concert with my New York singers out at a university in New Jersey. When we arrived we found we had to sing in a lecture hall, one of those padded-cell affairs with low ceiling and soundproof walls. But just outside this monstrosity (for music) was a large entrance foyer or lobby, all stone and concrete, extending up through several floors with intertwined stairways. Instantly I knew it was a natural place for music, intended or no. It would be glorious, like St. Mark's Cathedral. So in desperation I asked if we could remove our concert to that space.

What? A concert in the lobby? That's no proper place for a cultural event! We were refused, and we sang in the padded cell. Dreadful concert.

This year, at last, I have been vindicated, if indirectly. I am back from my annual live-music Jacuzzi in Oregon, a whirlpool of glorious sound in which I bathe, three concerts a day for several weeks, and never fail to find further clues to understanding our own ever-changing audio entertainment. This

year in Eugene we had real lobby concerts—a whole series.

This year's special lobby concerts were entirely outside Silva Hall, the electronic concert space about which I wrote at length in 1983 (see *Audio*, October, November and December 1983). They were in the foyer of the same building, a place which, as far as I know, was never intended to be more than a visually magnificent entranceway. But a while back somebody with a better musical ear than the architects got the idea of putting music into that big space, just as I had, back in New Jersey. The results were so good that for 1986 a whole series of free public concerts was set up, every other weekday at noon—just to show the Eugene people what this remarkable place can do, even outside its concert hall. Plenty of variety: Two jazz concerts, Romantic chamber music with piano, a loud brass quintet, a batch of Baroque sonatas with harpsichord. At the biggest concert the surprised management made an on-the-spot attendance count—some 862 sat and stood in that big space. Guess which concert? No, not the jazz or the brass. The Baroque sonatas with harpsichord. *In the right situation*, anything

goes. Don't dare think that this is any less true for audio entertainment.

Silva Hall remains today a state-of-the-art example of electronically assisted architectural acoustics, planned from the start to combine natural and electronic reverberation into one sound, indivisible, yet variable via computer control. Very controversial, of course—especially in the music world, where any kind of loudspeaker sound brings thoughts of canned music à la James Petrillo.

To recapitulate, there are three electronic systems in this hall. Two are for hall acoustics (that is, reverb) and the third, a standard type, is for normal stage sound reinforcement, all kinds. One reverb system, Assisted Resonance (AR), is interconnected with another one that is quite different, Electronic Reflected Energy System (ERES). Both of them are highly sophisticated and complex but low in level, affecting only the reverberant characteristics of the hall and not conspicuously audible to the audience. These two systems were assembled in Silva Hall by acoustic designer Christopher Jaffe of Norwalk, Connecticut and his associates. Jaffe himself designed ERES, as well as the installation's interconnecting computer controls; AR comes out of England (it was first designed for the Royal Festival Hall), from the Acoustical and Investigation Research Organisation.

AR is tailored to fit each hall, installed on the spot and tuned to working order with the aid of British technicians. Then the whole shebang is left to the local operators, just as the building architect and contractors leave the physical hall itself. AR comprises an astonishing overhead array of some 90 loudspeakers in a band across the curved Silva ceiling, fed individually by another overhead band of 90 microphones, each one sharply tuned in a Helmholtz resonator to a very narrow band of frequencies.

The system uses carefully controlled feedback loops, band by band to regulate the "die-away" time at each speaker, and en masse to regulate the overall sound as the combined reverb fades away. It is really breathtaking.

ERES is a very different system based on selective delay lines out of a

Continued on page 131

THE 800 SERIES MASTER MONITORS



LISTEN AND YOU'LL SEE



801's at a Deutsche Grammophon digital recording session in the Kingsway Hall, London



801's pictured here in the Decca digital suite, London.



801's in the celebrated EMI Abbey Road studios, London.

Top-of-the-line models 801F, 802F, 808 and the new MPA810 power amplifier at the fore-front of sound reproduction technology. Used by digital recording studios worldwide and soon, we hope, by you.

Enter No. 21 on Reader Service Card

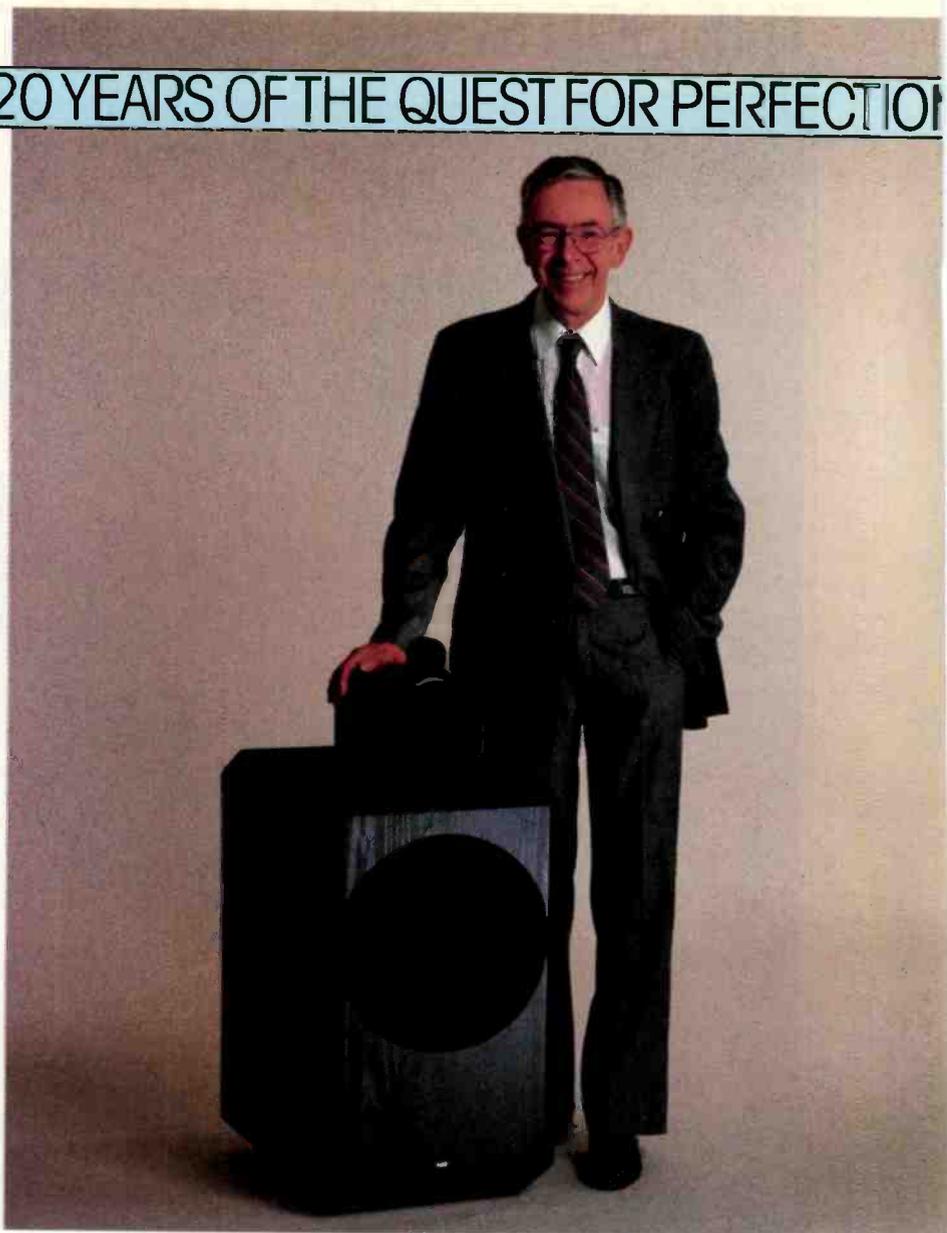
1966  1986

B&W CELEBRATES 20 YEARS OF THE QUEST FOR PERFECTION

The inspiration behind B&W was, and still is, that of John Bowers — creator, engineer, music-lover and perfectionist. B&W is a personal dream that became an internationally respected company.

Twice the winner of the Queen's Award to industry and designer of numerous award-winning and trend-setting loudspeaker models, B&W still remains committed to the goal which was the impetus for its founding: the most faithful re-creation of music possible. For while John Bowers and his B&W team enjoy the great respect of the audio industry, they have as many admirers and friends among the world's top professional musicians, conductors and recording engineers. That, perhaps better than any other accolade, attests to the quality of every B&W design.

Today the B&W sound quality is legendary, and extends from the professional monitor models 801F and 808 to a range of products to suit virtually every application. The affordable 100-series of Digital Monitors, the Video Acoustical Monitors, Professional Amplifiers, Active loudspeakers and a complete range of Automobile loudspeakers, all reflecting the "Quest for Perfection" which motivated B&W's beginnings 20 years ago.



"My own critical standards when listening to music have always been exacting, have never expected those of B&W customers to be less so." John Bowers
 Founder and Managing Director, B&W Loudspeakers

The world's audio press tells the story:

Model P2 (1966) "... for this loudspeaker with its broad and balanced polar response, its linear and extended frequency response is approaching the ideal everyone is seeking — perfection."

John Gilbert, Gramophone (U.K.)

Model 801 (1979) "In simplest possible terms, the 801 is among the handful of great loudspeakers available."

High Fidelity (U.S.A.)

Model DM6 (1975) "... the overall impression left after many weeks of listening is predominantly one of satisfying, untiring natural sound, without any distracting feature which could be termed a flaw."

Trevor Atwell, HI-FI News (U.K.)

Model 808 (1984) "It is difficult to describe how one gets caught up in the music, how the climaxes of a Mahler symphony for instance, afford an emotional impact that can truly be described as uplifting... There is no doubt that the B&W 808 is a major achievement in advanced speaker design."

Bert Whyte, Audio (U.S.A.)

Active 1 (1985)

"The John Bowers Active 1 certainly measured like a fine speaker, and we are happy to report that it sounds as good as its measurements imply—beautifully balanced and uncolored... The bass output from the two 6-inch drivers... compares very well with the output from good 12-inch woofers in cabinets at least twice the size of the Active 1."

Julian Hirsch, Stereo Review (U.S.A.)



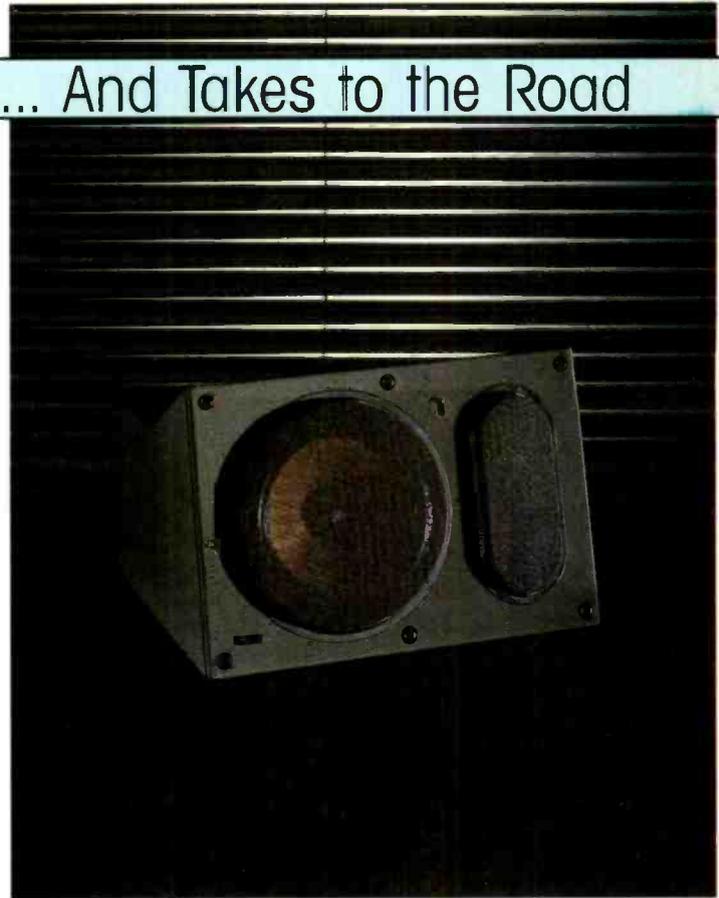
B&W Hi-Fi Leaves Home... And Takes to the Road

The beginning of this decade saw the logical extension of home hi-fi into the automobile, with sophisticated audiophiles seeking performance standards on a par with those of their high-end domestic systems.

B&W responded to the challenge in 1982 by introducing their LM1 series of Leisure Monitors. For many LM1 provided for the first time an opportunity to have quality hi-fi in the automobile.

The enthusiasm with which LM1 was received led to the introduction of MASS — B&W's Modular Automobile Sound System — in 1985. Comprising 8 interlinking modules, MASS combines B&W's world-famous sound quality with system flexibility, high sensitivity and a wide range of installation options.

MASS provides a refined solution to the problems of critical in-car listening, maintaining the highest performance standards while overcoming installation limitations, off-axis listening positions and adverse climatic conditions. Such refinements as B&W's APOC (Audio Powered Overload Circuit) to protect the drive units and the unique dual-action swivel mount of the LT40 tweeter (based on the famous TXS26 high-frequency driver used in studio monitor 801F) are just some of the technological advances made with MASS.



Leisure Monitor LM1

The Kevlar Cone

Kevlar — DuPont's aromatic polyamide fibre — is vastly superior to conventional loudspeaker materials and particularly suited to automobile loudspeaker applications. Kevlar's combination of high stiffness and low mass had proved its sonic superiority through use in the all-important midrange driver of the 801F. Its extremely low mass is particularly critical for automobile applications where high sensitivity is an important criterion given the lower power output of most car audio amplifiers.

Easily capable of withstanding temperature extremes and high humidity, Kevlar will not be affected by the adverse conditions inherent in the automobile environment. Initially developed for bullet-proof vests Kevlar is used today for racing cars, yachts, and many other high-performance products where the weight-to-strength ratio is critical, such as the Porsche 959 which must be a prime example of today's technology ahead of its time.



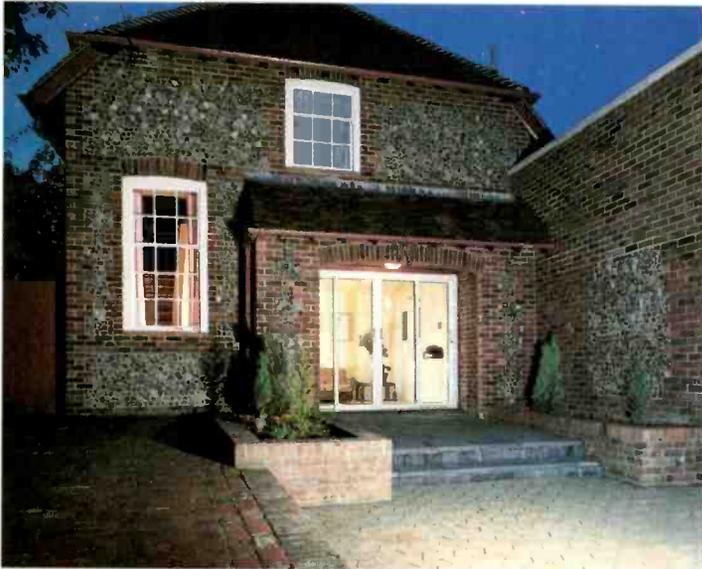
Kevlar cone & Porsche 959



Eight associated modules form MASS

Two Decades of Creative Innovation

In his heart John Bowers is an engineer and designer, and his engineering creativity has directed B&W's policy from the very beginnings of the Company. This dedication has made B&W one of the most research-oriented companies in the audio industry, and their Steyning Research Establishment is among the most advanced acoustical laboratories in Europe.



Steyning Research Establishment

Although equipped with some of the most modern and sophisticated tools available, it is the Steyning Research Establishment's engineering team which is B&W's greatest asset. Their creativity over the last twenty years has pioneered a number of industry milestones:

- a calibration certificate included with every production loudspeaker
- digital testing for quality control in production
- incorporation of electronic overload protection circuits
- first to use Kevlar for loudspeaker cone construction
- first in Europe with a linear-phase loudspeaker — DM6
- first with computer optimisation for crossover design
- first to use composite enclosure techniques employing Fibrecrete bonded to structural foam
- first to employ laser interferometry to study the vibrational behaviour of loudspeaker drivers.

... and in 1986...

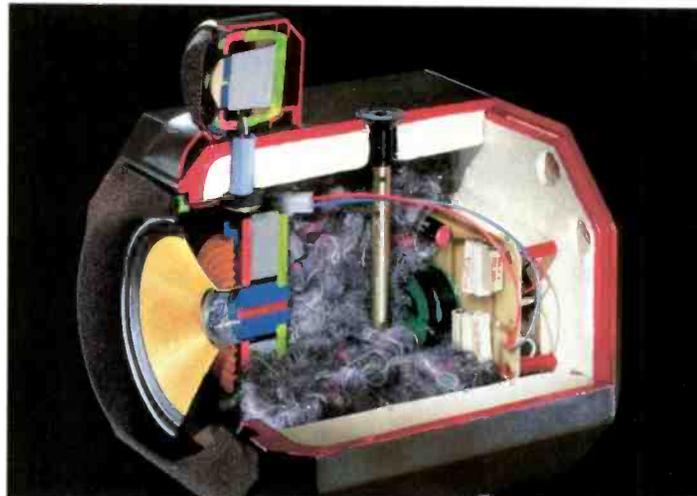
MATRIX — a significant advance in loudspeaker enclosure technology.

It is a source of considerable pride to everyone at B&W that every model in the range employs only components of B&W's own design and manufacture. All drivers and crossover networks are manufactured at B&W's facilities in Worthing, Sussex, under the most stringent quality control systems.

Styling has always been recognised as an important feature of B&W loudspeakers and Kenneth Grange of Pentagram Design has consistently created enclosure designs which complement the technical excellence of the loudspeakers.



Dr. Glyn Adams, head of B&W's research department, pioneered a technique for monitoring the vibrational behaviour of loudspeakers using lasers.



The Fibrecrete lining of its midrange head assembly is one of the important reasons for B&W 801F's superior performance.



B&W's automated tweeter assembly. Technology in the service of music.

MATRIX — The Modern Art of Sound

In loudspeaker design, as in other technologies, the frontiers of what can be accomplished are pushed back gradually in an evolutionary process of development. Occasionally, however, a breakthrough of major proportions is made. B&W MATRIX★ is just such a breakthrough.

Whilst steady progress has been made in the development of new and better drive units, until recently little attention has been paid to the actual enclosure housing these drive units. Because of its importance to loudspeaker performance, B&W instigated a research programme on enclosure design three years ago, embracing a wide range of materials including the so-called Aerospace materials, sandwich construction and even concrete. Despite the extravagant claims made for these materials, B&W's research showed that in some respects they were inferior to conventional enclosure. B&W therefore invented MATRIX.

The MATRIX enclosure comprises an inner honeycomb structure bonded to the outer skin of the cabinet and filled with sound absorbing foam. The enormous stiffening provided by this structure virtually eliminates enclosure radiation at low and mid frequencies, with the additional damping providing a similar effect at high frequencies. The cellular foam configuration almost completely absorbs rear radiation by the driver.

Of equal importance is the "Time history" — the time required for the sound to decay. MATRIX scores equally well on this count, minimizing "hang-over" inherent in less sophisticated loudspeaker enclosures.

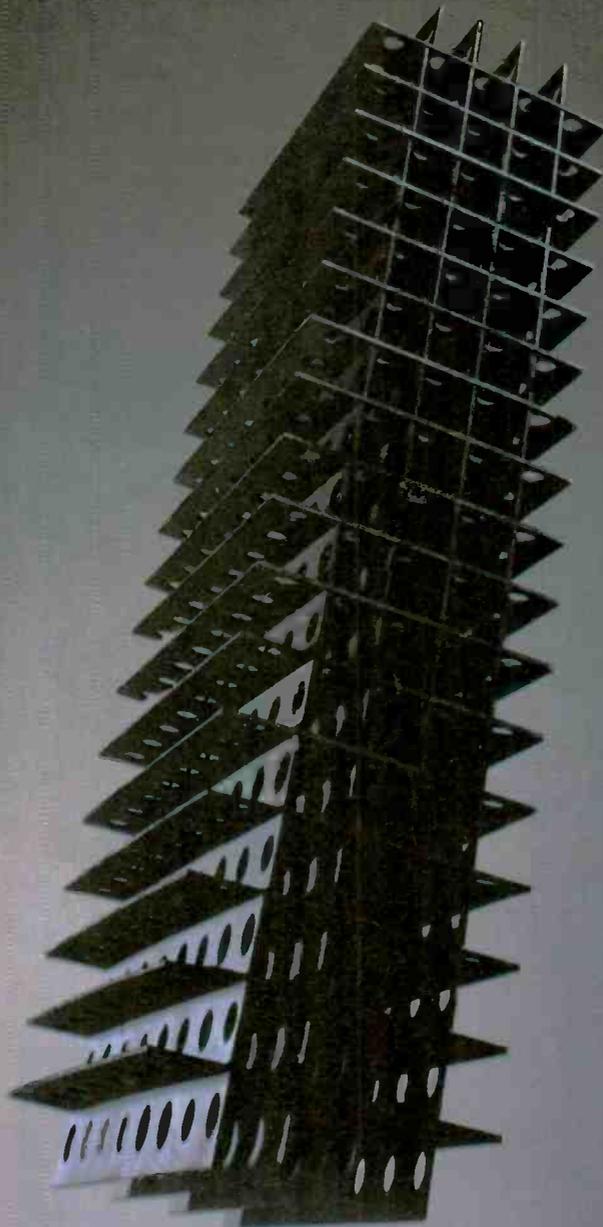
The B&W MATRIX series of Digital Monitors has been designed for the age of the compact disc, with all the additional requirements this source material places on the loudspeaker system: increased dynamic range, increased transient information and a lower noise floor.

Having designed a near-perfect enclosure B&W developed totally new and improved components to complement their invention. Homopolymer polypropylene cones (almost twice as stiff as Copolymer Polypropylene

used by other manufacturers), a totally new Ferrofluid cooled tweeter giving 8dB increased dynamic headroom at high frequencies and a crossover network providing a new standard for low distortion and resistive amplifier loading.

B&W have published a complete "Design Story" on the MATRIX series of Digital Monitors, including research results from the three-year design programme. Write to us for your copy, or visit your local authorized B&W dealer.

★B&W MATRIX is a trademark of B&W Loudspeakers Ltd.



1966 **B&W** 1986

1966 **B&W** 1986

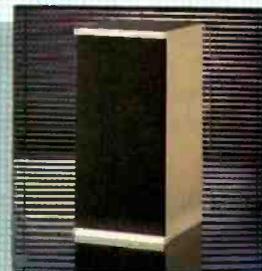
MILESTONES



1967 P2H "Approaching the ideal everyone is seeking - perfection."
JOHN GILBERT, GRAMOPHONE



1970 DM70 When launched Funk-Technik (Germany) said: "... a milestone of development for the next decade."
Time proved them correct.



1972 DM4 Increased B&W's export tenfold in five years winning a second Queen's Award.

1975 DM6 Europe's first linear phase system and the first to use Kevlar in cone construction.



1983 DM110 Pop, jazz, rock, classical - total spectrum capability from this popular and 'affordable' Digital Monitor.



1979 801 B&W's first professional monitor loudspeaker. Now selected worldwide as classical music monitor by all major recording labels.

1984 ACTIVE 1 B&W's first electronic loudspeaker system. Originated, designed and produced completely in-house.



1984 808 Reproduction to full reference standards - perfection to 120dB.



1986 MATRIX This unique system concept incorporates a revolutionary enclosure design. Find out more from your B&W stockist.

Two decades of creative innovation, of setting the standards in advanced loudspeaker design. Constantly pushing at the frontiers of sound technology. The B&W quest for perfection continues.

20 Years Of Sound Technology

ANGLO AMERICAN AUDIO, P.O. BOX 653, BUFFALO, NY 14240 416-297-0595

B&W
LISTEN AND YOU'LL SEE

An architectural accident, the lobby's acoustics are marvelous no matter where you sit, from the floor all the way up to the vertiginous heights.

Continued from page 124

single mike, usually hung at the top of the proscenium arch. It feeds other strategically placed loudspeakers to provide, first, the essential 20-mS delay that we now know is necessary for a sense of stage presence in music, and second, a variable set of electronically simulated "walls" to define the shape and size of the audible space wherever one may sit.

Absolutely none of this apparatus is visible to the audience, thanks to a "false" or hung ceiling (its parameters, of course, very carefully calculated for acoustic effect) and a tall, black proscenium arch that is actually made of a sound-transparent scrim behind which are more speakers and other nonstructural items in profusion. A triumph of artifice, yet it looks solid and real—visually a pleasure (except when someone accidentally leaves a light on behind the scrim, showing all, as happened this year). This trumped-up architecture (with the "real" structure hidden behind) is, you might say, a visible ambience to match the audible, and surely no more "fake" than a thousand modern office buildings.

The hall is deliberately informal, in contrast to many—a preposterous, upside-down, green and yellow fruit bowl in lush basket weave fronted by an enormously wide and deep stage, an invitation to sonic disaster if it were not for the electronic compensations. The cool, fresh hall colors blend at the rear into darkened, burnt-ochre hallways which open out into the astonishing lobby, full of light and air. I love the whole place.

That lobby, "... an airy assemblage of incredibly tall, peaked roofs in wood and glass, touched up inside with lofty balconies at many levels joined by stairs paved in apple green floral carpets," I wrote in 1983, was then just a lobby. Now the space is a concert hall too, willy-nilly and by happenstance. It is huge, this lobby, a sheer architectural fantasy, thrilling to pass through as an entrance and exit to the hall itself. But its tall wood pillars, 60 feet unbroken, the great glass expanses looking out onto sky and clouds and trees, different on every occasion and from moment to moment in sun, shade and nighttime, are too splendid for a mere lobby. Something had to happen.

And so the paradox: All that fancy

audio equipment inside, all those specially calculated walls and ceilings and computer controls—and in the lobby, nothing. Nothing, that is, acoustically speaking. This leads to some faintly comic aspects when the unforeseen audience convenes. Inside the hall the ventilation and air conditioning is faultless in utter silence. But out in the lobby there is a vast rumbling of machinery, not at all soundproofed. You were just supposed to walk through, or stop and gab with friends while drinking champagne (on sale over to one side). The lobby ventilation with an audience on hand is, alas, minimally effective. It does get a bit warm, especially in the high upper balconies, after a half hour or so. I doubt if much can be done, but no sweat; if you are warm you can always descend to a lower level, any time. There is constant movement, around and about, as the music plays.

For an architectural accident, the lobby acoustics are marvelous no matter where you sit—on the central floor, where the musicians now play in a space set off by low, moveable walls, or all the way up in the vertiginous heights of the top little balcony, hung in space as though weightless. It takes a certain amount of nerve to climb that high, so dramatic is the downward view directly above the musicians, so perilous seems the suspension. The music is reflected everywhere; the rounded side walls, the great areas of vertical glass, and the tall diagonal peaked roofs catch the sound and toss it sidewise. No matter where you go you can hear beautifully.

But you should see these concerts! They are totally informal, though nobody said they had to be, simply because of the place itself, a glorified indoor musical picnic spot and a fine springtime advance upon our usual outdoor, blankets-on-the-grass, summer concerts. Babies crawl busily, small kids run about or do solo dances on the soundless carpeting, families sit massed on the lush green stairways, leaving a narrow space at the side for those on the move, they eat lunch (as I did), knit sweaters, hold hands, snooze luxuriously or watch the clouds go by outside. Mothers run out to retrieve infants on the loose, kids edge closer and closer to the musicians to see how they work, college students in shorts

climb the heights or sit lotus-like or carry tennis rackets, backpacks, whatever. It's Americana, an entertainment style that is peculiarly ours. No wonder it was a success.

I should add that this was no noisy talk fest with background music. Far from it. The audiences were respectful and remarkably quiet. Nobody talked. Squalling babies were quickly removed or perhaps stopped with a cork. There was heartfelt applause—often in the wrong places, but who cared? Not the musicians! Enjoy, enjoy. If you are in Eugene, visit that lobby even if there isn't a concert.

Meanwhile, what of Silva Hall itself, the main and intended place for music performance? This was the fourth Bach Festival since its opening, along with other year-round events held there, from musicals and rock concerts to solo recitals. Here I found another paradox, but maybe also a good one. My first reaction this year was one of dismay. In several weeks of concerts I heard *not a single mention* of the controversial audio enhancement of Silva's acoustics. For all one could tell, the whole thing might have been ripped out and put away. By now, this was merely a concert hall. Period.

I asked some of the newer musicians—they knew nothing about it; they had not been told. The college students didn't know. The more permanent residents of Eugene who once knew all about the audio (and mostly condemned it out of hand) have carefully forgotten. The music critics do not mention it. The entire electronic system has simply been shoved under a mental rug. As you can suppose, I found myself somewhat frustrated.

But look! Isn't this precisely as it should be? The concert hall, you see, is now treated as a whole and, I would say, by increasing numbers of people. Many enthuse, some don't, but to all the present audiences this is "just a concert hall," not an experiment in electronics. The system works! It is a great success. Nobody thinks for a second about those many microphones and loudspeakers, nor should they. What we have is a working and versatile music space—*exactly as intended*.

The one big surprise is out in that front lobby. 

A Denon amp vs. its only competition.



**Denon PMA-900V
Integrated Amplifier**

Denon America, Inc., 27 Law Drive, Fairfield, NJ 07006
Denon Canada, Inc., 17 Denison Street, Markham, Ont. L3R 1B5 Canada



DRA-95VR: Remote Control; Video Capability; 85 W/ch., both ch. driven, 8 Ohms, 20 Hz-20 kHz, 0.03% THD.



DRA-75VR: Remote Control; Video Capability; 65 W/ch., both ch. driven, 8 Ohms, 20 Hz-20 kHz, 0.03% THD.



DRA-55V: Non-Switching Class A Circuitry; Video Capability; 55 W/ch., both ch. driven, 8 Ohms, 20 Hz-20 kHz, 0.015% THD.



DRA-35V: Non-Switching Class A Circuitry; Video Capability; 35 W/ch., both ch. driven, 8 Ohms, 20 Hz-20 kHz, 0.05% THD.



Admittedly, it's tough to compete with Denon's integrated amplifiers. In Japan, they've been praised for "a wide balance and richness in sound" and called "nothing short of phenomenal." But now Denon amps are getting a run for their money... from the new Denon receivers.

Combining a separate-quality amplifier and tuner on the same chassis is not a new idea. But who else actually does it? Look inside the new DRA-95VR Receiver and you'll find precisely the same circuits that make Denon amps so rightly acclaimed.

You'll discover the same Pure Current Power Supply for an amazing 60 dB reduction in dynamic IM distortion. You'll see the same discrete output transistors (not cheap IC "power packs") for superior sonic resolution. The same video inputs and outputs. And the same MC cartridge head amp.

Beyond even this, Denon's top two Receivers are supplied with an integrated remote control that also operates a Denon Cassette Deck and any of three Denon CD Players.

So before you make your next high fidelity purchase, get yourself to a Denon dealer. He'll show you the only receivers with the guts to stand up to the world's finest integrated amps.



Denon DRA-95VR
AM/FM Receiver

DENON
DESIGN INTEGRITY

Noise from an Underminated Phono Stage

Q. When I set my receiver to "Phono" and turn the volume up, with no cartridge connected, there is a lot of noise. Is this a reflection of the receiver's phono S/N ratio?—Richard Vinyard, Jacksonville, Fla.

A. Electronic devices produce more noise when their inputs are not connected or "terminated" than when they are terminated. Thus, it is not surprising that you hear a considerable amount of background noise in the situation you describe. This noise does not represent the amount of noise which will be produced by the phono-graph stage when a cartridge is connected. The signal-to-noise ratio should always be measured with the appropriate cartridge connected.

Speaker Phasing In an Ambience System

Q. I have an ambience system consisting of a set of main-channel speakers and a set of rear speakers driven by a separate amplifier and reverberation system. One of my pairs of loudspeakers is, however, not marked as to phase. How do I obtain correct phase between the front and rear speakers?—Name withheld

A. Because the reverberant sound is likely to bear an irregular phase relationship to the main program, phase coherence between front and rear speakers should be of little importance. However, if the speakers used for the front or main channels are not marked as to phase, the phase relation between that pair could be incorrect, leading to very poor bass response.

The simplest cure for this is to experiment, using a monophonic program source applied to both speakers equally. By alternately reversing the leads of one of the speakers, you can determine by ear when that monophonic signal has the most bass. This indicates correct phase.

Let's assume now that the rear speakers are the pair which are unmarked as to phase. Again, you can experiment with the phase relationship as described above. In this instance, however, I suggest that you use the actual reverberation signal as the source, and do not make that signal monophonic.

VHS/Beta Hi-Fi And Digital Recording

Q. My friend claims that hi-fi sound on video Hi-Fi (VHS or Beta) is "digital." Is this true?—Brian Grifman, New York, N.Y.

A. The audio process employed in VHS and Beta VCRs is not digital. It is definitely analog. Stating it simply, the audio is produced by placing two FM subcarriers within the video band. These subcarriers are modulated by the audio signal. During playback, the signals are demodulated and fed to the audio output of the machine.

However, digital audio can be recorded on a VCR using a "black box" processor such as Sony's PCM-F1. All of the processors with which I am familiar are external units which make the VCR totally dedicated to digital audio so that no video is possible.

All 8-mm VCRs have FM (sometimes called AFM) audio tracks. Many of the newer ones also have PCM sound tracks which can accompany the picture, and some of these models can lay down PCM audio in place of the video tracks, for a digital sound-only capacity of up to 24 hours per cassette. However, this PCM system's parameters (32-kHz sampling rate and 8-bit samples with analog companding, rather than CD's 44.1-kHz rate and 16-bit samples) limit its frequency response and dynamic range.

Comparing S/N Ratios

Q. There is a mixer/preamplifier selling for \$130. In terms of its phono-stage S/N ratio, how would this unit compare to a receiver, costing many times more, which boasts an 88-dB S/N in its phono stage?—Richard Vinyard, Jacksonville, Fla.

A. To put it succinctly, you can't compare the units. This does not mean to say that the mixer can't actually have a better S/N ratio than the more expensive receiver. Remember that a receiver contains a great deal more circuitry and functions than a mixer/preamplifier does. For this reason alone, it makes sense that the receiver costs much more than \$130. There is no way of knowing how much attention was given to the design of the receiver's phono circuit, compared to that given to the mixer's phono stage.

Let me give a rough example. I own

a battery-operated mixer which cost around \$40 when new. It is good enough, despite its conservative S/N spec of 56 dB, for me to easily use it with ribbon microphones. In fact, I measured it as having close to 80 dB S/N. So you just never know.

Ventilation and R.f.i.

Q. Will ventilating the cover of a preamplifier by inserting a fine-mesh steel screen increase its susceptibility to r.f.i.?—Tom Unger, Gardena, Cal.

A. Because no screen is 100% efficient in its ability to shield a piece of equipment from radio-frequency interference, I believe there would be some increased susceptibility to such interference by using a screen rather than a solid enclosure. This is especially true when using a steel screen rather than copper.

If you are not bothered by such interference now, chances are that ventilating the equipment will not create problems unless you are in close proximity to radio noise. But I can't help wondering why it is necessary to ventilate a preamplifier at all. Such equipment generates only a small amount of heat.

Fuse Failure

I would like to share my experience with the reader whose monophonic amplifier has been blowing its power fuse ever since the amp was incorrectly connected to an organ ("Audioclinic," September 1985).

I think Mr. Lapenna may be replacing a "slow-blow" fuse with a "fast-blow" fuse. All "brute-force" monophonic amplifiers have large power supplies that draw much more than idling current when first turned on. This surge takes place when filter capacitors are charging to their normal operating voltages. Because this surge lasts only a fraction of a second, it can blow a "fast" fuse but will not blow a "slow" one. I had the same problem as Mr. Lapenna's, and blew two fuses before I understood the reason why.—Mark Schlegel, Lincoln, Nebr.

Continued on page 141

If you have a problem or question about audio, write to Mr. Joseph Giovanelli at AUDIO Magazine, 1515 Broadway, New York, N.Y. 10036. All letters are answered. Please enclose a stamped, self-addressed envelope.

THE END OF THE RECEIVER.



THE DAWN OF A NEW ERA.

The Adcom® GTP-500 Tuner/Preamplifier.

**A new level of
sonic quality and convenience
that obsoletes the receiver.**

Adcom is well known as a manufacturer of quality separate components—tuners, preamplifiers and amplifiers—all highly regarded for their exceptional performance *and* their rational prices.

Demonstrably superior quality along with flexibility and affordability is what we now offer in a significantly new type of component. The GTP-500 combines an exceptional tuner and preamplifier on a single chassis, conceived and designed for use with a wide choice of separate power amplifiers.

Avoiding the receiver's inherent problems.

Receivers are not equipped with the heavy-duty, high current, high voltage power supplies available in the best separate power amplifiers. First of all, there just isn't enough space. More importantly, there are technical limitations. In a receiver, such supplies would generate unacceptable levels of heat and hum. And the high signal levels found in the power output stages create a source of noise, crosstalk and preamplifier instability.

Obviously, heat and noise-generating elements shouldn't be operating in close proximity to tuner and preamplifier circuits. However, this is exactly where such elements—scaled down, to be sure—are found in receivers.

That's why the over-all performance of receivers (and integrated amplifiers, for that matter) is seriously compromised for the seeming advantage of all-in-one convenience.

Our new tuner/preamplifier totally eliminates all such compromises, and avoids any degradation in tuner and preamplifier performance typically introduced by the presence of incompatible power-amplifier components.

Simply stated, we've kept the low-current, low-voltage elements totally isolated from the high-current, high-voltage elements—as they should be, and may always be from now on in quality components.

60 to 600 watts per channel!

At the same time, we've achieved something else that you can appreciate even without a technical background.

You can now have all the low-distortion power you are ever likely to need or want—from a conservative 60 watts per channel to an awesome 600 watts per channel, continuous, at any time you need it, not just for milliseconds! All with a matching high-performance tuner/preamplifier to control and apply the power.



THE ADCOM TUNER/PREAMPLIFIER AND 60 WATTS PER CHANNEL.

There's a lot more to the GTP-500 tuner/preamplifier than meets the eye.

The tuner section is quartz-referenced and digitally synthesized, with a tuning accuracy of 0.000025 percent. Since tuner accuracy translates into lower distortion, our superb rating is audibly significant.

If you're in an urban area troubled by excessively strong stereo-FM signals and multipath distortion—or in a rural area where distance is a problem—you'll appreciate how well this tuner brings alive the musical aspects of the received signal.

The specially-designed IF stage offers distortion-free listening from high-quality broadcasts. And sensitivity and selectivity are optimized for a balance of performance characteristics that can be appreciated every time you listen to a radio signal.

When especially difficult reception conditions cause excessive noise, a switchable high-blend circuit can be used.

Sixteen stations—eight each, FM and AM—can be programmed for instant retrieval at the touch of a button. Once a station is tuned in, it's locked in. No drift. No error. And a touch of another button scans up or down from any point.

We've added even more remote-control convenience and flexibility than you've been enjoying with your VCRs and TV sets.

An integral part of this new system component is a full-function wireless remote control that lets you command the GTP-500.

Every bit of this high level of performance is yours to control from the comfort of your favorite chair, and—with optional extension remote sensor—from other rooms in your home, as well as patio and pool.



RC-500

Remote control from any chair, any room.

Most useful functions of the GTP-500 can be operated by remote control:

- Power on/off
- Selection of pre-programmed FM and AM stations
- FM scan
- Volume level
- Source selection

Remote sensors, wired to the system, can be installed in other rooms, and activated in the same manner. Thus, the superb performance of your Adcom system can be enjoyed whenever and wherever you like at minimal additional cost.



GTP-500 and GFA-535

THE ADCOM TUNER/PREAMPLIFIER AND 100 WATTS PER CHANNEL.

The preamplifier section.

The preamplifier section provides optimum signal-to-noise ratios at both the phono and high-level inputs. That's very important for playing compact discs and the new wide-range HiFi video systems, as well as your treasured LPs.

The phono and high-level amplifiers (which are at the heart of the preamplifier) use custom-designed linear gain stages that provide low distortion, low noise and high speed.

High accuracy in the RIAA phono equalization circuit assures superb performance from any high-output moving-coil or moving-magnet cartridge.

The separate recording selector allows listening to one source while recording from another.

Tone controls and contouring circuits can be switched in when needed, and are more useful and musically accurate than any you're likely to have encountered.

As for convenience...

Those lights you see on various buttons and controls all have a useful function. They indicate the program source you've selected—phono, tape, CD, tuner, etc.—either manually or with the wireless remote control. The motorized level control also has an LED that rotates with it and can be observed from across the room. Note: Unlike electronic remote control circuits, this one is infinitely adjustable and distortion-free.

As for power...

You've already noted the most obvious advantage of having the tuner and amplifier on one chassis and power amplifier on another: the virtually unlimited choice of output power.

If at this time, 60 watts per channel meets your needs, that's what you can have with the matching GFA-535 power stage. If you need more power—because of your new CD library, or less efficient



GTP-500 and GFA-545

THE ADCOM TUNER/PREAMPLIFIER AND 200 WATTS PER CHANNEL.

speakers in a larger room—you might want our 100-watt/channel GFA-545 or our 200-watt/channel GFA-555.

And if you should ever need extraordinarily high power, that's also available, even at a later date. Just add a second GFA-555, with each amplifier bridged to its mono mode. You'll then have 600 watts per channel.

The quality of power.

Here is where we've made our strongest impact on music lovers who demand the best sonic performance regardless of price.

All our power amplifiers are based on the same sophisticated circuitry as our flagship GFA-555, which received a rare tribute from Stereophile magazine (Volume 8, no. 4). A pertinent quote:

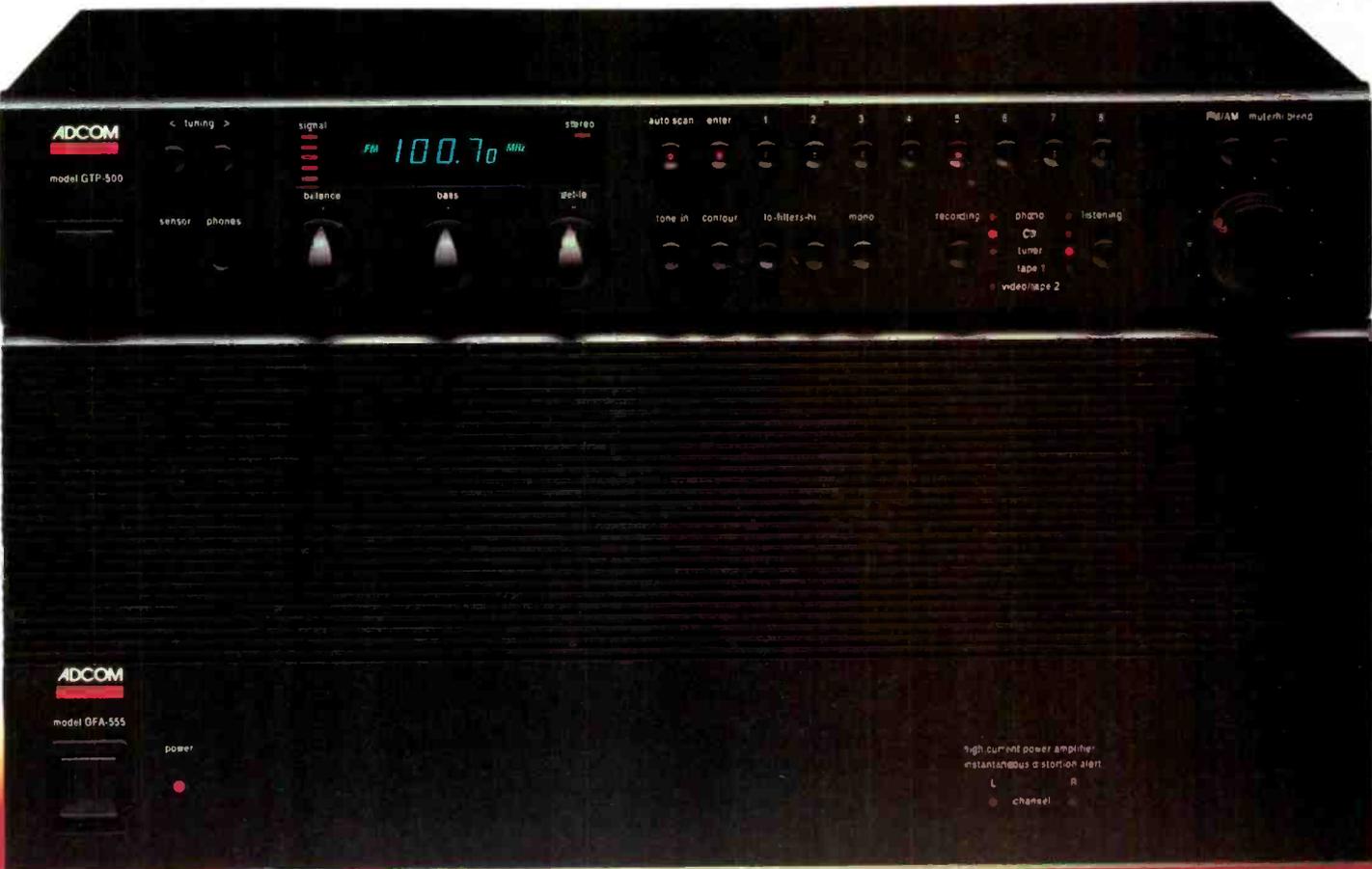
"It is so clearly superior to past amplifiers in the low-to-mid-priced range—not to mention most amplifiers two to three times its price—that I can unhesitatingly recommend it for even the most demanding high end system."*

It's now decision-making time.

If you've been thinking about just another receiver, or something really extravagant, you now have a significantly new and different choice. For the first time, you can have a superb level of sound quality together with convenience and flexibility. And all at a remarkably affordable price.

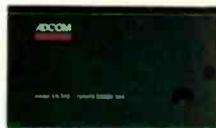
Anything less will be another compromise.

*A reprint of the complete report is yours for the asking. It also includes the approximate retail prices—up to \$6,000!—of all the amplifiers mentioned in the report.



GTP-500 and GFA-555

Remote control of your GTP-500 throughout your home!



XR-500

With one or more XR-500 remote sensors (optional) connected to the GTP-500 Tuner/Preamplifier, you can use the RC-500 wireless remote control to operate your Adcom system from as many rooms as you like.

Speaker selectors.



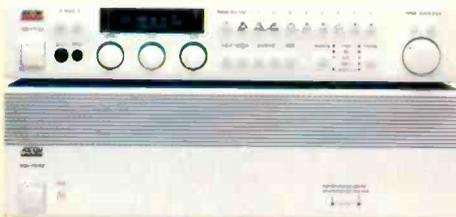
GFS-3



GFS-6

These heavy-duty speaker selectors can be used with amplifiers rated up to 200 watts/channel. The GFS-3 switches up to three speaker pairs; the GFS-6, up to six pairs. Each speaker selector contains special-circuitry to protect your amplifier from reduced impedance when multiple speakers are operating at the same time.

Components also available with white or silver front panels.



All components shown in this brochure (except the GFS-3) are available on special order with white or silver front panels. The GTP-500 Tuner/Preamplifier and GFA-545 Power Amplifier are shown here with white front panels.

Rack Mount Adaptors.

Optional adaptors for 19" rack mount are available for all models except GFS-3.

SPECIFICATIONS GTP-500

FM TUNER SECTION

IHF sensitivity, mono: 9.5 dBf
 Signal strength for -50dB quieting, mono/stereo: 12.5/36.5 dBf
 Capture ratio: 1.5 dB
 AM suppression: 65 dB
 Alternate channel selectivity: 80 dB
 Separation at 1kHz: 52 dB
 THD/stereo: at 1kHz, 0.09%
 Maximum signal-to-noise ratio, mono/stereo: 85/75 dB
 Frequency response: 30Hz-15kHz
 Antenna impedance: 75 or 300 ohms

PREAMPLIFIER SECTION

Total harmonic distortion: 0.01%
 IM distortion: 0.005%
 Frequency response: 20 Hz — 20 kHz ± 0.1 dB
 Maximum output level: 8 volts
 Input sensitivity for .5V output: Phono: 4mV
 High level: 40 mV
 Signal-to-noise ratio: For .5V output: Phono: 82 dB
 For 2V output: High level: >100 dB
Tone controls:
 Bass (40 Hz) ± 9.0 dB
 Treble (15 kHz) ± 9.0 dB
 Output impedance: 470 ohms
 High filter: -2 dB at 20 kHz
 Low filter: -5.0 dB at 20 Hz
 Voltage: 117V/60 Hz (Available in 220V/50Hz on special order)
 Dimensions: 17 x 3 1/4 x 12 3/4"
 Weight: 15 lbs.
 Optional accessory for GTP-500: RM-3 rack mount adaptor

AMPLIFIERS

Power output, watts/channel, continuous, both channels, 20 Hz-20 kHz, <0.09% THD:

	GFA-555	GFA-545	GFA-535
8 ohms	200	100	60
4 ohms	325	150	100
Bridged, mono, 8 ohms, 20 Hz-20kHz, <0.25% THD:	600	n/a	n/a
Bridged, mono, 4 ohms, 20 Hz-20kHz, <0.25% THD:	850	n/a	n/a

Signal-to-noise ratio A-weighted, full output: >106 dB

Input impedance: 22 kOhms

Input sensitivity: for rated output: for 1 watt:	1.0 volt	1.3 volts 130 mV	1.85 volts
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Damping factor (20 Hz-20 kHz): 130

Dynamic headroom (at 4 ohms):	2.3 dB	2.6 dB	3 dB
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Voltage: 117V/60 Hz (Available in 220V/50Hz on special order)

Dimensions:	17x7 3/8 x 11 1/2"	17x5 1/2 x 12 1/2"	17x3 1/4 x 12 1/2"
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Shipping weight:	35 lbs.	27 lbs.	22 lbs.
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Optional rack mount adaptors:	RM-7	RM-5	*RM-3
Black:	RM-7W	RM-5W	*RM-3W
White:	RM-7S	RM-5S	*RM-3S
Silver:			

*Also for GTP-500



Why connect VU meters to speaker lines? There are better ways to read amp power. But if you still want to know, here's how.

Continued from page 134

VU Meters Across Loudspeaker Lines

Q. How do I connect VU meters to my speaker lines?—F. Keenan, Lima, Ohio

A. I assume your purpose is to know when your amplifier is delivering some given power level. You can buy meters designed for this purpose (such as Radio Shack's Cat. No. 42-2107, \$24.95), and perhaps you might prefer to—VU meters cannot be used in this way without external circuits to drop the signal voltages from the amplifier to the much lower voltages the meters are designed to read.

Figure 1 shows such a circuit, but requires some explanation. The 5.6-kilohm resistor across the meter terminals damps the meter movement to give it the characteristics of a typical VU meter. The 15-kilohm resistor and the potentiometer, in series with the amplifier's "hot" terminal and the meter, drop the signal voltage down to the proper level. By using one fixed and one variable resistor, we get a circuit which is easy to adjust and calibrate yet still gives the meter some protec-

tion against overload if the variable resistor should be set to zero. Note in Fig. 1 that the potentiometer is wired as a rheostat, with its wiper contact wired to one end terminal.

We now need to use Ohm's Law to calculate the value of the pot and to calibrate our circuit. First, we must calculate the voltage across the amplifier for the signal level which we wish to have read "0 VU" on our meter. The formula for this is $V = \sqrt{P \times Z}$ where V stands for voltage, P for power, and Z for the impedance of the speaker. For example, an amplifier delivering 20 watts into an 8-ohm speaker would develop 12.7 V ($\sqrt{20 \times 8} = \sqrt{160} = 12.7$). A VU meter should read "0" for a signal of 0.707 V, so we need a circuit which will drop a 12.7-V signal to 0.707 V, a ratio of about 18:1. (Since we're using a variable resistance which we can calibrate later, ballpark figures are close enough.)

If the ratio between the meter's impedance and that of the whole meter circuit is 18:1, we'll get our desired voltage drop. The internal impedance of a VU meter, as I recall, is about 5.6

kilohms; the 5.6-kilohm damping resistor across its terminals effectively cuts the impedance at this point in half, to about 3 kilohms. So the total meter circuit should have an impedance of 18×3 kilohms, or 54 kilohms. Subtracting the resistance of the damped meter and the 15-kilohm fixed resistor, we get 36 kilohms ($54 - 15 - 3$). To get a safety margin, use the next higher value commonly available, either 50 or 100 kilohms.

To calibrate the circuit, set the potentiometer to its maximum resistance, feed your amplifier a test signal from an oscillator, test CD, or test record, and gradually raise the input level until an a.c. voltmeter across the amplifier terminals registers 20 V. Then adjust the pot until the meter reading climbs to "0 VU."

Some cautions are in order: Use a middle frequency, such as 400 Hz, rather than a very low or high one, which might damage your woofers or tweeters. Feed the tone in short bursts—it won't serve any purpose to wreck your speakers or destroy your amplifier's output stage if you have miscalculated somehow. And be aware that amplifiers have headroom, which allows them to deliver more than their rated power for brief bursts; if you've calculated your circuit so that your meter will read zero when your amplifier reaches its full rated output, be prepared to have the meter "pin" from time to time, and possibly even suffer damage, if you drive the amp beyond the meter's highest calibration point.

Vertical Antenna Polarization

Q. What is "vertical polarization" of an FM signal, which supposedly improves automobile FM reception? Does it degrade regular reception in any way?—Name withheld

A. Generally, automobile radio antennas are vertically mounted. FM transmitting antennas used to be arranged to transmit horizontally, meaning that these signals would be best received by using an antenna mounted horizontally. To overcome the problems of receiving FM signals in automobiles, stations now use a combination of the two antenna types so that any receiving antenna can be used. There is no signal degradation. Δ

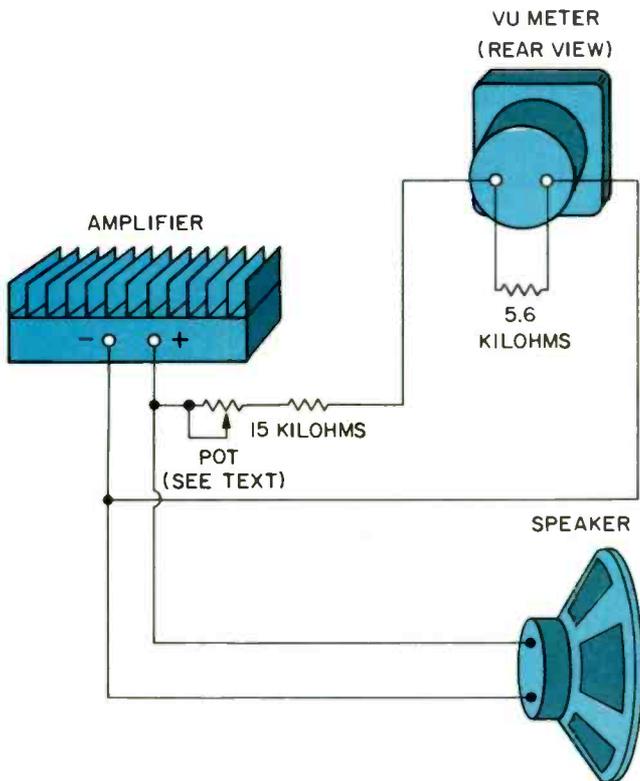


Fig. 1—Circuit for measuring signal levels in speaker lines with a VU meter. (The formula for calculating the value of the pot, and calibration instructions, are given in the text.)

The best CD Player is a matter of opinion. Many opinions.

AVE 1986 • \$2.00

CD-Spieler Denon DCD-1500

Feuer und Flamme

Welt wollte Denon
ine Palastrevolution.

DENON DCD-1500
typically £399

The current range of Denon players covers the ground from true budget to audiophile models. The DCD-1500 fits bang in the middle of the range as far as price is concerned and could best be described as being a full-feature domestic machine that is built with audiophile attention to detail.

Rather like the second generation of Sony players, the Denon uses separate converters for the two stereo channels rather than time-sharing the one.

therefore escapes phase problems of approach. The twice oversampled two-spectrally phase-filters but back bears insi correction iavl chosen i Burr-Brown. The circuit has its own DCD-1500 sig

✓ **Rice, atmospheric soundstage**

The Real Deal

This Denon DCD-1500 is well designed throughout. Everywhere you look you'll see signs of careful engineering and evidence of the willingness to do the job right. The Denon engineers who created the DCD-1500 have done a superb job.

In features, design, and sonics, the DCD-1500 is an outstanding player at any price, and a phenomenon at its list price. In my opinion, it's the best deal in today's CD player market.

Zer Pohlmann is a contributing editor to Digital Audio.



- Construction
- Ease of use
- Sound quality
- Value for money

under remote control.

The fascia has to pack in a lot of buttons but remains fairly easy to understand. The main Search and Skip controls are in a strip in the centre bottom of the player. The keypad is duplicated to the right side of the comprehensive display while the Repeat, memory call and clear functions are up with the Play, Pause and Stop controls on the top right. The display gives continuous read-out of Track/Index numbers, time and a 0-20 track grid.

access was not particularly good. My test being

probably give outstanding service for a long time.

Finally, the Denon DCD-1500 tops my list. It's the player I recommend most highly. It has oversampling, dual D/A converters, remote control, formidable specifications, full features, and Denon sound. The Denon engineers who created it should be honored in public.

Use and I suspect I suspect sure on the product's side we can "psyche" we want to hear of the DCD-1500. I've been hearing of measurements wanted to be sure I wanted to be sure I asked them to bring me so I called room. Without knowing these friends preferred of their own. I've always wanted to correlation between measurement providing the right measurement contention held true in the benchmark remote control or via its front-panel as good as any CD player I have its price is a good deal lower than favorite CD players. It is a winner!

correlation between measurement providing the right measurement contention held true in the benchmark remote control or via its front-panel as good as any CD player I have its price is a good deal lower than favorite CD players. It is a winner!

correction once of the highest information layer gain test. The equivalent level surface mark and fingerprint tests were cleared without problems. Hayden Labs, importer of Denon, has said that current production of the DCD-1500 is being changed to incorporate better RF screening — no problems were encountered with our sample during the review.

Hayden Labs Ltd
Hayden House
Chiltem Hill
Chalfont St Peter
Bucks SL9 9UG
☎ (0753) 888447

dio

MASS TEST
49 CASSETTES

THIS
ARM?

Eating: ★ ★ ★ ★ ★
In several measurements, the DCD-1500 out-performed any other player.

CAPPHIRE
TABLE
DENON DCD-1500
CD PLAYER

Tests
sometimes influenced by what I measure when it comes time to judge a production qualities. I'm convinced that we expect to hear. To me, the sound of a shade better than what I have several CD players whose measurements were not prejudicial. Measurements weren't prejudicial along to my listening they were listening to their own of the DCD-1500 over that
ultimately, there is a difference made. Happily, that DCD-1500. It not only is easy to use via its controls, but it sounded so far. What's more, on every other Leonard Feldman

Denon DCD-1500



Preis: um 1800 DM
Garantie: 12 Monate
Abmessung: 43,4 x 8,9 x 35 cm (BxHxT)
Denon Electronics GmbH
Halskestraße 22
4030 Ratingen 1

Pro und Kontra
+ Klang
+ Ausstattung
+ Verarbeitung
+ Fernbedienung

Preisbezogene Wertungen
Klang: sehr gut
Fehlerkorrektur: gut bis sehr gut
Ausstattung: sehr gut
Verarbeitung: sehr gut

HIFI VISION-Urteil
Preisbezogenes Gesamturteil: sehr gut
Absolute Einstufung: Preis-Leistungs

The audio critics of the world hardly ever agree on anything. But when it comes to superlative CD players, Ken Pohlmann, Len Feldman, Masamitsu Fukuda, Ulrich Smyrek, David Praker, Yoshiyuki Ishida, Artur Jung, and Hideo Kaneko recommend one model with amazing consistency: the Denon DCD-1500.

How did Denon achieve this exalted status? Not by offering useless buttons, switches and fluorescent displays. But by developing better digital circuitry, building to higher standards, and using better parts. Our proprietary Super Linear Converter is the only one that actually corrects D/A transfer distortion. Each circuit gets its own separate power supply. And our filters are computer-analyzed for linear phase. So you hear sound that rewards the most critical listening.

In a player as reasonably priced as the DCD-1500, these refinements are enough to make even a hard-boiled critic stand up and cheer. And now there's more cause for celebration: three new Denon CD Players. They're built on the same principles as the DCD-1500, and they're even more affordable.

So if you want to hear the best that the Compact Disc format has to offer, get yourself to a Denon dealer. And don't forget to tell him who sent you: Ken, Len, Masamitsu, Ulrich...

DENON

DESIGN INTEGRITY

Enter No. 38 on Reader Service Card



DCD-1500: Dual Super Linear Converters; Oversampling Digital Filters; CALP Analog Filters; Programming; Remote Control.



DCD-1300: Super Linear Converter; Oversampling Digital Filters; Real-Time Phase Correction; Programming; Remote Control.



DCD-700: Super Linear Converter; Real-Time Phase Correction; Programming; Remote Control; Headphone Jack with Level Control.



DCD-500: Super Linear Converter; Real-Time Phase Correction; Programming; Emphasis Display; Headphone Jack

DIO/JUNE 1986
Audio 4/1986

offers price. The... sampling, dual... error correcte... CD-1500's analog... of some players...

TAPE GUIDE

HERMAN BURSTEIN

Tape Timing

Q. Can you explain why the tape counter of my cassette deck is not related to actual elapsed time? How can I use this counter to know whether I have enough tape left to record, say, a four-minute selection? How can I tell how much time is left at any given point on the tape?—Barry Sussman, Summit, N.J.

A. In most cassette decks the tape counters are tied in with rotation of the take-up reel, and of course the number of rotations of the reel per minute of tape time keeps changing with the amount of tape on the reel. It is possible to have the counter show elapsed time, but this is a much more expensive and difficult proposition and is limited to high-priced decks.

I suggest that you invest some time in developing a graph (preferably) or a table which relates elapsed time to readings of the counter. Starting with the counter at zero, allow 60 seconds to pass, and note the counter reading; allow another period of time to pass, say 60 seconds again, and again note the counter reading. Continue to do so throughout the reel. If you find 60-second intervals too laborious, use two- or three-minute intervals instead. If you put your findings into graph form, you can more easily rely on even longer intervals, say five minutes each, to give you the desired information.

The advantage of a graph is that you can connect your plotted points to form a smooth curve, thereby facilitating interpolation between the readings you have taken. Such a graph will probably be accurate to within substantially less than one minute, good enough for most purposes. Remaining time would be simply the difference between elapsed time and total time. Of course, you'll need a separate graph (or table) for each cassette length—C-90, C-60, and so forth.

Power During Demagnetization

Q. I have a question about demagnetizing my cassette deck. The instructions say to shut the power off before demagnetizing. I want to use a cassette-type demagnetizer instead of a wand. But my deck's transport is solenoid-operated, so the power must be on in order for the heads to come forward into contact with the demagnetiz-

er. I don't want to damage my cassette deck. Can you help me?—Frank Scanarano, Wantagh, N.Y.

A. If you use a cassette-type demagnetizer, of course the power must be on in order to actuate it. There is no danger to your deck in doing so. However, you must be sure that the main volume of your audio system is all the way down, because the demagnetizer will generate sound in the playback head, and this could be destructive to your speakers.

Slipping Tape

Q. During playback of tapes that I have recorded recently or as much as five years ago, the tape slows down at various places until a soprano sounds like a bass. If I put the tapes through fast wind and rewind several times, they play normally for a while, but eventually slow down again. They act the same way on other decks. My deck is cleaned and demagnetized regularly, and I have been using a head lubricant. Could that be leaving a residue which makes the tapes adhere to themselves?—Otis Shackelton, Santa Monica, Cal.

A. Apparently your deck is absolved, because the problem occurs on other decks, so the tapes appear to be at fault. Do tapes recorded on other decks play properly on yours? If so, the difficulty focuses all the more sharply on your cassettes. The problem could be poorly made cassettes—an off-brand, the low-price line of a reputable brand, or a poor batch of any brand. It might be, as you ventured, that your head cleaner has left a residue on the tapes which causes them to stick. Or, possibly, the lubricated heads were not allowed to dry sufficiently, so that lubricant got on the tapes, making it difficult for the capstan and pinch roller to get adequate grip on them.

Tape Shredding

Q. Recently I was given a prerecorded cassette as a gift. The accompanying literature says that it was recorded with Dolby B noise reduction and Dolby HX Pro. How is this possible? Further, whenever I play the tape with Dolby B on, it leaves "shreds" on the record/playback head, which I have to clean off with a cotton swab

and isopropyl alcohol. But if I play the tape with the Dolby B off, it doesn't shred as much. What is causing this, and how can I correct it?—Kevin Ruppenthal, Clarks Summit, Pa.

A. In recording, the Dolby circuit senses the amount of high-frequency content in the audio signal and varies the treble boost accordingly; the less the treble content, the greater the boost. (In playback the reverse happens: The less the treble content, the greater the treble cut, to restore flat response.) The same treble-sensing circuit can be used for Dolby HX Pro, so that as the treble content increases, the amount of bias current supplied to the record head decreases. The treble portion of the audio signal plus the current from the bias oscillator together constitute the appropriate amount of bias for recording.

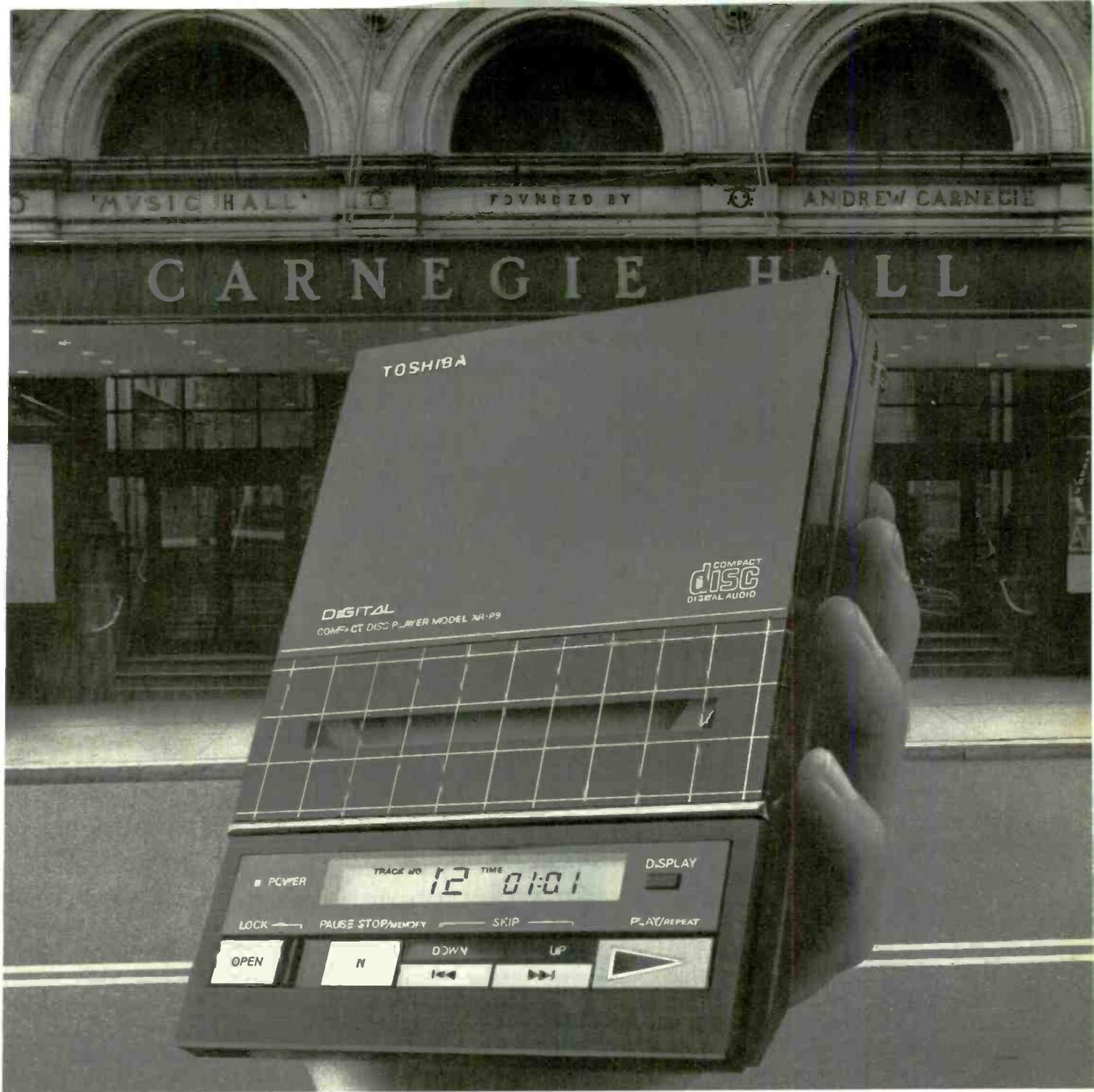
I see no possible connection between the tape "shredding," as you call it, and activation of the Dolby circuit. Tape shredding is a physical phenomenon related to the cassette and the transport mechanism, whereas the Dolby process is purely electronic. It seems that only coincidence is at work here. If you discover otherwise, I would very much like to hear from you again.

Cassette Versus Open-Reel

Q. I think that too much is being made of how good cassettes are, while nothing is said about open-reel. I have an 18-year-old Ampex AG-500 which I believe will outperform any cassette deck when taping live music. Yet many equipment reviews suggest that a new cassette deck will do better than old open-reel decks.—Donald Bisbee, Columbus, Ohio

A. If you are talking about relatively inexpensive open-reel decks of yesterday versus relatively expensive cassette decks of today, I believe the cassette will rival or outdo open-reel. If you are talking about a superior open-reel deck of yesterday, such as your Ampex, versus the average cassette deck of today, you are probably right—the open-reel will win.

If you have a problem or question on tape recording, write to Mr. Herman Burstein at AUDIO, 1515 Broadway, New York, N.Y. 10036. All letters are answered. Please enclose a stamped, self-addressed envelope.



The best sound you can hear next to Carnegie Hall.

Listen to Toshiba's Portable CD player outdoors and something remarkable happens. It sounds like you're inside a concert hall. There's no distortion. No wow. No flutter. Only pure, concert quality sound.

Yet, when you take home this portable, it's a top of the line CD player. Hooked up to your stereo system through its AC adaptor, it offers features you won't find in other portables: 16 program random memory, 3-beam laser pick-up to guard against mistracking, plus a full function display that monitors the track, lap and remaining

time. There's even a 15 function wireless remote control. And, of course, incomparable sound.

Toshiba's portable CD player. Outside of a concert hall nothing sounds better.

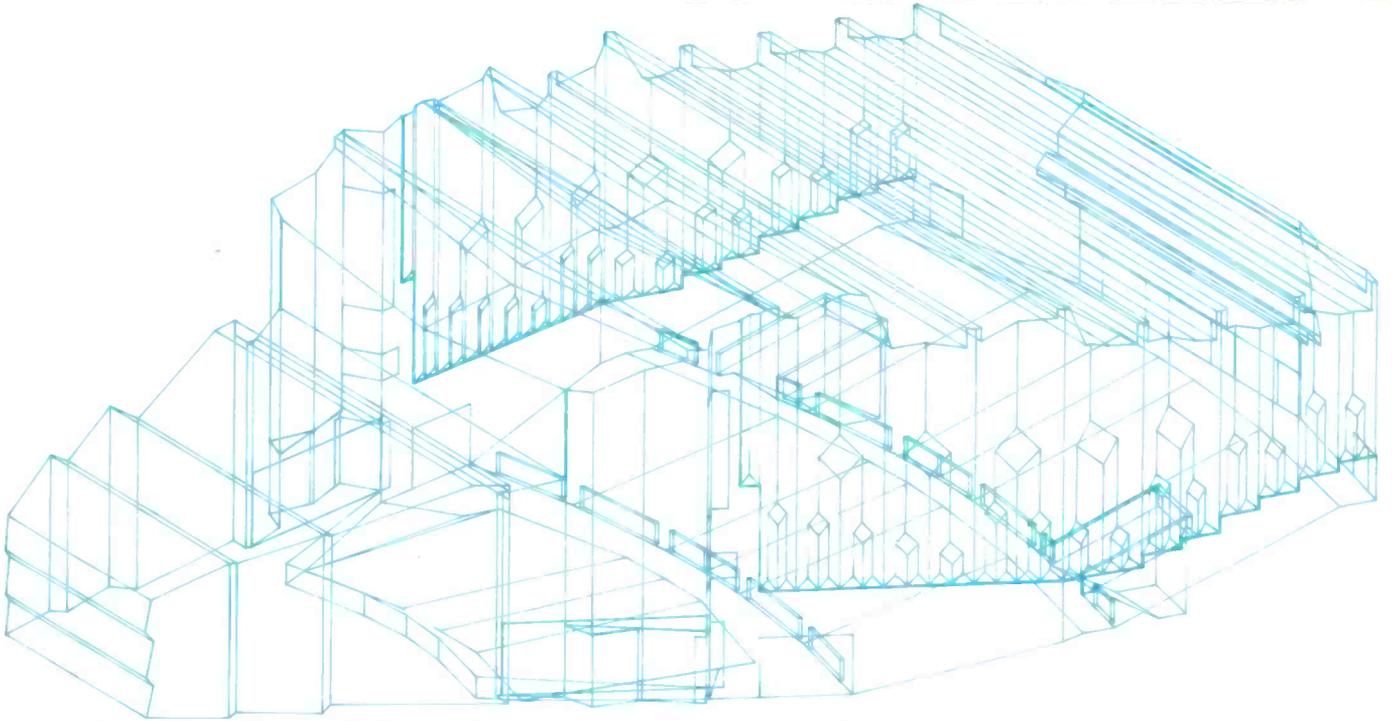


In Touch with Tomorrow
TOSHIBA

Toshiba America, Inc., 82 Totowa Road, Wayne, NJ 07470

Enter No. 85 on Reader Service Card

A man's home is



The revolutionary Yamaha DSP-1 brings world-famous acoustical environments into your listening room at the push of a button. Its 30-key wireless remote unit (below) controls a two-line, 16-character backlit LCD that displays all program functions on the DSP-1.

With the introduction of the new Yamaha DSP-1 Digital Sound Field Processor, listening to recorded music at home is no longer the next best thing to being there.

It is being there. Quite literally.

The most significant advancement in acoustic realism since stereo, the DSP-1 enables you to enjoy performances in the actual listening environments in which they were intended to be heard in the first place. Without leaving your home.

In twelve of the world's most famous sites, to be exact. Including three concert halls, a chamber, cathedral, church, disco, jazz club, rock concert arena, warehouse loft, pavilion, and outdoor stadium.

Additionally, the DSP-1 offers a four-directional presence mode as well as three surround-sound systems: a large theater, a medium sized

theater and even digital delay Dolby' surround.

Previous analog "surround" processors simply produced the illusion of a sound field by altering the existing stereo signal. The new DSP-1, however, digitally reproduces the actual sound fields of the world's finest listening environments, without affecting the purity of the original source material.

Utilizing the Yamaha-developed four-microphone Single Point Quad sound field analysis technique, Yamaha engineers spent five years analyzing the acoustic architecture of the world's most noted performance facilities, including echo patterns, reflective personalities and such data as timing, volume level and apparent source directionality. This information was then programmed into the DSP-1's computer memory (ROM).

The frequency response and dynamic range



It's his cathedral, church, disco, stadium

no longer his castle.

characteristics from your stereo source material trigger the continuous release of this information, to precisely reproduce the acoustic personalities of selected performance environments.

The reproduction of this acoustic architecture in your home is made possible by the development of a proprietary Yamaha VLSI (very large scale integrated circuit), the YM-3804. It calculates early sound reflections in real time based on the echo patterns stored in the DSP-1 memory—enabling accurate re-creations of these listening environments at the push of a button.

Each reflection is calculated using the very same sampling rate and quantization as compact discs (44.1 kHz, 16 bit linear), producing an output with dynamic range of 94 dB and 0.006% THD, making audiophile quality digital sound field synthesis possible for the very first time.

Every DSP-1 acoustic response pattern has several key response parameters you can alter to customize the size, shape and character of the listening environment.

These include room size, liveness, initial delay time, high pass filter cutoff, low pass filter cutoff and reverberation time.

After modifying a program, you can then give it a name, and store it in one of the DSP-1's 16 user memories.

In addition, there are 16 sound effector programs built in, such as time-delay, stereo flange, tremolo, chorus, pitch change and auto panning. So the DSP-1 can also be used effectively as a musical instruments effects device.

All sound field modes and parameters are controlled from the palm of your hand, since the DSP-1 is operated by a 30-key wireless remote control. This allows you to select the performance environment and adjust parameters—even program them into memory—without sacrificing the perspective of your listening position.

Its large backlit LCD confirms all mode selections and parameter readings as you make them. The remote control also lets you adjust the effect level and front/rear balance, and even give titles to those new modes you program.

The full benefits of Yamaha sound field synthesis is best experienced with four speakers which are powered by the new Yamaha 4-channel M-35B power amplifier, in addition to the front stereo speaker pair, driven by your existing amplifier.

If desired, however, the front left and front right output may be combined with the existing main-channel speakers.

For our thorough White Paper on Yamaha digital sound field synthesis, please write us at the address shown below.

But mere words can never hope to convey the magnitude of this accomplishment. Visit an authorized Yamaha dealer today for a complete demonstration. And discover why stereo alone is now as outdated as living in a castle.

Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622



concert hall, jazz club, and theater.

Recording with Dolby B and subsequent playback using Dolby C cuts noise, but it cuts treble too, and you may consider this loss to be undesirable.

Misaligned Cassette Door

Q. I recently purchased a cassette deck and a few days later noticed that the door is out of alignment. It is about 1/16 inch too far out on one side and the same distance too far in on the other. Will this cause any loss in sound quality because the tape may not be running properly with respect to the heads?—Joe A. Budz, Hudson, Ohio

A. I really don't know if it will help to change the alignment of the door—which presumably holds the cassette and therefore determines its alignment with respect to the heads. It may be that whatever position the cassette now takes puts it in proper alignment with the heads.

To determine whether you are now getting good response, tape some interstation noise from your FM tuner. (I assume you have a tuner or can borrow one.) Compare the tape playback with the FM noise by switching between the two. If the tape playback compares well with the noise, particularly at the high end, realignment is probably not needed.

Checking Azimuth

Q. What equipment and procedures are needed to check and adjust azimuth alignment?—Michael J. DeVoge, Conneaut Lake, Pa.

A. One needs a high-quality test tape and an audio voltmeter; if the deck has separate record and playback heads, a signal generator is also needed. If the deck has mechanical VU meters rather than electronic ones, so that one can read fine differences in signal level, and if the meters can read playback level, one may use these instead of a separate audio voltmeter.

The procedure is to play a high-frequency tone from the test tape, usually in the range of 12 to 15 kHz, and adjust the playback-head azimuth for maximum output as determined by your meter. The azimuth alignment which gives maximum output on the left channel may not be quite the same as that which produces maximum output on the right. In that case, one has to find a compromise position.

A warning is in order. It is possible to get false azimuth peaks which are lower than the true azimuth peak output, and this is more likely when adjusting azimuth on the basis of a very high-

frequency tone. Therefore, some test tapes provide a lower test tone, perhaps around 5 kHz, for making a preliminary adjustment of azimuth. After the preliminary adjustment, which brings one into the vicinity of the final setting, one fine-tunes azimuth on the basis of the very high-frequency tone, such as 12 kHz.

If the deck uses the same head for recording and playback, nothing more is required. If there is a separate record head, one records a high-frequency tone produced by a signal generator and simultaneously plays it, meanwhile adjusting the record-head azimuth for maximum output in playback. As before, one should beware of false peaks in adjusting azimuth. And one should again recognize that it may be necessary to find a compromise setting that treats both channels equally.

Mixed Dolby

Q. I have discovered that by recording with Dolby B NR and playing back in Dolby C I can greatly reduce noise. What is happening?—Mark A. Marinello, New Orleans, La.

A. Dolby B NR accomplishes about 10 dB of noise reduction, and Dolby C about 20 dB. Thus, if you record with Dolby B and play back with Dolby C, you achieve an extra 10 dB or so of noise reduction. What is happening is that the treble cut in playback with Dolby C exceeds the treble boost supplied in recording with Dolby B. However, the Dolby B/C combination also reduces treble response in playback. This loss may or may not be offensive, depending on the listener and on the program content. In the case of program material with excessive brilliance (supplied by some recording engineers) or speakers with an excessive high end, the treble cut may even be desirable.

Conversion to 15 IPS?

Q. We have a Crown SX 700 Pro-Series open-reel tape recorder which has hardly been used. It is still like new, and a beautiful piece of equipment. Would it be worthwhile to modify it from 7½ to 15 ips?—John and Fran Miletiz, Ottawa, Ill.

A. I doubt that it is worthwhile to go from 7½ to 15 ips for home purposes, considering the excellent results ob-

tainable at 7½ ips, and considering the effort and expense which you would have to incur. Not only would mechanical changes be required, but it would also be necessary to modify the record equalization and perhaps the bias. Further, keep in mind that the standard NARTB speed is 7½ ips; this suggests how well one can do at this speed.

The most significant improvement that can be made is in signal-to-noise ratio. Very little such improvement would come from converting to 15 ips—perhaps 3 dB or so. There would also be an improvement in headroom (protection against tape saturation at high frequencies when recording at high levels), but again not all that much. You can achieve a vast improvement in S/N—virtually total silence in the background—by using a noise-reduction unit such as dbx's.

Adjusting Bias

Q. My cassette deck has adjustable bias, but it doesn't have built-in test tones for calibrating it. However, I have a mixer-calibrator with 400-Hz and 8-kHz test tones that I can feed to the deck. What is the proper procedure for calibrating bias?—Steve Snarr, Springfield, Ohio

A. Recording at a level of about -20 dB, adjust bias so that when 400-Hz and 8-kHz tones of equal amplitude are fed into the deck, these tones are also of equal amplitude in playback. If you have a three-head deck, you can measure the amplitude of the 400-Hz and 8-kHz outputs by looking at your deck's meters or by connecting an audio voltmeter to the deck's outputs. If you have a two-head deck, making your adjustments will involve a trial-and-error procedure of making a recording, rewinding the tape, and playing it back to test the effect of each bias change.

After you have completed the above procedure, copy a good phono disc or CD and compare the tape with the source. If highs seem excessive, increase the bias slightly. If highs seem insufficient, decrease the bias slightly. Another good source for comparison purposes is FM interstation noise. Do not be afraid to trust your ears in adjusting bias. In fact, some audiophiles consider this the best of all ways to adjust bias. *A*

The pro comes home.

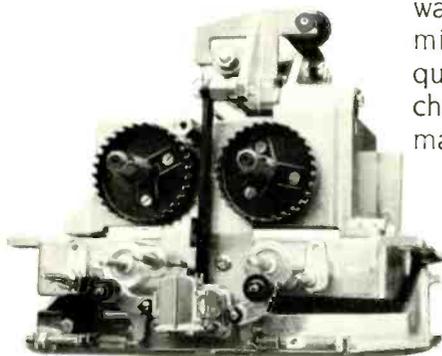


Studer Revox of Switzerland, the world's leading manufacturer of professional audio equipment, has introduced a professional-quality cassette recorder specifically designed for the serious home recordist.

If you are interested in making the finest recordings possible in the cassette medium, we invite you to carefully consider the following three pages...

R E V O X

Revox cassette transport turns pro.



For consistently superior results in home audio recording, we designed a professional tape transport into the Revox B215 Cassette Deck.

Studer Revox is the leading supplier of audio tape decks to recording and broadcast studios. Every transport we build adheres to the same strictly professional design criteria. The B215 is no exception.

A Die-Cast Aluminum Alloy Chassis—

Stamped or rolled metal is not acceptable because it could warp or bend and it cannot be milled or drilled with the required precision. The B215 chassis reflects the same massive stability seen in every Studer Revox recorder right up through our \$70,000 24-track machines.

Direct Drive Motors—

Belts and gears degrade performance over time.

To avoid such compromises, the B215—and only the B215—has four tape drive motors: two quartz-locked Hall-effect motors for the dual capstans, and two microprocessor-controlled DC spooling motors.

An Azimuth Stable Headblock—This is difficult to achieve in the cassette format

Professional automatic calibration procedures assist the B215 in achieving peak performance in less than 20 seconds.

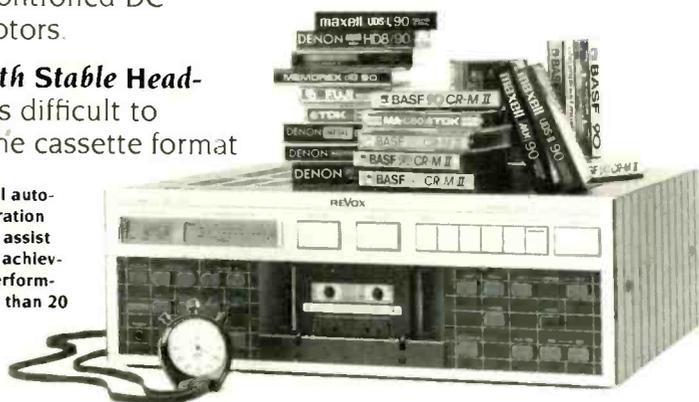
because the headblock must move in and out of the cassette shell. All other decks use an inherently unstable "sled" mechanism. But the B215 uses a pivoting die-cast headblock mounted on precision bearings (.001 mm tolerance) to assure the stability required.

Gentle, Safe Tape Handling—

An on board microprocessor (one of three) monitors all tape motion. Optical servos govern the spooling motor to give constant winding speed, controlled tape tension, and smooth tape wrap. The motors gently slow the tape just before the end to prevent tape stretching. Tape damage of any kind is virtually impossible.

Most home recordists realize you should adjust the bias

The 20-second solution to your tape selection problems.



when switching tape formulations. And most better cassette decks have facilities for this one adjustment. But as any recording professional would tell you, simply adjusting bias is a calibration compromise. For optimum performance in magnetic recording, three interdependent parameters must be precisely calibrated for each tape formulation: bias, record sensitivity, and equalization. In the studio this is done by a maintenance engineer who records a series of test tones, "tweaks" the adjustment pots, and checks the results.

The Microchip Engineer—With its powerful microprocessor and proprietary software, the B215 performs this calibration automatically in a mere 20 seconds. You simply press the red "align" button. The B215 records test tones (400 Hz, 4kHz, 17kHz), makes required adjustments through digital attenuator networks, and checks again. All three parameters—bias, record sensitivity, and equalization—are optimized for peak performance. Calibration data of up to six different tape formulations is stored in a non-volatile digital memory, for instant recall.

Level Setting Option—The B215 offers unique, automatic level setting. Simply play a

loud passage of the music to be recorded while holding down the "level set" button. The B215 samples the incoming signal and sets the record level for the best overall performance. Manual level setting is also available.

Dolby® B/C And HX Pro—The B215 also provides Dolby B/C noise reduction and Dolby HX Pro headroom extension. Put it all together and you have everything you need for making the best possible recordings from today's best tape formulations—all of them, without compromise.

Right on Cue—A pro recorder always lets you know where you are on the tape, and then helps get you where

you need to go quickly and accurately. B215 cueing features include:

- **Automatic Cue to Tape Oxide**—After rewind, the B215 cues past the clear leader to the beginning of tape.
- **Real Time Counter**—Under microprocessor control, the counter computes elapsed time even on a partially wound cassette.
- **Two Memory Locate Buttons**—Each quickly fast winds to any point you select.
- **Record Start Locate**—Every time you go into record, the start time is entered into Locate 1.

Essential Monitoring—Because the B215 has separate record and play heads, you can monitor your recording as you make it. Other

Features borrowed from "big brother."



The Revox B215 comes equipped to duplicate many advanced functions of studio recorders like our Studer A820.

monitoring features include:

- **Automatic Tape/Source Switching**—When you start recording, the B215 switches the output from source to tape monitoring. Manual override is possible, of course.
- **Headphone Jack**—Ample output power and volume control.

Automatic Fade-In/Out—

Professional-sounding quick fades (2 second) from silence to full level.

Playback Features

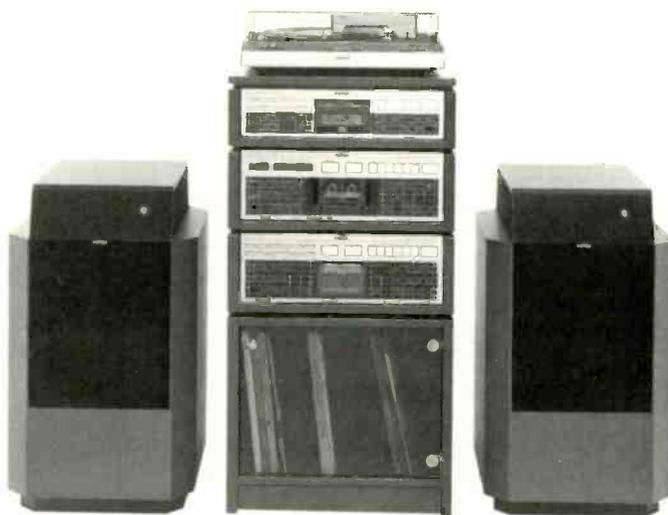
- **LOOP**—Repeats tape segments of any length.
- **SAVE STATUS**—Sets B215 to record or play when external timer comes on.

External Machine Control—

The B215 responds to an optional infrared remote control transmitter. (The same unit also operates all other Revox components.) In addition, with an eye toward future computer controlled systems, the B215 can be controlled through its serial data port.

Revox delivers uncompromised quality to cassette recording. Our sophisticated microprocessor controls offer professional recording capabilities and standards to the home audio enthusiast. Our professional transport design brings home extraordinary performance: low wow and flutter, extended frequency response, and consistently repeatable results time after time, year after year.

How well we accomplish our job is for you to judge. If you are interested in making cassette recordings of the finest quality, we invite you to evaluate the B215 at your nearest Revox dealer. For more information contact Studer Revox America, Inc., 1425 Elm Hill Pike, Nashville, TN 37210/(615) 254-5651.



The complete Revox remote control system delivers performance with convenience—a unique achievement in its class.

STUDER REVOX

1986

ANNUAL EQUIPMENT DIRECTORY



This year's Annual Equipment Directory is our 29th, and it has again grown larger—to more than 4,200 products in 20 categories. Our best estimate is that nearly 80,000 individual specifications are included in the 1986 Directory. For several years now, we have neglected to emphasize sufficiently in these introductions that the specifications listed come from the manufacturers; they are not the results of our tests in the laboratory. While a suspicious person might quickly come to the conclusion that certain figures may be the product of some company loyalist's fertile imagination, it is my belief that the very large majority of the gear presented here is underrated. The reason I think this is because virtually all equipment we

bring to the bench passes the "Meet spec?" test with flying colors. Further, there are always some few signs when a unit has been tweaked up, and ringers are usually painfully obvious.

I mentioned that we have some 20 equipment categories this year; that's up one from the last Directory. The new one, Ambience & Surround-Sound Processors, is actually a category that's been around for a good while, but there presently seems to be a new impetus in the marketplace and increased interest from hobbyists. The principal reason for this step-up of activity is, I believe, the application of digital technology. Insofar as the end-user is concerned, there will soon be much more versatile equipment available, affording much cleaner sound. While some of the previous applications have seemed almost trivial offshoots of CD and R-DAT technologies, we are expecting some rather spectacular innovations in the not-very-distant future.

It has always been interesting to me to follow the rise and fall of various equipment categories, thus charting the changing interests of our audio-buff friends. Indulge an aging editor his fancy, then, as I rapidly run through the differences from 1985 to 1986 in some of the categories of major components. Amps are up 8 models to 414; preamps are plus 31 to 276; tuners down 6 to 91; receivers virtually unchanged at 124 (actually - 2); there are about 25% fewer turntables (- 58) in 1986 for a new total of 187; however, tonearms are unchanged at 60 and cartridges down only 5



DIGITAL PROCESSORS COMPACT DISC PLAYERS



AMPLIFIERS PREAMPLIFIERS



TUNERS RECEIVERS



TURNTABLES PHONO CARTRIDGES TONEARMS



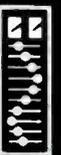
OPEN-REEL TAPE DECKS CASSETTE DECKS BLANK TAPE



MICROPHONES



HEADPHONES



EQUALIZERS / AMBIENCE & SURROUND-SOUND PROCESSORS / SIGNAL PROCESSORS / CROSSOVERS



HI-FI VCRs



LOUDSPEAKERS

models at 378; speakers are again the big gainer with 113 additional models and 12 additional manufacturers in the category; open-reel tape decks are down 6 models and 2 makers, and cassette decks are down 9 units with the same number of brands. Perhaps the most closely watched area of equipment is CD players; we're up to 196 models—that's plus 79—offered by 69 manufacturers, which is 14 more than last year.

As is generally known, most hi-fi gear is made in the Far East, principally Japan, which has seen the value of the yen more than double over the past dozen years. This strengthening has been unpredictably vigorous over the course of the past year so that some manufacturers declined to provide prices. This is an odd switch, since price and model were the only things in many previous Directories that were solidly fixed. How times change! Even if the 150 to 160 yen-to-dollar range is maintained, I do not think that we will see very many new American hi-fi companies started. It seems more likely to me, if this rate holds steady over the next few years, that we will see reduced competition in this industry in Japan and that some of those remaining firms will open manufacturing plants in this country. We have already seen this happen in blank tape and TVs, as well as outside our field in automobiles.

Final notes: We are using a symbol system this year to help locate the various sections within the Directory, grouping together those components which are functionally similar. The result is the 10 symbols shown at the side of this page. Note that the symbols are staggered down the page; this relative location will be maintained in the Directory proper. Since remote controls are becoming more and more popular, we asked the makers to add (RI) after the model number if they offered the unit with a remote control as a standard, no-extra-cost feature; the code for optional was (RO). We didn't bother with this coding in Hi-Fi VCRs, where all units have remote controls as standard items. Company addresses have returned to the end of the issue.

Special thanks to Bill Kirkpatrick, who sacrificed his eyes to small type, and Linda Zerella, who sacrificed her fingers to X-acto knives, that others might have this issue of the Big D.—**E.P.**



Loaded.



Fully loaded.



Introducing the Sony DiscJockey.™
 The world's first car compact disc
 changer. Leave it to Sony to give
 new meaning to the term "loaded."
 They've just taken the conven-
 tional car compact disc player
 and turned it into the ultimate
 automotive entertainment system.
 Through an ingenious Remote
 Commander,® Sony has put you in
 control of 10 discs. Program any
 disc, any track, in any order you
 choose. All this and an AM/FM tuner.*

As for high performance,
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 delivers up to 10 hours of incom-
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 pension maintains precise disc
 tracking under the most torturous
 road conditions. And it's located
 in a most unlikely and secure place—the
 trunk of your car. The Sony DiscJockey.
 The car stereo destined to become
 standard equipment for those
 who have very high standards.



SONY
 THE LEADER IN DIGITAL AUDIO™





To hear why Genesis records on Sony digital equipment, play them back on a Sony Compact Disc Player.

When it comes to capturing the experience of live music, no audio equipment delivers the lifelike reproduction of digital audio.

That's why the only digital recording equipment chosen by Phil Collins, Tony Banks and Mike Rutherford of Genesis is, not surprisingly, the leader in the industry: Sony.

Not only has Sony led the way in professional digital recording equipment, we invented the digital audio system for playback—the compact disc player. Sony also introduced the first home, car and portable CD players. And Sony sells more types of compact disc players than anyone else in the world.

But whichever Sony Compact Disc Player you choose, each allows you to hear the music the way the artist originally intended.

So why not do what Genesis does? Play back the top-selling compact discs like "Invisible Touch" the way they were mastered. On

Sony Digital equipment. You'll find that when it comes to bringing you close to the music, nothing even comes close.

The Sony CDP-55. Sony's best value in a full-featured compact disc player.



From its Unilinear Converter and digital filter to its programming flexibility and supplied Remote Commander® unit, the Sony CDP-55 has everything you need in a home CD player.

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DIGITAL PROCESSORS



SONY PCM-501ES



SONY PCM-F1



SANSUI PC-X11



SONY PCM-601ESD

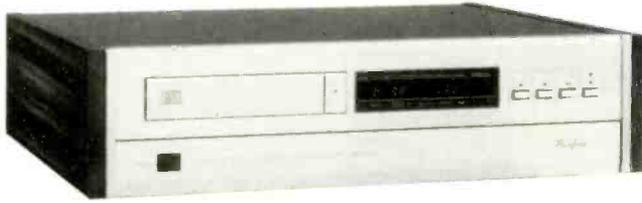


DBX 700

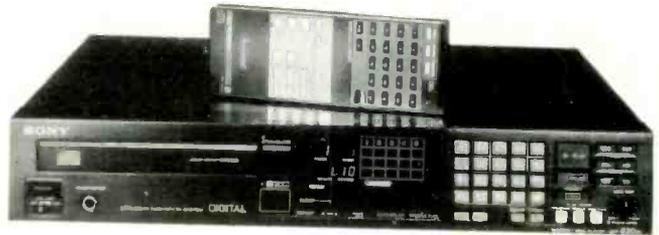
MANUFACTURER	Model	Remote Included (R) / Remote Optional (RO)	Unit Type: Recorder = R, Processor = P, Both = RP	Coding Format	Quantization: No. of Bits, Linear = L, Floating Point = F	Maximum Recording Time, Minutes	VCR Speed Capability—See Code	Frequency Response, Hz to kHz, ±dB	Dynamic Range, dB	Total Harmonic Distortion, %	Inputs: Mike = M, Line = L, Direct Digital = D, Video Composite = V	Outputs: Hexaphone = H, Line = L ₁ , Digital Video = V	Dimensions, Inches	Weight, Lbs	Price, \$	Notes
DBX	700	P		dbx CPDM †	A/B	10-20 ± 0.5		110	0.005	MLDV	HLV	17 x 5½ x 12	40	4600.00	†Companded Predictive Delta Modulation. Optional mike preamps and disc-mastering delay.	
SANSUI	PC-X11	P		EIAJ 14L	A/B	5-20		86	0.007		HLV	17 x 2¼ x 12¾	11	1150.00		
SONY	PCM-F1	P		EIAJ 14L, 16L	120	A	10-20 ± 0.5	90	0.005	MLDV	HL	8½ x 12 x 4	9	1750.00	Portable; d.c. operation.	
	PCM-501ES	P		EIAJ 14L, 16L	480	A/B	10-20 ± 0.5	90	0.005	LDV	HL	17 x 4 x 14	15	800.00	Optimum Video Condition control for slow-writing-speed VCRs.	
	PCM-601ESD	P		EIAJ 14L, 16L	480	A/B	10-20 ± 0.5	90	0.005	LDV	HL	17 x 4 x 14½	18	1400.00	As above; digital input/output port.	



COMPACT DISC PLAYERS



ACCUPHASE DP-80



SONY CDP-620ES



MAGNAVOX CDB650BK



PARASOUND CDD-940

MANUFACTURER	Model	Frequency Response, Hz to kHz, \pm dB	Dynamic Range, dB	S/N Ratio, - dB	Channel Separation, dB	Harmonic Distortion, %, at 1 kHz	Line Output Level, V, Fixed = F	Required (Amplifier Input) Load Impedance, Kiloohms	Headphone Output = H, Headphone Output with Level Control = HL	Dimensions, inches	Weight, Lbs.	Price, \$	Notes	
ACCUPHASE	DP80 DC81	4-20 \pm 0.3	106	106	100	0.008	2.5F, 0-2.5	10	A		66	7000.00	Two chassis; separate transport and electronics.	
ADC	16/2R CD100X	20-20 +0.5, -1	96	95	90	0.007	F		None	A	17 x 3 1/2 x 11 1/2 13 1/2 x 3 1/2 x 11 1/2	11 9	370.00 299.00	
ADCDM	GCD-300 GCD-200	5-20 \pm 0.5 5-20 \pm 0.5	96	98	90	0.004	2.5F 2.5F			A A	17 x 10 1/2 x 3 1/4 17 x 10 1/2 x 3 1/4	12 12	499.95 449.95	Sound Window frequency-contour selector. As above.
ADS	CD3 CD4	20-20 \pm 0.25 20-20 \pm 0.25	96	102	86		2.0F, 0-3 2.0F	10 10	HL HL	A A	17 1/2 x 14 1/4 x 2 3/4 17 1/2 x 14 1/4 x 2 3/4	20 20	1250.00 900.00	
AKAI	CD-A70 CD-A3X CD-A30 CD-MS15	5-20 \pm 0.5 5-20 \pm 0.5 5-20 \pm 0.5 5-20 \pm 0.5	95 90 90 90	95 90 90 90	90 86 86 86	0.003 0.006 0.006 0.006	2F 2F 2F 2F		HL H	A A A A	17 1/4 x 3 1/8 x 10 1/4 17 1/4 x 3 1/8 x 10 1/4 17 1/4 x 3 1/8 x 10 1/4 13 3/4 x 3 1/8 x 10 1/4	8 5/8 7 3/4 7 3/4 7	475.00 350.00 340.00 340.00	
AR	CD-04	20-20 \pm 0.15	105	96	94	0.003	F	10		A			479.95	
AUDIQQUEST	AQ CD-1 AQ TCD-10						2.0F 2.0F		H HL	A A	16 1/2 x 3 1/2 x 11 3/4	12 17	650.00 1250.00	
AUDIO-TECHNICA	AT-CD20	4-20 \pm 0.5	96	100	92	0.003	2F		HL	A	17 1/8 x 11 1/2 x 3 3/4	10	399.95	

COMPACT DISC PLAYERS



REVOX B225



ADS CD3



NAKAMICHI OMS-7AII



AUDIO-TECHNICA AT-CD20

MANUFACTURER	Model	DISPLAY FUNCTIONS										ACCESS FUNCTIONS										Notes
		Elapsed Time: From Disc Start = D, From Track Start = T, both = B	Remaining Time: To Disc End = D, To Track End = T, both = B	Tracks/Program Selection Number?	Index Display?	Program-Recall Display?	Programmable: Number of Selections, Random = R, Sequential = S	Repeat function: Entire Disc = D, Track = T, User-Marked Phrase = P, Entire Program = E	Random Access By Time Within Track?	Access by Index Code?	Maximum Access Time, Seconds	Available Fast Search?	Auto Scan of Track Beginnings?	Remote control type: Infrared = I, Wired = W, Gives confirmation beep = B	No. of Remote Control Functions	Decoding System: 16 Bit = A, 18 Bit Oversampling = B	16 Bit Oversampling = C	Digital Plus Analog = D				
ACCUPHASE	DP80 DC81			Yes	Yes	Yes					1						Yes	C	D	Dual D/A converters.		
ADC	16 2R	B	B	Yes	No	Yes	16R	D T E	No	Yes		No	No	I		All	No	A	A	Without remote, Model 16/1, \$330.00.		
	CD100X		No	Yes	No	No	16R		No	No		No	No	I								
ADCOM	GCD-300	T		Yes	Yes		15R	D T E				Yes		I		19	No	A	A	Linear phase-correcting circuit. As above.		
	GCD-200	T			Yes		15R	D T E				Yes		I			No	A	A			
ADS	CD3	T	D	Yes	Yes	Yes	30R	D T P E	Yes	Yes	4	Yes	No	I			Yes	C	D			
	CD4	T	D	Yes	Yes	Yes	16R	D T P E	Yes	Yes	3	Yes	No	I		5	No	C	D			
AKAI	CD-A70	B	No	Yes	Yes	Yes	†	D T P E	No	Yes	2.6	Yes	No	I		32	Yes	C	D	†32 random selections, unlimited sequential.		
	CD-A3X	B	No	Yes	Yes	Yes	36R	D T P E	No	Yes	2.6	Yes	No	None		No	C	A				
	CD-A30	B	No	Yes	Yes	Yes	36R	D T P E	No	Yes	2.6	Yes	No	None		No	C	A				
	CD-M515	B	No	Yes	Yes	Yes	36R	D T P E	No	Yes	2.6	Yes	No	None		No	C	A				
AR	CD-04	B	B	Yes	Yes	No	99R	D T	Yes	Yes		Yes	Yes	I		8	No	B	D	Dual D/A converters, single-beam laser.		
AUDIOQUEST	AQ CD-1			Yes	Yes		20R	D	No			Yes	No	I		8	No	B	D	Tube design.		
	AQ TCD-10			Yes	Yes		20R	E				Yes		I			C	D				
AUDIO-TECHNICA	AT-CD20	T		Yes	Yes	Yes	9	D T P	No	Yes	2	Yes	No	I		15	No	C	D			

COMPACT DISC PLAYERS

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Dynamic Range, dB	S/N Ratio, -dB	Channel Separation, dB, at 1 kHz	Harmonic Distortion, %, at 1 kHz	Line Output Level, V, Fixed = F	Required (Amplifier Input) Load Impedance, Kilohms	Headphone Output = H, Headphone Output with Level Control = HL	Lucerne Single disc = A, Single Disc Magazine = B, Multi-Disc = C	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
A. V. A.	Transcendence	2-20 ± 0.1	100	100	100	0.001	2.0F		H	A	16 1/2 x 11 1/8 x 3 3/4	11	795.00	
BANG & OLUFSEN	CD-50 CDX	4-20 ± 0.3 3-20 ± 0.3	95 96	95 96	94 94	0.0003 0.0003	2F 2F		None None	A A	16 1/2 x 3 x 12 3/4 16 1/2 x 3 x 12 1/4	17.8 13.4	999.00 699.00	
CALIFORNIA AUDIO LABS	Tempest	5-20 +0, -0.5	105	100	96	0.05	2F			A	19 x 11 x 5 1/2	17.6	1895.00	
CAMBRIDGE	CD1	10-20 ± 0.5	110	110	115	0.002	4.2F, 0-4.2			A		37	2500.00	Dual chassis.
CARVER	DTL-200 DTL-100 DTL-50	5-20 ± 0.1 5-20 ± 0.3 5-20 ± 0.5	100 96 94	100 96 95	90 86 84	0.007 0.05 0.008	2F 1.9F 2F			A A A	19 x 13 1/2 x 11 1/4 19 x 3 1/2 x 11 1/4 17 x 3 x 11 1/4	13 13 10	699.00 650.00 549.00	
CURTIS MATHES	AP500	4-20 ± 0.3	96	100	100	0.003	2.0F	10	None	A	17 x 10 1/2 x 3	9.3		
DBX	DX3	10-20 +0.5, -1	96	100	90	0.002	F	1		A	17 x 3 1/2 x 11 1/2	10	599.00	
DENON	DCD-500 DCD-700 DCD-1300 DCD-1500	5-20 ± 0.5 5-20 ± 0.5 5-20 ± 0.3 5-20 ± 0.3	95 95 95 96	95 95 96 96	90 90 90 95	0.004 0.004 0.003 0.0025	2F 2F 2F 2F, 0-2	10 10 10 10	H HL HL HL	A A A A	17 x 12 x 3 3/8 17 x 12 x 3 3/8 17 x 14 x 3 1/2 17 x 14 x 3 1/2	8 8 12 12	330.00 400.00 550.00 650.00	
DISTECH	LSI MKII	20-20 ± 0.3	110	110	103	0.004	2.0F, 0-2.0	10	None	A	16 1/2 x 11 1/8 x 3 1/2	16 1/2	1195.00	
FISHER	A0922B A0924B A0815B			90 90 90	80 80 80	0.006 0.006 0.006				A A A	15 x 3.4 x 11 17 x 3.4 x 11 17 x 3.4 x 11	13 13 8.6	249.95 249.95 299.95	
GENERAL ELECTRIC	11-4800 11-4911	5-20 ± 5 5-20 ± 5	93 93	93 93	90 90	0.005 0.005	1.8F 1.8F		None None	A A	17 1/8 x 2 1/8 x 10 1/2 17 1/8 x 2 1/8 x 10 1/2	9 1/2 9 1/2	229.99 269.99	
GOLDSTAR	GCD-616	5-20 ± 1.5	90	90	85	0.03	2.0F			A	16.9 x 3 x 15	11	249.95	
HARMAN/KARODN	HD300	4-20 ± 0.5	94	100	83	0.01	F	10		A	17 3/8 x 4 x 14	12 1/8	575.00	
HITACHI	DA6000 DA400 DA401 DA405 DA6001 DA005 DA007 OAP100	5-20 +0.5, -1 5-20 +0.5, -1 5-20 +0.5, -1 5-20 +0.5, -1 5-20 +0.5, -1 5-20 ± 0.5 5-20 ± 0.5 5-20	95 95 95 95 95 96 95 90	95 95 95 95 95 97 95 90	90 92 92 92 90 95 92 85	0.004 0.003 0.003 0.003 0.004 0.0025 0.003 0.008	2.5F 2.5F 2.5F 2.5F 2.5F 2.5F 2.5F 2.0F			A A A A A HL HL HL HL	14 1/2 x 2 1/8 x 10 3/8 17 1/8 x 2 1/8 x 10 3/8 17 1/8 x 2 1/8 x 10 3/8 17 1/8 x 2 1/8 x 10 3/8 14 1/2 x 2 1/8 x 10 3/8 17 1/8 x 3 3/4 x 10 3/8 14 1/2 x 3 1/2 x 6 3/8 7 1/2 x 1 1/8 x 6 3/8	9 10 10 10 9 11 10 2 3/8	300.00 330.00 400.00 450.00 350.00 800.00 1000.00 350.00	
JVC	XL-V1100BK XL-M700BK XL-V440BK XL-V330BK XL-V220BK	2-20 5-20 5-20 5-20 5-20	96 95 95 95 95	98 93 93 93 93	95 90 90 90 90	0.0025 0.004 0.004 0.004 0.004	2F, 0-2 2F 2F 2F 2F		HL H A HL HL	A C A A A	17 1/4 x 14 7/8 x 3 3/8 17 1/4 x 12 1/8 x 4 3/8 17 1/4 x 11 3/8 x 3 1/4 17 1/4 x 11 3/8 x 3 1/4 17 1/4 x 11 3/8 x 3 1/4	17.7 7.3 7.3 7.3 7.3		
KENWOOD	DP-1000 DP-850 DP-750	4-20 ± 0.5 5-20 ± 1 5-20 ± 0.5	95 92 96	95 90 90	95 90 90	0.0015 0.004 0.003	2.0F 1.6F 2.0F		HL H HL	A A A	17 3/8 x 12 3/8 x 3 1/2 16 3/8 x 12 1/4 x 3 16 3/8 x 12 1/4 x 3 1/8	13.2 9.7 9.7	510.00 315.00 255.00	
KINERGETICS	KCD-20	2-20 ± 0.5	100	100	94	0.003	0-2.0	5		A	19 x 3 3/4 x 15	25	850.00	External power supply.
KYOCERA	DA-910 DA-710CX DA-610CX	5-20 ± 0.5 5-20 ± 0.5 5-20 ± 0.5	90 95 90	95 95 90	90 90 90	0.005 0.005 0.005	Sel. 2F 2F	1 1 1	H HL HL	A A A	17 x 15 1/2 x 13 18 1/8 x 3 1/4 x 12 1/8 18 1/8 x 3 1/4 x 12 1/8	22 19 18	1600.00 750.00 550.00	

COMPACT DISC PLAYERS



MANUFACTURER	Model	DISPLAY FUNCTIONS										ACCESS FUNCTIONS									
		Elapsed Time From Disc Start = D, From Track Start = T, Both = B, Remaining Time To Disc End = D, To Track End = T, Both = B, Track/Program Selection Number? Index Display? Program-Recall Display? Programmable Number of Selections, Random = R, Sequential = S Repeat Function: Entire Disc = D, Track = T, User-Make Phrase = P Random Access By Time Within Track? Access by Index Code? Maximum Access Time, Seconds Audible Fast Search? Auto Scan of Track Beginnings? Remote Control Type: Infrared = I, Wired = W, Both Confirmation beep = B No. of Remote Control Functions Output Level Control? Decoding System: 16 Bit = A, 14 Bit Oversampling = C Filtering: Analog Only = A, Digital Post-Filtering = D Notes																			
A.V.A.	Transcendence	T		Yes	Yes	No	20R	D/T/E	Yes		2	Yes	No	None		No	C	D	Discrete analog output stage.		
BANG & OLUFSEN	CD-50 CDX	B B		Yes Yes	Yes Yes	Yes Yes	99R 40R	D/T/E D/T/E	No No	Yes No		No No	Yes No	Opt., I None	13	No No	C B	D D	Dual D/A converters.		
CALIFORNIA AUDIO LABS	Tempest	B	B	Yes	Yes	Yes	20R	D/T/E	No	No	3	Yes	No	Opt., I	8	No	B	D	Tube analog section.		
CAMBRIDGE	CD1	T		Yes	Yes	Yes	20R	D/T/E	No	Yes	2	No	No	None			C	D	Three D/A converters per channel; two power supplies.		
CARVER	DTL-200 DTL-100 DTL-50	B B B	B B B	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	29 29 29	D/T/P/E D/T/P/E D/T/P/E	Yes Yes Yes		1 1 1	Yes Yes Yes		I I I	23 11		C C C	D D D	Time-domain correction; 121st-order filter. Includes Digital Time Lens. As above.		
CURTIS MATHES	AP500	B	B	Yes	Yes	Yes	20R	D/T/E	Yes	Yes	2	Yes	No	Opt., I	4	No	A	A			
DBX	DX3	B		Yes	Yes	Yes	9R	D/T/E	No	No		Yes	No				C	D	OverEasy compression, Ambience control, and Digital Audio Impact Recovery circuitry.		
DENON	DCD-500 DCD-700 DCD-1300 DCD-1500	B B B B	T T B B	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes	15R 15R 20R 20R	D/E D/E T/P T/P		Yes Yes Yes	2 2 2 2	Yes Yes Yes	I I I	24 27 29		Yes Yes	A A C C	A A D D	Double oversampling; subcode output jack. As above.		
DISTECH	LSI MKII	B	T	Yes	Yes	Yes	20R	D/T	No	No		No	Yes	None		Yes	B	D			
FISHER	AD922B AD924B AD815B	D D D		Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	16R 16R 8R	D/T/P/E D/T/P/E D/T/P/E	No No No	Yes Yes Yes		Yes Yes Yes	No No No	I	6		A A A	D D D			
GENERAL ELECTRIC	11-4800 11-4911	B B	No No	Yes Yes	Yes Yes	No No	16S 16R	D/T/P/E D/T/P/E	No No	Yes Yes	6 6	Yes Yes	No No	I	7	No No	A A	A A			
GOLDSTAR	GCD-616	T		Yes	Yes	Yes	9R	D/E	No	Yes		Yes	No			No	A	D			
HARMAN KARDON	HD300			Yes	No	No	15R	D/T/P/E	No	No		Yes	No	I	13	No	C	D			
HITACHI	DA6000 DA400 DA401 DA405 DA6001 DA005 DA007 DAP100	T T T T T T T T		Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	15R 15R 15R 15R 15R 15R 15R 15R	D/T/P/E D/T/P/E D/T/P/E D/T/P/E D/T/P/E D/T/P/E D/T/P/E D/T	No No No No Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	2 2 2 2 2 2 2 3	Yes Yes Yes Yes Yes Yes Yes Yes	No No No No Yes Yes Yes Yes	None None I I I None None None	19 20 18 28	No No No Yes Yes	A A A A A C A A	A A A A A D D A	Remote has volume control.		
JVC	XL-V1100BK XL-M700BK XL-V440BK XL-V330BK XL-V220BK	B B T T T	D	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	15R 32R 15R 15R 15R	D/P D/E D/E D/E D/E	Yes Yes Yes Yes Yes	Yes		Yes Yes Yes Yes Yes	Yes Yes No No No	I I I I None	21 24 14 14	Yes	C C C C C	D D D D D			
KENWOOD	DP-1000 DP-850 DP-750	B T B	D D D	Yes Yes Yes	Yes No No	Yes Yes Yes	16R 16R 16R	D/P/E D/E D/E	No No No	Yes No No	3 3 3	Yes No Yes	No No No	I Dpt.	14 3	No No No	A A A	A A A			
KINERGETICS	KCD-20	T	No	Yes	No	Yes	20R	E	No	No	3	Yes	No	I	9	Yes	C	D			
KYOCERA	DA-910 DA-710CX DA-610CX	T T T	D B D	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	24R 24R 16R	D/E D/T/P/E D/E	No No No	Yes Yes No	3 1/2 4 4	Yes Yes Yes	No No No	I I/8 I/8	8 39 24	Yes No No	C C A	D D A	Ceramic guides for laser head mechanism.		

COMPACT DISC PLAYERS

MANUFACTURER	Model	Frequency Response, Hz to kHz, -dB	Dynamic Range, dB	S/N Ratio, -dB	Channel Separation, dB	Harmonic Distortion, %, at 1 kHz	Line Output Level, V, Fixed = F	Required (Amplifier Input) Load Impedance, K Ohms	Headphone Output = H, Headphone Output with Level Control = HL	Dimensions, Inches	Weight, lbs.	Price, \$	Notes	
LUXMAN	D-100	5-20 +0, -0.5	90	91	85	0.005	2.0F	10	HL	A	17 1/4 x 3 3/8 x 13	9.7	480.00	CD/LaserVision player.
	D-102	5-20 +0, -0.5	91	91	88	0.004	2.0F	10		A	17 1/4 x 3 3/8 x 13	9.9		
	D-109	5-20 +0, -0.5	96	96	95	0.003	2.0F	10		A	17 1/4 x 4 x 15 3/8	23.2		
	D-404	5-20 +0, -0.5	96	96	90	0.003	2.0F	10	HL	A	17 7/8 x 3 3/8 x 12 3/8	13.2	580.00	
	D-408	5-20 +0, -0.5	96	96	90	0.003	1.0F	10	HL	A	16 5/8 x 6 5/8 x 17 5/8	34.7	1300.00	
	D-03	5-20 +0, -0.5	97	97	93	0.003	2.0F	10	HL	A	17 7/8 x 3 3/8 x 13	13.3	1500.00	
MAGNAVDX	FD10418K	2-20 ± 0.3	100	100	94	0.003	2F	10		A	12 1/2 x 11 3/4 x 3 1/2	7	269.00	
	FD10518K	2-20 ± 0.3	100	100	94	0.003	2F	10		A	12 1/2 x 11 3/4 x 3 1/2	7	319.00	
	FD20418K	2-20 ± 0.3	100	100	94	0.003	2F	10	H	A	12 1/2 x 11 3/4 x 3 1/2	8	279.00	
	CD8560BK	2-20 ± 0.3	100	100	94	0.003	2F	10		A	16 1/2 x 11 3/4 x 3 1/2	8	329.00	
	CD8460BK	2-20 ± 0.3	100	100	94	0.003	2F	10		A	16 1/2 x 11 3/4 x 3 1/2	8	279.00	
	CD8650BK	2-20 ± 0.3	100	100	94	0.003	2F	10	HL	A	16 1/2 x 11 3/4 x 3 1/2	9	429.00	
MAN	MCD-1	5-20 ± 0.5	96		90	0.003	2.0F			A	19 1/2 x 3 x 12 1/2	12	1490.00	
MARANTZ	CD152	5-20	96	96	90	0.005	2F		None	A	4 x 16 1/2 x 12	9.5	330.00	
	CD50	5-20	96	96	90	0.005	2F		None	A	3 x 16 1/2 x 11	7.7	400.00	
	CD74	4-20	96	96	90	0.004	2F		Yes	A	3 1/2 x 16 1/2 x 12	17.9	650.00	
McINTOSH	MCD7000	2-20 ± 0.3	96	96	94	0.003	2.7F, 0.2-2.7	5	HL	A	16 1/8 x 13 x 5 1/2	22	1399.00	
MELOS AUDIO	CD-1	20-20 ± 0.3	90	90	90	0.004	1.8F	10		A	16 1/2 x 12 x 3 1/2	17	850.00	External power supply.
	CD-T	20-20 ± 0.3	96	96	96	0.082	0.5-2.0	5		A	19 x 13 x 3 1/2	28	1295.00	
MERIDIAN	207 PRO	20-20 ± 0.3								A			1500.00	Two chassis; separate transport and electronics.
MISSION	PCM 4000									A			699.00	
	PCM 7000R									A			999.00	
MITSUBISHI	DP-109	5-20 ± 0.5	95	95	90	0.004	2.0F		None	A	2 1/2 x 16 3/4 x 11	11	230.00	†Five-disc changer.
	DP-209R	5-20 ± 0.5	95	95	90	0.004	2.0F		HL	A	2 1/2 x 16 3/4 x 11	11	280.00	
	DP-409R	5-20 ± 0.5	94	98	98	0.003	2.0F		None	C†	16 3/4 x 4 1/8 x 13 3/8	16 3/4	500.00	
NAD	5330	5-20 ± 0.5		98	90	0.005	2.0F	1.2	None	A	16.5 x 3.3 x 12.2		348.00	
	5355	5-20 ± 0.5		98	90	0.005	2.0F	1.2	None	A	16.5 x 3.3 x 12.2	10 1/2	498.00	
NAKAMICHI	OMS-7AII	20-20 ± 0.5	97	102	100	0.003	2.0F		HL	A	17 1/8 x 3 7/8 x 12 1/8	15 7/8	1650.00	
	OMS-5AII	20-20 ± 0.5	97	102	100	0.003	2.0F			A	17 1/8 x 3 7/8 x 12 1/8	15 7/8	1375.00	
	OMS-4A	20-20 ± 0.5	94	97	93	0.005	2.0F		HL	A	16 7/8 x 3 7/8 x 12 5/8	15 5/8	995.00	
	OMS-3A	20-20 ± 0.5	92	95	90	0.006	2.0F		HL	A	16 7/8 x 3 7/8 x 12 5/8	15 5/8	699.00	
NEC	CD-500E	5-20 +0.5, -1	90	96	88	0.005	2.0F, 0.2-0	10	HL	A	17 x 3 x 10 3/4	9 3/4	329.00	
	CD-650E	5-20 +0.5, -1	92	96	86	0.006	2.0F, 0.2-0	10	HL	A	17 x 3 x 10 3/4	9 3/4	449.00	
	CD-607E	5-20 ± 0.5	90	95	90	0.005	2.5F	10	HL	A	16 7/8 x 3 1/2 x 12 3/8	11	449.00	
	CD-705E	5-20 ± 0.5	90	95	90	0.005	2.5F	10	HL	A	17 x 4 3/4 x 14 1/4	22 3/4	649.00	
NIKKO	NCD-200R						0.5		HL	A			499.95	†Sixty-disc changer.
	NCO-600						0.5		H	C†			4395.95	
NUMARK	CO 9000	20-20 ± 0.5	90	90	80	0.5	1.7F	10		B	19 x 5 1/2 x 12	18 1/2	1995.00	Variable pitch and tempo.
ONKYO	DX-320	2-20	96	96	93	0.003	2.0F		HL	A	17 1/8 x 3 5/8 x 14	13	580.00	
	DX-220	5-20	96	93	87	0.005	2.0F		HL	A	17 1/8 x 3 5/8 x 13 3/4	11	400.00	
	OX-120	5-20	96	93	87	0.03	2.0F			A	17 1/8 x 3 5/8 x 13 3/4	10	300.00	
PANASONIC	SL-NP10	4-20 +0.5, -1	90	90	90	0.004			HL	A	5 x 3/4 x 5		299.95	Portable; includes rechargeable battery pack. As above plus AM/FM tuner.
	SL-NP20	4-20 +0.5, -1	90	90	90	0.004			HL	A	5 x 1 1/8 x 5		349.95	
	SL-P3620	4-20 ± 0.3	96	100	100	0.003			None	A	16 7/8 x 3 x 10 3/8	9.3	270.00	
PARASOUND	COD-940	5-20 ± 0.5	100	95	90	0.003	2F	10	H	A	17 1/4 x 3 3/4 x 10	16	499.95	Cassette deck/CD player; see also "Cassette Decks."

COMPACT DISC PLAYERS



MANUFACTURER	Model	DISPLAY FUNCTIONS										ACCESS FUNCTIONS										Notes
		Elapsed Time From Disc Start = D, From Track Start = T, Both = B.	Remaining Time To Disc End = D, To Track End = T, Both = B.	Index Display?	Program Selection Number?	Programmable Recall Display?	Programmable Number of Selections, Random = R, Sequential = S.	Repeat Function: Entire Disc = 0, Track = T, User-Marked Phrase = T, Entire Program = E.	Random Access By Time Within Track?	Access by Index Code?	Maximum Access Time, Seconds	Audible Fast Search?	Auto Scan of Track Beginnings?	Remote Control Type: Infrared = I, wired = w, Bytes Confirmation beep = B.	No. of Remote Control Functions	Output Level Control?	Decoding System: 16 Bit = A, 14 Bit oversampling = B.	Filter: Analog Only = A, Digital plus Analog = D.				
LUXMAN	D-100	T	B	Yes	No	Yes	16R	D/T/E	No	No			No	I	6	No	A	A				
	D-102	T	B	Yes	No	Yes	16R	D/T/E	No	No			No	I	6	No	A	A				
	D-109	T	B	Yes	No	Yes	20R	D/T/E	No	No			No	I	12	No	A	A				
	D-404	T	B	Yes	No	Yes	8R	D/T/P	No	No			No	I	7	No	A	A				
	D-408	T	B	Yes	No	Yes	20R	D/T/E	No	No			No	I	7	No	A	A				
MAGNAVX	FD10418K	T		Yes	No	Yes	20R	D/T/E	No	No	3	Yes	No	I	10	No	B	D				
	FD10518K	T		Yes	No	Yes	20R	D/T/E	No	No	3	Yes	No	I	10	No	B	D				
	FD20418K	T		Yes	No	Yes	20R	D/T/E	No	No	3	Yes	No	I	10	No	B	D				
	CDB460BK	T	B	Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No	I	10	No	C	D				
	CDB50BK	B	B	Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No	I	25	No	C	D				
MAN	MCD-1	T	D	Yes	Yes	No	16R	D/T/P/E	Yes	Yes	3	Yes	No	I	6	No	A	D				
MARANTZ	CD152	T		Yes	No	No	16R	D/T/P/E	No	No		Yes	No	I		No	A	A				
	CD50	T	D	Yes	Yes	Yes	16R	D/T/P/E	No	No		No	No	I		Yes	C	D				
	CD74	T	D	Yes	Yes	Yes	24R	D/T/P/E	No	Yes		No	No	I		Yes	B	D				
McINTOSH	MCD7000	B	No	Yes	Yes	Yes	20R	D/T/E	No	No	3	No	Yes	I/W	13.6	Yes	B	D				
MELOS AUDIO	CD-1	B	T	Yes	Yes	Yes	20R	D/T/E	No	No		No	No	None		No	B	D				
	CD-T	B	T	Yes	Yes	Yes	20R	D/T/E	No	No		No	No	I		Yes	C	D				
MERIDIAN	207 PRO			Yes	Yes	Yes	99R	D/T/E		Yes	1	Yes	No	I		Yes		D				
MISSION	PCM 4000	B	B	Yes	Yes	Yes	20R	D/T/E	No	Yes	2	Yes	Yes	I	12	No	C	D				
	PCM 7000R	B	B	Yes	Yes	Yes	20R	D/T/E	No	Yes	2	Yes	Yes	I	12	Yes	C	D				
MITSUBISHI	DP-109	T	D	Yes	Yes	Yes	36R	D/T/E	No	Yes		Yes	No	None		No	A	A				
	DP-209R	T	D	Yes	Yes	Yes	36R	D/T/E	No	Yes		Yes	No	I	21	Yes	A	A				
	DP-409R	T	D	Yes	No	Yes	30R	D/T/E	No	No		Yes	No	I	16	No	A	A				
NAD	5330	T	D	Yes	Yes	Yes	No	No	No	No		No	No	None	6	No	A					
	5355	T	D	Yes	Yes	Yes	85	No	No	No		No	No	I	6	No	A					
NAKAMICHI	DMS-7AII	B	D	Yes	Yes	Yes	24R	D/E		Yes	3	Yes		I		No	C	D				
	DMS-5AII	B	D	Yes			15R	D			3	Yes		I		No	C	D				
	DMS-4A	B	D	Yes		Yes	15R	D/E			3	Yes		I		No	C	D				
	DMS-3A	B	D	Yes		Yes	15R	D/E			3	Yes		I		No	C	D				
NEC	CD-500E	T	D	Yes	No	Yes	15R	D/E	No	No	3	No	No	I	10	Yes	A	A				
	CD-650E	B	B	Yes	Yes	Yes	15R	D/P/E	No	No	3	Yes	No	I	14	Yes	C	O				
	CD-607E	B	B	Yes	Yes	Yes	15R	D/T/E	No	No	3	Yes	No	I	13	No	C	O				
	CD-705E	B	B	Yes	Yes	Yes	15R	D/T/E	Yes	No	3	Yes	No	I	12	No	C	D				
NIKKO	NCD-200R	B	D	Yes	Yes	Yes	9R	D/T/P/E	No	No	3	Yes	No	I	12	No	C	D				
	NCD-600	T	No	Yes	No	No	5R	D/T/E	No	No	15	No	No	None		Yes	A	A				
NUMARK	CD 9000	T	B	Yes	Yes	Yes	99R	D/P/E	Yes	Yes		Yes	No	W	7	No	C	D				
ONKYO	OX-320	T	D	Yes	Yes	Yes	16R	D/P/E	No	Yes	5	Yes	No	I	12	No	C	D				
	DX-220	T	D	Yes	Yes	Yes	16R	D/P/E	No	Yes	5	Yes	No	I	8	No	C	D				
	DX-120	T	D	Yes	No	Yes	16R	D/P/E	No	No	5	Yes	No	I		No	C	D				
PANASONIC	SL-NP10	T	D	Yes	Yes	Yes	18S	D/T/E	No	No		Yes	No			Yes	C	D				
	SL-NP20	T	D	Yes	Yes	Yes	18S	D/T/E	No	No		Yes	No			Yes	C	D				
	SL-P3620	B	B	Yes	Yes	No	20R	D/P	No	Yes	1	Yes	Yes	None		No	A	D				
PARASOUND	CDD-940	B	B	No	No	No	D/T	No	No	2	Yes				No	A	D					



COMPACT DISC PLAYERS

MANUFACTURER	Model	Frequency Response, KHz to KHz, ±dB	Dynamic Range, dB	S/N Ratio, -dB	Channel Separation, dB, at 1 KHz	Harmonic Distortion, %, at 1 KHz	Line Output Level, V; Fixed = F	Required Amplifier Input Load Impedance, Kohms	Headphone Output = H, Single-disc; Headphone = A, Multi-disc = C	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
PHILCO	CD24608K	2-20 ± 0.3	100	100	94	0.003	2F	10	A	16½ x 11¼ x 3½	8	279.00	
PIONEER	PD-9010X8K	2-20 ± 0.3	96	98	95	0.001	2F		HL	18 x 3¼ x 12¼	12.8	539.95	†Six-disc changer.
	PD-M68K	4-20 +0.5, -1	94	98	92	0.005	1.5-2.5		A	16½ x 3½ x 12¾	13	499.95	
	PD-70308K	4-20 ± 0.5	95	98	94	0.004	1.5-2.5		HL	16½ x 3¾ x 11½	9.2	469.95	CD/LaserVision player.
	PD-60308K	4-20 ± 0.5	95	97	92	0.004	1.5-2.5		H	16½ x 3¾ x 11½	9.4	349.95	
	PD-50308K	4-20 ± 0.5	95	97	92	0.004	1.5-2.5		H	16½ x 3¾ x 11½	9.4	299.95	
CLD-909	4-20 ± 0.5	95	98	92	0.005	0.26F		HL	16½ x 4¼ x 16	25¾	900.00		
PROTON	830R	20-20 ± 0.3	96	96	94	0.003	2F		HL	16½ x 3½ x 11½		349.00	
PS AUDIO	CD-1A	5-20 ± 0.5	100	95	90	0.01	2F	10	H		18	799.00	
QUASAR	CD8936	4-20 +0.5, -1	90	90	90	0.004	F		HL	5 x 5 x 1¼	¾	239.95	Portable.
	CD8956	4-20 ± 0.3	96	100	100	0.0015	F		A	17 x 10½ x 3	10	249.95	
RCA	MCD141	20-20 ± 0.5	90	90	90	0.004	2F		A	17½ x 3¼ x 10¾	9.5	399.00	
	Dimensia	20-20 ± 0.5	90	90	90	0.004	2F		HL	17½ x 3¼ x 10¾	9.5	399.00	
	MCD145	20-20	90	90	90	0.005	2F		A	17½ x 2¾ x 10¾	7.3	199.00	
REALISTIC	CD2200	5-20	90	90	90	0.005	2F		A	3¾ x 12½ x 12½	7	200.00	Portable.
	(42-5003)	+0.5, -1	90	90	90	0.005	2F		A	2¾ x 14¾ x 10¾	6¾	260.00	
	CD1400	5-20	90	90	90	0.005	2F		A	4¾ x 2¾ x 4¾	11½	280.00	
	(42-5004)	+0.5, -1	90	90	90	0.005	2F		A	4¾ x 2¾ x 4¾	11½	280.00	
CD3000	5-20	90	90	90	0.005	2F		A	4¾ x 2¾ x 4¾	11½	280.00		
(42-5005)	+0.5, -1.5	90	90	90	0.005	2F		A	4¾ x 2¾ x 4¾	11½	280.00		
REVOX	B225	20-20 +0, -0.6	96	100	90	0.006	2F, 0-2	47	HL	18 x 13¼ x 4¾	18¾	849.00	
RDETEL	RCD-850	5-20	95	98	90	0.004	2F	1	None	17½ x 3¼ x 11½	9.4	399.00	
SAE	D102	2-20 ± 0.3	100	100	96	0.003	2.0F		HL	19 x 3½ x 13	20		Error Indicator.
SANSUI	CD-E750	5-20	95	100	90	0.003	2F		A	15 x 3¾ x 12¼	9.9	400.00	
	CD-V550R	5-20	95	100	90	0.003	2F		HL	17 x 3¾ x 12¾	8.8	370.00	
	CD-V350	5-20	95	100	90	0.003	2F		HL	17 x 3¾ x 12¾	8.8	300.00	
SANYO	CP700	5-20	96	90	92	0.005	1.8F		None	16½ x 3 x 10¾	7½	199.95	
	CP710	5-20	96	90	92	0.005	1.8F		None	16½ x 3 x 10¾	7½	249.95	
SCOTT	950DA	5-20 ± 0.5	95	95	92	0.003	2.5F		None	17¼ x 11 x 3¾	10.8	300.00	
	960DA	5-20 ± 0.5	95	95	92	0.003	2.5F		None	17¼ x 11 x 3¾	11.1	350.00	
SEARS	9754-97541	20-20 ± 1	90	90	90	0.006	1.8F		None	14.6 x 2.8 x 14.4	7.3	180.00	
	9755	20-20 ± 1	90	90	90	0.006	1.8F		H	14.6 x 2.8 x 14.4	7.3	230.00	
SHARP	DX-110	5-20 ± 0.5	93			0.005	2.0F		H	13 x 11¾ x 3½	10.4	249.95	
	DX-610	5-20 ± 0.5	93			0.005	2.0F		A	17 x 11¾ x 3½	11.7	259.95	
	DX-111	5-20 ± 0.5	90			0.005	2.0F		A	13 x 11¾ x 3½	8.2		
	DX-611	5-20 ± 0.5	90			0.005	2.0F		A	17 x 11¾ x 3½	9.3		
	DX-620	5-20 ± 0.5	93			0.005	2.0F		H	17 x 11¾ x 3½	9.3	299.95	
	DX-R700	5-20 ± 0.5	96			0.005	2.0F		A	17 x 11¾ x 3½	9.7		
SHERWOOD	CDP-300R	2-20 ± 0.3	96	96	94	0.003	2F		None	17¾ x 3¼ x 9¾	11	399.00	
	CDP-310R	2-20 ± 0.3	96	96	94	0.003	2F		HL	17¾ x 3¼ x 9¾	11	449.00	
SHURE	D5000	5-20 ± 0.3	93	100	85	0.006	2.0F	10	None	16.9 x 3.9 x 10	11	399.00	
	D6000	5-20 ± 0.25	102	102	85	0.005	2.0F, 0-2	10	HL	16.9 x 2.9 x 12.6	11	599.00	
	SV40	5-20 ± 0.3	98	100	85	0.006	2.0F, 0-2	10	HL	16.9 x 2.9 x 10.6	9½	399.00	
SOUNDGRAPHE	SD1	5-15 ± 0.25	94	94	90	0.05	2F		H	18 x 12 x 3¾	8½	695.00	
SONY	CDP-25	2-20 ± 0.5	93	93	90	0.004	2F	10	H	17 x 3 x 11	8¾	270.00	
	CDP-35	2-20 ± 0.5	95	95	90	0.004	2F	10	A	14 x 3¼ x 11¼	8¾	270.00	
	CDP-45	2-20 ± 0.5	95	95	90	0.004	2F	10	A	17 x 3¼ x 11¼	9¼	330.00	
	CDP-50	2-20 ± 0.5	95	95	90	0.004	2F	10	A	17 x 3¼ x 11¼	9¼	370.00	
	CDP-55	2-20 ± 0.3	96	96	93	0.003	2F	10	HL	17 x 3¼ x 11¼	9¼	400.00	
	CDP-203	2-20 ± 0.3	96	96	93	0.003	2F	10	HL	17 x 3¼ x 11¼	9¼	500.00	
	CDP-302II	2-20 ± 0.3	96	96	95	0.003	2F	10	HL	17 x 3½ x 13¼	15	550.00	
	CDP-520ESII	2-20 ± 0.3	96	96	95	0.003	2F	10	HL	17 x 3½ x 13¼	15	600.00	
	CDP-620ESII	2-20 ± 0.3	96	96	95	0.0025	2F, 0.05-2	10	HL	17 x 3¼ x 13¼	19½	1000.00	

(Continued)

COMPACT DISC PLAYERS



MANUFACTURER	Model	DISPLAY FUNCTIONS										ACCESS FUNCTIONS									
		Elapsed Time: From Disc Start = D, From Track Start = T, Both = B.	Remaining Time: To Disc End = D, To Track End = T, Both = B.	Track/Program Selection Number?	Index Display?	Program-Recall Display?	Programmable: Number of Selections, Random = R, Sequential = S.	Repeat Functions: Entire Disc = D, Track = T, User-Marked Phrase = P, Entire Program = E.	Random Access: By Time Within Track?	Accesses by Index Code?	Maximum Access Time, Seconds	Audible Fast Search?	Auto Scan of Track Beginnings?	Remote Control Type: Infrared = I, Wave = W, Shuts Confirmation Beep = B.	No. of Remote Control Functions	Display Level Control?	Decoding System: 16 Bit = A, 14 Bit Oversampling = B.	Filtration: Analog Only = A, Digital Pica Ratio = D.	Notes		
PHILCO	CD2460BK	T		Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No			No	C	D	Subcode output jack.		
PIONEER	PD-9010XBK	T	D	Yes	Yes	Yes	32R	D/T/E	No	Yes		Yes	Yes	I	13			D			
	PD-M6BK	T	D	Yes	No	Yes	32R	D/T/E	No	No		Yes	No	I		Yes		A	D		
	PD-7030BK	T	D	Yes	Yes	Yes	24R	D/T/E	No	Yes		Yes	No	I		Yes		A	A		
	PD-6030BK	T		Yes	No	Yes	24R	D/T/E	No	No		Yes	No	I		No		A	A		
	PD-5030BK	T		Yes	No	Yes	24R	D/T/E	No	No		Yes	No	I		No		A	A		
CLD-909	B	B	Yes	Yes	Yes	10R	D/T/P/E	Yes	Yes		Yes	No	I								
PROTON	830R	B	B	Yes	Yes	Yes	20R	D/T/P		Yes				I	7		B				
PS AUDIO	CD-1A	B	T	Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No	I	8	No	B	D			
QUASAR	CD8936	T	D	Yes	Yes	No	20R	E	No	No	Yes	0.8				Yes	A	A			
	CD8956	B	B	Yes	Yes	Yes			No	Yes						No	A	D			
RCA	MCD141	B		Yes	Yes	Yes	15R	D/T/P	No	Yes	2	Yes	Yes	Dpt. I	14	No	A	A			
	Dimensia	B		Yes	Yes	Yes	15R	D/T/P	No	Yes	2	Yes	Yes	Dpt. I	14	Yes	A	A			
	MCD145	B		Yes	Yes		15R	D/T/P	No	Yes	2	Yes	No	None		No	A	A			
CD180	B																				
REALISTIC	CD2200	B		Yes	Yes		15R	D/T	No	Yes		Yes	Yes				A	A			
	(42-5003)	B		Yes	Yes		15R	D/T	No	Yes		Yes	Yes	I	8		A	A			
	CD1400	B		Yes	Yes		16R	P	No	No	5	Yes	No				B	A			
(42-5004)																					
CO3000																					
(42-5005)																					
REVOX	B225	B		Yes	Yes	Yes	19R	D/T/P/E	Yes	Yes	3	No	Yes	I or W	6	Yes	B	D	Digitally generated 1-kHz calibration tone, remote access to serial bus.		
ROTEL	RCD-850	B	D	Yes	Yes		9S	D/E	Yes	Yes	2	No	No	None		No	A	D	Three-beam laser.		
SAE	D102	B		Yes	Yes		20S	D/T/P/E	No	Yes	2	Yes	No	I	12	Yes	C	D	Remote has volume control.		
SANSUI	CD-E750	B	D	Yes	Yes	Yes	16R	D/T/P	No	Yes		Yes		I	14		A	D			
	CD-V550R	B	D	Yes	Yes	Yes	16R	D/T/P	No	Yes		Yes		I			A	D			
	CD-V350	B	D	Yes	Yes	Yes			No	Yes		Yes		I			A	D			
SANYO	CP700	B	No	Yes	Yes	Yes	16R	D/T/P/E	Yes	Yes	1	Yes	No	None	8	No	A	D			
	CP710	B	No	Yes	Yes	Yes	16R	D/T/P/E	Yes	Yes	1	Yes	No	I		No	A	D			
SCOTT	950DA	B	D	Yes	Yes	Yes	15R	D/T/E	No	No	5	Yes	No	I	8	No	A	A			
	960DA	B	D	Yes	Yes	Yes	15R	D/T/E	No	No	5	Yes	No	I		No	A	A			
SEARS	9754-97541	T		Yes	Yes	Yes	15R	D/T/E	Yes	Yes	1	Yes	No	I	18	No					
	9755	T		Yes	Yes	Yes	15R	D/T/E	Yes	Yes	1	Yes	No	I		No					
SHARP	DX-110	T		Yes								Yes					A	D			
	DX-610	T		Yes								Yes					A	D			
	DX-111	T		Yes		Yes	9R	D/T/P/E	Yes	Yes		Yes					A	D			
	DX-611	T		Yes		Yes	9R	D/T/P/E	Yes	Yes		Yes					A	D			
	DX-620	T		Yes		Yes	9R	D/T/P/E	Yes	Yes		Yes		I	11		A	D			
DX-R700	T		Yes		Yes	9R	D/T/P/E	Yes	Yes		Yes		I	11		A	D				
SHERWOOD	CDP-300R			Yes								Yes	No	W	5			D			
	CDP-310R			Yes								Yes	No	I	8			D			
SHURE	D5000	T		Yes	Yes	Yes	15R	D/T/P/E	No	No	3	Yes	No	I	14	No	C	D			
	D6000	T		Yes	Yes	Yes	15R	D/T/P/E	No	No	3	Yes	No	I	19	Yes	C	D			
	SV40	T		Yes	No	Yes	15R	D/T/E	No	No	3	Yes	No	I	17	Yes	C	A	Dual D/A converters.		
SONOGAPHE	SD1	T		Yes	Yes	Yes	20R	D/E	No	Yes		Yes	No			No	B	D			
SONY	CDP-25	T	D	Yes	Yes	Yes	16R, 99S	D/T/P/E	No	Yes	4	Yes	No			No	A	A			
	CDP-35	T	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	2	Yes	No			No	A	A			
	CDP-45	T	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	2	Yes	No	Opt. I	6	No	A	A			
	CDP-50	T	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	2	Yes	No	I	12	No	A	A			
	CDP-55	T	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	2	Yes	No	I	11	No	C	D			

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COMPACT DISC PLAYERS

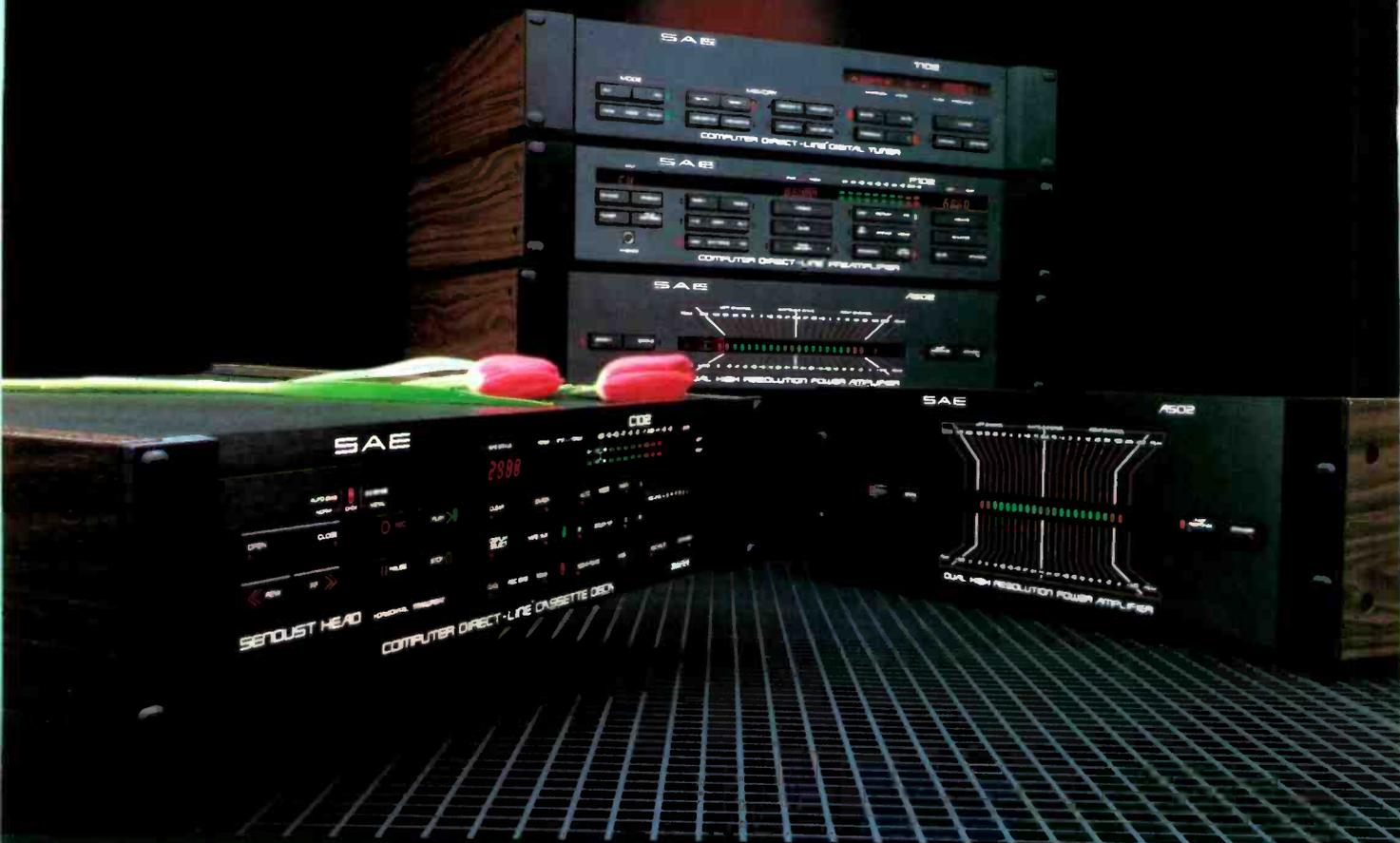
MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Dynamic Range, dB	S/N Ratio, dB	Channel Separation, dB	Harmonic Separation, dB, at 1 kHz	Line Output Level, V, Fixed = F	Required (Amplifier Input) Load Impedance, Kiloohms	Headphone Output = H, Headphone Output with Level Control = HL	Lead-in Single-disc Magazine = S, Multi-disc = C	Dimensions, inches	Weight, lbs.	Price, \$	Notes
SDNY (Continued)	CDP-650ESDI	2-20 ± 0.3	96	96	95	0.0025	2F	10	HL	A	17 x 4 x 14½	20	1300.00	Portable; includes battery, case, and headphones. Portable; includes rechargeable battery, case, and strap. Portable; includes FM tuner, battery, case, and headphones. Portable; includes AM/FM tuner, rechargeable battery, case, headphones, and car adaptor. †Ten-disc changer. †Sixty-disc changer.
	CDP-7F	2-20 ± 0.5	90	90	90	0.004	2F	10	HL	A	8½ x 3¼ x 12	9	300.00	
	D-170	20-20 ± 0.5	90	85	85	0.008	2F	10	HL	A	7½ x 3¼ x 12	9	265.00	
	D-5SPL	20-20 ± 0.5	90	85	85	0.008	2F	10	HL	A	5 x 1½ x 5¼	1¼	279.95	
	D-7S	20-20 ± 0.5	90	85	85	0.008	2F	10	HL	A	5 x 1 x 5	2¼	299.95	
	D-55	20-20 ± 0.5	90	85	85	0.008	2F	10	HL	A	5 x 1 x 5	2½	329.95	
	D-77	20-20 ± 0.5	90	85	85	0.008	2F	10	HL	A	5 x 1 x 5	2½	359.95	
CDP-C10 DiscJockey CDK-006	2-20 ± 0.3	96	96	95	0.003	2F	10	HL	C†		17 x 4¼ x 13	16	800.00	
	2-20 ± 0.3	96	96	95	0.003	2F	10	HL	C†		19 x 20 x 20	40	3000.00	
SYLVANIA	CD1150BK	2-20 ± 0.3	100	100	94	0.003	2F	10		A	12½ x 11¼ x 3½	7	269.00	
	FDE203BK	2-20 ± 0.3	100	100	94	0.003	2F	10	H	A	16½ x 11¼ x 3½	8	279.00	
	CD1560BK	2-20 ± 0.3	100	100	94	0.003	2F	10		A	16½ x 11¼ x 3½	8	329.00	
	CD1460BK	2-20 ± 0.3	100	100	94	0.003	2F	10		A	16½ x 11¼ x 3½	8	279.00	
TANDBERG	TCP 3015A	2-20 ± 0.3	96	100	94	0.005	2F		HL	A	17½ x 13¾ x 3½	12½	1295.00	
TEAC	ZD-5000	5-20 ± 0.3	96	96	95	0.0025	0.055-2	50	HL	A	17½ x 37½ x 13½	20¼	1100.00	Cassette deck/CD player; see also "Cassette Decks."
	ZD-3000	5-20 ± 0.3	96	96	95	0.0025	0.055-2	50	HL	A	17½ x 31½ x 13½	17¾	950.00	
	ZD-700	5-20 ± 0.3	96	96	95	0.0025	2F	50	HL	A	17½ x 2¾ x 11½	16	699.00	
	PD-400	8-20	95	95	92	0.005	2F	50	A	A	17½ x 3 x 10¾	7¾	449.00	
	PD-200	5-20 ± 1	92	92	85	0.005	2F	50	A	A	17½ x 3½ x 11¾	8¾	399.00	
	PD-100	8-20	92	92	85	0.005	2F	50	A	A	17½ x 3 x 10¾	7¾	349.99	
	AD-7	5-20	96	96	92	0.0035	0.055-2	50	HL	A			999.00	
TECHNICS	SL-P110	4-20 ± 0.5	92	96	96	0.004	2.0F	47	None	A	17 x 3 x 9½	8	320.00	Portable. Portable tuner CD player; eight AM and eight FM presets.
	SL-P310	4-20 ± 0.5	94	96	96	0.002	2.0F	47	H	A	17 x 3 x 9½	8	375.00	
	SL-P500	4-20 ± 0.2	96	102	110	0.001	2.0F, 0.2-2.0	47	HL	A	17 x 3½ x 10¾	10.1	500.00	
	SL-PJ11	4-20 ± 0.5	96	96	100	0.002	2.0F	47	None	A	12¾ x 3 x 10½	7.9	300.00	
	SL-XP5	4-20 +0.5, -1	90	90	90	0.004	1.8F	47	HL	A	5 x ½ x 5		335.00	
	SL-XP8	4-20 +0.5, -1	90	90	90	0.004	1.8F	47	HL	A	5 x 1 x 5		425.00	
SL-P1200	4-20 ± 1	96	106	106	0.001	2.0F	47	HL	A	17 x 6½ x 15	27.1	1000.00		
TOSHIBA	XR-P9	5-20 +0.5, -1.5	84	84	75	0.01	1.0F	10	HL	A	5 x 1½ x 7	1.1	299.95	Portable. †Two slide-out drawers. Continuous play.
	XR-J9	5-20 +0.5, -1.5	84	84	75	0.01	1.0F	10	HL	A	9¾ x 17¼ x 5½	2.9	199.95	
	XR-30	5-20 ± 0.5	96	96	90	0.003	2.0F	10	HL	A	16½ x 3¾ x 12¾	9	249.95	
	XR-35	5-20 ± 0.5	96	96	90	0.003	2.0F	10	HL	A	16½ x 3¾ x 12¾	9	299.95	
	XR-V22	5-20 ± 0.5	96	96	90	0.003	2.0F	10	HL	C†	13¾ x 4¼ x 14½	13.4	499.95	
VECTOR RESEARCH	VCD-770	10-20 ± 0.5	96	95	85	0.005			HL	A	17 x 3½ x 8¼	11	399.95	
	VCD-808R	5-20 ± 0.5	94	100	90	0.005			HL	A	17 x 3½ x 12½	11	399.95	
	VCD-900	5-20 ± 0.5	94	100	90	0.005			HL	A	17 x 3½ x 12½	11	499.95	
YAMAHA	CD-2000M	2-20 ± 0.3	97	102	96	0.002	2.0F, 0-5.0		HL	A	17½ x 4 x 11½	12½	899.00	
	CD-2000	2-20 ± 0.3	97	102	95	0.002	2.0F, 0-5.0		HL	A	17½ x 3¾ x 11½	11½	799.00	
	CD-1000	2-20 ± 0.5	97	102	95	0.002	2.0F		H	A	17½ x 3¾ x 11½	11¼	699.00	
	CD-700	4-20 +0.5, -1	96	100	92	0.003	2.0F		H	A	17½ x 3¾ x 11½	10½	599.00	
	CD-500	4-20 +0.5, -1	96	100	92	0.003	2.0F		HL	A	17½ x 3¾ x 11½	10½	399.00	
	CD-400	5-20 +0.5, -1	95	98	90	0.004	2.0F		HL	A	17½ x 3¾ x 11¼	9¼	319.00	
	CD-300	5-20 +0.5, -1	95	98	90	0.004	2.0F		HL	A	13¾ x 3¾ x 11¼	7¾	259.00	

COMPACT DISC PLAYERS



MANUFACTURER	Model	DISPLAY FUNCTIONS										ACCESS FUNCTIONS										Notes
		Elapsed Time: From Disc Start = D, From Track Start = T, Both = B	Remaining Time: To Disc End = D, To Track End = T, Both = B	Track Program Selection Number?	Index Display?	Program-Recall Display?	Programmable: Number of Selections: Random = R, Sequential = S	Repeat Function: Entire Disc = D, Track = T, User-Marked Tracks = P, Entire Program = E	Random Access By Time Within Track?	Access by Index Codes?	Maximum Access Time, Seconds	Audible Fast Search?	Auto Scan of Track Beginnings?	Remote Control: Invert = I, Wires = W, Lines Confirmation Beep = B	No. of Remote Control Functions	Output Level Control?	Display Status: 16 Bit = A, 14 Bit Oversampling = B	Filtration: Analog Only = A, Digital Plus Analog = D				
SONY (Continued)	CDP-203	T	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	2	Yes	No	I	12	No	C	D	Dual D/A converters. As above; digital output stage.			
	CDP-302II	T	B	Yes	Yes	Yes	16R, 99S	D/T/P/E	No	Yes	1	Yes	No	I/B	11	No	C	D				
	CDP-520ESII	T	B	Yes	Yes	Yes	16R, 99S	D/T/P/E	No	Yes	1	Yes	No	I/B	11	No	C	D				
	CDP-620ESII	B	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	1	Yes	No	I/B	13	Yes	C	D				
	CDP-650ESDII	B	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	Yes	1	Yes	No	I/B	13	Yes	C	D				
	CDP-7F	T	B	Yes	No	Yes	16R, 99S	D/T/P/E	No	No	4	Yes	No	Opt., I	6	No	A	A				
	D-170	B	B	Yes	No	Yes	16R, 99S	D/T/P/E	No	No	4	Yes	No			No	A	A				
	D-5SPL	B	B	Yes	No	No	99S	D/T/P/E	No	No	4	Yes	No			No	A	A				
	D-7S	B	B	Yes	No	No	16R, 99S	D/T/P/E	No	No	4	Yes	No			No	A	A				
	D-55	B	B	Yes	No	Yes	16R, 99S	D/T/P/E	No	No	4	Yes	No			No	A	A				
D-77	B	B	Yes	No	Yes	16R, 99S	D/T/P/E	No	No	4	Yes	No			No	A	A					
CDP-C10 DiscJockey	B	B	Yes	Yes	Yes	20R, 99S	D/T/P/E	No	No	10	Yes	No	I/B	13	Yes	C	D					
CDK-006	T	T	Yes	Yes	Yes	60R, 99S	D	No	No	10	No	No	W/B	6	Yes	C	D					
SYLVANIA	CD1150BK	T		Yes	No	Yes	20R	D/T/E	No	No	3	Yes	No			No	B	D	Subcode output jack. As above.			
	FDE203BK	T		Yes	No	Yes	20R	D/T/E	No	No	1	Yes	No	I	10	No	B	D				
	CD1560BK	T		Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No			No	C	D				
	CD1460BK	T		Yes	Yes	Yes	20R	D/T/E	No	No	1	Yes	No			No	C	D				
TANDBERG	TCP 3015A	B	B	Yes	Yes	Yes	20R	D/T/E	Yes	Yes		Yes	No	Opt., I	10	B	D					
TEAC	ZD-5000	B	B	Yes	Yes	Yes	20R	D/T/P/E	No	Yes	2	Yes	Yes	I	17	Yes	C	D				
	ZD-3000	B	B	Yes	Yes	Yes	20R	D/T/P/E	No	Yes	2	Yes	Yes	I	17	Yes	C	D				
	ZD-700	B	B	Yes	Yes	Yes	16R	D/T/P/E	No	Yes	2	Yes	No	I	13	No	C	D				
	PD-400	T	T	Yes	Yes	No	16R	D/T/P	No	Yes	2	Yes	No	I	9	No	C	D				
	PD-200	T		Yes	No	No	16R	D/T/P	No	No	2	Yes	No	I		No	C	D				
	PD-100	T		Yes	Yes	No	16R	D/T/P	No	Yes	2	Yes	No	I		No	A	D				
	AD-7	T	B	Yes	Yes	No	15R	D/T/P	No	Yes	2	Yes	No	I	14	Yes	A	A				
TECHNICS	SL-P110	B†	B††	Yes	No	Yes	20R	D/T/E	No	No	1	Yes	No	None		No	C	D	†Plus elapsed program time. ††Plus remaining program time.			
	SL-P310	B†	B††	Yes	No	Yes	20R	D/T/E	No	No	0.8	Yes	No	I	10	No	C	D				
	SL-P500	B†	B††	Yes	Yes	Yes	20R	D/T/P/E	No	Yes	0.8	Yes	Yes	I	16	Yes	C	D				
	SL-PJ11	B†	B††	Yes	Yes	Yes	15R	D/T/E	No	Yes	0.8	Yes	No	None		No	A	D				
	SL-XP5	D	T	Yes	No	Yes	18R	D/T/E	No	No	1	Yes	No	None		No	C	D				
	SL-XP8	D	T	Yes	No	Yes	18R	D/T/E	No	No	1	Yes	No	None		No	C	D				
SL-P1200	B	B	Yes	Yes	Yes	20R	D/T/E	Yes	Yes	0.6	Yes	No	I	20	No	C	D	Can cue up any part of any track.				
TOSHIBA	XR-P9	B	D	Yes	Yes	Yes	16R	D/T/E	Yes	No	2	Yes	No	I	14	No	B†	A	†No oversampling. †As above.			
	XR-J9	B	D	Yes	Yes	Yes	16R	D/T/E	Yes	No	2	Yes	No	None		No	A	A				
	XR-30	B	D	Yes	Yes	Yes	16R	D/T/E	Yes	No	2	Yes	No	None		No	A	A				
	XR-35	B	D	Yes	Yes	Yes	16R	D/T/E	Yes	No	2	Yes	No	I	14	No	A	A				
	XR-V22	B		Yes	Yes		15S†	D/T/E	Yes	No	2	No	No	None		No	A	A		†For each of two discs.		
VECTOR RESEARCH	VCD-770	B	D	Yes	Yes	Yes	15R	D/T/P/E	No	No	2	No	No	I	10	No	C	D				
	VCD-808R	B	D	Yes	Yes	Yes	15R	D/T/P/E	No	No	2	Yes	No	I	10	Yes	C	D				
	VCD-900	B	D	Yes	Yes	Yes	15	D/T/P/E	No	No	2	Yes	No	I	14	Yes	C	D				
YAMAHA	CD-2000M	T	D	Yes	Yes	Yes	12R	D/P/E	No	Yes		Yes	No	I	27	Yes	C	D				
	CD-2000	T	D	Yes	Yes	Yes	12R	D/P/E	No	Yes		Yes	No	I	27	Yes	C	D				
	CD-1000	T	D	Yes	Yes	Yes	12R	D/P/E	No	Yes		Yes	No	I	25	Yes	C	D				
	CD-700	T		Yes	Yes	Yes	12R	D/P/E	No	Yes		Yes	No	I	22	No	C	D				
	CD-500	T		Yes	Yes	Yes	9R	D/P/E	No	Yes		Yes	No	I	12	No	C	D				
	CD-400	T		Yes	Yes	Yes	9R	D/E	No	Yes		Yes	No	I		No	C	D				
	CD-300	T		Yes	Yes	Yes	9R	D/E	No	Yes		Yes	No	I		No	C	D				

SAE



Scientific Audio Electronics has continued to excel in the development of superior audio components since 1967. SAE's entry into the audio industry broke new ground in solid state amplifier technology with the first Complementary amplifier circuits evolving from our labs. However, award-winning designs were not to be limited to power amplifiers at SAE. Seven times an SAE component has been selected for the prestigious Design and Engineering Award from the Consumer Electronics Committee. Innovative industry firsts from SAE include the introduction of the graphic and parametric equalizers to consumer audio and the first digital tuner. In keeping with state-of-the-art technology, SAE developed the first fully computerized controlled components and the world's first Impulse Noise Reduction System.

Today, the '02' Series broadens the fully computerized component concept. At the heart of '02' technology is the P102 preamplifier. Controlled by a Rockwell microprocessor, its Direct-Line Audio Circuitry "decouples" the front panel controls from all audio information. New preamplifier features include programmable Digital Tone Memories and Sequential Audio Muting, a volume fade process designed to protect your ears and loudspeakers from damage — another SAE innovation that *sounds* good.

The C102 cassette deck is a full-logic machine, neatly concealing its horizontal transport in an electronic drawer. Real-time indicators, Auto Replay, Auto Bias Sensing and a Music Search System add to an ingenious design.

As with all Direct-Line components, the T102 digital tuner uses alpha-numeric LED displays and precise reception is assured with a digitally synthesized, quartz-lock system. There are 16 programmable station memories and auto and manual tuning modes in the T102.

And that special, final touch comes in our A202 and A502 power amplifiers. With them, we present systems of 100 and 200 watts per channel and an amazing 600 watts per channel with a dual amplifier system of two A502 auto-bridging amplifiers. The A202 and A502 are high current, discrete, complementary amplifiers with LED power displays, dual speaker system switching and relay and thermal protection circuitry.

The '02' Series reflects our commitment to maintaining our proven designs complemented by state-of-the-art technology. That's the timeless quality of SAE.

Scientific Progress

A202/A502—SAE amplification pioneered the high current power supply theory, noting long ago, that it is not watts that drive a loudspeaker, but rather, the current provided by the amplifier. Use of low-noise, highly efficient transformers and increased number of output devices eases the job of passing the high amount of current inherent to our amplifiers.

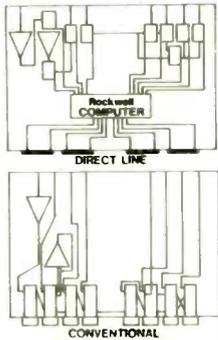
The A202 and A502 are Complementary amplifiers, utilizing mirror-imaged circuits to individually process the positive and negative sides of the musical sine wave. Here, SAE's system of Natural Damping results in precise control of loudspeaker response at all levels and frequency extremes. The ring-core power transformer in both models provides extended headroom and low impedance performance stability.

The A502 is a very special amplifier. A rear panel switch activates the Automatic Bridging Circuit for a bridged mono output of 600 watts. Simply by adding a second A502 to your system brings concert hall dynamics to your neighborhood with 1200 total watts of power.

P102—The P102 preamplifier features Direct-Line Audio, reducing the distance travelled by the audio signal by over fifty percent. A Rockwell microprocessor loaded with SAE developed software isolates all audio information from the front panel where switching noise can be most prevalent.

The P102 features a Compact Disc input, Two-Way Tape Copying, External Processor Loop, Digital Tone Memories for three programmable bass and treble settings, Moving Coil Phono input, Line and Tape Stage LED Displays, Sequential Audio Muting and Dual Main Outputs. The SAE Complementary Phono Power Amp optimizes phono reproduction by accurately driving the RIAA equalization curve to minimize transient intermodulation distortion (TIM).

• DIRECT LINE™ CONCEPT



T102—The T102 digital tuner is a quartz-lock, digitally synthesized component. Full-logic, tactile feedback switches control all operations including 16 station memories. The Blend feature helps to remove high frequency distortion and we use linear stage ceramic IF filters for bandwidth alignment to compensate for adjacent station interference.

C102—At SAE, careful attention is given to every aspect of design and the elegance of the C102 cassette deck is purely intentional. All mechanical portions of the transport have been neatly compacted into a sliding, electronic drawer. A light touch of the appropriate front panel switch places the cassette at hand and retracts the mechanism silently into the confines of the machine. We even saw to it to have the C102 fully functional with the drawer open, closed or moving in either direction! On-board microprocessors control Dolby B-C Noise Reduction, Real Time Indicators, Music Search System (MSS), Auto Bias Sensing, Auto Replay and the full-logic, two head transport. Linear slide controls regulate recording levels for increased gain without sacrificing critical signal-to-noise ratio.

I102/R102—The SAE excellence in amplifier design goes beyond separate power amplifiers. The 60 watt per channel I102 integrated amp and the 50 watt per channel R102 receiver are Computer Direct-Line components with High Current, Natural Damping amplifier sections. Loudspeaker performance is ensured for linear response as the motion of the loudspeaker drivers is controlled more accurately by the complementary nature of these hybrid configuration amplifiers.

The Computer Direct-Line signal processing design of the I102 and R102 provides maximum switching capability with minimal front panel clutter and isolates the audio signal from potential sonic interference from the function switches. Both components feature the SAE Complementary Phono Power Amp stage while the I102 adds a Moving Coil Phono Input. Two-Way Tape Copying is accessible with just a light touch of the appropriate front panel control. Bass and treble is programmable in three different combinations in the Digital Tone Memory. High level inputs include a Compact Disc Input and two Tape Monitors and the I102 also provides the added flexibility of an External Processor Loop for efficient installation of an equalizer or expander into your system.

The alternatives in SAE components to select your particular listening experience are exciting. Consider that the options extend from our 50 watt R102 receiver through the entire '02' Series to our legendary '01' separates system with up to 375 watts per channel! No ordinary audio company can offer the quality and freedom of choice of SAE.

Look for our new products soon, including the D102 Remote Control Compact Disc Player. It's going to be hot!

Audition the complete selection of SAE components at these and other fine audio dealers.

THE FEDERATED GROUP
California, Texas, Arizona
AMERICAN TV
Madison, Wisconsin
J & R MUSIC WORLD
New York, New York
STEREO CITY ATLANTA
Atlanta, Georgia
SOUNDEX STEREO
Willow Grove, Pennsylvania
NEW ENGLAND STEREO
Avon, Massachusetts

CRAZY EDDIE
New York, New Jersey, Connecticut
LUSKIN'S HI FIDELITY
Hollywood, Florida
MATEO HI FI
San Mateo, California
GREAT SOUND
New York, New York
THE SOUND WAVE
Pocatello, Idaho
DALTON AUDIO
Clearwater, Florida

STEREO EQUIPMENT SALES
Maryland, Pennsylvania, New Jersey, Delaware
OHIO SOUND
Akron, Ohio
THE SOUND SHOP
Virginia Beach, Virginia
COUSIN'S WAREHOUSE
San Diego, California
SOUTHERN RADIO SUPPLY
New Orleans, Louisiana
TURNTABLES UNLIMITED
Sacramento, California

For more information on an SAE dealer near you, contact us in Los Angeles.

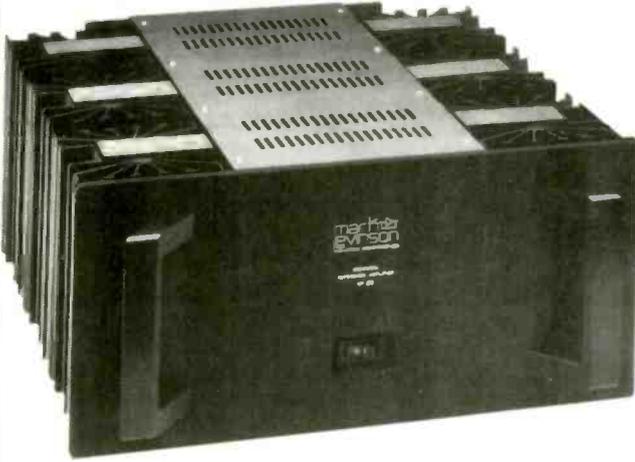


SCIENTIFIC AUDIO ELECTRONICS, INC.

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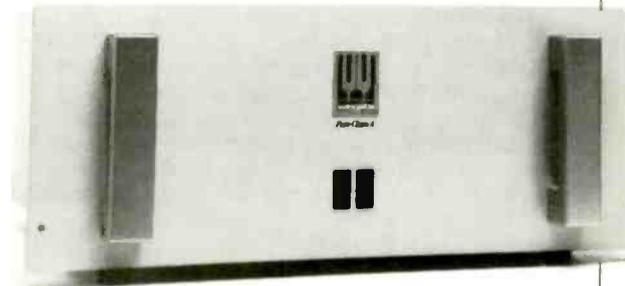
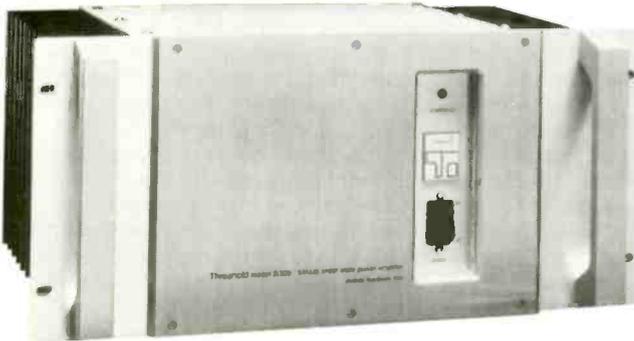
AMPLIFIERS

MARK LEVINSON NO-20



AUDIO RESEARCH D-250

THRESHOLD S/300



WINGATE 2000A

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Unit Type: Integrator - I, Basic - B, Tube - T, Mono - M	Cont. Average Watts	Average Watts Channel into 8 Ohms	Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/N, - dB	"A" Wtd. re. 5 mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μS	High Level Sensitivity, mV	Meters = M, Peak Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
ACCUPHASE	P300L	B	150	280	20-20	0.02	0.01	AB							No	74	2750.00			
	P500	B	250	420	20-20	0.02	0.01	AB						No	60	4500.00				
	Pro 5	B	250	420	20-20	0.02	0.01	AB						No	85	3000.00				
	P600	B	300	500	20-20	0.02	0.01	AB						No	80	5200.00				
	M100	B/M	500	800	20-20	0.02	0.01	AB						No	31	3600.00				
	E-205	I	80	110	20-20	0.02	0.01	AB	78	0.32	300	Yes		No	31	1250.00				
	E-302	I	120	180	20-20	0.02	0.01	AB	80	0.22	300	Yes		No	36	2000.00				
E-303X	I	150	200	20-20	0.01	0.01	AB	80	0.22	300	Yes		No	45	2500.00					
ACOUSTAT	TNT-120	B	120	180	2-450	0.01	0.01	AB					160	1.2	No	28	799.00			
	TNT-200	B	200	325	2-400	0.01	0.01	AB					160	1.2	No	40	1249.00			
ACOUSTIC ELECTRONICS	Air 2.2	B	110	205	20-20	0.008	0.008	A/AB					4	Yes	45	1850.00				
	Air 3.3	B/M	330	400	20-20	0.008	0.008	A/AB					6	No	45	1995.00				
ADCOM	GFA-555	B	200	325		0.09		AB					†		No	34	679.95	†Distortion indicators.		
	GFA-545	B	100	150		0.09		AB				†		No	27	449.95				
	GFA-535	B	60	100		0.09		AB				†		No	22	299.95				
AOS	A2	I	80	100	20-20	0.05	0.05	AB	80	0.26	120	Yes	30	35	M, I	2	20	550.00	Rail-switching amp.	
AKAI	AM-A90	I	130		20-20	0.05		B	86	2.0	250	Yes	150		No	27½	645.00	No negative feedback. As above.		
	AM-A70	I	100		20-20	0.05		B	86	2.0	250	Yes	150		No	25½	475.00			
	AM-A402	I	100		20-20	0.09		B	72	2.5	120	No	150	M, I	No	16	300.00			
	AM-A302	I	80		20-20	0.09		B	72	2.5	120	No	150	M, I	No	15	230.00			
	AM-A202	I	50		40-20	0.3		B	72	2.5	120	No	150		No	12¾	180.00			

An unusual hybrid design
with greater output
efficiency from patented
Audio Research circuitry.



Recently, Audio Research Corporation developed and patented (pending) new circuitry allowing hybrid utilization of Field Effect Transistors (FETs) with vacuum tubes in ways which can bring out the best in both devices. This circuitry is used in the relatively new, but already widely-acclaimed SP11 Preamplifier. Drawing from this technology, Audio Research has designed a new hybrid power amplifier, designated the M300 — a monaural unit rated at 300 watts.

INTRODUCING THE
M300
HYBRID MONAURAL
POWER AMPLIFIER

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HYBRID MONAURAL POWER AMPLIFIER

Most hybrid power amplifier designs use small signal-input vacuum tubes, then rely on FETs for the output stage. Audio Research has chosen instead to eliminate these low-level input tubes — tubes which can be prone to problems with hum, noise, microphonics, drift and, of course, require periodic replacement. The new FET "front end" is combined with Audio Research's long-famous, patented cross-coupled circuit to provide a design offering exemplary stability, reliability (low maintenance), and superior performance.

These design advances have been coupled with yet another Audio Research patent: an output stage utilizing vacuum tubes, and partially cathode-coupled (as all previous Audio Research vacuum tube amplifiers have been), but with the screen (or accelerating) grids operating with a signal voltage precisely in phase with the cathode voltage. True "pentode" operation and efficiency is thereby achieved; however, all the advantages of partial cathode coupling are maintained. Advantages include:

Efficiency up to 60% and above. (Class "A" designs achieve 25% to 50%, typically 30% to 35%.)

Inherently better cross-coupling.

Output transformer with lower "turns" and "impedance" ratios, resulting in greater bandwidth.

Partial cancellation of saturation effects of the "DC" in the output transformer's core.

Switching transients essentially eliminated, rendering the question of class of operation ("A," "AB," etc.) irrelevant. The virtues of Class "A" operation without the usual drawbacks.

Bias adjustment is essentially non-critical.

Output tubes need not be matched, although slightly better performance will result if they are.

Lower internal impedance improves handling of complex speaker loads.

To audition the M300 Monaural Power Amplifiers, visit your authorized Audio Research dealer. Black front panels available at additional cost. Call or write for literature on the complete line of Audio Research products.



Operational Features

Front-panel replaceable line and screen voltage fuses, with LED indicators.

Two integral, low-noise fans for cooler operation, longer tube life. Front-panel switch allows "Hi" and "Lo" speeds.

"Standby" switch for lower power consumption and less heat during warm-up periods or telephone interruptions.

Automatic muting circuit provides silent shutdown upon power shut-off or interruption. No "thump" from speakers.

Gold-plated input connectors connect "ground" before "hot".

1, 2, 4, and 8-ohm output taps.

Front and rear handles for easier handling.

M300 Preliminary Specifications

(Power line stabilized at 120V.)

POWER OUTPUT: 300 watts minimum continuous at 8 ohms from 16Hz to 25kHz with less than 0.5% total harmonic distortion (typically below .005% at 1 watt).

Approximate actual power available at "clipping": 330W watts (1kHz). (Note that actual power output is dependent upon both line voltage and "condition," i.e.: if power line has high distortion, maximum power will be affected adversely, although from a listening standpoint this is not very critical.)

POWER BANDWIDTH: (-3dB Points) 10Hz to 60kHz.

INPUT SENSITIVITY: 1.5V RMS for rated output.

INPUT IMPEDANCE: 60K ohms, nominal.

OUTPUT REGULATION: Approximately 0.3dB, 8 ohm load to open circuit (Damping factor approximately 30)

NEGATIVE FEEDBACK: 20dB.

SLEW RATE: 25 volts/microsecond.

RISE TIME: 3 microseconds.

HUM & NOISE: Less than 2mV RMS 90dB below rated output (broad-bandwidth unweighted, inputs shorted).

POWER SUPPLY ENERGY STORAGE: Approximately 350 joules.

POWER REQUIREMENTS: 105-125VAC 60Hz (210-250VAC 50Hz) 900 watts at rated output. 450 watts at "idle" — 130 watts at "standby".

DIMENSIONS: 19" (48 cm) W (standard rack panel) x 10.5" (27 cm) H x 16" (41 cm) D (front panel back). Handles extend 1 1/2" (4.1 cm) forward of the front panel. Output connectors extend 1" behind rear panel.

WEIGHT: 110 lbs. (50 kg) Net; 126 lbs. (57 kg) Shipping.

TUBES REQUIRED: 8 — 6550 Power Output (Matched pairs will yield marginally better performance.).

**audio research
corporation**

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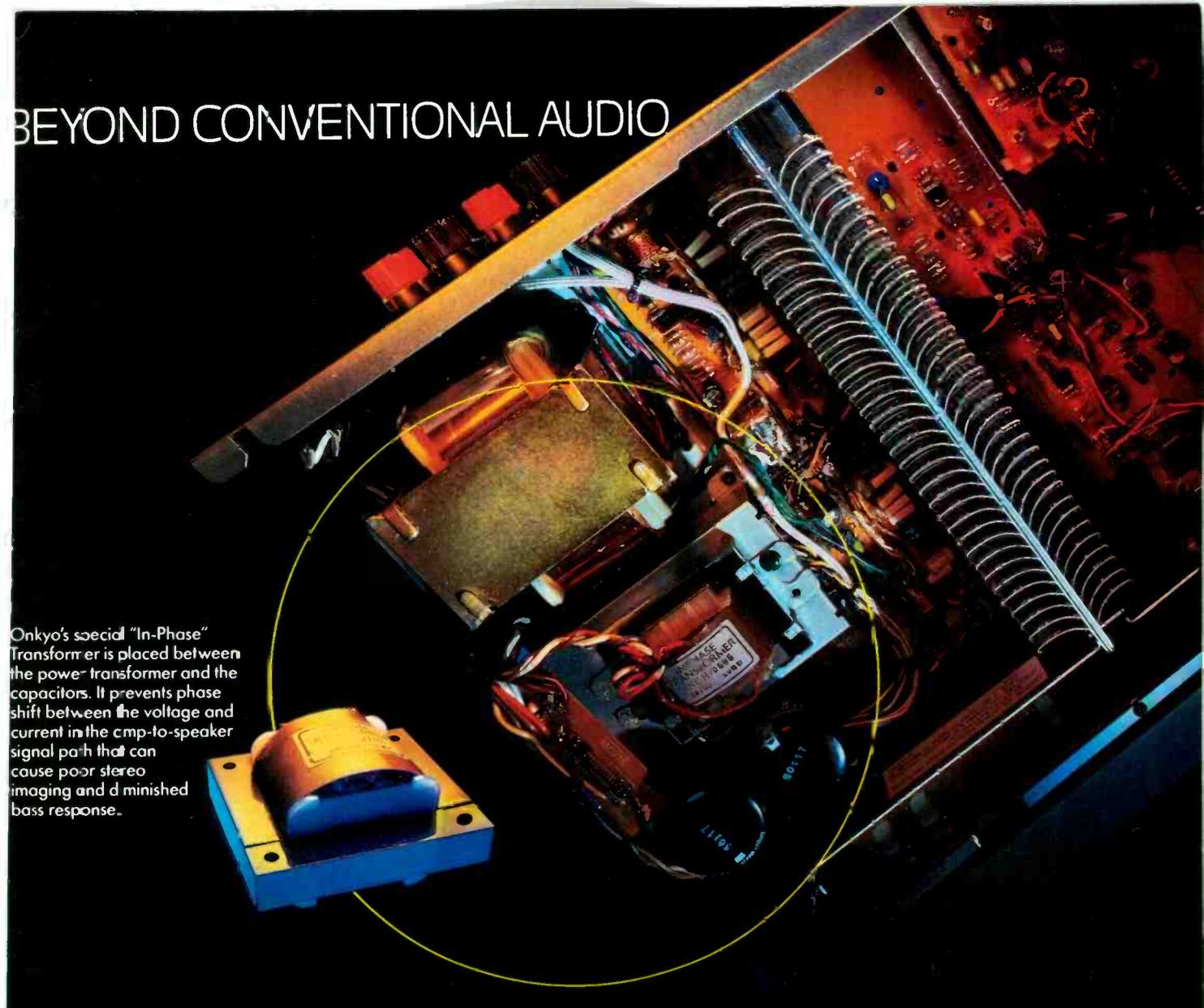
AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Unit Type T = Mono = M	Cont. Average Watts Channel into 8 Ohms		Cont. Average Watts Channel into 4 Ohms		Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S.N. - dB - A Wid. re. 5 mV	MM Phono S.N.	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μs	High Level Sensitivity, mV	Meters = M, Peak/Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			Cont. Average Watts Channel into 8 Ohms	Cont. Average Watts Channel into 4 Ohms	Cont. Average Watts Channel into 8 Ohms	Cont. Average Watts Channel into 4 Ohms																
APT		B			20-20	0.01	0.01	AB					60	900		3		26	780.00	Speaker Impedance selector; bridges to 500 watts.		
AR	P-10 A-06 A-04	B I I	110 60 40	150 90 60	20-20 20-20 20-20	0.03 0.03 0.03	0.03 0.03 0.03	AB AB AB		80	2.5 2.5	150 150	Yes Yes Yes	30 40 40	150 150		6 2 2	No No No		780.00 430.00 340.00		
ATHENA	M-1 M-2	B B/M	100 200	100 200	20-25 20-25	0.1 0.1	0.1 0.1	A/AB A/AB					25 25	750 750			No No	75 75	1700.00 2200.00			
AUDIBLE ILLUSIONS	S-120 M-80	B B/T/M	120 80	240 80	5-200 10-100	0.01 0.2	0.01	AB1 A					100 50	1.2V 1.5V			No No	45 90	895.00 2250.00			
AUDIO DESIGN ASSOCIATES	PT-50 PT-200 PF-200 PBA-150 PF-300 System 56 DCA 40(RI)	B B B B B I	25 60 60 100	40 110 110 125	20-20 20-20 20-20 ↑ 20-20 20-20	0.02 0.06 0.06 0.06 0.06 0.03	0.04 0.15 0.07 0.07 0.07 0.05	AB AB AB AB AB AB					2.5 12 10 10	687 687 687 687	M M M M	1.2 1.5 1.5	Yes No No No	8 28 25 20	895.00 1595.00 995.00 995.00	300 watts into 1 ohm. 150 watts into 2 ohms. ↑20 to 200 Hz; subwoofer amp/ crossover.		
AUDIOLAB	8000 A 8000 P	I B	50 100	100 200	2-65 3-75	0.05 0.05	0.05	AB AB	76	2.0	175	Yes		100 1V	No No		No No	17 20	695.00 895.00	Split operation possible. Dual mono.		
AUDIO RESEARCH	D-70MKII D-79CMKII D-115MKII D-120 D-250MKIIS M-100 M-300	B/T B/T B/T B B/T B/T/M B/M	60 75 100 120 240 100	60 75 100 200 240 100	15-30 15-40 12-60 6-150 12-60 12-60	1 1 1 0.25 1 1	0.1 0.5 0.1 0.05 0.1 0.2	AB1 AB1 AB1 AB1 AB1 AB1					10 10 15 40 25 15		M		No No No No No No	49 105 68 43 138 53	1995.00 6000.00 2995.00 1995.00 5995.00 2495.00	Front panel bias adjustment. Hybrid design.		
AUDIOIRE	Parlando Otez Forte II Forte Crescendo	B B B B B	100 250 25	200 500 50	2-50 2-50 2-50	0.02 0.015 0.025	0.003 0.015 0.008	A AB A					50 50 50	1.2V 1.7V 1V			No No No	90 90 45	2860.00 2750.00 1050.00	Dual mono. Semi-dual mono. Dual mono; 190 watts into 1 ohm. Dual mono.		
A.V.A.	MDS-FET Control Amplifier MOS-FET 150C MOS-FET 250C Transcendence 250 Transcendence 500	I B B B B	25 70 140 140 300	45 120 250 270 550	20-20 20-20 20-20 20-20	1 1 1 0.07	1 1 1 0.07	AB AB AB AB	75	0.5	150	No	90 90 90 90	50		0.5 0.5 0.5	No No No	19 19 30 31	525.00 580.00 745.00 1250.00	No HF feedback. As above. As above.		
BEARD AUDIO	P35 P101 M70	B/T B/T B/T/M	35 100 70	35 100 70	20-20 20-20 20-20	1 0.5 1		A A AB A						900 650 800		↑	No No No		1900.00 3500.00 2350.00	↑16.5 dB.		
BEDINI ELECTRONICS	100 1 MEG 250 250MKII 150MKII	B B B	100 250 145	200 475 250	20-50 5-50	0.01 0.1	0.01 0.11	A A AB					270 55 100			8 8 6	Yes Var. No	70 43 26	3800.00 2195.00 850.00			
BEL	2002 1001	B B	100 50	200 100	3-250 5-200			A A						1.7V 1V	↑		No No	52 30	2895.00 1395.00	↑Status/fault indicators. Rack mount, \$1549.00; bridges to 200 watts.		
DAVID BERNING CO.	EA-2100 EA-230	B/T B/T	100 30	100 30	30-50 30-70	2 2		AB AB					15 15	1V 1V		2 1	No No	40 30	2695.00 895.00			
BGW SYSTEMS	85 150 250D 250E 2125 320B 620B 750D 750E 650D 750D 800D SPA1 SPA3	B B B B B B B B B B B B B	35 50 100 100 100 100 200 250 250 200 100 225 250 250	45 75 150 150 150 150 300 400 400 130 300 350 400 400	15-50 15-50 15-50 15-50 20-20 20-20 10-50 10-50 10-50 10-50 10-50 10-50	0.1 0.1 0.1 0.1 0.25 0.2 0.25 0.03 0.03 0.10 0.10 0.10 0.10 0.10 0.01	0.03 0.02 0.02 0.02 0.05 0.05 0.06 0.01 0.01 0.02 0.02 0.05 0.05 0.05	AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B AB/B					840 1V 1.4V 1.4V 700 700 700 1.4V 1.4V 1.2V 1.2V 1.2V 1.2V 1.2V			1.3 1.2 1.3 1.3 No No No 1.5 1.5 1.0 1.0 1.2 1.5 1.5	No No No No No No No No No No No No No No	14 18 33 33 31 39 58 50 50 25 36 44 41 43	449.00 699.00 869.00 989.00 589.00 939.00 1239.00 1499.00 1699.00 749.00 899.00 1149.00 1529.00 1799.00	70 V out. 25/70 V out. As above. Drives 2-ohm loads.		

AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Unit Type: Integrated = I, Mono = M	Cont. Average Watts/Channel into 8 Ohms		Cont. Average Watts/Channel into 4 Ohms		Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/M, -dB, "A" Wtd. re: 5 mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μs	High Level Sensitivity, mV	Meters = M, Peak Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, lbs.	Price, \$	Notes
			Cont. Average Watts/Channel into 8 Ohms	Cont. Average Watts/Channel into 4 Ohms	Cont. Average Watts/Channel into 8 Ohms	Cont. Average Watts/Channel into 4 Ohms															
BIAMP SYSTEMS	TF 1200	B	150	240	20-20	0.05	0.05	AB								No	35	849.00	450 watts into 2 ohms; bridges to 670 watts into 4 ohms.		
	TF 2400	B	310	510	20-20	0.05	0.05	AB								No	48½	1199.00	650 watts into 2 ohms; bridges to 1320 watts into 4 ohms.		
B & K	ST-140	B	100	100	5-45	0.09	0.09	AB							1.4	No	25	440.00	Dual mono; low-impedance version available. Dual mono; 80 amps peak to peak.		
	ST-202	B	150	200	5-45	0.09	0.09	AB							1.5	No	30	595.00			
	ST-202 Plus	B	200	300	5-45	0.09	0.09	AB							1.1	No	32	649.00			
	EX-442	B	200	300	5-45	0.09	0.09	AB							1.8	No	35	895.00			
	PRO-600	B	250	400	5-45	0.09	0.09	AB							1.1	No	38	1295.00			
BOULDER AMPLIFIERS	500	B	150	250	0-100	0.005		AB								No	51	2650.00	Bridges to 500 watts; balanced and unbalanced inputs. Bridges to 160 watts; inputs as above.		
	160	B	60	80	0-200	0.005		AB								No	40	1090.00			
	100	B	35	45	0-200	0.005		AB								No	23	750.00			
BRITISH FIDELITY	A-1	I	20		30-20			A			Yes							350.00			
	A-100	I	50		30-20			A			Yes							695.00			
	P-170	B	85		10-55			AB										650.00			
	P-270	B	100		10-55			A										1600.00			
BRYSTON	2B-LP	B	50	100	5-100	0.01	0.01	AB								No	20	550.00	Bridgeable; ground-lift switch. As above. As above. †1000 watts. Ground-lift switch; will drive loads greater than 1 ohm.		
	3B	B	100	200	5-100	0.01	0.01	AB								No	35	975.00			
	4B	B	250	400	5-100	0.01	0.01	AB								No	50	1500.00			
	6B	B/M	500	†	5-100	0.01	0.01	AB								No	100 Pair	3400.00			
B & W	MPA810	B/M	650	†	0-100	0.006	0.006	AB							M, I	1.3	44	3500.00	†1100 watts.		
CANON	AM-10	I	40	50	20-20	0.09			74	0.35	140	No			M		11	275.00	Includes graphic equalizer.		
CARVER	M-1.51	B	350	550	3-60	0.5	0.1	AB								No	16	899.00	Magnetic Field Amp. As above. As above. As above. As above.		
	M-1.01	B/T	208	400	3-60	0.1	0.1	AB								Yes	12	559.00			
	M-5001	B	250	350	3-60	0.15	0.1	AB							M, I	Yes	23	629.00			
	M-4001	B	200	300	3-60	0.5	0.1	AB								Yes	9	499.00			
	M-2001	B	120	200	3-60	0.15	0.1	AB								Yes	10½	399.00			
CELLO	Performance							Var.									Var.			Modular system; \$800.00 base price; specs provided on request.	
CLASSE AUDIO	OR-3	B	25	50	4-80	0.1	0.1	A								No	72	2895.00			
	DR-3-VHC	B	50	100	4-60	0.1	0.1	A								No	110	3995.00			
CONRAD-JOHNSON	MV50	B/T	45	45	20-15	1.0	1.0	AB								No	33	1485.00			
	Premier 4	B/T	100	100	20-15	1.0	1.0	AB								No	80	2950.00			
	Premier 1b	B/T	150	150	20-15	1.0	1.0	AB								No	140	4850.00			
	Premier 5	B/T/M	200	200	20-15	1.0	1.0	AB								No	80	3000.00			
CONVERGENT	JL200	B/T/M	200	200	10-60	0.5		A AB								No		2495.00			
COUNTERPOINT	SA-12		85	140	5-100	0.8		AB								No	38	995.00	Hybrid; tube front-end, MOS-FET output. As above.		
	SA-20		220	420	1.2-200	0.5	0.02	AB								No	55	1995.00			
	SA-20/20	M	600	700	1.2-200	0.5	0.02	AB								No	55	3990.00			
	SA-4	T/M	140	96	1-100	0.2	0.65	AB Var.							M	2	No	60		5225.00	
CREEK	4040	I	30	40	20-20	0.01	0.5	AB	75	3.5	350					No	10	325.00	No output transformer; d.c. coupled.		
	4140	I	30	40	20-20	0.01	0.5	AB	75	3.5	500				No	10	400.00				
	5050	I	50	70	20-20	0.01	0.05	AB	75	2.0	2V	Yes			No	18	800.00				
CREST AUDIO	4000	B	325	550	1-50 ± 0.1	0.003	0.01	AB								No	58	2279.00	Without meters. Model 4001, \$2079.00. Without meters, Model 3001, \$1589.00.		
	3000	B	240	430	1-50 ± 0.1	0.003	0.01	AB								No	46	1789.00			
	2501A	B	200	360		0.005	0.01	AB								No	38	1279.00			
	2001A	B	125	200		0.005	0.01	AB								No	32	1059.00			
	1501A	B	80	130		0.005	0.01	AB								No	17	839.00			
	1001A	B	40	75		0.005	0.01	AB								No	17	679.00			
	Powerline 400	B	290	450		0.01	0.01	AB								No	38	1239.00			
	Powerline 300	B	220	325		0.01	0.01	AB								No	32	939.00			

BEYOND CONVENTIONAL AUDIO



Onkyo's special "In-Phase" Transformer is placed between the power transformer and the capacitors. It prevents phase shift between the voltage and current in the amp-to-speaker signal path that can cause poor stereo imaging and diminished bass response.

ONKYO'S REAL PHASE POWER SUPPLY SYSTEM FOR SUPERB STEREO IMAGING AND PRECISE BASS DEFINITION

The primary function of an amplifier is to take a very small audio signal from a source such as record, tape or CD, and amplify it to a level that is strong enough to drive a loudspeaker. However, amplifiers are usually designed not with loudspeakers as a load, but instead with rather simple loads using resistors of fixed impedance. It is well known that the electrical characteristics of loudspeakers provide a complex load to the amplifier, resulting in less than ideal performance.

Typically, conventional amplifiers use a main (or primary) power transformer to convert the household AC current to lower levels suitable for the amplifier's output stage. Unfortunately, due to the reactive nature of loudspeakers, a phase shift between the power supply's charging voltage and current is inevitable. The more complex the speaker load and the music signals being amplified, the greater the phase shift. This phase degradation is audible, resulting in poor stereo imaging and a lack of bass definition.

The ONKYO Real Phase power supply uses not one, but two transformers. The primary transformer is a high current design, capable of handling substantial power levels. In addition, a second power transformer is connected in series with the primary transformer, detecting and eliminating any phase shift between charging voltage and current. The resulting output from the power supply is smooth stable DC, duplicating the ideal charging current, and free of the fluctuations caused by reactive speaker loads.

The audible benefits are striking. Sound stage and stereo imaging are precisely focused without blurring or image wander. Bass foundation and detail are significantly improved, providing convincing deep bass performance. Critics are unanimous in their praise of ONKYO's Real Phase amplifiers.

The ONKYO Real Phase power supply system is incorporated in our new Grand Integra separate amplifiers, Integra integrated amplifiers, and Integra tuner/amplifiers. Your ONKYO dealer will be pleased to demonstrate the audible superiority of Real Phase. For a detailed technical description of the Real Phase power supply system, please write to ONKYO.

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ONKYO

200 Williams Drive, Ramsey NJ 07446

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Harman Kardon's years of experience add up to your experiencing the full sonic range, excitement and subtle nuance of live music. From hot rock to cool jazz, symphonic grandeur to vocal timbre, Harman Kardon's technological advances have continually set the highest standards of sonic excellence. No one engineers components that bring you this near to live sound.

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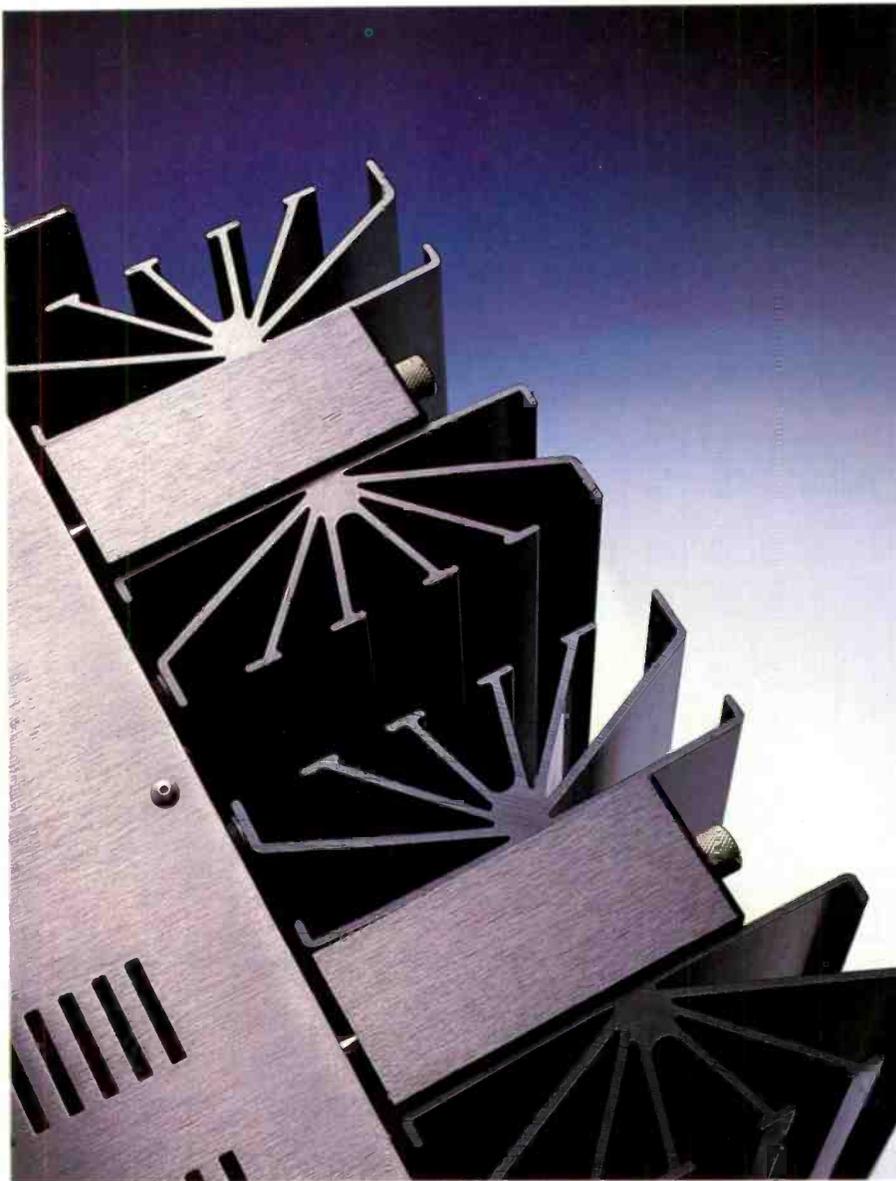
AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Unit Type: Integrated = I, Basic = B, Tube = T, Mono = M	Cont. Average Watts/Channel	Cont. Average Watts/Channel Into 8 Ohms	Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF TH, %	Class of Output Operation	MM Phono S/N, -dB - A' Wtd. re: 5 mV	MM Phono Sensitivity, mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μs	High Level Sensitivity, mV	Meters = M, Peak/Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
CROWN INTERNATIONAL	D-75	B	40	55	20-20	0.001	0.05	AB/B					6	812	I			10	524.00	Version with plug-in panel, extra indicators, and rack handles, Model MT-600LX, \$1169.00. Model MT-1200LX, with features above, \$1369.00. †1300 watts.
	D-150A-2	B	80	125	1-20	0.001	0.05	AB/B					6	1.2V	I			24	699.00	
	DC-300A-2	B	155	250	1-20	0.001	0.05	AB/B					8	1.8V	I			45	999.00	
	PS-200	B	90	135	1-20	0.001	0.05	AB/B					16	1.3V	I			25	819.00	
	PS-400	B	165	260	1-20	0.001	0.05	AB/B					16	1.8V	I			55	1259.00	
	PSA-2X	B	220	350	1-20	0.002	0.01	AB					30	2.1V	I			57	1699.00	
	MT-600	B	220	275	20-20	0.1	0.05	AB/B					13	2.2V	I			39 1/4	899.00	
MT-1200	B	320	470	20-20	0.1	0.05	AB/B					13	2.2V	I			44 1/4	1169.00		
Delta-Omega 2000	B/M	730	†	0-45	0.05	0.05	AB/B					32	Sel.	I			92	3195.00		
CURTIS MATHES	AA310(RI)	I	110		10-80	0.03	0.05	A	71	2.5	150		150	I	1.5			13.4		
	AA210	I	100		10-80	0.03	0.05	A	71	2.5	150		150	I	1.5					
DAX	A100	I	100	150	20-20	0.1		A				No	100	125		14		25	599.00	
DB SYSTEMS	DB-6A	B	40	60	20-40	0.003	0.002	AB					15	1V	I	3	No	18	750.00	Per pair, \$1450.00.
	DB-6A-M	B/M	140	225	20-40	0.008	0.004	AB					30	1V	I	3	No	18	750.00	
DEFINITIVE AUDIO	S.S. 2	B/T	100	80	20-20	1		AB1							M		No		3795.00	Triode-connected tube. Output transformerless; special order.
S.S. 3	B/T/M	100	75	20-50	0.7		AB1									No		2500.00		
DENNESEN	Antares	B	75	120	5-100	0.01	0.01	AB				No	50	1V		3	No	21	600.00	
DENON	PMA-300V	I	60	80	20-20	0.05	0.005		86	2.5	160	Yes	150	150				13	250.00	No negative feedback. As above. As above. As above. As above; d.c. servo control.
	PMA-500V	I	80	130	20-20	0.05	0.003		88	2.5	160	Yes	150	150				21	370.00	
	PMA-700V	I	100	150	20-20	0.02	0.003		94	2.5	160	Yes	350	150				24	530.00	
	PMA-900V	I	120	200	20-20	0.02	0.003		95	2.5	160	Yes	350	150				25	700.00	
	PDA-2200	B	200	300	20-20	0.02	0.002						500	500	I		Yes	38	675.00	
	PDA-3000ZK	B	250	400	5-80	0.002	0.002	A					500	500	M, I		Yes	66	2400.00	
DIMENSIONAL OPTICS	Silicon Laser Matrix	B/M	150	285	5-100								600		3	No	20	2250.00	High current output devices. As above.	
	Silicon Laser Matrix	B	150	285	5-100								600		3	No	25	1550.00		
DISTECH	LSII	B	100	200	3-100	0.05	0.09	AB					40			3.2	No	25	950.00	MOS-FET.
QUAL	CV1260	I	60	80	10-45	0.03	0.03	A	64	2.5	250		50	100	M	3	No	18	250.00	
ELECTRO-COMPANET	AW 65	B	75	135	0-100	0.004		AB									No	32	1550.00	
	AW 100	B	100	180	0-100	0.003		AB									No	40	2025.00	
	AW 150	B	150	270	0-100	0.003		AB								Yes	45	2675.00		
ELECTRON KINETICS	Eagle 2A	B	120	240	0-200	0.1	0.1	AB					220	1.3V		1.0	No	32	1295.00	
	Eagle 3	B	250	500	0-200	0.1	0.1	AB					300	1.3V		1.0	No	47	2200.00	
	Eagle 7A	B	300	550	0-500	0.1	0.1	AB					680	2V		0	No	110	3950.00	
ESOTERIC AUDIO RESEARCH	509	B/T/M	100	100	12-60	0.25	0.2	A					300			3	No	35	2500.00	Pair
	511	B/T/M	100	100	12-60	0.25	0.2	A					300			3	No	36	3800.00	
	529	B/T/M	500	500	12-60	0.25	0.2	A					1.5V			3	No	88	10,000.00	
FISHER	TA102	I	100		20-20	0.05	0.05											16.7		
	TA150	I	150		20-20	0.009	0.009											27		
FOCAL	Module 130	B	60	60	5-60	0.03	0.03	B					600				No	8	260.00	Kit; MOS-FET; bridges to 130 watts.
FUJITECH	A1033	I/T	30	30	20-20	0.4	0.9		72	2.2	190	No	40	190	No	6	No	48	449.50	Kit.
GROMMES PRECISION	G252HF	B	90	125	20-20	0.05	0.05	AB					30	750	M	1.5	No	31	627.00	Bridges to 250 watts.
GSI	A-1	B	125	250	2-300	0.01	0.01	AB					100	600		2	No	20	1395.00	D.c.-servo hybrid. As above. As above.
	A-2	B	400	800	2-300	0.01	0.01	AB					80	700		1	No	50	2495.00	
	A-3	B	50	100	5-125	0.01	0.01	AB					100	700		1	No	15	795.00	
DAVIO HAFLEER CO.	DH-500	B	255	400	20-20	0.025	0.007	AB					45	145		2.3	No	45	850.00	Kit, \$675.00. Kit, \$400.00. Kit, \$260.00.
	OH-220	B	115	175	20-20	0.02	0.005	AB					30	145		1.8	No	26	500.00	
	OH-120	B	62	75	20-20	0.009	0.005	AB					45	145		2.5	No	18	320.00	
HARMAN/KAROOD	PM635	I	30		10-60	0.09		AB	80	2.2	185		80	135			No	13 1/2	235.00	
	PM645	I	40		10-80	0.09		AB	78	2.2	130		90	135			No	14 1/4	310.00	
	PM655	I	60		10-100	0.08		AB	78	2.2	220		180	135			No	22 1/4	550.00	
	PM665	I	100		10-100	0.08		AB	78	2.2	220		180	135			No	33	775.00	
	870	B	100		10-80	0.06		AB						1V			No	30	650.00	

AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Unit Type Integrated = I, Mono = M	Cont. Average Watts/Channel into 8 Ohms		Cont. Average Watts/Channel into 4 Ohms		Power Bandwidth, Hz to Mhz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S.N. - 88 - A	MM Phono Sensitivity, mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μS	High Level Sensitivity, mV	Meters = M, Peak Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			80	120	20-50	0.01																
HEYBROOK	P-2	B	80	120	20-50	0.01	0.01	AB												28	898.00	
HITACHI	HAG HMA8500II HMA120AV	I B B	100 100 120		20-20 20-20 20-20	0.005 0.005 0.08	0.008 0.008 0.08	B B B	90	2.5						M M M	No No No	25 35 17.7			430.00 650.00 300.00	
JADIS	JA-200 JA-80 JA-30	B/T/M B/T/M B/T/M	160 60 30	160 60 30	20-20 20-20 20-20			A A A					750 750 750				No No No	210 77 48½			10,900. 7200.00 3600.00	Four chassis.
JOROAN	Amplifier One	B	75	100	14-140	0.01	0.01	AB						2V						13.2	875.00	
JRM	Power Tower Power Tower/ B Pro	B/M B/M	† †	†† ††	3-75 3-75	0.02 0.02	0.02 0.02	AB AB					100 100	††† †††	M, I M, I	1.0 1.0	No No	65 75			2500.00 3100.00	†(2)200 and (2)160 watts. ††(2)700 and (2)200 watts into 2 ohms. †††(2)2.0 and (2)1.1 V. All-cascade design. †(2)600 and (2)150 watts. ††(2)900 and (2)300 watts. †††(2)2.0 and (2)1.1 V. All-cascade design; bridged outputs.
JVC	AX-90VBK(RI) AX-70BK	I I	120 70		5-50 5-30	0.007 0.007	0.007 0.007	Sup. A Sup. A	83 83	2.5 2.5			230 190	I I						22.1 17.2		
KENWOOD	KA-1100SD Basic-M2A KA-880SD Basic-M1A KA-95 KA-75 KM-205 KM-105	I B I B I I B B	150 220 100 110 125 80 150 125	228 350 140 150	5-90 5-100 5-50 5-60 10-60 10-50 10-50 10-50	0.004 0.004 0.005 0.004 0.05 0.09 0.03 0.03	0.003 0.004 0.005 0.004 0.05 0.09 0.03 0.03		94 92 79 81	2.5 2.5 2.5 2.5	200 200 140 150	Yes Yes No No	100 150		M M M M M					32.3 34.1 20.7 20 18.7 14.5 18.7 17.4	705.00 600.00 355.00 330.00 320.00 235.00 355.00 295.00	
KINERGETICS	KBA-200 KBA-75	B B	200 75	300 90	3-100 3-100	0.01 0.02	0.01 0.02	AB A					90 65	1.5V 1.5V		3.0 3.0	No No	55 32			1495.00 1095.00	Dual mono. As above.
KRELL	KSA 50 KSA 100 KMA 100 KMA 200 KRS Balanced 150 KRS Balanced 250	B B B/M B/M B/M B/M	50 100 100 200 150 250	100 200 200	.05-100 .05-500 0-1M 0-1M 300 500	0.06 0.05 0.05 0.05 0.05 0.05	0.06 0.04 0.05 0.05 A A	A A A A A A					100 400 500 800			0 0 0 0 0 0	No No No No No No	66 110 70 120 150 200			2300.00 3300.00 5500.00 8000.00 10,000. 15,000. Pair	2000 watts into 0.1 ohm. 10,000 watts into 0.1 ohm. Balanced Class-A operation to 1 ohm. As above. Pair
KYOCERA	A-710 A-910 B-910	I I B	100 150 150	140 200 200	10-35 10-50	0.03 0.03 0.02	0.03 0.03 0.02	AB AB AB	85 85	2.2 2.2	190 180	Yes Yes	60 200 250 1.5V	I I I	0.7 1.2	No No No	44 50 59				800.00 1500.00 2000.00	
LAZARUS ELECTRONICS		B	†	†	10-100	0.1		Opt.†					700	No		Yes				35	1599.00	†Class AB, 100 watts into 8 ohms and 200 watts into 4 ohms; Class A, 50 watts into 8 ohms and 100 watts into 4 ohms. Hybrid.
MARK LEVINSON	ML-11 ML-9 ML-3 NO-20 ML-2	B B B B/M B/M	50 100 200 100 25	100 200 400 200 50	20-20 20-20 20-20 20-20 20-20			AB AB AB A A								No No No Sel. Sel.	25 56 116 70 65			2000.00 3250.00 6400.00 4800.00 4800.00		
LINEAGE	PA200	B	100		1-100	0.1	0.1	AB1					100	1.5	I		No				1500.00	
LINN	LK2	B	60		20-20												No			20	695.00	
LSR&D	The Leach Amp The Leach Super-Amp	B B/M	160 300	300 500	.37-220 .3-200	0.05 0.05	0.05 0.05	AB AB					70 80	1.8V 2.4V	I I	1.7 2.0	No No	34 34			970.00 970.00	Twin toroidal power supply; kit. \$580.00. As above.
LUXMAN	LV-105 LV-109 M-02 M-05 LV-90 LV-100 LV-101 LV-102 LV-103	I/T I B B I I I I I/T	80 150 140 105 28 35 45 65 50	210	20-20 20-20 20-20 20-20 20-20 20-20 20-20 20-20 20-20	0.3 0.009 0.025 0.025 0.05 0.05 0.03 0.03 0.3	0.01 0.009 0.025 0.025 0.015 0.015 0.005 0.005 0.01	AB AB AB A AB AB AB AB AB	90 87 88 88 90 90	2.5 2.5 2.5 2.5 2.5 2.5	160 No No Yes Yes Yes	150 150 1.2V 750 150 150 150 150 150		M M M						23.3 42.1 31.9 88.4 12.1 13.2 16.7 19.8 22.4	800.00 800.00 3300.00 220.00 300.00 420.00 550.00 650.00	
MAN	MMA-1	B/T/M	70	70	5-78			AB												3	4290.00	

A V I E W F R O M T H E T O P



FEATSINK—July 1986

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AMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	I	Unit Type Integrated Tube = T, Mono = M		Cont. Average Watts/Channel into 8 Ohms		Power Bandwidth, Hz to kHz		Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/N, -dB: 'A' Wtd. re: 5 mV	MM Phono Sensitivity, mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slow Rate, V/1/2S	High Level Sensitivity, mV	Meters = M, Peak Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			Cont. Average Watts/Channel into 4 Ohms	Power Bandwidth, Hz to kHz																			
MARANTZ	PM560	I	110		20-20	0.04	0.04	AB	85	2.5	150			150					23	500.00			
McINTOSH	MA6200	I	75	100	20-20	0.02	0.02	AB	80	2.0	95	No	15	250	I	1.3	No	30	1795.00				
	MC2500	B	500	500	20-20	0.02	0.02	AB					35	Var.	M, I	1.3	No	129	3495.00				
	MC7270	B	270	270	20-20	0.02	0.02	AB					17	Var.	M, I	1.6	No	82	2295.00				
	MC2002	B	200	300	20-20	0.01	0.01	AB					25	Sel.	M, I	1.7	No	50	1850.00				
	MC2155	B	150	150	20-20	0.02	0.02	AB					15	Var.	M, I	1.4	No	65	2295.00				
	MC2150	B	150	150	20-20	0.02	0.02	AB					15	Var.	I	1.4	No	58	1925.00				
	MC752	B	75	100	20-20	0.02	0.02	AB					15	Var.	I	1.3	No	21	895.00				
	MC502	B	50	75	20-20	0.02	0.02	AB					15	Var.	I	1.8	No	27	1200.00				
McLAREN AUDIO	702	B	120	180	10-50	0.05												No	31	1195.00			
	902	B/M	250	450	10-50	0.05												No	31	1195.00			
MEITNER AUDIO	STR-50	B	50	95	1-100	0.25	0.25	AB					100					No		1295.00			
	MTR-100	B/M	100	200	1-100	0.25	0.25	AB					100					No		1295.00			
MELOS AUDIO	TM90 ST	B/T	80	80	5-65	0.2		AB					1.5V		4	No	44	1295.00					
	TM160	B/T/M	150	150	5-50	0.09		AB2					1.5V		4	No	65	2495.00	Pair				
MIRROR IMAGE	1.1S	B	200	400	1-1M	0.05	0.05	AB					300		I		No	47	1995.00	D.c. coupled.			
	4.3S	B	200	400	1-1M	0.05	0.05	AB					300		I		No	75	3695.00	1600 watts into 1 ohm.			
MISSION	Cyrus I	I	30	50	1-55	0.004	0.005	AB	82	0.4		Yes	65		1.4	No	8.8	399.00					
	Cyrus II	I	60	100	1-55	0.004	0.004	AB	84	0.3		Yes	50		1.4	No	11	599.00	External power supply, Cyrus PSX, \$449.00.				
MOTIF	MS100	B	100	200	5-100	0.5	0.5	AB									No	45	2900.00				
	MS200	B	200	400	5-100	0.5	0.5	AB									No	68	4350.00				
MUSIC REFERENCE	RM-9	B/T	100	100	20-40	0.2	0.2	A/AB					400	I	1.5	No	55	1850.00	Variable feedback; set-up indicators; 2-, 4-, and 8-ohm taps.				
NAD	3130	I	45	58	20-40	0.03	0.03	AB	76	3.5	180	Yes	15	28	No	No	18	228.00					
	3155	I	65	75	20-40	0.03	0.03	AB	78	2.8	170	Yes	20	25	No	3	No	21 1/2%	448.00	Bridgeable.			
	3300	I	80	100	3-60	0.03	0.03	AB	80	2.4	170	Yes	30	25	No	6	No	498.00	As above.				
	2155	B	65	75	20-40	0.03	0.03	AB					20	25	No	3	No	20 1/2%	348.00	As above.			
	2200PE	B	140	200	3-80	0.03	0.03	AB					35	70	No	7	No	30 3/4%	548.00	As above.			
NAIM AUDIO	NAIT	I	20	35	20-20			B		2.5			75					11	495.00				
	NAP 110	B	40	55	20-20			B										14	675.00				
	NAP 250	B	70	125	20-20			B										30	1795.00				
	NAP 135	B/M	75	135	20-20			B										32	1795.00				
NAKAMICHI	PA-7	B	200	330	5-50	0.1	0.1								I		No	59 1/2	1750.00				
	PA-5	B	100	160	5-50	0.1	0.1								I		No	35 1/4	1095.00				
NEC	A-1300E(RI)	I	130		10-70	0.05	0.05	B	73	2.5	150		18	150	I	3		30 1/2	699.00	50 watts x 4 into 8 ohms.			
	A-7E	I	50	100	20-20	0.006	0.006	AB	90	2.5	150	Yes	110	150		2	No	28	349.00				
	A-10E	I	60	120	20-20	0.004	0.004	AB	90	2.5	150	Yes	120	150		2	No	53	599.00				
NESTOROVIC LABS	α-1	B/T/M	150	150	20-20	0.5	0.2	AB									Var.	65	2200.00	Variable feedback.			
NEW YORK AUDIO LABS	Moscode 151	B	75	120	10-100	0.10	0.1	AB					30				No		700.00	Hybrid tube; maxi version (with additional bypass capacitors in power supply and tubes of better quality), \$850.00			
	Moscode 301	B	150	220	10-100	0.15	0.1	AB					30				No		1100.00	As above; maxi version, \$1300.00.			
	Moscode 601	B	300	420	10-100	0.15	0.1	AB					30				No		1800.00	As above; maxi version, \$2100.00.			
	Moscode 901	B	450	600	10-100	0.15	0.1	AB					30				No		3500.00	As above; maxi version, \$4200.00.			
	OTL-1 Futterman	B/T/M	80		5-200	0.01	0.001	AB					33		M		No	250	12,000.	Four chassis; 5-kW regulated power supplies; output transformerless; 150 watts into 16 ohms.			
	OTL-2 Futterman	B/T	10		5-200	0.01	0.001	AB							M		No	75	4200.00	Two chassis; triode output; output transformerless; 20 watts into 16 ohms.			
	OTL-3 Futterman	B/T	80		5-200	0.01	0.001	AB							M		No	150	6000.00	Dual mono; output transformerless; 125 watts into 16 ohms.			
	OTL-4 Futterman	B/T	40		5-200	0.01	0.001	AB							M		No	75	3600.00	Output transformerless; 60 watts into 16 ohms.			
NIKKO	A-650	B/M	300	600	10-40	0.008	0.008	AB					1V	M		No	Var.	60 1/2	1995.00	Bridgeable.			
	A-450	B	220	440	5-100	0.008	0.008	AB					1V	I		Var.	47 3/8	999.95	Uses variable bias circuit; nonswitching.				
	A-230	B	120	240	5-100	0.008	0.008	AB					1V	I		Var.	29 3/8	549.95	As above.				
	A-130	B	100	200	10-40	0.003	0.003	AB					1V	I		No	28 1/2	399.95					
	NA-2000	I	85	170	5-45	0.01	0.01	AB	86						I		Var.	22	329.95	As above.			

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- 343947. Tony Bennett—*The Art Of Excellence*. Tony's back! (Columbia)
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- 333286. Phil Collins—*No Jacket Required*. (Atlantic)
- 335547. Berlioz: *Symphonie Fantastique*. Barenboim, Berlin Phil. (Digital—CBS Masterworks)
- 263293. Bolling: *Suite For Flute & Jazz Piano*—Rampal, Bolling (Columbia)
- 339200. Stevie Wonder—*In Square Circle*. #1 album. (Tamla)
- 337402. The Manhattan Transfer—*Vocalese*. Top 10 album. (Atlantic)
- 343624. Wynton Marsalis. *Plays Trumpet Concertos*. Haydn, Hummel, I. Mozart (Digital—CBS Masterworks)
- 341263. Enoch Light & The Light Brigade—*Big Bonds Of The Thirties*. *Begin The Beguine*; more. (Project 3)
- 340323. Sade—*Promise*. #1 Smash. (Portrait)
- 219477. Simon & Garfunkel's *Greatest Hits*. *El Condor Pasa*; *Bridge Over Troubled Waters*; etc. (Columbia)
- 33645. Madonna—*Like A Virgin*. #1 album & hits *Material Girl*; *Angel*. (Sire)
- 323261. Lionel Richie—*Can't Slow Down*. *All Night Long*; *Stuck On You*; *Hello*; etc. (Motown)
- 320499. The Police—*Synchronicity*. Winner of 3 Grammy Awards. (A&M)
- 318089. Michael Jackson—*Thriller*. *Billy Jean*; *The Girl Is Mine*; etc. (Epic)
- 308049-398040. Creedence Clearwater Revival Featuring John Fogerty/Chronicle. *Greatest Hits*. (Counts as 2—Fantasy)
- 316604. Tchaikovsky: *1812 Overture*; *Marche Slave*; *Beethoven: Wellington's Victory*. Lorin Maazel, Vienna Phil. (Digital—CBS Masterworks)
- 342097. Barbra Streisand—*The Broadway Album*. *Somewhere*; *Something's Coming*; more. (Columbia)
- 323337. The Big Chill. Original Motion Picture Soundtrack. (Motown)
- 321570. Beethoven: *Symphony No. 5*; *Schubert: Symphony No. 8*—Lorin Maazel, Vienna Phil. (Digital—CBS Masterworks)
- 313734. Willie Nelson—*Always On My Mind*. #1 Hits. And Top 10 Title Song: *Let It Be Me*; more. (Columbia)
- 293597. Led Zeppelin—*Houses Of The Holy*. Includes hit *O'Ye Maker*; more. (Atlantic)
- 287003. Eagles—*Their Greatest Hits 1971-1975*. *Desperado*; *Best Of My Love*; more. (Atlantic)
- 345207. Buddy Holly—*From The Original Master Tapes*. (MCA)
- 321307. Air Supply—*Greatest Hits*. (Arista)
- 286914. Fleetwood Mac—*Rumours*, #1 Hit Album. Includes *Don't Stop*; *You Make Loving Fun*; more. (Warner Bros.)
- 345892. Ruthless People—Original Motion Picture Soundtrack. Includes Billy Joel hit *Modern Woman*, also Springsteen, Paul Young; more. (Epic)
- 346643. Andreas Vollenweider—*Down To The Moon*. *The Inventive Harps's Latest* (CBS)
- 345827. Bob James and David Sanborn—*Double Vision*. Joined by Al Jarreau, others. Includes *Since I Fell For You*. (Warner Bros.)
- 341305. Robert Palmer—*Riptide*. The voice of Power Station's Top 10 album! *Addicted to Love*; more. (Island)
- 343293. Rolling Stones—*Dirty Work*. Top 10 MTV smashes: *Horlie Shuffle* and *One Hit (To The Body)*; more. (Rolling Stone Rec.)
- 341677. Schubert: *Symphonies 2 & 8*. Barenboim, Berlin Phil. (Digital—CBS Masterworks)
- 346015. Handel: *Royal Fireworks Music*; more —Molgorie, LaGrande Ecure & la Chombré duRoy (Digital—CBS Masterworks)



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CBS COMPACT DISC CLUB: Terre Haute, IN 47811

have at least 10 days in which to make your decision. If you ever receive any Selection without having 10 days to decide, you may return it at our expense.

The CDs you order during your membership will be billed at regular Club prices, which currently are \$14.98 to \$15.98—plus shipping and handling. (Multiple-unit sets may be somewhat higher.) After completing your enrollment agreement you may cancel membership at any time; if you decide to continue as a member, you'll be eligible for our money-saving bonus plan. It lets you buy one CD at half price for each CD you buy at regular Club prices.

10-Day Free Trial: We'll send details of the Club's operation with your introductory shipment. If you are not satisfied for any reason whatsoever, just return everything within 10 days and you will have no further obligation. So why not choose 2 CDs for \$1 right now.

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Please accept my membership application under the terms outlined in this advertisement. Send me the 2 Compact Discs listed here and bill me only \$1.00 for both. I agree to buy two more selections at regular Club prices in the coming year—and may cancel my membership at any time after doing so.

Send me these 2 CDs

My main musical interest is (check one):
(But I may always choose from either category)
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Mrs. _____
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Print First Name Initial Last Name

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Do you have a VCR? (Check one.) Yes No 799/F86
Do you have a credit card? (Check one.) Yes No

This offer is not available in APO FPO Alaska, Hawaii, Puerto Rico; please write for details of alternative offer.
Note: All applications are subject to review. The CBS Compact Disc Club reserves the right to reject any application.

AMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Imp. Type: Integrated = I, Basic = B, Tone = T, Mono = M	Cont. Average Watts Channel into 8 Ohms		Cont. Average Watts Channel into 4 Ohms		Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/N	MM Phono S/N, -dB, "A" Wtd. re. 5 mV	Maximum MM Sensitivity, mV	Moving Coil Input?	Rated Slow Rate, V/μS	High Level Sensitivity, mV	Meters = M, Peak/Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			Cont. Average Watts Channel into 8 Ohms	Cont. Average Watts Channel into 4 Ohms																		
NOVA ELECTRO-ACUSTICS	DMA-300	B	150	275	20-20	0.02	0.01	Lin. AB					40	1V		2	No	45	1695.00			
NUMARK	SA2500	B	280	450	20-20	0.039		AB					50	2.5V	I	1.2	No	57				
	SA220A	B	165	225	20-20	0.039		AB					50	1.7V	I	1.5	No	40				
	SA110	B	55	60	20-20	0.05		AB					15	930	M	1.2	No	19				
DNIX AUDIO	DA21	I	50	70	20-20	0.01	0.009	AB	75	1.75		Dpt.	150	250			No	11	650.00	Add-on power supply, Model S.O.A.P., \$350.00.		
DNKYD	A-8087	I	100	170	20-20	0.012	0.005	Lin. AB	80	2.5	210	Yes	35	150		1.6	No	31	550.00			
	A-8067	I	80	135	20-20	0.015	0.005	Lin. AB	80	2.5	200	Yes	32	150		2.3	No	27	450.00			
	A-8057	I	65	100	20-20	0.018	0.005	Lin. AB	80	2.5	200	Yes	30	150		1.9	No	23	330.00			
	A-8037	I	50	75	20-20	0.06	0.06	Lin. AB	75	2.5	200	No	20	150		1.5	No	15	230.00			
	M-510	B	300	500	20-20	0.005	0.003	Lin. AB					45		M	1.3	No	165	4200.00			
	M-508	B	200	315	20-20	0.003	0.002	Lin. AB							M		No	55	1100.00			
PARASOUND	CA250	I	50	85	20-40	0.03	0.015	AB	88	2	200		55	500	I	2	No	16	299.95			
	CA215	I	15	28	30-20	0.1	0.03	AB	82	2	160		22	500		1	No	11	129.95			
	PA260	B	60	90	20-20	0.02	0.02	AB					95	250		2	No	15	239.95			
	VSE1	I	12.5	18	30-20	0.5	0.05	AB					15	250		0.6	Var.	11	129.95			
	D/AS 1000	B	130	185		0.1	0.05	A					90		I	6		40	585.00			
PERREAUX	PMF 1050	B	100	160	10-3M	0.03	0.03	A AB								2	No	27	1050.00			
	PMF 1850	B	180	330	10-3M	0.015	0.015	A AB								2	No	42	1895.00			
	PMF 3150	B	300	500	10-3M	0.03	0.03	A AB								2	No	55	2395.00			
PIDNEER	A-V1200	I	80	120	20-20	0.007	0.007		86	2.5	160	Yes		150				25.2	539.95			
	SA-V1160	I	100		20-20	0.05	0.05		81	2.5	150	No		150				17.1	329.95			
	M-90 Elite	B	200		20-20	0.003	0.003								M†			49.1	899.95			
	A-88X Elite	I	120		20-20	0.003	0.003		89	2.5	250	Yes		150				39.1	699.95			
	A-77X Elite	I	100		20-20	0.003	0.003		88	2.5	200	Yes		150				33.1	499.95			
	SA-V70(RI)	I	†		20-20	0.04				2.5		No						22.1	450.00			
PROTON	D1200(RO)	B/T	110	175	10-40	0.02	0.02	H					60		M, I	7.3		33	599.00			
	D540	I	40	80	20-20	0.02		H	92	2.5				150	M, I	6		19 1/4	299.00			
	D530R(RO)	I	30	50	20-20	0.02	0.02		90	2.5				150	M, I	6			299.00			
PS AUDIO	200-C	B	200	400	1-50	0.01	0.01	AB					250				No	70	1795.00	Dual mono.		
PSE	Studio II	B	100	200	0-100	0.02	0.02	AB					100				No	24	790.00			
	Studio II Mono	B/M	110	220	0-150	0.02	0.02	AB					100				No	24	710.00			
QED	A230S	I	30	50	10-30	0.1		AB	72	3	120	No		300	No		No	10	275.00			
	A240CD	I	40	65	5-30	0.1		AB	72	3	120	No		300	No		No	11	350.00			
	A240SA	I	40	65	5-30	0.1		AB	72	3	120	Yes		300	No		No	11	525.00			
QUAO	306	B	†		20-20	0.03		††						375				10	595.00			
	405-2	B	†		20-20	0.05		††						500				20	695.00			
	606	B	†		20-20	0.03		††						500				26	995.00			
QUICKSILVER	Mono Amp	B/T/M	60	60	13-55			AB									No	30	675.00	Can drive 0.5-ohm load.		
RANE	MA6	B	100	150	20-20	0.2	0.1	AB					20		I	15	No	44	1299.00	Six-channel; with limiters.		
RCA	Dimensia MSA 100(RO)	I	50		20-20	0.05	0.09	AB	75		150	No			M			12.6	299.00			
	Dimensia MSA 200 (RO)	I	100		20-20	0.05	0.09	AB	75		150	No						19.8	399.00			
REVOX	B251(RO)	I	100	140	20-20	0.01	0.01	AB	75	1.6	23	Opt.		160	M	3	No	18 3/4	1500.00			
	B242	B	200	300	20-20	0.005		AB						Adj.	M		No	37 1/2	2325.00			
ROBERTSON AUDIO	Forty Ten	B	60	120	5-330	0.1	0.05	AB					159				No	25	995.00			
	Sixty Ten	B	200	400	5-250	0.1	.0023	AB					256				No	65	2550.00			
RDTL	RB-880	B	100	200	20-20 ±1	0.01	0.01	AB								1.6	No	40	1099.00	60 amps peak to peak.		
	RB-870	B	60	115	20-20 ±1	0.03	0.03	AB											479.00			
	RA-870	I	60	115	20-20 ±1	0.03	0.03	AB	81	1.85	185	Yes	3.5	200		3	No	21	599.00	Dual mono.		
	RA-840BX	I	40	58	20-20 ±1	0.03	0.03	AB	78	2.5	140	Yes		150		3	No	17	399.00	29 amps peak to peak.		
	RA-820BX	I	25	35	20-20	0.05	0.05	AB	75	3	140	No		150		3	No	12	289.00	25 amps peak to peak.		
	RA-820	I	20	30	20-20	0.05	0.05	AB	72	3	140	No		150		3	No	12	209.00	20 amps peak to peak.		



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AMPLIFIERS

MANUFACTURER	Model (RM) = Remote included, (RO) = Remote Optional	Unit Type: Integrate = I, Basic = B	Cont. Average Watts Channel into 8 Ohms		Cont. Average Watts Channel into 4 Ohms		Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/N, -dB	MM Phono Sensitivity, mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slow Rate, V/μs	High Level Sensitivity, mV	Meters = M, Peak/Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			150	300	25-220	0.05																
ROWLAND RESEARCH	57	B	150	300	25-220	0.05	0.05	A/AB														
SAE	I102	I	60	90	20-20	0.02	0.02	AB	82		150	Yes			114							
	A202	B	100	150	20-20	0.02	0.02	AB							114							
	A502	B	200	300	20-20	0.02	0.02	AB														
	A201	B	100	150	20-20	0.02	0.02	AB														
	X10A	B	100	150	20-20	0.02	0.02	A														
	P50	B/M	70	115	20-20	0.05	0.017	AB														
	P500	B/M	500	750	20-20	0.05	0.025	AB														
SANSUI	B-2301	B	300		20-20	0.003	0.003															
	B-2102	B	200	350	20-20	0.003	0.003															
	AU-G90X	I	130		20-20	0.003	0.003		90	2.5	300	Yes			300							
	AU-G99X	I	160		20-20	0.003	0.003		85	2.5	200	Yes			350							
	AU-G77XII	I	110		20-20	0.003	0.003		85	2.5	200	Yes			350							
	AU-G55X	I	65		20-20	0.004	0.004		85	2.5	150	Yes			300							
SESCOM	PO-3	B	2		20-20	0.1	0.1					No										
	PO-4	B/M	4		20-20	0.1	0.1					No										
	PO-5	I	2		20-20	0.1	0.1		75	1.75	150	No										
SHARP	SM-V1	I	28																			
SIMA ELECTRONICS	W-2050	B	50	90	20-20	0.05	0.05	AB														
	W-2002	B	125	225	20-20	0.05	0.05	AB														
	W-2003	B	250	450	20-20	0.05	0.05	AB														
	PW-2000	I	50	90	20-20	0.05	0.05	AB														
SONY	TA-F44AESII	I	100	100	5-100	0.004	0.004	AB	87	2.5	250	Yes			250							
	TA-F222ES	I	80	110	5-100	0.006	0.006	AB	86	2.5	250	Yes			150							
SOUND-CRAFTSMEN	Pro-Power Four	B	205	300	20-20	0.05	0.05	AB														
	Pro-Power Three	B	205	300	20-20	0.05	0.05	AB														
	A5002	B	250	375	20-20	0.05	0.05	H														
	A5001	B	250	375	20-20	0.05	0.05	H														
	00R1200	B	250	375	20-20	0.05	0.05	H														
	PM840	B	205	300	20-20	0.05	0.05	AB														
	PCR800	B	205	300	20-20	0.05	0.05	AB														
	PM1600	B	375	600	20-20	0.05	0.05	AB														
	A2502	B	125	190	20-20	0.05	0.05	AB														
	A2801	B	140	205	20-20	0.05	0.05	AB														
SPECTRAL	DMA-50	B	80	150	0-1.5M	0.01	0.01	AB														
	DMA-100HC	B	100	200	0-1M	0.01	0.01	A														
SPECTRASCAN	BPA-101B	B	120	175	2-120	0.07	0.07	AB														
STAX	DA-100M	B/M	100	200	10-20	0.008		A														
STRELIOFF	DC1 400/400	B	420	730	10-30	0.25	0.15	AB														
	SC1 300	B/M	330	500	10-30	0.10	0.10	AB														
	SC1 500	B/M	560	800	10-30	0.10	0.10	AB														
	SC1 1000	B/M	†	†	10-30	0.10	0.10	AB														
	AM1 100	B/M	115	150	10-30	0.10	0.10	AB														
SUMO	Nine	B	60	120	20-20	0.25	0.05	A														
	Nine Plus	B	65	120	20-20	0.10	0.05	A														
	Andromeda	B	200	350	20-20	0.05	0.05	AB														
	Polaris	B	100	175	20-20	0.05	0.05	AB														
SUPERPHON	OM200	B	100	200	.3-150	0.05	0.05	AB														
TANBERG	TPA 3006A	B	150		20-20	0.02	0.02	AB														
	TPA 3009A	B/M	180	330	20-20	0.05	0.05	AB														
	TPA 3026A	B	150	300	20-20	0.02	0.02	AB														
	TPA 3016A	B	220	440	20-20	0.05	0.05	AB														
	TPA 3012A	I	100		20-20	0.02	0.02	AB	78	1.9	250	Yes										
TECHNICS	SE-A100	B	170	240	20-20	0.007		New A														
	SE-A3MK2	B	300	300	20-20	0.002	0.002	New A														
	SE-A5MK2	B	150	150	20-20	0.002	0.002	New A														
	SU-V7X	I	100	100	20-20	0.003	0.003	New A	77	0.25	150	Yes										
	SU-V10X	I	120	120	20-20	0.003	0.003	New A	78	0.25	150	Yes										
	SU-V40	I	50	50	20-20	0.003	0.007	New A	76	0.25	160	No										
	SU-V60	I	90	90	20-20	0.002	0.005	New A	76	0.25	160	Yes										

AMPLIFIERS

MANUFACTURER	Model (R) = Remote Included (RO) = Remote Optional	Unit Type: Integrated = I, Mono = M	Cont. Average Watts/Channel into 8 Ohms		Cont. Average Watts/Channel into 4 Ohms		Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S.N. - dB, "A" Wtd. re. 5 mV	Maximum MM Phono Input, mV	Moving Coil Input?	Rated Slew Rate, V/μs	High Level Sensitivity, mV	Meters = M, Peak/Clip Indicators = I	Dynamic Headroom, dB	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			8 Ohms	4 Ohms	8 Ohms	4 Ohms															
THRESHOLD	S/500	B	250		7-100	0.1	0.1	Stasis								No	78½	3300.00	12 amps continuous, 100 amps peak to peak.		
	S/300	B	150		7-100	0.1	0.1	Stasis								No	56	2400.00	As above but 10 and 80.		
	S/200	B	100		7-100	0.1	0.1	Stasis								No	44	1590.00	As above but 8 and 40.		
	SA/1	B/M	160		7-100	0.05	0.05	Stasis, Class A						M		No	78½	3750.00	As above but 40 and 150.		
	SA/2	B/M	100		7-100	0.05	0.05	Stasis, Class A								No	56	2500.00	As above but 30 and 100.		
	SA/3	B	50		7-100	0.05	0.05	Stasis, Class A								No	56	2500.00	As above but 16 and 80.		
VECTOR RESEARCH	VA-1400	I	60	100	20-20	0.03	0.03	AB	80	2.5		Yes		150	M, I	2.5		20	329.95		
	VA-1100	I	40	60	20-20	0.03	0.03	AB	80	2.5		Yes		150	M, I	2.5		13	249.95		
	VA-1450	B	60	100	20-20	0.03	0.03	AB										20	329.95		
VSP LABS	TransMos 150	B	150	200	20-20	0.05	0.05	AB					70	1.8V		3	No	42	1050.00	Transconductance MOS-FET. As above.	
	Gold Edition	B	200	300	20-20	0.05	0.05	AB					70	2V		1.6	No	57	1500.00		
WINGATE AUDIO	2000A	B	100	200	.06-250	0.5	0.5	A					100			1.2	No	95	3200.00	No negative feedback; dual mono; MOS-FET.	
	2000M	B/M	200	400	.06-250	0.5	0.5	A					100			1.2	No	95	3500.00	No negative feedback; MOS-FET.	
YAMAHA	B-2X	B	170	240	10-100	0.002	0.002	A/AB					1.3V		1.9		57½	1500.00	20 watts x 4 into 8 ohms.		
	M-85	B	260	330	10-60	0.003	0.003	A/AB					1.6V	M, I	2.2		50½	990.00			
	M-65	B	170	230	10-60	0.003	0.003	A/AB					1.3V	M, I	1.8		33	699.00			
	M-45	B	125	180	10-60	0.003	0.003	A/AB					1.1V	M, I	1.3		30½	429.00			
	M-35	B	40		10-50	0.008		A/AB					1V	I	1.5		11	249.00			
	A1020	I	125		10-50	0.005	0.002	A/AB	94	2.5	170	Yes		150		1.4		25¾		599.00	
	A720	I	105		10-50	0.005	0.002	A/AB	92	2.5		Yes		150		1.4		22½		469.00	
	A520	I	75		10-50	0.005	0.005	AB	90	2.5		Yes		150				16½		329.00	
	A420	I	50		10-50	0.007	0.005	AB	90	2.5		Yes		150				13		229.00	

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PREAMPLIFIERS



SPECTRAL DMC-6



CLASSÉ AUDIO DR-7



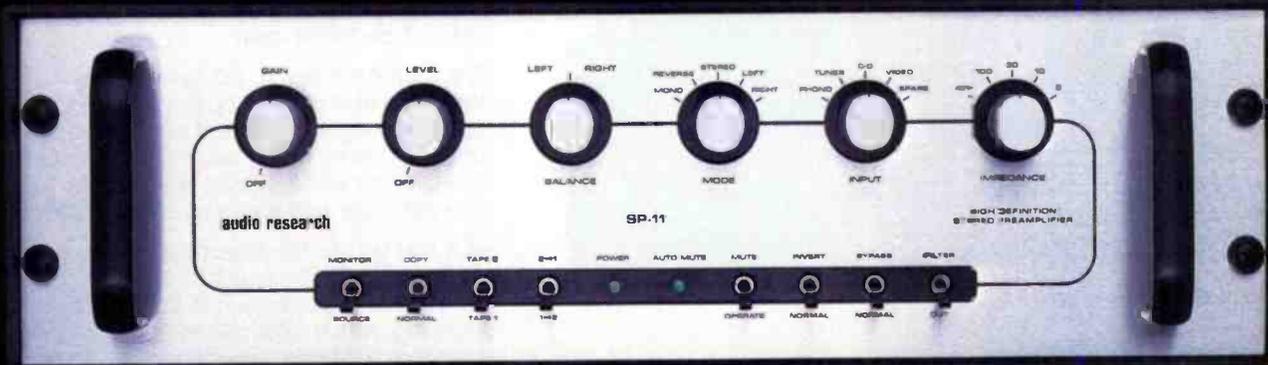
AUDIO RESEARCH SP-10



KRELL KRS-1A

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Unit Type: Tube = Mono M, Moving Coil Stage Only = Mc	Frequency Response, Hz to kHz, ± dB		Maximum Output, V		THD, %	IHF IM Distortion, %		Number of Tube & Processor Loops		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		High Level Sensitivity, mV		Number of Tone Controls		MM Phono Input Capacitance, pF		Moving Coil Impedance, Ohms		Does Unit Invert Phase?		Price, \$	Notes
			1-500	+0.3	2	0.005		2	0.5	300	85	78	31.5	0		47k	Yes	No	1850.00										
ACCPHASE	C-222		1-500	+0.3	2	0.005		2	0.5	300	85	78	31.5	0		47k <td>Yes <td>No</td> <td>1850.00</td> </td>	Yes <td>No</td> <td>1850.00</td>	No	1850.00										
	C-200L		1-500	+0.3	2	0.005		3	0.5	300	82	76	31.5	4		47k <td>Yes <td>No</td> <td>2750.00</td> </td>	Yes <td>No</td> <td>2750.00</td>	No	2750.00										
	C-270		1-500	+0.3	2	0.005		2	0.5	300	82	76	31.5	0		47k <td>Yes <td>No</td> <td>4500.00</td> </td>	Yes <td>No</td> <td>4500.00</td>	No	4500.00										
	C-280		1-500	+0.3	2	0.005		2	0.5	300	82	76	31.5	0		47k <td>Yes <td>No</td> <td>5200.00</td> </td>	Yes <td>No</td> <td>5200.00</td>	No	5200.00										
ACOUSTAT	TNP		2-250	+0.3	16	0.01	0.01	3	3.5	240	90	80	250	0	Sel.	47k <td>Yes <td>No</td> <td>749.00</td> <td></td> </td>	Yes <td>No</td> <td>749.00</td> <td></td>	No	749.00										
ADCOM	GFP-555		20-20	± 0.1	10	0.005	0.015	3	0.4		85	70	40	2	Var.	47k <td>Yes <td>No</td> <td>499.95</td> <td rowspan="2">Tuner/preamp; see also "Tuners"; optional remote sensor, \$90.00.</td> </td>	Yes <td>No</td> <td>499.95</td> <td rowspan="2">Tuner/preamp; see also "Tuners"; optional remote sensor, \$90.00.</td>	No	499.95	Tuner/preamp; see also "Tuners"; optional remote sensor, \$90.00.									
	GTP-500(RI)		20-20	± 0.2	10	0.009	0.015	2	0.4				40	2		47k <td>No</td> <td></td> <td>499.95</td>	No		499.95										
AGI	511A		20-20	± 0.1	9.5	0.005	0.005	3	1.3	160	82		230	0	Sel.	Sel.	No	No	650.00										
	511AH		20-20	± 0.1	9.5	0.005	0.005	3	0.56	70	82		230	3	Sel.	Sel.	No	No	650.00										
	511AM		20-20	± 0.1	9.5	0.005	0.005	3				77	230	0	Sel.	Sel.	Yes	No	740.00										
APT	HP		20-20	± 0.5	10	0.006	0.006	3	1.25	180	76	85	320	2	Sel.	Sel.	Opt.	No	680.00	Infrasonic filter; dedicated phono balance; discrete phono section. Dedicated phono balance; discrete phono section. Balanced output; separate L & R level and high-frequency controls; infrasonic filter; discrete phono section.									
	P2		20-20	± 0.5	10	0.006	0.006	1	1.25	180	76	85	320	2	Sel.	47k <td>Yes</td> <td>No</td> <td>450.00</td>	Yes	No	450.00										
	P205	P	30-15	± 0.2	24	0.006	0.006		1.25	180	76	85		4	Sel.	Sel.	Opt.	No	450.00										
AR	C-06		20-20	+0.0-0.5	8	0.005	0.005	2	0.8	200	83	72	50	3	Sel.	47k <td>Yes</td> <td>No</td> <td>360.00</td>	Yes	No	360.00										
AUDIBLE ILLUSIONS	Modulus 2A	T	10-100	± 3	80	0.02	0.02	1	0.5	1.2V	75		50		40	47k <td>Yes</td> <td>Yes</td> <td>749.00</td> <td rowspan="2"></td>	Yes	Yes	749.00										
	Saturn 1	T	5-200	± 3	120	0.02	0.02	2	0.5	600	85	88	50		Adj.	Adj.	Yes	Adj.	2495.00										
AUDIO DESIGN ASSOCIATES	DSP8 ASU10 (RD)		5-50	± 3	7.5	0.007	0.05	4					50	3			No	No	1845.00	Includes separate automatic a.c. switching controller.									
	PP-1200	P	5-20		7.5	0.005	0.05		5.1	77	70	70			47	47k <td>Yes</td> <td>No</td> <td>300.00</td>	Yes	No	300.00										

The new
reference-standard
hybrid preamplifier
from Audio Research.



One year ago, in October of 1985, Audio Research Corporation introduced the SP11 Preamplifier. During this time, our introductory claim of "a new reference standard" has been confirmed by reviewer after reviewer throughout the Free World. It is improbable that any audio product, including previous Audio Research products, has ever received such unanimous acclaim. We believe that once you hear the SP11 reproduce music, you will find that acclaim justified.

SP11 STEREO PREAMPLIFIER

HIGH DEFINITION® MUSIC REPRODUCTION EQUIPMENT

Enter No. 18 on Reader Service Card





SP11 Specifications

FREQUENCY RESPONSE:

High level input:

± 1dB, 0.2Hz to 100 kHz
- 3dB below 0.1Hz and above 200kHz

Phono input:

± 2dB of RIAA 20Hz to 40kHz
± 1dB of RIAA, 1.0Hz to 100kHz

HARMONIC DISTORTION: Less than .005% at 2V RMS output, 5Hz to 20kHz (Typically less than .001% at midband, phono or line input)

INTERMODULATION DISTORTION:

Less than .003% at 2V RMS output

GAIN: (AT 1kHz, BYPASS MODE):
Phono input to tape output: 46dB (0.2V output from 1mv input)

Phono input to main output: 75dB (0.175mv input for 1V output)

High level input to main output: 29dB (36mv input for 1V output)

INPUTS (7): Phono, Tuner, C-D, Video, Spare, Tape 1, Tape 2

OUTPUTS (6): Tape 1, Tape 2, Main 1, Main 2, Direct, Invert

FILTER: 25Hz Hi-pass phono subsonic 6dB/octave rolloff (to eliminate ringing) with transition to 12dB/octave at 10Hz. Front panel switchable, phono only

CONTROLS (6): Gain, Level (to set gain range), Balance, Mode, Input, Impedance

SWITCHES (8): Tape Monitor, Copy, Tape 1/2, Tape 1 to 2/2 to 1, Mute, Invert Phase, Bypass, Filter

INPUT IMPEDANCE:

Phono: Front panel selectable 47K, 100, 30, 10, 3 ohms

Phono Input Capacitance: 150pF at 10kHz

High Level: 20K ohms or higher, depending on switch functions

MAXIMUM INPUT LEVEL

UNDISTORTED:

Phono: 350mV RMS at 1kHz, 1200mV RMS at 10kHz (0.1 second maximum duration, 6dB less if continuous)

High Level: 25 Volts RMS

OUTPUT IMPEDANCE: 250 ohms main, direct, invert outputs. 500 ohms tape output. Recommended load 60K ohms and 100pF (20K ohms minimum, 1000pF maximum)

Rated Output: 2V RMS 1Hz to 100kHz main, direct, invert outputs. (Maximum 80V RMS output at 0.2% THD at 1kHz into 60K ohm load with 2.85V RMS high level input)

PHASE:

Tape outputs, direct output:

Non-inverting

Invert Output: Inverting

Main Outputs (2): Selectable non-inverting or inverting. All outputs may be used simultaneously.

Noise (IHF Weighted, shorted input): Output (Gain down): 6uV (110dB below Rated Output)

Input (High Level): 3uV equivalent input (110dB below 1V input)

Phono: 0.15uV equivalent input (76dB below 1mV input)

Tube Complement (Hybrid FET/Tube Audio Circuit, Solid-State Power Supply): 6 — 6DJ8/ECC88

Power Requirements: 95-135VAC 60Hz (Export 190-270VAC 50/60Hz) 130 Watts maximum

Dimensions: (Each Chassis, EIA Rack Panel Mounting)

19" (48 cm) W x 5 1/4" (13.4 cm) H x 10 1/4" (26 cm) D

Handles extend 1 1/8" (4.1 cm) forward of panel. Interconnect cable extends 4" behind rear of chassis.

Weight: (2 Cartons)

SP11: Net 14 lbs. (6.4 kg); Shipping 23 lbs. (10.5 kg)

SP11PS: Net 15 lbs. (6.8 kg); Shipping 23 lbs. (10.5 kg)

TOTAL: Net 29 lbs. (13.2 kg); Shipping 46 lbs. (21.0 kg)

STEREO PREAMPLIFIER

The SP11 is a hybrid unit, utilizing both vacuum tubes and Field Effect Transistors (FETs). It is not intended that this product should somehow continue the controversy of "vacuum tubes" vs. "solid-state." Rather, in keeping with Audio Research's design philosophy of advancing the state-of-the-art, each type of device is used where it performs best.

One important result, aside from the dramatically improved quality of sound reproduction, is the use of only six vacuum tubes — tubes which need not be selected low-noise types. A significantly longer time between tube replacement is also expected.

As a last word, this preamplifier may well change your thinking about music reproduction. Because it is so incredibly "open" sounding, much information not previously audible is available, providing new insight and enjoyment from many sound sources. To be appreciated, the SP11 Preamplifier must be personally experienced; it cannot otherwise be adequately related.

Operational Features

Automatic warmup, brown-out, power-line interruption muting and manual muting at all preamplifier outputs, with new shunt circuitry.

Subsonic phono filter with 6dB/octave rolloff (to eliminate ringing) with transition to 12dB/octave.

Bypass switch for use with "audiophile quality" program material.

Absolute phase switch for main outputs, plus unswitched inverting and non-inverting outputs.

Full tape functions: two inputs, two recording outputs, plus tape copy and tape monitor functions.

Input/output connectors have heavy gold plating and connect "ground" before "hot".

Level set control in addition to normal gain control. Allows essentially unlimited input signal range while preserving optimum gain control usage.

Toroid power transformer for low mechanical noise and low external magnetic field.

To audition the SP11 Preamplifier, visit your authorized Audio Research dealer. Black front panels available at additional cost. Call or write for literature on the complete line of Audio Research products.

**audio research
corporation**

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Minneapolis, Minnesota 55430
Area Code 612/566-7570
Telex: 290-583

PREAMPLIFIERS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	MC MC MC	Unit Type: Tube = Mono M, Photo Stage Only = P, Moving Coil Stage Only = MC	Frequency Response Hz to KHz, ±dB	Maximum Output, V	THD, %	HF IM Distortion, %	Number of Tape & Processor Loops	MM Phono Sensitivity, mV for 0.5 V Output at 1 KHz	MM Phono Overload, mV	MC Phono S.N. - dB	MM Phono S.N. - dB	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Impedance, Ohms	Does Unit Invert Phase?	Price, \$	Notes		
																				20-95 +0,-1	1
AUDIF INTERFACE	CST-80 II CSA-50 CSA-50 II	MC MC MC		20-95 +0,-1 1.2-540 +0,-3 1.2-540 +0,-3	1 4.2 4.7	0.005 0.008 0.008				100 60 60					Yes Yes Yes	No No No	250.00 300.00	Transformer. Battery-operated.			
AUDILAB	8000C			20-20 ±0.5	7.7	0.01	0.01	2	1.5	175	79	75	100	2	85	47k	Yes	No	595.00	Class A; defeatable tone controls.	
AUDIOD PRD	SCA-1			30-50 ±0.2	4	0.02	0.02	3	Adj.		90	80	140	0	Var.	Var.	Yes		875.00		
AUDIO RESEARCH	MCP-2 MCP-33 SP-7 SP-8 SP-10 SP-11 SP-12RM	MC T/MC T T		0-400 +0,-3 10-250 +0,-3 0.1-400 +0,-3 1-100 +0,-3 1-100 +0,-3 0.1-200 +0,-3 1-70 +0,-3	1.5 10 14 60 60 80 50	0.005 0.005 0.002 0.01 0.01 0.002 0.02	0.01 0.002 0.002 0.002 0.002 0.002 0.07										Yes No No No No Yes Sel.	No No No No No No No	1395.00 1395.00 995.00 1895.00 3700.00 4900.00 1195.00	Selectable MC gain and impedance. As above. Auto and manual mute. Selectable MC impedance; dual chassis. Gain and level controls, bypass switch, hybrid, dual chassis.	
AUDIO SERVICES	Trans Valve	T		10-250 +0,-0.5	45	0.006	0.006	1				86					Opt.	No	1995.00	Optional moving-coil stage, \$800.00.	
AUDIRE	DiNet 2 Legato			0-100 +0,-0.25 0-100 +0,-0.25	18 10	0.005 0.005	0.001 0.001	2 2	1.00 1.00	285 150	86 75	72 130	130		100 170	47k 47k	Yes No	Var. No	855.00 410.00	Selectable MC impedance.	
A.V.A.	Super PAS Two Super FET Two Transcendence Series Two	T		20-20 ±0.1 20-20 ±0.1 20-20 ±0.1	7 12 12	0.1 0.001 0.001	0.1 0.001 0.001	1 3 3	0.5 0.5 0.5	150 150 150	70 78 80		50 50 50	0 4 4	10 10 10	47k 47k 47k	No No No	No No No	500.00 510.00 710.00	Installs in Dynaco PAS-3X, \$300.00. Installs in Dynaco PAT-5, \$395.00. Installs in Dynaco and Haller chassis.	
BEARD AUDIO	CA506	T		3-90 ±1	80	0.05						77	71			0	47k	Yes	No	2900.00	
BEDINI ELECTRONICS	66			20-150 ±3	10	0.015		2		500	98		155	0	47		No		580.00		
DAVID BERNING CD	TF-10A TF-10AH TF-12(R)	T T T		10-100 +0,-1 10-100 +0,-1 5-100 +0,-1	8 8 4	0.5 0.5 0.5		2 2 1	1.5 1.5 0.15	200 200 200	70 70 80		150 60 60	0 0 0	45 45 40	47k 47k 47k	No Yes Yes	No No No	1845.00 2095.00 2500.00		
B & K	PRO-5 PRO-10 PRO-10MC			5-100 ±1 5-100 ±1 5-100 ±1	7 7 7	0.01 0.01 0.01	0.01 0.01 0.01	2 1 1	0.7 0.5 0.5	105 100 100	87 89 89		636 450 450	2	100 100 100	47k 47k 47k	Yes Yes Yes	No No No	330.00 550.00 595.00		
BDULDER AMPLIFIERS	MM Preamp MM/MC Preamp			20-20 ±0.03 20-20 ±0.03	12 12	0.002 0.006		2 2	0.5 0.5	600 600	93 93		91		0 0	Var. Var.	Var. Var.	No Yes	Sel. Sel.	990.00 1290.00	
BRITISH FIDELITY	Pre Amp II P-172 MVT																0 2 0	Yes Yes Yes		450.00 650.00 1600.00	
BRYSTON	.5B 11B 12B TF-1			20-20 ±0.1 20-20 ±0.1 20-20 ±0.1 5-30 ±0.5	15 15 15	0.005 0.005 0.005 0.005	0.005 0.005 0.005 0.005	1 2 2	0.5 0.5 0.5	200 200 200	84 84 84		50 50 50	0 0 0	Sel. Sel. Sel.	50k 50k 50k	No No Yes Yes	Yes Yes Yes No	600.00 1100.00 1500.00 450.00	Five high-level inputs; headphone jack; remote out. As above.	
B & W	John Bowers Active Control Unit CU810					0.01 0.005	0.01 0.005	1 2	3 5.14	45 150	85 108		150 90.4	0 0			Yes Yes	No No	699.00 2150.00		
CANTON	EC-P1			7-2M	12	0.002	0.002	3	2		98	84	200	0				Yes		2000.00	
CARVER	4000t C-1 C-2			1-60 +0,-3 1-60 +0,-3 1-60 +0,-3	7 7 7	0.05 0.04 0.05	0.003 0.04 0.04	3 3 3	1.5 1.5 1.5	100 100 100	89 82 83	89 86 77		4 4 2	Sel. Sel. Sel.	47k 47k 47k	Yes Yes Yes	No No No	1199.00 599.00 399.00	Includes Sonic Hologram Generator. As above.	
CASCADE	SNP-2a	MC		2-150 +0,-1.5	0.6	0.03	0.025					84						Yes	No	355.00	
CELLO	Audio Suite																	No			Modular system; \$4950.00 base price; specs provided on request.

PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional		Unit Type: Tube = T, Mono = M, Stereo = S, Moving Coil Stage Only = MC		Frequency Response, Hz to kHz, ±dB		Maximum Output, V		THD, %		IHF IM Distortion, %		Number of Tube & Processor Loops		MM Phono Sensitivity, mV, for 0.5 V Output at 1 kHz		MM Phono S/N, -dB		MM Phono S/N, -dB, "A" Wtd. re. 5 mV		High Level Sensitivity, mV		Number of Tone Controls		MM Phono Input Capacitance, pF		Moving Coil Input?		Does Unit Invert Phase?		Price, \$		Notes	
	Model	Type	Min	Max	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000	100	1000		
CLASSE AUDIO	DR-7 NIL-2	MC	0.3-150		0.5						2										Adj.	Adj.	Yes	No	3495.00	1195.00								
CLEARAUDIO	Harmony	MC	0-1M +0.3		8	0.01	0.01				1													Yes	No	1500.00					Mounts directly onto cartridge; weight, 7 grams.			
CONRAD-JOHNSON	PV7 PV5 Premier 3 HV2 Premier 6	T T T T MC T MC	20-100 +0.1 20-100 +0.1 20-100 +0.1 20-100 +0.1 20-100 +0.1	25 25 25 10 10	0.1 0.05 0.05 0.05 0.05	0.1 0.05 0.05 0.05 0.05	2 2 2 2 2	0.65 0.15 0.20	500 500 500	72 72 72			65 20 20	0 0 0	150 150 150	47k 47k 47k	No No No Yes Yes	Yes No No Yes Yes	695.00 1485.00 2950.00 585.00 985.00															
CONTINUUM ELECTRONICS	CA-1	MC	10-100 ±1		5	0.05	0.03								82									Yes	No	450.00					Has RIAA; selectable input loading.			
CONVERGENT	SL-1	T	0.1-600 ±1.5		60	.0005	.0005				1	0.12	250	90	70	25	0				Adj.	Adj.	Yes	No	3495.00						External power supply; switched-resistor balance and volume.			
MITCHELL A. COTTER	MK-3L	MC	2-40 +0.1			0.001	0.001																	Yes	No	900.00					Shielded transformer for 1 to 10-ohm source resistance.			
	MK-3K	MC	2-40 +0.2			0.001	0.001																	Yes	No	900.00					As above but for 10 to 100-ohm sources.			
	PSC-3	P	2-40 +0.1		9	0.002	0.001				20	300	96				40	500k						No	No	1000.00					Requires PW-2B power supply.			
	CM-3 NFB-3		2-40 +0.05 15-40 +0.3		9 9	0.001 0.001	0.001 0.001				2					35	0								No	No	3300.00 900.00					High-level line inputs. Requires PW-2B power supply.		
	SYD-3		2-40		9	0.002	0.002				2	1.5	300	96		35	0	40	500k					Yes	No	8500.00					Cabinet-enclosed modular system.			
COUNTERPOINT	SA-9 SA-11(RD)	T/P T	1-350 1.6-200		100 100	0.1 0.05	0.12 0.07				3	2.5	1V												Yes	No	1995.00 3995.00					External power supply. Motor-driven potentiometers; system of Models SA-9 and SA-11. \$5990.00.		
	SA-2 SA-3.1 SA-5.1	T MC T T	0.5-350 2.5-30 ±0.1 0.5-88 ±0.1		38 70 70	0.18 0.08 0.08	0.18 0.08 0.08				1	2.5 0.5	800 700	80 86											Yes Yes Yes	Yes Yes Yes	995.00 995.00 1795.00					External transformer. As above; auto-mute.		
	SA-6 SA-7.1	T MC T	1-30 2-30 ±0.1		30 30	0.06 0.25	0.07 0.3				1	0.8	500											Yes Yes	Yes Yes	450.00 595.00					External transformer. Auto-mute.			
CROWN INTERNATIONAL	PSL-2		10-50 ±0.25		2.5	0.009	.0025				2	6.6	330	87		250	2	50	47k					No		595.00								
DAYTON WRIGHT	SPA Mk 1b SPD Mk 1	MC MC	0.55-290 ±1 1-400 ±1		8 8	0.001 0.001	0.001 0.001				2	0.2 0.2	160 160	82 85	76 79	15 15								Yes Yes	Yes No	1980.00 4500.00						Dual mono.		
	DW-536 DW-999			9-300 ±1.5 5-800 ±1		1.5 2	0.004 0.001	0.004 0.001						77 81										Yes Yes	No No	482.00 1300.00						As above.		
DB SYSTEMS	DB-1B/DB-2A DB-1A DB-2A DBR-15B/ DB-2A DB-4B	MC	20-20 ±0.04 20-20 ±0.04 20-20 ±0.04		9 10 10	.0008 .0008 .0008	0.001 0.001 0.001				1	0.9 0.9 0.9	150 150 150	77 77 77											No No No	Var. Var. Var.	650.00 495.00 1085.00					External power supply. As above.		
	DB-1A-HL/ DB-2A DB-1B-HL/ DB-2A			10-100 ±0.1		2	.0008	0.001								80									Yes	No	205.00					Model DB-2A power supply or DBP-1 cable required.		
				10-50 ±0.1		9	.0006	.0008				1					120								No	Var.	375.00					Five high-level inputs; no phono section.		
				10-50 ±0.1		9	.0006	.0008				1					120								No	Var.	530.00					As above.		
DEFINITIVE AUDIO	Little Black Box S.S.2 S.S.2S S.S.1 Adapter	T T T MC T MC T P	7-25 +0.1 20-125 ±0.7 15-140 ±0.4 15-65 ±0.5		5 4	0.15 0.5					2 1														Yes Yes Yes Yes	Yes Yes Yes	459.00 2395.00 695.00 199.00 299.00						Selectable impedance.	
DENNESEN	Sirius JC80	M	5-100 ±0.1 1-2M ±0.1		10 20	0.01 0.005	0.01 0.005				2 2	2 2	200 500	80 100	80 80	125 100	0 0	100 100	47k Adj.					No Yes	No Adj.	489.00 4000.00						External power supply.		
DENON	PRA-1100		10-100 ±0.2		10	0.001	0.003				3	2.5	160	96	79	150	3							Yes		425.00						Unity gain interface; variable loudness.		
	PRA-2000Z- 6K		10-100 +0.0-3		12	.0015	0.001				2	2.5	500	90	80	150	2							Yes		1600.00						As above.		
EIDOLON RESEARCH	Julia	T	0.1-200 +0.1-5		85	0.01	0.01				2	1.45	500	79	65	Sel.	0	Adj.	Adj.					Yes	Var.	3600.00						Dual mono.		
	Mental	T	0.5-150 +0.1-5		85	0.01	0.01				2	1.45	550	78	65	Sel.	0	Adj.	Adj.					Yes	Var.	2400.00						External power supply.		
	Salesia	T	0.5-150 +0.1-5		70	0.01	0.01				2	1.45	550	78	65	Sel.	0	Adj.	Adj.					Yes	Yes	1200.00						Passive and active RIAA.		
ELECTRO-COMPANET	PRE II		5-100 ±0.5		15	0.004					2	1.5	200	84	80	100	0	150	47k					No	No	1550.00						†Inverts phase only in MC stage.		
	EZ-1		5-100 ±0.5		15	0.002					2	1.5	250	84	80	100	0	150	47k					No	†	2025.00								

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Berlin Philharmonic/Karajan.
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Rumble, Side Walk, Cool Weasel Boogie, Got A Match?, etc.
GRP *DIGITAL* 140093

Lionel Richie: Can't Slow Down • All Night Long (All Night), Running With The Night, etc.
Motown 110767

Bach, Brandenburg Concertos Nos. 4-6 • The English Concert led by Trevor Pinnock.
Archiv *DIGITAL* 125417

Robert Palmer: Riptide
Addicted To Love, Hyperactive, I Didn't Mean To Turn You On, etc.
Island *DIGITAL* 133507

Pointer Sisters: Contact
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Money For Nothing, Walk Of Life, One World, etc.
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Dvořák, Symphony No. 9 (New World) • Chicago Symphony Orchestra/Solti.
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Elektra 153702

John Cougar Mellencamp: Scarecrow • Small Town, R.O.C.K. In The U.S.A., etc.
Riva 144512

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GRP *DIGITAL* 143293

Led Zeppelin IV (Runes) Stairway To Heaven, Black Dog, Rock And Roll, Four Sticks, etc.
Atlantic 112014

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Royal Philharmonic/Previn.
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153740



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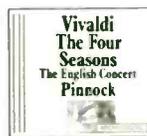
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PREAMPLIFIERS

MANUFACTURER	Model	Remote Included, (RI) = Remote Optional	Input Type: Tone - T, Mono = M, Phono Stage Only = P, Moving Coil Stage Only = MC	Frequency Response, Hz to kHz, ± dB	Maximum Output, V	THD, %	IHF IM Distortion, %	Number of Taps & Processor Loops	MM Phono Sensitivity, mV for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MC Phono S.N. - dB	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Price, \$	Notes		
																			Model	Remote Included, (RI) = Remote Optional
ELECTRON KINETICS	Eagle 2000			0.1-150	59	0.1	0.1	0.8	220	90	90	100	0	47	47k	Yes	No	1598.00		
ESOTERIC AUDIO RESEARCH	802 Head	T MC		5-80 + 0.1	10	0.03	0.05	2	250	90					No Yes	No No	1299.95 700.00	Transformer; three pairs of RCA inputs.		
GORDON INSTRUMENTS	Gordon (RI)			20-20 ± 0.1	5			1†				100	0		Yes	No	2400.00	†Input/output option, \$520.00.		
GSI	5TP 3TP	T T		10-300 ± 3 10-300 ± 3	50 30	0.003 0.01	0.004 0.01	1 1	750 500	80 82	75 70	800 800		100 100	47k 47k	Yes Yes	No Yes	1095.00 695.00	74-dB gain. As above.	
DAVID HAFLER CD.	DH-110 DH-100			20-20 + 0.1 20-20 ± 0.25	14 8	0.001 0.005		3 1	1.25 1.2	300 180	87 87	50 50	2 2	Adj. 130	47k 47k	No No	No No	440.00 225.00	Kit, \$360.00. Kit, \$175.00.	
HARMAN/KARDON	825			0.1-180 ± 3	8	0.006		2	1.1	220	83	80	135	2	Sel.	47k	Yes	No	550.00	
HEYBROOK	C-2			10-50 + 0.1	10	0.01	0.01	1	2.6		85	80	160	0	100	50k	Yes		698.00	Optional interconnects, \$59.95 per pair.
HITACHI	HCA8500H			5-20				2	2.5		90	75		2		47k	Yes	No	370.00	
JADIS	JP-80	T			39			1	5							47k			6400.00	
JANIS	CPA-100 PPA-202	MC		1-200 + 0.3 0.05-1.5M + 0.3	12 1	0.01 0.01	0.01 0.01	1	2.5	300	75		73	98	40	44k	Opt. Yes	Sel. No	1995.00 300.00	Plug-in for above model.
JORDAN	Preamplifier One			14-150	10	0.01	0.01	1	Adj.	200	72	72	100	0	Adj.	47k	Yes	No	875.00	External power supply.
JRM	Preamp			5-50 + 0.1	10	0.01	0.01	2	1.25		81		Sel.	Opt.	Sel.	Sel.	Opt.	No	450.00	Includes 10 watt/channel headphone amp; video inputs, subsonic filter.
KENWOOD	KC-105(RO) Basic-C1 Basic-C2			5-200 + 0.3 1-250 + 0.3 1-350 + 0.3		0.003 0.002 0.005		2 2 2	2.5 2.5 2.5	95 200 200	86 87 88	70 70		7 2 2	250 250	No Yes Yes	No No No	180.00 225.00 295.00	Built-in seven-band EQ.	
KINERGETICS	KPA-1			1-300 + 0.3	7.5	0.05	0.05	2	0.3	20	77	73	150	0	Var.	Var.	Yes	Sel.	775.00	Dual mono.
KLYNE AUDIO ARTS	SK-2A SK-4 SK-5 SK-6	MC		0.8-350 + 0.1 0.5-250 + 0.3 0.5-250 + 0.3 0.5-250 + 0.3	3 10 10 10	0.005 0.005 0.005 0.005	0.005 0 1 2	0 5 5 5	100 100 100 100	85 85 85 85	72 72 72 72	Adj. Adj. Adj. Adj.	Adj. Adj. Adj. Adj.	Adj. Adj. Adj. Adj.	Yes Yes Yes Yes	No No Var. No	750.00 2295.00 2995.00 1695.00	Switchable high-frequency contour and input impedance. Straight line version of SK-5; line amps optional. Dual mono. Optional phono amplifier.		
KRELL	PAM-5 PAM-3 KRS-2 KRS-1A KRS Balanced	M		0.05-1M 0.01-1.5M 0-1.5M	10 10 15	0.001 0.001 0.001	0.001 0.001 0.001	1 2 2	300 500 800	107 110 110	87 90 90	100 100 100		100 100 200	47k 47k 47k	Yes Yes Yes	No No No	1550.00 2850.00 4500.00	External power supply; CD filter. Dual mono; CD filter. D.c.-coupled; four transformers. Four chassis; d.c.-coupled. Differential input to output.	
KYDCERA	C-910			0-200 + 0.3	25	0.003	0.003	2	0.55	300	85	76	125	2	100	47k	Yes	No	1200.00	
LAZARUS ELECTRONICS		T MC		20-20 + 0.1 20-100 + 0.1	50	0.05		1	1.58	150	75		50	0		47k	No Yes	Yes	599.00	28-dB gain.
MARK LEVINSON	ML-12A ML-10A ML-7A ML-6B	M						1 1 2 1					0 0 0 0	Sel. Sel. Sel. Sel.	47k 47k 47k 47k	Yes Yes Yes Yes	No No No No	1525.00 3150.00 5750.00 3660.00	External power supply, PLS-124, \$435.00.	
LINEAGE	CP100			2-200 + 0.1	15	0.01	0.01	2					300	2			Yes	Sel.	1650.00	External power supply.
LINN	LK1(RO)							2	5				200	0		47k	Yes	Yes	695.00	
LOGAN LABS	PA-10B HLE-1010T PA-101	T P T MC		1-3M ± 1.5 1-1M ± 1.5	160 50	0.2 0.2		3	1V	72							Yes Yes	Yes Yes	5495.00 2695.00	External power supply. As above; pre-preamp for above model. Tube/FET hybrid; separate transformer.
LSR&D	The Leach Pre-Preamp	MC		0.2-200 + 0.3	4	0.005	0.005										Yes	No	170.00	Kit, \$100.00; selectable input impedance.
LUXMAN	LE-109 CD2 C05 T407/T107 (R1) U100(R1)			20-20 ± 0.3 10-100 + 0.1 2-100 + 0.05 15-40 + 0.1 10-100 + 0.3	6 18 18	0.005 0.005 0.005 0.18	0.007 0.006	2 2 2 1 2	2.5 2.5 2.5	130 270 285	103 90 90	87 77 80	150 150 150	2 0 0	47k 47k 47k	Yes Yes Yes		600.00 2200.00 750.00 350.00	Video inputs; Includes MTS TV tuner.	

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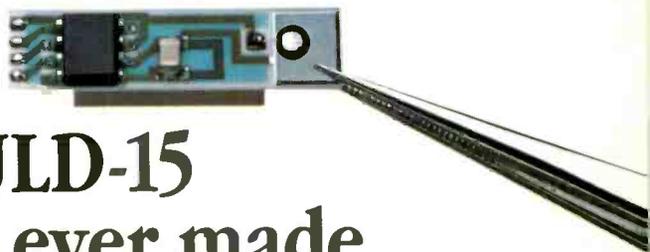
PREAMPLIFIERS

MANUFACTURER	Model (RI) = Remote Included (RD) = Remote Optional	Unit Type: Tape = T, Mono. M, Phono Stage Only = P, Moving Coil Stage Only = MC	Frequency Response Hz to kHz, ±dB	Maximum Output, V	THD, %	IHF IM Distortion, %	Number of Tape & Processor Loops		MM Phono Sensitivity, mV for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MC Phono S/N, -dB	Phono S/N, -dB	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Price, \$	Notes
							MM	MC											
MAN	MPA-1		0-180 +0, -0.1			1				100					No	No	2490.00	Dual mono.	
MAVRICK AUDIO	Spatial II Spatial HM Spatial Pro		2-200 ± 0.5 2-200 ± 0.5 2-200 ± 0.5	10 10 10		2 2 2		300 300 300	100 100 100			0 0 0		47k 47k 47k	No No Yes	No No No	4000.00 4700.00 10.000	External power supply. As above; dual mono. As above.	
McINTOSH	C34V C30 C504		20-20 +0, -0.5 20-20 +0, -0.5 20-20 +0, -0.5	10 10 10	0.01 0.007 0.02	5 4 2	0.40 0.40 0.40	91 115 91	84 84 84	250 200 250	5 5 3	65 65 50	47k 47k 47k	No No No	No No Yes	2195.00 1649.00 1090.00			
McLAREN AUDIO	602 402		5-100 +0, -1 5-100 +0, -1	16 16	0.015 0.015	0 0	0.05 0.05	150 150	92 92	86 86	100 100	0 2	Var. Var.	Yes Yes	Var. Var.	1195.00 1495.00			
MEITNER AUDIO	PA-6(RI)		1-100 +0, -3	8	0.01	0.01	1		95	94	500	0		†	Yes	††	1650.00	†Neg-Z current MM input. ††Remote has polarity inversion.	
MELOS AUDIO	GK-1 GK-2	T	2-300 ± 1 2-300 ± 1	40 40	0.09 0.09	1 1	1 1	600 600	90 90	70 76	50 50		180 180	47k 47k	Yes Yes	Yes Yes	1195.00 2295.00	External power supply. Tube/FET hybrid; external dual mono power supply.	
MERIDIAN	201(RI)					2								47k	Yes	No	900.00		
MILSPEC	1 2 CD 1 3	† P † † T	20-20 ± 0.2	10	0.02	0.02	2	1.5	86	78		0 0 0	100	47k	Yes		699.00 499.00 399.00 499.00	†Six passive inputs; Milspec 2 or equivalent required for phono. Dual mono. †Passive CD control unit. Line stage only; for use with Milspec 1, CD 1, or other passive control unit.	
MIRROR IMAGE	2P		0-1M	20	0.05	0.05	2					0	Adj.	47k	Yes	Adj.	950.00		
MONSTER CABLE	Alpha Plus	MC	0-3M +0, -3							72					Yes	No	475.00	Loading selectable on front panel.	
MDTIF	MC7 MC8 MC9		10-100 +0, -1 10-100 +0, -1 10-100 +0, -1	10 10 10	0.1 0.1 0.1	0.1 0.1 0.1	1 2 2	0.4 0.4 0.4	150 150 150	76 76 62	22 22 0	0 0 0	150 150 150	47k 47k 47k	Yes Yes Yes	Var. Var. Yes	3500.00 2250.00 1295.00	Line level only; optional phono card.	
MUSIC REFERENCE	RM-4 RM-5 MK-II	T T	2-200 +0, -1 2-100 +0, -0.2	20 30	0.01 0.05	0.01 0.05	2	0.25	1V	84 81	64 61	25	0 0	Adj. 200	Adj. 47k	Yes Yes	Yes Yes	750.00 1050.00	Auto-mute. As above; adjustable line gain.
NAD	1130 1155 1300		20-20 ± 0.5 20-20 ± 0.3 20-20 ± 0.2	8 15 15	0.04 0.02 0.02	0.04 0.02 0.02	1 2 3	1.4 1.2 1.2	180 200 220	76 80 83	76 78 79	90 80 80	2 2 2†	Sel. Sel. Sel.	47k 47k 47k	Yes Yes Yes	No No No	198.00 398.00 438.00	†Parametric.
NAIM AUDIO	NAC 42.5N NAC 42.5S NAC 32.5		20-20 ± 0.5 20-20 ± 0.5 20-20 ± 0.5				1 1 2	2.0 2.0 2.0			100 100 100	75 75 75	0 0 0	47k 47k 47k	Yes Yes Yes		535.00 535.00 795.00		
NAKAMICHI	CA-7A(RI) CA-5		1.5-100 +0, -3 1.5-100 +0, -3	20 16	0.002 0.002		2 2	2.5 2.4	250 170	90 90	90 90	200 200	3	Sel. Sel.	50k 47k	Yes Yes	No No	2195.00 750.00	
NEW YORK AUDIO LABS	IT Soprano in A Minuet in A Symphony in A Liqui 1T	P	10-40 5-40 5-40 1-50 1-150	12 12 30 35 30	0.15 0.15 0.05 0.01 0.05	0.05 0.05 0.05 0.01 0.05	2 2 2 2 2	0.5 0.5 Var. Var. 2					0 0 0 0 0	10 10 Var. Var. 47k	47k 47k 47k 47k 47k	Yes Yes Yes Yes Yes	No Yes Yes No Yes	169.00 599.00 949.00 4800.00 399.00	Hybrid; Model Super IT, \$269.00. Hybrid. As above; variable phono gain. Hybrid. As above; tube line stage; tape and CD dubbing.
NIKKO	B-50H B-30		10-20 10-20		0.004 0.004	0.004 0.004	5 3	2.5 2.5	200 200			150 150	2 2	47 47	47k 47k	Yes Yes	No No	470.00 320.00	
NOVA ELECTRO-ACOUSTICS	CPA-100 PPA-202	MC	1-200 +0, -3 0.05-1.5M +0, -3	12 1	0.01 0.01	0.01 0.01	1	2.5	250	75		98	0	40	44k	Opt. Yes	Sel. No	1995.00 300.00	Plug-in for above model.
NUMARK	MMX 2000 MMX 1000 DM 1950 DM 1900 DM 1700T		20-20 +0, -1.5 20-20 +0, -1.5 20-20 ± 1 20-20 ± 1 20-20	10 10 8 7 8	0.003 0.003 0.01 0.25 0.85		6 3 1 3 1	2.5 2.5 2.5 2.5 1.2		200 70 70 70			20 4 6 6 6	100 100 100 100 100	47k 47k 47k 47k 47k	No No No No No	No No No No No		Inputs: Six from three phono, six line, and four mike. As above. Inputs: Four from two phono, two line, and two mike. Inputs: Five from three phono, two line, two tape, and one mike. Digital echo. Inputs: Four from two phono, four line, and two mike.

PREAMPLIFIERS

MANUFACTURER	Model	(R) = Remote Included, (RO) = Remote Optional	Unit Type: Tube = Mono/M, Coil Stage Only = MC	Frequency Response, Hz to kHz, ±dB	Maximum Output, V	THD, %	IHF IM Distortion, %	Number of Stage & Processor Loops	MM Phono Sensitivity, mV, for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MC Phono S/N, -dB	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Price, \$	Notes		
																			MM Phono S/N, -dB	"A" Wid. re: 5 mV
NUMARK (Continued)	OM 1450			20-20	6	0.25		0	1.2		62		70	0	100	47k	No	No		Inputs: Two stereo phono or line, two mono line or mike. Inputs: Two phono or line, two mike. Inputs: Two phono or line, one mike.
	DM 1150A			20-20	6	0.25		0	1.2		62		70	0	100	47k	No	No		
	DM 650			20-20	6	0.25		0	2.5		66		150	0	100	47k	No	No		
ONKYO	P-308			0.8-170 ±3	8	0.003		2	2.5	300	92	81	150	2		47k	Yes	No	600.00	
	P-304			0.8-170 ±3	6	0.006		2	2.5	210	85	76	150	2		47k	Yes	No	450.00	
PAC	Pro-Reference II C.P.R.	T		10-100 +0,-1	28	0.01	0.01	1	0.3	300			30	0	100	47k	Yes	No	2895.00	
		MC		0-150 +0,-1	10	0.01	0.01										Yes	No	695.00	
PARASOUND	PR200			10-100 ±1	†	0.01	0.01	2	2	200	88		150	2	150	50k		No	219.95	†12.5 V. Variable loudness; bass EQ; no step-up needed for MC cartridges.
PEGASUS	Head Amp		MC	20-20 ±0.5	†	0.01	0.01										Yes	No	139.00	†8 mV. Variable cartridge loading.
PERFECTIONIST AUDIO	Pretentious One B		T	0.5-4M ±0.01	27	0.29	0.29	2	1.2	1V	85	80	300	0	100	Sel.	Yes	No	†	†\$56,305.49; kit, \$33,783.29. IBM-PC XT controlled digital switching and signal control.
PERREAUX	SX-1 SA-3 SM-3			20-50 ±0.25	9	0.009	0.009	1	2.5	350	86	66	285	2	100	Sel.	Yes	No	795.00	Class A. As above. As above.
				20-50 ±0.25	25	0.009	0.009	1	2	350	86	66	350	0	100	Adj.	Yes	No	1195.00	
				20-50 ±0.25	27	0.009	0.009	1	1.8	900	86	72	350	0	100	Adj.	Yes	No	1795.00	
PICKERING	P75		MC	10-120 ±3	4	0.035	0.002										Yes		189.00	For LZ cartridges; uses two 9 V batteries.
PIONEER	C-90(RI)			20-20 ±0.2		0.002			2.5	180	95	85				50k	Yes		799.95	Motor-driven volume potentiometer, 5 audio/5 video inputs, video enhancer.
PROTON	1100			20-20 ±0.3	24	0.005	0.003	2	2.5	290	94	79	150	2	Sel.		Yes		249.00	
PS AUDIO	4.5 5.0			1-20 ±0.1	18	0.01	0.01	5	180	88	80	2V	0	150	Var.	Yes	No	499.00	Includes line amp bypass. Dual mono; eight regulators.	
				1-20 ±0.1	18	0.01	0.01	5	180	88	80	2V	0	150	Var.	Yes	Sel.	995.00		
PSE	Studio One Studio SL			5-100 +0,-0.5	12	0.005	0.005	2	9	200	80	75	250	2	20	47k	Opt.	Sel.	760.00	
				5-100 +0,-0.5	12	0.005	0.005	1	Sel.	200	80		250	2	20	47k	Opt.	Sel.	590.00	
QUAD	44 34			20-20 +0,-1	5	0.05		2†	Sel.	Sel.	Sel.	63	Adj.	2	180	47k	Yes		895.00	†Interchangeable input modules.
				20-20 ±0.3	0.5	0.05		1	3	150	75	72	Sel.	2	220	47k	Yes		595.00	
QUICKSILVER AUDIO	M.C. Transformer		MC	1-100 +0,-3	2.8												Yes	No	250.00	23-dB fixed gain.
RANE	MP 24			15-30 +0,-3	†	0.03	0.01	2	8	180	91		100	4	200	47.5k	No	No	995.00	†7.75 V. Preamp/mixer, four stereo input channels, studio faders.
REVOX	B252(RO) B286(RO)			20-20 +0,-0.2	12	0.01	0.01	2	Adj.	23	75	75	160	2	Sel.	47k	Opt.	No	1200.00	†Tuner-preamp; see also "Receivers," Model B285, for tuner specs.
				20-20 +0,-0.2	6	0.005	0.01	2	Adj.	50	80	76	160	2	Sel.	47k	Opt.	No	1690.00	
ROBERTSON AUDIO	Twenty Twenty MC EK-1			0.2-400	†	0.009	0.005	1	2.6	127	88	72			100	47k	Yes	No	1495.00	†14.5 V. External power supply. With strain gauge cartridge.
				0.1-400	19	0.01	0.01	1										No	2000.00	
ROTEL	RC-870			20-20	5	0.004	0.004	2	2.5	150	78	64	Sel.	0	250		Yes	No	399.00	Polystyrene shunt capacitors.
ROWLAND RESEARCH	Coherence One			0.2-500 +0,-3	5	0.05	0.05	3	5	200	87	85	125		Sel.	Yes	Sel.	3600.00	No negative feedback; passive RIAA; external power supply.	
SAE	P102			20-20 +0,-0.5	7.5	0.01	0.01	3	1.3	120	82	75	150	2	200	47k	Yes	No	399.00	Two main outputs, programmable tone memories. Auto bridging circuit; optional speaker switcher, RS101, \$50.00. External power supply.
	P101			20-20 +0,-0.2	11	0.008	0.008	2	0.3	240	85	80	250	0	Sel.	Sel.	Yes	Yes	650.00	
	X1P			20-20 +0,-0.2	17	0.01	0.01	1	0.07	250	74	80	230	0	Sel.	Sel.	Yes	No	1200.00	

This little device makes Velodyne's ULD-15 the best subwoofer ever made.



It's called an accelerometer. And you'll find one attached to the voice coil of every Velodyne™ ULD-15™ Subwoofer System. Velodyne's patented High Gain Servo (HGS) technology uses the accelerometer to make the ULD-15'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.



™ Velodyne and ULD-15 are trademarks of Velodyne Acoustics, Inc.

More muscle. Accurate bass requires large drivers and lots of amplifier power. So the 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 ULD-15 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.

Call **800-VELODYNE** (408-748-1077 in California) for the Velodyne dealer nearest you.

Velodyne

2565 Scott Blvd. Santa Clara, CA 95050
(800) 835-6396 (408) 748-1077

PREAMPLIFIERS

MANUFACTURER	Model	MC	Gain		Frequency Response		THD, %	IMF IM Distortion, %	Number of Taps & Processor Logs	MM Phono Sensitivity, mV/0.5 V Output at 1 kHz	MM Phono Overhead, mV	MC Phono S.N. - dB	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Price, \$	Notes
			(RM) = Remote Included, (RO) = Remote Optional	Unit Type Tone = T, Mono = M, Phono Stage Only = P	0-500 +0. -3 0-300 +0. -3	Hz to kHz, ± dB													
SANSUI	C-2301 C-2102		0-500 +0. -3 0-300 +0. -3	1.2 1	0.003 0.003		2 2	2.0 2.5	350 300	90 88	80 70				47k 47k	Yes Yes		2400.00 650.00	
SESCOM	PO-11		20-20 ± 1	5	0.1	0.1		1.75	150	70		150	0	300	47k	No	No	40.00	PO-1 power supply required.
SIMA ELECTRONICS	P-2001		0-100 +0. -0.5	11	0.05	0.05	1	1	215	78	67	100		100	47k	Yes	No	595.00	
SONTEC	PPP-102		1-400 ± 1	15	0.003	0.003	0	Var.	150	88	68		0	Var.	Var.	No	No	825.00	Input stage gain-adjustable to match cartridge.
SOTA	Head Amp II	MC	1-500 +0. -3	2	0.03	0.03					90					Yes	No	500.00	Dual mono; selectable impedance.
SOUND-CRAFTSMEN	DX4200		5-100 ± 0.25	10	0.01	0.01	4	Adj.	300	97	97	90	†	Adj.	47k	Yes	No	699.00	†Dual 10-band EQ. Subsonic filter; analyzer; includes test record.
	DX4100 DX4000		5-100 ± 0.25 5-100 ± 0.25	10 10	0.01 0.01	0.01 0.01	4 4	2.8 2.8	200 200	97 97		90 90	† 0	100 100	47k 47k	No No	No No	549.00 399.00	As above.
	DX3000		5-60 +0. -1		0.01	0.01	2		150	85		90	2	100	47k	No	No	299.00	Subsonic filter; CD and video inputs. Inputs as above.
SPECTRAL	DMC-10 Series Delta		0-1M ± 0.1	40	0.01	0.01	1	1.5	1.2V	95	78	100		Sel.	Sel.	Yes	No	3195.00	External power supplies.
	DMC-6 DMC-5A		0-1M ± 0.1 0-1M ± 0.1	40 40	0.01 0.01	0.01 0.01	1 1	1.5 1.5	1.2V 1.2V	95 95	76 75	100 100		Sel. Sel.	Sel. Sel.	Yes Yes	No No	2495.00 1795.00	As above.
SPECTRASCAN	LCA-10		5-100 +0. -3	15	0.05	0.05	2	1.0	300	85	78	100	0	Sel.	47k	Yes	No	1095.00	Without MC input, \$895.00.
STANTON	310B SP98	P MC	20-20 10-120 ± 3	10 4	0.05 0.035			0.5	120	70			2	Adj.	47k	No Yes	No No	280.00 189.00	
	SRA-14S		20-20	2	0.003		2	2.5	200	80	78	150	0		47k	Yes	No	1800.00	Includes Class-A driver for Stax headphones.
STRELIOFF	PA/RS 1		10-60 ± 1.5	25	0.01	0.01	3	1.0	250	92	85	100		Sel.	Sel.	Yes	No	1500.00	External power supply; special order.
	PA/RS 11		10-60 ± 1.5	25	0.01	0.01	3	1.0	250	97	90	100		Sel.	Sel.	Yes	No	2000.00	As above; dual mono.
	PB 1	M	10-60 ± 1.5	25	0.01	0.01	3					100				Yes	No	850.00	Special order.
	PM 1 PMP 1	M M	10-60 ± 1.5 10-60 ± 1.5	10 10	0.01 0.01	0.01 0.01	2 2	1.0	250	95	88	100		Sel.	Sel.	Yes	No	500.00 750.00	As above.
SUMO	Electra Plus		2-100 +0. -3	18	0.01	0.01	1	0.37	125	85	80	50	2	10	47k	Yes	No	599.00	
SUPERPHON	Revelation Basic		0.2-300 ± 3	†	0.002	0.05	1	6.35 µV	180	80		124		100	47k	No	No	349.00	†14.5 V. Dual mono version, \$459.00.
TALISMAN	Alchemist		1-1M	10	0.01	0.01	1	0.85	200	79						No	No	1275.00	
TANDBERG	TCA 3008A		20-20 +0. -0.1	10	0.006	0.006	2	1	290	78	74	70	2		47k	Yes	No	995.00	
	TCA 3018A		20-20 +0. -0.1	10	0.006	0.006	2	1	290	78	74	80			47k	Yes	No	1695.00	No negative feedback.
TECHNICS	SU-A200		0.5-180 +0. -3	8	0.001		4	0.63	150	80	77	36	0		47k	Yes	No	1000.00	
	SU-A4MK2		0-100 +0. -3	8	0.006		2	1	92	82	150	4			47k	Yes	Yes	1100.00	
	SU-A6MK2		0.5-200 +0. -3	8	0.002		3	0.63	150	80	77	36	4		47k	Yes	Yes	600.00	
	SH-305MC	MC	3-300 ± 0.2		0.001											Yes		400.00	
THRESHOLD	FET ten pc	P	1.5-125 +0. -3	20	0.01	0.01		5		90	80		0	Var.	Var.	Yes	No	1100.00	Provides RIAA equalized high-level output.
	FET ten hi		1.5-125 +0. -3	20	0.01	0.01	2						0			No	No	1800.00	High-level inputs only.
	FET nine		1.5-125 +0. -3	20	0.05	0.05	2	5		88	78		0	Var.	Var.	Yes	No	1500.00	
VANDERSTEEN AUDIO	OL-1	MC	0.5-500 +0. -3	1	0.01	0.01					80					Yes	No	285.00	Variable loading.
VENDETTA RESEARCH	SCP-1	MC	0.1-1M	0.3	0.01	0.01					90					Yes	Yes	895.00	Variable loading, 10 to 200 ohms.
VSP LABS	Straightwire II		10-60 ± 0.5	9	0.05	0.02	2	0.5	245	82	72	500	0	47	47k	Yes	No	1090.00	
YAMAHA	C-85		20-20 ± 0.2	8.5	0.001	0.002	2	2.5	500	95	91	150	3	Sel.	Sel.	Yes	Yes	799.00	
	C-65		20-20 ± 0.2	8.5	0.001	0.002	2	2.5	500	95	91	150	3	Sel.	Sel.	Yes	Yes	549.00	
	C-45		20-20 ± 0.2	11	0.002	0.002	2	2.5	170	94	84	150	4	220	47k	Yes	No	369.00	
	C-2x		20-20 ± 0.2	10	0.001	0.002	2	2.5	500	100	94	150	2	Sel.	47k	Yes	No	1300.00	

...First the Bad News:
The FM forecast calls for
cloudy reception,
scattered signals and
severe mutipathing.



...Now the Good News:



The Terk 8403 FM antenna will delight audiophiles and music lovers . . . improved FM reception . . . minimize the effects of multipath interference.

—**VENTURE**
May 86

Technically sophisticated and visually attractive indoor antenna . . . agreeably discreet . . . blends nicely with contemporary furnishings.

. . . effectiveness comparable to that of a much larger antenna.

. . . by laying the antenna on its side, it becomes highly directional so that it can be aimed at a weak and distant station to be pulled in.

. . . considering the improvement it is likely to bring . . . this ingenious gadget seems well worth it.

—Hans Fantel

—**THE NEW YORK TIMES**
April 28, 1986

Your best bet is a good indoor antenna like the new electronically amplified one from Terk . . . the Terk antenna can help pull in weak or distant stations more clearly and even bring in stations you never heard before.

—**ROLLING STONE**
—June 1986



. . . this little antenna really does a great job . . . it will help you get more out of your FM radio than you thought was possible — especially if you are a city dweller who had all but given up hope of receiving clean, noise-free, distortion-free signals.

—Leonard Feldman
—**AUDIO**
January 86

Terk 8043 takes laurels, rounding out the trio of Accessories winners . . . results in an increase in the number of available FM stations as well as in audible reception of existing stations. (The 16 $\frac{3}{4}$ -inch-high antenna contains a signal amplifier with an adjustable gain of 0 to 24dB.)

—**AUDIO VIDEO**
October 1985

Introducing The Terk 9500 The Best Reception Ever.

There's not a lot we can say that the critics haven't already said. In fact, being named Audio Video's 1985 "Product of the Year" pretty much says it all. But we would like to introduce you to our newest antenna, the Terk 9500. It does everything the award-winning 8403 does, yet remarkably, it even does it a little better.

It should come as no surprise that the forecast for the 9500 calls for another brilliant reception from the critics as well as from your tuner.

TEDVTM
Technologies Corp.

20930 South Bonita St.
Carson, California 90746
213/538-5300

TUNERS



TANDBERG TPT 3001A



HARMAN/KARDON TU912



NAKAMICHI ST-7

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	FM Only = F, digitally Synthesized = D, AMX Decoding = X	AM Stereo Capable? See Code	IHF Sensitivity, dB1, Mono-Stereo	Signal Strength for 50db Duetting, dB1, Mono-Stereo	Capture Ratio, dB, Mono-Stereo	AM Suppression, dB	Alternate Channel Selectivity, dB, Wide-Narrow	Total Number of Memory Presets	Separation, dB, 1 KHz	THD, % Mono Stereo, 1 KHz, 100% Modulation	THD, % Mono Stereo, 6 KHz, 100% Modulation	Maximum S.N., -dB, Mono/Stereo	Weight, Lbs.	Price, \$
ACCUPHASE	T-106 T-107	D F/D	No No	11.29 11.29	17.37 17.37	1.5/ 1.5/	80 80	70/100 70/100	14 12	50 50	0.04/0.04 0.04/0.04	0.04/0.08 0.04/0.08	83/79 90/85	20 13	1400.00 925.00
AOCOM	GFT-555 GTP-500(RI) Tuner/Preamp	D D		9.5/	12.35.5 12.5.36.5	1.5	70		16 16	53 52	0.04/0.07 0.09	0.05/0.09	85/78 75	14	299.95 499.95
AOS	T2	D	No	11.0/26.1	14/35	2.5	55	75	16	38	0.15/0.2		70/65	13	400.00
AKAI	AT-S7 AT-A301	D D	No No		16.2/37.2 16.2/37.2	1.0 1.5	70 60	80 60	20 16	53 45	0.03/0.05 0.1/0.3	0.03/0.05 0.1/0.3	80/75 75/65	7 1/4 6	280.00 220.00
AR	T-04(RI)	D	No	11.2/	14.8/33.2	1.5	60	70	16	40	0.2/0.3	0.2/0.3	75/73		370.00
AUDIO DESIGN ASSOCIATES	FM600	F	No	10.8/		1.9		90	6	47	0.15		65	12	2395.00
A.V.A.	Super FET Transcendence	F F/D	No No	10/ 11/	19/ 17.2/37.2	1.5 1.5	58 60	65 60	0 5	40 45	0.5/0.9 0.1/0.18		65 72/68	11 12	450.00 735.00
CARVER	TX-11a TX-2	D D	M	11.3/16.3 16.1/23.5	11.3/16.3 16.1/23.5	1.0 1.6	75 72	35/110 58	13 8	45 42	0.05 0.2	0.05 0.2	82 74	11 9	699.00 399.00
CREEK	3140	F	No	10/17	9.0/32.0	0.4/3	50	30/100		32	0.2/0.3	0.3/0.4	80/70	4	350.00
CROWN INTERNATIONAL	PFM-3	D	No	9.31/	14.2/30.3	1.5	80	75	12	60	0.05/0.05		80/75		795.00
CURTIS MATHES	AT360	D	No		18.1/38.1		55	65	16	40	0.2/0.3		75/71	2.4	
DENON	TU-400 TU-600	D D	No No	17.3/38.5 15.3/37.2		1.5 1.5/	50 65	60 50/70	16 20	40 55	0.08/0.15 0.03/0.04		80/76 92/86	7 8	250.00 350.00
GSI	T-1	F	No	8.8/11.2	13.2/34	1.5/1.5	60	50/83	5	60	0.02/0.05	0.02/0.07	75/73	18	795.00
DAVID HAFLER CO.	DH-330	F/D	No	11.3/	17.2/37.2	1.5		70	5	45	0.15/0.18		72/68	9	460.00/ Kil. 385.00
HARMAN/KARDON	TU905 TU912 TU915	D D D		10.8/ 11.2/ 10.8/	/37.3 /37 /37	1.3 1.0 1.0	50 56 60	70 60 70	16 16 16	45 60 60	0.09/0.15 0.06/0.08 0.05/0.08		77/71 82/74 82/74	10 10 10	215.00 295.00 450.00
HITACHI	FT5500II	D	No	10.8/	18.2/36.2	1.0/	65	35/80	16	65	0.02		88/82	7	350.00
JVC	FX-50BK	D	No	10.3/	14.8/38.3	1.5	60	70	32	50	0.08/0.08		84/78	7 1/2	
KENWOOD	KT-880 KT-75 KT-45			10.8/ 18.8/ 10.8/	16.2/38.8 16.3/39 14.7/39	1.0 1.5 2.0	70 66 55	65 50 60	12 20 14	68 45 45	0.018/0.02 0.2/0.22 0.2/0.3		88/83 78/74 76/70	7.3 6.4 6.4	235.00 190.00 130.00
KINERGETICS	KBT-1	D	No	9.0/11.2	13.5/36.0	1.5/1.5	60	50/70	10	40	0.02/0.05	0.02/0.05	75/73	13 1/2	660.00
KYOCERA	T-910	D	No	9.8	14.8	1.0	65	40/85	16	58	0.06/0.07	0.06/0.07	88/76	26 1/2	590.00
LUXMAN	T-100(RO) T-102(RO) T-02	D D D	No No No	10.8/ 10.3/ 10.3/	19.0/39 16/37 15.8/36.8	1.5 1.0/1.75 1.3/2.5	70 70 65	65 45/80 66/100	16 20 24	50 60 55	0.1/0.15 0.05/0.06 0.05/0.06	0.2/0.3 0.1/0.15 0.06/0.08	75/70 85/75 81/77	5.1 5.5 10.6	250.00 330.00 500.00
MAGNUM/DYNALAB	FT-101	F		10.3/11.2	13.2/34.0	2.0/1.5	70	55/75	7	60	0.1/0.18		80/70	12	549.00
MARANTZ	ST560	D	No	10.8/	15/37	1		60	24	45	0.15/0.3		76/70	5	300.00



TUNERS

MANUFACTURER	Model (RD) = Remote Included, (RD) = Remote Optional	F/D	Syn. No	FM Only = F, Digitally Synthesized = D, AM Stereo Capable? See Code		Signal Strength for 50 db	Capture Ratio, db	AM Suppression, db	Alternate Channel Selectivity, db	Total Number of Memory Presets	Separation, db, 1 kHz	THD, %, Mono/Stereo, 1 kHz, 100% Modulation	THD, %, Mono/Stereo, 6 kHz, 100% Modulation	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$
				13/13	18/36											
McINTOSH	MR7082 MR510	D	No	13/13	18/36	1.5	60	55	14	50	0.08/0.08	0.08/0.12	80/75	15	1499.00	
MELOS AUDIO	FM-T	F/D	No	8.8/11.2	13.2/34	1.5/1.5	60	50/83		60	0.02/0.23		75/73		1195.00	
MISSION	Cyrus T	D	No	26/46			52	58	27	36	0.15/0.4		73/71	4.4	449.00	
NAD	4130 4155 4300	D D D.X	No No No	10.3/ 10.3/ 9	16.25/ 15.8/24 11.2/22	1.5/ 1.5/ 1.5	60/ 65/ 70	65/ 70/ 80	10/ 10/ 16	50/ 50/ 50	0.09/0.09 0.09/0.09 0.07/0.07		80/75 82/75 85/80	7 1/4 8 3/4 10 1/2	228.00 428.00 548.00	
NAIM AUDIO	NAT 01 NAPST NAT 101	F F												22 9	1995.00 790.00	
NAKAMICHI	ST-7(RD)	D	No	10.0/17.0	14.0/28.0	1.9	60	60	16	55	0.06/0.08		80/76	10 1/2	725.00	
NEC	T-6 T-601E(RD)	D D	No No	13.2/17.4 13.2/18.8	15.9/36.8 15.8/38.3	1.0 1.4	60 55	80 60	14 16	55 40	0.06/0.08 0.15/0.3	0.06/0.08 0.15/0.3	83/78 75/70	8.6 7	229.00 199.00	
NEW YORK AUDIO LABS	Major Armstrong	F/X	No	10.8/	13.5/36.1	1.5/	60	50/70	0	55	0.05/0.1		75/70	15	999.00	
NIKKO	G-30 NT-700II	D D	No No	11.2/ 11.2/	14/20 14.7/20			60 60	12 12	45 45	0.15/0.2 0.1/0.2		70/67 75/68	8 3/4 9 1/2		
ONKYD	T-9090 T-4087 T-4057 T-4038	F/D D D D	No No No No	12.8/18 10.3/17.2 10.8/17.2 11.2/	15.8/37.2 16/36 16.1/36.1 16.1/36.1	1.0 1.0 1.3 1.5		80 80 55 50	20 20 20 16	55 45 40 40	0.009/0.02 0.03/0.07 0.1/0.2 0.1/		95/85 85/77 75/68 73/	15 11 9 7	650.00 380.00 260.00 160.00	
PARASOUND	ST220	D	No	10.8/37.7	18.1/	1.4	65		12	48	0.1/0.15	0.1/0.15	82/76	10	239.95	
PERREAU	TV-1 TV-3	F/D F/D	No No	10.3/ 12.8/	15.3/35.8 17.3/36.8	1.5 1.5	50 50	45 45	7 7	50 50	0.12/0.14 0.12/0.14		70/68 70/68	12 13 1/2	650.00 795.00	
PIONEER	TX-V1160 F-77 TX-1060 F-99X Elite	D D D D	No No No No	11.2/ 10.8/ 11.2/ 10.8/	17.3/38.2 14.2/35.9 36.2 12.8/34.8	1.0 1.0 0.8		65 56 67 85	24 60 16 16	40 60 40 40	0.2 0.05/0.08 0.35 0.0095/0.02		80/75 86/81 78/71 94/87	9.1 5.2 5.5 9.2	329.95 239.95 149.95 324.95	
PROTON	440 430R(RD)	D D	No No			1.5 1.5	60		12	45	0.2 0.2		83/74	15	249.00 219.00	
PSE	Studio III	F	No		17/40	1	70		6	55	0.1/0.2		75/70	9	535.00	
QED	T237	F	No				55		4	45			72/	9	350.00	
QUAD	FM4	F	No		10/29	1.5	60	53	7	40	0.15/0.15		76/70	7	595.00	
RCA	Dimensia MAT110(RD)	D	No	11.2/	19.2/38.2	1.0	50		16	45	0.1/0.15		82/77	5 1/4	249.00	
REVOX	B261(RD)	F/D	No	10.8/34.8	13.2/34.8	2.2	72	78/	20	43	0.03/0.07	0.01/0.01	79/75	18 3/4	1500.00	
ROTEL	RT-830 RT-850	D D	No No	10.8/ 10.8/		1.5 1.0	60 65	60 65	0 16		0.2/ 0.07/		70/ 80/	7 8.4	199.00 299.00	
SAE	T102 T101	D D	No No	10.3/17.0 10.3/17.0	14.0/34.0 14.0/35.3	1.5/ 1.2/2.2	55 60	30/80 40/100	16 16	45 55	0.10/0.15 0.05/0.08	0.15/0.20 0.10/0.15	75/70 75/70	17 20	349.00 650.00	
SANSUI	TU-099AMX TU-D55X TU-D33X	D D D	U No No	10.8/ 10.8/ 10.8/	16.2/37.7 16.0/36.0 16.0/36.0	1.0 1.0 1.0			16 16 12	60 50 40	0.015/0.02 0.05/0.08 0.08/0.12		90/84 85/79 78/72	7.7 6.2 5.1	450.00 300.00 250.00	
SONY	ST-S444ESII ST-S222ES	D D	No No	10.3/ 10.3/	16.1/38.3 16.1/38.3	1 1	65 65	80 70	10 10	50 50	0.05/0.1 0.05/0.1	0.2/0.3 0.2/0.3	90/84 86/80	11 11	250.00 200.00	
SOUNDCRAFTSMEN	T6200	D	No	9.5/30	12/36	1.0	65	70	16	50	0.08/0.1		80/75	12	299.00	
SUMO	Charlie	F/D	No	13/18	17/37	1.0/1.0	60	65/100	5	50	0.04/0.05	0.05/0.08	80/74	12	499.00	
TANDBERG	TPT 3001A TPT 3011A	F F	No No	7.5/ 7.8/	9.3/32.1 14.8/37.3	0.4/3 0.9	70 70	30/100 100	8 8	70 50	0.03/0.04 0.2/0.3	0.03/0.1 0.3/0.4	95/92 78/75	15.3 12.6	1495.00 895.00	
TECHNICS	ST-G6T ST-G7(RD) ST-G50 ST-G40	D D D D	No No No No	12.8/ 12.8/ 10.8/ 10.8/	20.2/40.2 18.1/38.1 18.1/38.1	1.0/ 1.0/ 1.0/ 1.0	55 70 55 55	45/25 55/25 45/25 60	16 16 39 16	55 65 60 50			80/73 80/73 80/73	5.1 9 4.8 4.8	330.00 475.00 245.00 180.00	
VECTOR RESEARCH	VU-1500	D	No	11.2/	14.6/37	1.0	58	60	16	50	0.08/0.2	0.2/0.3	75/73	8 1/2	199.95	
YAMAHA	T-85 T-1020 T-720 T-520 T-420	O D O D D	No No No No No	10.3/ 10.3/ 10.3/ 9.3/ 9.3/	15.3/20 15.3/20 15.3/20 15.1/37.7 15.3/37.7	1.2 1.2 1.5 1.5 1.5	70 65 60 55 55	90 90 55 85 85	20 20 20 16 16	68 55 50 40 40	0.02/0.03 0.04/0.05 0.05/0.07 0.1/0.2		95/87 90/84 88/84 81/76 82/76	11 7 1/4 7 1/2 6 1/4 5	449.00 359.00 299.00 249.00 189.00	



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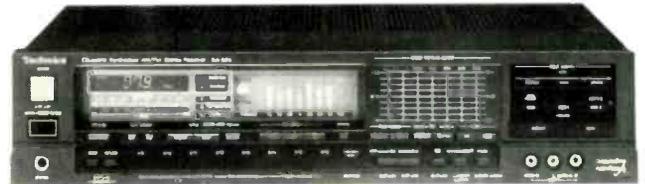
NAKAMICHI SR-4A



REVOX B285



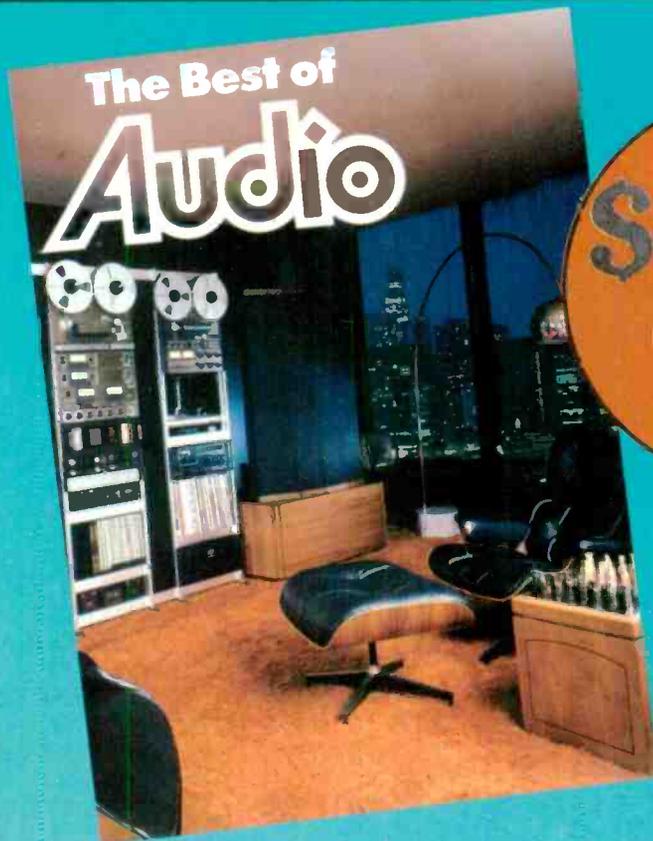
SONY STR-AV880



TECHNICS SA-590

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	FM Only = F, D; Stereo Capable = S, A	AMPLIFIER SECTION										TUNER SECTION							
			Average Watts per Channel, 8 Ohms @ 1 Ohm	THD, %	IHF IM, %	Rated Power Bandwidth, Hz to kHz	MM Phono S/N, dB, "A" Wdr. r. 5 mV	MM Phono Dynamic, mV	Video Inputs?	Surround/Debut Ambience Circuitry?	Total Number of Memory Presets	IHF Sensitivity, dB, Mono Stereo	Signal Strength for 50-dB Dynamic, dB, Mono Stereo	Capture Ratio, dB	THD, % 1 kHz, 100% Modulation, Mono Stereo	Alternate Channel Selectivity, dB	Maximum S/N, dB, Mono Stereo	Weight, Lbs.	Price, \$	
ADS	R4(RD)	D	70/70	0.05	0.05	20-20	80		2.0	Yes	No	30	11/26	14/35	2.5	0.1/0.15	65	75/70		800.00
AKAI	A-V405(RI)	D	100	0.05		20-20				Yes	Yes	16		16.2/37.2	1.5	0.1/0.3	60	75/65	23.1	550.00
	A-V305(RI)	D	50	0.05		20-20				Yes	Yes	16		16.2/37.2	1.5	0.1/0.3	60	75/65	22	460.00
	A-V205(RI)	D	60	0.05		20-20				Yes	Yes	16		16.2/37.2	1.5	0.1/0.3	60	75/65	16.3	370.00
	A-V105	D	35	0.3		40-20				Yes	Yes	16		19.2/40.2	2.0	0.2/0.4	60	70/60	11.7	230.00
AR	X-10(RI)	D	100	0.03	0.03	20-20	80	120	2	Yes	No	16	11.2	14.6/33.2	1.5	0.2/0.3	70	75/73		800.00
	X-06(RI)	D	60	0.03	0.03	20-20	78	150	2	Yes	No	16	11.3	17.2/36.1	1.5	0.2/0.3	70	75/73		600.00
	X-D4	D	40	0.03	0.03	20-20	75	105	2	Yes	No	16	11.3	17.2/37.2	1.5	0.2/0.3	60	75/73		380.00
BANG & OLUFSEN	Beomaster 5500(RI)	F/D	50	0.09	0.1	20-20	80	125	1.5	No	No	20	14/19	19/40	1.7	0.16/0.2	70	75/70	19.2	1659.00
	Beomaster 3000(RI)	F	30	0.1	0.1	20-20	75	50	1.6	No	No	5	17/22	23/43	1.7	0.3/0.35	60	72/67	15	649.00
CARVER	2000		200	0.15	0.1	1-30	85	100		Yes	Yes	6	16.1/23.5	16.1/23.5	1.0	0.2	42	78	33	1595.00
	Recalver		150	0.05	0.05	1-30	85	100		Yes	Yes	6	16.1/23.5	16.1/23.5	1.0	0.2	40	76	28	875.00
	900		90	0.15	0.1	1-30	85	100		Yes	Yes	8	16.1/23.5	16.1/23.5	1.0	0.2	38	74	26	635.00
DENON	DRA-95VR	D	85/195	0.02	0.01	5-40	90	470		Yes	Yes	16		16.4/37.3	1.5	0.05/0.08	60	85/81	26	650.00
	DRA-75VR(RI)	D	65/150	0.02	0.03	5-40	88	470		Yes	No	16		16.4/37.3	1.5	0.07/0.12	60	82/80	25	500.00
	DRA-55V	D	55/93	0.01	0.025	5-40	86	470		Yes	No	16		16.4/38.5	1.2	0.08/0.15	55	82/78	16 1/2	400.00
	DRA-35V	D	40/81	0.03	0.03	5-40	86	470		Yes	No	16		16.4/38.5	1.2	0.1/0.2	55	82/78	13	300.00
HARMAN KARDON	hk385i	D	30	0.09		10-60	80	185				10	11.2	16.8/37	1.5	0.08/0.12	60	74	13.9	295.00
	hk395i	D	30	0.09		10-60	80	185				10	10.8	15.6/37	1.2	0.08/0.12	65	75	13.9	395.00
	hk495i	D	45	0.09		10-60	80	185				16	10.8	15.6/37	1.2	0.08/0.12	65	75	15.4	550.00
	hk795i	D	70	0.08		10-100	80	220				16	10.8	14.6/37	1	0.08/0.06	70	75	23.4	750.00
HITACHI	HTA25F	D	25	0.5	0.5	20-40	70	140		Yes	No	12	13.2	20.2/38.2	1.0	0.3/0.4	53	74/70	11	200.00
	HTA35F	D	35	0.05	0.05	10-30	72	140		Yes	No	8	13.2	20.2/38.2	1.0	0.15/0.25	53	74/70	12	250.00
	HTA55F	D	55	0.05	0.05	10-30	72	140		Yes	No	20	13.2	20.2/38.2	1.0	0.15/0.25	53	74/70	15	400.00
	HTA70F	D	70	0.03	0.03	10-30	72	140		Yes	No	20	13.2	20.2/38.2	1.0	0.15/0.25	53	74/70	18	540.00
	HTA50AV(RI)	D	50	0.05	0.05	10-30	72	140		Yes	Yes	20	13.2	20.2/39.2	1.0	0.5/0.5	50	74/70	13.5	550.00
	HPT120AV(RI)	O		0.05	0.05	72	140			Yes	No	20	13.2	20.2/39.2	1.0	0.5/0.5	50	74/70	8.2	400.00
	Tuner/Preamp																			
JVC	R-X9VBK(RI)	D	120	0.007	0.007	5-50	80			Yes	No	32	10.3	14.8/38.3	1.5	0.08/0.08	70	84/78	23	
	R-X7VBK(RI)	D	70	0.007	0.007	5-30	78			Yes	No	32	10.3	14.8/38.3	1.5	0.08/0.08	70	84/78	20.5	
	R-X5VBK(RI)	O	60	0.007	0.007	5-30	78			Yes	No	32	10.8	16.3/38.3	1.5	0.15/0.2	60	82/73	19.9	
	R-X3BK(RI)	O	45	0.08		10-30	78			No	No	32	10.8	16.3/38.3	1.5	0.15/0.2	60	80/73	10.4	
	R-X1BK(RI)	D	35	0.08		10-30	78			No	No	32	10.8	16.3/38.3	1.5	0.15/0.3	60	80/73	10	
	R-X111	D	25	0.5		10-30	78			No	No	16	10.8	16.3/38.3	1.5	0.15/0.3	60	80/73	8.4	
KENWOOD	KR-V95R(RI)		100	0.008	0.008		85		2	No	No	20	10.8	14.2/36.8	1.0	0.07/0.1	55	80/72	19.8	510.00
	KR-V75R(RI)		70	0.008	0.008		73		2	No	No	20	10.8	14.2/36.8	1.0	0.07/0.1	55	80/72	19.4	420.00
	KR-V55R(RI)		55	0.03	0.03		73		3	No	No	24	10.8	14.2/37.1	1.2	0.09/0.12	55	78/72	14.8	330.00
	KR-V45		55	0.03	0.03		73		3	No	No	24	10.8	14.2/37.1	1.2	0.09/0.12	55	78/72	14.8	280.00
KYOCERA	R-861(RD)	F/D	100	0.02	0.02	10-60	85	150	1.0	Yes	No	14	9.8/17.3	14.8/35	1.0	0.06/0.07	40	82/74	27	975.00
	R-661(RD)	F/D	70	0.02	0.02	10-60	82	82	1.0	Yes	No	14	10.1/17.5	15.5/36.5	1.0	0.07/0.1	40	80/76	25	750.00
	R-461(RD)	F/D	50	0.02	0.02	10-80	82	82	2.1	Yes	No	12	10.3/17.8	17.0/37.2	1.2	0.09/0.15	55	77/72	18 1/2	550.00

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MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	FM Only - F. Digitally Synthesized - D. AM Stereo Capable - A	AMPLIFIER SECTION										TUNER SECTION								
			Average Watts per Channel, 8 Ohm/4 Ohm	THD, %	IHF IM, %	Rated Power Bandwidth, Hz to kHz	MM Phono S/N, dB; "A" - Wdr. fr. 5 mV	MM Phono Overload, mV	Video Inputs?	Surround Decoupling Circuits?	Total Number of Memory Presets	IHF Sensitivity, dBf, Mono Stereo	Signal Strength for 50-dB Quieting, dBf, Mono Stereo	Capture Ratio, dB	THD, % 100% Modulation, 1 kHz, Mono Stereo	Alternate Channel Selectivity, dB	Maximum S/N, -dB, Mono Stereo	Weight, lbs.	Price, \$		
LUXMAN	R-406	D	60	0.05		20-20	86		No	No	No	16	10.3/	17.2/37.2	1.4	0.14/0.15	60	79/72	18.7	660.00	
	R-106	D	60	0.05		20-20	86		No	No	No	16	10.3/	17.2/37.2	1.4	0.14/0.15	60	79/72	18.7	660.00	
	R-105	D	55	0.05		20-20	86		No	No	No	16	10.8/	17.2/37.2	1.4	0.14/0.15	60	79/72	15	500.00	
	R-104	D	33	0.08		20-20	86		No	No	No	16	10.8/	17.2/37.2	1.4	0.14/0.15	60	79/72	13.4	380.00	
MARANTZ	SR250	D	25	0.25	0.25	40-20	75	120	No	No	No	16	12.1/						13.2	200.00	
	SR360	D	30	0.25	0.25	40-20			No	No	No	16	11.2/							200.00	
	SR560	D	50	0.15	0.15	40-20			Yes	Yes	No	16	11.2/							250.00	
	SR940	D	110	0.01	0.01	20-20	85	225	No	No	No	16	9.8/	13.1/35	0.9	0.1/0.2	65	72/65	28.7	630.00	
	TA60	D	60	0.1	0.1	20-20	75	100	No	No	No	24	11.8/	16.8/39.2	1.2	0.2/0.3	50	75/68	20.9	350.00	
	TA80	D	80	0.09	0.09	20-20	75	100	No	No	No	24	11.8/	16.8/39.2	1.2	0.2/0.3	50	75/68	20.9	430.00	
	TA130	D	130	0.05	0.05	20-20	80	120	No	No	No	16	11.3/	16/38	1.0	0.15/0.3	50	76/68	29.8	570.00	
TA165	D	165	0.05	0.05	20-20	80	120	No	No	No	16	10.8/	15/37	1.0	0.15/0.3	50	76/68	34.2	650.00		
MCIINTOSH	MAC4200	D	75/100	0.02	0.02	20-20	80	95	1.4	No	No	12	13/13	16/30	1.5	0.08/0.12	70	75/70	40	2890.00	
MITSUBISHI	DA-R56	D/A	70	0.015		20-20	90		Yes	Yes	Yes	14		16.4/37.3	1.5	0.2/0.3	60	82/75	22	400.00	
	DA-R46	D/A	50	0.015		20-20	90		Yes	Yes	Yes	14		16.4/37.3	1.5	0.2/0.3	60	82/75	21	300.00	
NAD	7235PE	D	35	0.03	0.03	20-20	76	170	6	Yes	No	10	10.3/	14.2/34.2	1.5	0.09/0.09	70	82/75	17 1/2	398.00	
	7250PE	D	50	0.03	0.03	20-20	76	170	6	Yes	No	10	10.3/	14.2/29	1.5	0.08/0.08	70	82/76	20 1/4	598.00	
	7175PE	D	75	0.03	0.03	20-20	76	170	6	Yes	No	10	10.3/	14.2/29	1.5	0.08/0.08	70	82/76	20 1/2	748.00	
	7220PE	D	20	0.03	0.03	20-20	76	170	5	Yes	No	10	10.3/	14.2/34.2	1.5	0.09/0.09	70	82/75	14	278.00	
NAKAMICHI	SR-4A(RI)	D	60	0.1	0.1	20-20	89	150		Yes	Yes	10	11/	14.7/37.5	1.5	0.07/0.09	60	79/74	22 1/4	599.00	
	SR-3A	D	45	0.1	0.1	20-20	89	150		Yes	Yes	10	11/	14.7/37.5	1.5	0.07/0.09	60	79/74	19	449.00	
	SR-2A	D	30	0.1	0.1	20-20	89	150		Yes	Yes	10	11/	14.7/37.5	1.5	0.07/0.09	60	79/74	18 1/4	449.00	
NIKKO	NR-1050	D	100/175	0.03	0.03	10-30	88					20	7.3/35			0.1/0.2			19 1/2		
	NR-850	D	65/120	0.03	0.03	10-30	88					20	7.3/35			0.1/0.2			14 3/4		
	NR-750	D	48/75	0.04	0.04	10-25	75					16	14/20			0.1/0.2			13 1/2		
	NR-650	D	38/65	0.05	0.05	10-25	75					16	14/20			0.1/0.2			12 1/2		
	NR-350	D	32/50	0.05	0.05	15-20	75					16	14.2/35			0.1/0.2			12 1/2		
DNKYD	TX-108(RI)	D	100	0.02	0.02	20-20	76	200	1.3	Yes	No	16	10.3/17.2	14.7/37.2	1.3	0.1/0.18	70	76/70	33	800.00	
	TX-88(RI)	D	80	0.025	0.025	20-20	76	200	1.2	Yes	No	16	10.8/17.2	17.2/37.2	1.5	0.1/0.2	70	73/67	28	650.00	
	TX-RV47(RI)	D	55	0.08	0.08	20-20	73	150	1.2	Yes	Yes	16	11.2/17.2	17.2/37.2	1.5	0.15/0.3	55	71/66	21	500.00	
	TX-38	D	55	0.04	0.04	20-20	75	150	1.5	Yes	No	16	10.8/17.2	17.2/37.2	1.5	0.15/0.25	55	72/67	19	375.00	
	TX-28	D	45	0.08	0.08	20-20	75	150	1.2	Yes	No	16	11.2/17.2	17.2/37.2	1.5	0.15/0.3	55	71/66	17	290.00	
	TX-18	D	30	0.3	0.3	40-20	75	150	1.2	No	No	16	12.4/19.2	18.2/38.2	1.5	0.15/0.3	55	70/65	13	215.00	
PARASOUND	DR65(RI)	D	65/100	0.04	0.015	20-40	88	200	2.0	No	No	12		15.3/39.2	1.6	0.1/0.2	68	80/77	23	479.95	
	DR40	D	40/70	0.04	0.03	20-20	88	200	2.0	No	No	10		15.3/38.1	1.6	0.1/0.2	68	80/77	19	319.95	
	DR25	D	25/40	0.04	0.03	20-20	88	180	2.0	No	No	10		15.8/39.2	1.6	0.15/0.25	66	80/77	16	219.95	
PIONEER	VS-X5000(RI)	D	100	0.005	0.005	20-20	83	140		Yes	Yes	20	10.8/	15.3/37.1	1.0	0.08/0.15	65	80/75	22.1	569.95	
	VS-X4000(RI)	D	60	0.007	0.005	20-20	73	140		Yes	Yes	20	10.8/	15.3/37.1	1.0	0.08/0.15	65	80/75	18.1	429.95	
	SX-V300	D	45	0.08	0.08	20-20	72	140		Yes	No	8	10.8/	15.3/37.1	1.0	0.4/0.4	65	80/75	11.7	295.95	
	SX-1500	D	45	0.3	0.3	40-20	72	130		No	No	20	11.2/	15.3/38.3	0.5		55	78/75	9.8	219.95	
	SX-1000	D	25	0.3	0.3	40-20	72	130		No	No	20	11.2/	15.3/38.3	0.5		55	78/75	7.2		
PROTON	D940	D	40/75	0.02	0.008	20-20	92	250	6	No	No	16			1.5				83/74	18 1/4	449.00
	D930R(RD)	D	30	0.02	0.02	20-20	90		6	No	No	10			1.5	0.2			75	399.00	
RCA	Dimensia MSR150(RI)	D	50	0.05	0.08	20-20	75	150		No	No	16	11.2/	19.2/38.2	1.0	0.13/0.15	45	73/69	16 1/2	399.00	
	MSR140(RI)	D	50	0.05	0.08	20-20	75	150		No	No	16	11.2/	19.2/38.2	1.0	0.13/0.15	45	73/69	16 1/2	399.00	
REALISTIC	STA-2600 (31-3015)		100	0.01		15-25	70			Yes	No	12	9.8/		1.5	0.01/0.02	45	70/		500.00	
	STA-2280 (31-3006)		60	0.01		20-20	84			Yes	Yes	12	13.2/		1.0	0.01/0.02	45	70/		400.00	
	STA-125 (31-2064)		22	0.08		15-25	84			No	No	12	13.2/		2.0	0.03/0.06		72/		220.00	
	STA-116 (31-2012)		30	0.08		20-20	83			No	No	12	10.3/		1.5	0.01/	50	70/		260.00	
	STA-460 (31-2100)		22	0.08		20-20	85			No	No		14.1/		3	0.03/0.06	50	68/			
	STA-780 (31-2068)	D	48/	0.08		20-20	84			No	No	12	10.8/		1.5	0.1/0.2	60	72/		350.00	
	STA-870 (31-3001)		65/	0.08		20-20	86			Yes	No	0	10.8/		1.5	0.1/0.2	53	72/		320.00	
	STA-19 (31-1975)		5/	0.9		40-20	70			No	No	0	22.1/					60/			120.00
	REVDX	B285(RD)	D	70/90	0.03	0.03	20-20	80	50	3	No	No	29	12.8/	15.2/36.8	2	0.15/0.3		84/80	33 1/2	1990.00
	RDTEL	RX-830		20/30	0.08	0.08	20-20	60	90	2.5	Yes	No	0	10.8/		2	0.3/	62	70/	12.8	229.00
RX-850			30/35	0.05	0.05	20-20	65	150	2.5	Yes	No	16	10.8/		1.5	0.15/	65	82/	15.2	399.00	
RX-870			60/115	0.03	0.03	20-20	81	185	2.65	Yes	No	16	10.8/		1.0	0.07/	65	80/	22.7	649.00	
SAE	R102	D	50/75	0.025	0.025	20-20	82	150	1.0	No	No	16	11.2/17.2	14.4/35.8	1.5	0.10/0.15	45	75/70	26	499.00	
SANSUI	S-X1130	D/A	130	0.005	0.005	20-20				Yes	No	16	10.3/	14.0/	1.0			80/	35.9	1150.00	
	S-XV1000	D	80 & 8	0.01		20-20				Yes	Yes	16	10.8/	16.5/	1.0			75/	21.6	700.00	
	S-X700	D	43/	0.08		20-20				Yes	No	16	10.8/	16.5/	1.0			75/	18	310.00	
	S-X500	D	30/	0.2		30-20				Yes	No	16	10.8/	16.5/	1.0			75/	16.3	250.00	
SCOTT	STA500	D	50	0.5	0.5	20-20	68			No	No	16	16.0/25.0			0.4/0.5	65/60			299.95	
	STA1000(RI)	D	100	0.5	0.5	20-20	70			Yes											



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MANUFACTURER	Model (RI) - Remote Included, (RO) - Remote Optional	FM Only - F Digitally Synthesized - D, AM Stereo Capable - A	AMPLIFIER SECTION											TUNER SECTION										
			Average Wtts Per Channel, @ 1000Hz @ 100% Mod	THD, %	IHF IM, %	Rated Power, W, 20-20K Hz to 40-20K Hz	MM Phono S/N, -dB, 1K - 10K Hz @ 5 mV	MM Phono Overload, mV	Dynamic Headroom, dB	Video Inputs?	Surround Decoder/Amplifier Circuitry?	Total Number of Memory Presets	IMF Sensitivity, dB, Mono/Stereo	Signal Strength by 50-dB Quieting, dB, Mono/Stereo	Capture Ratio, dB	THD, % 100% Modulation, 1 KHz, Mono/Stereo	Alternate Channel Selectivity, dB	Maximum S/N, -dB, Mono/Stereo	Weight, Lbs.	Price, \$				
SHERWOOD	S-2770RCP	D	74/55/35	0.3		20-20	85	120					Yes	Yes	16	19.8	14.8/36.1	1.5	0.1/0.5	70				500.00
	S-2750CP	D	80/80	0.006	0.006	5-100	87	200	1.8	Yes	Yes	Yes	Yes	16	11.2	19.2/39.2	2	0.21/0.5	65	82/76	21		300.00	
	S-2730CP	D	80/80	0.2		40-20	73	120		No	No	No	No	16	11.2	19.2/39.2	2	0.21/0.5	65				250.00	
SONY	STR-AV880(RI)	F/D	110/110	0.006	0.006	5-100	87	200	1.8	Yes	Yes	Yes	Yes	10	10.3	16.1/38.3	1	0.05/0.1	65	82/76	21		650.00	
	STR-AV780(RO)	F/D	80/80	0.006	0.006	5-100	87	200	1.8	Yes	Yes	Yes	Yes	10	10.3	16.1/38.3	1	0.05/0.1	65	82/76	18		550.00	
	STR-AV580(RO)	F/D	60/60	0.008	0.008	10-70	77	150	1.5	Yes	Yes	Yes	Yes	10	11.2	17.3/38.3	1	0.15/0.25	60	80/74	17		430.00	
	STR-AV480(RO)	F/D	50/50	0.03	0.03	10-70	77	150	1.5	Yes	Yes	Yes	Yes	10	11.2	17.3/38.3	1	0.15/0.25	60	80/74	16		330.00	
	STR-AV380(RO)	F/D	30/30	0.08	0.08	10-70	77	150		Yes	No	No	No	10	11.2	17.3/38.3	1	0.15/0.25	60	80/74	13		240.00	
TECHNICS	SA-130	D	35	0.5	0.5	40-20	73	120	1.0	No	No	No	No	0	10.8	16.1/38.3	1.0		60	76/70	10.8		150.00	
	SA-190	D	35	0.5	0.5	40-20	74	150	1.2	No	No	No	No	16	11.2	20.2/40.2	1.0		65	75/71	9.7		190.00	
	SA-290	D	50	0.3	0.3	20-20	74	150	1.2	No	No	No	No	16	11.2	20.2/40.2	1.0		65	75/71	11.7		225.00	
	SA-370(RI)	D	40	0.09	0.3	20-20	70	150	1.2	2	2	2	2	16	11.2	20.2/40.2	1.0		65	75/71	11.7		300.00	
	SA-390(RI)	D	50	0.007	0.01	20-20	70	150	1.2	2	Yes	16	11.2	20.2/40.2	1.0		65	75/71	13.4		65	75/71	13.4	360.00
	SA-590	D	100	0.007	0.01	20-20	70	150	1.2	2	Yes	16	11.2	20.2/40.2	1.0		65	75/71	17.4		65	75/71	17.4	600.00
ULTRX	R35	D	35	0.03	0.03	40-20				5	Yes	No	No	14	14.14/17.23	21.45/39.17	1.5	0.2/0.4	70	70/60	15.7		119.95	
	R55	D	55	0.03	0.03	20-20				5	Yes	No	No	14	14.14/17.23	21.45/39.17	1.5	0.2/0.4	70	70/60	18.7		179.95	
	R70	D	70	0.03	0.03	20-20				5	Yes	No	No	40	14.14/17.23	21.45/39.17	1.5	0.2/0.4	70	70/65	22.1		299.95	
	R100B	D	100	0.009		20-20				5	Yes	No	No	40	14.14/17.23	21.45/39.17	1.5	0.2/0.4	70	70/65	26.5		359.95	
VECTOR RESEARCH	VR-2200	D	20/25	0.08	0.08	20-20	80			2.0				16	10.8	17.2	1.2	0.15/0.3	75/70	13		149.95		
	VRX-3500	D	30/40	0.08	0.08	20-20	80			2.5				16	10.8	17.2	1.2	0.15/0.3	75/70	17		249.95		
	VRX-7100	D	40/60	0.08	0.08	20-20	80			3.0				16	10.2	14.6	1.0	0.08/0.1	80/75	17		349.95		
	VRX-9100	D	60/100	0.08	0.08	20-20	80			3.0				16	10.2	14.6	1.0	0.08/0.1	80/75	23		449.95		
YAMAHA	R-9(RI)	D	125	0.015	0.01	20-20 +0, -3	92	110	1.58	Yes	No	No	No	16	8.8	14.8/37.3	1.2	0.05/0.07	85	85/81	26 1/2		849.00	
	R-8(RI)	D	85	0.015	0.01	20-20 +0, -3	92	110	1.84	Yes	No	No	No	16	8.8	14.8/37.3	1.2	0.05/0.07	85	85/81	24 1/4		649.00	
	R-7(RI)	D	65	0.015	0.01	20-20 +0, -5	92	110	1.8	No	No	No	No	16	9.3	15.1/37.7	1.2	0.05/0.07	85	85/81	13 3/4		499.00	
	R-5	D	50	0.015	0.01	20-20 +0, -5	88		1.76	No	No	No	No	16	9.3	15.1/37.7	1.5	0.07/0.1	85	85/81	12 1/4		329.00	
	R-3	D	35	0.04	0.04	20-20 +0, -5	88		1.88	No	No	No	No	16	9.3	15.1/37.7	1.5	0.1/0.2	85	81/76	11 1/2		249.00	

Chances are you never thought a turntable like this was possible

Audiophiles have long recognized that the best sounding turntables are belt driven suspended sub-chassis designs. However these have usually been simple manual designs without the features most users desire. With the CS5000, the Black Forest craftsman from Dual have bridged the gap between performance and convenience. Designed and built entirely in W. Germany, the CS5000 combines a four-point floating chassis with a micro-processor belt drive system, resulting in a turntable that is simple to set up and operate yet able to produce superb sound quality. The CS5000 also features an entirely new forearm design called OFS (Optimum Pivot System). A refinement of the legendary Dual Ultra Low Mass Design, it eliminates distortion produced by warped or eccentric records. And a unique VTA headshell is standard, for adjusting the Vertical Tracking Angle for any pick-up cartridge. This German crafted high technology and performance, with elegant wood base in walnut or satin black finish, is surprisingly affordable. To find out more about the turntable no one thought possible visit your authorized Dual dealer or write:



DUAL/ORTOFON

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MANUFACTURER	SPEED CODE															TONEARM/CARTRIDGE									
	Model (RH) = Remote Included, (RO) = Remote Optional	Speeds—See Code	Wow & Flutter, % DIN 45-507	Rumble, -dB, DIN 45-509-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: Probe=L, Servo=S	Pivot-Stylus Distance, Inches	Auto Cue=C, Auto Return=R, Programmable Play=P	Recommended Tracking Force Range, Grams	Anti-Skating Adjustment?	Cartridge Weight	Total Cable Capacitance, pF	Car. Mount: Free=F, Removable Shelf=R, P-Mount=P, Changeable Wind-W	Dimensions Inches, including Dustcover	Price, \$						
ADC	LT-60	B			Belt			Yes	No	L		C/R				P	14 x 19 x 4	140.00							
	LT-34	B			Belt			Yes	No	L		C/R				P	13 x 13 x 4	100.00							
	RC-1	B			Belt			Yes	4	P		C/R				P	15 x 17 x 5	100.00							
ADS	P4(RO)	B	0.035	75	Direct	0.05	5	Yes	No	P	8 3/4	C/R	0-2	Yes	4-11	150	R	17 1/2 x 14 1/4 x 4 3/8	500.00						
AKAI	AP-A50	B	0.045	70	Direct			Yes	No	L	6 1/2	C/R	1.25	No	5.9		P	17 3/8 x 4 1/4 x 15 5/8	210.00						
	AP-A301	B	0.05	65	Belt			Yes	No	L	6	C/R	1.25	No	5.9		P	17 3/8 x 4 x 14 3/4	150.00						
	AP-X1	B	0.05	70	Belt			Yes	No	P	8 3/4	C/R	1.25	No	5.9		P	17 3/8 x 4 x 13 3/8	100.00						
ALPHASON	Sonata				Belt			Yes											1050.00						
AR	ETL-1	B	0.03	81	Belt			No	No								F	20 x 17 x 7	700.00						
	ES-1	B	0.04	78	Belt			No	No		8.5			Yes			F	18 x 15 x 7	350.00; w/Arm, 475.00						
	EB-101	B	0.05	72	Belt			No	No	P	8.4			Yes			R	17 x 14 x 7	400.00						
BANG & OLUFSEN	Beogram 8002	B	0.02	75	Eddy	0.02	3	Yes	No	L/S	6	C/R	1-1.5			100	F	19 3/8 x 3 1/2 x 14 3/4	699.00						
	Beogram 5500	B	0.03	80	Belt	0.2		Yes	No	L/S	4 3/4	C/R	1-1.5			100	F	16 1/2 x 3 x 12 3/4	399.00						
	Beogram 3000	B	0.03	80	Belt	0.2		Yes	No	L/S	4 3/4	C/R	1-1.5			100	F	16 1/2 x 3 x 12 3/4	380.00						
	Beogram TX-2	B	0.03	80	Belt	0.2		Yes	No	L/S	9 1/4	C/R	1-1.5			100	F	16 1/2 x 3 x 12 3/4	340.00						
	Beogram 2000	B	0.035	75	Belt	0.2		Yes	No	P	9 1/4	C/R	1-1.5	Yes		100	F	16 1/2 x 2 1/2 x 17 3/8	280.00						
	Beogram RX-2	B	0.035	75	Belt	0.2		Yes	No	P	9 1/4	C/R	1-1.5	Yes		100	F	16 1/2 x 2 1/2 x 17 3/8	219.00						
MITCHELL A. COTTER	B-1D	C	0.02	98	Direct	0.001	9.9	Yes	No	P	12		2-8	Yes	3-30	250	R	20 x 25 1/2 x 9	7900.00						
	B-1M	C	0.02	98	Direct	0.001	9.9	Yes	No	P	12		2-8	Yes	3-30	250	R	33 x 22 x 38	14,000.						
CURTIS MATHES	AP435	B	0.07	70	Belt			Yes	No	P	9 1/8	R	1-1.5	No	1-1.5		P	17 x 14 1/4 x 3 1/8							
DENON	DP-7F	B	0.018	75	Direct	0.01		Yes	No	P/S	8 5/8	C/R	1.25	No			P	14 3/8 x 3 3/4 x 14 1/4	180.00						
	DP-23F	B	0.02	75	Direct	0.002		Yes	No	P/S	8 5/8	C/R	0-3	No	4-9		R	17 1/2 x 4 1/8 x 14 1/4	250.00						
	DP-35F8	B	0.012	78	Direct	0.002		Yes	No	P/S	8 5/8	C/R	0-3	Yes	4-9		R	17 1/2 x 5 3/8 x 16 1/4	300.00						
	DP-47F	B	0.010	78	Direct	0.01		Yes	No	P/S	8 5/8	C/R	0-3	Yes	3-12		R	17 x 7 1/2 x 16	400.00						
	DP-61F	B	0.008	82	Direct			Yes	No	P/S	9 3/4	C/R	0-3	Yes	3-12		R	17 1/2 x 5 5/8 x 17 1/2	600.00						
	DP-59L	B			Direct		9.9	No	No	P/S	9 3/4	C/R	0-3	Yes	3-12		R		650.00						
DUAL	CS5000	C	0.02	80	Belt	0.03		No	No	P		C	1.0-3.0	Yes	2-12	150	R	17 1/2 x 18 x 5 1/2	400.00						
	CS-505-2	B	0.05	78	Belt	0.035	6	No	No	P		C	1.0-3.0	Yes	2.5-10	150	R	17 1/2 x 5 3/4 x 15 1/4	240.00						
	CS530	B	0.06	75	Belt	0.035	6	Yes	No	P		C/R	1.0-3.0	Yes	2.5-10	150	R	17 1/2 x 4 1/2 x 14 1/2	200.00						
	CS515	B	0.07	72	Belt	0.045	6	Yes	No	P		C/R	1.0-3.0	Yes	2.5-10	150	R	17 1/2 x 4 1/2 x 14 1/2	150.00						
	CS514	C	0.07	72	Belt	0.05		Yes	No	P		C/R	1.0-3.0	Yes	2.5-10	150	F	17 1/2 x 4 3/4 x 14 1/4	130.00						
	CS6300	B	0.02	80	Direct	0.02	12	Yes	No	P		C/R	0.5-3.0	Yes	2.5-10	150	R	17 1/2 x 4 1/2 x 14 1/2	250.00						
	CS6200	B	0.025	78	Direct	0.025	12	Yes	No	P		C/R	0.5-3.0	Yes	2.5-10	150	R	17 1/2 x 4 3/4 x 14 1/4	200.00						
	CS6160	B	0.025	75	Direct	0.025	12	Yes	No	P		C	0.5-3.0	Yes	2.5-10	150	R	17 1/2 x 4 3/4 x 14 1/4	180.00						
	CS1258	B	0.025	73	Belt	0.05	6	Yes	6	P		C/R	0.5-3.0	Yes	2.5-9	150	R		220.00						
	EMT-FRANZ	EMT938	C	0.075	70	Direct	0.1	5	Yes	No	P	9 3/4		0-5	Yes			R	19.6 x 17.3 x 7.7	3365.00					
EMT948		C	0.075	70	Direct	0.1	5	Yes	No	P	9 3/4		0-5	Yes			R	18.3 x 18.9 x 9.4	4980.00						
ENTEC	Granite	B	0.05	90	Direct	0.01	10	Yes										38 x 23 x 23	7000.00						
HARMAN/KARDON	T65	B	0.025	70	Belt		3	Yes	No	P	8 1/2	C	1-3	Yes	4.5-13	Set.	R	17 3/8 x 5 3/4 x 15 1/8							
HEYBROOK	TT-2	B	0.08	79	Belt	0.10	0	No										6 1/4 x 17 1/2 x 14 1/2							

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The Black SOTA Star Turntable,
SME Series V Tonearm, and
the Sumiko Virtuoso Cartridge.

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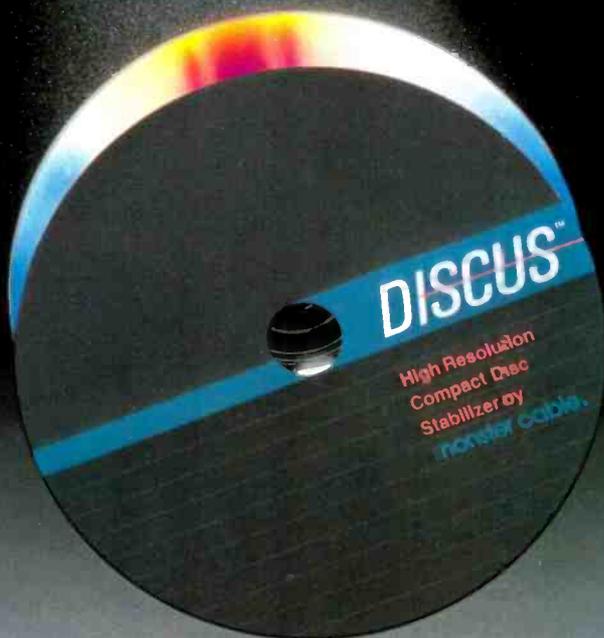
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into your player, the special materials, manufacturing techniques, and black textured finish are at work effectively damping out compact disc vibrations, minimizing laser defraction and stabilizing disc rotation. Your player will be able to read more of what's on the disc with fewer percentage of errors.

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are quicker and even the harshness of many compact discs is minimized.

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Use the Discus in combination with one of our Interlink interconnect cables and you will experience digital sound the way it was meant to be. Absolutely awesome.

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The Discus is not compatible with all machines. Please check with your dealer or the Monster Cable Customer Service before purchase.

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TURNTABLES

MANUFACTURER	Model (RI) = Remote Included, (RD) = Remote Optional	Speeds—See Code	Wow & Flutter, % 33 1/3 rpm, DIN 45-5307	Rumble, — dB, DIN 45-5309-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: Pivoted = P, Linear = L, Servo = S	TONEARM/CARTRIDGE									
											Pivot-Style 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	Car. Mount: Fixed F, Removable Shell = R, P-Mount = P, Changeable Wand = W	Dimensions, Inches, Including Dustcover	Price, \$	
HITACHI	HTL303UTB	B	0.045		Belt	0.005	Yes	No	P/L		C/R					P	17 1/8 x 3 1/8 x 12 1/2	180.00		
JVC	AL-L20R AL-F05BKX AL-F3BKX AL-A1BKX	B B B B	0.045 0.05 0.055 0.07	78 78 78 65	Direct Direct Direct Belt	0.005 0.005	Yes Yes Yes Yes	No No No No	P/L/S P P P		C/R C/R C/R R	1.25 1.25 1.25 1.25	Yes Yes Yes	5.9 5.9 5.9		P P P P	17 1/8 x 14 1/8 x 3 1/8 17 1/8 x 14 1/8 x 4 1/8 17 1/8 x 14 1/8 x 4 1/8 17 1/8 x 14 1/8 x 4 1/8	190.00 350.00 2000.00		
KENWOOD	KD-75F(RD) KD-85F(RD) KD-55R KD-35R	B B B B	0.05 0.05 0.05 0.07	75 75 74 70	Direct Direct Belt Belt		Yes Yes Yes Yes	No No No No	L L P P		C/P C/R R R		No No No No			P P P P	16 1/2 x 14 1/8 x 4 16 1/2 x 14 1/8 x 4 16 1/2 x 14 1/8 x 4 1/2 16 1/2 x 14 1/8 x 4 1/2	225.00 190.00 117.00 107.00		
KYOCERA	PL-701 PL-601 PL-910	B B B	0.03 0.035 0.025	70 68 78	Belt Belt Belt		Yes Yes Yes	No No No	P P P	8 1/2 8 1/2 C	C/R C C	0-3 0-3	Yes Yes	3-10 3-10	190 190	R R R	18 1/8 x 6 x 15 1/8 18 1/8 x 6 x 15 1/8 18 x 7 1/2 x 15 1/4	450.00 350.00 2000.00		
LINN	Linn Sondek LP12 Axis	A B	0.04 0.05	75 75	Belt Belt	0.1 0.1	0 0	No No	No P								R R	17 1/2 x 14 x 9 1/8 17 1/2 x 13 3/4 x 5 1/2	895.00 575.00	
LUXMAN	P406 P102 P100	B B B	0.04 0.04 0.06	70 70 72	Belt Belt Belt		Yes Yes Yes	No No No	L L P		C/R C/R C/R	1.25 1.25 0.5-3	No No Yes	6 6 3-8.5		P P R	16 3/8 x 4 1/2 x 14 1/8 16 3/8 x 4 1/2 x 14 1/8 16 3/8 x 4 1/4 x 14 1/8	350.00 350.00 250.00		
MARANTZ	TT151 TT251 TT451	B B B	0.1 0.07 0.05	60 68 70	Belt Direct Belt		Yes Yes Yes	No No No	P P L		C/R C/R C/R	1.25 1.25 1.25	Yes Yes Yes			P P P	4 3/8 x 16 1/2 x 13 3/4 4 x 16 1/2 x 13 1/4 3 3/4 x 16 3/8 x 13 1/2	130.00 180.00 250.00		
MERRILL AUDIO	R.T. U.T.	B B	0.02 0.02	80 80	Belt Belt	0.05 0.05	Opt Opt	Dpt Dpt										19 x 15 x 8 19 x 15 x 8	839.00 950.00	
J. A. MICHELL	Focus One Focus 'S' Syncodec Gyrodec	B B B B	0.05 0.05 0.05 0.04	75 76 76 78	Belt Belt Belt Belt	0.1 0.1 0.1 0.1	No No No No	No No No No	No No No No								17 1/4 x 14 3/4 x 5 1/4 17 1/4 x 14 3/4 x 8 1/4 18 x 17 1/2 x 5 1/2 21 1/4 x 16 3/4 x 7 1/2	390.00 499.00 650.00 1190.00		
MICRO SEIKI	BL-10X BL-99V BL-99VW SX-555FVW SX-111FV DDX-1500 RX-1500 Basic RX-1500 VG RX-1500 FVG SX-5000MKII SX-8000MKII SZ-1TVG SZ-1TS/S SZ-1T Ultimate	B B B B B B B B B B B B B B B B B B B	0.025 0.025 0.025 0.025 0.025 0.03 0.03 0.025 0.025 0.025 0.025 0.023 0.023 0.023	75 75 75 78 84 60 65 78 84 84 84 88 88 88	Belt Belt Belt Belt Belt Direct Belt Belt Belt Belt Belt Belt Belt Belt Belt Belt Belt Belt Belt	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	No No No No No No No No No No No No No No No No No No No	P P P P P P P P P P P P P P P P P P P	8 3/4 9 3/8		0-2 0-2.5	Yes Yes	4-9 9-17		W R	17 3/4 x 13 7/8 x 6 3/8 21 1/2 x 17 1/2 x 7 1/2 21 1/2 x 17 1/2 x 7 1/2 21 1/2 x 17 1/2 x 7 1/2 21 1/2 x 16 x 9 13 x 13 x 5 1/2 13 x 13 x 5 1/2 13 x 13 x 5 1/2 12 1/2 x 12 1/2 x 6 12 1/2 x 12 1/2 x 5 1/2 19 1/2 x 17 1/2 x 7 3/4 19 1/2 x 17 1/2 x 7 3/4 19 1/2 x 17 1/2 x 7 3/4 19 1/2 x 17 1/2 x 7 3/4	695.00 1195.00 1595.00 1995.00 2995.00 995.00 1195.00 1995.00 2995.00 7500.00 10,000. 10,000. 12,000. 15,000.		
MRM AUDIO	Source	B	0.01	88	Belt	0.007												19 x 16 x 8 1/2	1995.00	
NIKKO	NP-750 NP-550	B B	0.05 0.07		Direct Belt		Yes Yes		L P		P R	1.5 1.5	No Yes			P P	16.4 x 3.7 x 13.6 16.4 x 3.9 x 13.3			
NUMARK	TT3000 TT2400 TT1600 TT1400	B B B B	0.007 0.007 0.007 0.007	78 78 78 78	Direct Direct Direct Direct	0.01 0.01 0.01 0.01	8 8 8 8	1 1 1 1	P P P P	9 9 9 9		1.6 1.6 1.6 1.6	Yes Yes Yes Yes	4-15 4-15 4-15 4-15		R R R R	17 1/8 x 14 3/8 x 5 17 1/8 x 14 3/8 x 5 17 1/8 x 14 3/8 x 5 17 1/8 x 14 3/8 x 5			
ONKYO	CP-1057(RD) CP-1046(RD) CP-1036 PL-25 CP-1007	B B B B B	0.023 0.025 0.025 0.027 0.045	80 75 70 72 66	Direct Direct Direct Direct Belt		Yes Yes Yes Yes Yes		P P P P L		C/R C/R R C/R R		Yes Yes Yes Yes Yes			R R R R P	17 3/8 x 6 1/4 x 16 1/8 16 1/2 x 5 1/4 x 14 3/4 16 1/2 x 5 1/4 x 14 3/4 16 1/2 x 5 x 15 3/8 16 1/2 x 5 1/4 x 14 3/4	330.00 220.00 170.00 220.00 105.00		
ORACLE	Alexandria Mark II Delphi Mark II Premiere Mark II	B B B			Belt Belt Belt		3 3 3	No Yes Yes	P/L P/L P/L									19 x 5 1/8 x 14 1/2 19 x 6 1/4 x 14 1/2 19 3/8 x 6 1/2 x 14 3/4	850.00 1250.00 2350.00	
PARASOUND	LTd900 TTd820 TTb720	B B B	0.02 0.03 0.05	70 70 65	Direct Direct Belt	0.02 0.02 0.04	3 3 3	No No Yes	L L P		R/P R R	1.25 1.25	Yes No	5.9 5.9 5.9	180 180 180	P P P	16 1/4 x 13 x 3 3/4 16 1/2 x 14 1/4 x 4 1/4 16 x 12 3/4 x 3 3/4	229.95 169.95 129.95		
PINK TRIANGLE	Pink Triangle	B	0.06	78	Belt	0.09	3											18 x 14 x 6	895.00	
PIONEER	PL-L30 PL-3F PL-670 PL-570 PL-V70	B B B B B	0.045 0.025 0.025 0.05 0.06	72 80 88 68 70	Belt Direct Direct Belt Belt		No Yes No No No	1 1 1 1 1	L/S P P/S P/S L	3 3/4 9 1/4 8 3/4 8 3/4	C/R C/R C/R C/R C/R/P		Yes Yes	Fixed 3-8.5		R/P R/P R/P R/P R	16 1/8 x 4 1/4 x 14 3/8 18 1/8 x 6 1/4 x 16 1/8 16 1/8 x 4 3/8 x 14 3/8 16 1/8 x 3 3/8 x 14 3/4 16 1/8 x 4 1/8 x 13 3/4	134.95 299.95 139.95 300.00		

TURNTABLES

MANUFACTURER	Model (R) = 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, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: Pivoted = P, Linear = L, Servo = S	TONEARM/CARTRIDGE									
											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. Type = R, Removable Shell = R, P-Mount = P, Changeable Wand = W	Dimensions, Inches, Including Dustcover	Price, \$	
QED	R232 R232EN	B B	0.1 0.1	68 68	Belt Belt		No No	No No	P P		No No		Yes Yes	2.5 2.5		F F	15 3/4 x 13 3/4 x 4 15 3/4 x 13 3/4 x 4	375.00 475.00		
QUASAR	CL7014XE	B	0.045	70	Belt	0.06		Yes No	No P	7.9	C/R	1.0-1.5	No			P	12 1/2 x 3 1/8 x 12 1/2	79.95		
RCA	Dimensia MTT 130(RO)	B	0.025		Direct	0.003		Yes No	L L	3 3/4	C/R	1.25	No	5.9	140	P	12 3/8 x 3 1/4 x 12 3/8	249.00		
	Dimensia MTT 131(RO)	B	0.035		Direct	0.003		Yes No	L L	3 3/4	C/R	1.25	No	5.9	140	P	12 3/8 x 3 1/4 x 12 3/8	249.00		
	Dimensia MTT 135(RO)	B	0.025		Direct	0.003		Yes No	L L	3 3/4	C/R/P	1.25	No	5.9	140	P	12 3/8 x 5 x 14 1/4	349.00		
REALISTIC	LAB-2200 (42-2916)	B	0.065	62	Direct		3	Yes No	L		C/R	1.5				P	4 x 13 1/2 x 13 3/8	140.00		
	LAB-330 (42-2917)	B																80.00		
	LAB-89 (42-2986)	B										1.5						80.00		
	LAB-1600 (42-2905)	B	0.05	65	Belt			Yes No	L		C/R	1-1.5				P	13 3/8 x 4 1/2 x 13 3/4	160.00		
	LAB-430 (42-2914)	B	0.05	70	Direct		4.5	Yes No	P		C/R	1.75- 2.25	Yes	4-8		P	5 x 15 x 14	130.00		
REGA RESEARCH	Planar 2 Planar 78	B †			Belt Belt				P P	9 3/8 9 3/8			Yes Yes	3-18 3-18		F F	17 1/2 x 14 3/8 x 4 7/8 17 1/2 x 14 3/8 x 4 7/8	360.00 360.00; 178 rpm only 499.00		
	Planar 3	B			Belt				P	9 3/8			Yes	3-18		F	17 1/2 x 14 3/8 x 4 7/8			
	Revolver w/Inn Basik Arm & Basik III Cart. Revolver w/Revolver Arm & Audio- Technica AT93 Cart.	B B	0.08 0.08	65 65	Belt Belt	0.02 0.02		No No	No No	P P	9 9		0.75-3.0 0.75-3.0	Yes Yes	2.0-10.0 2.0-10.0	100 45	R F	16 1/2 x 14 1/2 x 4 1/4 16 1/2 x 14 1/2 x 4 1/4	500.00 400.00	
REVOX	B291(RO)	B	0.05	77	Direct	0.01	9.9	Yes Yes	No No	L/S L/S	1 1/2 1 1/2	C/R C/R	0.8-2.0 0.8-2.0		2.5-10 2.5-10	220 220	F/P F/P	17 1/2 x 15 1/2 x 5 1/2 17 1/2 x 15 1/2 x 5 1/2	950.00 825.00	
	B791	B	0.05	77	Direct	0.01	9.9	Yes Yes	No No	L/S L/S	1 1/2 1 1/2	C/R C/R	0.8-2.0 0.8-2.0		2.5-10 2.5-10	220 220	F/P F/P	17 1/2 x 15 1/2 x 5 1/2 17 1/2 x 15 1/2 x 5 1/2	950.00 825.00	
ROTEL	RP-850	B	0.03	70	Belt			No No	No No	P P			1-3 1-3	Yes Yes	3-10 3-10	240 240	F F	17 x 5 3/8 x 13 3/4 17 x 5 3/8 x 6 3/8	399.00 289.00	
	RP-830	B	0.03	70	Belt			No No	No No	P P			1-3 1-3	Yes Yes	3-10 3-10	240 240	F F	17 x 5 3/8 x 13 3/4 17 x 5 3/8 x 6 3/8	399.00 289.00	
SANSUI	XP-99	B	0.012	78	Direct			Yes Yes	No No	P P							R F	17 x 16 1/2 x 6 3/4 17 1/8 x 14 x 5	500.00 475.00	
	P-L95R	B	0.08	72	Direct			Yes No	No No	L L		C/R/P C/R/P					F F	17 x 14 3/4 x 3 3/4 15 x 14 x 3 3/8	330.00 270.00	
	P-L75	B	0.035	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 17 x 14 3/4 x 3 3/4	210.00 200.00	
	P-E750	B	0.04	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 15 x 14 x 3 1/8	200.00 200.00	
	P-L45	B	0.035	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 17 x 14 1/2 x 3 3/4	210.00 155.00	
	P-L35	B	0.035	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 15 x 14 x 3 1/8	200.00 200.00	
	P-E350	B	0.06	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 17 x 14 1/2 x 3 3/4	200.00 155.00	
	P-Q15	B	0.04	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 17 x 14 1/2 x 3 3/4	200.00 155.00	
	P-O15	B	0.04	72	Direct			Yes No	No No	L L		C/R/P C/R/P					P P	17 x 14 3/4 x 3 3/4 17 x 14 1/2 x 3 3/4	200.00 155.00	
SHERWOOD	ST-877	B	0.055		Direct		3	Yes Yes	No No	P P		R R	2 2	Yes Yes			R/P R/P	17 3/8 x 4 7/8 x 14 1/4 17 3/8 x 4 7/8 x 1 1/4	200.00 150.00	
	ST-875	B	0.08		Belt			Yes No	No P			R R	2 2	Yes Yes			R/P R/P	17 3/8 x 4 7/8 x 14 1/4 17 3/8 x 4 7/8 x 1 1/4	200.00 150.00	
SONOGRAPHE	SG3	B	0.1	65	Belt			No No	No No									18 x 14 1/2 x 6 3/4	395.00	
SONY	PS-FL7118 (RO)	B	0.03	75	Direct	0.003		Yes No	L	3	C/R	1.5	No			P	17 x 15 x 4	270.00		
	PS-LX520 (RO)	B	0.035	75	Direct	0.003		Yes No	L	3	C/R	1.5	No			P	17 x 14 1/2 x 3 3/4	200.00		
	PS-LX430 (RO)	B	0.045	70	Belt			Yes No	P	8 1/2	C/R	1.75	Yes			P	17 x 14 x 4 1/2	165.00		
	PS-LX230 (RO)	B	0.045	70	Belt			Yes No	P	8 1/2	C	1.75	Yes			P	17 x 14 x 4 1/2	130.00		
SOTA	Sapphire	C	0.03	88.2	Belt	0.02	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	895.00 1495.00	
	Sapphire Vacuum	C	0.03	88.2	Belt	0.02	5	No No	No No									20 1/4 x 16 1/2 x 7 1/2	1600.00	
	Star Acrylic	C	0.03	88.2	Belt	0.02	5	No No	No No									20 1/4 x 16 1/2 x 7 1/2	1600.00	
TECHNICS	SP-10MK3	C	0.015	92 dBA	Direct	0.001	9.9	Yes No	No No									14 1/2 x 4 1/2 x 14 1/2	1700.00	
	SP-10MK2A	C	0.025	78	Direct			No No	No No									14 1/2 x 4 x 14 1/2	1100.00	
	SP-15	B	0.025	78	Direct			No No	No No									13 3/4 x 3 3/8 x 14 3/8	700.00	
	SP-25	B	0.025	78	Direct		9.9	No No	No No									13 3/4 x 3 3/8 x 14 3/8	400.00	
	SL-1200MK2	B	0.025	78	Direct		6	No No	No No									17 7/8 x 5 1/4 x 14 1/4	400.00	
	SL-M3	B	0.008	82	Direct	0.002	8	No No	No No	P P	9 3/8 9 3/8	C/R	0-2.5 1.25	Yes	3-9.5		P	20 3/4 x 12 3/8 x 3 1/2	450.00	
	SL-M2	B	0.031	82	Direct	0.002	6	Yes Yes	No No	L/S L/S	4 1/8 4 1/8	C/R C/R	1.25 1.25	No	6		P	17 x 13 3/4 x 3 3/4	179.00	
	SL-MA1	B	0.025	81	Direct	0.002	6	Yes Yes	No No	P/S L/S	9 3/8 4 1/8	C/R C/R	0-2 1.15	Yes	6		P	17 7/8 x 6 3/4 x 15 1/8	350.00	
	SL-L20K(RO)	B	0.045	70	Belt			Yes Yes	No No	L/S L/S	4 1/8 4 1/8	C/R C/R	1.25 1.15	No	6		P	17 x 13 3/4 x 3 3/4	179.00	
	SL-J11D	B	0.045	70	Belt			Yes Yes	No No	L/S L/S	4 1/8 4 1/8	C/R C/R	1.25 1.25	No	6		P	12 3/8 x 12 3/8 x 3 1/2	175.00	
	SL-J33K(RO)	B	0.025	78	Direct	0.002		Yes Yes	No No	L/S L/S	4 1/8 4 1/8	C/R C/R	1.25 1.25	No	6		P	12 3/8 x 12 3/8 x 3 1/2	220.00	
	SL-L92	B	0.025	78	Direct	0.002		Yes Yes	No No	L/S L/S	4 1/8 4 1/8	C/R C/R	1.25 1.25	No	6		P	17 x 13 3/4 x 3 1/2	235.00	
	SL-BD10	B	0.045	70	Belt			Yes Yes	No No	P P	9 3/8 9 3/8	R	1.25 1.25	No	6		P	17 x 14 3/4 x 3 3/8	95.00	
	SL-BD20A	B	0.045	70	Belt			Yes Yes	No No	P P	9 3/8 9 3/8	R	1.25 1.25	No	6		P	17 x 14 3/4 x 3 3/8	105.00	
	SL-BD1K	B	0.045	70	Belt			Yes Yes	No No	P P	9 3/8 9 3/8	R	1.25 1.25	No	6		P	17 x 14 3/4 x 3 3/8	115.00	
	SL-BD22K	B	0.045	70	Belt		6	Yes Yes	No No	P P	9 3/8 9 3/8	R	1.25 1.25	No	6		P	17 x 14 3/4 x 3 3/8	115.00	
	SL-QD22	B	0.025	78	Direct			Yes Yes	No No	P P	9 3/8 9 3/8	R	1.0-1.5 1.0-1.5	No	6		P	17 x 14 3/4 x 3 3/8	150.00	
	SL-QD33(RO)	B	0.025	78	Direct			Yes Yes	No No	P P	9 3/8 9 3/8	C/R C/R	1.0-1.5 1.25	No	6	90	P	17 x 14 3/4 x 3 3/8	165.00	
	SL-D500	B	0.02	75	Direct		10	Yes Yes	No No	P P	9 3/8 9 3/8	C/R C/R	1.25 1.25	Yes	6		P	17 x 14 3/4 x 7 1/4	260.00	



"Tour de force"

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New York Times

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—Julian Hirsch,
Stereo Review

"Glorious"

—David Ranada,
Stereo Review

"Breakthrough"

—Peter Mitchell,
Boston Phoenix

One revolutionary speaker technology—and the unique musical experience it evokes—has inspired unprecedented critical acclaim.

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"Incredible," Len Feldman exclaimed in Ovation, of the dbx One.

The acoustic achievement that aroused such enthusiasm is patented Soundfield™ technology. It takes you beyond stereo.

It takes you into an era in which every listener is freed forever from the "stereo sweet spot" in front of a pair of conventional speakers.

All dbx speakers deliver a musically accurate, balanced stereo image throughout the room.

Wherever you go. Even within a foot of either speaker.

Hans Fantel said of the One, "Always the sound was everywhere... but with every detail just where it ought to be." Precisely so.

dbx speakers take you beyond stereo. Beyond what other kinds of speakers promise—much less deliver.

And now, in addition to the 1A, there's the more affordable dbx Ten.

And the even more affordable dbx 100 and dbx 1000!

"Do they produce a stable stereo image throughout the listening area?" asked Julian Hirsch of the dbx Ten. "The answer is yes, definitely."

About the overall sound Hirsch wrote, "We cannot recall ever measuring as flat a high-frequency room response... it is a sound I can listen to for hours on end!"

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Beyond stereo



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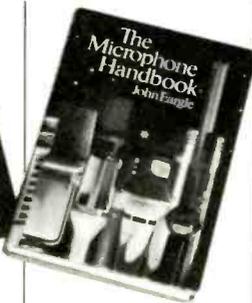
TURNTABLES

MANUFACTURER	SPEED CODE										TONEARM/CARTRIDGE									
	Model	Remote Included	Remote Optional	Speeds - See Code	Wow & Flutter % DIN 45-507	Rumble, -dB, DIN 45-509-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: Probe=P, Linear=L, Servo=S	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: Fix = F, Removable Shell = R, P-Mount = P, Chambrasse Wand = W	Dimensions, Inches, including Dustcover
THORENS	TD 316	B	0.04	70	Belt	0.2		No	No	P	9 1/2		1-3	Yes	3-8	150	F	17 1/2 x 13 3/4 x 6 1/4	260.00	
	TD 318	B	0.04	70	Belt	0.2		No	No	P	9 1/2	C	1-3	Yes	3-8	150	F	17 1/2 x 13 3/4 x 6 1/4	350.00	
	TD 320	B	0.035	72	Belt	0.2		No	No	P	9 1/2	C	1-3	Yes	3-8	100	F	17 1/2 x 13 3/4 x 6 1/4	500.00	
	TD 126	C	0.035	72	Belt	0.1	6	No	No	P	9	C	1-3	Yes	3-8	190	W	19 7/8 x 15 1/2 x 6 1/4	800.00	
	MKIII C																			
	Phantasia	B	0.035	72	Belt	0.2		No	No	P	9 1/2	C	1-3	Yes	3-8	100	F	17 1/2 x 13 3/4 x 6 1/4	1200.00	
	TD 321	B	0.035	72	Belt	0.2		No	No											395.00
TD 126	C	0.035	72	Belt	0.1	6	No	No											645.00	
VECTOR RESEARCH	VT-160	B	0.08	63	Belt	0.02		Yes	No	P	8 1/4	R	1.25	Yes	1.25	P	16 3/8 x 13 1/2 x 4	99.95		
	VT-240	B	0.05	70	Belt		3	Yes		P	8 1/2	C/R	1.25	Yes	1.25	P	16 3/4 x 14 1/2 x 4 1/2	149.95		
	VT-300	B	0.04	75	Belt Direct		3	Yes		L		C/R	1.25	No	1.25	P	16 1/4 x 13 5/8 x 3 3/4	249.95		
VPI	HW 19-MKII	B	0.05	80	Belt	0.05	0											21 1/4 x 16 5/8 x 7	885.00	
	HW 19-MKII-PLC	D	0.03	82	Belt	0	10											21 1/4 x 16 5/8 x 7	1185.00	
C. J. WALKER	CJ-61	B	0.06	77	Belt	0.02	No	No		P	9		0.5-3.0	Yes	3-12	100	R	12 Dia. 18 3/4 x 14 1/2 x 6	179.00	
	CJ-58II	B	0.06	77	Belt	0.02	No	No											289.00 w/Arm & Cart., 587.00	
WELL TEMPERED LAB	Well Tempered Table	B			Belt			No	1	P	9			Yes			F	19 x 15 x 8	725.00; w/Arm, 1250.00	
WIN RESEARCH	SEC-10	B	0.001	80	Direct	0.001	9.9	Yes	No										3000.00	
	SW-10	B	0.001	85	Direct	0.001	9.9	Yes	No										1250.00	
YAMAHA	PF-1000	B	0.023	80	Belt		6	No		P	8 3/4	R	1-3	Yes	2.5-9	110	R	18 5/8 x 14 3/4 x 6 1/8	649.00	
	PF-800	B	0.028	80	Belt		6	No		P	8 3/4	R	1-3	Yes	2.5-9	110	R	18 5/8 x 14 3/4 x 6 1/8	499.00	
	PF-50	B	0.015	78	Direct			No		P	8 3/4	C	1-3	Yes	2.5-9		R/P	17 1/2 x 14 x 4 3/8	219.00	
	PF-30	B	0.04	72	Belt			No		P	8 3/4	C	1-3	Yes	2.5-9		R/P	17 1/2 x 14 x 4 3/8	169.00	
	PF-20	B	0.04	72	Belt			No		P	8 3/4	R	1-3	Yes	2.5-9		R/P	17 1/2 x 14 x 4 3/8	139.00	
	P-530	B	0.03	78	Direct			Yes	No	P	9	C	1-1.5	No	6		P	17 x 14 3/4 x 4	239.00	
	P-520	B	0.015	78	Direct		3	Yes	No	P	8 3/4	C	1-3	Yes	2.5-9		R/P	17 1/2 x 14 7/8 x 4 3/4	219.00	
	P-320	B	0.04	78	Belt			Yes	No	P	8 3/4	C	1-3	Yes	2.5-9		R/P	17 1/2 x 14 7/8 x 4 3/4	169.00	
	P-220	B	0.04	70	Belt			Yes	No	P	8 3/4	R	1-3	Yes	2.5-9		R/P	17 1/2 x 14 7/8 x 4 3/4	139.00	

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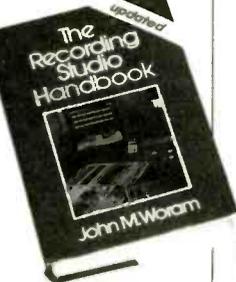
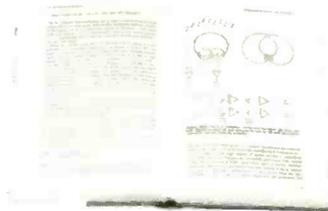
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approaching and that's what I
success, and I appreciate your support
study - appreciate your support -
Brendan

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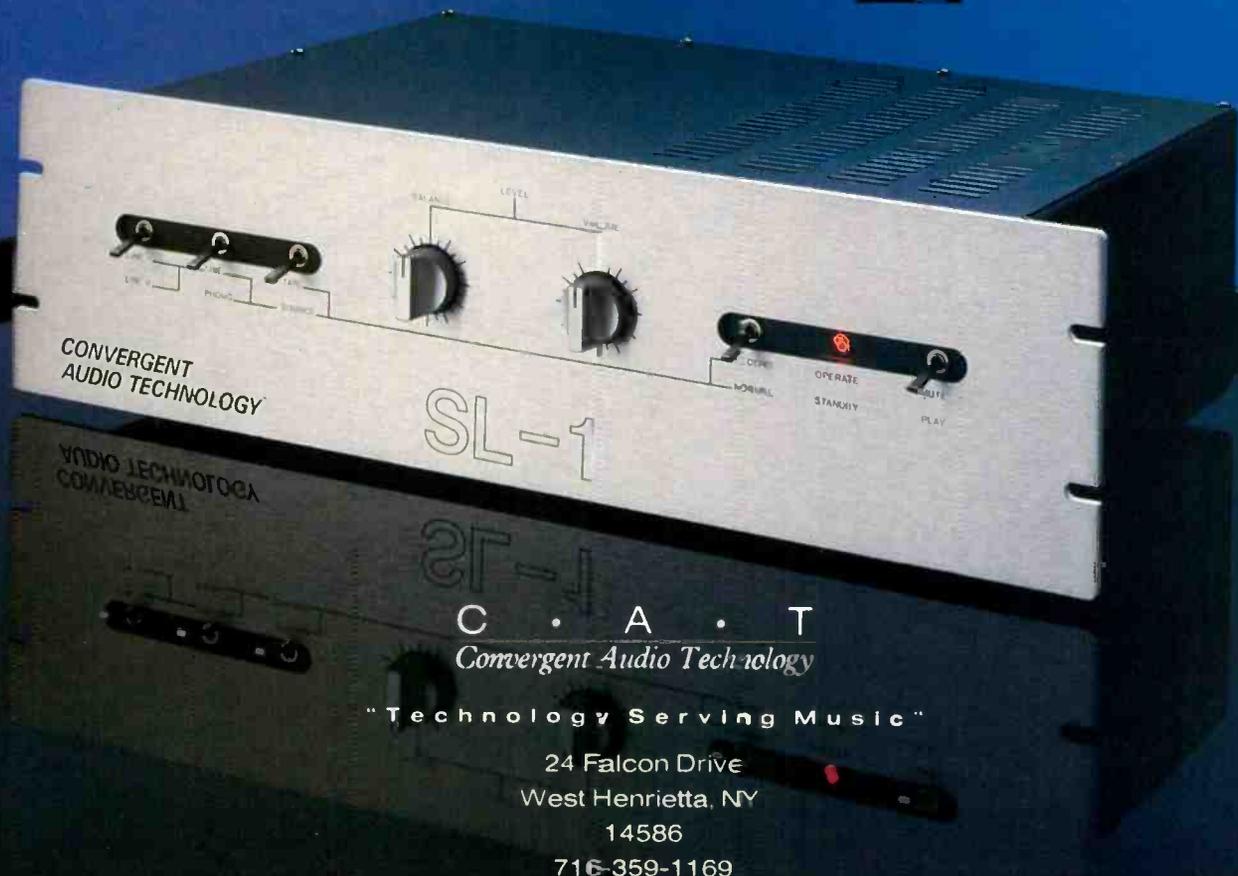
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SIGNET TK10mi SERIES II

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Stylus Type	Pivots: Moving Iron, MM, Indirect, Magnet, MM, Moving Magnet, MM	Individual Responses	Channel Separation, 1 kHz, dB	Output, mV, 1 kHz, dB	Recommended Tracking Force, Range, Grams	Recommended Load Capacitance, pF	Stylus Radius (Radius), Milis	Dynamic Compliance, μm/mk, Vertical/Lateral	Stylus Replacement: User = U, Factory = F, Mounting: Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$		
																Hz to kHz, ±dB	Individual Responses
ADC	PSX40	20-24 ±1	IM	No	25		1-1.5	200	E	0.3 x 0.7		U	P/S	135.00	68.00		
	PSX30	20-22 ±1	IM		25		1-1.5		E	0.3 x 0.7		U	P/S	110.00	55.00		
	PSX20	20-24 ±1.5	IM		25		1-1.5		E	0.3 x 0.7		U	P/S	90.00	45.00		
	PSX10	20-20 ±1.5	IM		20		1-1.5		C	0.7		U	P/S	60.00	30.00		
	TRX3	20-20 ±0.5	IM	Yes	35	25	3	1-1.25	150	E	0.12 x 0.06	40/40	U	S	300.00	99.00	
	TRX1	20-20 ±0.5	IM	Yes	30	25	3	1-1.25	150	E	0.14 x 0.08	40/40	U	S	200.00	89.00	
ADCOM	HC-E II	20-20 +2.5,-1	MC		22	22	2.3	1.6-2.0	E	0.3 x 0.7		F	S	140.00	77.00		
	HP-E II	20-20 +2.5,-1	MC		22	22	2.3	1.25	E	0.3 x 0.7		F	P	140.00	77.00		
	HC-vdH II	20-20 +2.5,-1	MC		22	22	2.3	1.6-2.0	V	0.2 x 2.8		F	S	220.00	121.00		
	XC-LT II	20-20 ±1	MC		25	25	2.3	1.6-2.0	X	0.15 x 1.5		F	S	260.00	143.00		
	XC-MR II	20-20 ±1	MC		25	25	2.3	1.6-2.0	M	0.15 x 3.0		F	S	325.00	179.00		
	SXC-vdH	20-20 +3,-1	MC		25	25	2.3	1.8	V	0.15 x 3.3		F	S	450.00	248.00		
ANDANTE	FGV	12-40	MM	No	30	25	5.0	1.3-2.3	V		20/20	U	S	200.00	100.00		
	E	12-30	MM	No	30	25	5.0	1.0-2.5	100	E	18/18	U	S	100.00	60.00		
	S	18-27	MM	No	28	23	5.0	1.0-2.5	100	S	18/18	U	S	75.00	37.50		
	HSP	18-25	MM	No	27	22	6.0	1.0-2.0	100	E	18/18	U	S	65.00	37.50		
	H	18-25	MM	No	27	22	10.0	1-2.5	100	S	15/15	U	S	55.00	27.50		
	P-76	8-45	MM	No	30	25	2.5	1.0-1.5	100	X		U	P	175.00	105.00		
	P-38	10-35	MM	No	28	23	2.5	1.0-1.5	100	E	0.3 x 0.8		U	P	125.00	75.00	
	APATURE	Koce	15-40	MC		25		3.2	1.75-2.25	X	0.2 x 0.7	10/10	U/F	S	4.2	200.00	100.00
Maui		15-40	MC		20		3.0	1.75-2.25	E	0.3 x 0.7	10/10	U/F	S	4.2	100.00	50.00	
Panama		20-20	MM		20		4.0	1.25-1.75	E		25/25	U	P/S	6	60.00	29.95	
ARGENT	Diamond	10-50	MC	Yes	30	25	0.2	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	8	1200.00	600.00
	MC-110	10-50	MC	Yes	30	25	0.2	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	8	385.00	190.00
	MC-300	10-40	MC	Yes	25	20	0.1	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	7	200.00	100.00
	MC-310	10-40	MC	Yes	25	20	0.1	1.8-2.2	100	X	0.3 x 0.7	8/8	F	S	7	175.00	95.00
	MC-500H	10-40	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	7	200.00	100.00
	MC-500HS	10-50	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	7	260.00	130.00
	MC-500HR	10-50	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/8	F	S	7	300.00	150.00
	ASTATIC	MF-100-MR	10-20 ±1	Moving Flux	No	30	25	3.5	1-1.5	100	M	Parabolic		U	S	5.5	320.00
MF-100		10-20 ±1	MF	No	30	25	3.5	1-1.5	100	X	Parabolic	/50	U	S	5.5	290.00	133.75
MF-200		10-20 ±2	MF	No	28	20	4.2	1.5-2	100	X	Parabolic	/45	U	S	5.5	160.00	80.00
MF-300		10-20 ±2.5	MF	No	25	18	4.2	1.5-2	100	E	0.3 x 0.7	/35	U	S	5.5	100.00	50.00
MF-400		10-18 ±3	MF	No	22	18	4.2	1.5-2.5	100	S	0.5	/35	U	S	5.5	80.00	40.00
IM10		10-15 ±3	IM	No	20	12	4.2	2.0-2.5	47	S	0.5	/30	U	S	7.5	40.00	25.00
IM10E		10-15 ±2.5	IM	No	22	15	4.2	2.0-2.5	47	E	0.3 x 0.7	/30	U	S	7.5	51.00	35.00
AUDIOQUEST	AD M-1	15-30	IM	No	25		3.0	1.5	E	0.3 x 0.7	15/15	U	S	5.5	95.00	40.00	
	AD MC-4	10-40	MC	Yes	25		2.5	2.0	E	0.3 x 0.7	8/8	F	S	4.5	195.00	125.00	
	AD 404BM	10-50	MC	Yes	25		2.2	2.0	X	0.3 x 1.6	8/8	F	S	8.9	295.00	195.00	
	AD 404BM	10-50	MC	Yes	25		1.1	2.0	X	0.3 x 1.6	8/8	F	S	8.9	295.00	195.00	
	AD 404BL	10-50	MC	Yes	25		0.2	2.0	X	0.3 x 1.6	8/8	F	S	8.9	295.00	195.00	
	AD 8-100H	10-50	MC	Yes	25		2.2	2.0	M		10/10	F	S	9.2	595.00	395.00	
	AD 8-100M	10-50	MC	Yes	25		1.1	2.0	M		10/10	F	S	9.2	595.00	395.00	
	AD 8-100L	10-50	MC	Yes	25		0.2	2.0	M		10/10	F	S	9.2	595.00	395.00	



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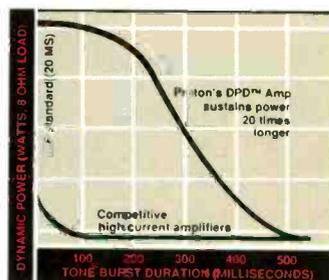
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STYLUS TYPE C—Conical S—Spherical E—Elliptical M—MicroLine, MicroRidge, or similar V—Van den Hul X—Hyper-Elliptical, Stereohedron, Fine Line, Line Contact, Long Line, Line Trace, or similar		Model	Frequency Response, Hz to kHz, ±dB	Principle: Moving Iron—MI, Moving Magnet—MM	Individual Channel Separation, kHz, dB	Channel Response Curve Supplied?	Channel Separation, 1 kHz, dB	Output, mV, 1 kHz, 5 cm/sec rms lateral velocity	Recommended Tracking Force, Grams	Stylus Type—See Code	Stylus Radius (Radius), Milis	Dynamic Compliance, $\mu\text{m}/\text{mm}$, User = U, Factory = F	Stylus Replacement, $\mu\text{m}/\text{mm}$, P-Mount = P, Standard = S	Mounting: Integral (Shell) = I, P-Mount = F, Standard = S	Weight, Grams	Price, \$	Replacement Stylus, \$	
MANUFACTURER																		
AUDIO-TECHNICA	AT120E	15-25 ±1.0	MM	No	29	20	5.0	1.0-1.8	100-200	E	0.3 x 0.7		U	S	6.4	95.00	45.00	
	AT125LC	10-28 ±1.0	MM	No	29	20	5.0	1.0-1.8	100-200	X			U	S	6.4	150.00	60.00	
	AT130E	10-30 ±1.0	MM	No	30	20	5.0	0.8-1.8	100-200	E	0.2 x 0.7		U	S	6.4	135.00	50.00	
	AT140ML	5-32 ±1.0	MM	No	30	20	5.0	0.8-1.6	100-200	M			U	S	6.5	195.00	75.00	
	AT155LC	5-35 ±1.0	MM	Yes	31	21	5.0	0.8-1.6	100-200	X			U	S	6.4	250.00	100.00	
	AT160ML	5-35 ±0.75	MM	Yes	31	21	5.0	0.8-1.6	100-200	M			U	S	8.1	295.00	125.00	
	AT132EP	10-30 ±1.0	MM	No	30	20	5.0	0.8-1.8	100-200	E	0.2 x 0.7		U	P		150.00	50.00	
	AT152MLP	5-35 ±1.0	MM	Yes	31	21	5.0	0.8-1.6	100-200	M			U	P		250.00	100.00	
	AT201P	20-22 ±1.0	MM	No	26	16	5.0	1.0-1.5	100-200	X	0.6		U	P/S		55.00	25.00	
	AT201EP	20-25 ±1.0	MM	No	26	17	5.0	1.0-1.5	100-200	E	0.4 x 0.7		U	P/S		65.00	30.00	
	AT211EP	15-25 ±1.0	MM	No	29	18	5.0	1.0-1.5	100-200	E	0.4 x 0.7		U	P/S		75.00	35.00	
	AT216EP	15-27 ±1.0	MM	No	29	20	5.0	1.0-1.5	100-200	E	0.3 x 0.7		U	P/S		100.00	45.00	
	AT221EP	10-28 ±1.0	MM	No	31	20	5.0	1.0-1.5	100-200	E	0.2 x 0.7		U	P/S		135.00	65.00	
	AT231LP	10-30 ±1.0	MM	No	31	21	5.0	1.0-1.5	100-200	X			U	P/S		145.00	60.00	
	AT30E	15-25 ±1.0	MC	No	25	15	0.3	1.4-2.0					U	S	5	150.00	65.00	
	AT30HE	15-25 ±1.0	MC	No	29	20	2.0	1.4-1.8					U	S	5	150.00	65.00	
	AT31E	15-28 ±1.0	MC	No	29	20	0.4	1.2-1.8					U	S	4.8	195.00	80.00	
	AT35E	15-30 ±1.0	MC	No	30	20	0.4	1.2-1.8					U	S	4.3	295.00	100.00	
AT312EP	15-25 ±1.0	MC	No	30	20	0.4	1.0-1.5					U	S	6	175.00	65.00		
A.V.A.	Longhorn	20-30 ±1	IM	No	35	30	4	1.5-2.0	200	E	0.2 x 0.7		U	S	8	99.99	40.00	
AZDEN	GM-P5L	10-60	MC	Yes	30	28	0.2	1.0-1.5	150	X	0.3 x 0.15	17/10	F	P/S	5.9	250.00	125.00	
	GM-1E	10-22	MC	Yes	28	20	2.0	1.5-2.5	150	E	0.3 x 0.7	10/10	U	S	2.7	125.00	65.00	
	YM-P50VL	10-24	MM	No	30	25	4.0	1.0-1.5	150	X	0.3 x 0.15	17/10	U	P/S	5.9	150.00	75.00	
	YM-P50E	10-22	MM	No	28	22	4.0	1.0-1.5	150	E	0.3 x 0.7	17/10	U	P/S	5.9	90.00	45.00	
	YM-P20E	10-22	MM	No	24	20	4.0	1.0-1.5	150	E	0.3 x 0.7	17/10	U	P/S	5.9	70.00	35.00	
	YM-P50C	10-22	MM	No	24	20	4.0	1.25-2.0	150	C	0.65	17/10	U	P/S	5.9	60.00	30.00	
	YM-10VE	10-24	MM	No	26	20	4.5	1.0-1.5	150	X	0.3 x 0.7	17/10	U	S	4.5	90.00	45.00	
	YM-10E	10-22	MM	No	24	18	4.5	1.25-2.0	150	E	0.3 x 0.7	10/10	U	S	4.5	70.00	35.00	
	YM-10E	10-22	MM	No	22	16	4.5	1.5-2.5	150	C	0.65	10/10	U	S	4.5	60.00	30.00	
	BANG & OLUFSEN	MMC 1	20-20 ±1	MI	Yes	30	22	2.12	1	200-400	X	0.1 x 0.1	30/30	P		1.6	445.00	
MMC 2		20-20 ±1.5	MI	Yes	25	20	2.12	1	200-400	X	0.12 x 0.12	30/30	P		1.6	290.00		
MMC 3		20-20 ±2	MI	Yes	25	20	2.12	1.2	200-400	E	0.15 x 0.15	25/25	P		1.6	180.00		
MMC 4		20-20 ±2.5	MI	Yes	22	17	2.12	1.2	200-400	E	0.2	25/25	P		1.6	105.00		
MMC 5		20-20 ±3	MI	Yes	20	15	2.12	1.5	200-400	E	0.25	20/20	P		1.6	60.00		
BENZ-MICRO	MC1	10-60 +1.0-0.8	MC	Yes	40	30	0.4	1.4-1.7	100	M			F	S	7.3	695.00	300.00	
CELLD	Maestro		MC	No				2.1-2.6					F	S		2000.00		
	Chorate		MC	No				2.2-2.5					F	S		800.00		
CLEARAUDIO	Veritas Integrated (w/Tonearm)	10-50 ±0.5	MC	Yes	30		0.5	2.0-2.4		X		15/15	F	I	17	800.00	450.00	
	Veritas Standard	10-50 ±0.5	MC	Yes	30		0.5	2.0-2.4		X		15/15	F	S	4.4	800.00	450.00	
	Gamma	10-50 ±0.5	MC	Yes	25		0.5	2.0-2.4		X		15/15	S		4.4	450.00		
MITCHELL A. COTTER	ADB-2	10-35 ±0.5	MC	Yes	35	30	1.0	2.5-8		X	0.08 x 12.0	4.8/4.8	F	S	24	1200.00	800.00	
DECCA	Super Gold	10-40	MI	No	25		4	1.7	220	V		5/12	F		6.7	499.00	300.00	
DENON	DL-1000	20-110	MC	Yes	30		0.12	0.7-0.9		X	0.06		F	S	6	859.00		
	DL-305	20-75	MC	Yes	28		0.20	1.0-1.4		X	0.05 x 0.1		F	S	5.8	559.00		
	DL-304	20-75	MC	Yes	28		0.18	1.0-1.4		X	0.05 x 0.1		F	S	7	395.00		
	DL-302	20-70	MC	Yes	28		0.18	1.1-1.5		X	0.05 x 0.1		F	S	7	260.00		
	DL-301	20-60	MC	Yes	28		0.3	1.2-1.6		X	0.07 x 0.14		F	S	4.7	159.00		
	DL-160	20-50	MC	Yes	28		1.6	1.3-1.9		X	0.07 x 0.14		F	S	4.8	115.00		
	DL-110	20-45	MC	Yes	25		1.6	1.5-2.1		X	0.1 x 0.2		F	S	4.8	85.00		
	DL-110	20-45	MC	Yes	25		1.6	1.5-2.1		X	0.1 x 0.2		U	S	4.5	60.00	36.00	
	DL-80	20-45	MC	Yes	25		1.6	1.5-2.1		X	0.1 x 0.2		U	S	4.5	60.00		
	DIGITRAC	450 SE	20-30 ±3	MI		24		4	1.0-1.5	200-500	X		35/35	U	P/S	6	149.00	75.00
380 NE		20-25 ±3	MI		22		4	1.25-1.75	200-500	E		30/30	U	P/S	6	89.00	45.00	
280 E		20-20 ±3	MI		20		4	1.25-1.75	200-500	S		25/25	U	P/S	6	69.00	35.00	
190 S		20-18 ±3	MI		20		4	1.25-1.75	200-500	E		20/20	U	P/S	6	49.95	25.00	
DYNAVECTOR	DV-17D2MR	20-100	MC	Yes	20	20	0.2	1.8-2.0		X	0.16 x 0.2	15/20	F	S	5.3	480.00	300.00	
	DV-23RSMR	20-80	MC	Yes	20	20	0.2	1.5		X	0.16 x 0.2	15/20	F	S	5.3	350.00	210.00	
	DV-19A	20-70	MC	Yes	20	20	0.25	1.7-2.0		X	0.3 x 0.7	20/20	F	S	5.3	230.00	125.00	
	DV-50A	20-50	MC	Yes	20	20	0.2	1.3-1.7		E	0.3 x 0.7	20/20	F	S	4.5	198.00	110.00	
	DV-20B2	20-40	MC	Yes	20	20	3.6	1.8		E	0.3 x 0.7	24/25	F	S	5.3	298.00	164.00	
	DV-20A2	20-40	MC	Yes	20	20	3.6	1.8		E	0.3 x 0.7	24/25	F	S	5.3	240.00	132.00	
	DV-10X4	20-25	MC	Yes	20	20	2.5	1.7		E	0.3 x 0.7	24/25	F	S	4.5	180.00	112.00	
	DV-10P	20-25	MC	Yes	20	20	2.5			E	0.3 x 0.7		F	P		150.00	100.00	
	EMT-FRANZ	XSD-15	20-30 ±2	MC	Yes	25		1.5	2.5		X		15/15	F	I		535.00	195.00
ENTRÉ	MC-1	20-30 ±1.5	MC	Yes	22		0.5	2.0		E	0.3 x 0.8	7/	F	S	5.9	195.00	155.00	
	MC-5	20-30 ±1.5	MC	Yes	26		0.25	1.8		E	0.3 x 0.8	7/	F	S	5.9	295.00	235.00	
	MC-9	20-30 ±1.5	MC	Yes	26		0.25	1.8		E	0.3 x 0.8	7/	F	S	5.9	395.00	315.00	
EPOCH	HZ9S	10-30	MM	Cal.	35	22	0.8	0.75-1.5	100	X	0.2 x 0.3	25	U	S	4	250.00	90.00	
	LZ9S	10-50	MM	Cal.	35	22	0.04	0.75-1.5	100	X	0.2 x 0.3	25	U	S	3.8	250.00	90.00	
	LZ8S	10-40	MM	No	35	22	0.04	0.75-1.5		X	0.2 x 0.3	20	U	S	3.8	190.00	75.00	
	HZ8S	10-30	MM	No	35	22	0.8	0.75-1.5		X	0.2 x 0.3	20	U	S	4	190.00	75.00	
	HZ7S	10-25	MM	No	32	20	0.8	0.75-1.5		X	0.3 x 2.8	17	U	S	4	120.00	50.00	
	HZ6E	10-22	MM	No	32	15	0.8	0.75-1.5		E	0.2 x 0.7	15	U	S	4	95.00	40.00	

PHONO CARTRIDGES

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		Model	Frequency Response, Hz to kHz, ±dB	MC MM	No	26	20	0.2	1.15-1.4 1.15-1.4	X X	Recommended Tracking Force	Stylus Type—See Code	Stylus Radius (Radial), Mills	Dynamic Compliance, $\mu\text{m}/\text{mmN}$, Vertical/Lateral	Stylus Replacement: U=Factory = F P=Mount = P Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$
MANUFACTURER	Principle Moving Iron—MI, Induce Magnet—IM, Moving Coil—MC, Moving Magnet—MM																	
FIDELITY RESEARCH	MC-44 MC-45	20-20 ± 3.1 20-20 ± 3.1	MC MC	No No	26 26	20 20	0.2 0.2	1.15-1.4 1.15-1.4	X X			20/20 20/20	F F	S S	6.2 6.2	259.00 359.00	195.00 265.00	
GARROTT	P-77	20-20 ± 2.0	MM	No	25		4	1.6-1.8	M			18/18	U	S	5.8	275.00	165.00	
GOLDBUG LABS	Medusa Clement Mr. Brier Ms. Brier	20-20 ± 1 20-20 ± 1 20-20 ± 1 20-20 ± 1	MC MC MC MC	Yes Yes Yes Yes	27 27 27 27		0.2 0.2 0.22 0.22	1.8-2.0 1.5-1.7 1.5-1.7 1.5-1.7	X X X X			0.3 x 0.7 0.3 x 0.7 0.3 x 0.7 0.3 x 0.7	12/9 36/13 17/15 17/15	F F F F	S S S S	5.8 5.6 7.0 7.2	250.00 490.00 990.00 1400.00	125.00 245.00 495.00 700.00
GOLDRING	Epic G1010 G1020 G1040 Electro II Electro II LZ Gerard Louis	20-18 ± 3 20-20 ± 2 20-20 ± 2 20-22 ± 2 20-22 ± 3 20-22 ± 3 20-22 ± 3	MM MM MM MM MC MC MC	No No No No Yes Yes Yes	20 25 25 25 25 25 25		5.5 6.5 6.5 6.5 2.5 0.25 0.25	1.25-1.75 1.5-2.5 1.5-2.5 1.5-2.5 1.6-2.2 1.6-2.2 1.6-2.2	E E V V V V V			0.3 x 0.7 0.3 x 0.7 VDH II VDH I VDH I VDH I	16/ 24/ 24/ 24/ 18/ 18/ 18/	U U U U F F F	S S S S S S S	6.5 6.3 6.3 6.3 9 9 9	50.00 79.00 99.00 169.00 299.00 399.00 899.00	30.00 50.00 60.00 99.00 199.00 266.00 599.00
GRACE	F-9E Ruby F-9E Gold F-9E Super F-9L F-8L	10-50 ± 2 10-50 ± 2 10-47 ± 2 10-40 20-20	MM MM MM MM MM	No No No No No	30 30 30 30 25	25 25 25 25 20	2.6 3.75 3.75 5.5 5.5	1.25-2.0 1.25-2.0 1.25-2.0 1.25-2.0 1.25-2.0	E E E E E			20/20 20/20 20/20 20/20 20/20	U U U U U	S S S S S	6 6 6 6 6	300.00 275.00 225.00 200.00 150.00	200.00 112.50 112.50 100.00 75.00	
GRADO	XTE+ XCE+ XTE+1 XCE+1 XF3E+ XF2+ XF1+ X+ X1+ X2+	10-35 10-35 10-50 10-50 10-55 10-55 10-55 10-60 10-60 10-60	MI MI MI MI MI MI MI MI MI MI	No No No No No No No No No No	20 20 20 20 25 25 25 25 25 25		5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.6 5.6	2-3 2-3 1-2 1-2 0.75-2 0.75-2 0.75-2 0.75-2 0.75-2 0.75-2	E E E E E E E E E E			0.2 x 0.5 0.2 x 0.5	U U U U U U U U U U	S S P/S P/S P/S P/S P/S P/S P/S P/S	5 5 5 5 5 5 5 5 5 5	25.00 37.50 18.00 48.00 60.00 75.00 90.00 110.00 165.00 265.00	17.00 24.00 14.00 26.00 28.00 30.00 38.00 43.00 63.00 100.00	
JOSEPH GRADO SIGNATURE	8MX 10MX MCX	10-50 10-50 10-50	MI MI MI	No No No	30 30 30	20 20 20	5.5 2.8 2.1	1.5 1.5 1.5	200 200 200	0.2 0.2 0.2			U U U	S S S	5.5 5.5 5.5	200.00 300.00 300.00	100.00 150.00 150.00	
HIGHPHDNIC	MC-A2e MC-3 MC-4 MC-R5 MC-A6 Signature MC-D10 MC-D12 MC-D15 MC-D15 Signature	20-20 ± 1.5 10-70 ± 1.5 10-50 ± 1.5 10-70 ± 1.5 10-75 ± 1.5 10-80 ± 1.5 10-80 ± 1.5 10-85 ± 1.5 10-85 ± 1.5	MC MC MC MC MC MC MC MC MC	Yes Yes Yes Yes Yes Yes Yes Yes Yes	30 30 30 30 30 30 30 35 35	25 25 25 25 25 25 25 30 30	0.12 0.12 0.25 0.12 0.12 0.13 0.25 0.12 0.12	0.9-1.1 0.9-1.1 1.5-1.9 0.9-1.1 0.9-1.1 1.1-1.3 1.5-1.9 0.9-1.1 0.9-1.1	X X X X X X X X X			0.1 x 1.2 0.1 x 1.2 0.25 x 1.2 0.1 x 1.2 0.1 x 1.2	17/ 17/ 8/ 18/ 18/ 15/ 8/ 18/ 18/	F F F F F F F F F	S S S S S S S S S	6½ 6½ 7½ 6½ 6½ 6½ 7½ 6½ 6½	250.00 325.00 395.00 550.00 695.00 1100.00 1250.00 1500.00 1995.00	200.00 260.00 315.00 440.00 555.00 880.00 1000.00 1200.00 1595.00
KISEKI	Lapis Lazuli Agaal Ruby Purpleheart Sapphire Purpleheart Blue Silverspot	20-50 20-50 20-50 20-50	MC MC MC MC	Yes Yes Yes Yes	30 30 30 30	25 25 25 25	0.4 0.4 0.4 0.3	2.0 2.0 2.0 2.0	X X X X			0.14 x 0.6 0.14 x 0.6 0.14 x 0.6 0.3 x 0.7	20/20 20/20 17/17 17/17	F F F F	S S S S	11 11 7.5 7.5	3500.00 1250.00 900.00 800.00	2100.00 690.00 495.00 330.00
KOETSU	Black Gold Line Rosewood Onyx Sapphire Rosewood Signature Onyx Signature	10-50 ± 2 10-50 ± 2 10-50 ± 2 10-50 ± 2 10-50 ± 2	MC MC MC MC MC	No No No No No	25 25 25 25 25		0.5 0.5 0.5 0.3	1.5-1.8 1.7-2.0 1.7-2.0 1.7-2.0	X X X X X				F F F F F	S S S S S		750.00 975.00 1695.00 1695.00	425.00 550.00 850.00 850.00	
LINN	Karma Asak K9 Basik	20-20 ± 1 20-20 ± 1 20-20 ± 2 20-20 ± 2	MC MC MM MM	No No No No	30 25 25 25			1.7 1.7 1.7 1.8	E E E S			0.2 x 0.8 0.2 x 0.8 0.2 x 0.8	F F F U	S S S S	6 6 6 6	795.00 485.00 175.00 50.00	530.00 323.33 105.00	
MADRIGAL	Carnegie One	20-20 ± 1.5	MC					1.5-1.9	M					S	6.7	590.00		
JOHN MAROVSKIS	JMAS MIT-1	20-20 ± 3	MC	No	25	20	0.25	2.25-2.50	500	V		16	F	S	5.5	550.00	275.00	
MAYWARE	MC-2V MC-3L/2 MC-7V	10-50 ± 2 10-50 ± 2 10-50 ± 1.5	MC MC MC	Yes Yes Yes	29 29 30		0.25 1.9 1.8	1.9 1.9 1.8	X X X			8/ 8/ 10/	F F F	S S S	6.9 6.9 7	250.00 250.00 500.00	175.00 175.00 350.00	
MISSION	773mm Solitaire 773LC 773HC The Rose	10-28 ± 2 20-20 ± 2 20-20 ± 2 20-20 ± 1	MM MM MC MC MC	No No Yes Yes Yes	28 28 20 20 20	15 15 15	3.0 3.0 0.2 1.7	1.5-2.5 1.8 2.0 2.0	E E E E			0.3 x 0.8 0.3 x 0.8 0.6 x 0.8 0.3 x 0.7	22.5/ 30.0/ 15.0/ 15.0/	U U F F	S S S S	6.4 5.7 6.2 6.2	69.00 99.00 199.00 399.00	
MIYABI	MCA Ivory	10-50 ± 2 10-50 ± 2	MC MC	No No	25 25		0.3 0.3	1.5-2.0 1.5-2.0	X X			10/10 10/10	F F	S S	8.5 13.5	450.00 1695.00	250.00 600.00	

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Stylus Type	Yes/No	30	20	2.0	1.5-1.8	100	X	0.3 x 0.7	8.5/10	F	S	6.5	325.00	190.00	STYLUS TYPE	
																		C-Conical	S-Spherical
		Principle Moving Iron = M, Induced Magnet = IM, Moving Coil = MC, Moving Magnet = MM	Individual Response Curves Supplied?	Channel Separation, 1 kHz, dB	Output, mv, 1 kHz, 5 cm/sec, rms	Recommended Lateral Velocity Range, Grams	Recommended Tracking Force	Stylus Type - See Code	Stylus Radius (Radius), Mils	Dynamic Compliance, µm/mN, Vertical/Lateral	Stylus Resonance: User = U, Factory = F, Mounting Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$					
MONSTER CABLE	Alpha 1	20-20 ± 1	MC	Yes	30		0.3	1.75		X		15/15	F	S	6.5	325.00	190.00		
	Alpha 2	20-20 ± 1	MC	Yes	30		0.3	1.75		M		15/15	F	S	6.5	650.00	390.00		
	Alpha 2 H.O.	20-20 ± 1	MC	Yes	30		1.5	1.8		M		15/25	F	S	6.8	650.00	390.00		
MUSIC & SOUND	Econocoil	20-20 ± 2	MC	No	25	20	2.0	1.5-1.8		E	0.3 x 0.7	8.5/10	F	S	4.5	129.00	65.00		
NAGAOKA	MP50 Super	20-28 ± 1	IM	Yes	27	14	2.5	1.1-1.5	100	X	0.2 x 0.7		U	S	9	250.00	150.00		
	MP30	20-25 ± 1	IM	No	25	11	3.0	1.3-1.8	100	E	0.4 x 0.7		U	S	9	180.00	120.00		
	MP20	20-23 ± 1	IM	No	25	11	4.0	1.5-2.0	100	E	0.4 x 0.7		U	S	7.8	150.00	90.00		
	MP15	20-20 ± 1	IM	No	24	12	4.5	1.5-2.0	100	E	0.3 x 0.7		U	S	7.8	120.00	80.00		
	MP11 Boron	20-20 ± 1	IM	No	21	11	5.0	1.8-2.3	100	E	0.3 x 0.7		U	S	6.8	100.00	60.00		
	MP11	20-20 ± 1	IM	No	23	11	5.0	1.8-2.3	100	E	0.3 x 0.7		U	S	6.8	75.00	50.00		
	MP10	20-20 ± 2	IM	No	22	9	5.0	2.0-2.5	100	C	0.5 x 0.5		U	S	6.8	50.00	30.00		
ODYSSEY ENGINEERING	MC-1	20-20 ± 1	MC	Yes	25		0.4	2-3		X	0.3 x 0.7	6/	F	S		995.00	525.00		
DRTOFON	OM-40	20-29 +3,-1	Var. Mag. Shunt	Yes	25		3.5	1.0-1.5	200-500	V		45/45	U	S	2.5	300.00	150.00		
	OM-30	20-27 +3,-1	VMS	No	25		3.5	1.0-1.5	200-500	X		40/40	U	S	2.5	225.00	120.00		
	OMP-30	20-27 +3,-1	VMS	No	25		3.5	1.25	200-500	X		40/40	U	P	6	225.00	120.00		
	OM-20	20-22 +3,-1	VMS	No	25		4.0	1.0-1.5	200-500	E		35/35	U	S	2.5	175.00	75.00		
	OMP-20	20-22 +3,-1	VMS	No	25		4.0	1.25	200-500	E		35/35	U	P	6	175.00	75.00		
	OM-10	20-22 +3,-1.5	VMS	No	22		4.0	1.25-1.75	200-500	E		30/30	U	S	2.5	95.00	40.00		
	OMP-10	20-22 +3,-1.5	VMS	No	22		4.0	1.25	200-500	E		30/	U	P	6	95.00	40.00		
	OM-5	20-22 +3,-1.5	VMS	No	22		4.0	1.25-2.0	200-500	E		25/25	U	S	2.5	65.00	30.00		
	OMP-5	20-20 +3,-1.5	VMS	No	22		4.0	1.25	200-500	E		25/25	U	P	6	65.00	30.00		
	FF15XEII	20-20	VMS	No	20		6.0	1.5-3.0	400	E		20/20	U	S	5	50.00	20.00		
	VMS30 MkII	20-20	VMS	No	27		5.0	1.0-1.6	400	X		22/22	U	S	5	185.00	90.00		
	VMS20E MkII	20-20	VMS	No	25		5.0	1.0-1.2	400	E		25/25	U	S	5	155.00	70.00		
	VMS10E MkII	20-20	VMS	No	25		5.0	1.7-2.3	400	E		20/20	U	S	5	130.00	50.00		
	VMS5E MkII	20-20	VMS	No	20		6.0	1.7-2.3	400	E		20/20	U	S	5	80.00	30.00		
	VMS3E MkII	20-20	VMS	No	20		6.0	1.7-2.3	400	E		15/15	U	S	5	60.00	20.00		
	TM-20U	20-20 +3,-1	VMS	No	25		3.5	1.0-1.5	400	X		35/35	U	P/S	6	115.00	75.00		
	TM-14	20-20	VMS	No	20		4.5	1.0-1.5	400	E		30/30	U	P/S	6	75.00	30.00		
	TM-7	20-20	VMS	No	20		5	1.0-1.5	400	E		30/30	U	P/S	6	60.00	25.00		
	MC2000	5-50 +4,-1	MC	Yes	25		0.05	1.2-1.8		X		20/20	F	S	11	750.00	400.00		
	MC200U	20-35 +3,-1	MC	No	25		0.09	1.2-1.8		X		13/13	F	S	5.3	250.00	180.00		
	MC100U	20-25 +3,-1	MC	No	25		0.09	1.2-1.8		V		11/11	F	S	5.3	150.00	100.00		
	MC 20 Super	10-55 +3,-1	MC	No	25		0.25	1.5-1.9		E		17/17	F	S	9	300.00	175.00		
MCP 100 Super	20-20 +3,-1	MC	No	25		0.26	1.25		E		20/20	F	P	6	250.00	125.00			
MC 10 Super	10-30 +5,-1	MC	No	25		0.3	1.3-1.8		E		14/14	F	S	7	150.00	75.00			
X3-MC	20-40 +3,-1	MC	No	25		2.0	1.8-2.2		X		13/13	F	S	4.1	140.00	85.00			
X1-MC	20-30 +3,-1	MC	No	22		2.0	1.8-2.2		E		13/13	F	S	4.1	75.00	48.00			
X3-MCP	20-40 +3,-1	MC	No	25		2.0	1.25-1.5		X		13/13	F	P	6.3	140.00	85.00			
X1-MCP	20-30 +3,-1	MC	No	22		2.0	1.25-1.5		X		13/13	F	P	6.3	75.00	48.00			
SPU Gold	20-20 ± 1.5	MC	No	25		0.2	3.0-5.0		E		8/8	F	I	32	800.00				
PARASOUND	PcE77	20-26 ± 0.6	IM		30	20	4.0	1.25		E	0.4 x 0.7		U	P	5.9	79.95			
	IM1700	20-20 ± 1	IM		28	20	5.0	1.5-2		S	0.6		U	P	5	49.95			
	PcS55	20-20 ± 1	IM		28	20	5.0	1.5-2		S	0.6		U	S	3.7	49.95			
PICKERING	XLZ/7500S	10-50	MM	No	35		0.33	0.75-1.5	1000	X	0.3 x 2.8	30/	U	S	5	250.00	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	250.00	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	180.00	49.95		
	TLZ/7500S	10-50	MM	No	35		0.33	0.75-1.5	1000	X	0.3 x 2.8		U	P	5.9	250.00	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	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	5.9	180.00	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	5.9	150.00	45.00		
	TL-3S	10-25	IM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8		U	S	5.9	125.00	40.00		
	TL-2S	10-22	IM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8		U	S	5.9	100.00	36.00		
	TL-2E	10-22	IM	No	35		4.4	0.75-1.5	275	E	0.3 x 0.7		U	S	5.9	85.00	29.50		
	TL-1	10-20	IM	No	32		4.4	0.75-1.5	275	E	0.3 x 0.7		U	S	6	75.00	24.50		
	TLE Type 2	10-20	MM	No	28		3.0	1-1.5	275	E	0.3 x 0.7		U	S	6	55.00	22.50		
	TLE	10-20	MM	No	28		4.4	1-1.5	275	E	0.3 x 0.7		U	S	6	50.00	20.00		
	XV-15/1200E	10-30	IM	No	35		4.4	0.75-1.5	275	E	0.2 x 0.7	20/	U	S	6.3	150.00	35.00		
	XV-15/757S	10-25	IM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8	20/	U	S	6.3	125.00	43.75		
	XV-15/625E	10-25	IM	No	35		4.4	0.75-1.5	275	E	0.3 x 0.7	15/	U	S	6.3	100.00	30.00		
	XV-15/400E	10-25	IM	No	35		4.4	1-2	275	E	0.4 x 0.7	12/	U	S	6.3	85.00	28.50		
	V-15 Series IIS	10-25	MM	No	25		3.5	0.75-1.5	275	X	0.3 x 2.7		U	S	5.5	80.00	37.50		
	V-15 Series IIE	10-20	MM	No	25		3.5	0.75-1.5	275	E	0.3 x 0.7		U	S	5.5	50.00	21.50		
V-15 Series IIE	10-18	IM	No	22		3.5	1-2	275	E	0.3 x 0.7		U	S	5.5	45.00	16.50			
XV-15/625DJ	20-20	IM	No	30		4.4	1-4	275	E	0.4 x 0.7		U	S	5.5	75.00	30.00			
TL 625DJ	20-20	IM	No	30		4.4	3.5-4	275	E	0.4 x 0.7		U	S	8.5	75.00	30.00			
PREMIER	LMX Boron	10-45	MC	Yes	30	25	0.35	1.8-2.2		V		18/18	F	S	4.75	250.00	125.00		
	LME Improved	10-40	MC	Yes	30	25	0.35	1.3-2.0		E	0.3 x 0.8	18/18	F	S	4.75	170.00	85.00		
	LMS Improved	10-35	MC	Yes	27	22	0.35	1.3-2.0		S	0.6	18/18	F	S	4.75	125.00	62.50		
PROMETHEAN AUDIO PRODUCTS	Green Positive-Pivot	20-20 ± 1	MI																

OPEN
CLOSE

ANRC

3 FM 1

4 +dB

12

0

12

5 -dB

M M M

V·B·F EQ TUN CL

E/A BAL FAD CL

**Taken on face value alone,
this is the most remarkable
car stereo in the world.**

COMPUTER CONTROLLED

250Hz 500Hz 1kHz

DOLBY NR

dbx

C

B

METAL

POWER

AUTO

LOCAL

ABSS

TAPE REMAIN

99.9

FM 2

BAND

LOADING REVERSE

DOLBY B C NR

BI-AZIMUTH HEAD

KRC-999

TUNING

DOWN

IND.S

Introducing the phenomenal Kenwood KRC-999 cassette tuner. If the face plate isn't enough to make your jaw drop, wait 'til you hear the way the 999 sounds. And performs.

It's the most advanced car stereo ever made.

Period.
"Sure," you say, "I've heard that before." But how many car stereos have you heard that are driven by a 16K ROM computer?

A computer that lets you customize the sound to suit your car's environment.

And pre-set electronic volume levels.

And automatically seek out

a track anywhere on a side. And scan the first five seconds of every cut.

And take stations with the strongest signal and automatically program them into memory. Heard enough?

How about the lowest signal to noise ratio available. Metal tape frequency response of 20 ~ 22.5k (± 3dB). A 7-band graphic equalizer that instantly converts to a spectrum analyzer. Or an automatic azimuth-adjusting hyperbolic-contour tape head. And three drive motors.

Yes. The beauty of the KRC-999 is more

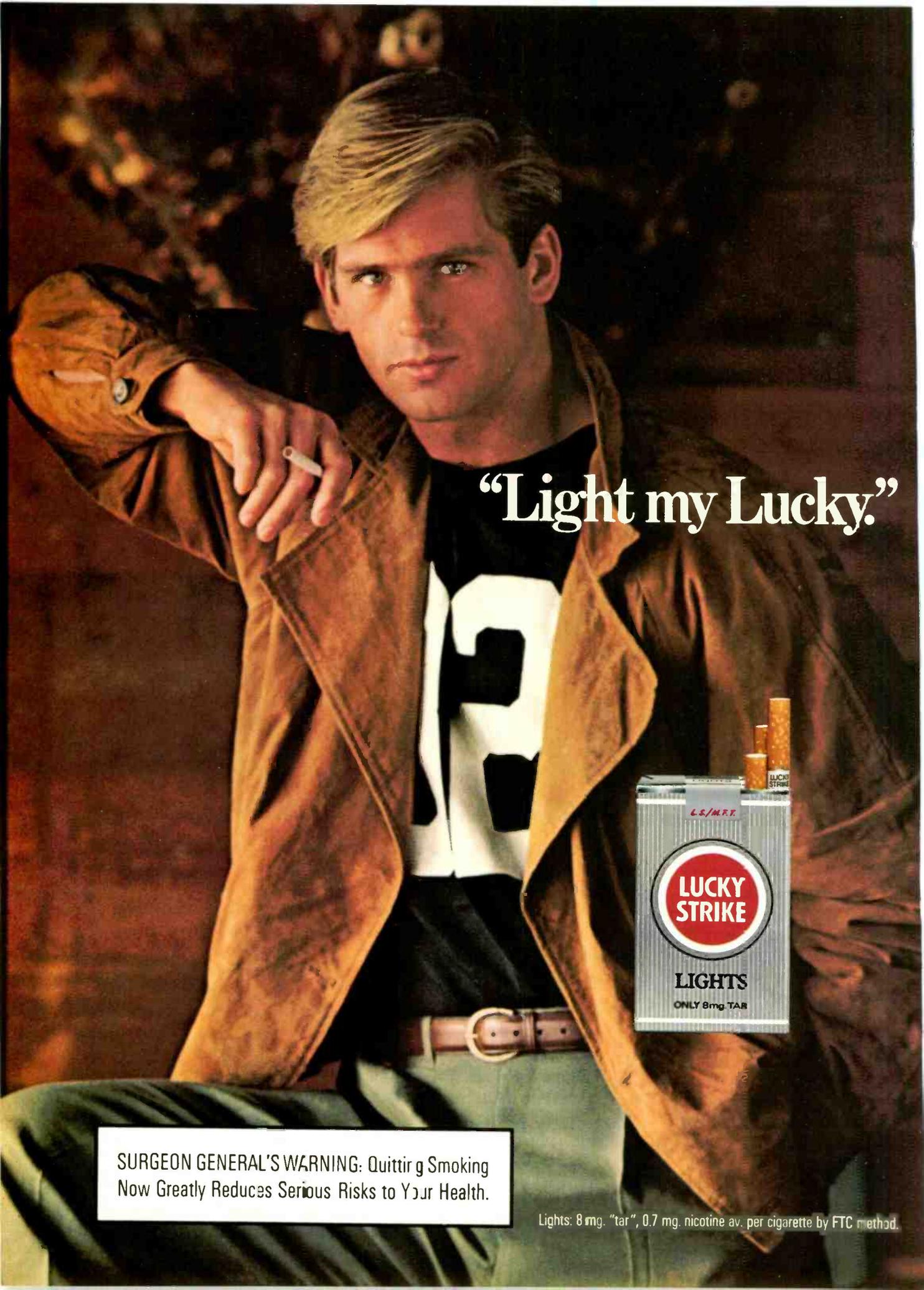
than skin deep. It represents the culmination of 25 years of superior audio technology from Kenwood. Consider it our anniversary present to the world of music.



For the Kenwood dealer nearest you, call 1-800-CAR SOUND.

KENWOOD
STEREO FOR YOUR CAR





“Light my Lucky.”



SURGEON GENERAL'S WARNING: Quitting Smoking
Now Greatly Reduces Serious Risks to Your Health.

Lights: 8 mg. "tar", 0.7 mg. nicotine av. per cigarette by FTC method.

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	MC	Yes	30	25	1.75	1.6-2.0	E	0.3 x 0.7	F	S	5.3	675.00	337.50	
																Principal Moving Coil = MC, Inductive Magnet = IM, Moving Coil = MC, Moving Magnet = MM
SUPEX	SDX-3300 Bcron High Output	10-30 ±2	MC	Yes	30	25	1.75	1.6-2.0	E	0.3 x 0.7	F	S	5.3	675.00	337.50	
	SDX-3300 Bcron	10-30 ±2	MC	Yes	30	25	0.2	1.6-2.0	E	0.3 x 0.7	F	S	5.3	675.00	337.50	
	SD-330	20-30 ±2	MC	Yes	30	25	0.15	1.5-1.9	E	0.3 x 0.7	F	S	3.0	225.00	125.00	
	SD-900	20-45 ±2	MC	Yes	30	25	0.2	1.8-2.2	E	0.3 x 0.8	F	S	8.3	275.00	150.00	
	MK IV TQA SD-901 MK IV TQA	20-45	MC	Yes	30	25	2.0	1.8-2.2	E	0.3 x 0.8	F	S	8.3	275.00	150.00	
TALISMAN	Virtuoso DTI	15-35 ±2	MC	Yes	35	35	1.8	1.75-2.25	V		F	S	7.5	1200.00	700.00	
	Virtuoso B	15-35 ±2	MC	Yes	35	35	1.8	1.75-2.25	V		F	S	7.5	800.00	465.00	
	Alchemist IHS	10-60	MC	Yes	30	25	2.0	1.5-2.5	X		F	S	6.7	450.00	260.00	
	Alchemist IA	20-40	MC	Yes	25	20	2.0	1.5-2.1	E	0.3 x 0.7	F	S	6.7	250.00	145.00	
	Talisman S	10-60	MC	Yes	30	25	0.26	1.7-2.3	X	0.2 x 1.2	F	S	6.3	325.00	190.00	
	Talisman B	10-50	MC	Yes	30	25	0.26	1.5-2.1	X	0.2 x 1.2	F	S	6.3	265.00	155.00	
	Talisman A	20-40	MC	Yes	25	20	0.26	1.5-2.1	E	0.3 x 0.7	F	S	6.3	200.00	115.00	
											15/12					
TECHNICS	EPC-P530	20-30 ±3	MM	No	25		2.5	1.0-1.5	E	0.3 x 0.7	U	P	6	50.00		
	EPC-P540	20-35 ±3	MM	No	25		2.5	1.0-1.5	E	0.3 x 0.7	U	P	6	70.00		
	EPC-P550	20-35 ±3	MM	No	25		2.5	1.0-1.5	E	0.3 x 0.7	U	P	6	100.00		
	EPC-P310MC2	20-15 ±0.5	MC	Yes	25	20	0.22	1.0-1.5	E	0.2 x 0.7	F	P	6	200.00		
	EPC-P205CMK4	20-15 ±0.5	MM	Yes	25	20	2.5	1.0-1.5	E	0.2 x 0.7	U	P	6	250.00		
	EPC-205CMK4	20-15 ±0.5	MM	Yes	25	20	2.5	1.0-1.5	E	0.2 x 0.7	U	S	15.5	280.00		
	EPC-305MC2	5-100	MC	Yes	25	20	2.5	1.0-1.5	E	0.2 x 0.7	I			300.00		
VAN DEN HUL	MC-10 Dna		MC	Yes	40	40	0.35	1.3-1.5	V		F	S	7.3	895.00	200.00	
	EMT MC-1B	20-20 ±0.75	MC	Yes	40	40	0.35	1.3-1.5	V		F	S	7.3	975.00	200.00	
			MC	Yes	25	25	0.3	2-2.5	V		F	S	7.5	1375.00	200.00	
VIDEDTON-CORAL	Coral MC81	10-45	MC	No	32	27	0.3	1.6-1.9	X	0.3 x 0.7	U	S	5	80.00	35.00	
	Coral MC82	10-60	MC	Yes	35	29	0.3	1.5-1.8	V		F	S	5	235.00	170.00	
WIN RESEARCH	FET-10 w/Amp	0-50	FET	Yes	34	26	1V	0.75-1.25	X	0.5 x 0.75	40/	F	S			
YAMAHA	MC-100	20-20	MC		28		0.2	1.2-1.6	E	0.3 x 1.6	12/14	F	S	9.5	300.00	
	MC-505	20-20	MC		28		0.35	1.2-1.8	E	0.3 x 1.6	14/16	F	S	3.4	200.00	
	MC-501	20-20	MC		28		0.35	1.2-1.8	E	0.3 x 1.6	11/13	F	S	3.4	150.00	
	MC-10	20-20	MC		27		0.3	1.4-2.0	E	0.3 x 0.8	3/10	F	S	5.4	120.00	
	MC-21	20-20	MC		28		2.0	1.5-2.1	E	0.3 x 0.8	3/10	F	S	2.8	70.00	



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Now all the great performance of Advent comes in 3 packages.

Music so clean and clear it sounds live. That's the promise of Advent's uniquely engineered speaker systems. High efficiency woofers with aluminum voice coils, ferrofluid-filled dome tweeters, incredible power

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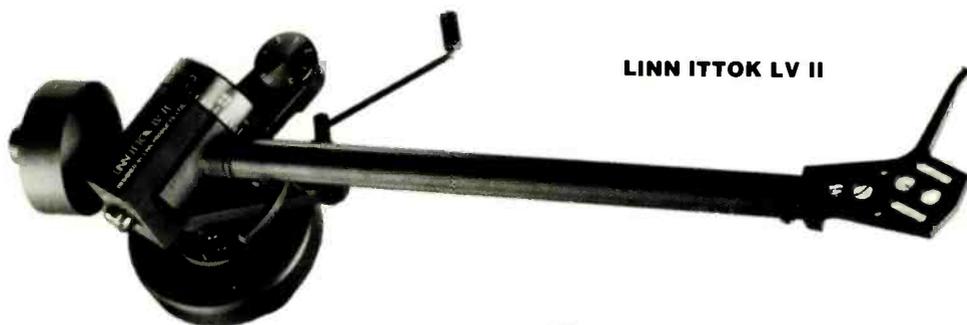


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TONEARMS



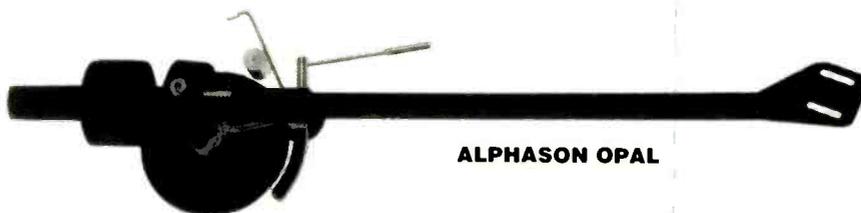
LINN ITTOK LV II



PREMIER MMT



ZETA STD.



ALPHASON OPAL

MANUFACTURER	Model	Type: Air-bearing = A, Pivoted = P, Linear = L, Servo = S Cartridge Mount: Fixed = F, Removable Shell = R, P+M-sum = P, Changeable Ward = W										Price, \$	Notes				
		A	L	W	Yes	Yes	Yes	†	Adjustable	Pivotal Stylus Distance, Inches	Overall Length, Inches			Maximum Tracking Error, Degrees per Inch Range, Grams	Recommended Tracking Force Range, Grams	Cartridge Weight Range, Grams	Total Cable Capacitance, pF
AIR TANGENT	Air Tangent				Yes	Yes	Yes	†									†VTA adjustable during play. Nonresonant magnesium arm tube; single-point mount.
ALPHASON	HR100S-MCS	P	F		Yes	Yes	Yes	9	11½		0-3.5	3-25	1¼	895.00		Titanium tube; carbide bearings; silver wire. As above but oxygen-free copper wiring. Titanium tube; silver wire. As above but copper wiring.	
	HR100S	P	F		Yes	Yes	Yes	9	11½		0-3.5	3-25	1¼	795.00			
	Xenon MCS	P	F		Yes	Yes	Yes	9	11½		0-3.5	3-25	1¼	625.00			
	Xenon	P	F		Yes	Yes	Yes	9	11½		0-3.5	3-25	1¼	525.00			
	Delta	P	F		Yes	Yes	Yes	9	11½		0-3	3-15	1¼	399.00			
	Opal	P	F		Yes	Yes	Yes	9	11½		0-3	3-15	1	279.00			
CADAWAS ACOUSTICS	Columbia One				Yes	Yes	Yes				0-30	1-30		500.00		Modification; variable effective mass and vertical compliance.	
MITCHELL A. COTTER	TAB-2	P	R		Yes	Yes	Yes	12	16½	0.24	2-10	3-35	250	1¾	1750.00		
DENNESEN	ABLT-1	A/L	W		Yes		Yes	Adj.	12	0	Adj.	Any	100		1450.00		
EMINENT TECHNOLOGY	Two	A/L	W		Yes	Yes	Yes	7¾	8½	0		0-20	16		850.00		Includes air pump.
EMT-FRANZ	EMT 929	P	R		No	Yes		9¾			0-5				465.00		Dynamically and statically balanced in all planes. As above.
	EMT 997	P	R		No	Yes		12			0-5				745.00		



Model 2.5Fi (above)
automatic record cleaner
and CD-1 motorized CD cleaner

“Thanks to Nitty Gritty, every music lover can get the best sound from his records” (and compact discs, too)

So says James Jarvis of the SENSIBLE SOUND. And Bert Whyte of AUDIO, Tony Cordesman of STEREOPHILE, Julian Hirsch of STEREO REVIEW, Enid Lumley of INTERNATIONAL AUDIO REVIEW, Michel Prin of SON HI FI, Al Fasoldt of FANFARE, and Jack Philpot of AUDIO AMATEUR all agree: there is no other record or compact disc cleaning system that is equal to those made by Nitty Gritty Record Care Products of California.

Why do these independent audio critics feel so strongly? Because cleaning systems made by Nitty Gritty get records and compact discs 100% clean. Free of dust, grease and static electricity. Microscopically clean. *Perfectly* clean.

Have you ever listened to a clean record?

Records that have been cleaned by a Nitty Gritty sound more like *live* music. They have extended high frequency response, improved imaging, more acoustical space, and less noise.

There is no secret. The effectiveness of

the Nitty Gritty record cleaning system is due to its superior design. The record cleaning system employs a powerful vacuum and a pure cleaning fluid. The Nitty Gritty cleaning fluid dissolves dust, and grease, neutralizes static charge, and then is suctioned immediately off, leaving a purified record. Perfectly prepared for play.

“Any record in one’s collection, old or new, audiophile or not, will benefit *greatly* with a (Nitty Gritty) cleaning.” Jarvis says, “I believe that anyone considering upgrading his system in any way should *first* obtain one of these record cleaning machines. Only then will he be aware of what he might be missing in the music, or of what his current system is really capable of in terms of music reproduction.”

Digital gets a wash, too.

The Nitty Gritty compact disc cleaning system is also regarded as state-of-the-art. The CD-1 is the first *motorized* CD cleaner. It uses bi-directional rotation to safely and surely clean a compact disc. Bert Whyte said, “Nitty Gritty has come up
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with a CD cleaning machine that is unquestionably the *easiest* to use as well as the most efficient and *effective* method of ensuring pristine CD playing surfaces.” The CD-1 also protects the CD with a clear coat that resists scratches. Perfectly protected from the elements.

And now, Nitty Gritty has accomplished yet another first: the first motorized cleaner for the 12 inch video laser disc. The DD3 (not shown) is designed to operate like the CD-1, but on a grander scale. It also has the ability to clean the other two sizes (10 inch and CD) of the digital discs. Perfectly clean.

Brochures, full reprints of test reports, and a list of dealers are available to you. Send your name and address for an immediate packet of ear-opening information.

Nitty Gritty Record Care Products
4650 Arrow Highway
Unit F4, Info Dept.
Montclair, California 91763
(714) 625-5525



Phono Cartridges	Price	AQ Trade-in Price
AQ M-1, Induced Magnetic Cartridge.	95.00	40.00 (replacement stylus)
AQ MC-4, High Output (2.5mV) Moving Coil.	195.00	125.00 when original returned
AQ 404B, Hollow Boron Cantilever, 2 piece brass support system.		
AQ 404BH (2.2mV), AQ 404BM (1.1mV), AQ 404BL (.22mV)	295.00	195.00 when original returned
AQ B-100, Hollow Boron Cantilever, machined aluminum body.		
AQ B-100H (2.2mV), AQ B-100M (1.1mV), AQ B-100L (.22mV)	595.00	395.00 when original returned

You may trade-up by using the credit earned by your old cartridge toward any current model.

Compact Disc Players	Price
AQ CD-1, smooth, clean and natural, includes 4 AQ Sorbothane Feet.	695.00
AQ TCD-10, vacuum tube player with exceptional resolution and musicality, remote control, 4 AQ Sorbo Feet.	1495.00

Speaker Cable	Price (+prep)
LiveWire BC-2, spiraled 2 conductor, PVC insulation.	.50/ft
LiveWire BC-4, spiraled 4 conductor, FMS geometry, PVC insulation.	.95/ft
LiveWire Type 6, spiraled 4, FMS magnetic balancing geometry, polypropylene insulation, outer jacket.	1.50/ft+\$20/pr.
LiveWire Type 8, spiraled 8, FMS magnetic balancing geometry, polypropylene insulation, outer jacket.	3.00/ft+\$30/pr.
LiveWire Type 10, better copper, better polypropylene, better sound (only available prepared).	7.50/ft+\$30/pr.

Interconnecting Cable (available in any length)	Price
LiveWire Reference, foam polypropylene dielectric, OFHC, 100% foil shield.	45.00 / 3 ft. pr.
FMS Gold, as above but using 4 conductor FMS magnetic field balancing geometry.	65.00 / 3 ft. pr.
FMS Blue 2, spiraled 4, FMS geometry, teflon dielectric, litz OFHC, (only available prepared).	95.00 / 3 ft. pr.

4 foot Tonearm Set with teflon plug. Reference: 55.00 FMS Gold: 88.00 FMS Blue 2: 128.00

McLaren Audio Electronics	Price
McLaren 602 Straight line preamp, 60 or 80 dB gain.	1195.00
McLaren 402 Full feature preamp, 6 inputs, tone contols, phase control.	1495.00
McLaren 702 Stereo MOSFET power amp., 100/100 watts, stable into any load.	1195.00
McLaren 902 Mono MOSFET power amp., 250 watts, dedicated mono block design.	2390.00/pr

Accessories	Price
AQ Superclamp, Sorbothane plus reflex action clamps & damps grooved area of record, not just label.	65.00
AQ Sorbothane Record Mat, 1/8" thick, damps record and platter.	35.00
AQ Sorbothane Record Damper, damps record and spindle	12.00
AQ Sorbothane Isolation Foot, helps CD players, turntables, tube electronics, TVs, (set of 4).	39.00
AQ Sorbothane Vacuum Tube Dampers, set of 4, clear improvement from reduced hysteresis.	12.00
AQ Sorbothane Self-Stick Sheet, self adhesive backing lets you put Sorbothane anywhere it's needed.	15.00
AQ Record Brush, over 1000000 carbon fibers clean and control static.	15.00
AQ Electro Stylus Cleaner, vibrating stylus cleaner.	30.00
TRT's Wonder Solder, this solder really does sound better (15 ft).	15.00
AQ-10 Headshell, 10 gram anti-resonance headshell, LiveWire headshell leads.	35.00
AQ-16 Headshell, 16 grams, adjustable azimuth, LiveWire headshell leads.	39.00
Profile Pro-Lift, puts end-of-record-lift-off on any turntable.	39.00
LiveWire Headshell Leads, pure copper litz, no other insulation.	7.95

TONEARMS

MANUFACTURER	Model	Type: Air-Bearing = A, Pivoted = P, Linear = L, Servo = S	Cartridge Mount: Fixed = F, Adjustable Shell = R, 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 Range, Grams	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	Mounting Hole Diameter, Inches	Price, \$	Notes
GRACE	G 707III G 747	P P	F R	Yes Yes	Yes Yes	Yes Yes	9.3 9.3	11.7 11.7	0.4 0.3	4-10 4-10	86 86	1 1	300.00 300.00		Metal headshell; azimuth adjustable.
JOSEPH GRAVO SIGNATURE	Laboratory Series	P	R	Yes	Yes	Yes	9.3		0.1-20	2-25			485.00		
HEYBROOK	The Heybrook	P	F	Yes	Yes	Yes	9	11¼	0.75-3	2-10	100	¼	398.00		Damped magnesium tube.
LINN	Ittok LV II Basik Plus Basik LVX	P P P	F F R	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	9 9 9	11¼ 11¼ 11¼	0.75-3.0 0.75-3.0 0.75-3.0	3-9 2-10 2-10	100 100 100	¼ ¼ ¼	650.00 210.00 200.00		
MAYWARE	Formula MKIV	P	F/R	Yes	Yes	No	9	11¼	0.75-3.0	3-11	115	¾	250.00		
MICRO SEIKI	MA-500 CF-1 MAX 505III MAX 237 MAX 282	P P P P P	F F R/W R/W R/W	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	9.3 9.3 9.3 9.3 15	12.4 12.4 12.7 12.7 11.1	1.5 1.5 1.5 1.5 1.5	0.75-2.5 0.75-2.5 0.75-2.5 0.75-2.5 0.75-2.5	4-12 4-12 4-12 4-12 4-12	1.4 1.4 1.4 1.7 1.7	195.00 395.00 395.00 895.00 995.00		
MISSION	The Mechanic	P	F	Yes	Yes	Yes	8.3	9.1			220	¼	1200.00		
MRM AUDIO	Source Odyssey RPMKIII	P	W	Yes	Yes	Yes	9½	10¾	0.05-4	2-12	150	¼	1495.00		
ODYSSEY ENGINEERING	RP1-XG mkII	P	W	Yes	Yes	Yes	9½	10¾	0.5-4	2-12	100	¼	995.00		Choice of light, medium, or heavy tube; Van den Hul cable.
ORACLE	#1 #2						8.4						250.00 450.00		Remote-controllable; optical auto-lift.
PREMIER	FT-3 MMT	P P	F R	Yes Yes	Yes Yes	Yes Yes	9.4 9.4	12 12	0.3-0 0.3-0	4-14 4-14	100	¾	475.00 250.00		Azimuth adjustable; includes VTA device and flexible interconnect box; tube stuffed with anti-resonant foam. Cone and ball-race bearings; azimuth adjustable; fluid damping optional.
REGA RESEARCH	RB300	P	F	Yes	Yes		9¾	11½	0.5-3.0	3-18		1.0	240.00		Dynamic, spring-assist tracking force.
REVOLVER	Revolver	P	F	Yes	Yes	Yes	9	11.2	0-3	1-10	45	1.2	150.00		
SAEC	WE-308N WE-308L WE-317S WE-407/23 WE-407EX WE-308SX WE-506/30 WE-8000ST	P P P P P P P P	R R R R R R R R	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes Yes Yes	9¼ 10½ 8¾ 8¾ 8¾ 9¼ 11¼ 11½	13¾ 14¾ 12¾ 12¾ 12¾ 13¾ 16½ 16¾	0.2 0.2 0.2-5 0.2-5 0.2-5 0.2 0.2 0.2	7.3-13.3 7.8-14.8 9.5-15.5 5.5-15.5 3.5-15.5 5.5-15.5 5.5-15.5 8-16.5	1.1 1.1 1.1 1.1 1.1 1.1 1.4 1.1	325.00 395.00 495.00 695.00 695.00 695.00 1000.00 1000.00			
SIGNET	XK 50 XK 35	P P	F/R/W F	Yes Yes	Yes Yes	Yes Yes	9½ 9½	13¼ 11½	1 1	0-1.6 0-2	4-11 2-9	75 75	1 1	450.00 300.00	Damped planar pivot. As above.
SME	Series V	P	F	Yes	Yes	†	9.2	11.6	0.3	0-3.0	4-18	140	Oval	1750.00	†VTA adjustable during play. One-piece cast-magnesium tube, ball-race bearings, van den Hul mono-crystal silver cable.
SONOGRAPHE	LMT	P	F	Yes	Yes	Yes	9½	11¼	0-3	4-14	100	¾	185.00		
SOUTHER ENGINEERING	Junior Triquartz Tribeam 12S Tribeam 16S	L L L L	W W W W	Yes Yes Yes Yes		Yes Yes Yes Yes	2.0 2.0 2.0 2.0	10 10 10 10	0 0 0 0	0.5-3.0 0.5-3.0 0.5-3.0 0.5-3.0	1-20 1-20 1-20 1-20	† † † †	(2)¼ (2)¼ (2)¼ (2)¼	550.00 850.00 3000.00 3500.00	†User-supplied. For 12-inch records; stainless steel. For 16-inch records; stainless steel.
SYRINX	LE-2 PU-4	P P	R F	Yes Yes	Yes Yes	Yes Yes	9¾	11½		3-12		1.2	400.00		Split effective mass; azimuth adjustable.
TECHNICS	EPA-250	P	W	Yes	Yes	Yes	10	12½	2.1	0-2	3-12.5	41.2	2½	500.00	
WELL TEMPERED LAB	Well Tempered Arm	P	F		Yes		9	11½				½	625.00		Variable viscous damping.
WHEATON MUSIC	Triplanar II	P	F	Yes	Yes	Yes	9¾	11½	0.03	1-3	4-22		2000.00		Azimuth adjustable; anti-skate defeat.
WIN RESEARCH	Pantograph	P	F	Yes	Yes	Yes	12		0	0-3	6	80	½	1095.00	
ZETA	Jr. STO. Van den Hul	P P P	F F F	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	9 9 9	11 11½ 11½	1-3 0.75-4 0.75-4	3-6 4-12 4-12	100 90 90	¾ ¼ ¼	99.00 875.00 975.00		Oxygen-free copper wire; Canadian version with Tiffany connectors, \$1050.00.



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Even the world's most sophisticated cassette recorder, The Nakamichi DRAGON, requires regular cleaning of the tape head to maintain its state of the art performance. It was no wonder that S-711 INTRACLEAN® was chosen for use in Nakamichi's own service department. S-711 was scientifically designed to clean the vital components along the tape path. S-711's formulation of halogenated hydrocarbons exhibits extra special effectiveness in removing heavy oxide deposits from tape heads and capstans. In addition, S-711's remarkable rejuvenation properties restores lost texture and prolongs the life of the pinch roller.

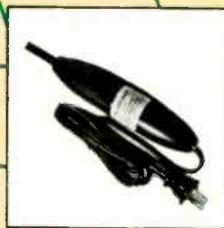
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D-501 Cassette Demagnetizer



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CD-101 Compact Disc Cleaner



V-311 VHS and V-321 Beta and VCR Cleaner



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S-711 Professional Tape Head Cleaner

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Enter No. 43 on Reader Service Card

OPEN-REEL TAPE DECKS



REVOX B77 MKII



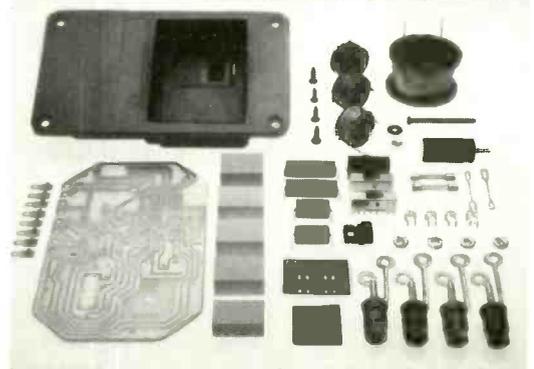
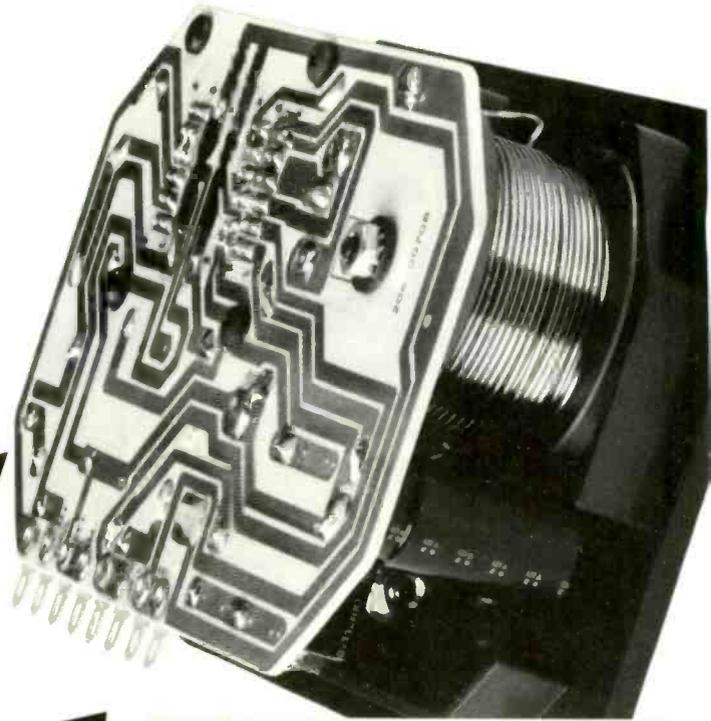
UHER 6000



TANDBERG TD 20A-SE

MANUFACTURER	Model	SPEEDS—See Letter Code			Maximum Reel Size, inches	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. — dB	Output Level at 0 VU, mV	Mike Mixing?	Mike Input Impedance, Ohms, Balanced = B	Record Level Indicator(s), Number and Type	EQ Tape Capable?	Dimensions, inches	Weight, lbs.	Price, \$	Notes
		A	B	C																	
OTARI	MX5050B-II	E	10½	4	2	2	3	Idler	20-20 ±2	0.04	72		Yes	150B	2 VU Mtrs. & 2 Peak LEDs	Yes	20.8 x 17.4 x 10.2	60	2495.00		
	MX5050BQ-II	D	10½	4	4	4	3	Idler	30-20 ±2	0.06	66		Yes	50k	4 VU Mtrs. & 4 Peak LEDs		20.8 x 17.4 x 10.2	60	3425.00		
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 17¼ x 8¼	37½	1999.00	†Any two adjacent speeds from 15/16 to 15 ips.	
	PR99 MKII	A/D	10½	3	2	2	3	Direct	30-22 +2,-3	0.06	67	775	Yes	†	2 Mtrs. & 2 Peak LEDs	No	17¾ x 19 x 8	40½	2595.00	†22k, 110k, balanced opt. Balanced line in/out, self-sync.	
TANDBERG	TD 20A-SE	A/D	10½	3	2/4	2	4	Belt	20-30 ±2	0.03	80	450	Yes	800	2 Peak Mtrs.	No	17½ x 17¼ x 7¾	37½	1695.00	Normal and special EQ.	
TEAC	X 300	A	7	3	4	2	3	Belt	30-34	0.04	65	450	Yes	10k	2 VU Mtrs.	Yes	18 x 12½ x 9	33	620.00	Record mute.	
	X 300 R	A	7	3	4	2	3	Belt	30-34	0.04	65	450	Yes	10k	2 VU Mtrs.	Yes	18 x 12½ x 9	33	690.00	As above.	
	X 7 MK II	A	7	3	4	2	3	Belt	30-34	0.03	†	436	Yes	10k	2 VU Mtrs.	Yes	16¼ x 18¼ x 10¾	39¾	790.00	†95 dB with dbx NR. Dual capstan, variable speed, manual cue.	
	X 700 R	A	7	6	4	2	3	Belt	30-34	0.03	†	436	Yes	10k	2 VU Mtrs.	Yes	16¼ x 18¼ x 10¾	39¾	950.00	As above.	
X 2000	A	10½	3	4	2	3	Belt	25-33	0.03	††	436	Yes	10k	2 VU Mtrs.	Yes	19 x 16 x 40½	45¼	1400.00	††100 dB with dbx NR. Dual capstan, d.c. servo, spooling mode, variable speed, bias fine tuning, auto locator, Duplisynd, remote control.		
X 2000 R	A	10½	6	4	2	3	Belt	25-33	0.03	††	436	Yes	10k	2 VU Mtrs.	Yes	19 x 16 x 40½	45¼	1600.00	As above but without spooling mode.		
TECHNICS	RS-1500	E	10½	4	2/4	2/2	3	Direct	30-30 ±3	.018	68	775	Yes	4.7k	2 VU Mtrs.		19¾ x 17½ x 10½	57¼	1600.00	2 track, 2 channel record/play; 4 track, 2 channel play.	
	RS-1506	E	10½	4	2/4	2/2	3	Direct	30-30 ±3	.018	66	775	Yes	4.7k	2 VU Mtrs.		19¾ x 17½ x 10½	57¼	1600.00	4 track, 2 channel record/play; 2 track, 2 channel play.	
	RS-1520	E	10½	4	2/4	2/2	3	Direct	40-22 ±2	.035	68	2190	Yes	4.7k	2 VU Mtrs.		19¾ x 18 x 10½	61¾	2500.00	2 track, 2 channel record/play; 4 track, 2 channel play.	
	RS-1700	E	10½	6	2/4	2/2	3	Direct	30-30 ±3	.018	66	775	Yes	4.7k	2 VU Mtrs.		19¾ x 17½ x 10½	58½	2100.00	Bidirectional; 4 track, 2 channel record/play.	
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	1449.00		
	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	1549.00		
	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	1549.00	24 hours record time.	
	5000	C	5½	2	2	1	1	Idler	40-16 ±2	0.2	60	900	Yes	220	1 Peak Mtr.	Yes	13 x 6 x 13	18	1499.00		
	6000	†	5	3	2	1	3	Belt	20-22 ±3	0.2	62	775	Yes	220	1 VU Mtr.	Yes	11 x 3½ x 9	8	1699.00	†'C' speeds plus 15/32 ips. As above.	
	1200	A	5	3	†	1	1	Belt	40-16 ±2	0.15	62	600	Yes	200	1 VU Mtr.	Yes	11 x 3½ x 9	8	4800.00	†Full.	

NO GUTS, NO GLORY.



The guts: Inside every ADS speaker you'll find drivers conceived, engineered, and built by ADS.

Conceived to be accurate, uncolored, and thoroughly reliable.

Engineered using proprietary computer analysis, to yield extraordinary performance.

Built with precision and care unequalled in Europe, the Far East, anywhere in the audio industry.

Not every speaker maker builds its own drivers. None builds them as carefully as we do. That's why ADS speakers are picked as reference monitors by the premier CD label. That's why the new level of accuracy CD provides can be heard best on ADS speakers.

The glory?

Waiting for you at your ADS dealer.

Because while we can tell you how beautifully we build them, only he can show you how much better they sound.

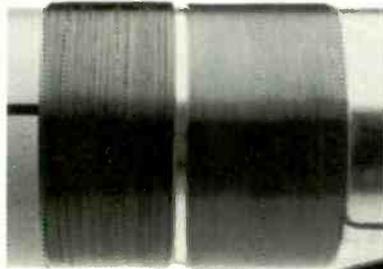
▲ A different breed of crossover. All components are computer-grade and mounted on 'military spec' epoxy circuit board. ADS' superior drivers allow the use of this better, more efficient crossover design.

◀ L1290 tower and L880 bookshelf systems. Just part of a full range of home speakers, including our critically acclaimed mini speakers.

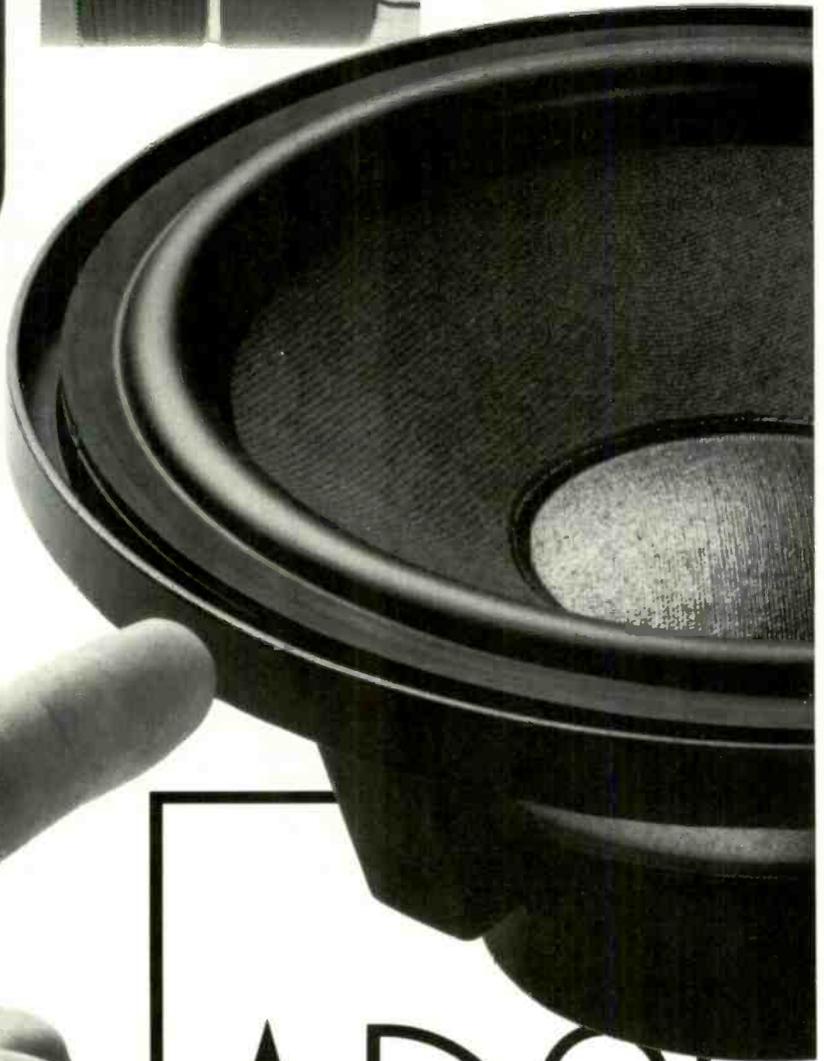




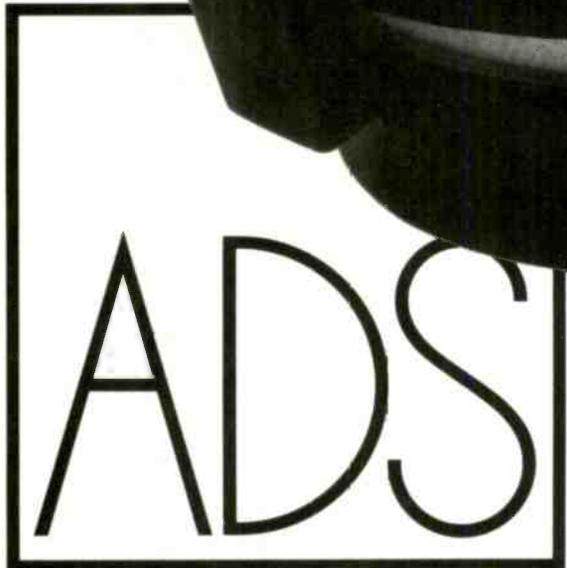
▲ Series 2 soft-dome midrange. Design fine-tuned by 16,000 data point computer analysis. Low mass diaphragm. Focused barium-ferrite magnet. High-temperature voice coil. Coloration nil. Delivers outstanding dynamic range. Ditto for ADS soft-dome tweeters.



◀ Typical voice coil on left. ADS version on right. Smooth, tight windings and long voice coil mean accurate transients, low distortion. Coil always remains under amplifier control. Translates the full dynamics of digital source material.



▶ Stiffite® Linear Drive woofer. Butyl rubber surround permits long, linear cone travel. Woofer accurately moves huge amounts of air for deep, tight bass response.

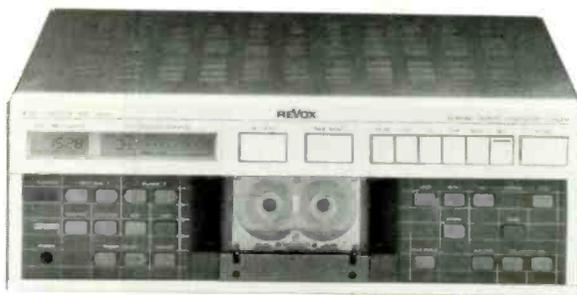


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CASSETTE DECKS



TEAC V-770



REVOX B215



TANDBERG TCD 3014A



NAKAMICHI CR-7A

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Frequency Response with CrO ₂ Tape (Type II), Hz to kHz, ±dB	Number of Heads	Wow & Flutter, Wtd. Peak, %	S/N without Noise Reduction, —dB	S/N with Noise Reduction, —dB	Noise Reduction Circuit: Dolby B = B, Dolby C = C, dbx = D, HX Pro = H	Continuously Adjustable Bias: Auto = A, Manual = M	Number of Preset Bias/ED Positions	Program Search?	Program Scan?	Level Indicators: Average = A, Peak = P, Peak-Hold = PH	Counter Indicators: Number of Turns = T, Elapsed Time = E, Remaining Time = R	Auto Reverse?	Number of Mike Inputs	Dual Wells?	Weight, Lbs.	Price, \$	Notes
ADS	C2	20-18 ± 2	2	0.06	58	74	B/C		4	No	No	P	T	No	2	No	18 1/2	500.00	Has two speeds; specs here at 1 7/8 ips. Specs here at 3 3/4 ips.
	C3(RO)	20-20 ± 2	3	0.04	58	74	B/C		4	No	No	P	T	No	2	No	20	800.00	
		25-22 ± 2	3	0.035	60	76													
AIWA	AD-R450U	25-15 ± 3	2	0.04	60	78	B/C	M	3	No	No	P	T	Yes	0	No	10	220.00	Auto demagnetizing; NR detector. Auto demagnetizing. As above. As above. As above.
	AD-F350U	25-15 ± 3	2	0.035	60	78	B/C	M	3	No	No	P	T	No	0	No	9	150.00	
	AD-F250U	25-15 ± 3	2	0.038	60	78	B/C	M	3	No	No	P	T	No	0	No	9	120.00	
	AD-WX220U	20-15 ± 3	2	0.038	61	78	B/C	M	3	Yes	Yes	P	T	No	1	Yes	12 1/4	500.00	
	AD-W20U	20-15 ± 2	2		61	78	B/C	M	3	Yes	Yes	P	T	Yes	0	Yes	12 1/4	450.00	
	AD-A70	30-14 ± 3	2	0.06	78	78	B/C							0	No	13 1/4	595.00		
	AD-F990B	20-19 ± 3	3	0.025	63	80	B/C/H	A	3	Yes	Yes	PH	T/R	No	2	No	12	595.00	
	AD-F770B	20-18 ± 3	3	0.025	63	80	B/C/H	A	3	Yes	Yes	PH	T/R	No	2	No	12	495.00	
	AD-S40U	20-17 ± 3	3	0.028	61	78	B/C/H	M	3	No	No	P	T	No	0	No	10 1/2	330.00	
	AD-S20U	20-17 ± 3	3	0.055	61	78	B/C/H	M	3	No	No	P	T	No	0	No	9 1/4	250.00	
	AD-R650U	20-17 ± 3	3	0.035	63	80	B/C/H	M	3	No	No	P	T	No	0	No	11	300.00	
	AD-R550U	20-15 ± 2	2	0.038	60	78	B/C/H	M	3	Yes	Yes	P	T	Yes	2	No	11 1/2	320.00	
AKAI	GX-R99	20-19 ± 3	4	0.028	60	80	B/C	A/M	2	Yes	Yes	†	T/E/R	Yes	0	No	19	850.00	†Average, peak, and spectrum level indicators. †Peak and spectrum level indicators. †As above. Programmable; 15 selections.
	GX-9	20-20 ± 3	3	0.025	60	80	B/C	A/M	0	Yes	Yes	†	T/E/R	No	0	No	15 1/2	560.00	
	GX-8	20-20 ± 3	3	0.025	60	115	B/C/D	M	0	Yes	No	PH	T/E/R	No	0	No	14 1/4	570.00	
	GX-6	20-20 ± 3	3	0.025	60	80	B/C	M	0	Yes	No	PH	T/E/R	No	0	No	14 1/4	530.00	
	GX-R70	20-18 ± 3	2	0.05	60	110	B/C/D		0	Yes	No	†	T/E	No	0	No	11 1/2	500.00	
	GX-R60	20-18 ± 3	2	0.05	60	110	B/C/D		0	Yes	No	P	T	Yes	0	No	11	340.00	
	HX-R40	20-18 ± 3	2	0.05	59	79	B/C		0	Yes	Yes	P	T	Yes	0	No	9 1/2	250.00	
	HX-A451W	30-15 ± 3	3	0.09	57	77	B/C			Yes	Yes	P	T	No	1	Yes	9 3/4	380.00	
	HX-A351W	30-15 ± 3	3	0.09	56	66	B			No	No	P	T	No	0	Yes	8 3/4	235.00	
	GX-A5X	20-18 ± 3	2	0.05	60	115	B/C/D			No	No	P	T	No	2	No	9	270.00	
HX-A3X	20-17 ± 3	2	0.05	59	115	B/C/D			No	No	P	T	No	2	No	9	235.00		
HX-A201	30-16 ± 3	2	0.05	56	76	B/C			No	No	P	T	No	2	No	7	140.00		

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Teac is not in the habit of building audio equipment for the undiscerning. Rather, we commit ourselves to those few individuals discontented with anything less than the finest recording and sound reproduction equipment money can buy.

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The Teac ZD-5000 compact disc player. "Fi" just doesn't get any higher.



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For over thirty years Teac has been famous for building precision tape recording equipment. But, we're not willing to rest on our reels. So now Teac offers its most comprehensive line ever. From audio and hi-fi video recording equipment, to compact disc players, to graphic equalizers, speakers, and a complete line of audio and video accessories. One thing, however, will never change at Teac—our obsession with creating the most advanced, featured-filled, superbly executed audio and video equipment we can make. So, no matter what Teac you decide to buy, you can be assured of acquiring a piece that has been built to fanatical standards.

Hi Fi in the extreme.

TEAC

CASSETTE DECKS

MANUFACTURER	Model (R) = Remote Included, (RD) = Remote Optional	Frequency Response with CrO ₂ Tape (Type I), Hz to kHz, ±dB		Number of Heads	Wow & Flutter, Wtd. Peak, %	S/N without Noise Reduction, -dB	S/N with Noise Reduction, -dB	Noise Reduction Circuit: Dolby B & C, Dolby C, -dB	Continuously Adjustable Bias: Auto = A, Manual = M	Number of Preset Bias/EQ Positions	Program Search?	Program Scan?	Level Indicators: Average = A, Peak = P, Peak-Hold = PH	Counter Indications: Number of Tapes = T, Elapsed Time = E, Remaining Time = R	Auto Reverse?	Number of Mike Inputs	Dual Walled?	Weight, lbs.	Price, \$	Notes
		30-18 ±3	2																	
BANG & OLUFSEN	Beocord 5500	30-18 ±3	2	0.09	55	74	B/C/H	A	3	Yes	No	P/PH	T	Yes	No	No	18.4	899.00	Auto Dolby NR, auto record level.	
	Beocord 2000	30-15 ±3	2	0.08	56	65	B	A	3	Yes	No	P	T	No	No	No	9	469.00		
CURTIS MATHES	AK555(RD)	40-14 ±3	3	0.08	56	66	B	A	0	No	No	A	T	No	0	No	7½			
DENON	DR-M10	35-17 ±3	2	0.05		72	B/C	M	3	Yes	No	A	E	No	0	No	12¼	250.00	MPX filter, dual capstan. MPX filter.	
	DR-M20	30-19 ±3	2	0.045		73	B/C	M	3	No	No	A	E/R	No	0	No	12¼	375.00		
	DR-M30HX (RI)	30-20 ±3	3	0.045		73	B/C/H	M	3	No	No	A	E/R	No	0	No	12½	500.00		
	DR-M44HX	25-20 ±3	3	0.035		75	B/C/H	A	3	No	No	A/PH	E/R	No	0	No	12½	650.00		
DUAL	C818	25-18 ±3	2	0.045	60	74	B/C	A	3	No	No	P	T	Yes	1	No	15	300.00		
FISHER	CRW55	40-15 ±3	3	0.06	51	61	B	A		No	No	P	T	No	0	Yes	8.8		High-speed dubbing. As above. As above.	
	CRW85	40-15 ±3	3	0.06	51	61	B	A		No	No	P	T	Yes	0	Yes	9.3			
	CRW95	40-15 ±3	3	0.06	51	71	B/C	A		Yes	Yes	P	T	Yes	0	Yes	11.6			
HARMAN KARDON	TD102	20-18 ±3	2	0.05	57	65	B		3	No	No	P	T	No	0	No	12¼	295.00		
	TD202	20-18 ±3	2	0.05	57	73	B/C	M	3	No	No	P	T	No	0	No	12¼	345.00		
	TD302	20-21 ±3	2	0.05	57	73	B/C/H	M	3	No	No	P	T	No	0	No	12¾	500.00		
	TD392	20-22 ±3	3	0.05	57	73	B/C/H	M	3	No	No	P	T	No	0	No	12¾	700.00		
	CD401	20-24 ±3	3	0.025	58	75	B/C/H	M	3	Yes	No	P/PH	T/E	No	2	No	14¾	900.00		
HITACHI	DW220	20-16	2	0.1	58	66	B		3	No	No	P	T	No	1	Yes	7	240.00		
	DW450	20-16	2	0.07	58	66	B		3	No	No	P	T	No	1	Yes	7	250.00		
	DW33	20-15	2	0.08	57	65	B		3	No	Yes	P	T	Yes	0	Yes	300.00			
	DW77(RD)	20-16	2	0.04	58	72	B/C		3	Yes	Yes	P	T	Yes	0	Yes	10½	500.00		
	DW99(RD)	20-16	2	0.04	58	72	B/C		3	Yes	Yes	P/PH	T	Yes	0	Yes	15	700.00		
JVC	TD-V66BK (RD)	20-19 ±3	3	0.038	58	78	B/C	A	3	No	Yes	P/PH	T/E	No	0		10.6			
	TD-X501BK	30-16 ±3	2	0.06	58	78	B/C	M	3	No	Yes	P/PH	T	Yes	2		8.6			
	TD-X301BK	30-15 ±3	2	0.08	58	78	B/C	M	3	No	No	P	T	Yes	2		8.4			
	TD-X201BK	40-15 ±3	2	0.08	58	78	B/C	M	3	No	No	P	T	No	2		7.7			
	TD-X101BK	40-15 ±3	2	0.08	58	68	B	M	3	No	No	P	T	Yes	2		7.7			
	TD-W60BK	30-16 ±3	3	0.08	58	78	B/C	A	3	No	Yes	P	T	Yes	0	Yes	10.8			
	TD-W30BK	30-16 ±3	3	0.08	58	78	B/C	A	3	No	No	P	T	No	1	Yes	9.5			
KENWOOD	KX-780	22-18 ±3	3	0.05	67	74	B/C	M	3	No	No	P	T	No	2	No	10.6	320.00		
	KX-95W (RD)	20-16	2	0.06	57	72	B/C		3	Yes	Yes	P	T	Yes	0	Yes	11.7	355.00		
	KX-75R (RD)	20-16	2	0.06	56	73	B/C		3	Yes	Yes	P	T	Yes	2	No	8.4	235.00		
	KX-65W	20-16	2	0.09	56	72	B/C		3	Yes	No	P	T	Yes	0	Yes	9.9	270.00		
	KX-55W	20-16	2	0.09	56	64	B		3	No	No	P	T	Yes	0	Yes	9.9	225.00		
	KX-45C	20-16	2	0.09	56	72	B/C		3	Yes	No	P	T	No	2	No	8.4	165.00		
KYOCERA	D-811(RD)	20-20 ±3	2	0.02	58	78	B/C/H	A/M	3	Yes	No	PH	T/E/R	No	2	Yes	17½	625.00		
	D-611(RD)	20-20 ±3	2	0.035	58	78	B/C	M	3	No	No	P	T	No	0	No	16	485.00		
LUXMAN	K03(RD)	20-20 ±3	3	0.022	60	73	B/C	M	3	Yes	No	P	E/R	No	0		24.5	1200.00	Test oscillator. †All four NR circuits.	
	K406(RD)	20-19 ±3	2	0.05	60	71	†	M	3	Yes	Yes	P	E/R	Yes	0		9.9	580.00		
	K106(RD)	20-19 ±3	2	0.05	60	71	†	M	3	Yes	Yes	P	E/R	Yes	0		9.9	580.00		
	K105	30-18 ±3	2	0.06	60	71	B/C/D		3	Yes	Yes	P	T	Yes	0		9.9	480.00		
	K100	40-18 ±3	2	0.06	55	70	B/C		3	Yes	Yes	P	T	No	2		7.7	250.00		
MARANTZ	SD165	40-15	2	0.08	54	64	B/C		3	Yes	No	P	T	No	2	Yes	10.4	260.00		
	SD265	40-15	2	0.08	54	70	B/C		3	Yes	No	P	T	No	2	Yes	10.4	280.00		
	SD565	35-16.5	2	0.05	55	72	B/C		3	Yes	No	P	T	Yes	1	Yes	11.9	450.00		
MITSUBISHI	DT-156	30-17	5	0.12	58	68	B	A		Yes	Yes	P	T	Yes	0	Yes	8¾	330.00	Seven-cassette auto changer with nine-segment programmability.	
NAD	6155	30-20 ±3	2	0.10†	59	77	B/C/H	M	3	No	No	P	T	No	0	No	10½	428.00	†DIN-wtd. "Playtrim" adjustment. As above.	
	6240	30-15 ±3	2	0.10†	59	77	B/C	M	3	No	No	P	T	No	0	No	8¾	298.00		
	6220	40-15 ±3	2	0.2†	55	73	B/C	M	3	No	No	P	T	No	0	No	7½	198.00		
NAKAMICHI	Dragon(RD)	20-21 ±3	3	0.04		72	B/C	M	3			P	T/E/R	Yes	No	21	1995.00			
	CR-7A(RI)	18-21 ±3	3	0.048		72	B/C	M	3			P/PH	T	No	No	19¾	1495.00			
	CR-5A(RD)	20-20 ±3	3	0.048		72	B/C	M	3			P	T	No	No	18¾	950.00			
	RX-505(RD)	20-20 ±3	3	0.08		70	B/C	M	3	Yes		P	T	Yes	No	22	1195.00			
	RX-202(RD)	20-20	2	0.11		68	B/C	M	3			P	T	Yes	No	19¾	650.00			
	BX-300(RD)	20-20 ±3	3	0.048		70	B/C	M	3			P	T	No	No	12¾	695.00			
	BX-125	20-20	2	0.11		68	B/C	M	3			P	T	No	No	11	450.00			
	BX-100	20-20	2	0.11		62	B		3			P	T	No	No	11	329.00			
	MR-1(RD)	20-20 ±3	3	0.048		70	B/C	M	3			P	T	No	No	11	945.00			
	MR-2(RD)	20-20 ±3	2	0.11		68	B/C	M	3			P	T	No	No	11	559.00			
NEC	K-700E(RD)	20-17 ±3	2	0.06	56	65	B/C		3	Yes	Yes	A/P	T	No	2	Yes	11	349.00		
NIKKO	ND-850W	30-16	4	0.045		73	B/C	M	0	Yes	No	P	T	Yes	1	Yes				
	ND-750	30-16	2	0.045		73	B/C	M	0	Yes	No	P	T	Yes	2	Yes	8.6	300.00		
	ND-350	35-17	2	0.05			B/C	M	3	No	No	P	T	No	2	No				



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THE ONKYO INTEGRA TA-2058 REAL TIME COUNTER, HX PRO, 3 HEADS, ACCUBIAS PROVIDE PROFESSIONAL QUALITY RECORDINGS

The ONKYO Integra TA-2058 combines the recording quality of a professional deck with an array of sophisticated control features. Our 3 head record & playback system includes a wide gap recording head for superior frequency response and increased headroom. The playback head features a narrower gap, resulting in extended high frequency response, and improved S/N ratio. The third head enables tape monitoring, permitting instant comparison of the source material and your recording.

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Freedom from tape saturation, even at the highest recording levels, is assured by Dolby HX Pro. ONKYO's exclusive Accubias circuit fine tunes recording bias for the flattest and widest response, and an adjustable preset function lets you customize your recordings for playback in other tape machines, like car stereo or portables.

Professional recording and playback qualities are finally available in an affordable deck—the ONKYO Integra TA-2058.

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ONKYO

200 Williams Drive, Ramsey, NJ 07446

CASSETTE DECKS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Frequency Response with CrO ₂ Tape (Type II), Hz to kHz, ± dB		Woo & Flutter	S/N without Noise Reduction, - dB	S/N with Noise Reduction, - dB	Noise Reduction Circuit (Dolby B, C, X)	Continuously Adjustable Bias: Auto = A, Manual = M	Number of Preset Bias/EQ Positions	Program Search?	Program Scan?	Level Indicator: Average = A, Peak = P, Peak Hold = PH	Counter Indication: Number of Tapes = T, Elapsed Time = E, Remaining Time = R	Auto Reverse?	Number of Wipes?	Dual Wipes?	Weight, Lbs.	Price, \$	Notes		
		Number of Heads	Wow & Flutter, Wld. Peak, %																		
DNKYD	TA-2090 (RO)	20-21 ± 3	3	0.02	60	85	†	A	3	No	Yes	P	E/R	No	2	No	20	900.00	†All four NR circuits.		
	TA-2058 (RO)	20-18 ± 3	3	0.045	60	80	B/C/H	A	3	No	Yes	P	E/R	No	2	No	13½	480.00			
	TA-2048 (RO)	20-18 ± 3	3	0.045	60	80	B/C	M	3	No	Yes	P	T	No	2	No	13¼	370.00			
	TA-2047 (RO)	20-17 ± 3	2	0.045	60	80	B/C	M	3	No	Yes	P	E/R	No	2	No	13¼	330.00			
	TA-R-22 (RO)	20-16 ± 3	2	0.07	58	78	B/C	M	3	No	Yes	P	T	Yes	2	No	10	250.00			
	TA-2028 (RO)	20-16 ± 3	2	0.06	58	78	B/C	M	3	No	Yes	P	T	No	2	No	8½	230.00			
	TA-2017 (RO)	20-16 ± 3	2	0.07	56	76	B/C	M	3	No	No	P	T	No	2	No	7¾	180.00			
	TA-RW99 (RO)	20-16 ± 3	4	0.05	58	78	B/C	M	3	No	Yes	P	T	Yes	1	Yes	14¼	450.00			
	TA-RW66 (RO)	20-16 ± 3	4	0.07	56	76	B/C	M	3	No	No	P	T	Yes	1	Yes	11¾	320.00			
	TA-W55 (RO)	25-16 ± 3	4	0.07	56	66	B	M	3	Yes	No	P	T	No	1	Yes	11¾	260.00			
PARASOUND	CD 400	20-18	2	0.05	65	73	B/C	M	3	Yes	No	P	T	No	2	No	14	229.95	CD player/cassette deck; see also "Compact Disc Players."		
	CDD 940	20-16.5 ± 1	2	0.07	58	77	B/C/H	No	3	No	No	P	E	No	0	No	16	499.95			
PIONEER	CT-S22	30-15	2	0.07	57	73	B/C	M	3	No	No	A	T	No	2	No	7.8	129.95			
	CT-S11	30-15	2	0.07	57	73	B/C	M	3	No	No	A	T	No	2	No	7.1	799.95			
	CT-A9X Elite	20-22	3	0.018	58	74	B/C	A	0	Yes	No	A	R	No	0	No	21.1	499.95			
	CT-A7X Elite	20-20	3	0.028	57	73	B/C	A	0	Yes	No	A	T	No	0	No	17.7	499.95			
	CT-1370WR (R)	20-17	4	0.06	57	73	B/C	A	0	Yes	No		T	Yes	0	Yes	12.1	449.95			
	CT-1270WR (R)	20-15.5	3	0.07	57	73	B/C	M	3	No	No		T	Yes	0	Yes	11	289.95			
	CT-1170WR (R)	30-15	3	0.075	56	72	B/C	M	3	No	No		T	No	0	Yes	10.2	229.95			
	CT-S88R	25-17	2	0.055	57	73	B/C/D	A	0	Yes	No	PH	T	Yes	2	No	12.5	324.95			
	CT-2070R	25-16	2	0.07	58	92	B/C/D	M	3	No	No		T	Yes	0	No	8.1	259.95			
	CT-S44	30-15	2	0.07	57	92	B/C/D	M	3	No	No	A	T	No	2	No	7.1	174.95			
CT-V70	25-18	4	0.06	57	92	B/C/D	A	0	Yes	No		T	Yes	0	Yes	14.2	485.00				
PROTON	740	25-18 ± 3	2	0.05	54	62	B/C/D	A	0	Yes	No	P	E/R	Yes	0	No	11½	329.00			
	730R(RO)	30-16 ± 3	2	0.1	50	68	B/C	A	0	Yes	No	P	T	Yes	0	No	11	299.00			
	720B	40-15 ± 3	2	0.15	50	68	B/C	A	0	Yes	No	P	T	Yes	0	No	11	199.00			
RCA	MTR 115 (RO)	50-15 ± 3	2	0.05	58	73	B/C	A	3	No	No	P	T	No	2	No	9	249.00			
	MTR 118 (RO)	40-17 ± 3	2	0.06	59	74	B/C	A	3	Yes	Yes	P/PH	T	Yes	2	No	10	299.00			
	Dimensia MTR 120 (RO)	40-17 ± 3	2	0.06	59	74	B/C	A	3	Yes	Yes	P/PH	T	Yes	2	No	10	299.00			
REALISTIC	SCT-82																	220.00			
	SCT-100																	230.00			
	14-649																	180.00			
	SCT-45																	120.00			
REVOX	B215(RO)	30-20 + 2, -3	3	0.1	58	72	B/C/H	A	6	Yes	No	P	E	No	0	No	20¼	1590.00			
RDTL	RD-850	30-18 ± 3	2	0.08	60	72	B/C	M	3	No	No	P	T	No	2	No		229.00			
	RD-870	30-21 ± 3	2	0.03	65	74	B/C/H	M	3	No	No	P	T	No	0	No		499.00			
SAE	C102	20-20 ± 3	2	0.06	72	72	B/C	A	3	Yes	No	A/PH	T/E/R	No	0	No	24	429.00	Drawer-load transport.		
	C101(RO)	20-20 ± 3	3	0.04	74	74	B/C	M	4	No	No	A/PH	T/E/R	No	0	No	22	650.00			
SANSUI	D-905R	20-21	3	0.034	60	74	B/C	A	3	Yes	Yes	P	T/E/R	Yes	0	No	11.9	900.00			
	D-W10	20-18	2	0.05	57	73	B/C	A	3	Yes	Yes		T	Yes	1	Yes	13.4	600.00			
	D-95WR	20-17	2	0.06	54	74	B/C	A	3	Yes	Yes		T	Yes	0	Yes	11.9	500.00			
	D-E750	20-17	2	0.06	72	72	B/C	A	3	Yes	No		T	No	0	Yes	11.5	500.00			
	D-705	20-21	3	0.035	60	74	B/C	A/M	3	Yes	No		T	No	0	No	13	470.00			
	D-75CW	20-17	2	0.06	54	74	B/C	A	3	Yes	No		T	No	0	Yes	9.3	400.00			
	D-505R	20-19	2	0.045	58	72	B/C	A	3	Yes	No		T/E	Yes	0	No	11.3	370.00			
	D-505	20-19	2	0.045	58	72	B/C	A	3	Yes	No		T	No	0	No	10.6	320.00			
	D-65CR	20-17	2	0.05	54	74	B/C	A	3	Yes	No		T	Yes	1	No	8.6	330.00			
	D-70CW	20-17	2	0.06	54	72	B/C	A	3	No	No		T	No	0	Yes	9	300.00			
	D-E350	20-16	2	0.12	64	64	B	A	3	No	No		T	No	0	Yes	7.1	240.00			
	D-70BW	20-17	2	0.06	54	64	B	A	3	No	No		T	No	0	Yes	8.8	240.00			
	D-35CF	20-17	2	0.06	54	64	B/C	A	3	Yes	No		T	No	1	No	7.3	230.00			
	D-35BF	20-17	2	0.06	54	74	B	A	3	No	No		T	No	1	No	7.3	200.00			
	SANYO	RDS29	40-15	2	0.1	54	62	B	M	0	No	No	A	T	No	1	No	5½			
		RDW39	40-14	2	0.15	50	60	B	M	0	No	No	A	T	No	1	No	7			
RDW49		40-16	4	0.1	57	65	B	M	0	No	No	A	T	No	0	Yes	3¾				
RDW79		40-16	4	0.1	57	65	B	M	0	No	No	A	T	Yes	0	Yes	4				
SCOTT	DD686	30-14 ± 3	2	0.08	70	70	B/C		3	No	No	P	T	No	0	Yes		199.95	High-speed dubbing. As above.		
	DD656	40-14 ± 3	2	0.15	61	61	B		3	No	No	P	T	No	0	Yes		149.95			
SEARS	9324	40-14 ± 3	4	0.1	50	70	B/C	M	3	No	No	P	T	No	2	Yes		150.00			
	9320	40-14 ± 3	4	0.1	50	60	B	M	3	No	No	P	T	No	2	Yes		100.00			
SHARP	RT-115	50-12 ± 3	2	0.1	52	52	B	A	3	No	No	A	T	No	0	No	5½	79.95			
	RT-W500	50-12 ± 3	2	0.12	52	52	B	A	3	No	No	A	T	No	2	Yes	7¾	119.95			
	RT-W800	40-16 ± 3	2	0.08	56	56	B	A	3	Yes	No	A	T	Yes	2	Yes	8¾	219.95			



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CASSETTE DECKS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Frequency Response with CrO ₂ Tape (Type III), Hz to kHz, ±dB	Number of Heads	Wow & Flutter, Wtd. Peak, %	S/N without Noise Reduction, dB	S/N with Noise Reduction, dB	Noise Reduction Circuit: Dolby B = B, Dolby C = C, dbx = D, HK Pro = H	Continuously Adjustable Bias: Ave = A, Manual = M	Number of Preset Bias/EQ Positions	Program Search?	Program Scan?	Level Indicators: Average = A, Peak = P, Peak-Hold = PH	Counter Indicators: Number of Taps = T, Elapsed Time = E, Remaining Time = R	Auto Reverse?	Number of Mike Inputs	Dual Waxes?	Weight, lbs.	Price, \$	Notes
SHERWOOD	S-270DD	30-16	3	0.1	56	65	B	M	3	No	No	P	E	No	2	Yes	14	249.95	
	S-260R	25-18.5	2	0.08	56	73	B/C	M	3	Yes	Yes	A	T	Yes	2	No	14	279.95	
	S-160	30-16	2	0.08	56	73	B/C	M	3	Yes	Yes	A	T	No	2	No	12	199.95	
SONY	TC-WR930 (RO)	30-16 ± 3	4	0.045	58	71	B/C		3	Yes	No	P	E	Yes	0	Yes	14	600.00	
	TC-WR730 (RO)	30-15 ± 3	3	0.07	57	70	B/C		3	Yes	Yes	P	T	Yes	0	Yes	11½	370.00	
	TC-W530 (RO)	30-15 ± 3	3	0.07	57	70	B/C		3	No	No	P	T	No	0	Yes	11½	250.00	
	TC-W230 (RO)	30-14 ± 3	3	0.12	56	69	B/C		3	No	No	P	T	No	0	Yes	10	180.00	
	TC-R502 (RO)	30-17 ± 3	2	0.05	58	71	B/C/H		3	Yes	Yes	P	E	Yes	0	No	10¼	450.00	
	TC-R302 (RO)	30-15 ± 3	2	0.07	57	70	B/C		3	No	No	P	T	Yes	2	Yes	8½	220.00	
	TC-FX430 (RO)	30-14 ± 3	2	0.08	56	69	B/C		3	No	No	P	T	No	2	Yes	7½	150.00	
TC-K444ESH (RD)	30-18 ± 3	3	0.004	60	72	B/C	M	3	No	No	PH	E	No	0	No	15¾	450.00		
TANDBERG	TCO 3014A (R)	18-20 ± 1.5	3	0.06	72	80	B/C	M	3	Yes	Yes	P	T/E	No	0	No	21.6	1595.00	
TEAC	R-505	20-18	2	0.05	59	74	B/C		3	Yes	No	P	T/E	Yes	2	No	11	395.00	
	R-435X	30-17	2	0.06	55	90	B/C/D		3	No	No	P	T/E	Yes	2	No	9	295.00	
	W-880RX	25-20	2	0.05	59	91	B/C/D		3	Yes	Yes	P	T	Yes	0	Yes	14¼	799.00	
	W-660R	25-19	2	0.05	59	78	B/C		3	Yes	No	P	T	Yes	0	Yes	12	599.00	
	W-460	25-19	2	0.05	59	78	B/C		3	Yes	No	P	T	No	0	Yes	11	549.00	
	W-440CGL	25-17	2	0.06	59	74	B/C		3	No	No	P	T	No	1	Yes	11	468.00	
	D-525C	30-17	2	0.06	55	70	B/C		3	No	No	P	T	No	2	Yes	10	349.00	
	V-850X(RO)	25-19	3	0.03	60	92	B/C/D	M	3	Yes	Yes	P	T/E	No	2	No	12¾	599.00	
	V-770	25-19	3	0.05	59	74	B/C/H	M	3	Yes	Yes	P	T/E	No	0	No	10½	469.00	
	V-550X	20-19	2	0.05	59	90	B/C/D	M	3	Yes	Yes	P	T/E	No	2	No	11	429.00	
	V-538X	30-16	2	0.06	55	90	B/C/D	M	3	No	No	P	T	No	2	No	9	239.00	
	V-437C	30-16	2	0.06	55	70	B/C	M	3	No	No	P	T	No	2	No	9	189.00	
	R-888X(RO)	20-20	3	0.029	60	92	B/C/D	M	3	Yes	Yes	P	T/E	Yes	0	No	13¼	799.00	
R-606X	20-18	2	0.05	59	90	B/C/D	M	3	Yes	Yes	P	T/E	Yes	2	No	11	499.00		
AD-7(R)	25-19	2	0.05	57	91	B/C/D	M	3	Yes	No	P	T	Yes	0	No	11	999.00	CD player/cassette deck; see also "Compact Disc Players."	
TECHNICS	RS-8105	20-15	2	0.08	56	66	B		3	No	No	P	E	No	2	No	6.6	140.00	
	RS-8107	20-15	2	0.08	57	74	B/C		3	No	No	P	E	No	2	No	7.5	175.00	
	RS-8207	20-15	2	0.08	57	92	B/C/D		3	No	No	P	E	No	2	No	7.5	200.00	
	RS-T10	20-15	3	0.08	56	66	B		3	No	No	P	E	No	0	Yes	8.4	180.00	Series play.
	RS-T20K	20-15	3	0.08	56	74	B/C		3	No	No	P	E	No	0	Yes	8.4	220.00	High-speed editing.
	RS-B29R	20-17	2	0.08	57	75	B/C		3	No	No	P	E	Yes	2	No	7.9	266.00	
	RS-B78R	20-19	2	0.045	58	92	B/C/D		3	Yes	No	PH	E/R	Yes	1	No	11.7	400.00	
	RS-T60R	30-17	3	0.08	57	75	B/C		3	No	No	P	E	Yes	0	Yes	10.4	395.00	Quick reverse.
	RS-T80R	30-17	4	0.08	57	92	B/C/D		3	No	No	P	E	Yes	0	Yes	11.7	550.00	As above.
RS-885	30-19 ± 3	3	0.05	60	92	B/C/D		3	No	No	PH	E/R	No	0	No	11.5	550.00		
RS-8100	20-21 ± 3	3	0.022	60	92	B/C/D		3	No	No	PH	E/R	No	0	No	12.3	1000.00		
UHER	CR 160AV	30-16 ± 1	2	0.2	55	64	B/C	M	4	No	No	P	T	No	2	No	7	893.00	Sync. sound dubbing; portable.
	CR 260AV	30-16 ± 1	3	0.2	58	64	B	A	4	No	No	P	T	Yes	2	No	7	1299.00	As above.
	CR 160	20-19 ± 1	3	0.2	50				4	Yes	Yes	P	T	No	1	No	7	1699.00	Eight-hour record time; three speeds; portable.
ULTRX	RDW201	31.5-14 ± 3	2	0.1 wrms	52	72	B/C	A	3	No	No	P	T	No	2	Yes	5.1	129.95	
	RDR31	31.5-13 ± 3	3	0.08 wrms	50	60	B	M	3	No	No	P	T	Yes	2	No	9.7	89.95	
	RDR51	31.5-14 ± 3	3	0.05 wrms	52	72	B/C	A	3	No	No	P	T	Yes	2	No	9.7	139.95	
	ROC21	20-15		0.06 wrms	57	92	B/C/D										7¾		
	ROC41	20-18		0.06 wrms	58	92	B/C/D										8		
	RDR51	30-16 ± 3		0.05 wrms	52	72	B/C										9¾		
	ROC61	20-20		0.05 wrms	58	93	B/C/D										8¼		
	ROC11	20-16		0.06 wrms	57	75	B/C										6¾		
RDR81	20-19		0.04 wrms	58	92	B/C/D										9¼			
VECTOR RESEARCH	VX-250	30-18 ± 3	2	0.05	56	74	B/C		3	Yes	No	P	T	No	2	No	14	199.95	
	VX-350	30-18 ± 3	2	0.05	56	74	B/C		3	No	No	P	T	No	2	Yes	15	229.95	
	VX-450	30-18 ± 3	2	0.04	56	75	B/C		3	Yes	No	P	T	Yes	2	No	18	329.95	
	VX-650	20-21 ± 3	3	0.04	57	75	B/C		3	Yes	Yes	P	T	No	2	No	20	449.95	
YAMAHA	K-1020	20-20 ± 3	3	0.06	59	95	†	M	3	Yes	No	P	E	No	0	No	16¾	649.00	†All four NR circuits.
	K-540	25-19 ± 3	2	0.08	59	74	B/C/H		3	Yes	Yes	P	T	No	0	No	9¼	329.00	
	K-340	30-19 ± 3	2	0.08	59	74	B/C/H		3	Yes	Yes	P	T	No	0	No	9¼	249.00	
	K-220	40-16 ± 3	2	0.15	59	74	B/C		3	No	No	P	T	No	0	No	8¾	199.00	
	K-140	30-15 ± 3	2	0.15	58	65	B		3	No	No	P	T	No	0	No	7¾	169.00	
	K-720	30-19 ± 3	2	0.08	59	90	†		3	Yes	Yes	P	E/R	Yes	2	No	12½	479.00	
	K-600	30-18 ± 3	2	0.08	59	75	B/C		3	Yes	Yes	P	E/R	Yes	2	No	11½	369.00	
	K-420	40-16 ± 3	2	0.15	59	74	B/C		3	Yes	No	P	T	Yes	0	No	8½	269.00	
	K-222	30-15 ± 3	2	0.15	58	74	B/C		3	Yes	No	P	T	No	0	Yes	10½	259.00	
	K-142	30-15 ± 3	2	0.15	58	66	B		3	No	No	P	T	No	0	Yes	8½	229.00	



BLANK TAPE

CASSETTE TAPE TYPE CODE I — Normal Ferric II — Chrome/Chrome Equivalent IV — Metal Particle			CASSETTES										OPEN-REEL			
MANUFACTURER	Brand	Tape Type—See Code	Cassettes										Open-Reel			
			C-30	C-45 or C-46	C-60	C-90	C-120	1200 Feet	1800 Feet	2400 Feet	3600 Feet	Notes				
ADAMS MAGNETIC	Studio-EC Studio-SCF Studio-SCR Super Chrome	I I II	1.59 2.59	1.69 2.69	1.79 2.79 3.99	1.99 2.99 4.19										True chromium dioxide.
AUDID-TECHNICA	Sound Guard	I			3.49	4.29										
BASF	LH-EXI LH-MI Chrome Extra II Chrome Maxima II Metal IV	I I II II IV			1.49† 1.99† 2.59† 3.29	1.79† 2.49† 3.29† 4.29		6.99								†Two-packs: C-60, \$2.99; C-90, \$3.39. Four-packs: C-90, \$10.99. †Two-packs: C-60, \$3.89; C-90, \$5.09. †Two-packs: C-60, \$4.89; C-90, \$6.49. Four-packs: C-90, \$12.59.
CERTRDN	UX HD LN	I I I	1.19	1.29	2.99† 1.39† 1.99†	3.99† 1.79† 2.99†	2.49									†Two-pack. †Three-packs: C-60, \$3.99; C-90, \$4.99. †Three-pack.
DENDN	HD-M HD-8 HD-7 HD-6 DX-4 DX-3 DX-1	IV II II II I I I			5.00 3.75 3.00 2.50 3.00 2.50 1.75	6.50 4.75 4.00 3.25 4.00 3.00 2.25										
DIRECT-TO-TAPE RECORDING	Direct II Direct I API Agfa PEM 369 Agfa PEM 469 Ampex 642 Ampex 407 Ampex 456	II I I I I I I I			3.75† 2.95†	4.50†† 3.50††	3.70		9.00 9.50	10.70 6.20 11.00						†C-68. ††C-96. †C-66. ††C-96. No labels; supplied with box. 1.0-mil mastering tape.
FUJI	FR Metal FR-II Super FR-II FR-I Super FR DR GT-II GT-I	IV II II I I I II I		5.79 4.39 3.99 3.79 2.69 2.39 4.39 3.79	6.39 4.89 4.49 4.19 2.99 2.59 4.89 4.19	8.49 6.49 5.99 5.49 3.99 3.49 6.49 5.49	4.99									
LDRAN	Loran	II		2.99	3.49	3.99										
MAXELL	UR UDS UDS XL XLS XLS MX XLII XLI UD	I I II II II II IV		1.45 2.30 2.30 3.14	1.56 2.50 2.50 3.24 3.77 3.77 4.61	1.80 3.24 3.24 3.87 4.82 4.82 6.18	2.71		10.70 8.70	16.68 12.59 9.02	32.43 27.60	45.56 35.16 27.92				
MEMOREX	HBX CDX MRX † HB II dB	II II I II I	1.89	1.99	2.59 2.19 2.29 1.49	3.49 4.49 2.69 2.79 1.79	3.59									
NAKAMICHI	ZX SX II SX EX II	IV II II I			7.25 6.50 4.50 4.25	10.00 8.90 6.50 6.00										
PANASONIC	RT-60EN2 RT-90EN2 RT-90EX2 RT-60FS2	I I II I			3.95† 5.45	5.45† 9.95†										†Two-pack.
RAKS	High Dynamic High Dynamic I High Dynamic II High Dynamic Extended High Dynamic Extended I High Dynamic Extended II	I I II I I II		1.09 1.39 1.89 1.29 1.59 2.09	1.59 1.89 2.09 1.79 2.09 2.29	2.19 2.59 3.09 2.39 2.79 3.39										
REALISTIC	44-950 44-960 44-940 44-941 44-921 44-922	II II I I I I			4.89 5.69 3.50 2.79	4.23 3.79										



WE'VE DESIGNED A TDK AUDIO CASSETTE THAT'S JUST RIGHT FOR YOUR NEEDS.

BIAS **NORMAL** POSITION TYPE I EQ 120 μ s

AD-X APPLICATION: For music with extended dynamic range, such as modern jazz, chamber, progressive rock or disco recorded live, from FM or LPs. Record on home component systems, integrated systems.

SPECIAL FEATURES: First normal bias Avilyn formulation for a wider dynamic range with superior MOL.

AD-S APPLICATION: For music with a hotter high end; from rock to pop to mellow classical. Especially well suited for car stereos. Record on home components, integrated systems.

SPECIAL FEATURES: Rigid plastic C-Thru™ mechanism provides resonance control for sharp, undistorted recording and playback.

AD APPLICATION: For music such as easy listening, pop, contemporary or new wave, older discs. Record on mid-range and economy component systems.

SPECIAL FEATURES: Linear ferric magnetic particles for smooth and natural reproduction.

D APPLICATION: For music recorded from radio or records; voice recorded from speeches, lectures, interviews, or conversation. Record on home tape deck systems or battery powered portable recorders.

SPECIAL FEATURES: The all-purpose premium performance cassette in the widest assortment of lengths.

BIAS **HIGH** POSITION TYPE II EQ 70 μ s

HX-S APPLICATION: For music with consistent dynamics and extended high/low frequencies, such as chamber, progressive rock, jazz or disco recorded live, from quality LPs, digitally sourced materials or master tape. Record on home component systems.

SPECIAL FEATURES: First metal formulation for high-bias recording from digitally sourced materials.

SA-X APPLICATION: For music with broad dynamic range such as opera, symphonic, chamber, progressive jazz, soul or rock recorded live, from quality LPs, digitally sourced materials or master tape. Record on high performance component systems.

SPECIAL FEATURES: First high-bias, dual layer Avilyn formulation for improved frequency response. SA-X is the quietest tape in its class.

SA APPLICATION: For music with great dynamic range, LP dubbing. Record on home component systems. It is the world's most popular high-bias cassette.

SPECIAL FEATURES: The ideal high-bias cassette for all recording applications.

BIAS **METAL** POSITION TYPE IV EQ 70 μ s

MA-XG APPLICATION: The ultimate metal tape formulation for unmatched reproduction of classical, progressive jazz and contemporary pop music. Delivers optimum performance when reproducing digitally sourced materials.

SPECIAL FEATURES: New three-layer vibration-dampening mechanism virtually eliminates sympathetic vibration and provides ultra-precise tape travel.

MA-R APPLICATION: For orchestral and operatic music with exceptional dynamic range recorded from high-quality LPs, digitally sourced materials or master tape.

SPECIAL FEATURES: Generally recognized as the type IV industry standard used by most deck manufacturers to set their metal bias position.

MA-X APPLICATION: For classical/chamber, jazz and contemporary music where a richer, higher, wider dynamic range is needed to reproduce high quality LPs, digitally sourced materials or master tape.

SPECIAL FEATURES: New vibration-dampening mechanism virtually eliminates modulation vibration for pure undistorted sound.

MA APPLICATION: For classical music with broad dynamic range recorded from quality LPs or compact digitally sourced materials.

SPECIAL FEATURES: Extremely high coercivity and remanence for superior sound reproduction with super-wide dynamic range.

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TDK QUALITY CASSETTES ELIMINATE THE QUESTION OF WHICH BRAND TO BUY.

HD-PRO

VHS	BETA
T120	L500 L750

BET Value 45m²/g

TDK HD-PRO is a super high definition 1/2" video cassette for the most demanding recording requirements. Perfect for live performance, video cameras, editing, duplicating, and archival use.

SPECIAL FEATURES:

Substantial improvements in luminance and chrominance signal-to-noise ratios, plus a dropout count that is virtually superior to all other 1/2" video cassettes make TDK HD-PRO the ultimate video cassette for your most demanding performance requirements. A precision SQ cassette mechanism assures optimum tape transport, tracking, and alignment.

WHAT IS BET VALUE? BET value is the measure that indicates the fineness of the magnetic particles contained on a tape expressed in units of square meters per gram (m²/g).

HI-FI

VHS	BETA
T60 T120	L500 L750

BET Value 35m²/g

TDK HI-FI meets the most critical performance requirements of today's most sophisticated HI-FI Stereo VCRs. It delivers optimum performance for all stereo audio/video applications, including MTS Stereo videocasts, dubbed music videos, and live music.

SPECIAL FEATURES:

Significant advances in audio frequency response from 20 to 20,000Hz and sensitivity (+1dB) deliver clean, natural, more dynamic sound. Luminance signal-to-noise ratio improvements of +5.0dB assure crystal clear, lifelike reproduction.

E-HG

VHS	BETA
T60 T120 T160	L500 L750 L830

BET Value 35m²/g

TDK E-HG is a high resolution video cassette designed to meet the critical demands of today's long-playing VCRs. Perfect for TV specials, concerts and movies. Ideal for video library applications.

SPECIAL FEATURES:

TDK E-HG delivers brighter, sharper pictures with a luminance signal-to-noise ratio improvement of +3.0dB. Plus chrominance signal-to-noise ratio improvements of +5.0dB and RF output level improvements of +2.5dB. TDK's HDD binder system and SQ cassette mechanism assure improved performance, reliability and durability, extended tape life and reduced dropout levels.

HS

VHS	BETA
T30 T60 T120 T160	L500 L750

BET Value 25m²/g

TDK HS is a new high-performance, high standard video cassette specifically designed for today's VCRs. Perfect for time-shifting TV programs and live-action taping, HS delivers a higher standard of performance with improved picture clarity and color fidelity.

SPECIAL FEATURES:

Ultrafine Super Avilyn particles with denser particle packing deliver greater picture clarity with a luminance signal-to-noise ratio improvement of +3.0dB. TDK's HDD binder system provides improved performance, reliability and durability for extended tape life and reduced dropout levels.

VHS-C

TC-20

BET Value 35m²/g

TDK VHS-C is a superb tape formulation designed to deliver optimum video and audio performance in all VHS-C format systems. Perfect for camcorder taping of vacations and on the spot events like sports and concerts.

SPECIAL FEATURES:

VHS-C features TDK's acclaimed extra high grade (E-HG) formulation which delivers substantial improvements in both audio and video performance compared to standard tapes. Play after play you'll faithfully reproduce the action with vibrant colors and crisp, clear audio to match. And TDK's super precision cassette mechanism assures unsurpassed reliability and dependability.

8mm

MP30
MP60
MP90
MP120

BET Value 55m²/g

TDK 8mm video cassettes deliver the most impressive picture ever, with four times the magnetic energy of any 1/2" video tape you can buy. Ideal for live-action recording, TDK 8mm video cassettes add a bold, bright new dimension to home movies.

SPECIAL FEATURES:

TDK's 8mm formulation provides superior recording density, higher magnetic coercivity and higher signal retention to deliver sharper, clearer colors and crisp, clean sound. Encased in a Super Precision cassette shell mechanism.

BLANK TAPE

MANUFACTURER	CASSETTE TAPE TYPE CODE I — Normal Ferric II — Chrome/Chrome Equivalent IV — Metal Particle	Brand	CASSETTES							OPEN-REEL				Notes
			Tape Type—See Code							1200 Feet	1600 Feet	2400 Feet	3600 Feet	
			C-30	C-45 or C-46	C-60	C-90	C-120							
SONY	HF	I		2.05	2.25	3.15	4.05							
	HF-S	I			3.10	4.25								
	UX	II			4.10	5.50								
	UX-S	II			4.75	6.95								
	UX-ES	II			5.25	7.95								
	UX-PRD Metal-ES	IV				7.95 9.95 11.95								
SWIRE MAGNETICS	Laser XL	I			1.49	1.89	2.49							
	Laser UHD-I	I			1.99	2.59								
	Laser UHD-II	II			1.99	2.59								
TOK	D	I	1.70	1.80	1.90	2.20	3.20							
	AD	I			2.40	3.30								
	AD-S	I				3.50								
	AD-X	I			3.00	4.30								
	SA	II			2.40	3.30								
	SA-X	II			3.90	5.50								
	HX-S	II			5.20	7.00								
	MA	IV			5.20	7.00								
	MA-X	IV			6.00	8.00								
	MA-R	IV			7.00	9.40								
	SA/EE GX								8.60	12.50 10.10	23.40	32.80 27.30		
	TEAC	CDC	I			5.75	6.00							Miniature open-reel type. As above. †C-52. As above. As above.
CRC		II			5.95	6.50								
HDX		II			3.95	5.00								
MDX		IV			4.75	6.30								
Sound 52 Studio 52		IV		5.00† 6.50†										
TRIAD	F/X	I				3.39								
	EM/X	II				3.99								
	MG/X	IV				4.99								
VISA	Hi-Perf. I	I			1.59	1.99								
	Extra-Perf.	II			1.99	2.49								
	UFX-I	I			2.99	3.99								
	UCX-II	II			2.99	3.99								
	UCX-II-S	II			3.49	4.99								
	FDX-I	I			1.99	2.79								
	CX-II	II			2.49	3.49								

Discwasher® gets the grubbies out of your grooves.



The Discwasher® D4+™ Record Care System features a unique fluid and special directional micro-fiber pad to clean your records safely and effectively. It picks up the grubbies without leaving behind any residue.

For your stylus, Discwasher® SC-2™

Find out what we can do for your tape, compact disc and video equipment, too!

discwasher® For good, clean fun.

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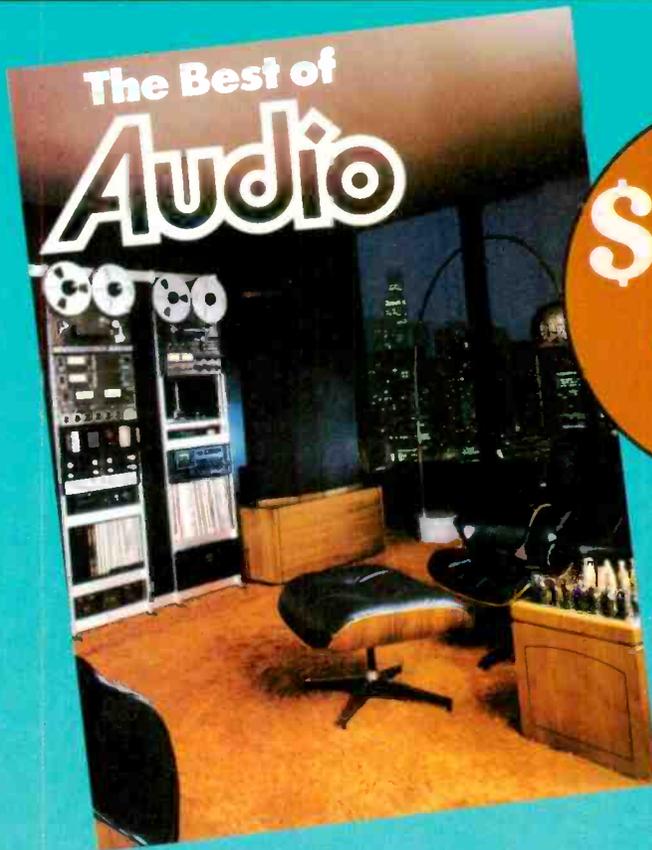
MICROPHONES



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-Off Switch = S, Switched Low or Priority Filter = L	Price, \$	Notes
AKG	C-34	Multiple x2	Condenser	Zinc Alloy	Orch.	200B	20-20	67	12-Pin	60	XLR	10	W	1750.00	Remote pattern control.
	C-422	Multiple x2	Condenser	Zinc Alloy	Orch.	200B	20-20	65	12-Pin	60	XLR	15	W	2650.00	As above.
	The AKG Tube	Multiple	Condenser	Zinc Alloy	Studio	200B	20-20	60	12-Pin	60	XLR	24	W	1800.00	As above.
	C-414EB/P48	Multiple	Condenser	Zinc Alloy	Studio	200B	20-20	61	XLR			10	WF	895.00	Four patterns; attenuator and pattern switches.
	C-451E/CK-1	Card.	Condenser	Zinc Alloy	Studio	200B	20-20	60.5	XLR			3 3/8		380.00	Modular system.
	C-451EB/CK-1	Card.	Condenser	Zinc Alloy	Studio	200B	20-20	60.5	XLR			3 3/4	F	430.00	As above.
	C-460B/CK-1	Card.	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	485.00	As above.
	C-460B/CK-61 ULS	Omni	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	485.00	As above.
	C-460B/CK-62 ULS	Hyper Card.	Condenser	Zinc Alloy	Studio	500B	20-20	62	XLR			5 1/2	F	485.00	As above.
	C-460B/CK-63 ULS	Card.	Condenser	Zinc Alloy	Studio	500B	20-20	62	LEMO	10	XLR	5 1/2	F	650.00	As above.
	C-460B/CK-1X	Super Card.	Condenser	Zinc Alloy	Studio	200B	20-20	59	XLR			4	F	895.00	As above, with long shotgun.
	C-451EB/CK-9	Card.	Condenser	Zinc Alloy	Studio	200B	20-20		XLR			3	F	290.00	Modular preamp.
	C-451EB Preamp	Card.	Condenser	Zinc Alloy	Studio	500B	20-20		XLR			4 1/2	F	350.00	As above.
	C-460B Preamp	Card.	Condenser	Zinc Alloy	Studio	†	20-20	60	†			1		130.00	†See C-460B preamp (above).
	CK-1	Card.	Condenser	Zinc Alloy	Studio	†	20-20	60	†			1		130.00	
	CK-1S	Card.	Condenser	Zinc Alloy	Studio	†	20-20	60	†			1		130.00	
	CK-1X	Card.	Condenser	Zinc Alloy	Studio	†	20-20	62	LEMO	10	†	1 1/8		180.00	
	CK-2X	Omni	Condenser	Zinc Alloy	Studio	†	20-20	62	LEMO	10	†	1 1/8		180.00	
	CK-3	Hyper Card.	Condenser	Zinc Alloy	Studio	†	20-20	61	†			1		130.00	
	CK-3X	Hyper Card.	Condenser	Zinc Alloy	Studio	†	20-20	61	LEMO	10	†	1 1/8		180.00	
	CK-5	Card.	Condenser	Zinc Alloy	Studio	†	20-20	60	†			4		240.00	
	CK-8	Card.	Condenser	Zinc Alloy	Studio	†	20-20	54	†			2 1/2		230.00	Short shotgun.
	CK-BX	Super Card.	Condenser	Zinc Alloy	ENG Studio	††	20-20	59	LEMO	10	XLR	4 1/4		300.00	As above.
CK-9	Super Card.	Condenser	Zinc Alloy	ENG Studio	††	20-20	59	††			12	W	280.00	††See C-451EB preamp (above). Long shotgun.	
CK-22	Omni	Condenser	Zinc Alloy	Studio	††	20-20	62	††			1 1/2		130.00		
CK-61-ULS	Card.	Condenser	Zinc Alloy	Studio	†	20-20	62	†			1		150.00		
CK-62-ULS	Omni	Condenser	Zinc Alloy	Studio	†	20-20	62	†			1		150.00		
CK-63-ULS	Hyper Card.	Condenser	Zinc Alloy	Studio	†	20-20	62	†			1	F	150.00		
C-535EB	Card.	Electret	Zinc Alloy	Vocal	200B	20-20	61	XLR			10	F	295.00	Built-in attenuator.	
C-567E	Omni	Electret	Zinc Alloy	Vocal	200	20-20	64	XLR	9		3 1/2	W	235.00	Lavalier; with tie-tac and tie-bar.	
CK-67/3	Omni	Electret	Zinc Alloy	Vocal	ENG	200	20-20	55			3/8		130.00	Lavalier.	
C-568EB	Super Card.	Electret	Zinc Alloy	Vocal	ENG	200	20-20	62	XLR		6	WF	295.00	Short shotgun.	

(Continued)

SOUND INSURANCE



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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, 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	Wire Screen = W, On/Off Switch = S, Switched Low of Proximity Filter = F	Price, \$	Notes	
AKG (Continued)	C-410 C-522	Card.	Electret		Vocal Stereo ENG	300	20-20	70.5	XLR	11 3/4		4 3/8		195.00 895.00		
	C-562 D-12E	Card.	Dynamic	Zinc Alloy	Bass Drum	290	30-15	73	XLR			17		360.00 315.00		
	D-58E	Card. (Lobe)	Dynamic	Nickel/Brass		240B		83	XLR			1 1/2		105.00	Noise cancelling.	
	D-70M	Card.	Dynamic	Plastic	Record	600	50-18	77		15	Phone			60.00		
	D-70ME	Card.	Dynamic	Plastic	Record	620B	50-18	77	XLR			6 3/4		70.00		
	D-80	Card.	Dynamic	Brass	Record	210	60-15	76	XLR	15	Phone		S	115.00		
	D-80E	Card.	Dynamic	Brass	Record	210B	60-15	76	XLR				S	120.00		
	D-109	Omni	Dynamic	Brass		240	70-12	79		30	None			5 1/4	105.00	Lavalier.
	D-112	Card.	Dynamic	Brass	Bass Instr.	200B	20-17	75	XLR					13 1/2	185.00	
	D-125E	Card.	Dynamic	Zinc Alloy	Instr.	210	100-18	74	XLR					8	140.00	
	D-130E	Omni	Dynamic	Zinc Alloy	ENG	220	50-13	75	XLR					9	110.00	
	D-130NR	Omni	Dynamic	Zinc Alloy	ENG	220B	50-13	75	XLR					9	125.00	
	D-190E	Card.	Dynamic	Zinc Alloy	General	280	30-15	73	XLR				S	6 1/2	115.00	
	D-190ES	Card.	Dynamic	Zinc Alloy	General	280B		73	XLR				S	6 1/2	130.00	
	D-202E1	Card.	Dynamic	Zinc Alloy/Plastic	Strings	300	20-20	76	XLR				F	12	350.00	Two-way system.
	D-222EB	Card.	Dynamic	Zinc Alloy/Plastic	Podium	320	20-16	77	XLR				F	9	290.00	As above.
	D-224E	Card.	Dynamic	Zinc Alloy	Acous. Instr.	260	20-20	78	XLR				F	10	500.00	As above.
	D-310	Card.	Dynamic	Zinc Alloy	Vocal	270	80-18	78	XLR					9	135.00	
	D-310NR	Card.	Dynamic	Zinc Alloy	Vocal	270B	80-18	78	XLR				S	9	140.00	
	D-310S	Card.	Dynamic	Zinc Alloy	Instr./Vocal	270B	80-18	78	XLR				S	9	150.00	
	D-320B	Hyper Card.	Dynamic	Zinc Alloy	Vocal	290	80-18	77	XLR				F	12	185.00	
	D-321	Hyper Card.	Dynamic	Zinc Alloy	Vocal	300	40-20	77	XLR					11 1/2	175.00	
	D-321S	Hyper Card.	Dynamic	Zinc Alloy	Vocal	300	40-20	77	XLR				S	11 1/2	150.00	
O-330BT	Hyper Card.	Dynamic	Zinc Alloy	Vocal	370	50-20	78	XLR				F	12	210.00		
D-330NR	Hyper Card.	Dynamic	Zinc Alloy	Vocal	370B	50-20	78	XLR				F	12	240.00		
D-510B	Omni	Dynamic	Nickel/Brass	Vocal	230B		79	None	3 3/4	None			11 1/2	120.00		
D-541	Card.	Dynamic	Plastic	Vocal	720B	120-16	73	None	3 3/4	None			12 1/2	95.00		
D-558B	Card. (Lobe)	Dynamic	Nickel/Brass	Vocal	200B	70-15	83	None	3 3/4	None			11 1/2	135.00	Noise cancelling.	
O-590	Card.	Dynamic	Nickel/Brass	Vocal	230B	150-17	78	None	3 3/4	None			10	145.00		
O-900E	Super Card.	Dynamic	Nickel/Brass	ENG	240B	60-12	70	XLR				F	18	350.00	Long shotgun.	
O-1200E	Card.	Dynamic	Zinc Alloy	General	200	25-17	73	XLR				F	8 1/2	180.00		
CK-67WL	Omni	Electret	Zinc Alloy				64							160.00	Lavalier; with tie-tac and tie-bar.	
ASTATIC	BL-94	Card.	Dynamic	Zinc	Vocal	250B	40-16	75				9 1/2	WS	127.00	Switch lock.	
	BL-84	Card.	Electret	Zinc	Vocal	280B	40-20	72				6 1/2	WS	145.00	As above.	
	BL-74	Card.	Dynamic	Zinc	Vocal	250B	50-16	74				9 1/2	WS	106.00	As above.	
	BL-64	Card.	Dynamic	Zinc	Instr.	250B	40-15	74				9	WS	96.00	As above.	
	BL-54	Omni	Dynamic	Zinc	Instr.	250B	50-15	82				7 1/2	WS	94.00	As above.	
	BL-34	Card.	Dynamic	Zinc	Vocal	500B	60-14	78				8 3/4	WS	49.95	As above.	
	BL-24	Omni	Dynamic	Zinc	Instr.	200B	50-16	82	Attached	30	None			5 1/2	72.00	Lavalier.
	BL-4	Card.	Dynamic	Zinc	Vocal	500B	60-14	78					9 1/2	WS	59.95	Switch lock.
	BL-JT30P	Omni	Crystal	Zinc	Instr.	HI	30-10	49					8 1/2	WS	50.00	Harmonica mike.
	AUDIO-TECHNICA	AT9000	Omni	Electret	Alum.	Vocal	1.5k	60-10	63†	Attached	10	Mini	1.7	S	15.95	†0 dB = 1 mW per 10 dynes/cm ² .
AT9100		Uni	Dynamic	Plastic	Vocal	600	60-15	63†	Attached	10	Mini	6.7	S	26.95	Phone adaptor.	
AT9200		Uni	Electret	Plastic	Musical	1.5k	60-17	48†	Attached	10	Mini	7.1	S	36.95	As above.	
AT9250		Uni	Dynamic	Plastic	Vocal	600	40-10	60†	Attached	13	Mini	7	S	33.95	As above.	
AT9300		Uni/Omni	Electret	Alum.	Video	1k	60-17	61†	Attached	6	Mini	2.8	WS	89.95	As above; convertible shotgun.	
AT9400		Uni x2	Electret	Plastic	Musical	1.5k	60-17	53†	Attached	10	Mini	7.1	S	54.95	One-point stereo; phone adaptor.	
AT9500		Omni	Electret	Alum.	Vocal	2k	50-16	53†	Attached	10	Mini	0.2	S	33.95	Lavalier; phone adaptor.	
AT9650		Uni	Dynamic	Plastic	Vocal	250	60-17	58†	A3M	16.3	Mini	8	S	49.95	Phone adaptor.	
AT9800		Uni	Dynamic	Alum.	Musical	250	50-18	58†	A3M	16	Mini	10	SF	99.95	As above.	
AT9850	Uni	Dynamic	Alum.	Vocal	600	60-16	65†	Attached	4	Mini	2	W	49.95	Headset mike with earphone.		
AT9900	Uni	Electret	Alum.	Musical	600	40-20	56†	A3M	16	Mini	6.5	SF	129.95	Phone adaptor.		
AUDIX	DM-7	Card.	Dynamic	Zinc	Vocal	600B	50-15	75	A3F	16	Phone/XLR	9	WSF	59.00		
	ST-1	Card. x2	Condenser	Alum.	†	600	50-18	64	Mini	3	Mini	4	WSF	129.00	†For stereo VCRs, portables.	
	ML-2	Omni	Condenser	Alum.	Vocal	500	50-17	62	A3F	25	XLR	1/4	WSF	169.00	Lavalier.	
	Genesis-1	Card.	Dynamic	Alum.	Vocal	200	50-18	78	0	0	XLR	12	WSF	599.00	Space-diversity wireless.	
	Genesis-2	Card.	Dynamic	Alum.	Vocal	200	50-18	78	0	0	XLR	12	WSF	1495.00	True-diversity wireless.	
OM-1	Hyper Card.	Dynamic	Brass	Vocal	200	50-18	78	A3F	25	XLR	12 1/2	WS	249.00			

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MANUFACTURER	Model	Directional Pattern Stereo = 2, Quad = 4, M-S = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance, 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 End of Cable	Weight, Ounces	Wind Screen = W, On-Off Switch = S, Standard Low or High Pass Filter = F	Price, \$	Notes
AZDEN	DX-8102	Uni	Dynamic	Zinc Alloy	Vocal	200	50-17	76	Cannon	20	Phone	11 3/4	WSF	230.00	
	DX-580	Uni	Dynamic	Zinc Alloy	Vocal	600	50-15	76	Cannon	20	Phone	8	WSF	70.00	
BEYERDYNAMIC	M380	Figure 8	Dynamic	Brass	Instr. Studio	600B	15-20	†	XLR			9.7	WF	260.00	†5 mV/Pa.
	MC740	Multiple	Condenser	Brass	Studio	150B	40-20	†	XLR			10.3	WF	1000.00	†144 dB with attenuator. Includes EA740 shock mount.
	MC740N (C5)	Multiple	Condenser	Brass	Studio	150B	40-20	†	5-Pin XLR			10.3	WF	1050.00	†144 dB with attenuator. Includes above shock mount; requires MSG740N(C) power supply.
	MC736PV	Card./Lobe	Condenser	Alum.	Brdcst.	150B	40-20	†	XLR			5.1	WF	750.00	†25 mV/Pa.
	MC737PV	Lobe	Condenser	Alum.	Brdcst.	150B	40-20	†	XLR			6.6	WF	750.00	†25 mV/Pa.
	MCE10.11	Hyper Card.	Electret Condenser	Brass	Brdcst.	700B	40-20	†	XLR	10	XLR	0.4	S	240.00	
	KBM-1					†	600		3-Pin Mini XLR	10	Phone	8.7		240.00	†For electric bass guitar.
	M200	Card.	Dynamic	Alum.	Vocal	600B	50-15	†	XLR			4.9	††	110.00	†2.3 mV/Pa. ††With on/off switch, \$15.00 additional.
	M300	Card.	Dynamic	Alum.	Vocal	250B	50-15	†	XLR			8.6	††	140.00	†1.2 mV/Pa.
	M400	Super Card.	Dynamic	Alum.	Vocal	200B	40-18	†	XLR			9.2	††	180.00	†2 mV/Pa.
	M500	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	†	XLR			8.9	††	260.00	†1.2 mV/Pa.
	M600	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	†	XLR			8.8	††	300.00	†1.4 mV/Pa. Three-position bass filter.
	M69	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	†	XLR			11.4		180.00	†2.3 mV/Pa.
	M69S	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	†	XLR			11.4	F	210.00	†2.3 mV/Pa.
	M88	Hyper Card.	Dynamic	Brass	Instr.	200B	30-20	†	XLR			11.4		330.00	†2.3 mV/Pa.
	M201	Hyper Card.	Dynamic	Brass	Instr.	200B	40-18	†	XLR			7.9		220.00	†1.2 mV/Pa.
	M260	Hyper Card.	Ribbon	Brass	Vocal	200B	50-18	†	XLR			10.7	††	260.00	†1.3 mV/Pa.
	M101	Omni	Dynamic	Brass	Instr.	200B	40-20	†	XLR			5.7		220.00	†1.3 mV/Pa.
	M111	Omni	Dynamic	Zinc	Brdcst.	200B	60-15	†	XLR	11	XLR	5.7		230.00	†0.7 mV/Pa. Lavaller.
	M130	Figure 8	Double Ribbon	Brass	Record	200B	40-18	†	XLR			5.4		440.00	†1 mV/Pa.
	M422	Super Card.	Dynamic	Brass	P. A. Studio	200B	100-12	†	XLR			2.5		90.00	†1 mV/Pa.
	MPC50	Hemi.	Electret Condenser	Wood	Studio	200B	20-20	33	XLR			17.9	S	650.00	
	MCE5.11	Omni	Electret Condenser	Brass	Brdcst.	200B	20-20	†	XLR		10		0.2	S	310.00
MC711	Omni	Condenser	Brass	Studio	200B	40-20	†	XLR			4.4	F	500.00	†8 mV/Pa. 12-V power optional.	
MC712	Card.	Condenser	Brass	Studio	200B	40-20	†	XLR			5.3	F	540.00	†8 mV/Pa. Built-in suspension and pop filter; power as above.	
MC713	Omni	Condenser	Brass	Studio	200B	40-20	†	XLR			4.6	F	550.00	†10 mV/Pa. Power as above.	
MC714	Card.	Condenser	Brass	Studio	200B	40-20	†	XLR			5.4	F	590.00	†10 mV/Pa. Power as above.	
MC716	Card./Lobe	Condenser	Brass	Brdcst.	200B	40-20	†	XLR			6.9	F	740.00	†10 mV/Pa. Power as above.	
MC717	Lobe	Condenser	Brass	Brdcst.	200B	40-20	†	XLR			12.4	F	820.00	†10 mV/Pa. Power as above.	
MC718	Figure 8	Condenser	Brass	Studio	200B	40-20	†	XLR			8.1	F	770.00	†10 mV/Pa. Power as above; long shotgun.	
MC734	Card.	Condenser	Brass	Vocal	150B	20-18	†	XLR				F	770.00	†5 mV/Pa. Three-position bass switch; 12-dB attenuator; high SPL version, Model MC734PA, \$790.00.	
MC736	Card./Lobe	Condenser	Brass	Brdcst.	150B	40-20	†	XLR			8.6		750.00	†30 mV/Pa. Short shotgun; bass roll-off and 10-dB attenuator.	
MC737	Lobe	Condenser	Brass	Brdcst.	150B	40-20	†	XLR			15.7		830.00	†30 mV/Pa. As above.	
M1-K	Omni	Dynamic	Plastic	Home	200	40-15	†	XLR	6	†††	3.2		45.00	†1.5 mV/Pa. †††Phone version with mini plug available.	
M2-K	Card.	Dynamic	Plastic	Home	600	50-16	†		6	†††	2.9		60.00	†2.5 mV/Pa.	
M160	Hyper Card.	Double Ribbon	Brass	Record	200B	50-18	†	A3F			5.5		400.00	†1.2 mV/Pa.	
CROWN INTERNATIONAL	PZM-30R	Hemi.	Electret Condenser	Alum.	Studio	240B	20-15	65	Swcft. A3M			6.5	W	329.00	Pressure Zone Mike.
	PZM-30FS	Hemi.	Electret Condenser	Alum.	Studio	240B	20-15	67	Swcft. A3M			6.5	W	329.00	As above.
	PZM-6R	Hemi.	Electret Condenser	Alum.	Conf.	240B	20-15	65			Swcft. A3M	5	W	329.00	As above.
	PZM-6FS	Hemi.	Electret Condenser	Alum.	Orch.	240B	20-15	67			Swcft. A3M	5	W	329.00	As above.
	PZM-20RMG	Hemi.	Electret Condenser	Alum.	Conf.	150B	20-15	65	Swcft. A3M			6.5		299.00	As above.
	PZM-180	Hemi.	Electret Condenser	Nylon	General	150B	50-18	70	Swcft. A3M			2	W	169.00	As above.
	Sound Grabber	Hemi.	Electret Condenser	Nylon	General	1.6k	50-15	55			Mini	2	W	99.00	As above.
	GLM-100	Omni	Electret Condenser	PVC	Close Instr.	240B	20-20	73			Swcft. A3M	2.8	W	189.00	Lavaller.
GLM-100 E	Omni	Electret Condenser	PVC	Instr.	3.5k	20-20	62			None	1		93.00	Wireless, miniature.	

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CROWN INTERNATIONAL (Continued)	GLM-200	Hyper Card.	Electret Condenser	PVC	Close Instr.	100B	60-20	68		8	Swcft. A3M	3.7	W	219.00	Miniature.
	GLM-200-E	Hyper Card.	Electret Condenser	PVC		3.5k	60-20	62		8	None	1	W	99.00	As above; wireless.
	PCC-160	Half Super Card.	Electret Condenser	Steel	†	150B	50-18	53	Swcft. TA3M	15	Swcft. A3M	11.5	W	249.00	†Stage floor/lectern. Boundary mike.
	PZM-3LV	Hemi.	Electret Condenser	Plastic		150B	20-15	70		15	Swcft. TA4F	0.5		239.00	Lavalier.
	PZM-3LVR	Hemi.	Electret Condenser	Plastic		150B	20-15	70		10	Swcft. TA4F	0.5		359.00	As above; redundant.
	PZM-2.5	Uni	Electret Condenser	Alum.	†	150B	400-12	64		15	Swcft. A3M	61		369.00	†Stage floor/lectern. Pressure Zone Mike.
ELECTRO-VOICE	N/D 757	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-22	50†	A3M			7.7	WF	297.00	†0 dB = 1 mW/Pa.
	N/D 457	Hyper Card.	Dynamic	Steel & Alum.	Vocal	150B	25-21	50†	A3M			7.1	W	222.00	
	N/D 357	Super Card.	Dynamic	Steel & Alum.	Vocal	150B	25-20	53†	A3M			7.1	W	174.00	
	N/D 257	Card.	Dynamic	Steel & Alum.	Vocal	150B	35-19	53†	A3M			7.1	W	126.00	
	N/D 408	Super Card.	Dynamic	Steel & Alum.	Instr.	150B	30-22	50†	A3M			6.7	W	228.00	Positionable yoke mount.
	N/D 308	Card.	Dynamic	Steel & Alum.	Instr.	150B	40-20	53†	A3M			6.7	W	186.00	As above.
	RE20	Card.	Dynamic	Steel	Music/ Vocal	50B/150B/250B	40-18	57†	A3M	15	None	26	WF	532.00	Variable-D.
	RE18	Super Card.	Dynamic	Steel	Music/ Vocal	150B	80-15	57†	A3M	15	None	8	W	300.00	As above; Integral shock mount.
	RE16	Super Card.	Dynamic	Steel	Vocal	150B	80-15	56†	A3M	15	None	8	W	289.00	Variable-D.
	RE15	Super Card.	Dynamic	Steel	Vocal	150B	80-15	56†	A3M	15	None	6	W	276.00	As above.
	RE11	Super Card.	Dynamic	Steel	Vocal	150B	90-13	56†	A3M	15	None	6	W	196.00	As above.
	RE10	Super Card.	Dynamic	Steel	Vocal	150B	90-13	56†	A3M	15	None	6	W	184.00	As above.
	DS35	Card.	Dynamic	Steel	Music/ Vocal	150B	60-17	60†	A3M	15	None	9.2	W	172.00	Integral shock mount.
	RE98	Omni	Condenser	Brass & Alum.	Music/ Vocal	150B	80-15	45†		10	A3M	0.7†	W	218.00	†Capsule only. Battery or phantom powered.
	CO15P	Omni	Condenser	Steel	Music/ Vocal	150B	20-18	49†	A3M	15	None	7.5	W	307.00	
	RE50	Omni	Dynamic	Alum.	Vocal	150B	80-13	55†	A3M	15	None	9.5	W	161.00	Integral shock mount.
	RE55	Omni	Dynamic	Steel	Music/ Vocal	150B	40-20	57†	A3M	15	None	8.5	W	267.00	
	DO54	Omni	Dynamic	Steel	Music/ Vocal	150B	50-18	58†	A3M	15	None	6.5	W	160.00	
	DO56	Omni	Dynamic	Steel & Alum.	Music/ Vocal	150B	80-18	61†	A3M	15	None	6.5	W	134.00	As above; with longer handle, Model DO56L, \$152.00.
	635A	Omni	Dynamic	Steel	Vocal	150B	80-13	55†	A3M	15	None	6	W	106.00	
	CO90	Omni	Condenser	Brass & Alum.	Music/ Vocal	150B	40-15	57†	Threaded	6	None	0.7	W	155.00	Lavalier; battery powered.
	PL80	Super Card.	Dynamic	Alum. Zinc & Alum.	Vocal	150B	60-17	56†	A3M	0	None	12.3	W	219.00	
	PL78	Card.	Condenser	Zinc & Alum.	Vocal	150B	50-18	49†	A3M	0	None	10.2	WS	203.00	Battery or phantom powered.
	PL95A	Card.	Dynamic	Steel	Vocal	150B	60-17	60†	A3M	0	None	9.2	W	186.00	Internal shock mount.
	BK-1	Card.	Condenser	Zinc & Alum.	Vocal	150B	50-18	50†	A3M	0	None	12	WS	160.00	Battery or phantom powered.
	PL91A	Card.	Dynamic	Zinc	Vocal	150B	60-15	59†	A3M	0	None	8	WS	135.00	
	PL88H	Card.	Dynamic	Zinc	Vocal	25k, B	60-13	57†	A3M	0	None	10.4	WS	95.00	
	PL88L	Card.	Dynamic	Zinc	Vocal	150B	60-13	58†	A3M	0	None	10.4	WS	95.00	
	PL20	Card.	Dynamic	Steel	Music/ Vocal	50B/150B/1250B	45-18	57†	A3M	0	None	26	WF	584.00	Variable-D.
	PL10	Card.	Dynamic	Steel	Music/ Vocal	150B	75-15	56†	A3F	0	None	11	W	354.00	As above.
PL4	Omni	Condenser	Brass & Alum.	Music/ Vocal	150B	80-15	45†	TA3F	3	A3M	0.8	WS	290.00	Miniature lavalier.	
PL11	Super Card.	Dynamic	Steel	Music	150B	90-13	56†	A3M	0	None	6	W	215.00	Variable-D.	
PL9	Omni	Dynamic	Steel	Music	150B	50-18	58†	A3M	0	None	6.5	W	174.00		
PL6	Super Card.	Dynamic	Zinc	Music	150B	90-13	56†	A3M	0	None	10.5	W	132.00	As above.	
PL5	Omni	Dynamic	Steel	Music	150B	80-13	55†	A3M	0	None	6	W	119.00		
681	Card.	Dynamic	Zinc	Vocal	150B/HI-Z	60-14	60†	A3F	15	None	8	WS	143.00		
MARANTZ	EC-1	Omni	Electret	Alum.		2k	60-13	156		10	Mini	3.5	S	24.00	
	EC-15	Omni	Electret	Alum.		2k	60-13	156		10	Mini	3.5	S	30.00	
	EC-3	Card.	Electret	Alum.		1.5k	50-15	156		10	Mini	8.8	S	36.00	
	EC-35	Card.	Electret	Alum.		1.5k	50-15	156		6	Mini	8.8	S	40.00	
	EC-5	Card.	Electret	Alum.		2.2k	40-15	149		6	Mini	4.1		50.00	
	EC-7	Card.	Electret	Alum.		250B	40-16	123		5	Phone	10.3		76.00	
	EC-9P	Card.	Electret	Alum.		250B	30-17	151	XLR	10		13.8		130.00	
	EC-12B	Omni	Electret	Alum.		250B	100-15	143		10	Mini	2.3		72.00	
	EC-15P	Omni	Electret	Alum.		250B	70-16	144		15	XLR	1		100.00	
	EC-33S	Card. x2	Electret	Alum.		1k	50-15	146		10	Mini	6.2		70.00	
	NADY SYSTEMS	501 HT/LT	Card.		Plastic	Vocal/Speech							W	900.00	Wireless.
NAKAMICHI	CM-300	Card./Omni	Electret Condenser	Alum.		200	30-18	76	XLR	16½	Phone	WSF	210.00		
	CM-100	Card./Omni	Electret Condenser	Alum.		200	30-18	76	XLR	16½	Phone	WSF	135.00		
	DM-500	Card.	Dynamic	Alum.		200	50-15	73	XLR	16½	Phone	W	130.00		

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = 2, Dual = 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	Connector Type on Equipment End of Cable	Weight, Ounces	Wire Screen = W, On/Off Switch = S, Switched Low or Proximity Filter = F	Price, \$	Notes
NEUMANN	KM 84	Card.	Condenser	Brass	Studio	200B	40-20	†	A3M	0		2.9	W	398.00	†10 mV/Pa. Interchangeable capsules.
	U 89	5-Pattern	Condenser	Brass	Studio	150B	40-18	†	A3M	25	A3M	14.3	WF	1235.00	†8 mV/Pa.
	TLM 170	5-Pattern	Condenser	Brass	Studio	100B	40-18	†	A3M	25	A3M	22.3	WF	1250.00	†8 mV/Pa. Transformerless.
	U 87A	3-Pattern	Condenser	Brass	Vocal	200B	40-16	†	A3M	25	A3M	17.9	WF	1300.00	†28 mV/Pa.
	USM 69	M-S/X-Y	Condenser	Brass	Drch.	150B	40-16	†	11-Pin Tugel (2)A3M	33	(2)A3M	18.2		2770.00	†10 mV/Pa.
NEUMANN	KU 81	Binaural	Condenser	Rubber	††	150B	40-16	†	(2)A3M	25	(2)A3M	†††		2890.00	††10 mV/Pa. ††Binaural. ††16 pounds total for mike and "Fritz II" dummy head. ††7 mV/Pa. Interchangeable capsules.
	KM 83	Omni	Condenser	Brass	Drch.	200B	40-20	†	A3M	0		2.9	W	398.00	
PIONEER	DM-61		Dynamic		Vocal	600	80-12	75	Cannon	16.4	Phone	8.6	S	129.95	
	DM-51		Dynamic		Vocal	600	80-14	72	Cannon	16.4	Phone	5.4	S	99.95	
	DM-21		Dynamic		Vocal	500	100-15	75	Cannon	16.4	Phone	5.6	S	29.95	
RECOTON	DM100	Card.	Dynamic	Plastic	General	500				3	Mini		S		
	DM130	Card.	Dynamic	Plastic	General	200				5	Mini		S		
	DM133	Card.	Dynamic	Plastic	General	200				3	Mini		S		
	DM150	Card.	Dynamic	Plastic	General	500				3	Mini		S		
	MM100	Card.	Dynamic	Plastic	Voice	50k	80-15	72		5	Phone	2.5	S		With mini adaptor.
	MM330A	Card.	Dynamic	Alum.	Musical/Vocal	500/50k	80-15	72		10	Phone	2.5	S		As above.
	MM440A	Omni	Electret	Plastic	Vocal	600/50k	80-18	65		10	Phone	3.4	S		As above.
	MM600	Card.	Electret	Alum.	P.A.	200B	50-13	68		9	Phone		WS		
MM620	Card.	Electret	Alum.	Musical/Vocal	200B	30-16	68		18	Phone		WS			
MM660A	Card. x2	Electret	Alum.	Musical/Vocal	600	50-18	68		10	Phone		S		As above.	
MM760	Omni	Electret	Alum.	Voice	600	30-16	65		15	Phone		WS			
MM770	Card. x2	Electret	Alum.	Voice	600	48-18	70		10	Mini	3	WS			
SCHOEPS	CMC 52SU	Omni	Condenser	Nickel	Drch.	35	20-20		XLR-3			3	WF†	640.00	†Optional.
	CMC 54U	Card.	Condenser	Nickel	Vocal	35	40-20		XLR-3			3	WF†	640.00	
	CMC 541U	Hyper Card.	Condenser	Nickel	Film	35	40-20		XLR-3			3	WF†	730.00	
	CMC 56U	Omni/Card./Bi-D	Condenser	Nickel	General	35	40-16		XLR-3			3	WF†	985.00	
	CMC 58U	Bi-D	Condenser	Nickel	Blumin.	35	40-16		XLR-3			3	WF†	780.00	
	BLM 53U	Hemi.	Condenser	Alum.	Ambien.	35	20-18		XLR-3			2 1/2	F†	790.00	
	CMTS 501U	Card./Omni/Bi-D x2	Condenser	Nickel	General	35B	40-16		XLR-5			1 1/4	W†	2075.00	
	MSTC 54U	Card. x2	Condenser	Nickel	DRTF	403	40-20		XLR-5			8	W†	1315.00	
CMH 541CU	Hyper Card.	Condenser	Nickel	Vocal	35	80-20		XLR-3			6 1/4	W†	835.00		
SENNHEISER	MKH 816	Beam	Condenser	Metal		10	50-20	115	XLR			14		954.00	
	MKH 416	Club	Condenser	Metal		10	40-20	121	XLR			6		723.00	
	ME 20	Omni	Electret	Metal		200	50-15	143	XLR			5.6		92.00	Requires K3U power supply. As above.
	ME 40	Card.	Condenser	Metal		200	50-15	143	XLR			5.6		201.00	As above.
	ME 80	Club	Condenser	Metal		200	50-15	139	XLR			6.8		201.00	As above.
	MKE 2-3	Omni	Condenser	Metal		4.7k	40-20	144	Special	3		0.9		218.00	Tie clip.
	MKE 2002	Stereo†	Condenser	Metal		1.5k	40-20	141	Special	10		2		525.00	†Double mike for binaural.
	MD 200	Omni	Pressure	PVC	General	600	60-13		Phone			3.7		33.00	
	MD 400	Card.	Pressure	PVC	Record	600	60-13		Phone			3.7		41.00	
	MD 402U	Super Card.	Dynamic	Metal	Record	200B	80-12.5	151	XLR	15		5.4		85.00	
	MD 402K	Super Card.	Dynamic	Metal	Record	200	80-12.5	151	Phone	10		6.7		80.00	
MD 421	Card.	Dynamic	ABS		200	30-17	146	3-Pin XLR			18		332.00		
MD 431	Hyper Card.	Dynamic	ABS	Vocal	200	70-16	146	XLR					355.00		
MD 441	Super Card.	Dynamic	Metal	Vocal/Instr.	200	30-20	146	XLR					469.00		
MD 409-U	Card.	Dynamic	Metal	Vocal/Instr.	200	50-15	146	XLR					249.00		
SHURE	SM80-LC	Omni	Condenser	Steel	Studio/Instr.	150B	20-20	65	3-Pin			8	WF	336.75	
	SM81-LC	Card.	Condenser	Steel	Studio/Instr.	150B	20-20	65	3-Pin			8	WF	336.75	
	SM83	Omni	Condenser	Brass	Speech	150B	80-20	69	Attached	10	Mini 3-Pin	1.5	W	210.00	Lavalier.
	SM87-LC	Super Card.	Condenser	Alum.	Studio/Vocal	150B	50-18	74	3-Pin			6.3		329.00	
	SM90	Omni	Condenser	Die-Cast	†	150B	20-20	66	Mini 3-Pin	25	Mini 3-Pin	9.9		300.00	†Surface mounted.
	SM91	Card.	Condenser	Die-Cast	†	150B	20-20	69	Mini 3-Pin	25	Mini 3-Pin	9.3		300.00	
	SM98	Card.	Condenser	Brass	Instr.	150B	40-20	78	Mini 3-Pin	15	Mini 3-Pin	0.4	W	250.00	
	SM7	Card.	Dynamic	Steel/Alum.	Speech	150B	40-16	79	3-Pin			27	WSF	510.00	
	SM57-LC	Card.	Dynamic	Die-Cast	Instr.	150B	40-15	75.5	3-Pin			10		127.75	
	SM58-LC	Card.	Dynamic	Die-Cast	Vocal	150B	50-15	75.5	3-Pin			22		164.75	
16L-LC	Card.	Electret	Alum.	Home Record	600B	50-15	69.5	3-Pin					107.00		



MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: Stereo = XZ, Quad = X4, 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 μ bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wire Screen = W, On/Off Switch = S, Switched Low or Training Filter = F	Price, \$	Notes
SIGNET	RK 101	Card.	Dynamic	ABS Plastic	Music/Vocal	600	50-14.5	70	Attached	16 1/2	Phone	8	WS	60.00	
	RK 201	Card.	Electret Condenser	Alum.	Music/Vocal	600	45-17.5	64	Attached	16 1/2	Phone	6 1/2	WS	100.00	
SONOTRIM	STR-PPS	Omni	Electret	Plastic	Vocal	250B	50-18		None	9	XLR-3M	3	W	250.00	Lavaller.
SUNY	ECM-150T	Omni	Electret	Alum.	Voice	Lo	50-15	75	Attached	15	Mini/Phone	0.2	W	69.95	Tie-tac.
	ECM-220f	Card.	Electret	Alum.	Instr.	Lo	50-14	75	Attached	15	Mini/Phone	8.3	S	49.95	
	F-V200	Card.	Dynamic	Alum.	Vocal	Lo	70-15	80	Cannon	15	None	9	WF	150.00	Variable echo.
	F-V6ET	Omni	Dynamic	Alum.	Music	Lo	100-12	75	Attached	15	Mini/Phone	5	F	54.95	
	ECM-939LT	M-S x2	Electret	Alum.	Music	Lo	70-15	75	Attached	15	Mini/Phone	2.6	WS	115.00	
ECM-929LT	M-S x2	Electret	Alum.	Music	Lo	70-15	75	Attached	15	Mini/Phone	3.8	WSF	85.00	Directivity selector.	
SOUND-CRAFTSMEN	SAM-II	Omni	Electret Condenser	Alum.	†	600	20-15.5	††		15	Phone	3 1/2		69.00	†Real-time analyzer. ††65 dBm.
STANTON	UD 100	Uni	Dynamic		Deejay	500	60-15	74	Phone	13	Phone		WSF	69.95	
TEAC	MC 10	Card.	Dynamic	Plastic	General	500			None	12	Phone		W	22.99	Lavaller; with tie clip.
	ME 15	Omni	Electret	Metal	General	500			None	15	Phone		WS	34.99	
	ME 220 D	Card.	Dynamic	Metal	General	500-50k			None	15	XLR		WS	37.99	
	ME 330 E	Card. x2	Electret	Metal	General	600			None	15	Phone		WS	59.99	
	ME 700 D	Card.	Dynamic	Metal	General	250			XLR	25	XLR		WS	99.99	
	ME 900 E	Omni	Electret	Metal	General	600			None	15	Phone		WS	33.99	
TECHNICS	HP-V340	Card.	Dynamic	Alum.	Vocal/Music		100-10					9	W	26.00	With adaptor.
	HP-V370	Card.	Dynamic	Alum.	Music/General		40-12					12	W	40.00	As above.
	HP-3215E	Card. x2	Electret Condenser	Alum.	Music		50-10						W	60.00	
	RF-3600E		Electret Condenser	Alum.	Room EQ									78.00	For use with SH-8055K EQ.
	RF-3545E	Card.	Electret Condenser	Alum.	Music		40-14					11	W	70.00	

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The hard way is to do what Koss did with their new line of SST stereophones. They started by inventing a new element specifically designed to faithfully reproduce the wider dynamic range of today's recordings. Then they incorporated this Super Sonic Technology into four of the sleekest, most comfortable phones ever designed.

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HEADPHONES



PICKERING CD-2



BEYERDYNAMIC DT880



SIGNET TK22

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity @8 SPL for mV input	Maximum Input, mV	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style: Flat = F, Coiled = C	Plug Type: 3.5mm Mini = M, 1/4" Phone = P, Adaptor Incl. = A	Individual Volume Controls?	Construction: C Super-Aurora = S, Open Air Design = O, Adjustable A. Folding = A	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes		
AIWA	HP-X10	Dynamic	5-25	40										75.00				
	HP-A505		15-24	32										35.00				
	HP-V11		15-22	15										40.00				
	HP-V30		18-22	17										30.00				
	HP-V9		15-40	16										45.00				
	HP-V17		20-30	32										27.00				
	VP-V1		18-22	17										23.00				
HP-A101	15-22	32										0.18	25.00					
AKG	K-45	Dynamic	30-18	200	94	6.3V	0.9	8	F	P	No	O	A	Plastic	4.5	45.00		
	K-130	Dynamic	20-20	200	94	9V	0.7	9	F	P	No	S	A	Plastic	4.4	55.00		
	K-135	Dynamic	25-18	150	107	8.9V	0.7	10	F	P	No	S	A	Plastic	5.6	65.00		
	K-141	Dynamic	20-20	600	107	11V	0.5	10	F	P	No	S	A	Metal & Plastic	6.9	75.00		
	K-145	ES/Dyn.	25-24	200	107	8.9V	0.5	10	F	P	No	S	A	Plastic	6	85.00		
	K-249M	Dynamic	20-20	600	112	11V	0.3	8 3/4	F	P	No	C	A	Metal & Plastic	8.5	99.00		
	K-240DF	Dynamic	20-20	600	112	11V	0.3	8 3/4	F	P	No	C	A	Metal & Plastic	8.5	125.00		
K-340	ES/Dyn.	15-25	400	104	10V	0.1	10	C	P	No	C	A	Metal & Plastic	13.5	195.00			
AUDIO-TECHNICA	Point 17	Dynamic	35-20	4-16	99	2V	0.6†	4	F	M/A	No	S	A	Foam	1	29.95	†At 100 dB. Variable damping.	
	ATH-18	Dynamic	20-20	32	91	1.8V	0.3†	10	C	P	No	C	A	Vinyl	3.5	54.95		
	ATH-20	Dynamic	25-20	4-16	98	1.8V	0.3†	8	F	M/A	No	S	A	Vinyl	3.3	64.95		
	ATH-V7	Dynamic	20-20	4-16	96	1.8V	0.3†	9	F/C	P	No	C	A	Vinyl	6.5	84.95		
	ATH-CD7	Dynamic	20-20	35	96	5V	0.3	8	F/C	P	No	C	A	Vinyl	9.5	109.95		
AZDEN	DSR-50	Dynamic	15-26	300	101		0.3	8 1/4	F	P	No	S	A	Vinyl	6	70.00		
	DSR-38	Dynamic	16-24	40	103	100	0.3	5	F	M/A	No	O	A	Foam	2 1/4	100.00		
	DSR-12	Dynamic	20-22	200	105	100	0.5	8 1/4	F	P	No	S	A	Cloth	4 1/4	70.00		
	DSR-68	Dynamic	20-22	32	95	100	0.3	8 1/4	F	P	No	O	A	Foam	1 1/2	60.00		
	DSR-69	Dynamic	40-20	32	92	100	0.5	3 1/2	F	M	No	O	A	Foam	1 1/4	15.00		
	DSR-64	Dynamic	30-20	32	100	100	0.7	3 1/2	F	M	No	O	A/F	Foam	1 1/4	25.00		
	DSR-30	Dynamic	30-20	32	96	100	0.5	7 1/4	F	M	No	O	O	Foam	3/4	35.00		
	DSR-28	Dynamic	30-20	32	102	100	0.7	4	F	M/A	No	O	N	Plastic	1/4	30.00		
BANG & OLUFSEN	Form 1	Dynamic	20-20	35	94		1†	10	C	M/P/A	No	O	A	Foam	6	100.00	†Per DIN 45-500.	
	Form 2	Dynamic	40-20	30	94		1†	10	C	M/P/A	No	O	A	Foam	2 1/2	50.00		
BEYERDYNAMIC	DT990	Dynamic	5-35	600	96	7.75V		6	F	P	No	C	A	Cloth	8	160.00	Includes plug-in filter.	
	DT880	Dynamic	5-30	600	94	7.75V		6	F	P	No	C	A	Cloth	7	265.00		
	Monitor EF	Dynamic	20-20	600	88	7.75V		6	F	M/P	No	S	A	Vinyl	3.8	45.00		
	DT320		20-20	50	88	2.24V		23	F	P	Yes	S	A	Vinyl	3.8	60.00		
	DT340TV		20-20	400	102	6.4V		6	C	P	No	S	A	Vinyl	9.3	80.00		
	DT220		15-18	40	85	2V		6	F	P	No	S	A	Vinyl	6.8	60.00		
	DT330MKII		10-22	600	95	7.75V		6	C	P	No	S	A	Vinyl	7.1	30.00		
	DT350		15-25	600	93	7.75V		6	C	P	No	S	A	Vinyl	8.9	120.00		
	DT660MKII		5-25	600	94	7.75V		6	C	P	No	S	A	Vinyl	7	130.00		
	DT880		5-35	600	94	7.75V		6	C	P	No	S	A	Cloth	7	185.00		
	DT880 Monitor		5-35	600	94	7.75V		6	C	P	No	S	A	Vinyl	7	165.00		
	DT301		30-12	600	97	12V		12	F	M	No	S	††	††	0.8	22.00		
	DT505		20-12	200†	115	7.75V		8	F	F	No	S	††	††	0.3	24.00		
	DT48A		16-20	5	112	1V		8	F	F	No	S	A	Rubber	14.3	260.00		
	DT48		16-20	200†	105	4.4V		8	F	F	P	No	C	A	Vinyl	14.3		245.00
	DT96A		Dynamic	30-17	400†	94	12V		3	F	P	No	C	A	Vinyl	4.3		115.00
	DT100		Dynamic	30-20	400†	94	20V		3	F	P	No	C	A	Vinyl	12.5		130.00
DT102	Dynamic		30-20	400†	94	20V		3	F	P	No	C	A	Vinyl	8.9	95.00		

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	Plug Type: 3.5-mm Mini = M, 1/8" Phone = P, Adaptor Inial. = A	Individual Volume Controls?	Cushions: C, Supra-Aura = S, Open Air Design = O	Headband: Long (Fits in Ear) = M, Adjustable = A, Padded = P	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes
DENON	AH-D6	Dynamic	15-22	32	98		8	F	M/P	No	D	A/F	Foam	5	89.95	Long-crystal, oxygen-free copper voice-coil. As above. As above. Oxygen-free copper cable.	
	AH-D4	Dynamic	15-22	32	96		8	F	M/P	No	O	A/F	Foam	5	69.95		
	AH-D3	Dynamic	17-22	40	100	200	8	F	M/P	No	O	A	Foam	5			
	AH-D1	Dynamic	20-22	40	103	200	8	F	M/P	No	O	A	Foam	5			
KDSS	Pro 4X Plus	Dynamic	10-40	100	100		10	C		No	C	A		8.3	85.00	Cordless.	
	Pro 4AAA Plus	Dynamic	10-22	100	100		10	C		No	C	A		13	70.00		
	K40LC Plus	Dynamic	10-20	100	100		10	C		Yes	C	A		6.7	40.00		
	K6X Plus	Dynamic	10-22	100	100		10	C		No	C	A		6.3	30.00		
	SST 7	Dynamic	15-30	60	100			C		No	C	A		5	69.95		
	SST 6	Dynamic	15-30	60	100			C		No	C	A		4.5	59.95		
	SST 5	Dynamic	20-20	60	100			C		No	D	A		3	39.95		
	SST 4	Dynamic	20-20	35	100			C		No	D	A		2	29.95		
	Porta Pro	Dynamic	15-20	60	100		5	C		No	F	F		2.5	49.95		
	KSPII	Dynamic	20-20	35	100		9	C		No	F	F		2.3	35.00		
	KSPI	Dynamic	20-17	35	100		9	F		No	F	F		3.5	25.00		
	HVXLC	Dynamic	15-35	100	100		10	C		Yes	D	A		8.4	60.00		
	HV1A	Dynamic	15-30	140	100			C		No	D	A		9.3	50.00		
	KC/29	Dynamic	18-20	100			8	C		No	D	A		3.5	24.00		
	KC/24	Dynamic	20-17	35				F	A	No	D	A		3.5	20.00		
	KC/10	Dynamic	40-12	35				F	A	No	D	A		2.5	10.00		
	FF/300	Dynamic	20-20	35				F	A	No	D	A		3	19.99		
	FF/200	Dynamic	20-20	35				F	A	No	D	A		2.5	15.99		
	FF/100	Dynamic	40-16	35				F	A	No	D	A		2	9.99		
	JCK/200	Dynamic	20-20					F		Yes	C	A			149.95		
Kordless																	
KMP/2 Earbuds	Dynamic	20-20	32	102				F		No	D	A			19.99		
KMP/8 Earbuds	Dynamic	20-20	32	100				F		No	D	A			14.99		
KMP/5 Earbuds	Dynamic	20-20	32	102				F		No	D	N			9.99		
KMP/7 Earbuds	Dynamic	20-20	32	100				F		No	N				17.00		
MEMOREX	Sonic-Lite SL40	Dynamic	50-16	32	80	50	4		M/A	No		A	Foam	1 1/2	4.99		
	Sonic-Lite SL60	Dynamic	50-18	32	92	100	4		M/A	No		A	Foam	1 3/4	9.99		
	Sonic-Lite SL90	Dynamic	20-20	32	100	100	4		M/A	No		A	Foam	2	14.99		
	Sonic-Lite SL88	Dynamic	20-20	16	106	30	4		M/A	No		N	Foam	1/2	14.99		
NADY SYSTEMS	IRH-210		50-15									A	Vinyl		199.95	Infrared wireless; includes transmitter.	
NAKAMICHI	SP-7	Dynamic	20-20	45	100		10	F	P	No	D	A	Foam	5.3	80.00		
NUMARK	HM 5000	Dynamic	60-12	8			8	F	P	No	C	A	Plastic	6 1/2		Mono. Includes dynamic mike. As above.	
	HM 6000A	Dynamic	60-12	8			8	F	M/P	No	C	A	Plastic	7			
	HM 7000A	Dynamic	60-12	8			8	F	M/P	No	C	A	Plastic	7 1/2			
DNKYD	DP-G4	Dynamic	10-20	32	111			F	P	No	O	A	Foam	5	52.00		
	DP-L2X	Dynamic	15-20	30	110			F	M/A	No	S	A	Foam	1 1/2	44.00		
	DP-L1X	Dynamic	20-20	28	102			F	M/A	Yes	S	A/F	Foam	1 1/4	40.00		
	DP-S1X	Dynamic	50-20	18	102			F	M/A	No	S	A/F	Wire Mesh	1/4	36.00		
PANASDNIC	EAH-D8	Dynamic	15-25	45	102	50mW	8.2	F	P/A	No		A	Plastic	3	50.00		
	EAH-S30	Dynamic	20-20	40	98	100mW	4.9	F	P/A	No		A	Plastic	1.4	40.00		
PARASDUND	LSH-1	Dynamic	50-18	32	96	1.2V	0.85	6	F	M/A	No	D	A	Foam	2	29.95	
PICKERING	CD-4	Dynamic	20-20	60	100	100mW	0.5	7 1/2	F	P	No	D	A	Vinyl	3	60.00	Stereo/mono switch.
	CD 3 + 3	Dynamic	20-20	32	105	100mW	0.5	7 1/2		P	Yes	D	A	Vinyl	5.8	60.00	
	CD-2	Dynamic	20-20	32	112	100mW	0.5	7 1/2		M/P	No	D	A	Vinyl	5	45.00	
	DA-99P	Dynamic	20-20	18	105	50mW	0.5	5		M/P	No	D	A		1.1	22.00	
	DA-7	Dynamic	10-22	100	110	100mW	0.5	10	F	P	No	D	A	Nylon	6	70.00	
	DA-203	Dynamic	10-22	40	105	50mW	0.5	6	F	M/P	No	D	A	Vinyl	2.5	29.95	
	DA-101P	Dynamic	20-18	40	100	50mW	0.5	5	F	M/P	No	D	A	Foam	2	24.95	
	DA-88	Dynamic	20-20	32	98	50mW	0.5	4	F	M	No	D	A	Foam	0.5	21.95	
	DA-66P	Dynamic	20-20	32	92	100mW	0.5	5	F	M/P	No	D	A	Foam	1.1	20.95	
PIDNEER	SE-50D	Dynamic	3-50	32	108		10	C	M/A	No	S	A	Plastic	3.2	54.95		
	SE-L90	Dynamic	10-22	40	103		10	F	M/A	No	S	A	Plastic	2.5	79.95		
	SE-L66	Dynamic	16-22	30	110		6.6	F	M/A	Yes	D	F	Resin	0.6	49.95		
	SE-L44	Dynamic	16-22	30	110		6.6	F	M/A	Yes	D	A	Resin	0.6	39.95		
	SE-L22	Dynamic	16-22	30	110		6.6	F	M/A	No	D	A	Resin	0.6	29.95		
	SE-205	Dynamic	20-20	10	103		8.2	F	P	No	C	A	Plastic	15	29.95		
QUASAR	SV401YE		20-20	16	93	100	4	F	P	No	D	A	Foam	1 1/4	10.95		
	SV406							F		No		A		1 1/2	49.95		
REALISTIC	Nova 55														30.00		
	Nova 37														15.00		



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When you hear the fidelity and accuracy of the AKG K 240DF Studio Monitor Headphones, you'll know why it's become a standard for recording engineers and professional musicians around the world.

This latest version of our well known K 240 (now K 240M) has been created to meet a recently proposed IRT (Institute for Broadcast Technology) international standard. The K 240DF establishes a uniform sound quality free from environmental variables. As opposed to sound from loudspeaker monitors, that is colored by variations in control room design, the K 240DF is unchanging and reliable.

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The DEX-77



The DEX-77 CD/Tuner

HEADPHONES

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to kHz	Impedance, Ohms	Sensitivity, dB SPL for 100mW input	Maximum input, mW	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style, Feet	Plug Type: P=I, Collar=C	Phone = P, Adaptor Incl. = A	Individual Volume Controls?	Crumpled C Superaural = S, Open Air Design = O	Headband: H=H (Pa In Ear) = R, Adjustable = A, Padded = F	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes
RECOTON	ST-66	Dynamic	20-25	25	98	400mW	10	F	A	No	O	A	Foam	2.5	25.00			
	ST-77	Dynamic	20-25	25	98	300mW	10	F	A	No	O	A	Foam	1.7	20.00			
	ST-90	Dynamic	20-20	32	96	300mW	7	F	A	No	O	A	Foam	0.8	18.00			
	ST-92	Dynamic	20-20	32	90	100mW	4	F	A	No	O	A	Foam	1.4	13.00			
	ST-93	Dynamic	20-22	32	100	100mW	5	F	A	No	O	F	Foam	1	17.00			
	ST-91	Dynamic	20-25	200	100	300mW	7	F	A	No	O	A	Foam	1.2	28.00			
	ST-94	Dynamic	20-22	32	92	200mW	4	F	A	No	O	F	Foam	1.2	23.00			
	ST-95	Dynamic	20-22	25	100	300mW	7	F	A	No	O	A	Felt	2.2	28.00			
	ST-96	Dynamic	20-20	20	100	300mW	4	F	A	No	O	A	Felt	2.2	30.00			
	ST-97	Dynamic	20-23	35	100	300mW	6	F	A	No	D	A	Foam	2.8				
	ST-98	Dynamic	50-22	32	102	100mW	4	F	M	No	S	N	Foam	0.2	17.00			
	ST-99	Dynamic	20-22	20	100	300mW	5	F	M	No	S	N	Foam	0.7	16.00			
	ST-100	Dynamic	20-20	38	98	300mW	4	F	M	No	S	N	Foam	0.5	23.00			
ST-101	Dynamic	20-20	32	98	100mW	4	F	A	No	O	F	Foam	1.2	27.00				
ST-102	Dynamic	50-20	32	109	30mW	4	F	A	No	S	F	Foam	0.5	23.00				
ST-103	Dynamic	30-20	32	98	100mW	6	F	A	No	O	A	Foam	1	18.00				
SENNHEISER	HD44	Dynamic	40-15	17			3	F	P	No	SO	N	Foam	1.2	49.00			
	HD40	Dynamic	22-18	32	90		10	F	M/A	No	SO	A	Foam	2	45.00			
	HD410-SL	Dynamic	20-18	600	88	15V	1.3	10	F	P	Dpt.	SO	A	Foam	3	59.00		
	HD414-SL	Dynamic	16-20	600	102	18V	1	10	F	P	Dpt.	SO	A	Foam	2.6	84.00		
	HD420-SL	Dynamic	18-20	600	94	8V	0.6	10	F	P	Dpt.	SD	A	Foam	4.6	99.00		
	HD430	Dynamic	16-20	600	94	8V	0.6	10	F	P	No	CD	A	Vinyl	6.8	149.00		
	HD540	Dynamic	16-25	600	94	8V	0.1	10	F	F	Dpt.	CO	A	Vinyl	5.9	169.00		
	HD222	Dynamic	16-20	600	94	8V	0.6	10	F	P	Dpt.	C	A	Vinyl	8.8	99.00		
HD230	Dynamic	10-30	600	94	8V	0.5	10	F	F	Dpt.	C	A	Vinyl	9.2	189.00			
SFI	17	†	10-100		98			F	P	No	S	A		6½	80.00	†Dynapleat.		
SIGNET	TK44	Electret Cond.	10-25	4-32	98	1.5V	0.4†	8	F		No	S	A	Plastic	7.9	290.00	†At 110 dB.	
	TK22	Dynamic	20-20	4-16	96	5V	0.4†	11.5	F	P	No	S	A	Plastic	7.2	130.00		
	TK21	Dynamic	20-20	4-16	98		0.5†	8.2	F	M/A	No	S	A	Plastic	5	100.00		
	TK20	Dynamic	25-20	4-16	100	1.7V	0.5†	4.9	F	M/A	No	D	A/F	Plastic	2.2	65.00		
	TK11	Dynamic	30-20	4-16	93	1.7V	0.6†	4.9	F	M/A	No	D	A	Plastic	2.6	45.00		
SONY	MDR-CD5	Dynamic	2-22	45	110	500mW	10	F	M/P	No	S	A	Foam	3	100.00	Oxygen-free copper wire. As above.		
	MDR-M77	Dynamic	10-25	45	108	500mW	10	F	M/P	No	S	A	Cloth/Foam	2.5	89.95			
	MDR-M55	Dynamic	16-22	45	106	500mW	10	F	M/P	No	S	A	Cloth/Foam	2.5	69.95	As above.		
	MDR-M33	Dynamic	16-20	45	104	500mW	10	F	M/P	No	S	A	Foam	3	59.95			
STANTON	ST-1	Dynamic	25-20	32	110	100mW	0.5	7.5		M/P	No	O	A	Vinyl	3.2	24.95		
	ST-2	Dynamic	20-20	32	100	100mW	0.5	7.5		M/P	No	O	A	Cloth	5.0	29.95		
	ST-3	Dynamic	20-20	32	112	100mW	0.5	7.5		M/P	No	O	A	Vinyl	5.0	39.95		
	30M/SR	Dynamic	20-20	100		0.25mW		10	C	P	No	D	N	Vinyl	3.8	49.95		
	35M/HB	Dynamic	20-20	100		0.25mW		10	C	P	No	O	A	Vinyl	3.8	55.00		
	Sterowater 80	Dynamic	10-22	100	110	1mW	0.5†	10	F	P	No	O	A	Vinyl	5.9	70.00	†At 110 dB.	
	Dynaphase	Dynamic	10-20	600	110	0.25mW	0.25†	10	F	P	No	O	A	Vinyl	5.5	70.00	†At 110 dB.	
	60A/600																	
	Microwafer 15V	Dynamic	20-22	32	98	10mW	0.5†	4	F	M/P/A	Yes		F	Foam	1.6	34.95	†At 110 dB; with extra ear pads.	
	Microwafer 14	Dynamic	10-20	32	98	1mW	0.5†	5	F	M/P	No	O	F	Foam	1.4	29.95	†At 100 dB.	
Microwafer VI	Dynamic	20-18	40	100	0.05mW	0.5†	5	F	M	No	O	F	Foam	2	24.95	†At 100 dB.		
Microwafer V	Dynamic	20-20	32	100	10mW	0.5†	4	F	M/P	No	O	A	Foam	2	24.95	†At 100 dB; with extra ear pads.		
STAX	SR-34	ES	25-25	8	95		0.02	7	F	A	No	CO	A	Vinyl	8	129.95		
	SR-84	ES	25-25	8	95		0.02	7	F	A	No	CO	A	Vinyl	7.5	199.95		
	SR-5/N	ES	25-25	8	97		0.05	7	F	A	No	CO	A	Vinyl	13.9	249.95		
	SR-Gamma	ES	25-25	8	97		0.05	7	F	A	No	CO	A	Vinyl	7.5	349.95		
	SR-Lambda	ES	8-35	8	102		0.05	7	F	A	No	CO	A	Vinyl	15.1	489.95		
	SR-Sigma	ES	2-35	8	94		0.05	7	F	A	No	CO	A	Vinyl	16.4	599.95		
	SR-Lambda	ES	8-35	8	102		0.005	7	F	A	No	CO	A	Vinyl	15.1	599.95		
	Pro #1																	
	SR-Lambda	ES	8-35	5k	102		0.005	7	F	A	No	CO	A	Vinyl	15.1	629.95	Portable system.	
	Pro #2																	
SR-Lambda	ES	8-35	50k	102		0.005	7	F	A	No	CO	A	Vinyl	15.1	999.95	Includes Class-A amp.		
TEAC	HP 202	Dynamic		32					F	M/A	No	C	A	Foam		17.49		
	HP 206	Dynamic		32					F	M/A	Yes	C	A	Foam		21.99		
	HP 308	Dynamic		32					F	M/A	No	C	A	Foam		24.49		
	HP 402	Dynamic		32					F	M/A	No	C	A	Foam		34.99		
	HP 302	Dynamic		32					F	M/A	No	C	N	Foam		25.99		
TECHNICS	EAH-T6	Dynamic	20-20	40	98	100	0.2	4.5	F	M/A	No	O	A	Foam	1¼	30.00		
	EAH-T10	Dynamic	15-20	32	100	300		6.6	F	M/A	No	O	A	Foam	2¾	50.00		
YAMAHA	HP-100	Orthodyn.	20-20	150	98	3W	0.3	8	F	P	No	S	A	Plastic	13.7	99.00		
	YHD-1	Orthodyn.	20-20	125	100	1W	0.3	8	F	P/A	No	S	A/F	Plastic	5.9	75.00		
	YHD-2	Orthodyn.	20-20	125	97	700mW	0.3	8	F	P/A	No	S	A/F	Plastic	5.6	55.00		
	YH-3	Orthodyn.	20-20	125	97	1W	0.3	8	F	P	No	S	A	Plastic	5.3	30.00		
	YHL-006	Dynamic	20-20	45	99	100mW	0.5	8	F	P/A	No	O	A/F	Plastic	3.4	50.00		
	YHL-003	Dynamic	20-20	45	103	200mW	0.5	8	F	P/A	No	O	A/F	Plastic	3.7	40.00		



EQUALIZERS

AUDIO CONTROL C-101



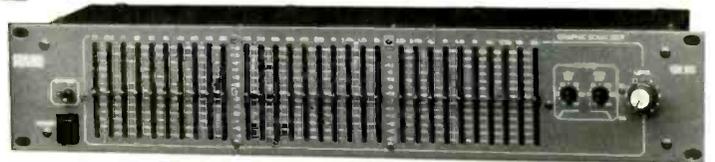
SOUNDCRAFTSMEN AE2000



PARASOUND EQ225



RANE GE 30



MANUFACTURER	Model (RQ) = Remote Included, (RO) = Remote Optional	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Tape EQ?	Unity Gain Control?	Rated Output, rms V	THD at Rated Output, %	S/N, - dB, at Rated Output, "A" Wtd.	Variable Center Frequencies?	Boost/Cut Range, ±dB	Real Time or Spectrum Analyzer?	Tape Generator? Pin Meter? P.	With Calibrated Mikes?	Number of Memories	Number of Tape Monitors	Subsonic Filter?	Video Inputs?	Price, \$	Notes		
ACCUPHASE	G-18	2	33	1/3	No	No	2	0.002	110	No	No	12	No	No	No	0	0	No	No	2800.00		
ADC	SoundShaper 112X	2	10	1	Yes	Yes	5	0.1	95	No	Yes	12					1	No		150.00	With remote and auto room/speaker EQ, Model SS-525X, \$600.00.	
	SS-117EX	2	10	1	Yes	Yes	5	0.1	95	No	Yes	15					2	No		250.00		
	SS-VIII	2	10	1	Yes	Yes	5	0.1	95	No	Yes	15					1	No		280.00		
	SS-412X	2	10	1	Yes	Yes	5	C.1	95	No	Yes	15	Yes	Yes	Yes	2	2	Yes		430.00		
	SS-425X	2	12	1, 2/3	Yes	Yes	5	0.1	95	No	Yes	12	Yes	Yes	Yes	4	2	Yes		500.00		
SS-100SL	2	10	1	Yes	Yes	5	0.1	100	No	Yes	15	Yes	No	No		1	Yes		200.00			
ADVANCED ELECTRODYNAMIC SYSTEMS	X10D	2	1	10	No	No	5	0.01	100	No	No	4	No	No	No	0	0	Yes	No	129.95	Fixed bass-boost filter; four-position high-frequency boost.	
AKAI	EA-A7	2	7	1 1/2	Yes	No		0.03	95	No	No	10	Yes	No	No	3	2	No	No	290.00	Computer controlled.	
	EA-A2	2	9	1	Yes	No		0.03	95	No	No	12	No	No	No	0	2	No	No	170.00		
	EA-A22	2	9	1	Yes	No		0.09	80	No	No	12	No	No	No	0	1	No	No	170.00		
AUDIO CONTROL	Octave	2	10	1	Yes		7	0.008	118	No	No	12	No	No	No			1	Yes		149.00	Infinte-sweep warble generator. Bridging adaptor. Stepped warble. 0-dB indicator. SPL display, rumble reducer.
	Octave Plus	2	10	1	No		7	0.008	118	No	No	12	No	W	Yes			1	Yes		239.00	
	Richter Scale	2	6	1/2	Yes		7	0.005	120	No	No	12	Yes	W	Yes			1	Yes		349.00	
	Ten	2	10	1	Yes		7	0.005	120	No	No	15	No	W	Yes			1	Yes	Yes	229.00	
	Ten Plus	2	10	1	Yes		7	0.005	120	No	No	15	No	W	Yes			1	Yes	Yes	329.00	
C-101	2	10	1	Yes		7	0.008	116	No	No	15	Yes	P	Yes			1	Yes		429.00		
AUDD DESIGN ASSOCIATES	EQ-5	2	5		No	Yes	7	0.05	95	No	No	30	No	No	No			No	No	650.00		
AUDIOSOURCE	EQ-One/II	2	10	1/3	Yes	Yes	6.5	0.027	100	Yes	Yes	12	Yes	Yes	Yes			1	Yes		349.00	A/V selector.
	EQ-Eight	2	10	1/3	Yes	Yes	6.0	0.03	80	Yes	Yes	12	Yes	Yes	Yes			1	Yes	Yes	159.95	
AZOEN	GX-50	2	10	1	Yes	Yes	6	0.005	90	No	No	12	Yes	Yes	Yes			1	No	No	300.00	Spectrum display.
	GX-45	2	10	1	Yes	Yes	6	0.005	90	No	No	12	No	No	No			2	No	No	225.00	
	GX-36	2	10	1	Yes	Yes	6	0.005	100	No	No	12	No	No	No			2	No	No	125.00	
BIAMP SYSTEMS	EQ-220	2	10	1	No	Yes	9	†	††	No	No	15	No	No	No	0	0	No	No	329.00	†0.005% at +4 dBm. ††110 dB, unweighted. Peak indicators. Ten-segment meter, XLR, phone, RCA, or barrier-strip connections.	
	EQ-230	2	15	2/3	Yes	Yes	9	†	††	No	No	12	No	No	No	0	2	No	No	529.00		

All Speakers Move

By controlling speaker movement stereo imagery becomes stable with pin-point accuracy.

Non-Flex Design

Use of stanchion frames provides rigidity for more efficient energy transfer of vibration.

Black and Brass Finish

Over 25 models are available in wood, brass and textured matte black finish.

Cone-Point Set Screws

Provide optimum coupling of speaker to stand and reduces wobble or stand movement during play.

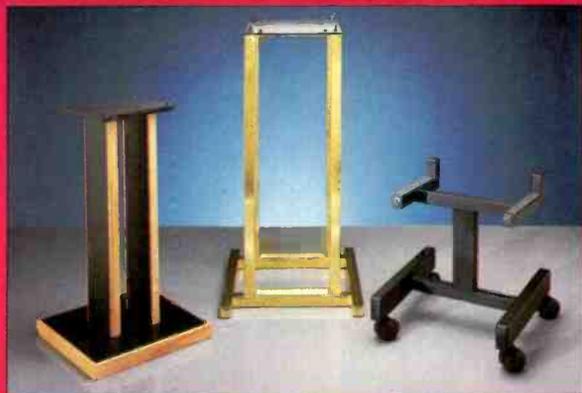
Lead Filling Capacity

Many models can be filled with sand and lead shot to further reduce movement and dampen resonance.

Adjustable Spikes

For maximum stability and coupling to any floor surface. Spikes increase pounds per square inch ratio to floor surface for stability.

Improve the sound of any speaker.



Over 25 models available in wood, brass and textured matte black finish.

Yes, your speakers can sound as if they cost twice as much. Chicago Speaker Stands prevent the movement that causes smearing and blurring of the musical event. Chicago Speaker Stands start at under \$40 a pair and are available at audio specialty stores.

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American quality and technology made in the USA

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EQUALIZERS

MANUFACTURER	Model (R) = Remote Included, (RO) = Remote Optional	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Tape EQ?	Unity Gain Control?	Rated Output, rms V	TWD at Rated Output, %	SN, -dB, at Rated Output, %	Variable Center Frequencies?	Boost/Low Range, ±dB	Real-Time or Spectrum Analyzer?	Treat Generator?	Pin Noise = P	With Calibrated Mikes?	Number of Memories	Number of Tape Monitors	Subsonic Filter?	Video Inputs?	Price, \$	Notes	
BIAMP SYSTEMS (Continued)	EQ-290	1	29	1/3	No	Yes	9	†	††	No	No	12	No	No	No	0	0	Yes	No	549.00	As above; adjustable low-pass filter. †††105 dB, unweighted. EQ bypass and peak indicators on each band; peak/shelf/notch capability.	
	EQ-140	1	4	0.1-5.5	No	Yes	9	†	†††	Yes	Yes	16	No	No	No	0	0	No	No	399.00		
CERWIN-VEGA	DB-10B	2	1				2	0.025				10						Yes		49.95	Operates at 30 Hz with subsonic filter below 20 Hz.	
CURTIS MATHES	AQ727	2	7		Yes	No	1	0.005	110	No	No	12	No	No	No	0	1	No	No			
DAX	2711	1	27	1/3	No	Yes	†	0.01	82	No	No	12	No	No	No	1		No	No	499.00	†24 dBm. ††20 dBm. †††81 dBm. Microprocessor-controlled, automatic EQ. Programmed by Model 2800 "mother" computer; nonvolatile memory version, Model EQ PDD 1.1, \$559.00. Programmed by Model 2800 "mother" computer.	
	2712	1	27	1/3	No	No	†	0.01	82	No	No	12	No	No	No	1		No	No	399.00		
	1021	2	10	1	No	Yes	†	0.01	90	No	No	12	No	No	No	1		No	No	399.00		
	1022	2	10	1	No	No	†	0.01	90	No	No	12	No	No	No	1		No	No	319.00		
	2800	1	28	1/3	No	No	††	0.01	†††	No	No	12	Yes	P	No	24		Yes	No	2495.00		
	EQ PDD 1.0	1	28	1/3	No	No	††	0.01	†††	No	No	12	No	No	No	1		Yes	No	499.00		
	EQ PDD 1.2	1	28	1/3	No	No	††	0.01	†††	No	No	12	No	No	No	6		Yes	No	649.00		
DB SYSTEMS	DB-5	2	6			Yes	3	0.008	96	Yes		15								380.00	DB-2A power supply or DBP-1 cable required; with oak cabinet and gold-plated jacks, \$465.00.	
DBX	10/20	2	10	1	Yes	Yes	7	0.03	99	No		12	Yes	P	Yes	10	1	Yes		1200.00	Automatic room/speaker EQ with constant Q.	
DENON	DE-70B	2	12	1/3	Yes	Yes	1	0.003				12					2			470.00	Built-in dynamic processor.	
ESOTERIC SOUND	Re-Equalizer	2	1	10	No	No		0.02		†	†	Var.	No	No	No	36	0		No	225.00	†For replay of 78-rpm discs.	
GROMMES	G4EQ	1	28	1/3	No	Yes	1	0.01	80	No	No	12	No	No	No	0	0	Yes	No	450.00		
DAVID HAFNER CO.	DH-160	2	10	1	Yes	Yes	3	0.004	108	No	No	12	No	No	Opt.	0	1	No	No	375.00	Kit, \$275.00.	
HARMAN/KARDON	EQ8	2	10	1	Yes	Yes	2	0.02	105	No	No	12	No	No	No	0	1	Yes	No	275.00		
JRM	Remote Unit	2	6	1	Yes	Yes	7	0.01	112	No	No	8	No	No				Yes	Yes	350.00	JRM preamp or 3BPB crossover required; continuously variable loudness.	
JVC	SEA-RM20BK (R)	2	7	1 1/3	Yes	Yes	1	0.008	100	No	No		Yes	No	No	10	1	No	No			
	SEA-12BK	2	7	1 1/3	Yes	Yes	1	0.03	110	No	No		No	No	No		1	No	No			
KENWOOD	GE-1100	2	12		Yes	No	9	0.01	105	No	No	12	Yes	No	No		2	No	No	415.00	Reverb and stereo synthesizer.	
	GE-75	2	7		Yes	No	4	0.05	94	No	No	10	No	No	No		1	No	Yes	215.00		
	GE-55	2	12		Yes	Yes	5	0.01	110	No	No	10	No	No	No		1	No	No	190.00		
	GE-35	2	7		No	No	4	0.01	96	No	No	10	No	No	No		1	No	No	85.00		
KLARK-TEKNIK	DN300	1	30	1/3	No	Yes	10	0.01	112	No	No	12	No	No	No	0	0	†	No	995.00	†Variable bandpass filters.	
	DN301	1	30	1/3	No	Yes	10	0.01	112	No	No	12	No	No	No	0	0	†	No	995.00		
	DN332	2	16	2/3	No	Yes	10	0.01	112	No	No	12	No	No	No	0	0	Yes	No	1095.00		
	DN360	2	30	1/3	No	Yes	10	0.01	112	No	No	6, 12	No	No	No	0	0	Yes	No	1625.00		
LUXMAN	G100	2	10	1	Yes	Yes	9	0.003	110	No	No	12	No	No	No	0	1	No	No	250.00		
LYDKRAFT	Tube-Tech PE1A	1	2					†	Yes	Yes										925.00	†84 dBm. Tube design.	
MARANTZ	EQ130	2	10	1	Yes	Yes	1	0.005	110	No	No	12	No	No	No	0	1	No	No	130.00		
	EQ551	2	10	1	Yes	No	7	0.005	80	No	No	12	Yes	P	Yes	0	1	No	No	250.00		
McINTOSH	MQ107	2	7	1/3, 1	No	Yes	2.5	0.02	95	Yes	Yes	12, 15, 12, 15	No	No	No	0	0	Yes	No	650.00		
	MQ104	2	4	1/3, 1	No	Yes	2.5	0.1	95	Yes	Yes	12, 15, 12, 15	No	No	No	0	0	Yes	No	500.00		
MITSUBISHI	DA-6156	2	10		Yes	Yes		0.01	110	No	No	10	No	No	No	0	1	No	No	100.00		
NIKKO	EQ-30	1	30	1/3	No	Yes							No	No	No						XLR connectors.	
	EQ-25	2	12		Yes	No		0.004					No	No	No				1			
	EQ-500	2	6		Yes	No		0.01					No	No	No				1			
NUMARK	EQ2650	2	10	1	Yes	Yes	8	0.01	102	No	No	15	Yes	Yes	Yes	0	0	1	No	No		
	EQ2600	2	10	1	Yes	Yes	8	0.01	102	No	No	15	No	No	No	0	1	No	No			
	EQ2500B	2	10	1	Yes	Yes	8	0.01	102	No	No	15	No	No	No	0	1	No	No			
	EQ2310B	2	10	1	Yes	Yes	8	0.01	96	No	No	15	No	No	No	0	1	No	No			



EQUALIZERS

MANUFACTURER	Model (RI) = Remote Included, (RO) = Remote Optional	Number of Channels	Number of Bands per Channel	Bandwidth	Switched Octaves	Switched Tape EQ?	Unity Gain Control?	Rated Output	THD at Rated Output, rms V	S/N, -dB, at Rated Output, %	Variable Center Frequencies?	Variable Filter "Q"?	Boost/Cut Range, ±dB	Real-Time or Spectrum Analyzer?	Test Generator Pink Noise = P, Variable Tone = W	With Calibrated Mikes?	Number of Memories	Number of Tape Monitors	Subsonic Filter?	Video Inputs?	Price, \$	Notes
ONKYO	EQ-35	2	12	1	Yes	Yes	5	0.01	100	No	No	12	6	No	No	No	1	Yes	No	No	300.00	
	EQ-25	2	10	1	Yes	Yes	5	0.01	100	No	No	12	12	No	No	No	1	No	No	No	210.00	
	EQ-15	2	7	1½	No	No	5	0.01	100	No	No	12	12	No	No	No	1	No	No	No	125.00	
PARASOUND	EQS-1	2	10	1	Yes	Yes	6	0.01	100	No	No	12	12	Yes	P	Yes	0	2	Yes	Yes	369.95	Tape dubbing, peak hold, 90 and 16 Hz cut only, tape dubbing.
	EQ300	2	12	1	Yes	Yes	6	0.01	100	No	No	12	12	Yes	No	Yes	0	1	Yes	Yes	279.95	Graphic LEDs, peak level meters.
	EQ250	2	10	1	Yes	Yes	6	0.01	100	No	No	12	12	No	No	No	0	1	No	Yes	249.95	Tape dubbing.
	EQ225	2	10	1	Yes	Yes	6	0.01	100	No	No	12	12	Yes	No	No	0	1	No	Yes	199.95	
EQ200	2	10	1	Yes	Yes	6	0.01	100	No	No	12	12	No	No	No	0	1	No	No	149.95		
PVA-1(RI)	2	10	1	Yes	Yes	8	0.2	100	No	No	12	12	Yes	No	No	0	1	No	Yes	Yes	479.95	A/V processor; 18-watt stereo surround-sound amp; four video source inputs.
PIONEER	SG-60	2	12	1	Yes	Yes		0.003	120	No	No	12	10	No	No	No	0	2	No	Yes	269.95	
	GR-470	2	7					0.03	106								0	1	No	No	89.95	
RANE	GE 30	1	30	½	No	Yes	7.75	0.01	94	No	No	+12, -15	No	No	No	0	0	Yes	No	No	699.00	Switchable cut-only or boost/cut modes; constant Q.
	GE 27	1	27	½	No	Yes	7.75	0.009	91	No	No	+12, -15	No	No	No	0	0	Yes	No	No	499.00	Constant Q.
	GE 14	2	14	¾	No	Yes	7.75	0.009	89	No	No	+12, -15	No	No	No	0	0	Yes	No	No	499.00	As above.
	ME 30	1	30	½	No	Yes	7.75	0.009	92	No	No	12, 6	No	No	No	0	0	Yes	No	No	349.00	As above.
	ME 15	2	15	¾	No	Yes	7.75	0.009	92	No	No	12, 6	No	No	No	0	0	Yes	No	No	359.00	As above.
	RE 27	1	27	½	No	Yes	7.75	0.009	90	No	No	+12, -15	Yes	P	Yes	0	0	Yes	No	No	849.00	As above; window-type RTA.
	RE 14	2	14	¾	No	Yes	7.75	0.009	88	No	No	+12, -15	Yes	P	Yes	0	0	Yes	No	No	499.00	As above.
PE 15	1	5	Var.	No	Yes	7.75	0.02	92	Yes	Yes	+15, -20	No	No	No	0	0	Yes	No	No	389.00	Parametric; switchable peak/shelf EQ.	
SP 15	1	5	Var.	No	Yes	7.75	0.005	102	Yes	Yes	+12, -15	No	No	No	0	0	Yes	No	No	589.00	Studio parametric for digital recording.	
REALISTIC	31-2020	2	10		Yes	Yes		0.015	95	No	No	12	12	Yes	No	No	2	2	No	No	130.00	Sound expander.
	31-2018	2	10		Yes	Yes		0.018	95	No	No	12	12	No	No	No	2	2	No	No	80.00	As above.
	31-1989	2	7		Yes	Yes		0.02	90	No	No	12	12	No	No	No	1	1	No	No	59.95	
SAE	E101	2	2	Var.	Yes	Yes	2.5	0.02	100	Yes	Yes	16	No	No	No	20	1	Yes	No	No	650.00	Parametric EQ, 32 selectable center frequencies.
SANSUI	SE-99(RI)	2	12		Yes	Yes		0.003	120	No	No	12	10	Yes	P	Yes	10	0			725.00	
	SE-88(RI)	2	14		Yes	Yes		0.008	110	No	No	10	10	Yes	No	Yes	5	0			500.00	
	RG-900R(RI)	2	7		Yes	Yes		0.05	70	No	No	10	10	Yes	No	No	0	0	Yes		340.00	
	SE-80	2	10		Yes	Yes		0.008	110	No	No	12	12	Yes	No	No	0	0			330.00	
	SE-800	2	10		Yes	Yes		0.008	110	No	No	12	12	Yes	No	No	0	0			290.00	
	RG-700	2	5		Yes	Yes		0.05	75	No	No	12	12	No	No	No	0	0	Yes		250.00	
SE-300	2	7		Yes	Yes		0.03	75	No	No	12	12	No	No	No	0	0			90.00		
SENTREK	SHQ 1205BL	2	5		Yes	No		0.05	80	Yes	No	12	12	No	No	No	0	0	No	No	39.95	
	SHQ 2200B	2	10		Yes	Yes		0.05	80	Yes	No	12	12	No	No	No	0	0	No	No	79.95	
	SHQ 4210B	2	10		Yes	No		0.05	80	Yes	No	12	12	Yes	No	No	0	0	No	No	99.95	
	SHQ 4220BL	2	10		Yes	Yes		0.05	80	Yes	No	12	12	Yes	No	No	0	0	No	No	149.95	
SESCOM	PO-16	1	1	1	No	No	5	0.1	80	Yes	No	14	12	No	No	No	0	0	No	No	35.00	PO-1 power supply required.
	PO-40	1	5	½	No	No	5	0.1	80	Yes	No	12	12	No	No	No	0	0	No	No	45.00	As above.
SONTEC	RM-230A	2	3		No	No	1	0.002	90	Yes	Yes	12	No	No	No	0	0	No	No	No	1085.00	Maximum output, 15 V rms.
SOUNDCRAFTSMEN	AE2000	2	10	1	Yes	Yes	10	0.01	114	No	No	15	15	Yes	P	No		1	No	No	799.00	Differential comparator system; auto-scan.
	DC2215	2	10	1	Yes	Yes	10	0.01	114	No	No	15	15	No	No	No		1	No	No	399.00	Differential comparator system; with test record.
	DC2214	2	10	1	Yes	Yes	10	0.01	106	No	No	12	15	No	No	No		1	No	No	299.00	As above.
	SE550	2	10	1	Yes	Yes	10	0.01	110	No	No	15	15	No	No	No		1	No	No	199.00	
SYMMETRIC SOUND SYSTEMS	EQ-2	2	12	5/6	No	No	8.5	0.02	104	No	No	10	10	No	No	No	0	1	No	No	89.00	Kit.
	EQ-3S	2	24	0.4	No	No	8.5	0.02	99	No	No	10	10	No	No	No	0	0	No	No	200.00	As above.
TEAC	EQA-5	2	10		Yes	Yes	0.32	0.03	80	No	No	12	12	No	No	No	0	1	No	No	149.00	
	EQA-10 II	2	10		Yes	Yes	0.32	0.03	80	No	No	12	12	No	No	No	0	1	No	No	199.00	
	EQA-20	2	10		Yes	Yes	0.32	0.01	90	No	No	12	12	Yes	No	No	0	2	No	No	249.00	
TECHNICS	SH-8065	2	33	1½	Yes	No	†	0.002	110	No	No	3, 12	12	No	P	No	0	1	No	No	600.00	†Switchable output, 0.15/1 V.
	SH-8055K	2	12	¾	Yes	No	1	0.003	110	No	No	12	12	Yes	P	No	0	2	No	No	365.00	
	SH-8066	2	12	1	Yes	No	1	0.003	107	No	No	12	12	Yes	P	Yes	8	2	No	No	525.00	Auto room EQ.
	SH-8028	2	7	1½	Yes	No	1	0.005	110	No	No	12	12	No	No	No	0	1	No	No	145.00	
	SH-8046K	2	7	1½	Yes	No	1	0.003	107	No	No	12	12	No	No	No	4	1	No	No	300.00	
VECTOR RESEARCH	VQ-110	2	10	1	Yes	Yes	1	0.009	108	No	No	12	12	No	No	No	1	No	No	No	119.95	
	VQ-120	2	10	1	Yes	Yes	1	0.009	108	No	No	12	12	Yes	No	No	1	No	No	No	199.95	
	VQ-130	2	10	1	Yes	Yes	1	0.009	108	No	No	12	12	Yes	Yes	Yes	1	No	No	No	299.95	
YAMAHA	GE-60	2	10		Yes	Yes	1	0.005	110	No	No	15	15	Yes	P	Yes	2	Yes			399.00	
	GE-40	2	10		Yes	Yes	1	0.005	110	No	No	15	15	No	No	No	1	Yes			229.00	
	GE-30	2	10		Yes	Yes	1	0.005	105	No	No	12	12	No	No	No	1	Yes			149.00	
	GE-20	2	10		Yes	Yes	1	0.005	105	No	No	12	12	No	No	No	1	Yes			129.00	

ADD SANSUI'S DS-77 TO YOUR STEREO A/V SYSTEM.



AND YOUR LIVING ROOM WILL SOUND A BIT BIGGER.



Hold on to your popcorn! Sansui introduces CinemaSurround: the sensory experience of 360° theatre sound brought right into your home.

With our DS-77 Sound Processor, you'll see, hear and feel the difference as CinemaSurround totally envelops you.

We admit this could cause sensory overload. So try it without the movie. CinemaSurround enhances everything from radio to records. From cassettes to compact discs.

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CinemaSurround. The experience is so incredible, you could sell tickets.

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Putting More Pleasure in Sound.

Sansui's SX-700 is the most intelligent choice for upgrading your system or beginning a new one.

Sansui takes performance to heart. That's why our new SX-700 AM-FM stereo receiver belongs at the heart of your system. With solid power,* it easily handles the surges and dynamic highs of digitally-sourced music.

Engineered for performance and designed for durability, the SX-700 has a metal chassis, cover and faceplate, not plastic like some of our competitors. It also features solid feel knobs and buttons, which let you know at first touch that the SX-700 is a first class performer.

Put Sansui's SX-700 at the heart of your system and get pure performance without missing a beat. The idea is just as smart as it sounds.

*40 watts per channel, minimum RMS, both channels driven into 8 ohms at 20-20,000 Hz, with no more than 0.041% THD.

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Sansui Electronics Corp., Lyndhurst, NJ 07071, Carson, CA 90746



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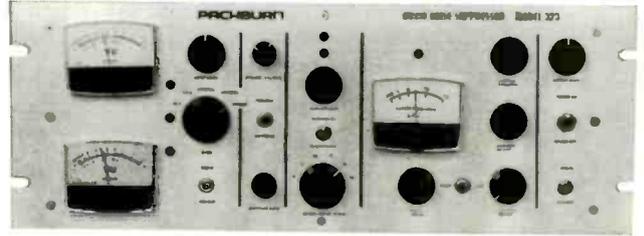
AMBIENCE & SURROUND-SOUND PROCESSORS

MANUFACTURER	MATRIX CODE A—Ambisonics D—Dolby Surround H—Hafner Dynquad QS—QS SQ—SQ O—Other	UNIT TYPE										DELAY FUNCTIONS					OUTPUT CODE 2F—Left & Right Front 3F—Left, Center, & Right Front 2B—Left & Right Back 3B—Left, Center, & Right Back 2S—Left & Right Sides SW—Subwoofer
		Model (RI) = Remote Included; (RO) = Remote Optional	A/D	D	F/P	2F, 2B	30	0	3	†	0.3	90	60	No	1	4	
		Matrix—See Code	Time Manipulation: Delay = D, Reverb = R	Other Manipulation Techniques: Frequency Separation = F, Comb Filter = C, Phase Manipulation = P, Dither = O	Number and Use of Outputs—See Code	Delay Time, mS	Number of Hall/Room Simulations	Hall/Room Manipulation: Shape (High/Low/Both) = V, Rate = S	Continuous Amp Power, Watts	THD, %	S/N Ratio, —dB	Channel Separation, dB	Stereo Simulation?	Number of Tape Monitors	Video Inputs?	Price, \$	Notes
AKAI	AS-P302(RI) AS-P205(RO)	A/D A	D D/R	F/P F/P	2F, 2B 2F	30	0	3	†	0.3	90	60	No	1	4 No	300.00 165.00	†25 watts x 2 on rear channel.
APHEX SYSTEMS	AVM8000(RI)	SQ/O†			3F, 3B, 2S, SW					0.06	95	††	No	1	No	895.00	†Dolby-compatible cinema mode. ††Adjacent channels, 15 dB; opposite channels, 60 dB.
AUDIOSOURCE	SS-One AV-Three AV-Four	D H H	D	F/P P P	2F, 2B 2F, 2B	10-50	Var.		15 x 2 15 x 2	85 80		Yes Yes	5 5	No Yes	289.95 199.95 199.95	With two LS-Ten speakers, \$339.95. DNR, 5-in/5-out A/V switcher, video fader and enhancer. DNR, graphic EQ, 5-in/3-out A/V switcher.	
CANON	SP-10	D		P	2F, 2B					0.003	90		Yes	3	Yes	269.00	Input mixer, A/V switcher.
DENDN	AVC-500H	D	D	F/C/P	2F, 2B		2	V	30 x 2	0.3	90		Yes	3	Yes	375.00	Includes five-band graphic EQ; video enhancer switch.
DYNAVECTOR/AUDIO INTERFACE	SSP-1	O	D	O	2F, 2B	Var.	2	V		0.005	80	60	No			500.00	Frequency-dependent analog delay (not BBD).
KENWOOD	SC-75	D	D/R		2B	10-30	2		5.2 x 2	0.9	80		No	0	No	235.00	Optional speakers, \$49.00 per pair.
LUXMAN	F-105(RI)	A/D SQ/O	D		3F, 2B	10-35			25 x 2	0.05	80		Yes	2	Yes		
MARANTZ	AVS351	D	D	C	2F, 2B	15-30			20 x 2	0.25			Yes	1	No	300.00	With two minispeakers.
NEC	AV-300E(RI) AVD-700E (RI) A-1300E(RI)	D/O D/D D/O	D D D		3F, 2B, 2S, SW 3F, 2B, 2S, SW 2F, 2B	20 20 0-92			30 x 4, 60 x 2 50 x 4, 130 x 2	0.045 0.005 0.05	100 100 90	60	Yes No Yes	1 1 2	Yes Yes No	499.00 699.00 699.00	
PARASOUND	PVA-1 VSE-1	D H	D D	F/P F/P	2F, 3B 2F, 2B	5-30	1 1		18 x 2 12.5 x 2	0.5 0.5	80 80		Yes Yes	2 2	4 2	479.95 129.95	Stereo expander, antenna switch.
PIONEER	SP-101 SP-X707(RI) VSA-30(RI)	D	D D		3F, 2B †			Sel. Sel.	††	0.5 3.0	85 60	60	Yes Yes	1 1	No No	350.00 319.95	Includes bass synthesizer. †Front outputs, two fixed and two variable; two back outputs. ††30 watts per channel on rear only.
REALISTIC	15-1278	O	D	O		5-20				0.2		55	Yes	1		89.95	DNR, stereo expander.
SANSUI	DS-77 AV-C10	QS QS	D D		3B 2B		2 2		10 x 2 15 x 2				Yes Yes		Yes Yes	400.00 320.00	
SANYO	SA100	D/O	D	None	2F, 2B	15-30			20 x 2	0.05	80 dBA		Yes	0	No	199.95	
SHURE	HTS5000(RI) AVC20(RI)	D D/D	D D/R	O F/C/P	3F, 2B, SW 3F, 2B, SW	16-36 20	1 3		16 x 2 30 x 4, 60 x 2	0.1 0.1	90 90	65 60	Yes Yes	1 3	No 3	599.00 599.00	Stereo expander and synthesizer, digital delay.
SONY	SDP-505ES	D/O	D/R	O	2F, 2B, SW	0-90			16 x 2	0.008	90		Yes			700.00	Full digital (16-bit, 44.1-kHz) delay processing.
SURROUND SOUND	SSI-720(RI) SSI-360H	D D	D/R D/R	F/P/O F/P/D	3F, 2B, SW 3F, 2B, SW	0-30 10-30	5 Var.		25 x 2	0.015 0.025	110 105	90 75	Yes Yes	1 1	No No	599.95 379.95	Full-logic decoding. Center-logic decoding.
TEAC	AV-5500	D/O	D	C/P	3B	5-30			12 x 2	1	55		Yes		Yes	599.00	Video fader, enhancer.
TECHNICS	SH-AV44	D/O	D	P	3F, 2B	15-30			25 x 2	0.1	90		Yes	1	3	350.00	
3D ACOUSTICS	10	O	D	P	3F, 2B, SW											295.00	Passive; built into subwoofer; also available as part of Models 610 System and 610 Surround speakers.
YAMAHA	DSP-1(RI) SR-50 AVC-50	D/O D D	D/R D D	F/C/P/D C C	5F, 2B, SW 2F, 2B 2F, 2B	† 10-30 10-30	12 4 4	V/S	25 x 2 45 x 2	0.002 0.03 0.05	110 106 103	65	No Yes Yes	1 1 2	2	849.00 279.00 449.00	†1 to 3500 mS. Digital delay processing.

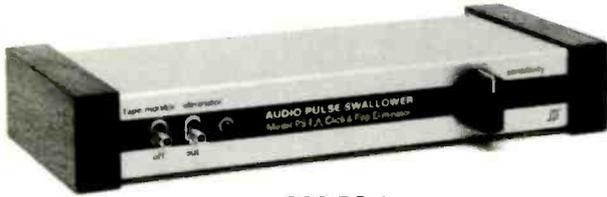
SIGNAL PROCESSORS



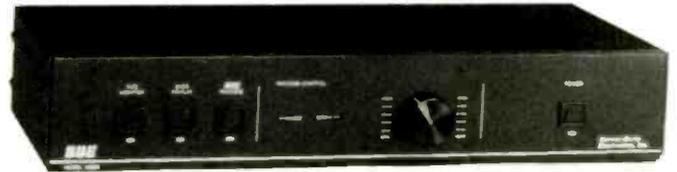
AUDIO CONTROL PHASE COUPLED ACTIVATOR



PACKBURN 323



SSS PS-1



BARCUS-BERRY 2002R

MANUFACTURER	Model (R) = Remote Included, (RP) = Remote Optional	Type of Processing	Function: Closed Loop = C, Open Loop = O, Transient = T	Application: Type Rec. = R, Mono = 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 kHz, \pm dB	Price, \$	Notes
ACE AUDIO	4000	Subsonic Filter		RPF	No	†	RP	0.002	20-20 +0,-3	98.50	†18 dB/octave slope below 20 Hz.
	4100	Infra/Ultrasonic Filter		RPF	No	†	RP	0.002	20-20 +0,-3	108.50	†Low, 18 dB/octave slope; high, 12 dB/octave.
	4000-X24	Subsonic Filter		RPF	No	†	RP	0.002	20-20 +0,-3	132.00	†Low, 24 dB/octave slope.
	4100-X24	Infra/Ultrasonic Filter		RPF	No	†	RP	0.002	20-20 +0,-3	142.00	†Low, 24 dB/octave slope; high, 12 dB/octave.
AUDIO CONTROL	Phase Coupled Activator	Proprietary	O	U	No		RP	0.005	30-20 \pm 0.5	259.00	Video inputs; restores lower frequencies.
BARCUS-BERRY ELECTRONICS	2002	Load Reactance Compensation	O	U			RP	0.1	20-20 \pm 0.2	250.00	Compensates for amp/speaker interface problems.
BOULDER AMPLIFIERS	Body Builder	Variable Harmonics Generator	O	U		None	RP		20-20 \pm 0.1	399.00	Simulates tube sound.
DBX	3BX-DS	Dynamic Expander	O	U		20 @ 20-20k	RP	0.15	20-20 \pm 0.5	499.00	Three-band expansion, OverEasy compression, impact restoration circuit.
	1BX-DS	Dynamic Expander	O	U		20 @ 20-20k	RP	0.15	20-20 \pm 0.5	279.00	As above but one-band (full-band) processing.
	224X-DS	dbx Type II	C	RV	Yes	40 @ 20-20k	RP	0.1	40-20 \pm 0.5	299.00	Two tape monitors, with dubbing.
	150X-DS	dbx Type I	C	R	Yes	40 @ 20-20k	RP	0.1	20-20 \pm 0.5	249.00	For recorders with response of 20 Hz to 20 kHz, \pm 1 dB (such as 15 ips or PCM); expands PCM dynamic range to 115 dB.
NUMARK	NR 400	2:1 Compressor	O	RV		20 @ 10k	RP	0.08	10-30 \pm 1	299.95	
PACKBURN	123	Transient, Dynamic NR	OT	U	No	Varies	RP	0.05	Sel.	1950.00	Mono, for playing old records; has three NR processors.
	323	Transient, Dynamic NR	OT	U	No	Varies	RP	0.05	Sel.	2450.00	Mono/stereo; has three NR processors.
PIONEER	EX-9000	Dynamic Range Expander	C	U				0.8		229.95	Three-band expansion: 50 Hz, 500 Hz, and 5 kHz.
SYMMETRIC SOUND SYSTEMS	ASRU	Noise Filter/Expander	O	U		18	P	0.2	20-20 \pm 1	190.00	Kit, \$120.00.
	PS-1	Click Eliminator	D	P			P	0.1	20-20 \pm 1	129.95	Kit, \$79.95.
YGGDRASIL DESIGNS	EX 110(RI)	Expander	O	U	No	20	P	0.01	15-30 \pm 0.5	500.00	Remote control of sensitivity, expansion, and release time.
	EX 120	Expander	O	U	No	20	P	0.01	15-30 \pm 0.5	350.00	
	DF 100(RI)	Dynamic Filter	D	U	No	30	P	0.01	15-30 \pm 0.5	600.00	Remote control of sensitivity and release time.
	DF 125	Dynamic Filter	O	U	No	30	P	0.01	15-30 \pm 0.5	400.00	

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RE71.



Here in the land of the Double Nickel, "racing heritage" and "winning performance" are easy to assert. Hard to test.

So we launched our new V-rated RE71 Potenza at the track. We made it available in 1985 to SCCA competition license holders, hoping they would carry it into the crucible of competition. We were not disappointed.

Neither were they.

A winner in its first season of showroom stock,* the RE71 showed particular aptitude for the endurance end of the racing spectrum—good news for those who like their thrills to last.

And now—just as we announce general availability of RE71s—someone *has* put them to a test. The February '86 *Car and Driver* reports

on their comparison of ten 50-series radials. And the RE71 did so well, we recommend a quick lap of the public library to check out the results.

None of this is a surprise when you consider this Potenza's pedigree. The V-rated RE71's unidirectional tread pattern is daringly similar to that of our European Formula 3000 racing rain tire. Its race-bred crown contour and high-grip compound are designed for crisp handling on dry surfaces. And its hard-rubber insert near the rim reduces sidewall flex for cornering dexterity.

See the complete line of Bridgestone Potenza performance radials at your Bridgestone retailer. For the one nearest you, call 1-800-453-9000.

*Tires shaved to racing depth.

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BRIDGESTONE

WHERE NEW IDEAS TAKE HOLD.

CROSSOVERS

MANUFACTURER	Model	Type: Active = A, Passive = P, Combined Active & Passive = C	Mono = M, Stereo = S, Other = O	Number of Frequency Bands per Channel	Crossover Frequency(s), Hz	Crossover Slope(s), dB per Octave	Independent High and Low-Pass Frequency Selection?	Frequency Selectivity	Variable = V, Plug-In Modules = P	Subwoofer Output: Stereo = S, Mono = M, Inverted for Mono Bridge = B	Level Control: High-Pass = H, Midrange = M, Low-Pass = L (For Total Number of Controls)	S/M Ratio, - dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
ACCU PHASE	F-15	A	S	3	70-12.5k	18/12	Yes	P		H/M/L	100	0.003					1850.00	
ACE AUDIO	6000	A	M/S/X	2, 3	200-18k	12	Yes	P	S/M	†	90	0.002	1.0	100k	100	156.00	†Either high- or low-pass control.	
	6000-6	A	M/S/X	2, 3	40-18k	6	Yes	P	S/M	†	90	0.002	1.0	50k	100	175.00	†As above.	
	6000-6-SF	A	M/S/X	2, 3	40-18k	6	Yes	P	S/M	†	90	0.002	1.0	50k	100	200.00	†As above. 18-dB/octave subsonic filter.	
	5000	A	X	2	†	18	Yes	F	S/M/B	L	90	0.002	1.0	50k	100	161.00	†100 Hz standard, others (from 40 to 200 Hz) available. Kit, \$120.00.	
	5000-6	A	X	2	†	††	Yes	F	M/B	L	90	0.002	1.0	50k	100	161.00	†Crossover frequency as above. ††6 dB on satellites, 18 dB on woofer.	
	6500-DSB	A	M/S/X	2, 3	40-199	12	Yes	P	†	H/M/L	90	0.002	1.0	50k	100	156.00	†Stereo or mono subwoofer outputs.	
	6000-SF	A	M/S/X	2, 3	200-18	12	Yes	P	S/M	H/M/L	90	0.002	1.0	100k	100	181.00	18-dB/octave subsonic filter.	
	5000-SF	A	X	2	†	18	No	F	M/B	L	90	0.002	1.0	50k	100	186.00	†100 Hz standard, others (from 40 to 200 Hz) available. Filter as above.	
6500-SF	A	S/X	2	40-199	12	Yes	P	S/M	H/M/L	90	0.002	1.0	100k	100	181.00	Filter as above.		
APOGEE ACOUSTICS	Active Crossover	A	S	3	200-400, 5k-8k	6	Yes	V	No	H/M/L	100	0.01		100k	560	1000.00		
ATHENA	T/C-1	A	S	2	15-15k	12/6	No	V	S	H/L	96	0.01	0.75	100k	560	1100.00		
	TC-2	A	S	2	15-15k	12/6	No	V	S	H/L	96	0.01	0.75	100k	560	1800.00		
AUDIO CONCEPTS	Shadow MKIV	A	S/X	2, 3	50-5k	18, 6	No	P	S/M	L						249.00	Kit. Fixed-frequency kit with larger power supply, \$289.00.	
AUDIO CONTROL	Phase Coupled Activator	A	S	2	20-20k	18	No	P	S	L	118	0.005	1.0	100k	150	259.00	Proprietary Sound Restoration circuits.	
	Richter Scale	A	S/X	2	20-20k	24	No	P	S/M/B	L	120	0.005	1.0	100k	150	349.00	Linkwitz-Riley alignment; 1/2-octave EQ and analyzer.	
AUDIO RESEARCH	EC21	C	X	2	50-5k	6/18, 6/6		F	M	L	90	0.01	0.75	50k	500	795.00	Passive 6-dB high; active tube-based 6/18-dB low.	
BGW SYSTEMS	20	A	X	3†	10-19k	18	Yes	S/P	M	5	91	0.02	0.1	15k	22	829.00	†Also usable as mono 4-way. Balanced line; 10-Hz filter.	
	Xover 1	A	M	2	100-8k	18	No	S	M	No	100	0.02	1.0	15k	100	99.99	Accessory p.c. board for power amps; requires ±16 to ±100 V.	
BIAMP SYSTEMS	SX-23	A	O	†	100-10k	18	Yes	S/V	S/M	4	103	0.01	0.775	10k	150	499.00	†Usable as stereo 2-way or mono 3-way.	
	SX-35	A	D	†	50-5k, 200-20k	18	Yes	S/V	S/M	6	103	0.01	0.775	10k	150	599.00	†Usable as stereo 3-way or mono 5-way.	
BROOKE SIREN SYSTEMS	FDS360	A	O	†	Opt.	24	Yes	P		4	105	0.05	0.75	10k	††	1025.00	†Usable as stereo 3-way or mono 4-way. ††0.05 ohm for 600-ohm load.	
DAX	321	A	M/S	2, 3	100-1.6k, 1k-16k	18	Yes	V	S/M	H/M/L	90	0.01	0.75	Sel.	Sel.	359.00		
DB SYSTEMS	DB-3-18	A	S/X	2, 3	Opt.	18†	Yes	F	S/M/B	H/M/L	86	0.0008	1	90k	1.4k	From 400.00	†6 or 12 dB also available.	
	DB-3-24	A	S/X	2	Opt.	24	Yes	F	S/M/B	H/L	100	0.003	1	90k	1.4k	570.00		
	DBR-3XL	A	S/X	2	50, 70, 100, 150	18	No	S	S/M	H/L	86	0.0008	1	90k	1.4k	650.00		
DBX	120X	A	X	2	50-210	12/6	No	V	M	4	95	0.05	1			299.00	Phase-coherent; includes bass synthesizer.	
DE COURSEY	120-B4	A	M/S/X	2	Opt.	18/12/6	Yes	P	S/B	Opt.	90	0.008	9	100k	100	153.00	Optional subsonic and bass boost filters.	
	120-T8	A	M/S/X	3	Opt.	18/12/6	Yes	P	S/B	Opt.	90	0.008	9	100k	100	253.00	As above.	
	120-Q8	A	M/S/X	4	Opt.	18/12/6	Yes	P	S/B	Opt.	90	0.008	9	100k	100	337.75	As above.	
DENNESEN	Xover	A	S/X	2	80-200	24	No	P	S/M	H			1	47k	100			
DUNTECH	Thor	A	M/S	1	110	6	Yes	F	S/M	L	93	0.002	0.80	20k	120	225.00		
FOCAL	EC-1000	A	S	3	95/130/390, 2.3k/3.9k/5.5k	24, 24	Yes	V	S	H/M/L						230.00	Kit.	
GOLD SOUND	AX-1	A	S	2	60-16k	18	No	V	S	H	90	0.05	1	15k	470	360.00		
GSI	X-1-2	C	O	2	10-20	12	Yes	F	S†	H/L	92	0.001	1	100k	10k	275.00	†Optional mono subwoofer output.	
	X-13	C	O	3	10-20	12	Yes	F	S†	H/M/L	92	0.001	1	100k	10k	375.00		
JANIS	Interphase 1-A	A	X	2	100	18	No	F	M	L	98	0.01	0.6	200k	100	675.00	Integral 100-watt bass amp.	
	60-18	C	X	2	63	6, 18	No	F	M	L	98	0.01	0.6	200k	100	395.00	As above but 60 watts.	
	Interphase 3-A	A	X	2	100	18	No	F	M	L	96	0.02	0.6	200k	100	†	†Included with Model 3/A subwoofer. As above but 50 watts.	

CROSSOVERS

MANUFACTURER	Model	Type: Active = A, Passive = P, Combined = C, Active & Passive = P.			Number of Frequency Bands per Channel	Crossover Frequency(s), Hz	Crossover Slope(s), dB per Octave	Independent High and Low-Pass Frequency Selection?	Frequency Selectivity	Variable = V, Plug-in Modules = P	Subwoofer Setting: Fixed = F, Switchable = S, Inverted for Mono Bridging = B	Subwoofer Output: Stereo = S, Mono = M, Level Control: High-Pass = H, Wide Range = W, Low-Pass = L (for total number of Channels)	S/M Ratio, -dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
		mono = M, Stereo = S, Other = O	Mono = M, Stereo = S, Other = O	Mono = M, Stereo = S, Other = O															
JRM	3BPB/X4	A	O	4	10-2k, 100-5k, 100-50k	18	Yes	P	S/M/B	8†	110	0.01	Sel.	50k	100	750.00	†1-dB steps. Stereo, mono, and bridging outputs for all sections; infrasonic and ultrasonic filters. As above.		
	3BPB/X2	A	O	2	10-5k, 100-50k	18	Yes	P	S/M/B	4†	110	0.01	Sel.	50k	100	450.00			
JS AUDIO	2CX	P		2	3k	12, 18					91					150.00			
	3CX	P		3	700, 4k	12/12, 12/18					94					Pair 200.00	Pair		
KINETIC AUDIO	Three-Point	P	M	3	60, 90, 180	6	Yes	S	M	H/M	95	0.01		8	Var.	150.00	For use with small speakers.		
	Four-Point	P	M	4	60, 90, 180, 350	6	Yes	S	M	H/M	95	0.01		8	Var.	150.00	For use with subwoofers.		
KRELL	KRX	A	S	3	0.05-20k	6 or 12	Yes	P	S	H/M/L	100	0.001	1	100k	47	1400.00	External power supply.		
MARK LEVINSON	LNC-2	A	S	2	Sel.	Sel.	Yes	P		H/L						3125.00	Three-way version, \$3625.00.		
NAIM AUDIO	NAXO 2/4	A	S	2	2.5k	18	No	P								695.00			
	NAXO 3/6	A	S	3	375, 3k	18	No	P								695.00			
NELSON-REEO	AC 1204	A	M/S	2	62	6/12/24/48	No		S/M	L	118	0.007	†	33k	600		†Maximum, 20 V peak to peak.		
NESTOROVIC LABS	NL 12	A	S	†	200, 1k	18, 12	No	F	S	H/M/L	90	0.01	1	50k	100	660.00	†2- or 3-way, switch-selectable.		
NIKKO	CO-23	A	M/S	†		12/18	Yes	S	S	H/L	90					749.95	†Usable as stereo 2-way or mono 3-way.		
RANE	AC 22	A	M/S	†	75-3.6k	24	No	V		H/L	92	0.02	0.75	20k	100	389.00	†Usable as stereo 2-way or mono 3-way. Linkwitz-Riley alignment.		
	AC 23	A	M/S	†	70-1k, 450-7k	24	Yes	V		H/M/L	92	0.02	0.75	20k	100	499.00	†Usable as stereo 3-way, mono 4-way, or mono 5-way. Alignment as above.		
ROHRER	DX100	P	M	2	100	6	No	F	M	No						300.00	Pair		
SIDEREAL AKUSTIC	Dahlia	P	S	2	3k	24											†Plans and capacitors, \$159.00; plans and all electrical components, \$199.00.		
	Jordan	P	S	2	150	12											†Plans and all electrical components, \$279.00/channel; with smaller gauge inductors and different capacitors, \$139.00/channel.		
STRELIOFF	EX 1	C	S	4	Sel.	Sel.	Yes	P	S	4	97	0.01	1.0	Sel.	Sel.	850.00	Special order; requires RS 1 power supply.		
	EX 11	C	O	4	Sel.	Sel.	Yes	P	S	4	102	0.01	1.0	Sel.	Sel.	1250.00	Special order; dual mono; requires RS 11 power supply.		
	XM 1	C	M	3	Sel.	Sel.	Yes	P	M	3	97	0.01	1.0	Sel.	Sel.	550.00	Special order.		
SUMO	Dahlia	A	S	2	50, 63, 80, 100, 120	†	Yes	S	S/M/B	L	95	0.007	2	50k	100	399.00	†Low-pass, 12 or 18 dB/octave; high-pass, 12 dB/octave.		
THRESHOLD	PCX	A	M/S/X/O	2	75-1.6k, 750-16k	18	No	P	S/M/B	H/L		0.01		20k	1.5k	1290.00			
VANDERSTEEN AUDIO	WX-4	C	S	2	80	6	No	F	S	L	90	0.01	0.75	100k	400	450.00			
VENDETTA RESEARCH	TPC-1	A	S	2	60-300	6/12	No	V	S	L	100	0.01	1	24k	100	450.00			
VMPS	2 (TPC-1) Passive Crossover	A	S	2	60-300	6/12	No	V	S/M	L	100	0.01		24k		449.00	Quasi-second-order.		
		P	M	2	100	6/12	No	F	M	H						40.00			

The Sound of Perfection.



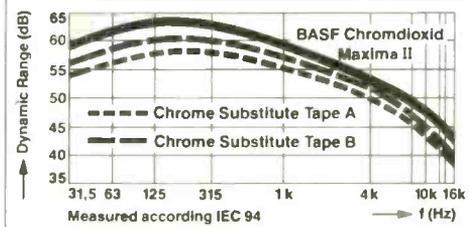
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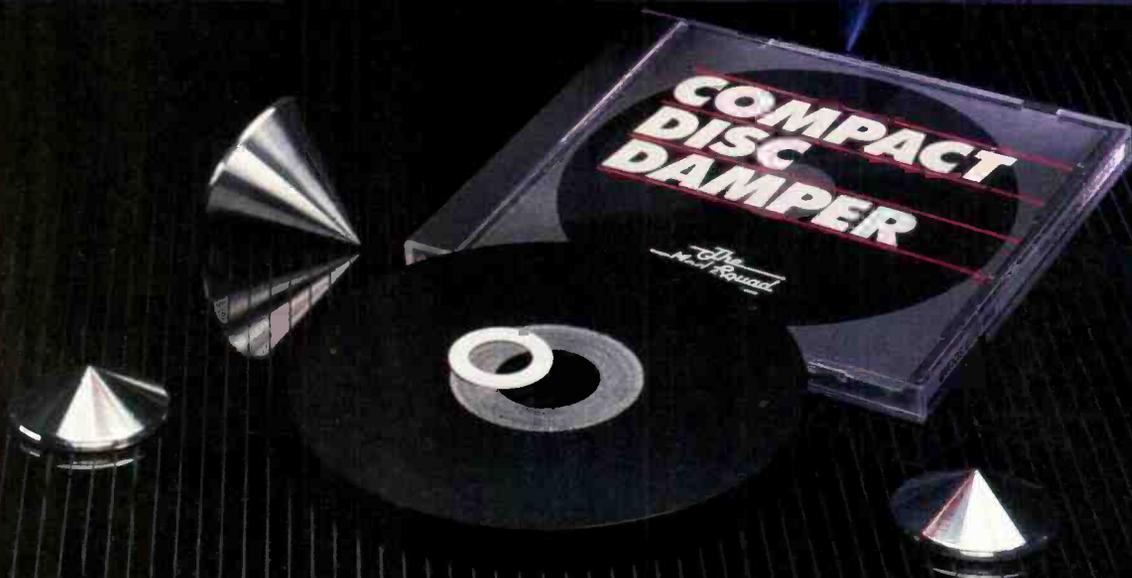
VHS	VR9565	VHS	VHS	I	T	M	M	20-20	0.47	Yes	80	0.005	Yes	21/8	Yes	Yes	No	3/3	1299.00
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Hi-Fi VCRs

MANUFACTURER	Model	Format	Portable = P, Table Model = T	Standard Audio Tracks: Mono = M, Stereo = S	Frequency Response, Hz to kHz, \pm dB	Audio S/N Ratio, -dB, re. 0 dB	THD, %	Separation, dB, at 1 kHz	Simultaneous Recording?	Dynamic Range, dB	Wow & Flutter, Wtd. Peak, %	Stere TV (MS SMP) Capability: Built into Tuner = B, Decoder Jack = J	Programmability: Number of Days/Number of Events	Phone Jack?	Volume Control on Phone Jack?	Number of Tape Speeds, Record/Play	Price, \$	
MARANTZ	VR460	VHS	T	M	20-20	80	0.3	Yes	80	B	21/4	Yes	Yes	Yes	3/3	700.00		
	VR465	VHS	T	M	20-20	80	0.3	Yes	80	B	21/4	Yes	Yes	Yes	3/3	800.00		
	VR550	VHS	T	D	20-20	80	0.3	Yes	80	B	21/8	Yes	Yes	Yes	3/3	900.00		
	VR560	VHS	T	D	20-20	80	0.3	Yes	80	B	21/8	Yes	Yes	Yes	3/3	1000.00		
MINOLTA	MV-60	VHS	T	S	20-20	81		Yes	80	0.005	Yes	14.4	No	Yes	Yes	3/3		
MITSUBISHI	HS-411	VHS	T	M	20-20	90	0.3	60	No	0.005	B	14.8	No	No	Yes	3/3	680.00	
	HS-421	VHS	T	M	20-20	90	0.3	60	Yes	0.005	B	14.8	No	Yes	Yes	3/3	850.00	
NEC	N-965U	VHS	T	D	20-20		0.003	60	Yes	80	0.005	B	21/8	No	Yes	Yes	3/3	1149.00
	N-955U	VHS	T	D	20-20		0.003	60	Yes	80	0.005	B	21/4	No	Yes	Yes	3/3	899.00
PANASONIC	PV-1742	VHS	T		20-20	60		Yes		0.015	B	21/8	Yes	Yes	Yes	3/3	1250.00	
	PV-1642	VHS	T		20-20	60		Yes		0.015	B	21/8	Yes	Yes	Yes	3/3	1000.00	
	PV-9600A	VHS	P		20-20	60		Yes		0.015	B	14.8	Yes	Yes	No	3/3	1450.00	
	PV-1564	VHS	T		20-20	60		Yes		0.015	J	14.4	Yes	Yes	Yes	3/3	850.00	
PENTAX	PV-T150A	VHS	T	M	20-20			Yes	80	0.005	B	14.4	No	Yes	Yes	3/3		
PIONEER	VH-900	VHS	T	M	20-20			Yes	80	0.005	B	14.4	Yes	Yes	Yes	3/3	1099.00	
	VX-90	Beta	T	M	20-20			Yes	80	0.005	B	21.8	Yes	Yes	Yes	2/3	1500.00	
QUASAR	VH5665	VHS	T	S							B	21.8	No	No		3/3	1049.95	
	VH5865	VHS	T	S							B	21.8	Yes	No		3/3	1289.95	
	VP5757	VHS	P	S							B	14.8	No	No		3/3	979.95	
RCA	VMT 670 HF	VHS	T		20-20			Yes	80		B	365.8	Yes	Yes	Yes	3/3		
	VMT 630 HF	VHS	T		20-20			Yes	80		B	365.4		Yes	Yes	3/3		
	VMT 595	VHS	T	D				Yes			B	365.4				3/3		
	VMT 395	VHS	T	D				Yes			B	365.4				3/3		
	VMT 295	VHS	T	D				Yes			B	14.2				3/3		
REALISTIC	41 (16-611)	VHS	T	D	20-20	80		Yes	80		B	14.5	Yes			3/3	599.95	
SANSUI	SV-R9700HF	VHS	T	S	20-20		0.005	Yes	80	0.005	B	14.8	Yes	No	No	2/3	1100.00	
	SV-R9500HF	VHS	T	S	20-20		0.005	Yes	80	0.008	B	14.4	Yes	No	No	2/3	900.00	
SANYO	VHR1900	VHS	T	M	20-20	65	0.005	69.8	Yes	80	0.005	B	14.8	No	Yes	Yes	3/3	749.95
	VHR2900	VHS	T	D	20-20	65	0.005	67.5	Yes	80	0.005	B	365.8	No	Yes	Yes	3/3	719.95
SCOTT	SVR-504S	VHS	T	M	20-20 +0.3	80	0.05	45	Yes	80	0.005	B	14.8	Yes	Yes	No	2/3	849.95
	SVR-330S	VHS	T	M	20-20 +0.3	80	0.05	45	Yes	80	0.005	B	14.4	Yes	Yes	No	2/3	749.95
SHARP	VC-H64U	VHS	T	S		64		45	Yes	80		J	14.4	Yes	No	No	3/3	699.95
	VC-H65U	VHS	T	S		65		45	Yes	80		B	14.6	Yes	No	No	3/3	819.95
SONY	SL-HF450	Beta	T	S	20-20 +0.3			Yes	80	0.005	B	7.6	No	Yes	Yes	2/3	750.00	
	SL-HF7	Beta	T	S	20-20 +0.3			Yes	80	0.005	B	7.6	No	Yes	Yes	2/3	1000.00	
	SL-HF750	Beta	T	S	20-20 +0.3			Yes	80	0.005	B	21.8	No	Yes	Yes	3/3	1300.00	
	SL-HF1000	Beta	T	S	20-20 +0.3			Yes	80	0.005	B	21.8	Yes	Yes	Yes	3/3	1700.00	
STRELIOFF	DXD 1	VHS	T	S	15-17.5 \pm 2	80	0.01	80	Yes	86	0.01	B	14.4	Yes	Yes	No	3/3	2500.00
SYLVANIA	VC8970	VHS	T	M	20-20	60	0.47		Yes	80	0.005	Yes	21.8	No	Yes	No	3/3	1199.00
TEAC	MV-900	VHS	T	S	20-20	95	0.005		Yes	90	0.008	B	14.8	Yes	Yes	Yes	2/3	
	MV-600	VHS	T	S	20-20	95	0.005		Yes	90	0.008	B	14.4	Yes	Yes	Yes	2/3	
TOSHIBA	M5900	VHS	T	M	20-20 +0.2	74	0.1	60	Yes	90	0.005	B	7.4	Yes	Yes	Yes	2/3	1095.00
	DX-7	VHS	T	M	20-20 +0.2	74	0.1	60	Yes	90	0.005	B	7.4	No	Yes	Yes	2/3	
VECTOR RESEARCH	V-4020	VHS	T	M	20-20 \pm 2	90	0.5	65	Yes	90	0.005	B	21.4	No	Yes	Yes	3/3	749.95
	V-4040	VHS	T	M	20-20 \pm 2	90	0.5	65	Yes	90	0.005	B	21.4	No	Yes	Yes	3/3	849.95
	V-5000	VHS	T	M	20-20 \pm 2	90	0.5	65	Yes	90	0.005	B	21.8	No	Yes	Yes	3/3	999.95
	V-5040	VHS	T	D	20-20 \pm 2	90	0.05	65	Yes	90	0.005	B	21.8	No	Yes	Yes	3/3	1099.95
YAMAHA	YV1000	VHS	T	M	20-20 +0.3	80	0.015	60	Yes	80	0.005	B	14.8	Yes	Yes	Yes	2/2	999.00
ZENITH	VR2200	VHS	T		20-20		0.8	60		80	0.008	B	14/4			2/3		
	VR3200	VHS	T		20-20			60		80	0.008	B	14/8	Yes		2/3		
	VR4100	VHS	T	D	20-20			60		80	0.008	B	14.8	Yes		2/3		
	VR5100	VHS	P		20-20			60		80	0.008	B	14.8	Yes		2/3		
											wims	B	14.8	Yes		2/3		

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Earl C. Hudson, Audiogram 21, June 1986

"The Mod Squad Compact Disc Damper is an inexpensive device that gives better sonic results than any \$25 device has a right to. If it will fit in your CD player, it comes with my highest recommendation."

Allen Edelstein, Stereophile, vol. 9, #5, August 1986

Line Drive

"For those who want a really high-quality preamplifier for CD playback, the clever folks at The Mod Squad have introduced their Line Drive. It has proven to be an excellent performer. Its sound is very neutral and clean, with an open transparent quality, a nice preservation of depth, and good, stable imaging. The unit is extremely quiet and does not degrade the SIN ratio of even the most expensive CD player."

Bert Whyte, Audio Magazine, June 1986

"Line-level-only preamps have been enjoying something of a renaissance. The Mod Squad has joined the fray with a smart model called the Line Drive System Control Center and it sports the immaculate finish we've learned to expect from things which emanate from the fertile mind of Steve McCormack."

Ken Kessler, Hi-Fi News & Record Review, August 1986

Tiptoes

"The use of Tiptoes will increase the clarity, inner resolution and detail, and dynamic range of almost any audiophile system."

Sensible Sound

"The large Tiptoes, placed under loudspeakers, offer a truly dramatic improvement in sound quality, not merely a subtle difference."

Audio Magazine

CUSTOMER LETTERS, 1986

■ *"I am writing to give you some positive feedback on your Line Drive. I was just amazed by the increase in clarity it provides. The best single investment I have made in my system—a dramatic improvement, not just incremental."*

■ *"I have just received my modified Mission DAD 7000R and want to pass my impressions on to you. The high end is more natural and lifelike, the upper midrange is smoother, and the greatest improvement is in the bass. Overall [the modification] makes a great difference. (P.S. In all my contacts over the phone, your people were helpful, courteous, patient and professional—a pleasure to deal with.)"*

■ *"Wow! I could hardly believe what a difference your damper made in my Sony CD player. It sounds so much smoother and more natural. I've never spent so little money and heard so much improvement. Thank you for a really great product."*

■ *"My purpose in writing to you is to thank you. Not for the quality of work which goes without saying, but instead for the professional yet personal nature in which you conduct your business. Because of the attitude of each and every person, an aura of trust, professionalism, competence and care is immediately apparent. You provide me with a valuable example for my own business."*

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The Mod Squad

LOUDSPEAKERS

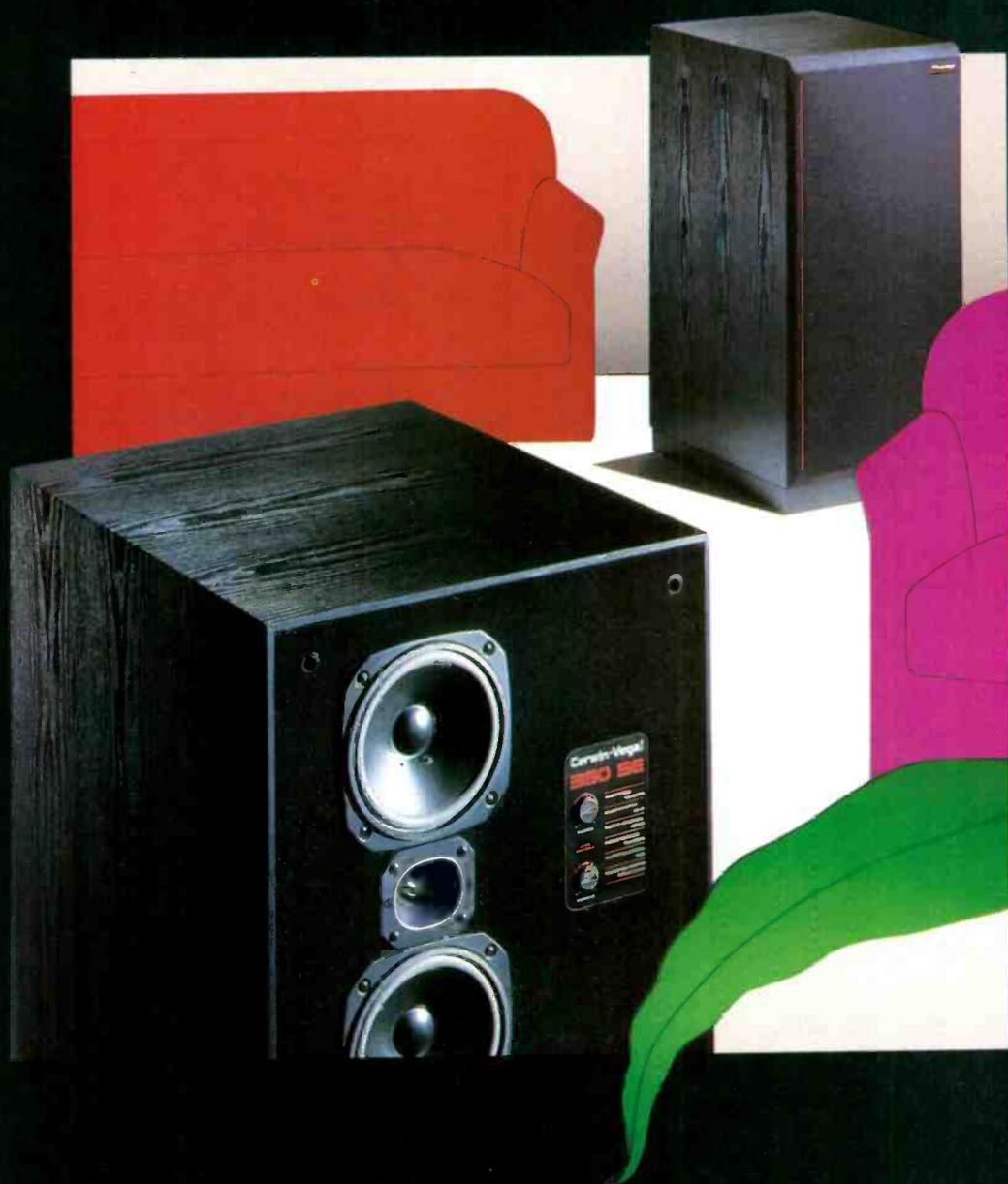
MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Cutoff? Woofer = W, Midrange = M, Tweeter = T, Superwoofer = ST	Ancholic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt 1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz		Impedance, Ohms		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
													Nominal/Minimum								
AAL	D2500	Vented	6½			2½	Horn		65-22	91.5	5	2k	8/4	9 x 12 x 7	Wal. Vinyl	Black Cloth	12	260.00	Pair		
	D8500	Vented	15	5	Cone	1	Dome		37-22	98.5	5	2k,5k	8/4	18 x 30 x 14	Wal. Vinyl	Black Cloth	63	980.00	Pair		
	D3500	Vented	8			2½	Piezo Horn		60-20 ±3	94.5	5	3k	8/4	19 x 11 x 8	Wal. Vinyl	Brown Knit	38	169.95	Pair		
	D4500	Vented	10	5	Cone	2½	Piezo Horn		45-22 ±3	95.5	5	2.7k,6k	8/4	24 x 15 x 10	Wal. Vinyl	Brown Knit	34	249.95	Pair		
	D5500	Vented	12	5	Cone	2½,3	Piezo Horn		43-22 ±3	96.5	5	1.7k,6k, 15k	8/4	27 x 16 x 10	Wal. Vinyl	Brown Knit	40	349.95	Pair		
	D9500	Vented	12	(2)5	Cones	2½,3	Cone Piezo Horn, Cone		32-22 ±3	99.5	5	2k,6k,15k	8/4	39 x 16 x 15	Wal. Vinyl	Brown Knit	76	499.95	Pair		
ACCLAB	550	Pas. Rad., Vented	(2)12	3%	Cone	2½, 2¾			30-25	92.5	5	48,1.5k, 7.5k,10k	8/5	15 x 11 x 40	Wal. Vinyl	Black Knit	54	319.00	Pair		
	450	Ac. Sus.	12	3%	Cone	2½, 2¾			32-25	92.5	5	1.5k,7.5k, 10k	8	15 x 11 x 32	Wal. Vinyl	Black Knit	45	249.00	Pair		
	350A	Ac. Sus.	12	3%	Cone	2½			36-18.5	92	5	1.5k,10k	8/5	14 x 11 x 26	Wal. Vinyl	Black Knit	39	199.00	Pair		
	330	Ac. Sus.	10	3%	Cone	2¾			40-18.5	91	5	2k,10k	8/5	13 x 11 x 22	Wal. Vinyl	Black Knit	28	149.00	Pair		
	230	Ac. Sus.	8	3%	Cone	2¾			50-18.5	90	5	2.5k,10k	8/5	11 x 7 x 21	Wal. Vinyl	Black Knit	20	119.00	Pair		
ACCURA	Pedestal Bass	Inf. Baf. Subwoof.	(2)8					W	26-180 ±2	89	50		4/4	28 x 12 x 11	Opt.	Black Cloth	37	895.00	Pair w/Xover		
ACOUSTAT	One	ES Sat. & Subwoof.	10					T	30-18 ±3		75	160	4/3	Three Pieces	Opt.	Opt.	180 Sys.	1299.00	Sys.		
	One + One	ES						T	30-20 ±2		70		4/3	93 x 11 x 4	Opt.	Opt.	144 Pair	1599.00	Pair		
	Three	ES						T	30-20 ±2		70		4/3	72 x 28 x 4	Opt.	Opt.	196 Pair	1999.00	Pair		
	Two + Two	ES						T	28-20 ±2		50		4/3	94 x 20 x 4	Opt.	Opt.	200 Pair	2399.00	Pair		
	Six	ES						T	26-20 ±2				6/3	94 x 28 x 4	Opt.	Opt.	340 Pair	4249.00	Pair		
	Eight	ES						T	24-20 ±2				6/3	94 x 36 x 4	Opt.	Opt.	440 Pair	5299.00	Pair		
ACDUSTIC ELECTRONICS	AQ2000	Powered Slot Loaded Subwoof.	12						25-100 ±1.5		200 Inc.	100		17 Dia. x 21	Black Alum.	Opt., Knit	50	1195.00	Pair		
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	110.00	Pair		
	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	Pair		
	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	145.00	Pair		
	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	245.00	Pair		
	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	390.00	Pair		
	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	Pair		
	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	Pair		
	Sound Portal	Vented	24x32	7x19	Horn	5x6	Horn	M,T	15-20 ±2.5	101	15	800,5k	8/6	48 x 26 x 24	Oiled Oak	None	175	3500.00	Pair		
Sound Prism	Triamped, Vented	24x52	13x22	Horn	3x7¼	Horn	M,T	10-20 ±1	105	100, 300, 800 Inc.	550,5k	8/6	72 x 27 x 36	Oiled Wal.	None	1000 Pair	30,000.00	Pair			
AOS	200-CC	Ac. Sus.	4			1	Dome		85-20 ±3	88	10	2.5k	4/3	7 x 4 x 5	Black Plas.	Black Steel	9 Pair	280.00	Pair		
	300-CC	Ac. Sus.	5¼			1	Dome		65-20 ±3	89	10	2.5k	4/3.2	9 x 6 x 6	Black Plas.	Black Steel	14 Pair	370.00	Pair		
	L300-W	Ac. Sus.	5¼			1	Dome		65-20 ±3	89	10	2.5k	4/3.2	9 x 6 x 7	Wal.	Black Steel	16 Pair	370.00	Pair		
	L400	Ac. Sus.	7			1	Dome		60-20 ±3	90	10	2k	4/3.2	12 x 8 x 8	Opt., Wood	Black Steel	22 Pair	420.00	Pair		
	L470	Ac. Sus.	7			1	Dome		50-20 ±3	88	15	2k	8/4.5	16 x 10 x 10	Opt.	Black Steel	37 Pair	340.00	Pair		
	L570	Ac. Sus.	8			1	Dome		46-20 ±3	88	15	1.8k	8/5	20 x 12 x 11	Opt.	Black Steel	50 Pair	460.00	Pair		
	Series 2 L780	Ac. Sus.	8¼	1½	Dome	¾	Dome	T	42-27 ±3	86	15	650,5k	8/5	21 x 12 x 11	Opt.	Black Steel	64 Pair	680.00	Pair		
	Series 2 L880	Ac. Sus.	10	2	Dome	¾	Dome	T	40-27 ±3	89	15	550,5k	8/4.5	23 x 13 x 12	Opt.	Black Steel	82 Pair	850.00	Pair		
	Series 2 L1090	Ac. Sus.	(2)7½	2	Dome	¾	Dome	T	44-27 ±3	89	15	550,5k	8/5	37 x 10 x 11	Opt.	Black Steel	110 Pair	1100.00	Pair		
	Series 2 L1290	Ac. Sus.	(2)8¼	2	Dome	¾	Dome	T	40-27 ±3	90	15	500,5k	8/5	42 x 11 x 12	Opt.	Black Steel	146 Pair	1400.00	Pair		
	Series 2 L1590	Ac. Sus.	(2)10	2	Dome	¾	Dome	T	28-27 ±3	90	15	350,5k	8/5	47 x 12 x 14	Opt.	Black Steel	206 Pair	2200.00	Pair		
	Series 2 C400i	Inf. Baf.	6			1	Dome	T	42-20 ±3	91	5	1.6k	4/3.2	11 x 7 x 4	Opt.	Opt., Steel	5 Pair				



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Lev. Control? Woofer: W, Midrange: M, Tweeter: T Superwoofer: ST		Amplitude Frequency Response, SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp. Pwr., Watts		Impedance Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Tweeter Type	Woofer	Midrange	Tweeter	Tweeter Type	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange		
ADS (Continued)	3001/TR3	Inf. Baf.	5 1/4			1	Dome	T		50-20 ±3	90	5	2.5k	4/3.2	9 x 6 x 3	Opt.	Opt.	3 3/4						
	300CC	Ac. Sus.	5 1/4			1	Dome			68-20 ±3	90	5	2.5k	4/3.2	9 x 6 x 6	Opt.	Opt.	6 3/4						
	L200CC	Ac. Sus.	4			1	Dome			85-20 ±3	88	5	2.5k	4/3	7 x 4 x 5	Opt.	Steel	4 1/2						
ADVANCED ELECTRO-DYNAMIC SYSTEMS	Archimedes	Pas. Rad.	9			2	Cyl.	ST		30-22 ±3	88	40	1.5k	8/3	14 x 14 x 34	Opt., Wood	Gray Knit	37				2195.00 Pair w/EQ		
ADVENT	Legacy	Sealed	10			1	Dome			42-23 ±3	88			8/6	28 x 16 x 10	Pecan	Black Knit	93				399.95 Pair		
	Maestro	Sealed	10	2 1/2	Dome/ Cone	1	Dome			40-23 ±2.5	90				33 x 16 x 10	Pecan	Black Knit	699.95 Pair				699.95 Pair		
	Baby	Sealed	6 1/2			1 3/4	Cone			60-25 ±3	87	10		8/6	16 x 11 x 6	Pecan	Black Knit	26				199.95 Pair		
	Prodigy	Sealed	8			3/4	Dome			48-22 ±3	87	10		8/6	22 x 13 x 9	Pecan	Black Knit	44				299.95 Pair		
AKAI	SW-A90	Pas. Rad.	10	4	Flat Diaph. Dome	1	Flat Diaph. Domes	T		30-40 ±3	90		1k, 6k	8/	13 x 30 x 12	Wal.	Black Knit	33 3/8				520.00 Pair		
	SW-A70	Bass Ref.	12	1 1/2		(2) 3/8, 1/2		T		30-35 ±3	90		3k, 8k, 10k	8/	15 x 27 x 12	Opt., Wood	Black Knit	33 3/8				460.00 Pair		
	SR-LA502	Ac. Sus.	15	4	Cone	(2) 3, 2 1/4	Cones			32-23 ±3	92			8/	18 x 36 x 13	Hick.	Brown Knit	48 1/2				429.00 Pair		
	SR-LA402	Pas. Rad.	12	4	Cone	2 1/4	Cone			32-20 ±3	90			8/	15 x 40 x 13	Hick.	Brown Knit	42 1/4				449.00 Pair		
	SR-LA302	Ac. Sus.	12	4	Cone	2 1/4	Cone			36-20 ±3	90			8/	15 x 36 x 13	Hick.	Brown Knit	39 3/8				349.00 Pair		
	SR-LA202	Ac. Sus.	10	4	Cone	2 1/4	Cone			40-20 ±3	90			8/	13 x 30 x 11	Hick.	Brown Knit	27 1/2				269.00 Pair		
	SR-LA102	Ac. Sus.	8	4	Cone	2 1/4	Cone			45-20 ±3	90			8/	12 x 30 x 10	Hick.	Brown Knit	24 3/8				229.00 Pair		
	SW-M313	Ac. Sus.	6			2 3/8	Cone			50-25 ±3	88			8/	9 x 14 x 7	Black Wood	Black Mesh	8 7/8				210.00 Pair		
	AE-S90	Pas. Rad.	4							60-15 ±3	88			8/	6 x 6 x 6	Black Wood	Black Mesh	2 1/4				120.00 Pair		
ALLISON ACOUSTICS	Ten	Ac. Sus.	(2)10	(4)3 1/2	Cones	(4)1	Cones	M, T			87	30	350, 3.75k	8/5.5	48 x 21 x 12	Opt.	Black Cloth	100				4500.00 Pair		
	CD6	Ac. Sus.	8			1	Cone				87	15	2k	4/3.5	11 x 11 x 11	Opt., Wood	Opt., Plas.	17				195.00		
	CD7	Ac. Sus.	8			1	Cone				87	15	2k	4/3.5	28 x 10 x 10	Opt., Wood	Opt., Plas.	22				250.00		
	CD8	Ac. Sus.	8	3 1/2	Cone	1	Cone	M, T			87	30	450, 3.75k	4/3.5	29 x 11 x 11	Opt., Wood	Opt., Plas.	35 1/2				395.00		
	CD9	Ac. Sus.	10	3 1/2	Cone	1	Cone	M, T			87	30	350, 3.75k	4/3.5	37 x 13 x 11	Opt., Wood	Opt., Plas.	55 1/2				550.00		
	110	Ac. Sus.	8			1	Cone				87	15	2k	4/3.5	18 x 12 x 8	Opt., Wood	Black Plas.	16 1/2				130.00		
	120	Ac. Sus.	8			1	Cone				87	15	2k	4/3.5	22 x 14 x 8	Opt., Vinyl	Black Plas.	21 1/4				160.00		
ALTA	Allamate	Ported	6 1/2			1	Dome			45-22 ±3	89	20	3.2k	8/5	9 Dia. x 20	Opt.	Opt.	14				399.00 Pair		
	7	Ported	8			1	Dome			35-22 ±2	91	20	2.7k	4/3	9 Dia. x 50	Opt.	Opt.	24				695.00 Pair		
	6	Ported	8	4 1/2	Cone	1	Dome			35-26 ±2	89	40	250, 4.7k	4/3	9 Dia. x 60	Opt.	Opt.	27				995.00 Pair		
	5	Ported	(2)8	(2)4 1/2	Cones	1	Dome			28-26 ±2	91	50	250, 4.7k	4/3	9 Dia. x 91	Opt.	Opt.	53				1595.00 Pair		
	TMI	Ported	22, 10, 6 1/2	(2)3	Domes	1	Dome			22-26 ±1.5	89	70	65, 325, 6k	6/4	24 Dia. x 59	Opt.	Opt.	90				From 3995.00 Pair		
	ALTEC LANSING	101	Inf. Baf.	6 1/2			1	Dome	No		50-22 ±3	91			6/	17 x 10 x 9	Oiled Wal.	Black Knit	39				170.00	
201		Inf. Baf.	8			1	Dome	No		45-22 ±3	92			6/	22 x 12 x 9	Oiled Wal.	Black Knit	43				250.00		
301		Inf. Baf.	10	2	Dome	1	Dome	No		38-22 ±3	92			8/	27 x 15 x 12	Oiled Wal.	Black Knit	47				375.00		
401		Inf. Baf.	12	2	Dome	1	Dome	No		35-22 ±3	93			8/	32 x 17 x 12	Oiled Wal.	Black Knit	60				480.00		
501		Inf. Baf.	(2)10	2	Dome	1	Dome	No		28-22 ±3	93			4/	46 x 12 x 14	Oiled Wal.	Black Knit	72				750.00		
APATURE	R-86	Ported	8			3/4	Dome			42-22	92	10	5k	8/8	12 x 12 x 22	Opt.	Brown Knit	30				239.95 Pair		
	Pro-1	Trans. Line	10			2 1/2	Cone			38-22	92	10	1.8k	8/4	11 x 12 x 33	Oak	Brown Knit	48				399.95 Pair		
	SAT	Ac. Sus.	5 1/4			2x 1/2	Ribbon			56-34	92	10	5.4k	8/8	8 x 8 x 12	Koa	Brown Knit	15				259.95 Pair		
	8M	Ac. Sus. Subwoof.	(2)10							34-125	92	10	125	8/4	21 x 30 x 16	Koa	Brown Knit	65				339.95 Pair		
	Trident	Sat. & Subwoof.	(2)10	(2)5 1/4	Cones	(2) 2x 1/2	Ribbons			34-34	92	10	125, 5.4k	8/4	Three Pieces	Koa	Brown Knit	100				599.95 Sys.		

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Cerwin-Vega's new Select Edition Series.

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These stunning speakers give you high-tech outside, and *inside*—where it counts most. We've combined exacting engineering standards with superior innovation to deliver defined, dimensional performance. All six models offer expertly matched componentry for clear linear response and electrifying depth.

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Finally, speakers that do justice to everything you've got—from compact discs to 8mm digital video playback.

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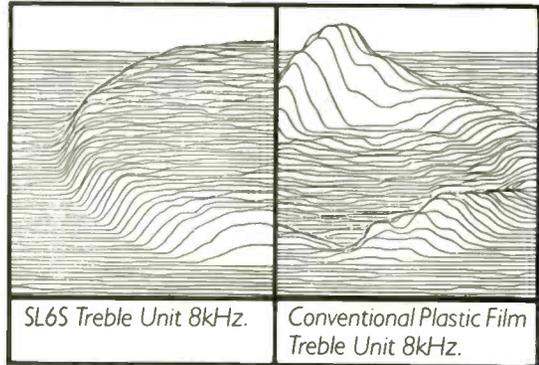
AT CELESTION, THE ENJOYMENT OF MUSIC IS THE ONLY STANDARD OF REFERENCE.

Occasionally genuine wisdom about loudspeaker design emerges from the yearly torrent of "speaker-speak." A general consensus regarding the goal of loudspeaker design has finally been achieved: to help recreate the musical sound stage without adding coloration or distortion.

Celestion has been pursuing this same objective for over 60 years. We refine the essential elements in our speakers, drivers and enclosures, so they perform truthfully — nothing more, nothing less. To accomplish this, we rely on exclusive technology like the computerized interferometry mapping system that visually displays the behavior problems of typical tweeters and woofers.

We also employ the most highly evolved of all audio test instruments — educated ears. The end result is sound stage imaging which accurately conveys the dimension of the concert hall.

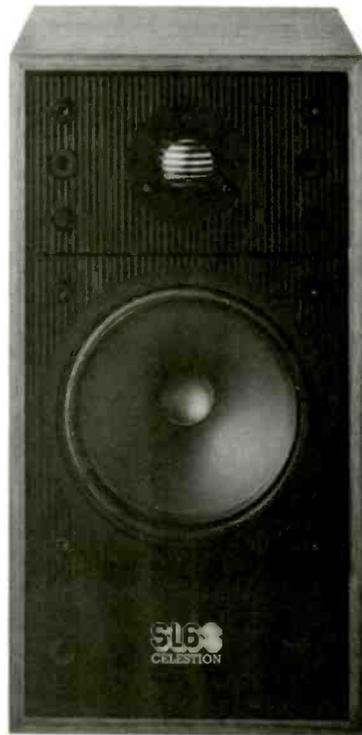
Undeterred by the steady flow of self-serving buzz words and conflicting absolutes, Celestion continues its pursuit of the music with the new SL 6S. Like other Celestion loudspeakers, its lifelike performance shows that technology is only effective when it serves the demands of the music.



Celestion's computerized laser interferometry mapping system exposes imperfections in driver performances so we can eliminate them.



Our award-winning proprietary one-piece tweeter dome is designed to perform without physical, hence acoustical distortions.



Refinements incorporated in the new SL 6S include a lighter, more efficient aluminum tweeter, a redesigned woofer surround and a new, ultra-rigid bracing system for the low-mass enclosure.

CELESTION

Kuniholm Drive, Box 521
Holliston, MA 01746
(617) 429-6706

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Sensitivity (1 Watt/1 Meter) Woofer - W, Tweeter - T, Super Tweeter - ST		Anechoic Frequency Response, Hz to kHz, ±dB		Recommended Min. Amp. Pow., Watts		Impedance, Ohms		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
APOGEE ACOUSTICS	Scintilla	Ribbon Dipole	12x53	2x53	Ribbon	1/2x53	Ribbon			30-20	100	500,5k	1,4/	29 x 57 x 3	Suede Paint	Dpt.	290 Pair	3780.00				
	Apogee	Ribbon Dipole	12x76	2x76	Ribbon	1/2x76	Ribbon	T		30-20	Bi-Amp 100	400,3.5k	4/	35 x 80 x 3	Suede Paint	Dpt.	600 Pair	8000.00				
	Duetta	Ribbon Dipole	12x47			0.8x47	Ribbon	T		30-20	80	600	4/3	25 x 57 x 3	Suede Paint	Dpt.	225 Pair	2580.00				
	Callper	Ribbon Dipole	12x37			0.8x37	Ribbon			30-20	100	600	4/3	24 x 48 x 2	Suede Paint	Dpt.	140 Pair	1650.00				
AR	MGC-1	Ac. Sus.	(2)8	6, (2)4, 1 1/2	Cones	3/4,1	Domes			35-32	85	50	200,1.1k, 3.5k,5.3k	4,3.2	52 x 26 x 16	Opt., Wood	Black	150	3600.00			
	MGC-II	Ac. Sus.	12	1 1/2, (2)4, 6 1/2	Cones	1	Dome			35-32	85	25	250,3.5k	4,3.2	44 x 17 x 12	Diled Wal.	Black	80	2000.00			
	9LSI	Ac. Sus.	12,10	8,1 1/2	Cone, Dome	3/4	Dome			28-32	84	15	200,1.1k, 7.5k	4/	51 x 16 x 14	Diled Wal.	Black	120	1000.00			
	98LSI	Ac. Sus.	12	8,1 1/2	Cone, Dome, Cone	3/4	Dome			39-32	84	15	200,1.1k, 7.5k	4/	29 x 15 x 9	Diled Wal.	Black	63	625.00			
	58BXI	Ac. Sus.	12	4	Cone	3/4	Dome			39-32	85	15	800,5.2k	4/	30 x 13 x 10	Wal. Vinyl	Black	48	380.00			
	48BXI	Ac. Sus.	10	4	Cone	3/4	Dome			45-32	88	15	1k,5.5k	8/	27 x 13 x 9	Wal. Vinyl	Black	38	300.00			
	38BXI	Ac. Sus.	8	4	Cone	3/4	Dome			52-32	86	10	1.1k,5.1k	6/	22 x 13 x 7	Wal. Vinyl	Black	28	235.00			
	28BXI	Ac. Sus.	10			1	Dome			42-22	89	10	1.8k	8/	27 x 13 x 10	Wal. Vinyl	Black	35	210.00			
	25BXI	Ac. Sus.	8			1	Dome			49-22	87	10	3k	8/	20 x 10 x 8	Wal. Vinyl	Black	22	180.00			
	18BXI	Ac. Sus.	8			1	Dome			52-22	87	10	3.2k	8/	17 x 10 x 8	Wal. Vinyl	Black	18	140.00			
	8BXI	Ac. Sus.	6 1/2			1	Cone/Dome			64-25	88	10	4.5k	8/	15 x 9 x 7	Wal. Vinyl	Black	15	100.00			
	1MS Powered	Ac. Sus.	4			Cone	3/4	Dome	W	95-25	85	10	2.8k	4/	6 x 10 x 7	Alum.	Black	4	130.00			
	Partners	Ac. Sus.	4			Cone	1	Dome		50-25	85	10	Inc.	10k	6 x 10 x 7	Alum.	Black	7	339.95			
	Rock	Ac. Sus.	8			Cone	1 1/4	Cone		65-22	88	10	2k	8/	15 x 9 x 9	Black Vinyl	Black	15	249.95			
	Partners	Ac. Sus.	6 1/2			1	Dome			65-22	88	10	5k	8/	16 x 10 x 7	Diled Wal.	Black	15	160.00			
	Connoisseur 19	Ac. Sus.	8			1	Dome			57-22	87	10	4k	6/	18 x 11 x 8	Diled Wal.	Black	19	210.00			
	Connoisseur 20	Ac. Sus.	10	6 1/2		Cone	1	Dome		41-22	87	15	200,5k	6/	27 x 13 x 14	Diled Wal.	Black	43	500.00			
	Connoisseur 40	Ac. Sus.	12	6 1/2		Cone	1	Dome		37-32	85	20	350,3.5k	4/	32 x 14 x 13	Diled Wal.	Black	78	700.00			
	Connoisseur 50	Ac. Sus.	(2)10							31-100	85	15	90	4/	16 x 31 x 18	Diled Wal.	Black	70	500.00			
Subwoofer	Subwoof.																					
ARC	CSII	Vented	(2)6 1/2			1	Dome	No		43-20 ±3	92	10	2k	4/	12 Dia. x 22	Opt., Wood	Black Cloth	20	695.00			
	CSA	Powered, Vented	(2)6 1/2			1	Dome	No		32-20 ±2	92	Inc.	2k	4/	12 Dia. x 22	Opt., Wood	Black Cloth	30	1295.00			
ATC	SCM50	Ported	9	3	Dome	1	Dome			40-20 ±6	85	50	400,4k	8/	28 x 16 x 12	Opt.	Black	85	3000.00			
	SCM100	Ported	12	3	Dome	1	Dome			35-20 ±6	88	50	350,4k	8/	33 x 19 x 16	Opt.	Black	115	3800.00			
	SCM50A	Ported, Active	9	3	Dome	1	Dome	M, T				350 Inc.	380,3.8k		28 x 16 x 12	Opt.	Black	95	5000.00			
	SCM100A	Ported, Active	12	3	Dome	1	Dome	M, T				350 Inc.	380,3.8k		33 x 19 x 16	Opt.	Black	125	5800.00			
AUDIO CONCEPTS	Mod C	Int. Bat.	8			1	Dome			50-20 ±3	88	30	2k	8/6	19 x 12 x 10	Opt., Wood	Black Knit		Kit, 199.00			
	Mod S	Aperiodic	6 1/2			1	Dome			65-20 ±3	87	30	2.5k	8/6	16 x 10 x 8	Opt., Wood	Black Knit		Kit, 169.00			
	Mod G	Aperiodic	10	4 1/2	Cone	1	Dome			44-20 ±3	90	30	800,6k	8/6	28 x 14 x 13	Opt., Wood	Black Knit		Kit, 349.00			
	Compact Monitor	Aperiodic	6 1/2			1	Dome			48-20 ±3	87	30	2k	8/6	16 x 10 x 8	Opt., Wood	Black Knit		Kit, 325.00			
	Vanguard	Aperiodic	8 3/4			1	Dome			45-20 ±3	89	30	2k	8/6	28 x 14 x 13	Opt., Wood	Black Knit		Kit, 489.00			
	DII	Aperiodic	12	2	Dome	1	Dome			36-20 ±3	91	30	800,5k	8/6	36 x 17 x 16	Opt., Wood	Black Knit		Kit, 749.00			
	Titan	Aperiodic	12	5 1/4	Cone	1	Dome			30-20 ±3	91	30	800,4.5k	8/6	36 x 17 x 16	Opt., Wood	Black Knit		Kit, 489.00			
	Pulse	Push-Pull Compound Subwoof.	(2)10							35-600 ±3	91	30		4/3	18 x 14 x 17	Opt., Wood	Black Knit		Kit, 349.00			
	Quartz T	Hybrid Trans.	6 1/2	2	Dome	1	Dome			46-20 ±3	87	30	700,1.2k, 5k	8/6	36 x 13 x 12	Opt., Wood	Black Knit		Kit, 759.00			
	JCRS Sub#1	Line Push-Pull Compound Subwoof.	(2)12							22-600 ±3	91	30		4/3	21 x 34 x 20	Opt., Wood	Black Knit		Kit, 539.00			



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate or Common? Woofer = W, Tweeter = T, Superwoofer = ST		Ancholic Frequency Response, Hz to kHz, ±dB		SPL, 1 Watt, 1 Meter, dB		Recommended Min. Amp. Pwr., Watts		Crossover Frequencies, Hz		Impedance Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
AUDIO PRO	B1-45	Powered Subwool.	10								30-200 ±1.5	102	Inc.	Var.			15 x 15 x 20	Dpt.				48					48	795.00		
	B2-70	Powered Subwool.	(2)8								20-200 ±1.5	103	Inc.	Var.			24 x 20 x 17	Dpt.	Black Cloth			91					91	1295.00		
	B2-100	Powered Subwool.	(2)8								20-200 ±1.5	104	Inc.	Var.			36 x 20 x 17	Dpt., Wood	Black Cloth			156					156	1495.00		
	B4-200	Powered Subwool.	(4)8								20-200 ±1.5	110	Inc.	Var.			44 x 21 x 21	Dpt., Black	Black Cloth			190					190	2995.00		
	A4-14MKII	Powered Subwool.	(2)5	4 1/2	Cone	1	Dome				30-200 ±1.5	113	Inc.	300, 2.5k			20 x 12 x 10	Dpt.	Black Cloth			98	Pair				98	1895.00		
	3-40	Pas. Rad.	(2)8			1	Dome				43-20	92	25	2.5k			24 x 12 x 11	Dpt.	Black Foam			55	Pair				55	549.00		
AUDIO PULSE	825	Bass Ref.	8			1 3/4	Cone				45-20 ±3	89	5	5k	6/4	12 x 23 x 10						20				20	200.00			
	835	Bass Ref.	8	4 1/2	Cone	1 3/4	Cone				40-20 ±3	90	10	2k, 7k	6/4	12 x 23 x 9						23				23	300.00			
	1035	Bass Ref.	10	4 1/2	Cone	1 3/4	Cone				35-20 ±3	90	15	2k, 5k	6/4	14 x 24 x 9						25				25	400.00			
	1235	Bass Ref.	12	4 1/2	Cone	1 3/4	Cone				30-20 ±3	91	15	2k, 5k	6/4	14 x 26 x 11						30				30	500.00			
	1535	Ac. Sus.	15	4 1/2	Cone	1 3/4	Cone				30-20 ±3	92	15	1.5k, 5k	6/4	17 x 32 x 15						65				65	750.00			
	800TM	Pas. Rad.	8	4 1/2	Cone	1 3/4	Cone				35-20 ±3	94	5	2k, 7k	6/4	13 x 32 x 9	Hick. Vinyl	Black				25				25	520.00			
	1200TM	Pas. Rad.	12	4 1/2	Cone	1 3/4	Cone				30-20 ±3	96	5	2k, 5k	6/4	14 x 38 x 11	Hick. Vinyl	Black				37				37	700.00			
	500DM	Bass Ref.	12	4 1/2	Cone	3	Cone				35-20 ±3	96	10	2k, 5k	8/4	14 x 26 x 12	Vinyl Wal.	Black				30				30	450.00			
	1000DM	Pas. Rad.	10	4 1/2	Cone	3	Cone				32-20 ±3	97	15	2k, 5k	8/4	13 x 37 x 12	Vinyl Wal.	Black				40				40	560.00			
	1500DM	Pas. Rad.	12	4 1/2	Cone	3	Cone				28-22 ±3	98	20	1.2k, 5k	8/4	14 x 40 x 11	Vinyl Wal.	Black				43				43	700.00			
AUDIOSOURCE	LS-One	Inf. Baf.	4			1	Dome				76-20	87	10	2.5k	8/	8 x 5 x 5	Wal. Ven. Oak	Black Knit			3 1/2				3 1/2	199.00				
	LS-Seven	Inf. Baf.	6 1/2			1	Dome				70-20	87	10	2k	8/	14 x 9 x 7	Wal. Ven. Oak	Black Knit			7				7	259.95				
	LS-Nine	Inf. Baf.	8			1	Cone				65-20	88	10	3.5k	8/	18 x 11 x 8	Wal. Ven. Oak	Black Knit			13 1/2				13 1/2	319.95				
	LS-Ten	Inf. Baf.	4			1	Cone				120-20	88	5	9k	8/	8 x 5 x 5	Wal. Ven. Oak	Black Knit			3 1/4				3 1/4	119.95				
AUDIRE	Image I	Ribbon									30-20 ±3	96	25	None	4/4	72 x 42 x 3	Oiled Wal. Oak	Black Knit			150				150	6500.00				
	Image II	Ribbon									35-20 ±3	93	50	None	6/6	72 x 36 x 3	Oiled Wal. Oak	Black Knit			125				125	4500.00				
	Image III	Ribbon									40-20 ±3	90	75	None	8/8	60 x 24 x 3	Oiled Wal. Oak	Brown Knit			60				60	2500.00				
BABB AUDIO	C14	Ac. Sus.	5 1/4	5 1/4	Cone	5 1/4	Ribbon	No		60-18 ±3	92	15		4/4	11 x 7 x 6	Black	Black Metal			21	Pair			21	320.00					
BANG & OLUFSEN	RL 60.2	Bass Ref.	(2)5			1	Dome	No		42-20 +4, -8	93	10	25k	8/	21 x 16 x 7	Gray Plast.	Black			24				24	225.00					
	RL 140	Bass Ref.	(2)6 1/2	5	Cone	1	Dome	No		40-20 +4, -8	93	10	800, 3k	8/	28 x 20 x 9	Gray Plast.	Black			43				43	375.00					
	S80.2	Ac. Sus.	8			1	Dome	No		50-22 ±3	92	20	700, 2.5k	8/	12 x 21 x 10	Rswd. Alum.	Black			24				24	299.00					
	CX 50	Ac. Sus.	4			1	Dome	No		80-20 ±3	89	20	2.5k	6/	4 x 8 x 8	Black Alum.	Black			8				8	99.00					
	CX 100	Ac. Sus.	(2)4			1	Dome	No		50-20 ±3	89	10	2.5k	6/	4 x 12 x 8	Black Alum.	Black			13 1/2				13 1/2	149.00					
Beolab Penta	Powered Bass Ref.	(4)5	(4)3 1/4	Cones	1	Dome	W			40-20 ±3	92	150	700, 5k	8/	(5)5 3/8 x 65H	Black Alum. Steel	Black			53				53	2600.00					
BECKER ELECTRONICS	PRO 200	Ported	8			3	Cone				70-19 ±3	89	5	3.5k		11 x 9 x 19	Wal. Vinyl	Black Knit			30	Pair			30	89.00				
	PRO 300	Ported	8	5	Cone	3	Cone				65-19 ±3	90	10	4.9k, 9k	8/6	12 x 9 x 23	Wal. Vinyl	Black Knit			38	Pair			38	109.00				
	PRO 500	Ported	12	5	Cone	3	Cone				55-19 ±3	91	10	2k, 6k	8/6	11 x 11 x 24	Wal. Vinyl	Black Knit			21				21	169.00				
	PRO 600	Ported	15	5	Cone	3	Cone				50-19 ±3	91	15	4.9k, 9k	8/6	18 x 13 x 29	Wal. Vinyl	Black Knit			48				48	219.00				
	101A	Tuned Port	8			1	Dome				70-20 ±3	90	5	4.5k	6/4	19 x 11 x 8	Wal. Vinyl	Black Knit			31	Pair			31	119.00				
	505A	Tuned Port	10	5	Cone	1	Dome				50-20 ±3	90	15	2.4k, 5k	4/3.5	24 x 13 x 10	Wal. Vinyl	Black Knit			28				28	189.00				
	606A	Tuned Port	12	5	Cone	1	Dome	T			50-20 ±3	91	15	2.4k, 5k	4/3.5	30 x 15 x 10	Wal. Vinyl	Black Knit			37				37	239.00				
	707A	Tuned Port	(2)10	5	Cone	1	Horn	T			60-20 ±3	92	10	1k, 9k	4/4	36 x 13 x 12	Wal. Vinyl	Black Knit			51				51	299.00				
BECKER-SWAN	Pyramid	Pas. Rad.	6			1	Horn				50-25	92	10		4/4	17 x 10 x 10	Opt., Fbgis.	Black Metal			15				15	299.00				
B. E. S.	SM300	Puls. Diaphr.						M, T		30-22 ±3	93	25	500, 5k, 10k	8/5.5	22 x 54 x 7	Oiled Oak	Brown			79				79	1500.00					
	SM275	Puls. Diaphr.						M, T		32-22 ±3	93	10	500, 10k	8/5.5	20 x 40 x 6	Oiled Oak	Brown			58				58	990.00					



STATEMENT OF THE ART

Creating a truly musical loudspeaker is indeed an art—as much a product of mind, hands and heart as a painting or a piano sonata.

And, as in painting, there are different styles to this art. For example, there are Impressionistic speakers, where detail and focus are subordinated to a pursuit of atmosphere. Speakers that impose their vision of what we ought to hear through psycho-acoustic tricks can be thought of as Expressionistic. We at Dahlquist confess to being realists.

Realism is what the new DQ-20 Phased Array™ is all about. We believe that the ultimate realization of the loudspeaker art must not express or suppress, only reveal—easily,

naturally and transparently—the music that flows through it.

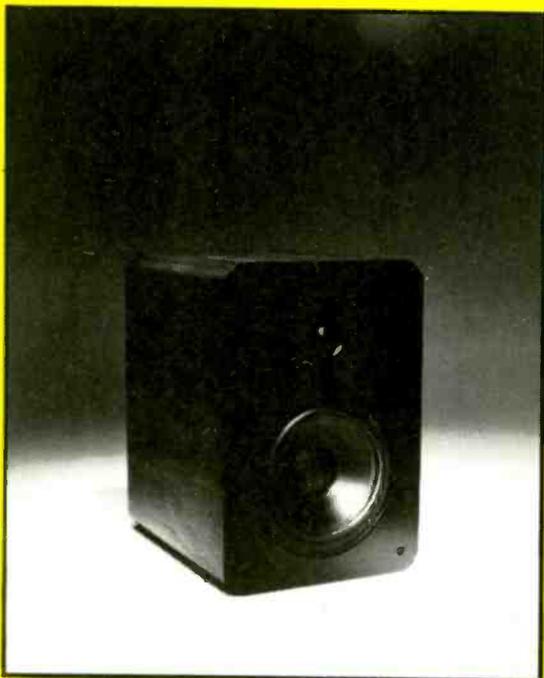
Realism means music that retains its substance and form—with precise, stable imaging and open, airy, in-depth presentation of each individual instrument. It means human voices that are natural, with no artificial colorations to get in the way of true communication of content or emotion. The DQ-20 leaves music free—to touch and to move the listener.

Please take the opportunity soon to audition a pair of DQ-20 loudspeakers and hear for yourself that, at Dahlquist, the state-of-the-art is art that lets music make the statement.

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"...The Most Successful Design of All"



MAXIM III 2-WAY SPEAKER SYSTEM



MAGNUM III 3-WAY SPEAKER SYSTEM

J. GORDON HOLT STEREOPHILE JULY, 1985

Mr. Holt elaborates: "of all the speakers in this price class that I have heard, I would say that Siefert's Maxim is probably **the most successful design of all** ... The system is beautifully balanced and almost perfectly neutral ... **the low end** from these is **just amazing!** ... gives a solidarity and foundation one does not expect to hear ...

They have the **most accurate middle range I have heard** from any speaker ... it has one of the **best extreme-top ranges I have heard** from a dynamic system ... **the imaging and soundstage** presentation from these **are excellent.**

They do not sound small ... it can make most audiophiles (and practically all music lovers) quite happy ... **RECOMMENDED."**

The Maxim III's, whose 40-Hz resonance is unmatched anywhere for a 2-way ported system only 13H x 11D x 9W, are optimized for lowest group delay and intermodulation distortion. Natural hardwood finishes are walnut, oak, or black lacquer.

SUBWOOFER / 100-Hz ACTIVE CROSSOVER

Coming soon for use with Maxim III. 12-inch long-throw driver. Complete with 100-Hz, 3rd-order unique **phase-matched** active crossover. Provides mono-summed **bridged outputs**. Equalized for **19 Hz** (-3dB). \$499.00/set.

INTRODUCING... ...THE 3-WAY MAGNUM III

The new 3-way MAGNUM III is the big brother to the Maxim III. Its similar design goals of extremely-low group-delay response, low intermodulation distortion, optimized imaging, and impressive low-end performance are achieved in a modestly-sized cabinet only 22H x 14D x 13W.

Featured are: an 8-in. polypropylene-cone long-throw (16 mm) woofer. A tuned-reflex cabinet-wall port extends response to **36 Hz** (-3 dB). A new 4-in. long-throw polypropylene midrange driver provides over **6 octaves** of smooth, wide-dispersion response.

A unique new 1-in. **aluminum-dome/polyamide-surround** tweeter exhibits unrivalled smoothness to 32 KHz. **3rd-order** crossover networks at **250 Hz** and 3 KHz minimize driver overlap. Mirror-imaged cabinets are finished in walnut, oak, or black lacquered natural hardwood.

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... of the entire *Stereophile* review along with complete specifications of the Maxim III and new Magnum III. Join hundreds of satisfied customers, buy the Maxim III's factory-direct for \$399 plus \$14 UPS or Magnum III for \$699 plus \$36 UPS, with 30-day, satisfaction-guaranteed return privilege.

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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-Freq. Control? Woofer W. Midrange & Tweeter = Y, Subwoofer = ST	Anechoic Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance Ohms:		Dimensions, Inches (to Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Nominal/Minimum	Maximum																	
B. E. S. (Continued)	SM90	Puls. Diaphr.									42-19 ± 3	88	5	800	8/5.5	19 x 28 x 4	Anod. Alum.	Brown Nylon	20	600.00 Pair w/EQ	
	SM100	Puls. Diaphr.									42-19 ± 3	88	5	800	8/5.5	19 x 28 x 4	Vinyl	Brown	26	499.00 Pair w/EQ	
	SM80	Puls. Diaphr.									60-19 ± 3	88	5	1.5k	8/5.5	15 x 24 x 4	Vinyl	Brown	21	369.00 Pair w/EQ	
BEVERIDGE SPEAKERS	SYS-5	Ported	(2)12					ES	No		30-18 ± 5	50	200	8/3	18 Dia. x 63	Opt.	Black Foam	80	3900.00 Pair		
	SYS-6	Ported	(2)12					ES	No		30-18 ± 5	100	200	8/3	23 Dia. x 90	Opt.	Black Foam	100	6500.00 Pair		
	SYS-6S	Ported	(2)12					ES	No		30-18 ± 5	100	200	8/3	23 Dia. x 79	Opt.	Black Foam	100	6500.00 Pair		
BGR	BGR-40	Bass Ref.	(2)8			1	Dome				40-20 ± 3	91	15	2.5k	6/4	29 x 11 x 14	Opt., Plas. Lam. Oak	Black Knit	39	739.00 Pair	
	BGR-80	Ac. Sus. Sat. & Subwool.	13	6½	Cone	1	Dome				38-20 ± 3	90	25	150, 2.5k	8/6	Three Pieces	Black Knit	82 Sys.	979.00 Sys.		
	BGR-10	Ac. Sus.	6½			1	Dome				50-20	89	15	2.5k	8/6	12 x 8 x 7	Rswd. Vinyl Wal.	Black Knit	12	279.00 Pair	
	BGR-25	Ac. Sus.	8			1	Dome				45-20	90	15	2.5k	8/6	18 x 11 x 9	Black Knit Vinyl Wal.	Black Knit	14	299.00 Pair	
	BGR-30	Ac. Sus.	10			1	Dome				42-20	90	15	2.1k	8/6	25 x 14 x 11	Black Knit Vinyl Wal.	Black Knit	33	389.00 Pair	
	BGR-55A	Bass Ref.	12	2	Dome	1	Dome				40-20	90	15	700, 3k	8/6	25 x 14 x 12	Opt., Wood	Black Knit	42	689.00 Pair	
	BGR-60	Bass Ref.	10	2	Dome	1	Dome				38-22 ± 3	90	15	700, 3k	8/6	25 x 14 x 12	Opt., Wood	Black Knit	40	699.00 Pair	
	BGR-70	Bass Ref.	13	5½	Cone	1	Dome				33-22 ± 3	91	20	600, 3k	8/6	32 x 15 x 14	Black Knit Vinyl Wal.	Black Knit	52	859.00 Pair	
	BGR-70A	Ac. Sus.	13	5½	Cone	1	Dome				33-22 ± 3	90	25	600, 3k	8/5	37 x 14 x 12	Black Knit Oak	Black Knit	63	1100.00 Pair	
BOSE	901 V	Ac. Matrix	(9)4½									10		8/	21 x 13 x 13	Wal.	Cloth	17½	1485.00 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	1026.00 Pair	
	501 IV	Ported	10			(2)3	Cones					20		1.5k, 2.5k	8/	16 x 14 x 25	Teak	Brown	20	750.00 Pair	
	301 II	Ported	8			(2)3	Cones					10		1.5k, 2.5k	8/	10 x 17 x 10	Wal.	Brown Knit	19	422.00 Pair	
	201 II	Ported	6			3	Cone					5		1.5k, 2.5k	8/	15 x 8 x 9	Rswd.	Brown Knit	10	254.00 Pair	
	101 Music Monitor	Ported	4½									89	10		8/	6 x 9 x 5	Dpt.	Dpt.	10	From 199.00 Pair	
	RoomMate System	Powered	4½										Inc.			6 x 9 x 5	Opt.	Opt.	10	229.00 Pair	
	Video RoomMate System	Powered	4½										Inc.			6 x 9 x 5	Gray	Sliv.	10	279.00 Pair	
	RoomMate System 10.2	Ported	(2)8			(2)3	Cones					88	10	1.2k, 3k, 4k	4/3.2	12 x 12 x 40	Waxed Teak	Brown Knit	61	1199.00 Pair	
	8.2	Ported	10			(2)3	Cones					86	10	1.2k, 2.8k	4/	16 x 9 x 33	Teak Vinyl	Brown Knit	41	949.00 Pair	
	6.2	Ported	8			(2)3	Cones					10		2.2k, 6k	4/	20 x 10 x 10	Teak	Brown Knit	19½	599.00 Pair; 658.00 Pair w/Stand	
4.2	Ported	8			2½	Cone					10		2.2k	8/	18 x 10 x 9	Teak Vinyl	Brown Knit	15	419.00 Pair		
BOSTON ACOUSTICS	T1000	Ac. Sus.	(2)8	6½	Cone	1	Dome				38-25 ± 3	90	15	400, 3k	8/6	43 x 10 x 12	Opt., Wood	Gray	65	1200.00 Pair	
	T830	Ac. Sus.	8	3½	Cone	1	Dome				45-20 ± 3	90	15	600, 3k	8/6	29 x 10 x 11	Wood Vinyl	Gray	40	450.00 Pair	
	A400	Ac. Sus.	(2)8	6½	Cone	1	Dome				38-25 ± 3	88	15	300, 3k	4/4	41 x 21 x 7	Opt., Wood	Dpt.	58	900.00 Pair	
	A150 Series II	Ac. Sus.	10	3½	Cone	1	Dome				38-25 ± 3	90	15	650, 3k	8/5	33 x 16 x 8	Opt.	Cloth	47	600.00 Pair	
	A100 Series II	Ac. Sus.	10			1	Dome				38-25 ± 3	90	15	2k	8/5	33 x 16 x 8	Wood Vinyl	Black Cloth	44	390.00 Pair	
	A70	Ac. Sus.	8			1	Dome				40-25 ± 3	90	15	2k	6/4.5	24 x 14 x 8	Wood Vinyl	Black Cloth	26	300.00 Pair	
	A60 Series II	Ac. Sus.	8			1	Dome				52-20 ± 3	90	10	3k	8/6	18 x 11 x 8	Opt.	Opt.	16	220.00 Pair	
	A40 Series II	Ac. Sus.	6½		¾	Cone					65-20 ± 3	89	5	3.5k	8/5	14 x 8 x 7	Opt.	Opt.	9	160.00 Pair	
	A40V Series II	Ac. Sus.	6½		¾	Cone					68-20 ± 3	88.5	5	3.5k	8/5	14 x 8 x 7	Black Vinyl	Black Cloth	9	180.00 Pair	



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Control Midrange - dB	Separate Level Control Tweeter - dB	Supertweeter - ST	Arcchok Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance Ohms Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
BOZAK	DMS 2000	Ducted Port	8			1	Dome		45-20 ±3	92	10	2.5k	8/6	20 x 10 x 8	Opt., Wood	Black Knit	20	119.50			
	DMS 2500	Ducted Port	8			1	Dome		35-21 ±2.5	90	10	2.5k	8/6	22 x 11 x 9	Opt., Wood	Black Knit	30	199.50			
	DMS 3000	Ducted Port	8	2	Cone	1	Dome		35-21 ±2.5	90	10	2.5k, 13k	8/6	37 x 11 x 9	Opt., Wood	Black Knit	33	259.50			
	DMS 3500	Ducted Port	8	4	Cone	1	Dome		35-21 ±2.5	92	10	800, 4k	8/6	37 x 11 x 9	Opt., Wood	Black Knit	40	329.50			
	DMS 4500	Ducted Port	12	4	Cone	1	Dome		30-21 ±3	95	10	800, 2.5k	8/6	27 x 16 x 10	Opt., Wood	Black Knit	50	369.50			
	DMS 5500	Inf. Baf.	12	6	Cone	1	Dome		30-21 ±3	94	10	400, 2.5k	8/6	41 x 16 x 11	Opt., Wood	Black Knit	70	449.50			
	DMS 5500W	Inf. Baf.	12	6	Cone	1	Dome		28-21 ±2.5	94	20	400, 2.5k	8/6	41 x 16 x 12	Dak	Black Knit	80	569.50			
	DMS 6000	Inf. Baf.	12	6	Cone	1,2	Dome, Cone		28-21 ±2.5	94	20	400, 2.5k, 13k	8/6	41 x 16 x 12	Dak	Black Knit	81	669.50			
	DMS 7000	Inf. Baf.	(2)12	6	Cone	(8)2, (2)1	Cones, Domes		20-21 ±2.5	95	50	400, 2.5k, 13k	8/6	66 x 17 x 16	Oak	Black Knit	200	1499.50			
	MSS-1000	Ducted Port					Cone		20-20 ±3	86	30	80, 2k	8/5	Three Pieces	Opt.	Black Knit	78	999.00			
	CS 400	Inf. Baf.	12	6	Cone	(2)2	Cones		35-18 ±3	93	25	800, 2.5k	8/6	18 x 13 x 26	Wal. Ven.	White	65	499.50			
	CS 501	Inf. Baf.	12	6	Cone	(3)2	Cones		28-18 ±3	93	35	400, 2.5k	8/6	20 x 16 x 32	Wal. Ven.	White	90	779.50			
	CS 4000A	Inf. Baf.	(2)12	6	Cone	(8)2	Cones		25-20 ±3	94	50	400, 2.5k	8/6	26 x 16 x 45	Wal. Ven.	White	180	1299.50			
	CS 310B	Inf. Baf.	(4)12	(2)6	Cones	(8)2	Cones		20-20 ±3	95	50	400, 2.5k	8/6	36 x 19 x 52	Wal. Ven.	White	300	2099.50			
	B-1000	Inf. Baf.	8						50-10	90	10		8/6	18 x 18 x 12	Alum.	Gold Mesh	20	229.50			
B-1002	Inf. Baf.	8			2	Cone		50-20	90	10	4k	8/6	18 x 18 x 12	Alum.	Gold Mesh	21	269.50				
BSC	Compusound 150	Powered Inf. Baf.	(2)8	5/4	Cone	1	Dome	W, M, T	15-20 ±2	90	Inc.	195, 2.2k		Three Pieces	Oiled Oak	Dpt., Knit	300	3600.00			
	Compusound 100	Powered Inf. Baf.	(4)5 1/4	5/4	Cone	1		W, T	30-20 ±2	92	50	2k	8/6	Three Pieces	Dpt.	Opt., Knit	150	1295.00			
	Compusound SW-100	Powered Inf. Baf. Subwoof.	(2)10					W	15-100 ±3	95	Inc.	100		24 x 11 x 16	Dpt.	Opt., Knit	90	695.00 w/Amp			
BSM	Series 3 MKIV	Bass Ref.	8	3	Cone	2	Cone		48-20	92	15	2k, 6k	8/4	24 x 11 x 8	Black Wood	Black Knit	16				
	Series 4 MKIV	Bass Ref.	10	3	Cone	2	Cone		40-20	92	15	2k, 6k	8/4	24 x 14 x 10	Black Wood	Black Knit	18 1/2				
	Series 7 MKIV	Bass Ref.	12	4	Cone	2	Cone		30-20	94	15	2k, 6k	8/4	27 x 15 x 11	Black Wood	Black Knit	28 1/2				
	Series 12 MKI	Pas. Rad.	12	4	Cone	2	Cone		30-20	94	15	2k, 6k	8/4	41 x 15 x 11	Black Wood	Black Knit	37				
B & W	Matrix 1	Ac. Sus.	6			1	Dome		80-25 ±2	85	25		4/4	16 x 9 x 12	Opt., Wood	Opt., Knit	22	998.00			
	Matrix 2	Ac. Sus.	8			1	Dome		80-25 ±2	87	25		4/4	23 x 10 x 12	Opt., Wood	Opt., Knit	35	1398.00			
	Matrix 3	Ac. Sus.	(2)8			1	Dome		70-25 ±2	90	25		4/4	36 x 10 x 16	Opt., Wood	Opt., Knit	64	1998.00			
	John Bowers Active 1	Active	(2)6			1	Dome	M, T	45-18 ±2	Inc.				34 x 16 x 10	Opt., Wood	Opt., Knit	66	3394.00			
	DM 100	Ac. Sus.	6			1	Dome		80-20 ±3	89	10	3k	8/6.4	15 x 9 x 8	Opt.	Opt., Knit	12	258.00			
	DM 110	Bass Ref.	8			1	Dome		70-20 ±3	90	10	3k	8/6.4	19 x 10 x 10	Opt.	Opt., Knit	19	378.00			
	DM 220	Ac. Sus.	(2)8			1	Dome		53-20 ±3	90	10	3k	8/6.4	27 x 12 x 13	Opt.	Opt., Knit	33	578.00			
	OM 330	Ac. Sus.	(2)8			1	Dome		48-20 ±3	91	10	3k	8/6.4	34 x 12 x 13	Opt.	Opt., Knit	37 1/2	738.00			
	VM 1	Bass Ref.	8			1	Dome		70-20 ±3	90	5	3k	8/6.4	19 x 10 x 10	Dpt.	Opt., Knit	19	398.00			
	VM 2	Ac. Sus.	(2)8			1	Dome		53-20 ±3	90	7	3k	8/6.4	27 x 12 x 13	Opt.	Opt., Knit	33	598.00			
	DM 1200	Ac. Sus.	6			1	Dome		85-20 ±2	85	30	3k	8/6.4	14 x 9 x 11	Opt., Wood	Opt., Knit	21	770.00			
	DM 17 LTD	Ac. Sus.	6			1	Dome		85-20 ±2	85	40	3k	8/6.4	16 x 9 x 11	Opt., Wood	Opt., Knit	20	900.00			
	802FS	Ac. Sus.	(2)6 1/2	4	Cone	1	Dome	M, T	55-20 ±2	85	100	400, 3k	8/6.4	41 x 12 x 15	Opt., Wood	Opt., Knit	70	2500.00			
	801FS	Ac. Sus.	10 1/2	4	Cone	1	Dome	M, T	45-20 ±2	85	100	400, 3k	8/6.4	38 x 17 x 22	Opt., Wood	Opt., Knit	103	3500.00			
808	Bass Ref. & Trans. Line	(2)10 1/2	(2)4	Cones	1 1/2	Dome	M, T	30-20 ±2	91	100	400, 3k	8/6.4	44 x 26 x 21	Opt., Wood	Opt., Knit	180	7500.00				
LM1	Ac. Sus.	4			3/4	Dome		95-25 ±4	81	20	3k or 4.5k	8/6.4	9 x 6 x 8	Opt.	Opt., Wire	12	538.00				
CABASSE	Brigantin V	Ac. Sus.	14	6,2	Domes	1	Dome		40-20 ±3	94	10	180, 1k, 5.5k	8/	57 x 17 x 19	Wal.	Black Knit	165	5600.00			
	Gallon V	Ac. Sus.	11.8	6,2	Domes	1	Dome		50-20 ±3	94	10	150, 1.2k, 5k	8/	39 x 14 x 13	Wal.	Black Knit	73	2900.00			
	Caravelle	Ac. Sus.	8	2	Dome	1	Dome		60-20 ±3	93	10	700, 5k		26 x 12 x 11	Wal.	Black Knit	39.6	1400.00			
	Corvette	Ac. Sus. Blamp	6	2	Dome	1	Dome		65-20 ±3	92	10	700, 5k		19 x 10 x 10	Wal.	Black Knit	22	1275.00			
	Gallote	Ac. Sus. Blamp	6			1	Dome		70-20 ±4	93.5	10	4k	8/	11 x 8 x 8	Wal.	Black Knit	13.2	900.00			

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer			Midrange			Tweeter			SPL			Crossover Frequencies, Hz	Impedance Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grilles Color and Material	Weight, Lbs.	Price, \$
			Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Diameter, Inches	Tweeter Type	Separate Level Control? Woofer = W, Midrange = M, Tweeter = T, Subwoofer = ST	Angular Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts										
CADAWAS ACOUSTICS	TC-1	Auto Damping	8.10	5 1/4	Cone	1.2	Dome, Cone	M, T		87	25	250, 3.5k, 2k	8/6.5	24 x 15 x 11	Oiled Wal.	Brown Cloth	44	1195.00			
	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			
	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		
CAMBER ACOUSTICS	.5	Ported	8			3/4	Dome			55-20 ±3	90	10	3.5k	8/3	22 x 10 x 11	Opt., Vinyl	Black Knit	22	199.00		
	1.5	Ported	6 1/2			3/4	Dome			55-20 ±3	89	10	3.5k	8/3	16 x 10 x 11	Opt., Vinyl	Black Knit	19	329.00		
	2.5	Ported	6 1/2			1	Dome			45-20 ±2	90	10	3k	8/3	24 x 10 x 11	Opt., Vinyl	Black Knit	24	435.00		
	3.5	Ported	8			1	Dome			43-20 ±2	91	15	3k	8/3	24 x 10 x 13	Opt., Vinyl	Black Knit	30	599.00		
	4.5	Ported	8			1	Dome			40-20 ±2	90	15	3k	8/3	23 x 10 x 12	Opt.	Black Knit	35	1099.00		
	Studio-Pro	Ported	(2)8	8	Cone	1	Dome			35-20 ±2	90	25	200, 3.5k	8/3	41 x 11 x 15	Opt.	Black Knit	85	1950.00		
CANTON	CA 10	Triamped Motion Feedback	10	4 1/2	Cone	1	Dome	W, M, T		20-30	Inc.	350, 3.5k		14 x 25 x 14	Opt.	Opt., Black	90	4000.00			
	CA 20	Quad-Amped Motion Feedback	(2)10, 7 1/2	1 1/2	Dome	1	Dome	(2)W, M, T		20-30	Inc.	220, 1k, 4.5k		14 x 49 x 16	Opt.	Opt., Black	188	8000.00			
	CA 30	Quad-Amped Motion Feedback	(4)10, 7 1/2	1 1/2	Dome	1	Dome	(2)W, M, T		20-30	Inc.	220, 1k, 4.5k		15 x 67 x 17	Opt.	Opt., Black	250	12,000.00			
	Karat 100	Ac. Sus.	8	1 1/4	Dome	3/4	Dome			36-30	90		900, 3.5k	8/	9 x 14 x 9	Opt.	Opt.	14	550.00		
	Karat 200	Ac. Sus.	9	1 1/4	Dome	3/4	Dome			28-30	90		900, 3.5k	8/	11 x 17 x 10	Opt.	Opt.	20	725.00		
	Karat 300	Ac. Sus.	10	1 1/2	Dome	1	Dome			25-30	91		850, 4.2k	8/	12 x 20 x 12	Opt.	Opt.	31	900.00		
	CT 800	Ac. Sus.	10	4 1/2	Cone	1	Dome			22-30	93		450, 3k	4/	14 x 23 x 13	Opt.	Opt.	39	1200.00		
	CT 1000	Ac. Sus.	12	4 1/2	Cone	1	Dome			20-30	90		450, 3.1k	4/	26 x 38 x 13	Opt.	Opt.	44	1500.00		
	Plus S	Ac. Sus.	4			1	Dome			45-30 ±6	87		2.2k	4/	8 x 5 x 4	Opt.	Opt.	5	275.00		
	GL 260	Ac. Sus.	6			1	Dome			42-30 ±6	87		1.7k	4/	10 x 7 x 5	Opt.	Opt.	7 1/2	375.00		
	GL 300F	Ac. Sus.	6			1	Dome			48-30 ±6	87		1.7k	4/	13 x 9 x 3	Opt.	Opt.	7 1/2	400.00		
	HC 100	Ac. Sus.	4			1	Dome			48-30 ±6	87		1.7k	4/	8 x 5 x 6	Opt.	Opt.	5	275.00		
	Plus C	Subwoof.	12							22-120 ±6	90			4/	14 x 14 x 14	Opt.	Opt.	26	500.00		
	Plus Beta	Blamped Subwoof.	12						W	20-140 ±6	95		70, 90, 140		15 x 14 x 15	Opt.	Opt.	49	1500.00		
	Fonum 30	Ac. Sus.	7	1 1/4	Dome	3/4	Dome			36-30	89		900, 4.5k	8/	13 x 9 x 8	Black Vinyl	Opt.	Opt.	10 1/2	389.00	
	Fonum 60	Ac. Sus.	8	1 1/4	Dome	3/4	Dome			28-30	90		900, 4.5k	8/	15 x 10 x 9	Black Vinyl	Opt.	Opt.	12	479.00	
	Fonum 90	Ac. Sus.	9	1 1/4	Dome	1	Dome			25-30	90		900, 4.5k	8/	17 x 12 x 10	Black Vinyl	Opt.	Opt.	17	569.00	
	Fonum 150	Ac. Sus.	8 1/2	2	Dome	1	Dome			25-30	91		800, 3.5k	8/	20 x 12 x 11	Black Vinyl	Opt.	Opt.	28	699.00	
	Fonum 200	Ac. Sus.	10	2	Dome	1	Dome			22-30	91.5		800, 3.5k	8/	22 x 14 x 13	Black Vinyl	Opt.	Opt.	36	899.00	
	CT 2000	Vented	12	4 1/2	Cone	1	Dome			18-30	95		450, 3k	4/	14 x 39 x 13	Opt.	Opt.	76	2300.00		
Ergo P	Ac. Sus.	(2)10	4 1/2	Cone	1	Dome			20-30	94		450, 3.1k	4/	12 x 39 x 12	Opt.	Opt.	57	2400.00			
CARVER	Amazing	Ribbon Panel	(4)10				Ribbon			24-32 ±3	90	100	125	5/	66 x 30 x 2	Black	Gray	160	1500.00		
CASCADE	Questor I	Vented	7			3/4	Dome			32-20 ±4.5	90	25	2.8k	6/2.7	31 x 13 x 13	Black Oak	Black Knit	47	1198.00		
	Questor II	Vented	7			1	Dome			26-20 ±4.5	91.5	25	2.5k	6/2.7	32 x 24 x 17	Black Oak	Black Knit	66	1858.00		
CASTLE ACOUSTICS	Trent	Bass Ref.	5			1 1/4	Cone	No		70-22	89	10		8/6	13 x 7 x 8	Opt., Ven.	Black Foam	16 1/2	250.00		
	Clyde	Bass Ref.	5			1 1/4	Cone	No		65-22	89	10		8/6	15 x 9 x 9	Opt., Ven.	Black Foam	19 1/2	295.00		
	Tyne	Bass Ref.	6			1 1/4	Cone	No		55-22	89	10		8/6	18 x 10 x 9	Opt., Ven.	Black Foam	28	375.00		
	Ourham	Bass Ref.	6			1 1/4	Cone	No		60-22	88	10		8/6	16 x 9 x 9	Opt., Ven.	Black Foam	25	495.00		
	Pembroke	Bass Ref.	8			1 1/4	Cone	No		48-22	88	10		8/6	22 x 10 x 12	Opt., Ven.	Black Foam	50	625.00		
	Stirling	Bass Ref.	(2)6			1 1/4	Dome	No		48-22	88	10		8/6	22 x 10 x 13	Opt., Ven.	Black Foam	50	995.00		



HOW YOUR ROOM LOOKS TO YOUR SOUND SYSTEM.

AND WHY YOU NEED AN ADC SOUND SHAPER.

"My stereo doesn't sound the same at home as it did in the store! How come?"

It's usually not the fault of your system. Chances are, your components are excellent. But...

EVERY LISTENING ROOM, IN EVERY HOME, IS DIFFERENT.

Every room has its own pattern of reflective and absorptive surfaces.

Carpets and drapes swallow up sound. Walls and windows bounce it around. Speaker placement can dramatically amplify certain frequencies and diminish others.

As the result, some of Stanley Clarke's bass notes seem to "boom" unnaturally. The full-throated Rob McConnell brass section sounds uncharacteristically off-mic. Some piccolo passages in the *Firebird Suite* could drill a hole in your ear.

WHAT'S THE CURE?

Simple. ADC Sound Shapers let you adjust or "equalize" the sound output of your stereo system to help compensate for the acoustic

peculiarities of your room.

Quickly and easily, octave by octave, from 20 to 20,000 Hz, the sliders help you fine-tune your room to achieve the smooth frequency response your music system is capable of delivering. And to achieve the sound balance that satisfies your own musical taste.

A display of lights shows you what the room "hears," the adjustments you make, and the adjusted frequency levels of the music as it is being played.

10 SOUNDSHAPERS 10.

We have four EQs with real-time analyzers and pink-noise generators, like the SS-412X shown at the top of the photo.

There's an equalizer with spatial expander, too: the SS-117EX, pictured in the middle. You'll hear the dramatic difference when you switch in the expander, to spread the stereo image.

Our brand-new 12-band SS-525X offers precision, computerized equalization—automatically; narrow-band bass settings; EQ memories with electronic call; and remote. The slim-line SS-100SL has an RTA for even greater value.

The SS Memory VIII (bottom) takes the guesswork out of equalization—giving fine-tunable preset curves for playback.

ADC: AFFORDABLE TECHNOLOGY.

A few years ago, sophisticated controls such as these were found only in professional recording studios. Now, for surprisingly little, any one of the ten ADC Soundshapers will bring your music system—and your room—up to optimal performance, whether you're shaping the sound of today's compact discs or yesterday's 33s, 45s and 78s.



Sound Shaper
FIRST AMONG EQUALIZERS.



....remarkable!



par.a.digm [par'adim] *noun: serving as an example or model of how something should be done.*

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		SPL, 1 Watt/1 Meter, dB		Crossover Frequencies, Hz		Impedance, Ohms:		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer Type	Midrange Type	Tweeter Type	Speaker Level Contour? Woofer = W, Midrange = M, Tweeter = T, Subwoofer = ST	Anechoic Frequency Response, Hz to kHz, ±dB	Recommended Min. Amp. Pwr., Watts	Nominal/Minimum	Maximum											
COE	Mini Monitor IV	Inf. Baf.		5½	Cone	1	Dome		50-20	91	50	1.5k	/4	7 x 11 x 9	Lacq. Teak	Black Knit	12	450.00	Pair		
	Mini Monitor V	Inf. Baf.		5½	Cone	1	Dome		50-32	91	50	1.5k	/4	15 x 6 x 9	Lacq. Teak	Black Knit	14	650.00	Pair		
	Tower I	Pas. Rad.	8		Cone	1	Dome		40-20	91	75	200,1.5k	/8	8 x 37 x 12	Lacq. Teak	Black Knit	43	1500.00	Pair		
	Mini Tower Double Subwoofer	Inf. Baf. Sat. & Ported Subwoof.	8	5½	Cone	1	Dome		22-32	91	200	150,1.5k	/4, 16/	Four Pieces	Lacq. Teak	Black Knit	172	3500.00	Sys.		
	Colossus Tower Subwoofer	Inf. Baf. Sat. & Ported Subwoof.	(2)8, (6)10	6½	Cone	1	Dome		15-32	91	200	65,300, 1.5k	16/ 12/	Four Pieces	Lacq. Teak	Black Knit	1100	30,000.00	Sys.		
CELESTION	System 6000	Subwoof.	(4)12					W	20-100		100	100		18 x 15 x 21	Black	Black Knit	86	3300.00	Pair w/EQ		
	SL600	Ac. Sus.	6			1¼	Dome		60-20 ±0.5	82	60	2.3k	8/6	15 x 8 x 10	Alum. Nxtl.	None	11	1630.00	Pair		
	SL6S	Ac. Sus.	6			1¼	Dome		60-20 ±1	84	60	2.8k	8/6	15 x 8 x 10	Opt., Wood	Opt., Brown Cloth	18½	900.00	Pair		
	DL10	Ported	10	6½	Cone	1¼	Dome		35-20 ±6	98	10	530,3.8k	8/6	29 x 14 x 12	Vinyl	Opt., Brown Cloth	42	900.00	Pair		
	OL8	Ac. Sus.	8			1¼	Dome		39-20 ±6	89	10	2.5k	8/6	20 x 11 x 11	Vinyl	Opt., Brown Cloth	22	550.00	Pair		
	OL6	Ported	8			1	Dome		50-20 ±6	89	10	2.5k	8/6	18 x 10 x 10	Vinyl	Opt., Brown Cloth	17	440.00	Pair		
	DL4	Ported	6½			1	Dome		70-20 ±6	89	10	2.5k	8/6	15 x 8 x 9	Vinyl	Opt., Brown Cloth	12	375.00	Pair		
CERWIN-VEGA	D-1	Ported	8			1	Horn		30-20 ±4	92	5	3k	8/5	20 x 11 x 10	Vinyl	Brown Knit	25	155.00			
	D-2	Ported	10			1	Horn		30-20 ±4	94	5	3k	8/5	24 x 14 x 10	Vinyl	Brown Knit	35½	205.00			
	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	265.00			
	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	315.00			
	D-7	Ported	12	(2)6	Cones	1	Horn	M,T	25-20 ±4	98	5	500,3.5k	8/5	28 x 16 x 11	Vinyl	Brown Knit	70	395.00			
	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	475.00			
	2000-10	Ported	10	(2)6	Cones	1	Dome	M,T	29-20 ±4	94	5	250,3.5k	8/4	34 x 16 x 11	Wal.	Black Knit	55	400.00			
	2000-12	Ported	12	(4)6	Cones	1	Dome	M,T	25-20 ±2.5	98	5	250,3.5k	8/4	47 x 17 x 13	Wal.	Black Knit	83	550.00			
	2000-15	Ported	15	(6)6	Cones	1	Dome	M,T	29-20 ±2.5	100	5	250,3.5k	8/4	50 x 24 x 13	Wal.	Black Knit	116	700.00			
	240SE	Ported	10			1	Dhorn		32-20 ±3	95	5	3k	6/4	25 x 13 x 12	Black Vinyl	Black Knit	36	235.00			
	250SE	Ported	10	6	Cone	1	Dhorn	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	Dhorn	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	Dhorn	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	Dhorn	M,T	29-20 ±3	102	5	250,3.5k	6/4	36 x 18 x 19	Black Vinyl	Black Knit	90	540.00				
CHAPMAN	T-4	Air Sus.	8			1	Dome		40-20 ±3	88	25	3k	4/3	23 x 11 x 8	Oiled Oak	Black Knit	35	760.00	Pair		
	T-7	Air Sus.	10	5	Cone	1	Dome		32-20 ±3	87	50	200,3k	4/3	39 x 13 x 10	Oiled Oak	Black Knit	70	1495.00	Pair		
	T-9	Air Sus.	(2)10	6½.5	Cones	1	Dome		25-20 ±3	88	50	150,1k,3k	2/1.5	45 x 22 x 14	Oiled Oak	Black Knit	150	3300.00	Pair		
CSI	MDM-4	Ported	(2)6½			3½	Cone		60-17 ±3	89	15	1.5k	8/5	19 x 13 x 10	Rswd. Lam.	Brown Cloth	50	990.00	Pair		
	MDM-TA2	Time Align	6½			¾	Dome	T	60-20 ±3	87	15	2.5k	8/5	16 x 12 x 9	Rswd. Lam.	Alum.	40	1090.00	Pair		
	MDM-TA3	Time Align	(2)6½	3½	Cone	¾	Dome	M,T	45-20 ±3	91	15	1.8k,7k	8/4	19 x 16 x 12	Rswd. Lam.	None	70	1390.00	Pair		
	BE-32	Powered ELF	(2)8						20-60 ±1	91	Inc.	70		32 x 12 x 19	Black Lam.	Black Cloth	160	2450.00	Pair		
DAHLQUIST	DQ-20	Inf. Baf. Phased Array	10	5	Cone	¾	Dome	No			70	200,3.5k	4/	42 x 22 x 12	Oak	Opt.	60	1800.00	Pair		
	DQM-9	Tuned Port	11	5	Cone	1	Dome		28-22	95	25	450,3.5k	8/6	14 x 25 x 13	Opt.	Black	65	1200.00	Pair		
	DQM-9 Compact	Tuned Port	9	5	Cone	1	Dome		35-22	92	25	450,3.5k	8/6	14 x 22 x 11	Opt.	Black	55	980.00	Pair		
	DQM-7 Compact	Tuned Port	9			1	Dome		37-22	90	25	3k	8/6	13 x 21 x 11	Opt.	Black	50	730.00	Pair		
	DQM-5	Tuned Port	9			1	Dome		37-22	90	25	3k	8/6	12 x 21 x 11	Opt.	Black	46	600.00	Pair		
	DQM-3	Ac. Sus.	8			1	Dome		50-20	89	20	2k	8/6	11 x 18 x 10	Opt.	Black	35	450.00	Pair		
	DQ-10	Inf. Baf. Phased Array	10	5½	Cone, Dome	¾, ¼	Dome, Piezo	T, ST	40-27 ±3	86	60	400,1k, 5k, 12.5k	8/5	31 x 32 x 9	Opt., Wood	Opt.	55	1200.00	Pair		
	DQ-1W	Inf. Baf. Subwoof.	13						20-100	87	60		8/	26 x 19 x 15	Opt., Wood	Opt.	70	395.00			



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Control Woofer - W, Midrange - M, Tweeter - T	Atypical Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grilla Color and Material	Weight, Lbs.	Price, \$	
DALI	2	Air Sus.	6½			1	Dome		60-20 ±3	89	10	2.5k	8/	14 x 9 x 9	Wal. Ven.	Black Knit	16	275.00	
	3	Air Sus.	8			1	Dome		55-20 ±3	90	5	2.5k	8/	17 x 11 x 9	Wal. Ven.	Black Knit	21	340.00	
	4	Air Sus.	(2)8			1	Dome		55-20 ±3	93	5	2.5k	4/	30 x 12 x 9	Wal. Ven.	Black Knit	40	480.00	
	6	Air Sus.	10, 8			1¼	Dome		40-20 ±3	91	10	2.5k	6/	37 x 11 x 12	Wal. Ven.	Black Knit	55	790.00	
	7	Bass Ref.	10	3	Dome	¾	Dome		35-20 ±3	89	20	900, 3k	8/	37 x 11 x 12	Wal. Ven.	Black Knit	55	900.00	
	8	Bass Ref.	(2)8	4¼	Cone	1¾, ¾	Dome, Cone		33-23 ±3	92	10	1k, 3k, 8k	8/	38 x 12 x 16	Wal. Ven.	Black Knit	81	1300.00	
	DAYTON WRIGHT	LCM-1A	Gas Sus.	7			1, ¾	Dome		38-16	88	30	4.3k	5/4	22 x 11 x 14	Black Knit	Black Knit	25	625.00
		LCM-1	Gas Sus.	7			1	Dome		38-16	88	30	4.3k	5/4	22 x 11 x 14	Black Knit	Black Knit	25	550.00
SM-2		Gas Sus.	7	1	Dome	¾	Dome	M, T		89	40	4.3k, 11k	5/4	22 x 11 x 14	Black Knit	Black Knit	28	749.00	
XAM-4		Gas Sus.	10	6	Cone	¾, 1	Domes	T		90	40	100, 4.3k, 11k	5/4	48 x 11 x 16	Black Knit	Black Knit	82	1325.00	
ICBM-1		Gas Sus. Subwoof.	(2)10						20-100 ±3	90	30	100	5/4	48 x 11 x 26	Black Knit Vinyl	Black Knit Vinyl	95	1249.00	
XG-10II System H		ES & Gas Sus. Subwoof.	10	5x18	ES	½x2	EMT	T	20-20 ±4	86	100	38, 3.5k	5/4		Opt., Wood	Black Knit Opt.	310 Sys.	5300.00	
XG-10II System C		ES & Gas Sus. Subwoof.	(2)10	5x18	ES	½x2	EMT	T	16-20 ±4	86	100	38, 3.5k	5/4		Opt., Wood	Opt.	360 Sys.	5600.00	
dB PLUS	440	Bass Ref.	6½			1	Dome		45-22 ±3	94	10	3k	8/4	10 x 16 x 9	Wal. Vinyl	Black Knit	16	350.00	
	800	Bass Ref.	10			1	Dome		35-22 ±3	96	10	2.2k	8/4	12 x 24 x 12	Wal. Vinyl	Black Knit	29	450.00	
	990	Pass. Rad.	10			1	Dome		30-22 ±3	98	10	2.2k	8/4	12 x 33 x 11	Wal. Vinyl	Black Knit	37	550.00	
	1010	Bass Ref.	(2)10			1	Dome		25-22 ±3	100	10	2k	8/4	12 x 37 x 11	Wal. Vinyl	Black Knit	45	700.00	
	dB + 25B	Passive Electr. Ported	5¼			1¾	Dome		50-20 ±3	87	10	4.5k	4/4	12 x 7 x 7	Wal. Vinyl	Black Knit	10	179.00	
	dB + 50MKII	Ported	8			1	Dome		45-22 ±3	90	15	2.2k	6/4	24 x 12 x 10	Wal. Vinyl	Black	28	339.00	
	dB + 100MKII	Ported	10			1	Dome		40-22 ±3	91	15	2k	6/4	25 x 14 x 10	Wal.	Black	37	450.00	
	dB + 500	Ported	10	4½	Dome	1	Dome		35-22 ±3	91	15	2k, 6k	6/4	27 x 27 x 10	Wal.	Black	43	569.00	
DBX	Soundfield 1A	Ac. Sus.	(4)10	(4)4	Cones	(6)½	Domes		20-20 ±2	90	40	450, 3.15k	4/2.5	42 x 16 x 16	Opt., Wood	Brown Knit	80	2950.00	
	Soundfield 10	Ac. Sus.	(2)10	(2)4	Cones	(4)½	Domes		30-20 ±2.5	90	30	450, 3.15k	4/2.5	34 x 16 x 16	Opt., Wood	Brown Knit	55	1399.00	
	Soundfield 100	Vented	10	4	Cone	(3)½	Domes		40-20 ±3	91	20	450, 3.15k	4/2.5	32 x 16 x 13	Wal.	Brown Knit	45	899.00	
	Soundfield 1000	Vented	8	4	Cone	(2)½	Domes		45-20 ±3	91	20	450, 3.15k	4/2.5	31 x 14 x 11	Opt.	Brown Knit Opt., Knit	35	599.00	
	DCM	Time Frame TF2000	Trans. Line	(2)8	(2)6½	Cones	1	Dome		25-20	92	20	500, 2k	8/4	60 x 23 x 11	Dark Dak	Brown Knit	100	From 1999.00
Time Frame TF700		Trans. Line	8	4	Cone	¾	Dome		28-20	90	20		8/4	45 x 18 x 7	Dark Dak	Brown Knit	42	From 699.00	
Time Frame TF500		Trans. Line	6½			¾	Dome		31-20	89	10	2.5k	8/4	41 x 17 x 7	Dark Dak	Brown Knit	44	From 499.00	
Time Frame TF350		Trans. Line	6½			¾	Dome		35-20	89	10	2.5k	8/4	37 x 15 x 7	Dark Dak	Brown Knit	31	From 399.00	
Time Frame TF250		Bass Ref.	6½			¾	Dome		42-20	89	10	3k	8/4	34 x 13 x 6	Dark Dak	Brown Knit	21	From 249.00	
Time Window 3		Trans. Line	8	6½	Cone	(2)¾	Domes	M, T	24-20	90	15		8/4	39 x 16 x 12	Oak	Brown Cloth	90	From 1399.00	
Time Window 1A		Trans. Line	(2)6½			(2)¾	Domes		30-20	91	10	2.8k	8/4	36 x 15 x 12	Oak	Brown Cloth	64	From 879.00	
DENNESEN	Nine	Hybrid ES	6½			(6)3 Sq. In.	ES		35-35 ±2	89	50	3.5k	8/6	25 x 10 x 15	Oiled Wal.	Black Foam	30	1650.00	
	Subwoofer	Ported Subwoof.	10						20-100	89	50	100	8/8	18 x 15 x 12	Oiled Wal.	Black Foam	35	400.00	
DESIGN ACOUSTICS	PS-5	Ac. Sus.	5½			1	Dome	T	70-22	90	15	2.4k	8/5.8	11 x 7 x 5	Wal.	Brown Cloth	9	350.00	
	PS-LF	Ac. Sus. Subwoof.	12						40-140	90	15	150	8/4.3	22 x 16 x 16	Wal.	Brown Cloth	50	350.00	
	PS-6	Ac. Sus.	6½			¾	Dome		50-20	88	10	3k	8/5.7	8 x 12 x 11	Wal. Vinyl	Brown Cloth	24	239.90	
	PS-6V	Ac. Sus.	6½			¾	Dome		50-20	88	10	3k	8/5.7	8 x 12 x 11	Wal. Vinyl	Brown Cloth	24	259.95	
	PS-8a		8	4	Cone	¾	Dome	T	55-21	90	15	200, 2.4k		9 x 11 x 14	Wal. Vinyl	Brown Cloth	34	379.90	
	PS-10		10	5	Cone	1	Dome	T	48-22	90	15	190, 2.4k	8/5.6	14 x 11 x 14	Wal. Vinyl	Brown Cloth	25	499.00	

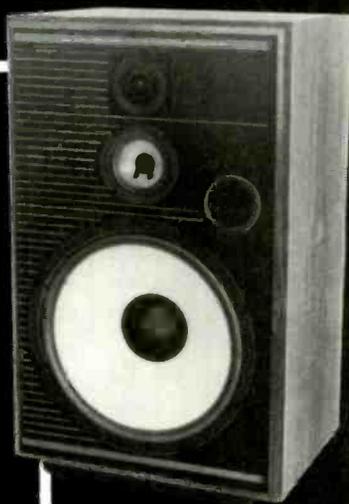
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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Control? Woofer, W/Midrange; M, Tweeter; T, Super-tweeter; ST		Mech. Freq. Response, Hz		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp. Pwr., Watts		Crossover Frequencies, Hz		Impedance, Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
			12	5	Cone	1	Dome	T	40-22	90	15	140,2.4k	8-4.3	Three Pieces	Wal.	Brown Cloth	68	695.00	Sys.											
DESIGN ACOUSTICS (Continued)	PS-30	Ac. Sus. Sat. & Subwoof. Omni	12	5	Cone	1	Dome	T	40-22	90	15	140,2.4k	8-4.3	Three Pieces	Wal.	Brown Cloth	68	695.00	Sys.											
	OS-1	5			1 1/2	Cone			90-18	82	10	3k	8-6.4	10 x 7 Dia.	PVC Resin	Black Nylon	13	259.95	Pair											
DESKTOP LOUDSPEAKER SYSTEMS	DLS-1A	Sat. & Subwoof.	(2)6 1/2	2	Cone	7/8	Dome	No	47-20 ± 5	87	25	170,3.3k	4/3	Three Pieces	Opt.	Black Knit	30	550.00	Sys.											
	DLS-2	Sat. & Subwoof. Sat.	(2)6 1/2	2	Cone	7/8	Dome	No	37-20 ± 3	87	20	170,3.3k	4/3	Four Pieces	Wal.	Black Knit	40	850.00	Sys.											
	DM-1	2 1/4			3/4	Dome	No	170-20 ± 2	86	10	3.3k	9/7	3 x 4 x 7	Opt.	Black Knit	3	150.00	Sys.												
	BMW-1	Ported Subwoof.	(2)6 1/2					No	50-170 ± 3	87	20	170	5/4	6 x 8 x 16	Opt.	Black Knit	19	300.00												
	BMW-2	Pas. Rad. Subwoof.	6 1/2					No	30-170 ± 3	87	10	170	6/4.5	10 x 12 x 14	Opt.		15	300.00												
DUNTECH	Sovereign 2001 Thor	Ac. Sus. Ac. Sus. Active Subwoof.	(2)12, (2)7 1/2	(2)3	Domes	3/4	Dome	W	27-20 ± 2	90	100	300,2k,6k	4.5/3	74 x 32 x 14	Opt.	Black Knit	375	15,000.	Pair											
	PCL-3	Closed Box	6 1/2		Cone	1 1/2	Dome		24-110 ± 1.5	91	Inc.	110	4	31 x 17 x 13	Oiled Oak	Black Foam	82	950.00												
	PCL-5	Closed Box	(2)6 1/2		Cone	1 1/2	Dome		55-20 ± 1.5	83	50	6k	8/6.5	24 x 17 x 4	Oiled Oak	Black Foam	16	850.00	Pair											
	PCL-15	Closed Box	(2)6 1/2		Cone	1 1/2	Dome		50-20 ± 1.5	92	25	6k	8/6.5	24 x 33 x 4	Oiled Oak	Black Foam	35	1675.00	Pair											
	PCL-100	Closed Box	6 1/2		Cone	1 1/2	Dome		45-20 ± 1.5	86	50	6k	8/6.5	20 x 8 x 6	Oiled Oak	Black Knit	30	575.00	Pair											
	PCL-100	Ac. Sus.	(2)12	(2)6 1/2	Cones	1 1/2	Dome		22-20 ± 1.5	92	25	110,6k	8/6.5	76 x 22 x 28	Opt., Wood	Black Knit	275	10,000.	Pair											
DYNAMIC ELECTRO ACOUSTICS	Ovation	Bass Ref.	8			1	Dome		34-20 ± 2	86	30	2.7k	8/7	11 x 11 x 36	Cherry Lam.	Knit	48	1400.00	Pair											
DYNAUDIO	Consequence	Inf. Baf.	(2)12	6.3	Cone, Dome	1, 3/4	Domes		20-40 ± 3	94	100			50 x 16 x 24	Rswd.	Black Knit	120	8500.00	Pair											
EBONY ACOUSTICS	D6	Pressure Release	6			2	Cone		60-18 ± 3	90	25	2k	8/7	10 x 8 x 16	Opt., Wood	Black Knit	25	499.95	Pair											
	D9	Pressure Release	9			1	Dome		35-22 ± 3	91	25	2k	8/7	11 x 16 x 27	Opt., Wood	Black Knit	50	999.95	Pair											
ELECTRO-COMPANET	Prisma		8	5	Cone	3/4	Dome		200-20 ± 1.5	89	25	600,4k	6/4.5	16 x 16 x 40	Opt.		80	2000.00	Pair											
ELECTRO-VOICE	Sentry 100A Monitor	B4 Vented	8			1 1/2	Dome	T	45-18 ± 3	91		2k	6/4.5	17 x 12 x 11	Black Vinyl	Gray Knit	28	255.00												
	Sentry 100EL Monitor	Powered B4 Vented	8			1 1/2	Dome	T	45-18 ± 3		Inc.	2k	30k/10k/8/6	17 x 12 x 12	Black Vinyl	Gray Knit	33	499.00												
	Sentry 500 Monitor	B4 Vented	12			1 1/2	Dome	T	40-18 ± 3	96		1.5k	8/6	24 x 27 x 13	Black Vinyl	Gray Knit	70	499.00												
	Sentry 505 Monitor	B4 Vented	12			1 1/2	Dome	T	40-18 ± 3	96		1.5k	8/6	19 x 26 x 19	Black Vinyl	Gray Knit	60	499.00												
	Interface 1 Series II	Thiele Vented	8			1 1/2	Dome		40-18 ± 3	92		1.5k	8/5	11 x 21 x 10	Vinyl Sim.	Brown Knit	23	210.00												
	Interface 2 Series II	Pas. Rad.	8			1 1/2	Dome		56-18 ± 3	92		1.5k	8/5	14 x 24 x 11	Wal. Sim.	Brown Knit	25	273.00												
	Interface 3 Series II	Pas. Rad.	8			1 1/2	Dome		47-18 ± 3	92		1.5k	8/5	15 x 25 x 13	Wal. Sim.	Brown Knit	33	315.00												
ENERGY	22 Pro Monitor Designer Series	Bass Ref.	7			1 1/2	Dome		28-45 ± 3	86	20	1.5k	8/4	25 x 11 x 12	Oak Ven.	Black Knit	34	1000.00	Pair											
	22 Pro Monitor	Bass Ref.	7			1 1/2	Dome		28-45 ± 3	86	20	1.5k	8/4	25 x 11 x 12	Wal. Vinyl	Black	34	800.00	Pair w/ Stands											
	22 Reference	Bass Ref.	7			1 1/2	Dome		28-45 ± 3	86	20	1.5k	8/4	25 x 11 x 12	Opt.	Black	34	1100.00	Pair w/ Stands											
	22 Reference Connoisseur	Bass Ref.	7			1 1/2	Dome		25-45 ± 2	86	20	1.5k	8/4	35 x 11 x 14	Opt., Ven.	Opt.	80	1300.00	Pair											
ENTEC	SW-1	Powered, Sealed Subwoof.	(3)10					W	15-100 ± 3	250	Inc.	100	10k	17 x 12 x 36	Opt.	Black Foam	100	4495.00	Pair											
	SW-2	Powered, Sealed Subwoof.	(3)10					W	12-100 ± 3	300	Inc.	100	10k	25 x 12 x 36	Opt.	Black Foam	140	6495.00	Pair											
	SW-5	Powered, Sealed Subwoof.	10					W	18-100	120	Inc.	100	10k	17 x 12 x 36	Black	Black Foam	60	2695.00	Pair											
EPI (Continued)	T/E 70 Series II	Inf. Baf.	6			1	Dome		55-20 ± 3	88	15	1.8k	B/	18 x 11 x 6	Wood Vinyl	Brown Cloth	13	99.95												
	T/E 100 Series II	Inf. Baf.	8			1	Dome		40-20 ± 3	88	15	1.8k	B/	21 x 13 x 7	Wood Vinyl	Brown Cloth	18	129.95												
	T/E 120 Series II	Inf. Baf.	10			1	Dome		38-20 ± 3	88	15	1.8k	B/	26 x 16 x 8	Wood Vinyl	Brown Cloth	24	159.95												

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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. Pwr., Watts		Crossover Frequencies, Hz		Impedance Ohms: Nominal/Minimum		Dimensions, inches (To Nearest Inch)		Grille Color and Material	Weight, Lbs.	Price, \$
EPI (Continued)	T/E 250 Series II	Inf. Bat.	8	4	Cone	1	Dome		42-20 ±3	88	15	300,2.5k	6/	26 x 16 x 8	Wood	Brown	26	179.95			
	T/E 280 Series II	Pas. Rad.	8			1	Dome		32-20 ±3	90	15	1.8k	8/	31 x 12 x 9	Wood	Brown	28	219.95			
	T/E 320 Series II	Inf. Bat.	10	4	Cone	1	Dome		38-20 ±3	88	15	300,2.5k	6/	34 x 13 x 10	Wood	Brown	32	274.95			
	T/E Monitor 1	Vented	10	6	Cone	4 1/2 x 2 3/4	Horn	T	40-20 ±3	92	10	500,5k	6/	31 x 12 x 9	Vinyl	Black Cloth	30	219.95			
	T/E Monitor 2	Vented	(2)10	6	Cone	4 1/2 x 2 3/4	Horn	T	35-20	93	10	500,5k	6/	37 x 14 x 11	Black Vinyl	Black Cloth	43	299.95			
EPIK AUDIO	Tower Monitor LSM	Aperiodic	10	(2)2	Cones		Leaf		100-43 ±3	89	40	500,7k	5/3	20 x 20 x 60	Opt., Wood	Brown Knit	450 Pair	3150.00			
		Aperiodic	(2)6 1/2	4	Cone		Leaf		50-43 ±3	89	40	500,5k	4/3	16 x 16 x 48	Opt., Wood	Brown Knit	170 Pair	1495.00			
	Tower LSM	Trans. Line	(3)6 1/2	(2)4	Cones		Leaf		50-43 ±2	90	40	500,5k	4/3	22 x 22 x 54	Opt., Wood	Brown Knit	425 Pair	3995.00			
	208	Trans. Line	8						28-100 ±5	90	60		4/4	16 x 16 x 48	Opt., Wood	Brown Knit	180 Pair	995.00			
	410	Trans. Line	(2)10						16-75 ±2	93	100		4/4	22 x 22 x 72	Opt., Wood	Brown Knit	650 Pair	1995.00			
	810	Subwoof. Inf. Bat. Subwoof.	(4)10						16-100 ±2	96	100		2/2	30 x 30 x 72	Opt., Wood	Brown Knit	700 Pair	2595.00			
ESM ENERGY	ESM-4	Bass Ref.	6 1/2			3/4	Dome		60-20 ±3	88	10	2.7k	8/4	9 x 13 x 9	Opt., Vinyl	Black Knit	11	200.00			
	ESM-2	Bass Ref.	8			1	Dome		40-22 ±3	86	12	2k	8/4	23 x 11 x 11	Opt.	Black	24	330.00			
	ESM-3	Bass Ref.	8			1	Dome		45-22 ±3	86	10	2k	8/4	20 x 10 x 9	Opt.	Black	20	250.00			
ESSENCE	Amethyst 30	Trans. Line	6			1	Dome		32-21 ±3	90	30	2k	8/6	33 x 10 x 14	Opt., Wood	Opt., Knit	70	1650.00			
	Amethyst 70	Trans. Line	8	3	Cone	1.0,7	Domes		29-23 ±3	91	50	200,2k	8/6	46 x 12 x 16	Opt., Wood	Opt., Knit	130	4685.00			
	Amethyst 10a	Trans. Line	8	(2)6, 3	Cones	1.0,7	Domes		26-23 ±3	91	60	30,200, 2k,6.5k	8/6	51 x 15 x 25	Opt., Wood	Opt., Knit	220	6850.00			
ESS LABORATORY	HD 312	Ported	12	2x6	Horn	2.4	Horn	M,T	38-20	95	10	1.5k,5k	8/3	14 x 12 x 25	Wal. Vinyl	Black Knit	42 1/2	498.00			
	HO 310	Ported	10	2x6	Horn	2.4	Horn	M,T	45-20	95	10	1.5k,5k	8/3	12 x 12 x 22	Wal. Vinyl	Black Knit	35 1/2	398.00			
	HO 210	Ported	10			2.4	Horn	T	45-20	95	10	2.5k	8/3	12 x 12 x 22	Wal. Vinyl	Black Knit	33 1/2	298.00			
	AMT Monitor	Pas. Rad.	12		Heil	2 1/2	Heil	M,ST	35-23 ±3	91	35	300	6/3	12 x 19 x 41	Vinyl Oiled	Black Knit	82	1400.00			
	820 Mini-Monitor	Pas. Rad.	6 1/2		Heil	10 1/2	Heil		55-23 ±3	90	10	1.8k	6/3	8 x 9 x 14	Wal. Oiled	Black Knit	15 1/2	220.00			
	AMT 10	Pas. Rad.	12		Heil	2 1/2	Heil	M,ST	35-23 ±3	91	35	300	6/3	16 x 16 x 35	Wal. Oiled	Black Knit	89	1270.00			
	AMT II	Pas. Rad.	10		Heil	2 1/2	Heil	ST	38-23 ±3	91	30	900	6/3	15 x 15 x 34	Wal. Oiled	Black Knit	65	950.00			
	AMT Bookshelf	Pas. Rad.	12		Heil	2 1/2	Heil	ST	40-23 ±3	91	35	800	6/3	13 x 14 x 25	Wal. Oiled	Black Knit	65	1100.00			
	PS 60	Pas. Rad.	10		Heil	10 1/2	Heil	ST	40-22 ±3	93	15	1.8k	6/3	14 x 14 x 24	Wal. Oiled	Black Knit	49	678.00			
	620 Mini-Monitor	Pas. Rad.	5 1/4		Heil	1 1/2	Heil		60-20 ±5	86.5	10	2.5k	8/3	8 x 7 x 12	Wal. Oiled	Black Knit	17	152.00			
EUPHONIC AUDIO	EA-10	Vented	10	(2)5	Cones	1	Dome	M,T	32-20 ±2	91	20	180,2.4k	6/4	42 x 14 x 16	Opt.	Black Knit	80	2795.00			
	EA-20	Vented	10	(2)4 1/2	Cones	3/4	Dome	M,T	35-20 ±3	91	20	300,4k	6/4	40 x 13 x 16	Opt.	Black Knit	72	1795.00			
	EA-30	Vented	8	(2)4 1/2	Cones	3/4	Dome		35-20 ±3	90	20	300,4k	6/4	36 x 12 x 12	Opt.	Black Knit	54	1195.00			
	EA-3	Vented	8			1	Dome		50-20 ±3	90	20	2.2k	8/6	24 x 10 x 12	Opt., Wood	Black Knit	28	550.00			
FANFARE ACOUSTICS	Tempo 2	Ac. Sus.	6 1/2	6 1/2	Cone	1	Dome		38-22 ±2	90	20	400,3.5k	6/3	12 x 11 x 24	Opt.	Opt., Knit	38	499.00			
	Prelude	Tuned Port	6 1/2			3/4	Dome		55-22 ±2	90	20	3.5k	6/3	14 x 10 x 10	Oak	Black Knit	16	275.00			
FIDELUS AUDIO	903FL	Slot Loaded Port	9	5	Cone	1 1/4	Dome		30-30 ±3	90	30	250,6k	8/4	13 x 14 x 48	Oiled Oak	Opt.	65	1495.00			
	SW	Slot Loaded Subwoof.	10						16-100 ±2	90		Ext.	8/4	22 x 24 x 48	Oiled Oak	None	220	990.00			
FISHER	STA-226	Powered	8			3								10 x 19 x 11				199.95			
	STA-341	Powered	8	4		3								10 x 23 x 11				199.95			
	STA-361	Powered	8	4		3								10 x 24 x 11				199.95			
	STA-381	Powered	8	4		3								10 x 26 x 11				199.95			
FMS	FM-2	Aperiodic	6 1/2	1 1/4	Dome	3/4	Dome	No	45-35	87	25	2.2k,14k	6/4	11 x 9 x 20	Paint	Black Foam	40	2450.00			



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broke the rules,
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Anyone can build a revolutionary speaker. But try and find one that sounds like music. You'll end up listening to the MGC-1 from Acoustic Research. We're the company responsible for most of the principles that define a modern loudspeaker: Acoustic Suspension bass loading, the dome tweeter, and the long-throw woofer.

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produces electronically time-delayed ambience. Does it work? Ask Stereophile's Anthony H. Cordesman.* He called it "the most musically convincing illusion of the ambience of a live performance of any speaker to date." And we couldn't agree more with his conclusion: "any audiophile owes it to him or herself to hear it." To hear it for yourself, write to us.

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DALI: COMBINING ADVANCED TECHNOLOGY WITH TRADITIONAL EUROPEAN CRAFTSMANSHIP

One of the more innovative speaker companies to appear in recent years, DALI — for Danish American Limited Incorporated — has a full line of impressively engineered

speaker systems. The company has recently filed for patents on several unique designs reflecting significant breakthroughs in a number of key performance areas.



INNOVATIVE ENGINEERING

Since the founding of the company, DALI engineers have been investigating the complex acoustic relationship between speaker systems and rooms. Intensive research has shown that reflected room sound is a frequently ignored, but critical factor in achieving realistic performance. And it is the view of Dali's engineers that intelligent speaker design involves proper control of reflected sound combined with a precisely defined directionality. A psycho-acoustically plausible sound stage is not possible unless the first-arrival sounds and reflected sounds are maintained in proper perspective. As a result of this philosophy, Dali speaker systems are more "room friendly," are easier to place, and have a larger "sweet spot" with a wider and more accurate stereo imaging than conventional designs.

Another proprietary Dali development, dubbed VE2BR (Vibration Elimination 2nd-order Butterworth Reflex), eliminates the usual cabinet panel vibrations caused by conventional woofer mountings. These vibrations are an unappreciated source of a variety of sonic colorations. DALI's configuration was described in the patent abstract: "Two woofers are connected back to back, one on the front plate of the system and the other on an internal baffle board . . . the back-to-back arrangement and mutually opposed woofers results in a non-vibrating unit." In addition to ne-

gating potentially destructive vibrations, the DALI VE2BR design also provides a very low system resonance, excellent transient response and low frequency efficiency, and a significant reduction in harmonic distortion.

A third, more recent DALI patent involves a double magnet, dual voice coil woofer. The design, called DMSLS (Dual Magnet Super Linear Stroke) provides an extended and linear woofer cone excursion which results in very low distortion at substantial low-frequency output levels.

DALI's advanced technology appears in the six models marketed in the United States: the bookshelf models DALI 2 and 3 and the floor standing monitor models DALI 4, 6, 7, and 8. The DALI 7 is the first model to use a patented asymmetrical room-interface crossover technology, and will be available later this year. The DALI 40, also due this year, will incorporate the VE2BR Principle in what will be judged a world class speaker design. As befits their Danish origin, All DALI speakers are carefully assembled and finished in elegant, hand-rubbed natural walnut veneers.

In the past two years, engineering advances have earned DALI a reputation for being one of the world's most respected and innovative loudspeaker manufacturers. The company is currently represented in virtually every major country and has received a series of excellent reviews in the audio press internationally.



INNOVATIVE MARKETING

DALI's ongoing research has the dual goals of improving the quality of loudspeaker reproduction while lowering its cost to the consumer. This dedication to cost-effective quality has resulted in both a superb product line and an innovative marketing and distribution plan. DALI speakers are *not* currently available at stereo retailers; instead they are sold directly to the public on an individual purchase basis. All DALI speakers are offered on a 10-day "satisfaction guaranteed or money back" basis. If you would like more information about our products and direct marketing policy, we encourage you to write or call:



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Canyon Country, CA 91351

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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, Hz	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter																	
FOCAL	030	Bass Ref.	5 1/4				1	Dome			58-19 ±3	89	25	400,5k	4/3.8	7 x 13 x 11	Opt.	Opt.		350.00 Kit, Pair		
	130	Bass Ref.	7				1	Dome			54-19 ±3	91	20	300,4.2k	4/3.6	10 x 18 x 10	Opt.	Opt.		406.00 Kit, Pair		
	230	Bass Ref.	8				1	Dome			48-19 ±3	93	20	300,4k	4/3.6	11 x 28 x 13	Opt.	Opt.		515.00 Kit, Pair		
	330	Bass Ref.	8				1	Dome			44-19 ±3	92	20	4.2k	8/7	10 x 36 x 11	Opt.	Opt.		630.00 Kit, Pair		
	430	Trans. Line	8	5 1/4	Cone		1	Dome			38-19 ±2	92	20	425,5k	8/7	9 x 47 x 13	Opt.	Opt.		1045.00 Kit, Pair		
	600L	Bass Ref.	10	7	Cone		1	Dome			48-19 ±2	94	20	500,4.2k	8/7	14 x 49 x 14	Opt.	Opt.		1170.00 Kit, Pair		
	Sub W30	Inf. Baf. Subwoof.	(2)10								33-80 ±2	92	60	80	8/4	13 x 27 x 13	Opt.	Opt.		555.00 Kit, Pair		
	Sub W50	Bass Ref. Subwoof.	15								33-150 ±2	95	60	150	8/7	21 x 33 x 21	Opt.	Opt.		810.00 Kit, Pair		
	The Egg	Bass Ref.	7				1	Dome			55-19 ±3	90	20	250,3.2k	4/3.6	Egg Shape, 12 x 16	Opt.	Opt.		450.00 Kit, Pair		
	Audlom	Onken	15	8	Cone		1	Horn			48-19 ±1.5	100	20	500,5k	8/7.2	Two Pieces per Side	Opt.	Opt.		2140.00 Kit, Pair		
	Audlom-A	Bass Ref.		8	Cone		1	Horn			35-19 ±1.5	98	20	550	8/7.2	Two Pieces per Side	Opt.	Opt.		2340.00 Kit, Pair		
FOCUS SPEAKER SYSTEMS	.7	Tuned Port	8				1	Dome			40-19 ±2	90	20	2.75k	8/6.8	12 x 12 x 28	Oak	Black Foam	38	799.00 Pair		
	.5	Tuned Port	8				1	Dome			50-19 ±2	90	20	2.75k	8/6.8	12 x 12 x 19	Oak	Black Foam	28	645.00 Pair		
FOURIER SYSTEMS	6e	Vented	6 1/2	1	Dome	3/8	Dome				50-20 ±3	90	75	3k, 12k	6/2.25	22 x 9 x 8	Wood Ven.		24	595.00 Pair		
	8e	Vented	8 1/4	1	Dome	3/8	Dome				40-20 ±3	90	75	3k, 12k	6/2.25	24 x 11 x 12	Rswd. Ven.		30	1095.00 Pair		
	88r	Vented	(2)8 1/4				32L	Ribbon			32-20 ±3	90	100	400		74 x 11 x 16	Rswd. Ven.		105	3995.00 Pair		
FRANKMANN RESEARCH	FR III	Inf. Baf. Sat. & Subwoof.	(2)12	6	Cone		Horn	T			32-20	92	30	200,4k	8/6	Three Pieces	Opt.	Opt.		695.00 Sys.		
	FR V	Inf. Baf. Sat. & Subwoof.	(4)12	(2)6	Cones		Horn, Cone	T			28-20	94	30	200,4k, 10k	8/6	Three Pieces	Opt.	Opt.		995.00 Sys.		
	FR IIB	Inf. Baf. Subwoof.	(2)12								32-200	92	30	200	8/5	29 x 20 x 20	Opt.	Opt.		395.00		
	FR IVB	Inf. Baf. Subwoof.	(4)12								28-200	94	30	200	8/6	30 x 30 x 20	Opt.	Opt.		595.00		
	FR VIII B	Inf. Baf. Subwoof.	(8)12								19-200	96	30	200	8/6	50 x 34 x 25	Opt.	Opt.		1100.00		
FRIED PRODUCTS	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	950.00 Pair; Kit		
	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	2190.00 Pair		
	Beta	Line Press. Rel.	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	300.00 Pair		
	Q/3	Line Tun.	8			1	Dome	T			45-18 ±3	89	20	2k	8/6	11 x 9 x 20	Opt., Vinyl	Black Knit	40	400.00 Pair		
	A/3	Line Tun.	8			1	Dome	T			40-18 ±3	90	20	2k	8/6	13 x 10 x 23	Oiled Wal.	Black Knit	35	600.00 Pair		
	The Subwoofer	Line Tun. Subwoof.	10								32-90 ±3	89	20	90	8/6	15 x 12 x 24	Opt., Vinyl	Black Knit	55	325.00 Pair		
	Studio IV	Line Tun.	8			3/4	Dome				26-22 ±3	90	20	2.7k	8/6	12 x 18 x 39	Opt., Vinyl	Black Foam	80	1200.00 Pair		
	D/3	Trans. Line	10								23-100 ±3	91	20	100	8/6	24 x 13 x 31	Oiled Wal.		45	700.00 Pair		
	SM/3	Trans. Line Subwoof.	12								20-100 ±3	92	20	100	8/6	29 x 15 x 38			50	800.00 Pair		
FULTON AUDIO	Tempo	Oval Window	8	5	Cone	(2)2 1/4	Cones				35-42 ±2	94	10	65,1.4k, 9k	8/7	12 x 10 x 19	Wal. Lacq.	Black Knit	45	995.00 Pair		
	Rhapsody	Oval Window	8	5	Cone	(2)2 1/4	Cones				25-42 ±2	94	10	55,1.4k, 9k, 16k	8/7	12 x 12 x 37	Wal. Lacq.	Brown Knit	75	1950.00 Pair		
	Crescendo	Oval Window	(3)8	(2)5	Cones	(3)2 1/4	Cones				20-42 ±1.5	92	15	50,90, 1.4k, 9k, 16k	8/6	12 x 12 x 48	Wal. Lacq.	Black Knit	125	3500.00 Pair		
	Symphony	Oval Window	(5)8	(2)5	Cones	(2)2 1/4	Cones				16-42 ±1.5	90	25	45,80, 1.4k, 9k, 16k	8/5	24 x 24 x 50	Wal. Lacq.	Opt., Knit	265	5900.00 Pair		
GENESIS	7	Vented	6 1/2				1	Dome	No		60-20 ±3	90	10	2.5k	8/6	16 x 12 x 6	Teak	Tan Knit	10 1/2	198.00 Pair		
	11	Vented	8				1	Dome	No		40-20 ±4	90	15	1.5k	8/6	19 x 12 x 8	Teak	Tan Knit	16	298.00 Pair		
(Continued)																						



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type		Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		SPL, 1 Watt/1 Meter, dB		Crossover Frequencies, Hz		Dimensions, Inches (To Nearest Inch)		Grille Color and Material	Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Tweeter	Separate Level Controls? Woofer, W Midrange = M, Tweeter = T, Superwoofer = ST	Anechoic Frequency Response, Hz to kHz, ± dB	Recommended Min. Amp. Pwr., Watts	Impedance Dims: Nominal/Minimum	Finish								
GENESIS (Continued)	22	Pas. Rad.	6½			1	Dome	No	32-20 ± 4	86	15	1.5k	8/6	24 x 14 x 8	Teak	Tan Knit	28	398.00	
	33	Pas. Rad.	8			1	Dome	No	28-20 ± 4	89	15	1.5k	8/6	29 x 16 x 8	Teak	Tan Knit	31	498.00	
	44	Pas. Rad.	8			¾	Dome	No	25-25 ± 4	88	30	1.1k	6/4	33 x 18 x 9	Opt., Wood	Opt., Knit	44	Pair From 698.00	
	66	Vented Fourth Order	(2)8	3	Dome	¾	Dome	No	28-22 ± 3	90	30	550,4.5k	8/4	44 x 18 x 12	Oak Ven.	Brown Knit	81	1498.00	
GNP LOUDSPEAKERS	Valkyrie	Sat. & Subwoof.	(2)6½	6½,3	Cone, Dome	1	Dome	M,T	34-21 ± 3	90	25	125,700, 2.5k	8/	Six Pieces	Opt., Wood	Black Knit	188	1795.00	
	System 220	Sat. & Subwoof.	(2)6½	6½,3	Cone, Dome	1	Dome	M,T	34-21 ± 3	90	25	125,700, 2.5k	8/	Four Pieces	Opt., Wood	Black Knit	138	1149.00	
	System 120	Sat. & Subwoof.	8	6½,3	Cone, Dome	1	Dome	M,T	44-21 ± 3	90	25	125,700, 2.5k	8/	Four Pieces	Opt., Wood	Black Knit	116	999.00	
	System 110	Sat. & Subwoof.	8	6½	Cone	1	Dome	T	44-21 ± 3	90	25	125,2.5k	8/	Four Pieces	Opt., Wood	Black Knit	102	749.00	
	20	Sat.	6½	3	Dome	1	Dome	M,T	59-21 ± 3	90	10	700,2.5k	8/	17 x 9 x 9	Opt., Wood	Black Knit	22	599.00	
	10	Sat.	6½			1	Dome	T	68-21 ± 3	90	10	2.5k	8/	12 x 8 x 7	Opt., Wood	Black Knit	15	349.00	
GOLD RIBBON CONCEPTS	3.0B	Ribbon & Trans. Line Subwoof.	(2)7			0.8 x 30	Ribbon		35-30 ± 3	91	100	400	5/2	17 x 14 x 60	Rswd.	Black Knit	150	4950.00	
	6.0B	Ribbon & Trans. Line Subwoof.	(3)8			0.8 x 60	Ribbon		28-30 ± 3	94	81-Amp 100	400	4/3	24 x 22 x 92	Rswd.	Black Knit	300	8950.00	
	3.0 Satellite 15.0B Sub	Ribbon Sat. Dual Compound Subwoof.	(2)15			0.8 x 30	Ribbon		400-30 ± 3 21-400 ± 2	91 93	100 100	400	2/2 4/3	6 x 1 x 32 20 x 30 x 25	Nxtf. Rswd.	Opt. Black Knit	15 100	1600.00 3200.00	
GOLD SOUND	GS15	Bass Ref. Subwoof.	15						28-150 ± 3	95	5	150	4/4	44 x 18 x 14	Diled Wal.	Brown Knit		Kit, 199.00	
	GS15(2)	Bass Ref. Subwoof.	(2)15						28-150 ± 3	98	5	150	8/4	44 x 18 x 14	Diled Wal.	Brown Knit		Kit, 299.00	
	GS15(4)	Bass Ref. Subwoof.	(4)15						25-150 ± 3	100	5	150	8/4	Four Pieces	Diled Wal.	Brown Knit		Pair Kit, 489.00	
	KH #.5	Ac. Sus.	5			¾	Dome		60-20 ± 3	90	10	4k	4/	12 x 8 x 7	Diled Wal.	Brown Knit	12	Sys. Kit, 79.00	
	Kit #5	Bass Ref.	15	6½	Cone	1¼	Dome		28-20 ± 3	94	5	250,3k	4/	44 x 18 x 14	Diled Wal.	Brown Knit	80	Pair Kit, 389.00	
	Kit #1	Bass Ref.	6½			1	Dome	No	48-20 ± 3	92	5	2.5k	8/4	19 x 12 x 10	Opt.	Brown Knit	13	Pair Kit, 99.00	
	Kit #2	Bass Ref.	8	5¼	Cone	1	Dome	No	45-20 ± 3	91	5	250,3k	8/4	19 x 12 x 10	Opt.	Brown Knit	18	Pair Kit, 169.00	
	Kit #3	Bass Ref.	10	5¼	Cone	1	Dome	No	42-20 ± 3	92	5	250,3k	8/4	25 x 14 x 11	Opt.	Brown Knit	29	Pair Kit, 249.00	
	Kit #4	Bass Ref.	12	5¼	Cone	1	Dome	No	36-20 ± 3	93	5	250,3k	8/4	25 x 14 x 11	Opt.	Brown Knit	29	Pair Kit, 299.00	
	Kit #6	Bass Ref.	(2)10	6½	Cone	1¼, 4x5	Dome, Ribbon	No	38-25	94	5	250,3k	8/4	37 x 14 x 11	Opt.	Brown Knit	35	Pair Kit, 449.00	
	Kit #7	Bass Ref.	(2)12	7	Cone	1¼, 4x5	Dome, Leaf	M,T	36-30 ± 3	95	5	200,2k, 8k	8/4	44 x 18 x 17	Opt.	Brown Knit	45	Pair Kit, 599.00	
	Kit #7LA	Bass Ref.	(2)12	7	Cone	1¼, (2)4x5	Dome, Leaf	M,T	36-50 ± 3	95	5	200,2k, 8k	8/4	44 x 18 x 17	Opt.	Brown Knit	50	Pair Kit, 698.00	
	Kit #11	Bass Ref.	15	7	Cone	5x5	Horn	M,T	28-21 ± 3	93	5	200,6k	8/4	44 x 18 x 17	Opt.	Brown Knit	124	Pair Kit, 898.00	
	Kit #11 Pro	Bass Ref.	15	7	Cone	5x5	Horn	M,T	45-21 ± 3	97	5	200,6k	8/4	44 x 18 x 17	Opt.	Brown Knit	109	Pair Kit, 898.00	
	Kit #12 Pro	Bass Ref.	(2)15	7	Cone	5x5	Horn	M,T	45-21 ± 3	97	5	200,5k	8/4	44 x 18 x 17	Opt.	Brown Knit	132	Pair Kit, 1298.00	
	GS10	Bass Ref. Subwoof.	10						No	39-150 ± 3	92	5	150	8/4	24 x 13 x 12	Opt.	Brown Knit		Kit, 148.00
	GS10(2)	Bass Ref. Subwoof.	(2)10						No	29-150 ± 3	92	5	150	8/4	36 x 14 x 11	Opt.	Brown Knit		Kit, 188.00
	GS10(4)	Bass Ref. Subwoof.	(4)10						No	29-150 ± 3	92	5	150	8/4	Four Pieces	Opt.	Brown Knit		Pair Kit, 289.00
	GS12	Bass Ref. Subwoof.	12						No	36-150 ± 3	93	5	150	8/4	26 x 16 x 12	Opt.	Brown Knit		Sys. Kit, 168.00
	GS12(2)	Bass Ref. Subwoof.	(2)12						No	29-150 ± 3	93	5	150	8/4	30 x 18 x 16	Opt.	Brown Knit		Kit, 228.00

(Continued)

EPI
TIME/ENERGY
SPEAKERS



DESIGNED TO
HANDLE THE
EXTREMES.



At EPI we design and build our speakers to one simple precept: speakers should sound not like speakers, but like the instruments and voices of the music being played.

It sounds simple. But today, music lovers can enjoy a wider than ever range of sound, made possible by the current technology of digital recordings. From the most peaceful solo passage to a thunderous full finale, the extremely wide dynamic range of modern recordings places very heavy demands on the playback system, especially the speakers.

It takes sophisticated engineering and precise manufacturing to deliver the entire spectrum of available sound to the listener without distortion.

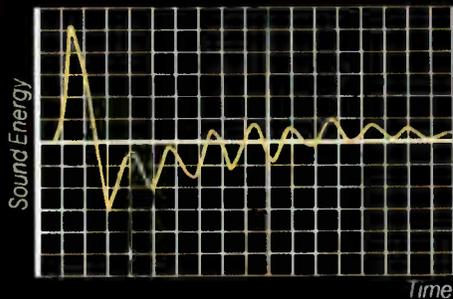
And there are other factors to consider. The amplifier used to drive the speakers may be a modern, powerful unit or a modest component from before the days of digital sound sources. Personal listening habits vary in extremes of their own: some people are happy with moderate volume levels, while others like to actually feel the sound.

To ensure that all music lovers today can enjoy the performance of modern digital signal sources, EPI has devel-

oped the Time/Energy Series of speakers: The Time/Energy Series II and the Time/Energy Monitors. Two distinct groups, each with its own special characteristics, allowing you to choose the performance properties that best suit your individual needs. Both groups enjoy the traditional EPI care and attention to detail which ensures superior sonic performance and reliability for many years to come. With EPI Time/Energy speakers, you can literally listen to the future.

Now, regardless of personal preference, electronics, or music, there is an EPI speaker for you.





This graph shows how the "ringing" of a conventional cone makes the speaker produce sound after the signal has ended.



A speaker with a T/E technology cone stops producing sound almost immediately after the signal ends.

A WORD ABOUT TIME/ENERGY TECHNOLOGY: **INGENIOUS.**

The Time/Energy speaker technology involves making bass and midrange speaker cones, and treble speaker domes, from a layer of light, stiff thermoplastic that is bonded to, or coated with, another material. The thermoplastic layer strengthens the cones and domes so they won't deform while producing sound. The second layer supplies mechanical damping which prevents the cone or dome from "ringing," or producing sound after the signal from the

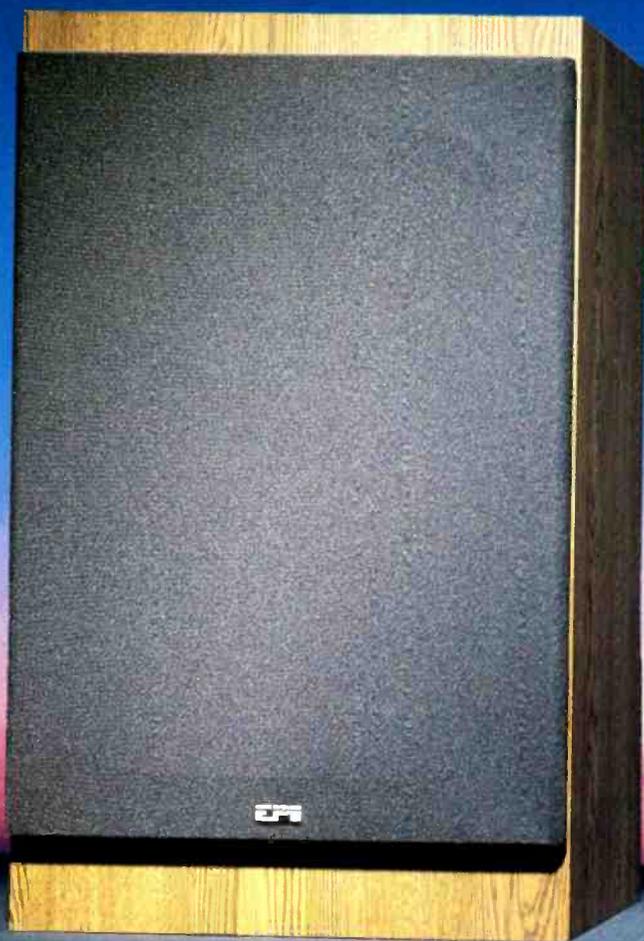


The two layer T/E technology cones have the ideal combination of mechanical strength and damping.



amplifier has ended. The benefit is accurate Time/Energy response. This is extremely important because much of the sound information we hear consists of "sonic events" that are only a few ten-thousandths of a second long. Digital recording does an exceptional job of capturing and reproducing these extremely short sonic events. The accurate Time/Energy response of the EPI speakers insures that the wonderfully clean sound of digitally recorded music is revealed. The music is reproduced with unparalleled detail. Each individual instrument and voice can be heard. And the sound retains the sparkle and snap of the original performance.

The T/E speakers provide unexcelled musical definition. Conventional speakers "smear" the sound and hide musical details.



T/E 120



T/E 250

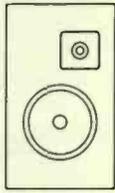
EPI
TIME/ENERGY
SERIES II

The design of the Time/Energy Series II speaker line is built on a foundation of generations of EPI speakers that have become classics; standards to which other speakers are compared. With a specific group of performance properties that have made hundreds of thousands of music lovers EPI devotees. Chief among them are amazingly accurate frequency response and ultra-wide dispersion.

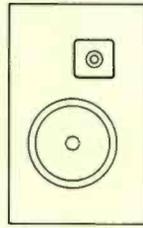


T/E 320

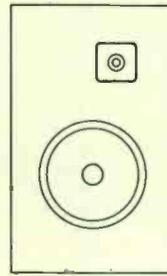
T/E 260



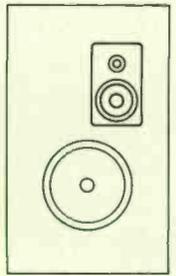
T/E 70



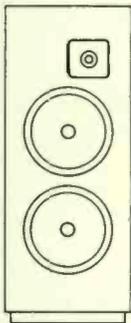
T/E 100



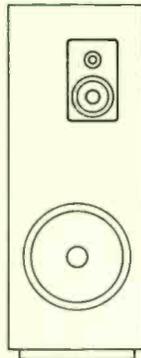
T/E 120



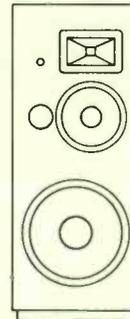
T/E 250



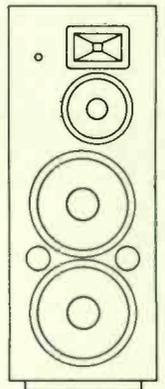
T/E 280



T/E 320



Monitor 1



Monitor 2

SPECIFICATIONS



	FREQUENCY RESPONSE	SUGGESTED POWER RANGE	SPEAKER ELEMENTS	CROSSOVER FREQUENCY	AVERAGE IMPEDANCE	SENSITIVITY	DIMENSIONS (H x W x D)
T/E 70 SERIES II	55 Hz-20 Khz	15-90 Watts	1-1" Treble 1-6" Bass	1800 Hz	8 Ohms	88 dB/W/M	17 1/2" x 10 1/2" x 5 3/4"
T/E 100 SERIES II	40 Hz-20 Khz	15-100 Watts	1-1" Treble 1-8" Bass	1800 Hz	8 Ohms	88 dB/W/M	21" x 13" x 7"
T/E 120 SERIES II	38 Hz-20 Khz	15-100 Watts	1-1" Treble 1-10" Bass	1800 Hz	8 Ohms	88 dB/W/M	25 1/2" x 15 1/2" x 8 1/4"
T/E 250 SERIES II	42 Hz-20 Khz	15-250 Watts	1-1" Treble 1-4" Midrange 1-8" Bass	300 Hz and 2500 Hz	6 Ohms	88 dB/W/M	25 1/2" x 15 1/2" x 8 1/4"
T/E 280 SERIES II	32 Hz-20 Khz	15-100 Watts	1-1" Treble 1-8" Bass 1-8" Passive Radiator	1800 Hz	6 Ohms	90 dB/W/M	30 1/2" x 12" x 9"
T/E 320 SERIES II	38 Hz-20 Khz	15-250 Watts	1-1" Treble 1-4" Midrange 1-10" Bass	300 Hz and 2500 Hz	6 Ohms	88 dB/W/M	34 1/4" x 13" x 10"
MONITOR 1	40 Hz-20 Khz	10-250 Watts	1-4 1/2" x 2 3/4" Horn Treble 1-6" Midrange 1-10" Bass	500 Hz and 5000 Hz	6 Ohms	92 dB/W/M	30 1/2" x 12" x 9"
MONITOR 2	35 Hz-20 Khz	10-275 Watts	1-4 1/2" x 2 3/4" Horn Treble 1-6" Midrange 2-10" Bass	500 Hz and 5000 Hz	6 Ohms	93 dB/W/M	37" x 14" x 10 3/4"

Accurate frequency response produces "The Linear Sound of EPI"™ and lets the speakers reveal all the excitement and beauty of the music, the subtleties and nuances as well as the power and impact.

EPI's ultra-wide dispersion allows the speakers to project the same accurate frequency response to all areas of the listening room, no matter where the listener is seated. All the music comes through clean, clear and forceful. An additional benefit of the wide dispersion is the big stereo image it produces. There is no sense of sound coming from a pair of speakers only a seamless wall of sound.

In addition to these well-established EPI performance features, the Time/Energy Series II speakers boast engineering advances of their own that are of critical importance in modern systems.

Specially engineered suspension systems in the bass speakers in the Time/Energy Series II units maintain superior cone motion control and prevent cone "bottoming" — even with the dramatic bass energy of modern wide dynamic range recordings.

The new Time/Energy Series II treble speaker has a more substantial, more rugged dome and offers smoother extreme high frequency response.

The three-way Time/Energy Series II speakers feature an integrated midrange/treble speaker module that

allows the two speakers to be mounted very close to each other to produce the best sound and stereo image.

The new, wide range design, midrange speaker in the midrange/treble module reproduces over three octaves of the sound range, allowing the crossover points of the speaker to be placed away from the midrange area where the ear is most sensitive. The midrange speaker's dual chamber isolation structure prevents the bass speaker from affecting it, lowers its resonant frequency and reduces its electrical "Q" to ensure smooth low-midrange response and low distortion.





TIME/ENERGY
MONITOR SPEAKERS

The Time/Energy Monitor 1 and the Time/Energy Monitor 2 represent a new concept in EPI speakers, combining elements of the Time/Energy technology with design features of professional studio monitor speakers.

For people who want to enjoy the impact and wide dynamic range of digital recordings but whose amplifiers deliver only modest amounts of power, or for those who like to listen to music at the volume levels of a live concert, the Time/Energy Monitors are an ideal choice. Exceptional efficiency plus an incredible power capacity – the same characteristics exhibited by professional monitor speakers – enable the Time/Energy Monitors to generate sound levels that are nothing short of spectacular.

A revised form of the Time/Energy two-layer speaker cone technology was developed for the Monitor's bass and midrange speakers. Their magnet structures and voice coils were specifically engineered to produce maximum efficiency and shrug off the heat of high power operation. Specially tuned, vented cabinets augment the bass speaker efficiency and extend its bass response.

Like the Time/Energy Series II, the Monitor's midrange speakers reproduce a large portion of the sound range, allowing the crossover points to be located away from the musically critical midrange area.

A highly advanced horn loaded treble speaker uses the design technology of sound reinforcement speaker systems. It provides the advantages of high efficiency but with much wider dispersion



and much lower distortion than conventional horn loaded speakers.

The treble speaker output level control included in the Time/Energy Monitors can be set to produce a technically accurate sound or it may be adjusted to suit the listener's preference and the acoustics of the listening room.

As efficient with space as they are with acoustics, the Monitors' tall, slender

cabinet houses the maximum number of sound-producing components in the minimum amount of floor space.

Delivering both efficiency and power, the Time/Energy Monitors can reproduce wide dynamic range signals with ease and incredible flexibility. Whether

used with low power "rack system" electronics, or with high performance components, they will take everything they're given and do what they do best: produce exceptional sound.



EP

Monitor 1

Monitor 2

From
a peaceful
solo
passage
to a
thunderous
finale
Going
to
the
extremes
for
music



Epicure Products, Incorporated, Newburyport, MA 01950
800-225-7932, In. Mass. 800-892-0565

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			SPL, 1 Watt/1 Meter @8	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
GOLD SOUND (Continued)	GS12(4)	Bass Ref. Subwoof.	(4)12					No	29-150 ±3	93	5	150	8/4	Four Pieces	Opt.	Brown Knit	Kit.	328.00		
	JBL15	Bass Ref. Subwoof.	15					No	38-150 ±3	93	5	150	8/8	18 x 32 x 32	Opt.	Brown Knit	Sys. Kit.	229.00		
	JBL15(2)	Bass Ref. Subwoof.	(2)15					No	26-125 ±3	93	5	150	8/8	44 x 18 x 14	Opt.	Brown Knit	Kit.	448.00		
	JBL15(4)	Bass Ref. Subwoof.	(4)15					No	26-124 ±3	93	5	150	8/8	Four Pieces	Opt.	Brown Knit	Kit.	880.00		
	JBL18	Bass Ref. Subwoof.	18					No	38-150 ±3	95	5	150	8/8	37 x 25 x 17	Opt.	Brown Knit	Kit.	318.00		
	JBL18(2)	Bass Ref. Subwoof.	(2)18					No	29-300 ±3	95	5	150	8/8	46 x 29 x 19	Opt.	Brown Knit	Kit.	620.00		
	JBL18(4)	Bass Ref. Subwoof.	(4)18					No	29-300 ±3	95	5	150	8/8	Four Pieces	Opt.	Brown Knit	Kit.	1240.00		
2005	Ported	15	8.5	Cones	1	Dome	(2) M,T	28-25 ±3	93	10	250, 1.2k, 5k	8/	52 x 22 x 14	Opt.	Brown Knit	Sys. Kit.	1195.00			
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	149.00		
REUBEN GUSS	System 1 Monitor	Inf. Baf. Sat. & Subwoof.	(12)15	(24)5	Domes	(8)1, (58)3	Domes, Plezors	M,T	25-25 ±3	92	30	475,650, 950,3.5k	5/3	Four Pieces	Oiled Wal.	Black Knit	850 Sys.	50,000.00		
	System 2 Symphony	Inf. Baf. Sat. & Subwoof.	(4)15	(6)5	Domes	(4)1, (6)3	Domes, Plezors	M,T	28-22 ±3	92	30	475,650, 950,3.5k	4/3	Four Pieces	Oiled Wal.	Black Knit	354 Sys.	9000.00		
	System 3 Concerto	Inf. Baf. Sat. & Subwoof.	(4)12	(6)5	Domes	(4)1, (6)3	Domes, Plezors	M,T	30-22 ±3	92	30	475,650, 950,3.5k	4/3	Four Pieces	Oiled Wal.	Black Knit	324 Sys.	6000.00		
	System 4 Sonata	Inf. Baf. Sat. & Subwoof.	(4)10	(2)5	Domes	(2)1, (4)3	Domes, Plezors	M,T	32-22 ±4	90	30	650,950, 3.5k	4/3	Four Pieces	Oiled Wal.	Black Knit	228 Sys.	3000.00		
HARMS LABS	Mini	Inf. Baf.	5			1	Dome		70-20 ±2	87	10	3k	8/7	13 x 9 x 6	Wal. Stain	Black Knit	24 Pair	280.00		
	HL1	Pas. Rad.	5			1	Dome		45-20 ±2	87	10	3k	8/7	20 x 10 x 9	Wal. Stain	Black Knit	36 Pair	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 Pair	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 Pair	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 Pair	780.00		
	HL4	Pas. Rad. Subwoof. & Sat.	12	(2)6½	Cones	(2)1	Domes		22-20 ±2	94	10	200,3k	8/4	Four Pieces	Wal. Stain	Black Knit	164 Pair	1200.00		
	HL5	Pas. Rad. Subwoof. & Sat.	(2)12	(4)5	Cones	(4)1	Domes		18-20 ±2	97	10	150,3k	8/4	Six Pieces	Wal. Stain	Black Knit	230 Sys.	3000.00		
HARTLEY PRODUCTS	H-100	Air Col.	8	1½	Air Col.	2	Cone	No	50-20 ±4	93	5	2.3k	8/5	11 x 11 x 22	Oiled Wal.	Black Knit	60 Pair	379.95		
	H-200	Air Col.	10	2½	Air Col.	1	Dome	No	35-25 ±3	95	5	2.6k	8/6	15 x 15 x 30	Oiled Wal.	Black Knit	120 Pair	649.95		
	H-300	Air Col.	(2)10	(4)1½	Air Cols.	(2)1	Domes	No	30-25 ±3	96	5	3.4k	4/3	15 x 15 x 43	Oiled Wal.	Black Knit	170 Pair	999.95		
	SPL-1	Air Col.	10	3	Cone	(4)¾	Phrsrs.	No	25-25 ±3	95	15	3.8k	8/6	Four Pieces	Oiled Wal.	Black Knit	200 Pair	1699.95		
	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 Sys.	525.00		
	ST-4	Phasor Sat.				(4)¾	Phrsrs.	No	3.8k-25k ±2	96	15	3.8k	8/7	5 x 5 x 12	Oiled Wal.	Black Knit	15	190.00		
	Concertmaster	Inf. Baf.	18	10	Cone	(2)7	Cones	No	16-25 ±3	92.5	25	250,3k,8k	8/5	29 x 18 x 42	Oiled Wal.	Black Knit	350 Pair	3850.00		
	Reference	Inf. Baf.	24	10	Cone	(2)7	Cones	No	16-25 ±3	93	25	250,3k,8k	8/5	36 x 24 x 50	Oiled Wal.	Black Knit	600 Pair	4995.00		
	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	950.00		
	SW-24	Inf. Baf. Subwoof.	24					No	16-250 ±3	93	25		5/4	36 x 24 x 50	Oiled Wal.	Black Knit	250	1250.00		
HECO	SAT 6000	Sat.	4½			1	Dome		80-32 ±3	87	60	2.2k	4/	8 x 6 x 5	Black Metal	Black Mesh	5½	150.00		
	D-6300	Sat.	4½			1	Dome		80-32 ±3	87	50	2k	4/	4 x 8 x 5	Black Metal	Black Mesh	7¼	115.00		
	SUB 6000	Powered Subwoof. & Sat.	10					W	25-120		90, 60 Inc.	120		11 x 11 x 12	Black Metal	Black Mesh	22	665.00		
	SUB 9000	Amp Powered Subwoof.	12					W	20-150 Adj.		110 Inc.	50-150		17 x 14 x 14	Black Metal	Black Mesh	27½	520.00		
	PCX-3	Inf. Baf.	10	2	Dome	1	Dome	No	25-25 ±5	85	20		4/	20 x 12 x 10	Oiled Wal.	Brown Knit	27½	600.00		
	PCX-4	Inf. Baf.	12	4	Dome	1	Dome	No	20-25 ±5	85	20		4/	23 x 14 x 12	Oiled Wal.	Brown Knit	35½	800.00		
	LAB-2	Inf. Baf.	15,8	(3)2	Domes	(4)1, ½	Domes	W, M, ST	20-40 ±5	84	40	200,900, 4k,5k	4/	40 x 16 x 16	Oiled Wal.	Brown Knit	93½	2500.00		

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Control? Woofer, W/Midrange = W, Tweeter = T		Analogic Frequency Response, Hz to kHz, ±dB		SPL - 1 Watt/1 Meter, dB		Recommended Min. Amp. Pwr., Watts		Crossover Frequencies, Hz		Impedance, Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
HEYBROOK	HB-3	Inf. Bal.	10	4	Cone	3/4	Dome			35-20	89	15	1k,5k	8/6.8	25 x 13 x 12	Opt.	Black Foam	48	898.95 Pair; 1017.95 Pair w/ Stands							
	HB-2R	Ref. Port	6 1/2			3/4	Dome			36-20	87	15	4k	7/6	16 x 9 x 9	Opt.	Black Foam	20	469.95 Pair; 598.95 Pair w/ Stands							
	HB-1	Inf. Bal.	8			1	Dome			42-20	90	10	4k	8/6.8	19 x 12 x 9	Opt.	Black Foam	18	329.95 Pair; 458.95 Pair w/ Stands							
HITACHI	HSA-2000	Pas. Rad.	10	4	Cone	2	Cone			45-20	90	35	1k,3k	8/	12 x 32 x 10		Black Knit	22	140.00 Pair							
	HSA-3000	Pas. Rad.	10	4	Cone	3	Cone			40-20	90	50	1k,3k	8/	13 x 36 x 11		Black Knit	27	230.00 Pair							
	HSA-4000	Pas. Rad.	12	4	Cone	2	Cone			35-20	90	100	1.5k,6k	8/	16 x 40 x 12		Black Knit	44	290.00 Pair							
H.L.X.	New 2C	Ported	8			3/4	Dome			42-22	92	10	5k	8/8	10 x 10 x 18	Opt.	Brown Knit	40	140.00 Pair							
	22	Ac. Sus.	(2)8			3/4	Dome			38-22	92	10	5k	4/4	12 x 12 x 22	Opt.	Brown Knit	52	200.00 Pair							
	5P	Trans. Line	10			2 1/2	Cone			34-22	92	10	4.3k	8/4	12 x 12 x 22	Opt.	Brown Knit	66	260.00 Pair							
	15	Trans. Line	10	5 1/4	Cone	1	Dome			34-24	92	10	700,5k	8/4	12 x 12 x 24	Opt.	Brown Knit	72	340.00 Pair							
	13	Ported	12	5 1/4	Cone	1	Dome			30-24	92	10	700,5k	8/4	16 x 12 x 28	Opt.	Brown Knit	84	400.00 Pair							
	Pro-1	Trans. Line	10			2 1/2	Cone			34-22	92	10	1.8k	8/4	11 x 12 x 33	Oak	Brown Knit	96	400.00 Pair							
IMAGED STEREO	Imager		(2)8			1 1/2	Dome			50-16 + 1,-4	93	15		4/	15 x 11 x 25	Oiled Wal.	Brown	100	895.00 Pair w/ Stands							
IMPULSE	I	Ported	10			46L	Ribbon	T		30-20 ± 2	83	100	175	5/2	Two Pieces per Side	Oiled Wal.	Black Knit	200	5000.00							
	II LeF	Inf. Bal.	12			(4)2	Cones			28-22 ± 2	88	100	175	4/3	Two Pieces per Side	Oak	Metal	80	2500.00							
	III LeF	Inf. Bal.	6			2	Cone			46-22 ± 2	88	100	175	4/3	10 x 8 x 14	Oak	Metal	26	2000.00 Pair							
INFINITY	RS 5000	Sealed Box	10	3 1/2	Cone	3/4x1 1/4	EMIT	M,T		42-32 ± 3	89	20	500,5k	6/4	24 x 15 x 12	Oak Vlnyl	Black Knit	34	279.00							
	RS 4000	Sealed Box	8	3 1/2	Cone	3/4x1 1/4	EMIT	T		44-32 ± 3	89	20	500,5k	6/4	22 x 12 x 10	Oak Vlnyl	Black Knit	30	229.00							
	RS 3000	Sealed Box	8			1	Dome			45-22 ± 3	89	20	4k	6/4	20 x 12 x 10	Oak Vlnyl	Black Knit	28	149.00							
	RS 2000	Sealed Box	6 1/2			1 3/8	Dome			57-22 ± 3	89	15	4.5k	6/4	14 x 9 x 8	Oak Vlnyl	Black Knit	14	99.00							
	RS 1000	Sealed Box	4 1/2			1 3/8	Dome			72-22 ± 3	89	8	5.5k	6/4	13 x 8 x 7	Oak Vlnyl	Black Knit	9	69.00							
	SM 150	Tuned Port	15	(2)4 1/2	Cones	1	Dome	M,T		29-27	101	10	500,5.5k	8/6	40 x 19 x 12	Vlnyl Rswd.	Black Knit	80	519.00							
	SM 120	Tuned Port	12	4 1/2	Cone	1	Dome	M,T		32-27	98	10	750,5.5k	8/6	33 x 16 x 12	Vlnyl Rswd.	Black Knit	64	359.00							
	SM 100	Tuned Port	10			1	Dome	T		35-27	98	10	2.5k	8/6	30 x 14 x 12	Vlnyl Rswd.	Black Knit	53	239.00							
	IRS Series III	Servo	(12)12	(24) 4x6x 1/2	EMIMs	(72) 1/2x2	EMITs	M,T, ST		16-40 ± 2	87	100	70,5k	4/3	Four Pieces	Vlnyl Rswd.	Black Knit	1550 Sys.	37,500.00							
	RS IB	Servo	(12)8	(14) 4x6x 1/2	EMIMs	(8) 1/2x2	EMITs	M,T, ST		25-32 ± 2	87	75	140,700, 3k,8k	6/4	Four Pieces	Oak	Brown Cloth	348 Sys.	5900.00							
	RS IIB	Sealed Box	(4)10	(6) 4x6x 1/2	EMIMs	(6) 1/2x2	EMITs	M,T, ST		29-32 ± 2	86	60	150,800, 4k,8k	6/4	48 x 23 x 18	Oak	Brown Cloth	200 Sys.	3400.00 Pair w/EQ							
	RS 3B	Sealed Box	(2)10	1 1/2	Dome	1/2x2	EMIT	M,T		35-32 ± 3	88.5	50	600,4k	6/4	48 x 18 x 8	Oak	Brown Cloth	77	749.00							
	RS 4B	Sealed Box	(2)8	1 1/2	Dome	1/2x2	EMIT	M,T		40-32 ± 3	88.5	40	600,4k	6/4	42 x 15 x 11	Oak	Brown Cloth	64	559.00							
RS 5B	Sealed Box	10	1 1/2	Dome	1/2x2	EMIT	M,T		43-32 ± 3	88.5	35	600,4k	6/4	25 x 16 x 10	Oak	Brown Cloth	42	439.00								
RS 6B	Sealed Box	8	1 1/2	Dome	1/2x2	EMIT	M,T		45-32 ± 3	88.5	35	600,4k	6/4	22 x 14 x 10	Oak	Brown Cloth	34	319.00								
Infinitesimal II	Sealed Box	4 1/2			1/2x2	EMIT	T		65-32 ± 2	86	15	3.5k	6/4	12 x 7 x 6	Black Metal	Black Metal	12 1/2	199.00								
INNOTECH	O24	Trans. Line	(2)5	1 1/2	Dome	1	Dome	No		37-20 ± 3	90	25	3.5k,7k	8/5	37 x 11 x 16	Opt.	Black Foam	60	1000.00 Pair							
INNOVATIVE TECHNIQUES	ITC 1	Vented Seventh Order	5 1/4	1 1/2	Dome	1	Dome	M,T		50-18 ± 3	86	40	1k,7.5k	8/7	7 x 12 x 8	Opt., Wood	Brown Knit	16	875.00 Pair w/EQ							
	ITC 3	Vented Fourth Order	7			3/4	Dome	T		48-20 ± 3	91	20	4.5k	8/	10 x 10 x 30	Oiled Wal.	Black Knit	19	500.00 Pair							

(Continued)



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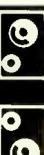


LOUDSPEAKERS

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 = W, Tweeter = T Superwoofer = ST	Amplifier Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
INNOVATIVE TECHNIQUES (Continued)	The Wall System	Variable Loading Inf. Baf.	7			¾	Dome		60-20 ±4	90	20	5k	8/	8 x 11 x 4	Black Enam.	Perf. Steel	6½	350.00
	The Ceiling Speaker		7			¾	Dome		80-16	91	20	6k	8/	19 x 13 x 8	White Enam.	Perf. Steel	26	350.00
	The Ceiling Woofer	Vented Fourth Order Subwoof.	7						42-100 ±4	91	20	100	8/7	14 x 30 x 8	White Enam.	White Knit	20	350.00
	ITC 4	Vented Seventh Order Subwoof.	10						24-120 ±2	89	60	120	8/6	18 x 18 x 18	Opt. Wood		50	1300.00
INTERAUDIO/BOSE	SA500	Ported	10			3	Cone			90	15	1.3k	8/	22 x 13 x 11	Wal. Vinyl	Brown Knit	45	549.00
	SA300	Ported	8			3	Cone			90	15	1.1k	8/	18 x 11 x 9	Wal. Vinyl	Brown Knit	31	349.00
	SA200	Ported	6			3	Cone			90	10	1.9k	8/	14 x 9 x 7	Wal. Vinyl	Brown Knit	20½	289.00
JAMD	CBR 70	Ported	5½	3	Cone	1	Dome		40-20 ±3	89	20	1.2k, 4.6k	8/	19 x 10 x 6	Gray	Black	15.4	199.00
	CBR 90	Ported	6½	4	Cone	1	Dome	T	35-20 ±3	90	20	960, 5k	8/	24 x 12 x 10	Gray	Black	24	299.00
	CBR 120	Ported	8	4	Cone	1	Dome	T	28-22 ±3	91.2	20	820, 4.9k	8/	28 x 14 x 12	Gray	Black	37.5	399.00
	CBR 200	Ported	10	5	Cone	1	Dome	M, T	25-24 ±3		20	540, 3.8k	8/	33 x 16 x 14	Gray	Black	53	599.00
	P166	Ported	8¼			1	Dome		45-20 ±3	91	20	2.5k	8/	17 x 11 x 10	Gray	Black	19.8	159.95
	P266	Ported	8¼	1	Cone	1	Dome		40-20 ±3	92	20	1.4k, 4.8k	8/	27 x 13 x 11	Gray	Black	33	259.95
	P366	Ported	9¼	1	Cone	1	Dome	M, T	35-20 ±3	93	20	1.25k, 5k	8/	27 x 15 x 12	Gray	Black	48.5	369.95
	P566	Ported	12	1	Cone	(5)1	Domes	M, T	30-20 ±3	94	20	1.2k, 3.5k	8/	30 x 18 x 14	Gray	Black	75	589.95
	SL80	Ported	6½		Cone	1	Dome		45-20 ±3	90	20	2.5k	8/	18 x 9 x 8	Gray	Black	9.5	119.00
	SL100	Ported	6½	5	Cone	1	Dome		40-20 ±3	91.5	20	1.5k, 4k	8/	21 x 11 x 9	Gray	Black	15.5	139.00
	SL140	Ported	8	5	Cone	1	Dome		36-20 ±3	92	20	1.4k, 4k	8/	24 x 12 x 9	Gray	Black	18	179.00
	SL150	Ported	6½		Cone	1	Dome		32-20 ±3	89.5	20	3.8k	8/	33 x 11 x 9	Gray	Black	28.6	229.00
	C50	Ported	4			2			70-20 ±3	89	20	2.6k	4/	7 x 4 x 7	Black	Black	2.9	69.95
	C70	Ported	6½			1	Dome		45-20 ±3	90	20	2.5k	8/	12 x 8 x 9	Black	Black	8.4	84.95
	C90	Ported	8	¾	Cone	1	Dome		40-20 ±3	91.6	20	1.2k, 4k	8/	15 x 9 x 9	Black	Black	11	119.95
JANIS	W1	Slot Loaded Subwoof.	15						30-100 ±1	87	60	100	8/7	18 x 22 x 22	Dilled Wal.	Wood	100	795.00
	System 3	Slot Loaded Subwoof.	12						30-100 ±1	85	50	100	8/7	18 x 18 x 18	Dilled Wal.	Wood	67	550.00
	System 3/A	Powered Slot Loaded Subwoof.	12						30-100 ±1	85	50 Inc.	100	8/7	18 x 18 x 18	Dilled Wal.	Wood	87	850.00
JBL	62	Ducted Port	6½			1	Dome			89	10	3k	8/	10 x 7 x 16	Rswd. Vinyl	Black Cloth	32	115.00
	82	Ducted Port	8			1	Dome			90	10	3k	8/	14 x 8 x 22	Rswd. Vinyl	Black Cloth	30	165.00
	630	Ducted Port	(2)6½			1	Dome			93	10	400, 2.5k	4/	15 x 8 x 36	Rswd. Vinyl	Black Cloth	40	225.00
	830	Ducted Port	(2)8			1	Dome			94	10	400, 2.5k	4/	17 x 9 x 40	Rswd. Vinyl	Black Cloth	53	295.00
	940	Ducted Port	8, 10	5	Cone	1	Dome			94	10	400, 800, 2.5k	4/	19 x 10 x 44	Rswd. Vinyl	Black Cloth	65	395.00
	L20T	Ducted Port	6½			1	Dome			87	10	3k	8/	15 x 9 x 8	Dilled Wal.	Dpt., Knit	36	195.00
	L60T	Ducted Port	8			1	Dome			88	10	2.5k	8/	31 x 12 x 10	Dilled Wal.	Dpt., Knit	38	265.00
	L80T	Ducted Port	10	5	Cone	1	Dome			90	10	800, 4.5k	8/	34 x 14 x 12	Dilled Wal.	Dpt., Knit	53	395.00
	L100T	Ducted Port	12	5	Cone	1	Dome			91	10	800, 4.5k	8/	37 x 16 x 13	Dilled Wal.	Dpt., Knit	70	525.00
	8460	Subwoof.	18							94	200	Ext.	8/	25 x 38 x 24	Rswd. Vinyl	Brown Knit	125	1700.00
	8380	Subwoof.	15							90	200	Ext.	8/	21 x 27 x 17	Teak	Brown Knit	70	750.00
	LT-1	Ducted Port	5¼			1	Dome			87	10	4k	8/6	10 x 6 x 5	Black Alum. Teak	Black Metal	27	395.00
	18Ti	Ducted Port	6½			1	Dome			88	10	3k	8/	15 x 9 x 8	Black Alum. Teak	Brown Knit	35	295.00
	120Ti	Ducted Port	12	5	Cone	1	Dome	M, T		89	10	900, 4k	8/	24 x 14 x 11	Teak	Brown Knit	56	595.00
	240Ti	Ducted Port	14	5	Cone	1	Dome	M, T		89	10	900, 4k	8/	37 x 18 x 12	Teak	Brown Knit	85	895.00
250Ti	Ducted Port	15	8.5	Cones	1	Dome	M, T, ST		90	10	400, 1.4k, 5.2k	8/	52 x 22 x 14	Teak	Brown Knit	150	1895.00	

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. Pwr., Watts			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	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange
JENSEN	820	Vented	8			3			Cone			68-21.5	50		3.5k	8			20 x 11 x 9	Wal. Vinyl	Black Cloth	14 1/2												119.00
	1030	Vented	10	5	Cone	3			Cone			58-21.5	60		3.5k, 10k	8			25 x 15 x 10	Wal. Vinyl	Black Cloth	31											169.00	
	1230	Vented	12	5	Cone	3			Cone			56-21.5	70		3.5k, 10k	8			27 x 16 x 11	Wal. Vinyl	Black Cloth	36											199.00	
JPW LOUDSPEAKERS	AP3	Inf. Baf.	8			3/4			Dome			55-20 ±3	89	10	3.2k	8.6.2			21 x 10 x 12	Opt. Wood	Opt. Knit	53											499.50	
	AP2	Inf. Baf.	8			3/4			Dome			60-20 ±3	89	10	3.2k	8.6.2			17 x 10 x 10	Opt. Wood	Opt. Knit	42											349.50	
	P1	Inf. Baf.	8			3/4			Dome			65-20 ±3	90	10	3.2k	8.6.2			17 x 10 x 10	Opt. Wood	Opt. Knit	34											299.50	
JRM	Transparency Subwoofer 1A	B4 Vented Subwoof.	18						W			26-250 ±3	91	200	150	8.5			24 x 26 x 37	Dpt.	Dpt.	150											450.00	
	Transparency Subwoofer 1B	QB3 Vented Subwoof.	18						W			25-250 ±3	94	400	150	8.5			19 x 26 x 48	Dpt.	Dpt.	180											725.00	
	Transparency Subwoofer IIA	QB3 Vented Subwoof.	(2)12						W			25-450 ±3	88	300	150	Sel.			24 x 26 x 37	Dpt.	Dpt.	150											450.00	
	Transparency Subwoofer IIB	QB3 Vented Subwoof.	(2)15						W			26-300 ±3	94	300	150	Sel.			20 x 25 x 48	Dpt.	Dpt.	200											550.00	
	Transparency Satellite Tower	Triamped Inf. Baf. Sat.	(12)5	3x26	Horn	1 1/4		Horn	W, M, T			80-20 ±3	98	200 (2) 40	150, 800, 7k	Sel.			8 x 15 x 50	Dpt.	Opt.												1550.00	
JS AUDIO	Ultra Mini	Ac. Sus.	5 1/4			1			Dome			60-20 ±4	90	15	3k	8/			12 x 8 x 7	Wood Lam.	Black	24											450.00	
	26P	Vented	6 1/2			1			Dome			40-22 ±3	93	15	3k	8/			16 x 10 x 10	Wood Lam.	Black	28											600.00	
	28P	Ac. Sus.	8			1			Dome			38-22 ±3	92	20	3k	8/			22 x 12 x 8	Wood Lam.	Black	32											600.00	
	28J	Ac. Sus.	8			1			Dome			50-20 ±4	90	20	2.5k	8			18 x 10 x 6	Wal. Vinyl	Black	24											250.00	
	Mesa I	Vented	8			1			Dome			40-22 ±5	92	20	3k	8			24 x 11 x 12	Wood Lam.	Black	40											900.00	
	310P	Ac. Sus.	10	5	Cone	1			Dome			40-22 ±3	94	20	700, 4k	8/			25 x 14 x 10	Wood Lam.	Black	70											950.00	
	310J	Ac. Sus.	10	5	Cone	1			Dome			40-20 ±3	89	20	700, 4k	8/			29 x 13 x 10	Wal. Vinyl	Black	70											600.00	
	310N	Vented	10	5	Cone	1			Dome			32-22 ±5	90	15	700, 3k	8			29 x 13 x 10	Wood Lam.	Black	90											1100.00	
	Panel	Ac. Sus.	10	5	Cone	1			Dome			38-22 ±3	90	30	600, 4k	8			41 x 21 x 7	Wood Lam.	Black	100											1300.00	
	410P	Vented	10	5	Cone	1.3			Dome, Piezo			38-40 ±3	94	15	700, 4k, 10k	8/			25 x 14 x 10	Wood Lam.	Black	80											1000.00	
	412P	Vented	12	5	Cone	1.3			Dome, Piezo			28-40 ±3	95	15	700, 4k, 10k	8/			27 x 16 x 12	Wood Lam.	Black	90												1200.00
	313N	Vented	13	5	Cone	1			Dome			30-20 ±3	91	20	600, 3k	8/			32 x 15 x 13	Wood Lam.	Black	130											1500.00	
	Mesa II	Trans. Line	12	3	Dome	1.2			Domes			25-25 ±2	91	40	400, 3k, 10k	8			34 x 12 x 11	Opt.	Dpt.	160											3000.00	
	Shelf Subwoofer	Vented Subwoof.	10									22-120	89	30	120	8.4			25 x 14 x 10	Wood Lam.	Black	40												600.00
	312P	Vented	12	2	Dome	1			Dome			28-30 ±3	94	40	700, 4k	8/			32 x 15 x 13	Wood Lam.	Black	130												1500.00
415P	Vented	15	3	Dome	1, (2)3			Dome, Piezos			20-30 ±3	99	30	700, 4k, 10k	8/			36 x 20 x 12	Wood Lam.	Black	180												2800.00	
JSE	.6	Tuned Port Sealed	8			1			Dome	No		45-18 ±3	90	10	2.2k	8.5			11 x 13 x 23	Dpt.	Black Knit	35											579.00	
	1	Sealed	8	7	Cone	1			Dome	No		35-20 ±2	90	20	300, 2.2k	8.5			7 x 14 x 29	Dpt.	Black Knit	55											969.00	
	1.8	Sealed	8, (2)10	6	Cone	1			Dome	No		30-20 ±3	90	40	150, 2k	8.5			16 x 17 x 38	Opt.	Black Knit	95											1595.00	
	2	Sealed	8, (2)10, (2)12	2, (2)6	Dome, Cones	3/4			Dome	No		25-25 ±3	90	50	150, 1k, 4k	8.5			18 x 17 x 45	Opt.	Black Knit	125											2195.00	
JUST SPEAKERS	Bill Reed 6-02A	Bass Ref.	6 1/2			1			Dome			50-20 ±2	86	25		8.6			16 x 10 x 8	Dilled Wal.	Black Knit	20											435.00	
	Avery Dark 10	Inf. Baf.	10	2	Dome	3/4			Dome			42-25 ±3	92	50		8.6			25 x 15 x 13	Oiled Wal.	Black Knit	41											815.00	
	Jay Adamson CA-1	Bass Ref.	5 1/4			1			Dome			60-20 ±3	89	50		8.5.5			12 x 8 x 7	Oiled Wal.	Black Knit	11											290.00	
	Jay Adamson CA-2	Subwoof.	9									38-150 ±3	89	50		8.7			19 x 12 x 11	Dilled Wal.	Black Knit	24											375.00	
	Jack Caldwell MC	Bass Ref.	6 1/2			1			Dome			65-18 ±2	88	30		4.4			16 x 10 x 8	Dilled Wal.	Black Knit	18											420.00	
	Jack Caldwell C-12SW	Inf. Baf. Subwoof.	12									30-150 ±3	90	50		4.4			18 x 18 x 20	Dilled Wal.	Black Knit	55											290.00	
	Kimon Bellas KB-One	Bass Ref.	5 1/4			1			Dome			57-25 ±2	88	25	250, 1.8k	4/3.8			12 x 8 x 7	Dilled Wal.	Black Knit	14											500.00	
	Kimon Bellas KB-Two	Bass Ref.	7			1			Dome			51-20 ±2	89.5	20	250, 2.8k	4/3.8			16 x 10 x 8	Oiled Wal.	Black Knit	20											575.00	
	Kimon Bellas KB-Three	Bass Ref.	8			1			Dome			37-19	90.5	20	250, 3k	4/3.8			25 x 15 x 13	Oiled Wal.	Black Knit	40											675.00	
	Dick Olsner "Dahlia"	Bass Ref.	8			1			Dome			48-20 ±3	89	20		8/			20 x 15 x 12	Oiled Wal.	Black Knit	33											600.00	



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, Superwoofer = ST	Anchoic Frequency Response, Hz to Hz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Per., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
JVC	SX-A6	Pas. Rad.	8	1 1/4	Dome	1 (2)3	Dome, Cones	(2)T	25-23	89	50	59, 1.2k, 4x, 6.5k, 2x	6/	15 x 32 x 10	Wal. Viny/ Wal. Viny/	Gray Knit Gray Knit	38.6	
	SX-A3	Pas. Rad.	8			1	Dome	T	35-23	88	30		6/	14 x 25 x 11	Wal. Viny/	Gray Knit	31	
KAMA-ISPEAK	Mini	Inf. Baf.	6			1 1/4	Dome		45-22	89	30	3k	8/6.4	13 x 9 x 9	Opt.	Black Knit	26.4	660.00
	Midl	Inf. Baf.	6	1 1/4	Dome	3/4	Dome		40-40	89	35	3k, 12k	8/6.4	16 x 9 x 9	Opt.	Black Knit	35.2	825.00
	Maxi	Inf. Baf.	8	2 1/4	Dome	3/4	Dome		38-40	92	40	800, 5k	8/6.4	21 x 11 x 9	Opt.	Black Knit	56.4	1050.00
KEF	Professional KM1	Active	(4)12	(2)4 3/8	Cones	2	Dome		38-23 ±2	96	Inc.			30 x 56 x 26	Opt., Wood	Black Knit	308	19,000.00
	Reference 107	Coherent Phase	(2)10	4	Cone	1	Dome	W	20-20 ±2	90	50		4/4	46 x 13 x 18	Opt., Wood	Black Knit	99	3900.00
	Reference 105.2	Coherent Phase	12	5	Cone	1 1/2	Dome		38-22 ±2	85	20	400, 2.5k	8/8	38 x 16 x 18	Opt., Wood	Black Knit	80	2400.00
	Reference 104.2	Coupled Cavity	(2)8	(2)4 1/2	Cones	1	Dome		55-20 ±2	92	25		4/4	35 x 11 x 16	Opt., Wood	Black Knit	71	1750.00
	Reference 103.3	Coupled Cavity	8	6	Cone	1	Dome	W	50-20 ±2	92	50		4/4	23 x 11 x 13	Opt., Wood	Black Knit	38	1390.00
	Reference 102	Conjugate Load	6			1	Dome	W	65-20 ±2	92	50		4/4	13 x 9 x 11	Opt., Wood	Black Knit	15	790.00
	C80	Coupled Cavity	8	6	Cone	1	Dome		38-22 ±3	89	20		4/4	33 x 10 x 12	Opt., Wood	Black Knit	44	1090.00
	C60	Conjugate Load	8			1	Dome		55-20 ±3	89	20		4/4	19 x 10 x 13	Opt., Wood	Black Knit	27	690.00
	C40	Closed Box	8	8	Cone	1	Dome		58-20 ±3	91	10		8/8	26 x 10 x 11	Opt.	Black Knit	21	490.00
	C30	Closed Box	8			1	Dome		60-20 ±3	90	10		8/8	20 x 10 x 9	Opt.	Black Knit	16	350.00
	C20	Closed Box	8			1	Dome		72-20 ±3	90	10		8/8	14 x 10 x 9	Opt.	Black Knit	12	290.00
	C10	Closed Box	6			1	Dome		90-20 ±3	88	10		8/8	12 x 9 x 7	Opt.	Black Knit	8	220.00
KENWOOD	LS-P5000K	Pas. Rad.	10 1/2	4	Cone	(2)2	Domes	W, M, T	22-45	90		1k, 5k, 10k	8/	14 x 30 x 13	Wal.	Black Cloth	42.9	235.00
	LS-P9000K	Pas. Rad.	8 1/2	4 1/2	Cone	(4)2	Domes	T	20-45	91		1.5k, 5k, 10k	8/	17 x 45 x 13	Wal.	Black Cloth	64.9	410.00
KEVEK LOUDSPEAKER TECHNOLOGY	ES.6	Bass Ref.	6 1/2			3/4	Dome		60-20 ±3	88	20	2.5k	8/4	20 x 13 x 8	Oak	Opt., Knit	18	495.00
	ES.8	Bass Ref.	8			3/4	Dome		55-20 ±3	87	20	2.5k	8/4	38 x 15 x 10	Oak	Opt., Knit	31	900.00
	ES.10	Bass Ref.	10			3/4	Dome		50-20 ±3	89	20	2.5k	8/4	42 x 20 x 11	Oak	Opt., Knit	43	1190.00
	ES.12	Bass Ref.	12	6 1/2	Cone	3/4	Dome		30-20 ±3	90	20	150, 2.5k	8/4	50 x 22 x 11	Oak	Opt., Knit	55	1790.00
KINDEL AUDIO	P-50MkII	Q.7 Box	6 1/2			2	Cone	T	50-20 ±3	86	20	2.5k	8/8	8 x 8 x 14	Oak	Black	16	260.00
	P-100MkII	Q.7 Box	6 1/2	2	Cone	3/4	Dome	M, T	50-22 ±3	86	20	1.5k, 8k	8/8	9 x 9 x 18	Oak	Black	21	345.00
	P-200MkII	Q.7 Box	(2)6 1/2	2	Cone	3/4	Dome	M, T	40-22 ±3	90	20	300, 1.5k, 8k	4/4	10 x 10 x 24	Oak	Black	29	585.00
	PLS-B	QB3	(4)6 1/2			(8)1	Domes	T	32-20 ±2	90	35	2.5k	8/2	48 x 20 x 8	Oak	Black	85	1195.00
	PLS-A	QB3	(6)6 1/2			(16)1	Domes	T	32-20 ±2	92	50	2.5k	6/2	64 x 22 x 9	Oak	Black	135	1995.00
	Phantom	Thiele/Phase	(2)5 1/2, 8	1 1/2	Dome	1/2x2 1/2	Ribbon	M, T	38-25 ±2	88	50	1.2k, 7k	4/4	42 x 18 x 6	Oak	Black	57	1895.00
KINERGETICS	Compusound 100	Inf. Baf.	(4)5 1/4			1	Dome	W, T	30-20 ±2	92	100	2k	8/6	Three Pieces		Opt., Knit	130	1295.00
	Compusound SW 100	Powered Inf. Baf. Subwoof.	(2)10					W	15-100 ±3	92	Inc.	100	8/6	24 x 11 x 16	Opt.	Opt., Knit	90	Sys. 995.00
KINETIC AUDIO	Titan	TATL (Tap. Ac. Trap. Line)	(2)12	6 1/2	Cone	2, 1, 3/4	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
	Trapezium	TATL	12	6 1/2	Cone	2, 1, 3/4	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
	Labyrinth	TATL	12	6 1/2	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
	Trapezoid	TATL	12	6 1/2	Cone	1, 3/4	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
	Stat Monitor	TATL	12	6 1/2	Cone		Dome	M, T	18-22 ±1.5	93	15	90, 2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	95	1000.00
	Stat Miniature Monitor	TAL (Tap. Ac. Line)	6 1/2			1	Dome	T	38-22 ±2	93	5	2k	8/6	9 x 9 x 15	Oiled Wal.	Black Knit	30	700.00
	Stat S/W	TATL Subwoof.	12						18-2 ±2	93	15	180, 2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	80	450.00
Trapezoid S/W	TATL Subwoof.	12						16-2 ±1.5	92	25	180, 2k	8/6	16 x 14 x 40	Oiled Wal.	Black Knit	95	600.00	
KIRKSAETER	Tower 125	Inf. Baf.	8 1/2	2	Dome	3/4	Dome		36-32	93	10	500, 5k	8/4	10 x 10 x 33	Gloss Wood	Cloth	35	1149.00
	Tower 140	Inf. Baf.	10	2	Dome	3/4	Dome		26-32	94	10	500, 5k	8/4	11 x 11 x 37	Gloss Wood	Cloth	45	1399.00

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, inches		Midrange Diameter, inches		Tweeter Diameter, inches		Separate Level Controls? Woofer W/Midrange ± dB, Tweeter ± dB		Amplifier Frequency Response, Hz to kHz, ± dB		SPL, 1 Watt/1 Meter, dB		Recommended Min. Amp. Pwr., Watts		Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum		Dimensions, inches (To nearest inch)		Finish		Grille Color and Material		Weight, lbs.		Price, \$			
				Woofer	Midrange	Woofer	Midrange	Tweeter	Tweeter Type	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange	Woofer	Midrange		
KIRKSAETER (Continued)	Tower 260	Inf. Baf.	(2)10	2,4½	Cone, Dome	¾	Dome			23-32	94	10	200,1k, 5k	8/4	11 x 11 x 43	Gloss Wood Opt., Wood	Cloth	65	1899.00														
	Monitor 80	Inf. Baf.	8		Dome	1	Dome			35-25	93	10	2.7k	8/4	11 x 7 x 18	Wood Opt., Wood	Cloth	22	599.00														
	Monitor 100	Inf. Baf.	8	2	Dome	1	Dome	M,T		28-25	92	10	600,5k	8/4	11 x 7 x 18	Wood Opt., Wood	Cloth	26	799.00														
	Monitor 130	Inf. Baf.	10	2	Dome	1	Dome	M,T		22-25	93	10	600,5k	8/4	12 x 10 x 20	Wood Opt., Wood	Cloth	30	1099.00														
	Monitor 200	Inf. Baf.	12	2	Dome	1	Dome	M,T		20-25	93	10	600,5k	8/4	14 x 11 x 23	Wood Opt., Wood	Cloth	38	1399.00														
	"Satellit"	Ported	4			1	Dome			60-25	88	20	2.8k		5 x 7 x 10	Wood Opt., Wood	Cloth	45	499.00														
	Subwoofer 500	Active Inf. Baf. Subwoof.	12						W	18-160		Inc.	80,120, 160		15 x 15 x 15	Wood Opt., Wood	Cloth	45	999.00														
	Monitor 100	Active Inf. Baf.	8	2	Dome	1	Dome	W,M,T		22-25		Inc.	600,5k		11 x 7 x 18	Opt., Wood	Cloth	30	1599.00														
	Monitor 130	Active Inf. Baf.	10	2	Dome	1	Dome	W,M,T		20-25		Inc.	600,5k		12 x 10 x 20	Opt., Wood	Cloth	35	1999.00														
Monitor 200	Active Inf. Baf.	12	2	Dome	1	Dome	W,M,T		18-25		Inc.	600,5k		14 x 11 x 23	Wood Opt., Wood	Cloth	43	2299.00															
KLEIN & HUMMEL	0 98	Powered Inf. Baf.	8¼	1½	Dome	¾	Dome			50-16 ± 2		Inc.	850,6k		10 x 15 x 7	Enam.	Brown Foam	26.4	1130.00														
	0 96	Powered Inf. Baf.	10	2	Dome	¾	Dome			80-12 ± 1.5		Inc.	600,4k		12 x 21 x 11	Enam.	Metal	48.4	1950.00														
	0 92	Powered Inf. Baf.	(2)10	3½	Cone	1	Dome	T		80-12 ± 1.5		Inc.	500,3k		17 x 32 x 12	Enam.	Brown Foam	66	3600.00														
KLH	608b	Bass Ref.	8			3	Cone			70-20 ± 6	88	10	2.3k	8/6	12 x 10 x 21	Oiled Wal.	Black Knit	17	160.00														
	610b	Bass Ref.	10	5	Cone	3	Cone	T		60-20 ± 6	89	10	1.8k,6k	8/6	13 x 11 x 23	Oiled Wal.	Black Knit	24	240.00														
	612b	Bass Ref.	12	5	Cone	3	Cone	M,T		55-20 ± 6	92	10	1.8k,6k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	35	320.00														
	620b	Bass Ref.	(2)10	5	Cone	3	Cone	M,T		55-20 ± 6	90	10	2.5k,5k	8/6	13 x 13 x 36	Oiled Wal.	Black Knit	42	420.00														
	862	Bass Ref.	6			1	Dome			50-20 ± 6	90	10	2.5k	8/6	14 x 9 x 9	Oiled Wal.	Black Knit	13½	238.00														
	882	Ac. Sus.	8			1	Dome			45-20 ± 6	85	10	2.5k	8/6	11 x 11 x 18	Black Vinyl	Black Knit	19½	320.00														
KLIPSCH	Klipschorn	Folded Horn	15	2	Horn	1	Horn			35-17 ± 5	104	20	400,6k	8/4	52 x 34 x 29	Opt.	Opt.	185	1500.00														
	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	1210.00														
	LaScala	Folded Horn	15	2	Horn	1	Horn			45-17 ± 5	104	20	400,6k	8/4	36 x 24 x 25	Birch		130	825.00														
	Cornwall II	Horn Bass Ref.	15	1½	Horn	1	Horn			38-20 ± 3	101	20	600,6k	8/4	36 x 26 x 16	Opt.	Opt.	100	770.00														
	Forté	Pas. Rad.	12	1½	Horn	1	Horn			32-20 ± 3	98	20	800,6k	8/4	35 x 12 x 17	Opt.	Opt.	65	550.00														
	Heresy II	Inf. Baf.	12	1½	Horn	1	Horn			50-20 ± 3	96	20	700,6k	8/4	21 x 16 x 13	Opt.	Opt.	50	415.00														
	KG4	Pas. Rad.	(2)8			1	Horn			38-20 ± 3	94	30	1.8k	6/4	28 x 11 x 16	Opt.	Opt.	45	295.00														
	KG2	Pas. Rad.	8			1	Dhorn			38-20 ± 3	90.5	30	1.8k	4/4	19 x 12 x 13	Opt.	Opt.	25	210.00														
KOSS	M 80 Plus		4½		1	Dome			50-30					12 x 5 x 5			8	179.95															
LANCER ELECTRONICS	LE50	Vented	6½			¾	Dome			49-19	87	10	3k	4/4	14 x 9 x 9	Oiled Wal.	Black Knit	12	129.50														
	LE70	Ac. Sus.	10			1	Dome	T		39-20	90	15	2k	8/6	21 x 13 x 10	Oiled Oak	Black Knit	30	199.50														
	LE90A	Vented	10	5	Cone	1	Dome	M,T		28-20	90	25	800,4k	8/6	39 x 14 x 11	Oiled Oak	Black Knit	48	299.50														
	LE100A	Vented	12	5	Cone	1	Dome	M,T		36-20	92	25	600,4k	8/6	26 x 15 x 12	Oiled Oak	Black Knit	45	379.50														
	LE200	Vented	10	3	Dome	1	Dome	M,T		27-20	90	25	700,4k	8/6	39 x 16 x 13	Oiled Oak	Black Knit	57	499.50														
	LX-20	Vented	8			2	Cone			50-20	90	10	3k	8/6	19 x 11 x 8	Oiled Wal.	Black Knit	19	99.50														
	LX-30	Vented	12	5	Cone	2	Cone			38-20	93	10	1.25k,7k	8/6	25 x 14 x 12	Oiled Wal.	Black Knit	34	179.50														
LASER AUDIO	R-150 MKV	Bass Ref.	12	4½	Cone	1	Dome			25-20	95	15	1.25k,4.5k	8/4	30 x 16 x 15	Maple	Black Knit	40½	600.00														
	R-100 MKV	Bass Ref.	10	4½	Cone	1	Dome			35-20	93	15	1.25k,4.5k	8/4	30 x 16 x 15	Maple	Black Knit	40½	550.00														
	FXT-10 MKVI	Double Active	(2)10			1	Dome			35-20	94	15	3k	8/4	33 x 13 x 12	Maple	Black Knit	30	600.00														
	FXT-8 MKVI	Double Active	(2)8			1	Dome			40-20	92	15	3.5k	8/4	33 x 13 x 12	Maple	Black Knit	30	550.00														
LINN	DMS Isobarik	Isobarik	(2) 9x12	(2)5	Cones	(2)¾	Domes			25-20 ± 3	86	50	375,3k	4/3	17 x 15 x 30	Teak	Black Foam	95	2995.00														
	SARA Isobarik	Isobarik	(2)8			¾	Dome			36-20 ± 3	86	35	3k	4/3	17 x 14 x 10	Teak	Black Foam	31	1250.00														
	Kan	Inf. Baf.	5			¾	Dome			70-20 ± 3	86	15	3k	8/6	8 x 6 x 12	Teak	Black Cloth	11	525.00														
	Index	Inf. Baf.	8			1	Dome			60-20 ± 3	86	10	2k	8/6	17 x 11 x 8	Black Cloth	Black Cloth	17	350.00														



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Control? Woofer = W, Tweeter = T, Superwoofer = ST	Impedance, Ohms: Nominal/Minimum	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$	
MAGNAT	Magnasphere Delta	Inf. Baf.	(6)5 1/4	2	Sphere	1	Sphere		32-29 ±3	88	30	200, 800, 3k	4/	14 x 14 x 44	Gray Lacq. Dpt.	Black Mesh	65	1245.00
	Magnasphere Gamma	Inf. Baf.	(2)8 (2)5 1/4	2	Sphere	1	Sphere		32-29 ±3	87	30	400, 1.4k, 5k	4/	14 x 14 x 50		Black Mesh	67	995.00
	Magnasphere Beta	Inf. Baf.	8.5 1/4	2	Sphere	1	Sphere		37-29 ±3	87	30	400, 1.4k, 5k	4/	13 x 13 x 43	Opt.	Black Mesh	52	795.00
	MSP 300	Inf. Baf.	(2)8	2	Dome	1	Dome		32-29 ±3	87	30	850, 5.5k	4/	12 x 11 x 42	Wal.	Black Mesh	62	695.00
	MSP 200	Inf. Baf.	8	2	Dome	1	Dome		37-29 ±3	87	30	850, 5.5k	4/	12 x 11 x 36	Wal.	Black Knit	52	595.00
	MSP 100	Inf. Baf.	8	2	Dome	1	Dome		41-29 ±3	87	20	850, 5.5k	8/	10 x 12 x 20	Wal.	Black Knit	37	445.00
	All-Ribbon 8P	Tuned Port	10	2	Dome	1	Dome		33-29 ±3	89	15	450, 4.5k	8/	12 x 14 x 23	Wal	Brown Knit	44	475.00
	All-Ribbon 6	Inf. Baf.	10	2	Dome	1	Dome		37-29 ±3	89	15	600, 2.5k	8/4	11 x 12 x 23	Wal.	Brown Knit	37	345.00
	All-Ribbon 4V	Inf. Baf.	8	2	Dome	1	Dome		42-29 ±3	87	15	800, 2.5k	8/4	10 x 11 x 20	Wal. Vinyl	Brown Knit	29	250.00
	Monitor D	Inf. Baf.	10	4	Cone	1	Dome		39-29 ±3	88	15	700, 2k	8/4	16 x 17 x 25	Black Mesh	Black Mesh	31	229.00
	Monitor C	Inf. Baf.	8	4	Cone	1	Dome		45-29 ±3	88	15	800, 2k	8/4	15 x 14 x 23	Black Mesh	Black Mesh	22	199.00
	Monitor B	Inf. Baf.	8	4	Cone	1	Dome		52-29 ±3	89	15	800, 2k	8/4	14 x 14 x 21	Vinyl Black Mesh	Black Mesh	20	169.00
	Monitor A	Inf. Baf.	8	4	Cone	3/4	Dome		52-22 ±3	88	15	950, 5k	8/4	14 x 14 x 19	Vinyl Black Mesh	Black Mesh	18	149.00
MAGNEPAN	Magneplanar SMGa	Planar Mag.	370 Sq. In.			58 Sq. In.	Planar Mag.		50-18 ±4	90	40	2.4k	4/4	19 x 48 x 2	Oak	Opt.	25	535.00
	Magneplanar MG-Ic	Planar Mag.	428 Sq. In.			68 Sq. In.	Planar Mag.		45-18 ±4	85	40	1.5k	5/5	22 x 60 x 2	Oak	Opt.	35	875.00
	Magneplanar MG-IIc	Planar Mag.	500 Sq. In.			68 Sq. In.	Planar Mag.		40-18 ±4	84	50	800	5/5	22 x 71 x 2	Oak	Opt.	46	1225.00
	Magneplanar MG-IIIa	Planar Mag. & Ribbon	620 Sq. In.	170 Sq. In.	Planar Mag.	15 Sq. In.	Ribbon		32-40 ±4	85	50	400, 3k	4/4	24 x 72 x 2	Dak	Opt.	52	1995.00
	Tympani-IVa	Planar Mag. & Ribbon	1254 Sq. In.	135 Sq. In.	Planar Mag.	15 Sq. In.	Ribbon		30-40 ±4	87	100	350, 3k	4/4	54 x 72 x 2	Oak	Opt.	106	3800.00
	MAGNUS	A10	Vented	10			2 3/4 x 4 1/2	Horn		45-20	91	10	4k	6/	23 x 13 x 12	Wood Vinyl	Brown Cloth	26
A11		Vented	10	6	Cone	2 3/4 x 4 1/2	Horn	M, T	40-20	92	10	500, 4k	6/	23 x 13 x 12	Wood Vinyl	Brown Cloth	27	199.95
A12		Vented	12	6	Cone	2 3/4 x 4 1/2	Horn	M, T	35-20	93	10	500, 4k	6/	26 x 16 x 12	Wood Vinyl	Brown Cloth	35	249.95
A24		Vented	(2)12	6	Cone	2 3/4 x 4 1/2	Horn	M, T	33-20	93	10	500, 4k	6/	41 x 17 x 11	Wood Vinyl	Brown Cloth	54	349.95
MAN	MPS-1	Trans. Line	5		3/8		Dome		35-20 ±3	90		10k	4/3		Opt., Wood	Black Foam	20	1190.00
MARANTZ	HLM208A	Ported	8		2		Cone		80-20	90			4/	19 x 11 x 8	Wood Vinyl	Black Knit		60.00
	SP800	Ported	8	4	Cone	2	Cone		70-20	89			8/	26 x 13 x 9	Wood Vinyl	Black Knit	16.4	75.00
	SP1000	Ported	10	4	Cone	3	Cone		40-20	89			8/	27 x 13 x 11	Wood Vinyl	Black Knit	25.4	120.00
	SP1200	Ported	12	4	Cone	3	Cone		25-20	90			8/	30 x 15 x 12	Wood Vinyl	Black Knit	32.4	150.00
	SP1515	Ported	15	5	Cone	3	Cone		18-20	90			8/	33 x 18 x 17	Wood Vinyl	Black Knit	47.4	200.00
MARIAH ACOUSTICS	Thimble	Ac. Sus.	6 1/2			1	Dome		55-20 ±3	90	20	2.5k	8/	10 Dia. x 16	Oak	Opt., Knit	34	248.00
	LS #4II	Ac. Sus.	8			1	Dome		45-20 ±3	91	20	2k	4/	12 Dia. x 23	Oak	Opt., Knit	48	328.00
	LS #3II	Bass Ref.	10			1	Dome		38-20 ±2.5	87	30	1.8k	8/	14 Dia. x 36	Oak	Opt., Knit	42	548.00
	LS #2II	Bass Ref.	(2)8			1	Dome		35-20 ±2.5	88	30	2.2k	8/	14 Dia. x 38	Oak	Opt., Knit	48	798.00
MARTIN-LOGAN	The Monolith	ES & Subwoof.	12				ES		27-22 ±2	90	50	100	6	26 x 12 x 74	Lacq. Oak	Black Knit	165	4850.00
	The CLS	Dipole ES							45-22 ±2	87	50		6/3	26 x 2 x 56	Lacq. Oak	None	65	2580.00
MASTERCRAFT AUDIO	Sound Panels SP-MK 1	Ac. Sus.	8			1	Dome	T	40-22 ±3	91	30	3.1k	8/	12 x 6 x 26	Opt.	Black Knit	58	729.00
	Sound Panels SP-MK 2	Ac. Sus.	(2)8			1 1/4	Dome, Piezo	T	37-27 ±3	93	30	3k	4/	30 x 15 x 8	Opt.	Black Knit	88	1069.00
	Black Box	Ac. Sus.	8			1	Dome	T	45-22 ±3	91	30	3.1k	8/	14 x 10 x 8	Opt.	Black Knit	48	599.00
	Music Monitor—Large	Ac. Sus.	10			1	Dome		38-21 ±3	94	15	2.5k	8/	15 x 26 x 11	Oak	Black Knit	60	469.00
	Music Monitor—Small SW-1	Ac. Sus. Subwoof.	8			2	Cone		50-20 ±3	92	10	2.8k	8/	14 x 10 x 8	Oak	Brown Knit	34	259.00
			12					W	28-90 ±3	89	50	90	8/	30 x 15 x 10	Black Oak		42	469.00

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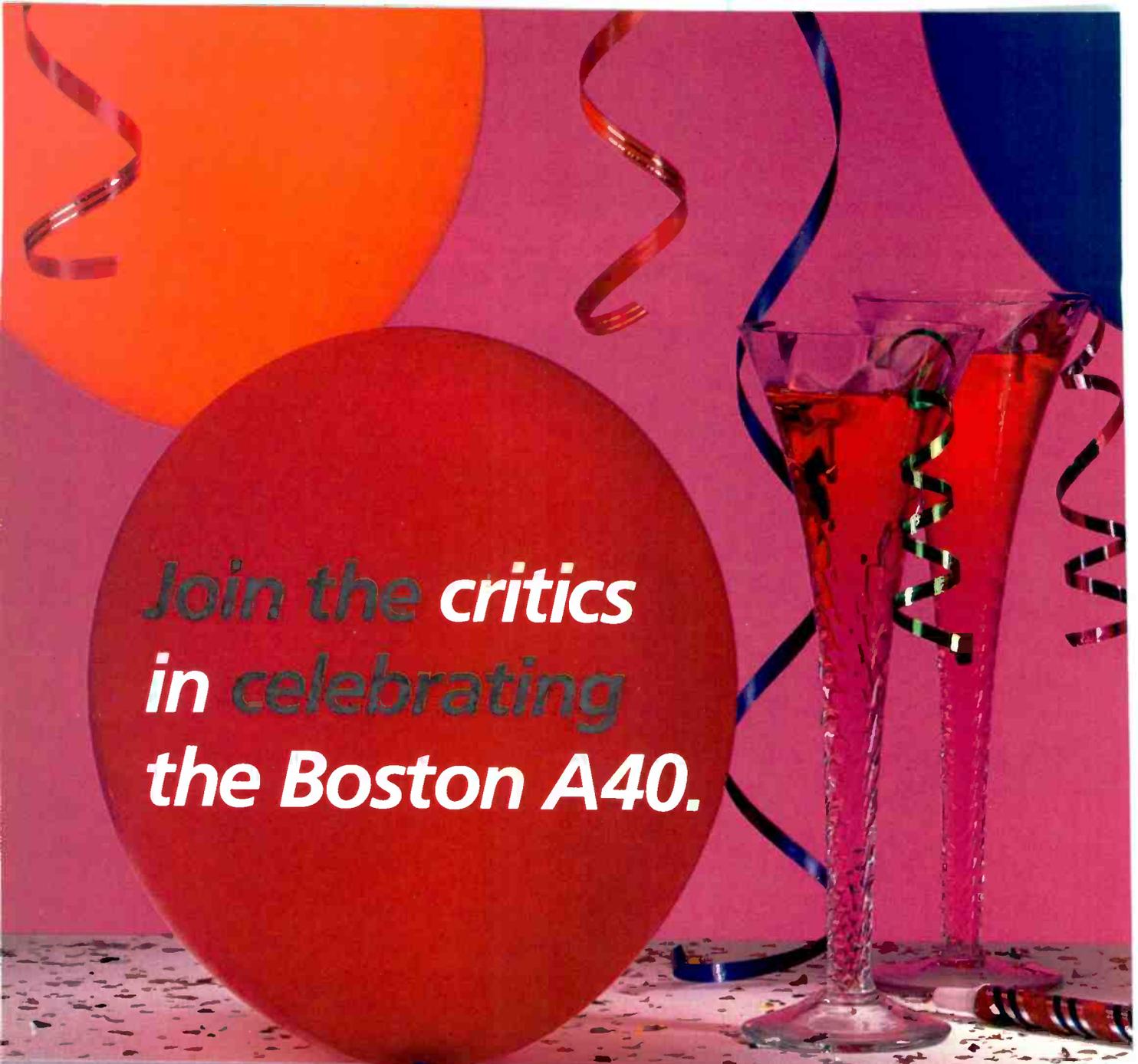
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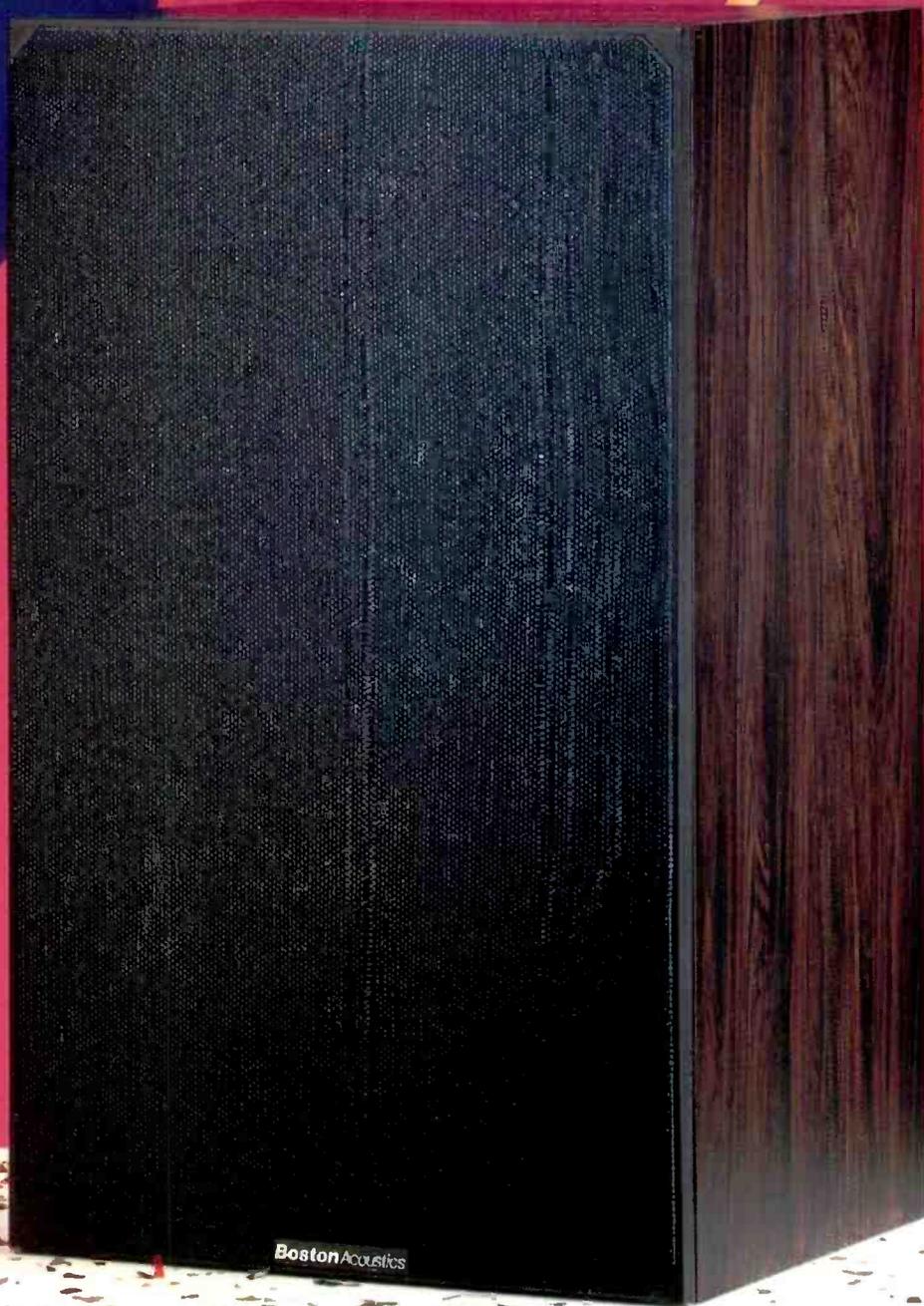
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Julian Hirsch, *Stereo Review*



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Hans-Günther Beer, **Audio**
(Germany).

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BostonAcoustics

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	Impedance, Ohms	Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$		
MAVRICK AUDIO	MAM I	Powered Concrete Horn	60x60	(10) 4 1/2x17	ES		Hellum Plasma	W,M	12-100 ±2	Inc.	60,700						Fourteen Pieces w/Six Amps & Preamp	Opt.	Opt.	5000 Sys.	110,000 Sys.
	MAM II	Powered Modified Trans. Line	15	6	Cone		Hellum Plasma		18-100 ±3	Inc.	60,700						Eight Pieces w/Four Amps	Opt.	Opt.	600 Sys.	14,000 Sys.
McINTOSH	XR1052	Pas. Rad.	10	5	Cone	1	Dome	M,T		82											
	XRT18	Inf. Baf.	12	6	Cone	(16)1	Domes			86	55,450, 1.3k	8/	47 x 16 x 11	Wal.	Black Knit		83				
	XRT22	Inf. Baf.	(2)12	8	Cone	(23)1	Domes			87	150,250, 1.5k	8/	Two Pieces per Side	Wal.	Black Knit		92	2250.00			
	XL1	Inf. Baf.	6			1	Dome			85	150,250, 1.5k	8/	Two Pieces per Side	Wal.	Black Knit		215	3750.00			
	XL1W	Inf. Baf. Subwoof.	12				Dome			85	1k	8/	13 x 8 x 7	Wal.	Black Knit		15	525.00			
	XL10	Pas. Rad.	8			1	Dome			89	90	8/	28 x 18 x 12	Wal.	Black Knit		55	549.00	Pair		
	XD715	Inf. Baf.	10	5	Cone	1	Dome			87	90,1k	8/	25 x 14 x 8	Wal.	Black Knit		27 1/2	429.00			
	XD717	Inf. Baf.	12	6 1/2	Cone	1	Dome			86	375,1k	8/	30 x 15 x 10	Wal.	Black Knit		50	599.00			
MERIDIAN	M-30	Powered	6			1 1/2	Dome		38-20 ±3	Inc.		22k	7 x 15 x 12	Black Ash	Black Knit		15	1500.00	Pair		
	M-20	Powered	(2)4			1 1/2	Dome		35-20 ±3	Inc.		22k	7 x 15 x 20	Black Ash	Black Knit		38	2000.00	Pair		
	M-100	Powered Pas. Rad.	(4)4	(2)4	Cones	1 1/2	Dome		33-20 ±3	Inc.		22k	17 x 41 x 19	Black Ash	Black Knit		100	5500.00	Pair		
MERLIN	3b	Bass Ref.	8	4	Cone	1 1/4	Dome	M,T	33-32 ±3	90	30	500,2.1k	8/6.2	13 x 16 x 44	Opt.	Opt., Foam		100	1795.00	Pair	
	2	Bass Ref.	8			1 1/4	Dome	T	33-32 ±3	88	30	2k	8/6.2	12 x 12 x 42	Opt.	Foam		47	1095.00	Pair	
	1	Bass Ref.	6 1/2			1 1/4	Dome	T	38-32 ±3	89	30	2.3k	4/3.8	10 x 10 x 36	Opt.	Foam		36	695.00	Pair	
	.7	Inf. Baf.	6			1 1/4	Dome	T	45-32 ±3	86	30	2.3k	8/6.2	10 x 10 x 19	Opt.	Foam		24	550.00	Pair	
	.5	Bass Ref.	6			1	Dome	T	58-22 ±3	88	30	2.8k	8/4.7	10 x 10 x 19	Opt.	Foam		24	430.00	Pair	
MIRAGE ACOUSTICS	250	Ac. Sus.	8			1	Dome		60-20 ±3	90	15	4k	8/4	16 x 12 x 7	Wal.	Opt., Knit		14	240.00	Pair	
	450	Ac. Sus.	8			1	Dome		56-20 ±2	90	15	4k	8/4	24 x 12 x 9	Wal. Vinyl Opt., Vinyl	Opt., Knit		25	350.00	Pair	
	M1	Ported Bpolar Ac. Sus.	(2)8	(2)4	Cones	(2)3/4	Domes		25-20 ±2	86	40	300,2.2k	6/4	60 x 19 x 9	Wal. Oak Ven. Knit	Black Knit		120	2000.00	Pair	
	200	Ac. Sus.	6 1/2			3/4	Dome		60-20 ±3	89	10	5k	8/4	17 x 10 x 8	Wal. Ven. Knit	Brown		28	229.00	Pair	
	350	Ac. Sus.	8			1	Dome		59-20 ±3	92	10	4k	4/4	18 x 12 x 9	Wal. Vinyl Opt.	Opt.		48	299.00	Pair	
	550	Ac. Sus.	10			1	Dome		49-20 ±3	90	15	4k	6/4	32 x 12 x 9	Wal. Vinyl Opt.	Brown		43	449.00	Pair	
	650	Pas. Rad.	10			1	Dome		44-20 ±3	90	20	4k	8/4	32 x 12 x 9	Wal. Vinyl Opt.	Brown		44	549.00	Pair	
	750	Ac. Sus.	10	5 1/4	Cone	3/4	Dome		39-20 ±3	91	25	300,5k	8/4	32 x 12 x 9	Wal. Vinyl Opt.	Opt.		44	599.00	Pair	
	Subwoofer	Ac. Sus. Subwoof.	(2)10						36-300 ±3	92	20	300	10/6	20 x 25 x 15	Wal. Vinyl	Brown		67 1/2	449.00	Pair	
MISSION ELECTRONICS	70 II	Inf. Baf.	7			3/4	Dome		60-20 ±3	89	20	2.7k	8/6	14 x 8 x 8	Black	Black Knit			249.00	Pair	
	700 LE	Inf. Baf.	7			3/4	Dome		55-20 ±3	90	20	3.1k	8/6	15 x 8 x 8	Opt.	Black Knit			349.00	Pair	
	707	Port	8			3/4	Dome		50-20 ±3	92	20	2.2k	8/6	19 x 10 x 11	Opt.	Black Knit			499.00	Pair	
	737 Renaissance	Port	8			3/4	Dome		45-20 ±3	90	35	2.4k	8/6	21 x 10 x 11	Opt., Wood	Black Knit			699.00	Pair	
	770 Freedom	Port	8			1	Dome		35-20 ±3	92	30	2.1k	8/6	24 x 11 x 12	Opt., Wood	Black Knit			999.00	Pair	
	780 Argonaut	Inf. Baf.	(2)8			1	Dome		35-20 ±3	94.5	50	1.8k	4/3	37 x 11 x 12	Opt., Wood	Black Knit			1500.00	Pair	
M & K	S1B	Ac. Sus. Sat.		(2)5	Cones	(2)1	Domes	M,T	65-22 ±3	96	7.5	2k	4/4	21 x 8 x 8	Opt., Wood	Black Knit		18	695.00	Pair	
	S2B	Ac. Sus. Sat.		6 1/2	Cone	1	Dome	M,T	65-22 ±3	93	10	2k	4/4	13 x 9 x 8	Opt., Wood	Black Knit		15	525.00	Pair	
	S3B	Ac. Sus. Sat.		5	Cone	1	Dome	M,T	85-22 ±3	93	10	2k	4/4	11 x 7 x 7	Opt.	Black Knit		9	425.00	Pair	
	SX4	Ac. Sus. Sat.		(2)5	Cones	(2)1	Domes	M,T	65-22 ±3	96	7.5	2k	4/4	20 x 8 x 7	Opt.	Black Knit		14	475.00	Pair	
	SX7	Ac. Sus. Sat.		4	Cone	3/4	Dome		100-20 ±3	87	5	2k	4/4	8 x 5 x 5	Black Metal	Perf. Metal		6	220.00	Pair	
	V1B	Powered Ac. Sus. Subwoof.	12					W	20-125 ±3	Inc.	50-125	600	18 x 19 x 17	Opt., Wood	Black Knit		50	800.00	Pair		
	V2B	Powered Ac. Sus. Subwoof.	12					W	24-125 ±3	Inc.	50-125	600	18 x 19 x 17	Opt., Wood	Black Knit		43	650.00	Pair		
	V3B	Powered Ac. Sus. Subwoof.	12					W	24-125 ±3	Inc.	50-125	600	18 x 18 x 15	Black	Black Knit		38	550.00	Pair		

(Continued)

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type			W	Tweeter Type	Separate Level Control? Wgt. W. Midrange = k. Tweeter = g. Superwoofer = ST	Anacoustic Frequency Response, Hz to kHz. ±dB	SPL, 1 W/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	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													
M & K (Continued)	VX4	Powered Ac. Sus. Subwoof. Powered Ac. Sus. Subwoof.	12				W	30-125 ±3	Inc.	50-125	600	19 x 18 x 14	Opt.	Black Knit	38	400.00		
	VX7	Powered Ac. Sus. Subwoof. Powered Ac. Sus. Subwoof.	8				W	40-180 ±3	Inc.	90-180	600	12 x 10 x 10	Black Vinyl	Black Knit	21	330.00		
MONDIAL	8 MKII	Pas. Rad.	9	6	Cone	5x24	Ribbon	30-27 ±3.5	89	50	100,1.5k	6/8	20 x 14 x 50	Opt., Wood Opt., Wood	Black Foam Black Foam	98	1590.00 Pair	
	6	Trans. Line	9	4 1/2	Cone	1x3	Ribbon	28-40 ±3	88	30	800,4k	6/8	12 x 19 x 38	Opt., Wood Opt., Wood	Black Foam Black Foam	70	690.00 Pair	
MORDAUNT-SHORT	MS-10	Bass Ref.	4 1/2			1/2	Dome	90-20 ±3	87	5		8/7	11 x 8 x 7	Black	Black Cloth	8	170.00 Pair	
	MS-15	Inf. Baf.	6 1/2			1/2	Dome	80-20 ±3	87	10	4.5k	8/7	13 x 9 x 7	Black	Black Cloth	11	200.00 Pair	
	MS-25Ti	Inf. Baf.	8			3/4	Dome	70-20 ±3	89	10	3.5k	8/7	16 x 10 x 9	Opt.	Black Cloth	15	250.00 Pair	
	MS-35Ti	Bass Ref.	8			3/4	Dome	60-20 ±3	89	10	3.5k	8/7	20 x 10 x 11	Opt.	Black Cloth	18	300.00 Pair	
	MS-40	Bass Ref.	8			3/4	Dome	70-15 ±3	87	15	3.5k	8/6	21 x 10 x 9	Sim. Wal. Opt.	Brown Cloth Black Cloth	21	375.00 Pair	
	MS-55Ti	Inf. Baf.	(2)8			3/4	Dome	50-20 ±3	90	10	3.5k	8/7	33 x 10 x 12	Opt.	Black Cloth	40	650.00 Pair	
MOREL ACOUSTICS	CR-7	Ac. Sus.	6			1.1	Dome	70-25 ±3	90	15	1.6k	6/4	7 x 11 x 7	Black	Mesh	10	395.00 Pair	
	MLP-201	Ac. Sus.	9			1.1	Dome	40-20 ±3	90	10	1.5k	8/6.3	10 x 16 x 10	Opt.	Black Cloth	16	285.00 Pair	
	MLP-202II	Ac. Sus.	6			1.1	Dome	60-28 ±3	89	15	1.6k	6/4	8 x 13 x 10	Opt.	Black Cloth	14	440.00 Pair	
	MLP-307	Vented	(2)9			1.1	Dome	33-25 ±3	91	15	300,1.8k	8/6.3	14 x 24 x 13	Wal.	Black Cloth	32	600.00 Pair	
	MLP-403II	Vented	9	3	Dome	1.1	Dome	38-25 ±3	90	20	500,5k	6.4/4	21 x 12 x 10	Opt.	Black Cloth	26	675.00 Pair	
	MLP-206	Ac. Sus.	9			1.1	Dome	38-25 ±3	89	20	2.2k	8/6.3	12 x 20 x 12	Opt.	Black Cloth	25	575.00 Pair	
MTX	PRO115	Vented	15	(2)5	Cones	3	Horn	60-21	96.6	15	2k,5k	8/	21 x 30 x 16	Gray Cptg. Gray Cptg. Gray Cptg.	Black Steel Black Steel Black Steel	77	450.00	
	PRO210	Vented	(2)10	(2)5	Cones	3	Horn	70-21	98.6	15	2k,5k	8/	23 x 18 x 13	Gray Cptg. Gray Cptg. Gray Cptg.	Black Steel Black Steel Black Steel	64	350.00	
	PRO215	Vented	(2)15	(2)5	Cones	3	Horn	50-21	99.2	15	2k,5k	8/	19 x 47 x 16	Gray Cptg. Gray Cptg. Gray Cptg.	Black Steel Black Steel Black Steel	125	600.00	
MUSIC & SOUND	MAS 925 III	Pas. Rad.	8			(2)3/4	Domes	No	30-22 ±3	91	20	3.3k,11k	8/5	12 x 12 x 24	Oak Ven.	Brown Cloth	38	699.00 Pair
NAD	8100	Powered Ac. Sus. Ac. Sus.	5			3/4	Dome	T	60-20 ±3	45 Inc	2k	47k	19 x 7 x 10	Black	Black Cloth Black Cloth Black Cloth	18.3		
	20	Ac. Sus.	8			1	Dome	No	35-25	88	10	2.5k	4/3.2	31 x 9 x 10	Black	Black Cloth Black Cloth Black Cloth	24	448.00 Pair
	30	Ac. Sus.	10	1 1/2	Cone	1	Dome	No	30-25	88	10	700,5k	4/3.2	32 x 11 x 12	Black	Black Cloth Black Cloth Black Cloth	34.8	698.00 Pair
NADY SYSTEMS	W-2	Wireless	6 1/2			1 1/4			40-15	60	15		9 x 13 x 8	Vinyl	Black	10	99.95	
NEC	RS-500	Ac. Sus.	12	5	Cone	1	Dome		40-20 ±4	92	15	2.2k,7k	8/5	14 x 27 x 11	Oak Vinyl Oak	Black	35	499.00 Pair
	RS-100	Trans. Line	(2)8	1 3/8	Dome	1	Dome		28-18.5 ±3	90	25	2k,8.5k	4/	14 x 16 x 42	Oak	Brown Knit	103	1500.00 Pair
NELSON-REED	5-02	Inf. Baf.	5 1/4			3/4	Dome		60-20 ±3	84	30	3.3k	8/6	12 x 8 x 6	Oiled Wood	Opt., Knit	12	520.00 Pair
	6-02/B	Ported	6 1/2			3/4	Dome		40-20 ±3	84	30	3.3k	8/6	19 x 12 x 10	Oiled Wood	Opt., Knit	25	620.00 Pair
	SW1201	Subwoof.	12						32-120 ±3	84	30	120	8/6	18 x 18 x 18	Oiled Wood	Opt., Knit	45	570.00
	TW1202	Inf. Baf. Subwoof.	12						32-120 ±3	84	30	120	8/6	25 x 14 x 12	Oiled Wood	Opt., Knit	40	870.00 Pair
	8-04 Pro	Slot Loaded	(2)8	3	Dome	3/4	Dome		32-20 ±3	90	30	300,6k	4/3	39 x 12 x 15	Oiled Wood	Opt., Knit	92	2850.00 Pair
	8-03 Reference	Slot Loaded	10	4	Cone	3/4	Dome		32-20 ±3	90	30	300,5.5k	4/3	38 x 12 x 15	Oiled Wood	Opt., Knit	55	1850.00 Pair
	8-02 Standard	Slot Loaded	8	4	Cone	3/4	Dome		32-20 ±3	90	30	300,5.5k	4/3	36 x 12 x 15	Oiled Wood	Opt., Knit	68	1190.00 Pair
	1204	Inf. Baf. Subwoof.	(4)12						16-55 ±3			65	8/6	39 x 18 x 18	Oiled Wood	Opt., Knit	120	1200.00
	8-04/1204	Sat. & Subwoof.	(2)8, (4)12	3	Dome	3/4	Dome		16-20 ±3	90		65,300, 6k	4/3	Three Pieces	Oiled Wal.	Opt., Knit		
NESTOROVIC LABS	Type 5AS Mk. II	Nestorovic Sat.	8,10	4	Dome/Cone Cone	4 1/2	Planar	M, T	28-40 +1,-3	91	50	1k,7k	8/5	36 x 15 x 15	Opt., Wood Opt., Wood	Black Knit Black Knit	75	2500.00 Pair
	Type 4A	Nestorovic Sat.	8	4	Cone	4 1/2	Planar		60-40 +1,-3	92	50	200,1k, 7k	8/6	22 x 12 x 12	Opt., Wood Opt., Wood	Black Knit Black Knit	40	2400.00 Pair
	Type 8	Nestorovic Subwoof. Sat. & Nestorovic Subwoof.	(2)12						18-250 +1,-3	92	75	250 Max.	8/5	22 x 26 x 26	Opt., Wood Opt., Wood	Black Knit Black Knit	125	1450.00 Sys.
	System 12A	Nestorovic Subwoof. Sat. & Nestorovic Subwoof.	(2)8, (4)12	(2)4	Cones	(2)4 1/2	Planars		18-40 +1,-3	92		200,1k, 7k	8/5	Four Pieces	Opt., Wood Opt., Wood	Black Knit Black Knit	330	5300.00 Sys.
	System 16A	Nestorovic Subwoof. Sat. & Nestorovic Subwoof.	(4)8, (4)12	(4)4	Cones	(4)4 1/2	Planars		18-40 +1,-3	92		200,1k, 7k	8/5	Six Pieces	Opt., Wood	Black Knit	410	7700.00 Sys.



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 Woke = W, Midrange = M, Tweeter = T, Superwoofer = ST	Anchorage Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
NEW YORK ACOUSTICS	Nova	Push-Pull	(2)5		Ribbon				50-60 ±3	87	40	800,12k	4/4	12 x 10 x 44	Opt., Wood	Black Knit	38	2295.00
	Phoenix	Bass Ref.	10	4	Cone	1	Leaf		32-25 ±3	89	30	600,3k	8/6	12 x 15 x 42	Opt., Wood	Black Knit	65	1795.00
	B.2	Bass Ref.	8			1	Dome		38-25 ±3	89	20	3k	8/6	12 x 10 x 31	Opt., Wood	Black Knit	42	750.00
	6.2	Bass Ref.	6½			1	Dome		42-25 ±3	89	20	3k	8/6	12 x 10 x 19	Opt., Wood	Black Knit	25	550.00
	PS-1	Bass Ref.	4			1	Dome		50-25 ±3	88	20	3k	8/6	6 x 9 x 12	Opt., Wood Oiled Oak	Black Knit	10	395.00
NIKKO	DRM-3000	Inf. Baf.	12	5	Cone	3	Cone			5					Wood Grain	Black	43	200.00
NOBIS	DM-2st	Ported	(2)6			1	Dome		33-20 ±3	91	35	3k	4/3.6	9 x 13 x 40	Oak	Brown Knit	56	1550.00
	DM-3I	Ported	(2)6			1	Dome		33-20 ±3	91	35	3k	4/3.6	9 x 11 x 47	Oak	Brown Knit	51	1100.00
	DM-5	Ported	6			1	Dome		33-20 ±3	90	35	3k	4/3.6	9 x 13 x 21	Oak	Brown Knit	25	650.00
	DM-7	Ac. Sus.	6			1	Dome		55-20 ±3	89	35	3k	4/3.6	9 x 9 x 15	Dak	Brown Knit	18	450.00
NONSPEAKER	Ribbon Monitor Series II Subwoofer	Pressure Release	6				Ribbon		38-40 ±3	92	25	2k	6/4	8 x 13 x 17	Oak		22	1250.00
		Pressure Release Subwoof.	12						22-100 ±3	92	50	100	4/4	25 x 12 x 18	Dak		50	750.00
	Ribbon Reference I	Ac. Environ.	15	6	Cone		Ribbons		18-40 ±3	92	50	85,2k	6/4	30 x 18 x 60	Beige	Cloth	105	5000.00
	Ribbon Reference II	Ac. Environ. Trans. Line	15	6	Cone		Ribbon		18-40 ±3	92	50	85,2k	6/4	30 x 18 x 60	Beige	Cloth	100	4000.00
	Ribbon Reference III						Ribbon		35-40 ±3	92	25		6/4	11 Dia. x 60	Beige		55	1950.00
NORMAN LABS	52	Ac. Sus.	6½			1	Dome		75-18 ±3	87	15	2.5k	8/7	12 x 8 x 6	Opt., Wood	Brown Knit	25	260.00
	62	Ac. Sus.	8			1	Dome		75-18 ±3	90	15	2.5k	8/7	16 x 10 x 8	Opt., Wood	Brown Knit	40	340.00
	82	Ac. Sus.	10			1	Dome		70-18 ±3	91	15	2.5k	8/7	23 x 12 x 9	Opt., Wood	Brown Knit	60	410.00
	83	Ac. Sus.	10	5¼	Cone	1	Dome		70-18 ±3	90	15	2k,4.5k	8/5	23 x 12 x 9	Opt., Wood	Brown Knit	52	510.00
	332	Ac. Sus.	10	5¼	Cone	1	Dome		55-18 ±3	92	15	2k,4.5k	8/5	32 x 13 x 9	Opt., Wood	Brown Knit	86	800.00
	432	Ac. Sus.	(2)10	5¼	Cone	1	Dome		50-18 ±3	93	15	600,2k, 4.5k	6/4	44 x 15 x 9	Opt., Wood	Brown Knit	120	1000.00
	632	Ac. Sus.	(3)10	5¼	Cone	1	Dome		45-18 ±3	93	15	300,2k, 4.5k	4/3	50 x 17 x 11	Opt., Wood	Brown Knit	150	1500.00
NOVAK	2	Ported	6½			¾	Dome		45-24 ±3	91.5	5		4/	21 x 11 x 10	Opt., Wood	Black Foam	22	300.00
	2B	Ported	6½			¾	Dome		45-24 ±3	91.5	5		4/	21 x 11 x 10	Black Lam.	Black Foam	22	330.00
NUMARK	MSS 315C	Bass Ref.	15	3¼x9¾	Horn	1	Dome	No	45-16 ±3	96	15	2.5k,10k	8/4	19 x 16 x 32	Gray Cptg. Wal.	Black Steel Knit	60	1000.00
	DMS 2.0	Bass Ref.	6½			1	Dome	T	52-17 ±3	91	10	2.5k	8/6	15 x 11 x 11	Cptg.	Black Knit	19	500.00
	DMS 312C	Bass Ref.	12	6½	Cone	1	Dome	No	41-17 ±3	92	10	500,5k		32 x 17 x 14	Cptg.	Black Metal	70	1100.00
OHM ACOUSTICS	Walsh 5	Walsh Cone Vented	10						25-25 ±4	90	50		4/	18 x 18 x 43	Opt., Wood	Opt.	95	4800.00
	Walsh 4						Dome	W,T	32-17 ±4	87	50		8/6		Opt.	Brown Knit	126	1895.00
	Walsh 3	Vented	8				Dome	W,T	39-16 ±4	87	35		8/6		Opt.	Brown Knit	96	1395.00
	Walsh 2	Vented	8				Dome	W,T	45-16 ±4	87	30		4/4		Opt.	Black Knit	58	995.00
	Walsh 1	Vented	8				Dome		48-18 ±4	87	20		8/6		Wal.	Black Knit	48	595.00
	C3	Vented	10			(2)1, 1½	Domes, Cone	T,ST	37-21 ±4	15	2.5k,7k	4/4	26 x 15 x 12	Dpt.	Black Knit	48	750.00	
	L2	Vented	8			2	Cone	T,ST	42-20 ±3	8	2.5k,7k	8/4		Diled Wal. Oiled Wal.	Black Knit		520.00	
	E2	Vented	8			2	Cone	T	48-17 ±3	7	2.5k	8/4	22 x 12 x 7	Oiled Wal.	Black Knit		300.00	
OMNI SOUND	TCM I	Vented	6½			1	Dome	No	72-22 ±3	90	20	3.5k	4/3.5	8 x 9 x 13	Vinyl Lam.	Black Knit	22	500.00
	TCM II	Vented	8			1	Dome	No	55-22 ±3	92	20	3.5k	8/7	12 x 12 x 20	Vinyl Lam.	Black Knit	34	560.00
	TCM III	Vented	8			1	Dome	No	38-22 ±3	92	20	3.5k	8/7	13 x 13 x 36	Vinyl Lam.	Black Knit	52	660.00
ONKYO	S-70	Tuned Port	12	5	Cone	(2)1, ½	Domes		55-20 ±3	93	10		8/5	16 x 41 x 10	Diled Oak Wal. Vinyl	Black Knit	50	600.00
	S-55	Tuned Port	15	5	Cone	1	Dome		65-20 ±3	92	10		8/5	17 x 33 x 13	Wal. Vinyl	Black Knit	48	400.00

Our speakers aren't from parts unknown.

Cabinet

Infinite baffle system, low diffraction grill, acoustically beveled cabinet edges, dark oak finish. Designed and manufactured at Bozak factory, New Britain, CT.

Crossover

Proprietary CAD techniques pinpoint precise frequency crossover points, insuring maximum performance. Designed and manufactured at Bozak factory, New Britain, CT.



Tweeter

Patented, soft-domed, fluid damped. Effortless high end response with enhanced linearity. Designed and manufactured at Bozak factory, New Britain, CT.

MidTweeter

Patented, curvilinear aluminum cone. Handles upper mid-range frequencies. Superbly reproduces strings, providing a silky, smooth sound, eliminating the harshness common to other speakers. Designed and manufactured at Bozak factory, New Britain, CT.

MidRange

Patented, curvilinear aluminum cone. Provides far superior transient response with far less distortion than conventional cones. Unbelievably stable. Designed and manufactured at Bozak factory, New Britain, CT.

Woofer

Patented, variable density, lambs-wool compound cone. Remarkable bass extension and definition, with distinctive timbres reproduced intact. Designed and manufactured at Bozak factory, New Britain, CT.

Sonic Characteristics

Satisfies all the demands of digital audio sources. Combines clarity, imaging, definition and impact to create a stunning stereo sound stage experience.

There are a lot of well known speakers on the market today. Unfortunately, practically all of them are assembled with parts sourced from a variety of unknown manufacturers. This is because of the raw material, equipment, labor cost, and extra effort involved in creating a speaker totally in-house.

But, the only way to make a truly perfect speaker is to go to this extreme, and that's exactly what we do at Bozak. Every component part of a Bozak speaker is a Bozak part, all designed, fabricated and assembled under one roof. That's why Bozak is the only popularly priced speaker company that can offer a FULL TEN YEAR WARRANTY on each of our models.

Remember, you can buy a speaker that has its name just on the front. Or, you can buy a speaker that has its name on everything inside as well. Bozak.



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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 Lvl. Control? Woofer W. Tweeter = W. Superwoofer = ST	Aeoloch Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
ONKYO (Continued)	S-30	Tuned Port	12	5	Cone	1	Dome		65-20	91	10	8/5	14 x 33 x 11	Wal. Vinyl Black	Black Knit	37	300.00	
	HS-15	Tuned Port	6 1/4	2 3/4	Cone	2	Cone		55-20	89	10	1.5k, 10k	8 x 13 x 10	Black Mesh	Black Mesh	10	240.00	
ORPHEUS	8	Pas. Rad.	8			1	Dome		30-20 ±3	86	25	60.2k	8/6	45 x 16 x 9	Opt., Wood	Black Knit	67	1200.00
PAISLEY RESEARCH	Concept 20/20	Bass Ref.	(2)8	(2)4	Cones	3/4	Dome		28-24 ±3	87	25	250, 2.5k	8/4	43 x 10 x 16	Oak Ven. Hick.	Black Knit	80	1500.00
	Reference .5	Ported	6 1/2			3/4	Dome		45-20 ±3.5	87	20	2.5k	6/4	16 x 10 x 9	Hick. Vinyl	Black Knit	15	215.00
	Reference One	Ported	8			3/4	Dome		40-20 ±3	89	20	2.2k	6/4	19 x 10 x 9	Hick. Vinyl	Black Knit	20	260.00
	Reference Two	Ported	8			1	Dome		35-20 ±3	88	20	2.2k	6/4	24 x 11 x 12	Hick. Vinyl	Black Knit	31	350.00
PARADIGM	3se-mini	Bass Ref.	6 1/2			1	Dome	No	55-20 ±2	88	20	3k	8/5	15 x 9 x 10	Opt.	Black Knit	17	125.00
	3se	Bass Ref.	8			1	Dome	No	45-20 ±2	91	15	2.5k	8/5	20 x 10 x 11	Opt.	Black Knit	22	140.00
	5se	Bass Ref.	8			1	Dome	No	40-20 ±2	91	15	2.5k	8/5	21 x 10 x 12	Opt.	Black Knit	24	175.00
	7se	Bass Ref.	8			1	Dome	No	35-20 ±2	92	15	2.3k	8/5	24 x 11 x 12	Opt.	Black Knit	28	240.00
	9se	Bass Ref.	(2)8			1	Dome	No	35-20 ±2	95	15	2k	4/4	28 x 12 x 14	Opt.	Black Knit	38	320.00
PARASOUND	VPI660	Vented	6			1	Dome		55-22 ±4	90	10	2k	4/4	19 x 9 x 10	Rswd. Vinyl	Black Metal	40	295.00
	CPI440	Vented	4			1	Dome		70-22 ±4	88	10	2.4k	4/4	9 x 6 x 7	Rswd. Vinyl	Black Metal	14	215.00
	BPI-A60	Powered Vented Subwoof. Sealed	12					W	20-180 ±3	115	60 Inc.	63-180		28 x 16 x 14	Rswd. Vinyl	Black Metal	75	449.95
	CRs220	Sealed	4			1 1/2	Cone		80-20 ±4	92		4/4	8 x 5 x 5	Sim. Birch	Black Metal	6	99.95	
	Perfect Image	Vented	8			1	Dome		25-22	92	30	2k	8/6	39 x 19 x 12	Sim. Rswd. Birch	Black Metal	62	750.00
	CSs810	Vented	8			2	Cone		50-20	88	25	2.2k	6/4	16 x 11 x 9	Black	Black	12	180.00
	AWs280	Vented	5			2	Cone		55-20	88	20	2.4k	6/4	15 x 10 x 8	Black	Black	12	230.00
	CMs330	Sealed	4			1	Dome		60-22	89	30	2.6k	6/4	9 x 5 x 4	Black	Black	7	200.00
PENTAGRAM	P-10A	Pas. Rad.	10	3	Dome	2	Leaf Ribbon	No	24-20 ±2	90	35	525, 5k	7.2/4.8	26 x 26 x 34	Oak	Black Cloth	92	2250.00
	P-8A	Pas. Rad.	8	3	Dome	2	Leaf Ribbon	No	33-20 ±2	90	25	675, 5k	7.2/5	17 x 18 x 24	Oak	Black Cloth	42	1150.00
	P-6	Ported	6 1/2			1	Dome	No	45-20 ±2.5	91	15	4k	8/6	18 x 15 x 8	Oak	Black Cloth	22	495.00
	Wall Pocket 1	Trans. Line Inf. Baf.	6 1/2			1	Dome	No	38-20 ±2	91	15	4k	8/6	3 x 14 x 36	Black	Black Metal	23	495.00
	Wall Pocket 2	Inf. Baf.	6 1/2			1	Dome	No	58-20 ±3	91	15	4k	8/6	3 x 14 x 7	Black	Black Metal	12	275.00
PHASE TECHNOLOGY	PC 600	Ac. Sus.	8			1	Dome		35-20 ±3	91	20	1.4k	4/3.5	31 x 12 x 8	Opt., Ven. Knit	Brown Knit	42	590.00
	PC 800	Ac. Sus.	10	5 1/4	Solid Piston	1	Dome		30-20 ±3	91	20	200, 2k	4/3.5	36 x 15 x 9	Opt., Ven. Knit	Brown Knit	57	900.00
	325ES	Ac. Sus.	6 1/2			1/2	Dome		55-20 ±3	92	15	2.5k	4/3.5	17 x 8 x 9	Opt., Ven. Knit	Black Knit	17	225.00
	535ES	Ac. Sus.	6 1/2	6 1/2	Cone	1	Dome		40-20 ±3	92	15	100, 1.7k	4/3	33 x 9 x 10	Opt.	Black Knit	32	395.00
	745ES	Ac. Sus.	8	6 1/2	Cone	1	Dome		35-20 ±3	93	15	100, 1.7k	4/3.5	35 x 10 x 12	Opt.	Black Knit	42	475.00
	PC 30	Ac. Sus. Subwoof.	8						35-150 ±3	89	15	150	4/3.5	11 x 12 x 13	Opt.	Black Knit	25	220.00
	PC 40	Ac. Sus.	5 1/4			1	Dome		70-20 ±3	89	15	1.5k	4/3.5	6 x 10 x 5	Opt.	Brown Knit	20	335.00
	PC 50	Ac. Sus. Subwoof.	10						30-150 ±3	87	25	150	8/6	13 x 14 x 15	Opt.	Black Knit	33	290.00
	PC 60	Ac. Sus.	6			1	Dome		55-20 ±3	87	15	1.2k	4/4	8 x 14 x 8	Opt.	Brown Knit	30	420.00
	PC 1000	Pas. Rad.	8	5 1/4	Solid Piston	1	Dome		30-20 ±3	91	25	250, 2k	8/6	15 x 38 x 9	Opt.	Brown Knit	65	1200.00
	PC 60/50	Ac. Sus.	10	6	Solid Piston	1	Dome		30-20 ±3	87	25	150, 1.2k	8/6	Three Pieces	Opt.	Brown Knit	66	710.00
	PC 40/30	Ac. Sus.	8	5 1/4	Solid Piston	1	Dome		35-20 ±3	89	15	150, 1.5k	4/3.5	Three Pieces	Opt.	Brown Knit	45	550.00
PHOBOS	Phobos	Inf. Baf.	6			1	Dome	M.T	60-20 ±4	84	15	5k	8/6	12 Dia.	Teak	Brown	30	230.00
PINNACLE	PN-5	Bass Ref.	5 1/4			3/4	Dome		75-21	88	10	5k	6/	11 x 7 x 6	Hick. Vinyl	Black Knit	14	149.00
	PN-6	Ac. Sus.	6 1/2			3/4	Dome		40-21	88	10	4k	4/	15 x 9 x 7	Hick. Vinyl	Black Knit	24	199.00
	PN-7	Bass Ref.	6 1/2			1, 3/4	Dome		40-21	90	10	3.5k, 10k	4/	15 x 9 x 9	Hick. Vinyl	Black Knit	26	269.00
	PN-8	Bass Ref.	8			1, 3/4	Dome		38-23	87	15	2.2k, 14k	6/	19 x 12 x 9	Hick. Vinyl	Black Knit	52	389.00
(Continued)																		

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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, Subwoofer = ST	Ancholic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz		Impedance, Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
PINNACLE (Continued)	PN-10	Bass Ref.	10	1½	Dome	¾	Dome		36-23	90	15	1.2k, 8.5k	6/	26 x 16 x 10	Hick, Vinyl	Black Knit	42	599.00	Pair		
	PN-15	Bass Ref.	10	1½	Dome	1,¾	Dome		36-21	92	15		6/	28 x 16 x 10	Black Knit	Black Knit	46	1000.00	Pair		
	Monitor 200	Ac. Sus.	12	4½	Cone	¾			38-21	92	10		6/	23 x 13 x 12	Ver. Hick, Vinyl	Black Knit	35	550.00	Pair		
PIONEER	CS-707	Bass Ref.	15¾	4¾	Cone		Hom	No	30-25	98		1.5k, 4k, 11k	8/	18 x 29 x 11	Vinyl	Black Cloth	44.1	659.90	Pair		
	CS-607	Bass Ref.	12	4¾	Cone		Hom	No	33-25	96		2k, 5k, 11k	8/	16 x 25 x 11	Vinyl	Black Cloth	35.4	559.90	Pair		
	CS-407	Bass Ref.	12	4	Cone	2½	Cone	No	35-20	94		3k, 10k	8/	15 x 25 x 10	Vinyl	Black Cloth	23.2	329.90	Pair		
	CS-G301 WALL	Bass Ref.	12	4¾	Cone	2½	Cone	No	35-20	91		3.5k, 7k	6/	15 x 27 x 13	Vinyl	Black Cloth	29.1	259.90	Pair		
	CS-G201 WALL	Bass Ref.	10	3	Cone	2½	Cone	No	40-20	90		3k, 6k	6/	14 x 24 x 12	Vinyl	Black Cloth	20.2	198.90	Pair		
	CS-G101 WALL	Bass Ref.	10			2½	Cone	No	55-20	90		5.5k	6/	13 x 22 x 8	Vinyl	Black Cloth	14.5	139.90	Pair		
	DSS-9	Bass Ref.	12	4¾	Cone		Ribbon		30-50	91		650, 4k	6/	15 x 27 x 14	Vinyl	Black Cloth	57.5	959.90	Pair		
	DSS-7	Bass Ref.	12	2½	Cone		Ribbon		30-50	91		850, 4.5k	8/	15 x 26 x 14	Vinyl	Black Cloth	49.1	659.90	Pair		
	DSS-5	Bass Ref.	10	2½	Cone	¾	Dome		38-30	91		1.2k, 5k	8/	13 x 22 x 11	Vinyl	Black Cloth	31.2	459.90	Pair		
	DSS-E10	Bass Ref.	12	4¾	Cone		Ribbon		30-50	91		650, 4k	6/	15 x 27 x 14	Wood	Black Cloth	57.5	1000.00	Pair		
	DSS-E6	Bass Ref.	8	2½	Cone		Ribbon		40-50	90		1k, 5k	6/	11 x 19 x 10	Vinyl	Black Cloth	23.2	400.00	Pair		
PLASMA-TRONICS	Hilt Type I	Plasma Inf. Baf.	14	6½	Cone		Plasma T		18-100 ±3	107	100	130,700	8/3	58 x 25 x 20	Opt.	Black Cloth	580	10,000.	Pair		
PLC AUDIO	7	Ac. Sus.	5			2	Cone		76-22 ±3	87	20	1k, 10k	8/4	8 x 5 x 10	Opt.	Black Mesh	6¾	345.00	Pair		
	5	Ac. Sus.	5			2	Cone		81-22 ±3	87	15	1.5k, 10k	8/4	8 x 5 x 7	Wal. Vinyl	Black Mesh	5	285.00	Pair		
POLK AUDIO	SDA-SRS	Pas. Rad.	15	(8)6½	Cones	(4)1	Domes		10-26	93	10	45, 2k	4/	64 x 21 x 13	Opt., Wood	Black Cloth	185	1395.00			
	SDS-SRS2	Pas. Rad.	15	(4)6½	Cones	(2)1	Domes		12-26	91	10	45, 2k	4/	50 x 21 x 13	Opt., Wood	Black Cloth	150	995.00			
	SDA-1A	Pas. Rad.	12	(4)6½	Cones	(2)1	Domes		15-26	92	10	50, 2.5k	4/	44 x 16 x 12	Opt.	Black Cloth	85	695.00			
	SDA-2A	Pas. Rad.	12	(2)6½	Cones	1	Dome		15-26	91	10	50, 2.5k	4/	40 x 16 x 12	Opt.	Black Cloth	70	499.00			
	SDA-CRS+	Pas. Rad.	10	(2)6½	Cones	1	Dome		22-26	91	10	50, 2.5k	4/	13 x 20 x 10	Opt.	Black Cloth	38	395.00			
	RTA 12C	Pas. Rad.	12	(2)6½	Cones	1	Dome		17-26	92	10	50, 2k	4/	39 x 16 x 12	Opt.	Black Cloth	75	479.00			
	Monitor 11A	Pas. Rad.	10	(2)6½	Cones	1	Dome		18-26 ±3, 5	92	10	60, 3k	6/	34 x 16 x 12	Wal. Vinyl	Black Cloth	60	399.95			
	Monitor 10B	Pas. Rad.	10	(2)6½	Cones	1	Dome		20-26	92	10	60, 3k	4/	28 x 16 x 12	Opt.	Black Cloth	50	329.95			
	Monitor 7C	Pas. Rad.	10	6½	Cone	1	Dome		24-26	91	10	60, 3k	4/	24 x 14 x 9	Opt.	Black Cloth	36	249.95			
	Monitor 5B	Pas. Rad.	8	6½	Cone	1	Dome		28-26	91	10	60, 3k	4/	22 x 11 x 9	Opt.	Black Cloth	29	189.95			
	Monitor 5 Jr.	Ported		6½	Cone	1	Dome		30-26	92	10	3k	4/	17 x 9 x 9	Opt.	Black Cloth	22½	129.95			
	Monitor 4.5	Ported		6½	Cone	1	Dome		30-25 ±4	92	10		4/	17 x 9 x 9	Wal. Vinyl	Black Cloth	20	99.95			
	Monitor 4A	Ported		6½	Cone	1	Dome		31-25	92	10	4.5k	4/	15 x 9 x 7	Opt.	Black Cloth	16	84.95			
	VS-25	Pas. Rad.	6½	6½	Cone	1	Dome		26-25	93	3	100, 3k	6/	21 x 9 x 11	Black	Black Cloth	27	169.95			
VS-19	Ported		6½	Cone	1	Dome		28-25	93	3	3k	6/	17 x 9 x 11	Black	Black Cloth	24	149.95				
VS-12	Ported		6½	Cone	1	Dome		30-25	93	3	3k	6/	15 x 9 x 11	Black	Black Cloth	20	99.95				
PRES SPEAKERS	Mini Superior	Bass Ref.	6½			¾	Dome		45-22 ±3	90	20		8/	16 x 10 x 7	Opt.	Black Knit	18	575.00	Pair		
	Oval	Bass Ref.	6½, 10			1¼, 1½x2	Dome, Horn		30-18, 5 ±3	93	20		8/	26 x 15 x 14	Opt.	Black Knit	30	1200.00	Pair		
	Classic I	Ac. Sus.	10			¾	Dome		35-22 ±3	90	20		8/	24 x 13 x 16	Opt.	Black Knit	35	1700.00	Pair		
	Classic II	Ac. Sus.	8			¾	Dome		40-22 ±3	89	20		8/	20 x 10 x 12	Opt.	Black Knit	28	825.00	Pair		
PRINCETON ACOUSTICS	Aria One-EB	Sat. & Subwoof.	(4)8		Cone	(4)2	ACT		22-22	90	50		4/	Four Pieces	Opt.	Opt., Knit	234	4200.00	Sys. w/ Stands		
	Aria One	Sat. & Subwoof.	(2)8		Cone	(4)2	ACT		28-22	90	25		4/	Four Pieces	Opt.	Opt., Knit	182	3650.00	Sys. w/ Stands		
	Aria Two-EB	Sat. & Subwoof.	(2)8		Cone	(2)2	ACT		32-21	89	25		4/	Four Pieces	Opt.	Opt., Knit	144	2500.00	Sys. w/ Stands		
	PA-10	Bass Ref.	(2)6		Cone	(2)2	ACT		39-20, 5	88	25		4/	10 x 12 x 30	Opt., Wood	Opt., Knit	50	1450.00	Pair		
	PA-5	Inf. Baf.	8		Cone	2	ACT		43-20	84	25		8/	11 x 11 x 22	Opt., Wood	Opt., Knit	28	795.00	Pair		

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Control			Ancholic Frequency Response		Crossover Frequencies, Hz		Dimensions, Inches (To Nearest Inch)		Grille Color and Material		Weight, Lbs.	Price, \$
PROAC	Super Tablette	Ported	4				3/4	Dome		70-20	85	25	5k	8/	10 x 6 x 9	Opt., Wood	Black	15	595.00	Pair	
	Super EBT	Ported	(2)4				3/4	Dome		60-20	87	25	5k	8/	15 x 6 x 9	Opt., Wood	Black	20	850.00	Pair	
	Studio 1	Ported	7				1	Dome		50-20	89	50	3k	8/	16 x 9 x 10	Opt., Wood	Black	25	1050.00	Pair	
	EBS	Ported	10	3	Dome	3/4	Dome		25-20	89	100	450,5k	8/	33 x 12 x 13	Opt., Wood	Black	90	3700.00	Pair		
PRODIGEE ACOUSTICS	PA261	Sealed	(2)6				1	Dome	No	45-20 ±3	92	30	250,4k	6.3.9	9 x 11 x 36	Opt., Wood	Black	51	850.00	Pair	
	PA841	Sealed	8	4	Cone	1	Dome	No	39-20 ±3	91	40	500,5k	7/4	10 x 11 x 36	Opt., Wood	Black	54	850.00	Pair		
	PA1051	Sealed Sat. & Subwoof.	10	5	Cone	1	Dome	No	31-20 ±3.2	93	40	90,4.5k	6/4	13 x 11 x 36	Opt., Wood	Black	70	1200.00	Pair		
QUAD	ESL-63	ES Dipole								35-20	86	30		8/	36 x 26 x 11	Opt.	Brown	41	2950.00	Pair	
QUASAR	SW99	Ac. Sus.	5 1/2					W.T		30-20					Black Plas.	Black	18 Pair	199.95	Pair		
	SW30	Ac. Sus.	4							110-20					Black Alum.	Black	4 1/2 Pair	49.95	Pair		
RAUNA	Tyr	Ported, Concrete Encl.	6 1/2				1	Dome		40-20 ±3	89	20		8.8	10 x 10 x 13	Rswd.	Black Foam	30	575.00	Pair	
	Lelra	Trans. Line, Concrete Encl.	6 1/2				1	Dome		35-20 ±3	88	30			9 x 15 x 30	White	Black Mesh	60	875.00	Pair	
	Anjala	Trans. Line, Concrete Encl.	6 1/2				1	Dome		35-20 ±3	89	30			10 x 10 x 36	Rswd.	Black Foam	70	1085.00	Pair	
	Njord	Trans. Line, Concrete Encl.	(2)6 1/2				1	Dome		30-20 ±3	91	30			9 x 15 x 36	White	Black Mesh	80	1400.00	Pair	
RCA	SPK 125	Ac. Sus.	8				1	Dome	T	45-20	89	10	2.3k	6/	16 x 9 x 10	Black Vinyl	Black Knit	14 1/2	199.00	Pair	
	SPK 380	Ac. Sus.	11	4	Cone	1	Dome	M.T		35-20	90	30	500,3k	6/	25 x 14 x 13	Opt. Vinyl	Black Knit	36	449.00	Pair	
	Dimensia SPK 385	Ac. Sus.	11	4	Cone	1	Dome	M.T		35-20	90	30	500,3k	6/	25 x 14 x 13	Opt. Vinyl	Black Knit	36	449.00	Pair	
REALISTIC	Optimus 1000 (40-1130)	Tuned Port	15	5	Cone	3	Dome	No		50-20	92			8/	31 x 17 x 12	Oiled Wal.		44	400.00	Pair	
	Optimus 900 (40-1121)	Tuned Port	12	4	Cone	2 1/2	Dome	No		50-20	90			8/	30 x 14 x 11	Oiled Wal.		33	300.00	Pair	
	MC-1800 (40-1992)	Bass Ref.	8			2 1/2	Dome	No		70-20	89			8/	18 x 11 x 7	Oiled Wal.		13	120.00	Pair	
	Optimus T-120 (40-2047)	Tuned Port	10	5	Cone	1	Dome	M.T		50-20	91		8.6.5	36 x 13 x 12	Oiled Wal.	Brown			199.95	Pair	
	Optimus 400 (40-2048)	Tuned Port	12	5	Cone		Leaf	M.T		40-40	90		8/6.5	27 x 14 x 11	Oiled Wal.	Brown			199.95	Pair	
	Mach II (40-4032)	Tuned Port	15	5	Cone	4	Horn	M.T		25-40	94		8.6.5	28 x 18 x 12	Oiled Wal.	Brown			229.95	Pair	
	Optimus 800 (40-1120)	Tuned Port	12	4	Cone	2 1/2	Cone	M.T		50-20	90		8/6.5	30 x 14 x 10	Oiled Wal.	Black			159.95	Pair	
	Optimus T-45 (40-4033)	Tuned Port	10	4	Cone	2 1/2	Cone	M.T		50-20	91		8/6.5	23 x 13 x 11	Oiled Wal.	Brown			139.95	Pair	
	Optimus 600	Tuned Port	8	4	Cone	2 1/2	Cone			50-20	90		8/6.5	27 x 12 x 10	Oiled Wal.	Black			99.95	Pair	
	Nova-15 (40-4034)	Tuned Port	8			2 1/2	Cone	No		60-20	89		8/6.5	19 x 11 x 8	Oiled Wal.	Brown			79.95	Pair	
	MC-1201 (40-1990)	Ac. Sus.	8			2 1/2	Cone	No		85-17			8/6.5	18 x 11 x 8	Oiled Wal.	Brown			59.95	Pair	
RECOTON	SP1	Powered Bass Ref.	5							80-20 ±5	85	12 Inc.			9 x 6 x 6			14			
	SP2	Powered Air Sus.	5 1/4			2 1/4	Cone	W.T		60-20 ±5	85	12 Inc.	800		18 x 7 x 7			25 Pair			
REEL TO REAL DESIGNS	Legacy-1	Slot Loaded Bass Ref.	8,10	6 1/2, 1 1/2	Cone, Dome	4	Leaf			28-30 ±2	91	30	180,1.8k, 8k	4/4	12 x 13 x 42	Opt., Wood	Opt., Knit	85	1296.00	Pair	
	Legacy-2	Bass Ref.	10	6 1/2	Cone	1	Dome	T		33-20 ±3	91	15	180,2.2k	8/4	12 x 11 x 38	Opt., Wood	Opt., Knit	70	886.00	Pair	
	Legacy-3	Bass Ref.	8		Cone	1	Dome			42-20 ±3	90	15	2.5k	4/3	12 x 13 x 18	Opt., Wood	Opt., Knit	28	450.00	Pair	
	Matrix-1 Satellite	Time Aligned	6 1/2		Cone	1	Dome	T		55-20 ±2	90	15	2.2k	8/6	12 x 10 x 16	Opt., Wood	Opt., Knit	26	425.00	Pair	
	Matrix-1 Subwoofer	Bass Ref. Subwoof.	(2)10					W		26-80 ±3	91	15	Var.	8/4	18 x 15 x 24	Opt., Wood	Opt., Knit	80	450.00	Pair	
RENAISSANCE ACOUSTICS (Continued)	Companion I	Ac. Sus.	7			1	Dome			60-20 ±3	87	15	3k	8.6	16 x 10 x 8	Opt., Ven.	Opt., Knit	36 Pair	395.00	Pair	
	Companion II	Ac. Sus.	8			1	Dome			55-20 ±3	87	20	3k	8.6	19 x 12 x 11	Opt., Ven.	Opt., Knit	55 Pair	485.00	Pair	



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Sensitivity Level Condit. Woofer = W, Tweeter = T, Subwoofers = ST	Frequency Range, Hz to kHz, ±dB	SPL, 1 Watt 1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
RENAISSANCE ACOUSTICS (Continued)	Companion Bass Module	Ac. Sus. Subwoof.	8						40-100 ±3	85	40	100	8.8	25 x 15 x 12	Opt. Ven.	Opt. Knit	75 Pair	425.00 Pair; 485.00 Pair w/Xover
RESPONS	Grand		(2)12	3 1/2	Cone	3/4	Oome		25-25	85	50	275.2.7k	7.5	25 x 50 x 18	Oak	Black Foam	200	4400.00 Pair
	Baby Grand		8	3 1/2	Cone	3/4	Oome		35-25	85	50	275.2.7k	7.5	16 x 36 x 16	Opt.	Black Foam	115	2400.00 Pair
	Spinet		6			3/4	Oome		45-25	86	50	2.5k	8.5	11 x 14 x 13	Opt.	Black Foam	50	1200.00 Pair
REVOLVER	Revelation #1	Inf. Bat.	5			1/2	Oome			89	15	3k	8.6	8 x 15 x 12	Black Ash	Black Knit		325.00 Pair
	Revelation #2	Inf. Bat.	5			3/4	Oome			89	15	3k	8.6	8 x 18 x 12	Black Ash	Black Knit		475.00 Pair
	Revelation #3	Inf. Bat.	8			3/4	Oome			89	15	3k	8.6	9 x 20 x 12	Black Ash	Black Knit		625.00 Pair
REVOX	Forum MKII	Bass Ref.	9 1/2	4	Cone	3/4	Oome		30-32 ±3	88	20	400.3.5k	4/4	13 x 18 x 13	Wal. Ven.	Black Knit	39 3/4	600.00
	Plenum MKII	Bass Ref.	10	4 1/2	Cone	1	Oome		25-26 ±3	89	20	380.4.1k	4/4	14 x 23 x 13	Wal. Ven.	Black Knit	59 1/2	750.00
	Atrium MKII	Bass Ref.	10	4 3/4	Cone	1	Oome		22-26 ±3	91	20	400.4k	4/4	14 x 34 x 15	Wal. Ven.	Black Knit	84	1080.00
	Symbol MKII	Pas. Rad.	12	4 3/4	Cone	1	Oome		20-26 ±3	92	20	340.3k	4/4	17 x 40 x 17	Wal. Ven.	Black Knit	113	1450.00
	Agora 8	Internal Triamp	(2)12	5	Cone	3/4	Oome	W,T	30-21 ±3		Inc.	200.3.7k		17 x 29 x 17	Opt.	Opt. Knit	37 Pair	3600.00 Pair
	Studio 4	Ac. Sus.	9	1	Oome	3/4	Oome		50-20 ±3	86	20	760.3.2k	4/4	19 x 12 x 12	Black Varn.	Black Metal	40 Pair	600.00 Pair
	Piccolo/Bass	Sat. & Subwoof.	10 1/4	4 1/4	Cone	1	Oome		48-22 ±3	86	20	120.1.8k	4/4	Three Pieces	Black Varn.	Black Metal	43 Sys.	650.00 Sys.
RH LABS	S8-3b	Subwoof.	12					W	22-150	89	80		5.8 4.2	23 x 18 x 18	Opt. Wood	None	85	475.00
	S8-3A	Powered Subwoof.	12					W	22-150	94	150 Inc.	40-150		23 x 18 x 18	Opt. Wood	None	105	850.00
	S8-4A	Powered Subwoof.	10					W	29-150	94	100 Inc.	40-150		19 x 15 x 16	Opt. Wood	None	65	595.00
ROBERTSON AUDIO	Eleven	Inf. Bat.	8			1 1/2	Cone		40-22	90	20	1.5k	8/	21 x 12 x 11	Mahog	Black Knit	36	795.00 Pair
	Twenty One	Inf. Bat.	(2)8			1 1/2	Cone		30-22	92.5	20	3.5k	4/	32 x 19 x 9	Mahog	Black Knit	54	1695.00 Pair
ROGERS	LS5/9	Bass Ref.	8			1 3/8	Oome	No	50-16 ±3	87	25		8/	11 x 11 x 18	Opt. Wood	Black Knit	28	2595.00 Pair
	LS2	Bass Ref.	5			3/4	Oome	No	60-20 ±2	88	25	4k	8/	8 x 9 x 14	Opt. Wood	Black Knit	13	399.00 Pair
	LS6	Bass Ref.	8			3/4	Oome	No	55-20 ±2	89	25	4k	8/	11 x 11 x 20	Opt. Wood	Black Knit	21	599.00 Pair
	LS7	Bass Ref.	8			1	Oome	No	50-18 ±2	89	25	3k	8/	11 x 11 x 22	Opt. Wood	Black Knit	30	799.00 Pair
	LS3 5A	Inf. Bat.	5			3/4	Oome	No	70-20 ±3	82	25	3k	15/	8 x 6 x 12	Opt. Wood	Black Knit	12	599.00 Pair
	Studio 1	Bass Ref.	8	1	Oome	3/4	Oome	No	40-28 ±3	88	25	3k, 14k	8/	12 x 12 x 25	Opt. Wood	Black Knit	31	1199.00 Pair
	Studio 2	Bass Ref.	12	1 1/2	Oome	3/4	Oome	No	38-20 ±3	92	50	2k, 8k	8/	15 x 17 x 32	Opt. Wood	Black Knit	50	2299.00 Pair
	LSB1	Inf. Bat. Subwoof.	(2)7					No	30-60 ±3	30	100		8/	27 x 21 x 18	Opt. Wood	Black Knit	58	599.00 Pair
ROGERSOUND LABS	2600 Mini Monitor	Ac. Sus.	8	4 1/2	Cone	1	Oome	No	60-20	92	20	1k, 6k	4/	14 x 11 x 9	Black Vinyl	Black Mesh	13 3/4	119.00
	Speed-Screen Titan	Pas. Rad.	8	1 3/8	Oome	1	Oome	M,T	42-20	90	35	600.9.5k	8/	48 x 18 x 5	Black Vinyl	Black Opt.	66	350.00
		Pas. Rad.	12, 8	5	Cone	2	Horn	M,T	40-18	94	10	250.1.2k, 4.7k	8/	39 x 30 x 11	Opt.	Opt.	137	750.00
	Forty	Bass Ref.	12	5	Cone	1	Oome	M,T	40-22	88	10	1k, 4k	8/	14 x 11 x 25	Wal. Vinyl	Brown	40	149.00
	Eighty	Pas. Rad.	12	5	Cone	1	Oome	M,T	32-22	88	10	1k, 4k	8/	38 x 15 x 11	Wal. Vinyl	Brown	58	199.00
	Minicron	Ac. Sus.	4			1	Oome		70-20	81	10	2.5k	8/	7 x 5 x 4	Black Vinyl	Black	5 1/2	125.00 Pair
	Elan	Pas. Rad.	12	5	Cone	1	Oome	M,T	20-22	88	15	1k, 5k	8/	15 x 13 x 41	Opt. Wood	Opt.	67	400.00
	Nevada XT 3600	Pas. Rad. Tuned Port	12, 8	5	Cone	1	Horn	M,T	28-20	90	10	1k, 4k	4/	17 x 14 x 27	Opt. Opt.	Opt. Opt.	63	389.00
	Studio Monitor	Ac. Sus.	8			1	Oome	T	35-22	87	15	800.4k	8/	14 x 11 x 25	Opt. Opt.	Opt. Opt.	50	250.00
Magnificent Outsider	Ac. Sus.	6 1/2			1 1/2	Cone		45-22	85	20	2.5k	8/	10 x 9 x 17	Oak Opt.	Brown Opt.	21	125.00	
								50-20	83	15	2.4k	8/	8 x 7 x 13	Opt.	Opt.	17	99.00	
ROHRER ACOUSTIC	Digital Monitor OM602	Bass Ref.	6				Ribbon	T	32-85 ±3	87	30	4.5k	8/6	19 x 12 x 41	Oak	Black Cloth		1200.00 Pair
	Digital Tower OT1201	Bass Ref. Subwoof.	12						16-100 ±3	89	30		8/6	20 x 20 x 82	Black Cloth		600.00	
ROSSMAN AUDIO	SA.5	Powered Bass Ref.	5			1	Oome	No	42-20 ±3	90	15 Inc.	2.3k	100k	13 x 9 x 12	Black Slate	Black Knit	48 Pair	400.00 Pair
	SA.8	Powered Bass Ref.	6 1/2			1	Oome	No	38-20 ±3	90	15 Inc.	2.3k	100k	17 x 10 x 12	Black Slate	Black Knit	60 Pair	500.00 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	Separate Level Control? Woofer = W, Midrange = M, Tweeter = T, Superwoofer = ST	Anechoic Frequency Response, Hz to Hz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Per., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
RDYD LOUDSPEAKER	Coniston R	Bass Ref.	5			3/4	Dome		50-22 ±3	89	10	4k	8/	12 x 8 x 7	Dpt.	Black	17	290.00
	A25	Inf. Baf.	7			3/4	Dome		40-22 ±4	87	15	2.5k	8/	20 x 11 x 9	Black Foam Black Foam Black Foam	17 33 33	Pair Pair Pair	390.00
RTR	G3508	Pas. Rad., Vented	12,10	1 1/2	Dome	1	Dome	M,T	22-25	91	10	1.5k,9k	8/5	18 x 11 x 38	Wal. Ven.	Black Knit	75	450.00
	G2008	Pas. Rad., Vented	12, (2)10			1	Dome	M,T	25-25	91	10	2.5k	8/5	15 x 13 x 36	Wal. Ven.	Black Knit	62	330.00
	G808	Pas. Rad., Vented	10,8			1	Dome	M,T	32-25	90	10	2.5k	8/5	15 x 11 x 26	Wal. Ven.	Black Knit	40	220.00
	G408	Pas. Rad., Vented	(2)8			1	Dome	M,T	35-25	90	10	2.5k	8/5	12 x 10 x 23	Vinyl Wal., Vinyl	Black Knit Black Knit Black Knit	31	180.00
SANSUI	XL-500C	Pas. Rad.	12	4 3/4	Cone	2	Dome	M,T	27-40	93			8/	15 x 13 x 41	Sim. Wood		55	1320.00
	XL-300	Inf. Baf.	12	4 3/4	Cone	2	Dome	M,T	30-40	93			8/	15 x 9 x 31	Sim. Wood		46 1/4	1000.00
	XL-100	Inf. Baf.	10 1/2	4 3/4	Cone	2	Dome	T	35-25	92			8/	15 x 13 x 27	Sim. Wood		28 3/4	840.00
	S-V929U	Pas. Rad.	12	4	Cone	2 1/2	Cone		29-22	92			8/	15 x 11 x 41	Sim. Wood		48	600.00
	S-91U	Pas. Rad.	12	4	Cone	3	Cone		29-22	92			8/	15 x 11 x 41	Sim. Wood		44	480.00
	S-71U	Inf. Baf.	15	4	Cone	3	Cone		30-22	92			8/	18 x 13 x 32	Sim. Wood		41 7/8	420.00
	S-81U	Pas. Rad.	10	4	Cone	2 1/2	Cone		32-22	91			8/	13 x 11 x 38	Sim. Wood		34 1/8	380.00
	S-V828U	Pas. Rad.	10	4	Cone	2 1/2	Cone		32-22	91			8/	13 x 11 x 38	Sim. Wood		41	460.00
	S-U9000	Inf. Baf.	9			2	Cone		40-20	90			8/	11 x 9 x 20	Sim. Wood		13 3/4	326.00
	S-V727U	Pas. Rad.	8	4	Cone	2	Cone		30-22	90			8/	13 x 10 x 34	Sim. Wood		28 1/2	320.00
	S-61U	Inf. Baf.	12	4	Cone	3	Cone		32-22	91			8/	15 x 11 x 30	Sim. Wood		29 1/2	310.00
	S-51U	Inf. Baf.	10	4	Cone	2 1/2	Cone		34-22	90			8/	14 x 11 x 26	Sim. Wood		24	260.00
	S-41U	Inf. Baf.	10	5	Cone	3	Cone		35-20	90			8/	14 x 11 x 26	Sim. Wood		23	220.00
	S-U7000			6 1/2		3	Cone		45-20	91			8/	10 x 8 x 15	Sim. Wood		9 3/8	218.00
SARAS	ST 200A	Inf. Baf.	(2)10	5	Cone	1	Dome	No	30-18 ±2	90		500,5k	8/	43 x 15 x 12	Satin Wal.	Brown	80	1600.00
	ST 101	Inf. Baf.	(2)8	5	Cone	1	Dome	No	35-18 ±2	88		375,3.5k	8/	36 x 13 x 12	Satin Wal.	Brown	74	1300.00
	45	Ac. Sus.	12	5	Cone	1	Dome	No	40-18 ±3	90		500,5k	8/	25 x 16 x 12	Satin Wal.	Brown	65	1000.00
	33	Ac. Sus.	10	5	Cone	1	Dome	No	40-18 ±3	88		500,5k	8/	24 x 14 x 12	Satin Wal.	Brown	52	800.00
	22	Ac. Sus.	12			1	Dome	No	40-18 ±3	90		2k	8/	25 x 16 x 12	Satin Wal.	Brown	55	650.00
	12	Ac. Sus.	10			1	Dome	No	40-18 ±4	87		1.8k	4/	24 x 14 x 12	Satin Wal.	Brown	46	550.00
	8	Bass Ref.	8			1	Dome	No	50-18 ±4	87		2k	8/	19 x 12 x 10	Satin Wal.	Brown	32	450.00
	SSB	Powered Subwoofer.	12					W	20-160		Inc.	Sel.		18 x 18 x 21	Satin Wal.	Brown	90	850.00
	SCAN-SPEAK	SD-18	Inf. Baf.	6			3/4	Dome		42-22 ±3	91	40		8/6	23 x 10 x 11	Rswd.	Black Knit	29
SD-21		Inf. Baf.	8	4	Cone	3/4	Dome		38-22 ±3	92	40		8/6	29 x 12 x 13	Rswd.	Black Knit	42	675.00
SD-25		Inf. Baf.	10	4	Cone	3/4	Dome		33-22 ±3	94	50		8/6	32 x 13 x 14	Rswd.	Black Knit	50	780.00
Extreme		Inf. Baf.	13	4	Cone	3/4	Dome		22-22 ±3	94	75		8/6	46 x 16 x 16	Rswd.	Black Knit	92	2150.00
S.C.D.	G.C. Rock Monitor	Sealed	(2)8	3	Dome	(2)2	Ribbons	No	50-20 ±3	91	25	1k,4k	10/6	11 x 10 x 36	Wood Vinyl	Black Knit	105	799.00
	J.C. Classical Monitor	Sealed	12	3	Dome	(2)2	Ribbons	No	38-24 ±3	91	100	800,4k	8/4	Four Pieces	Vinyl Black	None	Pair 235 Sys.	1695.00
SCDTT	S106	Ac. Sus.	6 1/2			1 3/4	Cone		60-20 ±4	89	5	3.5k	8/6	14 x 9 x 8	Wal. Vinyl	Black Knit	8 1/2	200.00
	S108	Ac. Sus.	8			1 3/4	Cone		55-20 ±4	91.5	5	3.5k	8/6	22 x 12 x 9	Wal. Vinyl	Black Knit	16	240.00
	S120	Ac. Sus.	12	4 1/4	Cone	1 3/4	Cone		45-20 ±4	92	10	1.1k,3.5k	8/6	32 x 16 x 12	Wal. Vinyl	Black Knit	35	540.00
	S150	Ac. Sus.	15	5	Cone	1	Dome		45-20 ±4	90.5	10	1.1k,3.5k	8/6	33 x 19 x 12	Wal. Vinyl	Black Knit	45	600.00
	Bostonian One	Ac. Sus.	6 1/2			1	Dome		55-22 ±4	89.5	10	2.2k	4/4	15 x 9 x 8	Wal. Vinyl	Black Knit	14	300.00
	Bostonian Four	Ac. Sus.	15	(2)4 1/2	Cones	(3)1	Domes		36-22 ±4	90	20	700,3.5k	4/4	36 x 19 x 13	Vinyl Diled Wal.	Black Knit	72	1600.00
SFI	100	Bipolar	8	6 1/2	Dyna-pleat				50-20	88	25							1095.00
	25	Bipolar	8		Dyna-pleat		Dome		50-20 ±4	88	25		4/3	36 x 17 x 17				1295.00
	35	Bipolar	10		Dyna-pleat		Dome		50-20 ±4	87.5	25		6/4	46 x 17 x 17				1495.00

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low-Cost? 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. Pwr., Watts	Crossover Frequencies, Hz		Impedance, Ohms		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
							Nominal	Minimum					Nominal	Minimum							
SHADOW AUDIO	Compact Monitor	Aperiodic	6½			1	Dome	No	50-20 ±3	89	20	2.7k	8/5	10 x 12 x 34	Dyed Oak	Black Knit	35		499.00	Pair	
SHAHINIAN ACOUSTICS	Obelisk	Trans. Line, Pas. Rad.	8	(2)1½	Domes	(4)¾	Domes		28-22 +0,-3	90	50	1.8k,9k	5/4	15 x 13 x 29	Opt., Wood	Opt., Knit	55		1600.00	Pair	
	Arc	Pas. Rad.	8	1¾	Dome	1	Dome		28-18 +0,-3	88	30	1.8k,9k	6/4	14 x 10 x 28	Oiled Oak	Brown Knit	45		950.00	Pair	
	Elf	Vented	5¼			1	Dome		55-21 +0,-3	90	25	4.5k	6/4	7 x 8 x 13	Oiled Oak	Brown Knit	25		350.00	Pair	
	Double Eagle Contra-Bombarde	Subwoof. Slot Loaded Subwoof.	(2)8 (2)8						28-1 +0,-3 16-200 +0,-3	88 89		Ext.	7/3.5 8/4	23 x 14 x 30 28 x 19 x 35	Oiled Oak Oiled Wal. Diled Wal.	Brown Knit Brown	100		825.00	Pair	
SHANNON-BROOKE AUDIO	I	Ac. Sus.	12	6½	Cone	¾	Dome		27-35 ±3	89	40	200,3.2k	4/3	20 x 19 x 39	Wal.	Black Knit	80		1750.00	Pair	
SIDEREAL AKUSTIC	CEL	Vented	(2)8			1	Dome			96	50	3k	8/5	21 x 15 x 20		Black Knit	40		925.00		
SIEFERT RESEARCH	Maxim III	Ducted Port	6½			1	Dome		46-22 ±3	86	30	3k	8/6	13 x 11 x 9	Opt.	Black Knit	18		499.00	Pair	
	Maxim IID	Ducted Port	6½			¾	Dome		46-38 ±3	86	30	2.5k	8/6	13 x 11 x 9	Opt.	Black Knit	18		599.00	Pair	
	Magnum III	Ducted Port	8	4	Cone	1	Dome		38-24 ±3	88	30	250,3k	6/4	22 x 14 x 13	Opt.	Black Knit	42		899.00	Pair	
	Subwoofer	Ducted Port Subwoof.	10					W	2-100 ±3	88	30	100	8/6	20 x 20 x 20	Dpt.	Black Knit	80		699.00	Pair w/EQ & Xover	
SIGNET	SL-100	Tuned Port	10	3	Dome	(2)1	Domes		40-20 ±3	90	25	500,5k	8/4	13 x 36 x 16	Wal. Ven.	Black Cloth	66		1450.00	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	Separate Level Controls: Woofer = W, Midrange = M, Tweeter = T, Superwoofer = ST	Angular Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To nearest 1/8")	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
SNELL ACUSTICS	Type C-I	Inf. Baf.	10	4½	Cone	(2)¾	Domes		24-20 ± 3	86	80	350, 2.7k, 15k	8/4	44 x 15 x 13	Dpt.	Opt., Cloth	80	1890.00 Pair
	Type K	Inf. Baf.	8			¾	Dome		70-20 ± 2.5	90	10	2.3k	8/8	18 x 11 x 9	Dpt.	Opt., Cloth	27	450.00 Pair
	Type J-II	Bass Ref.	8			1	Dome		49-22 ± 2	92	15	2.3k	8/5	23 x 13 x 10	Opt.	Opt., Cloth	38	680.00 Pair
	Type E-II	Bass Ref.	8			1¾	Domes		39-22 ± 1.75	93	15	2.3k, 10k	8/5	33 x 14 x 11	Opt.	Opt., Cloth	48	990.00 Pair
	Type A-III	Inf. Baf.	12	4½	Cone	1¾	Domes		35-20 ± 1.25	87	80	275, 2.7k, 10k	4/4	47 x 24 x 13	Opt.	Opt., Cloth	130	4085.00 Pair
SONAB	DA-50	Bass Ref.	6½			1	Dome		28-20	89	25	2.5k-3k	8/7	15 x 18 x 13	Black Ven.	Black Metal	33½	800.00 Pair
	DA-51	Bass Ref.	7			1	Dome		32-20	88	25		8/7	17 x 12 x 11	Rswd. Ven.	Black Foam	28½	1000.00 Pair
	DA-52	Bass Ref.	7			1	Dome		27-20	89	25		8/7	16 x 21 x 15	Wal. Ven.	Black Foam	43½	1700.00 Pair
SONANCE	I	Inf. Baf.	6½			¾	Dome		75-18 ± 4		5	3.5k	8/6	8 x 10 x 3	White	White Knit	8 Pair	
	II	Inf. Baf.	6½			2½	Cone		70-18 ± 3	89	5	4k	8/8	12 x 9 x 3	White	White Knit	15 Pair	
	III	Inf. Baf.	6½			1	Dome		50-20 ± 2	88	5	3k	8/6	12 x 9 x 3	White	White Knit	15 Pair	
	IV	Inf. Baf.	8			1	Dome	T	35-22 ± 2		5	2.5k	8/6	12 x 16 x 3	White	White Knit	20 Pair	
	Subwoofer	Slot Vented Subwoof.	(2)6½						25-140 ± 2	88	5	125	8/8	12 x 9 x 8	White	White Knit	14	
SONY	APM-66W	Bass Ref.	8		Flat Diaph.		Flat Diaph.	M	30-30 + 4, -8	89	20	300, 1.5k	6/	26 x 15 x 14	Oiled Wal. Opt.	Black	62¾	1000.00 Pair
	APM-22W	Bass Ref.	8		Flat Diaph.		Flat Diaph.		40-20 + 4, -8	68	20	2.2k	6/	20 x 12 x 13	Opt.	Black	34¼	450.00 Pair
SOTA	Mini-monitor	Tuned Port	4			1¼	Dome		60-20 + 0, -3	64	25		8/	12 x 10 x 6	Opt.	Opt.	18	725.00 Pair

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If you're going to listen to music at all, you may as well get it all. No matter how high or low, how loud or soft. Captured so faithfully that trying one of these new tapes at least once is something you owe yourself. And your music.

Each of these four new UX tapes represents the kind of advancement of music reproduction you've come to expect from Sony. UX-ES, for instance, offers the best frequency response of any Type II tape we've ever formulated. Yet UX-PRO actually goes one better with a ceramic tape guide that yields the most incredibly quiet tape housing Sony has ever produced.

Sony UX tapes. Now when a musician really extends himself, so will your tape.

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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	Analogic Frequency Response, Hz to kHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
SOUND ASSOCIATES	Enigma	Dipole Subwoof. Sat. & Dipole	36x36				W		20-100 ±3	88	100	100	6/6	46 x 36 x 7	Opt.	Brown Knit	80	2500.00
	Chameleon ES	Sat. & Dipole Subwoof.	36x36				W		20-20 ±3	86	100	100	Three Pieces	Opt.	Brown Knit		6200.00 Sys.	
	Chameleon DR	Sat. & Dipole Subwoof.	36x36		Ribbon		W		20-20 ±3	86	100	100,400	Three Pieces	Opt.	Brown Knit		6200.00 Sys.	
	Chameleon MC	Sat. & Dipole Subwoof.	36x36		Cone		W		20-20 ±3	86	100	100,250, 2.5k	Three Pieces	Opt.	Brown Knit		6200.00 Sys.	
	Chameleon 2DR	Sat. & Dipole Subwoof.	(2) 36x36		Ribbon		W,M		20-20 ±3	89	200	100,400	Three Pieces	Opt.	Brown Knit		10,000 Sys.; w/ Amps. 16,000 Sys.	
SOUND DYNAMICS	100 S MK II	Bass Ref.	6½		1	Dome			50-20 ±3	93	10	2k	8/4	9 x 16 x 9	Opt., Vinyl	Black	20	250.00 Pair
	100 CM	Bass Ref.	6		1	Dome			38-23 ±3	96	5	2k	8/4	17 x 9 x 10	Wal. Vinyl	Black	20	300.00 Pair w/ Stands 400.00
	500 CM	Bass Ref.	10		1	Dome			34-23 ±3	98.5	10	2k	8/4	23 x 12 x 12	Wal. Vinyl	Black	38	400.00 Pair w/ Stands 600.00
	700 CM	Bass Ref.	12		1	Dome			32-23 ±3	101	15	1.9k	8/4	28 x 14 x 12	Wal. Vinyl	Black	45	600.00 Pair w/ Stands 900.00
	1500 CM	Bass Ref.	15		1	Dome			28-23 ±3	102	20	1.8k	8/4	35 x 18 x 16	Wal. Vinyl	Black	90	900.00 Pair
	S Series 200	Bass Ref.	10		1	Dome			36-22 ±3	99	8	2k	8/4	23 x 12 x 11	Wal. Vinyl	Black	35	330.00 Pair
SOUND-LAB	DynaStat	ES & Dynamic ES	8			48x4	ES	T	35-22 ±2	88	50	200	8/6	72 x 15 x 3	Cloth	Black Knit	65	1795.00 Pair
	A-1	ES				48x4	ES	T	30-22 ±2	87	100		4/3	81 x 35 x 11	Opt., Wood	Opt., Linen	185	8750.00 Pair
	A-2x	ES	48x20			48x4	ES	T	34-22 ±2	88	50	200	8/6	57 x 28 x 3	Opt., Wood	Opt., Linen	88	2950.00 Pair
	A-3	ES					ES	T	32-22 ±2	87	100		4/3	73 x 31 x 9	Opt., Wood	Opt., Linen	145	5750.00 Pair
	A-4	ES	61x20			61x4	ES	T	33-22 ±2	88	100	200	8/6	70 x 28 x 3	Opt., Wood	Opt., Linen	105	3850.00 Pair
	A-6	ES	72x40			72x4	ES	T	28-22 ±2	88	100	200	8/5	81 x 46 x 3	Opt., Wood	Opt., Linen	205	9500.00 Pair
SPANDAU SPEAKER SYSTEMS	SP-203A	Bass Ref.	8		1	Dome	T		40-20 ±3	91	5	3.5k	8/4	30 x 15 x 12	Opt.	Black Cloth	40	625.00 Pair
	SP-203B	Bass Ref.	8	2	Dome	1	Dome	M,T	36-20 ±3	92	5	800,5k	8/4	37 x 18 x 15	Opt.	Black Cloth	65	975.00 Pair
	SP-230A	Bass Ref.	12.6	2		1		M,T	35-20 ±3	90	10	150,800, 5k	8/4.5	45 x 22 x 19	Opt.	Black Cloth	110	1400.00 Pair
SPEAKERLAB	DAS2	Tuned Port	5¼			¾	Dome		50-21 ±3	91	5	2.5k	4/6	13 x 7 x 8	Opt., Knit	Opt., Knit	13	110.00
	DAS3	Tuned Port	6½			¾	Dome		42-21 ±3	91	10	2.5k	4/3.3	21 x 8 x 10	Opt., Knit	Opt., Knit	23	165.00
	DAS4	Tuned Port	8			¾	Dome		36-21 ±3	92	20	2.5k	4/3.3	28 x 10 x 12	Opt., Knit	Opt., Knit	39	219.00
	DAS5	Tuned Port	8	6½	Cone	1	Dome		34-21 ±3	93	20	180,2.5k	4/3.2	13 x 11 x 13	Opt., Knit	Opt., Knit	47	329.00
	DAS6	Tuned Port	10	8	Cone	1	Dome		30-21 ±3	94	20	180,2.5k	4/3.4	36 x 12 x 14	Opt., Knit	Opt., Knit	62	439.00
	DAS7	Tuned Port	10,12	6½	Cone	1	Dome		25-21 ±3	94	20	180,350, 3k	4/3.2	38 x 14 x 16	Opt., Knit	Opt., Knit	86	549.00
	DAS8	Tuned Port	10,12	6½,3	Cone, Dome	1	Dome		23-21 ±3	94	20	150,350, 1.5k,5k	4/3.2	46 x 16 x 13	Opt., Knit	Opt., Knit	105	899.00
	DAS SW	Subwoof.	10						30-160 ±3	92	20	150	8/6	18 x 18 x 18	Opt., Wood	Opt., Knit	62	359.00
SPECTRUM	108A&B	Bass Ref.	8			1½			48-20 ±3	92	10	2.3k	8/	14 x 11 x 9	Opt., Vinyl	Foam	34	229.00 Pair
	108AW&AO	Bass Ref.	8			1½			48-20 ±3	92	10	2.3k	8/	14 x 11 x 9	Opt., Wood	Foam	34	299.00 Pair
	208A&B	Bass Ref.	8			1½			38-20 ±3	91	10	2.3k	8/	25 x 14 x 10	Opt., Vinyl	Foam	38	349.00 Pair
	208AW&AO	Bass Ref.	8			1½			38-20 ±3	91	10	2.3k	8/	25 x 14 x 10	Opt., Wood	Foam	38	449.00 Pair
	410	Bass Ref.	10			1			18-22 ±3	89	30	1.5k	8/	39 x 14 x 12	Opt., Wood	Black Knit	68	749.00 Pair
SPENDDR	Prelude	Bass Ref.	8			1	Dome		50-20 ±3	90	20	3k	8/7	20 x 10 x 11	Opt.	Black Cloth	28	500.00 Pair
	LS3/5A	Inf. Bas.	4½			1	Dome		80-20 ±3	83	25	3k	15/8	12 x 7 x 7	Opt., Wood	Black Cloth	12	450.00 Pair
	SP-2	Bass Ref.	8			¾	Dome		50-20 ±3	88	20	3k	8/7	20 x 10 x 11	Opt., Wood	Black Cloth	32	650.00 Pair
	BC-1	Bass Ref.	8			1¼,¾	Domes		45-18 ±3	85	25	3k,13k	8/7	25 x 12 x 12	Opt., Wood	Black Cloth	38	850.00 Pair
	SP-1	Bass Ref.	8			1¼,¾	Domes		45-20 ±3	87	25	3k,13k	8/7	25 x 12 x 12	Opt., Wood	Black Cloth	42	950.00 Pair
	SA-3	Bass Ref.	12			1½	Dome		38-20 ±2	90	40	2k	8/7	34 x 15 x 18	Opt., Wood	Black Foam	85	1900.00 Pair



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Today, a good stereo's place isn't necessarily just in the home. Plug the new Bose® RoomMate® powered speaker system into a personal stereo, and you'll have a complete, compact, room-filling stereo system that you can use nearly anywhere. Or combine the RoomMate system with one of the new generation of portable compact disc players, and you'll have a digital stereo system that's as compact and easy to carry as a camera outfit!

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For more information, write: Bose Corporation, Dept. ABG, 10 Speen Street, Framingham, MA 01701.

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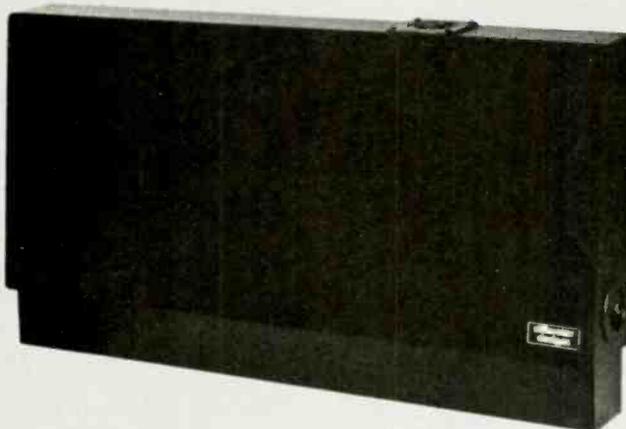
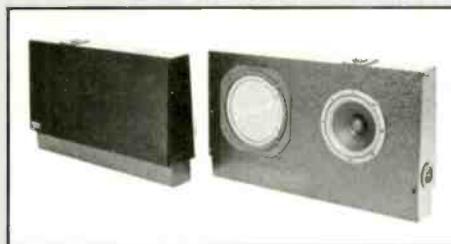
LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		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. Pwr., Watts	Crossover Frequencies, Hz	Impedance Ohms: Nominal/Minimum		Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
SPICA	TC-50	Sealed	6½			1	Dome		56-15 ±3	83	25	2.7k	4	13 x 16 x 12	Opt., Wood	Black Cloth	45 Pair	450.00	Pair	
	Servo	Active Servo Subwoof.	8					W	-3 dB @ 25 Hz		50 Inc.	88		18 x 15 x 16	Opt., Wood	Black Cloth	53	595.00	Pair	
STAX	ELS-F81 New	ES Planar							40-20	73	100		8/4	18 x 44 x 11	Teak	Beige	44	3995.00	Pair	
SUMO	Opus Two	Inf. Bal.	6½			1	Dome	No	42-24 +0,-3	85	50	2.5k	4/3.4	38 x 11 x 5	Opt.	Black Knit	27	699.00	Pair	
	Opus Three	Inf. Bal.	6½			1	Dome	No	42-24 +0,-3	85	50	2.5k	4/3.4	11 x 10 x 16	Opt.	Black Knit	25	649.00	Pair	
	Samson	Ported Subwoof.	15					No	-3 dB @ 21 Hz	91	50		8/7	30 x 22 x 19	Opt.	Black Knit	85	649.00; w/Amp, 1249.00	Pair	
SURROUND SOUND	SSI-2000	Bass Ref.	8			2	Dome	No	32-18 ±3	90	15		8/3	10 Dia. x 38	White Lacq.	Black Cloth	20	199.00	Pair	
SYMDEX AUDIO SYSTEMS	Sigma Series II	Ac. Sus.		6½	Cone	1	Dome		60-20	84		2.8k	8	6 x 10 x 22	Wal.	Black Foam	25	895.00	Pair	
	Omega Series II	Add-On Subwoof.	10						35-100	84		100	8	14 x 14 x 31	Wal.	Black Foam	65	1495.00	Pair	
	Epsilon	Ac. Sus.	10	6½	Cone	1	Dome		35-20	84		100, 2.8k	8	13 x 13 x 48	Oak	Black Knit	105	1495.00	Pair	
SYNTHESIS	LM 20	Bass Ref.	6½			1	Dome		52-18 ±3	90	20	1.5k	8	10 x 14 x 14	Oiled Oak	Brown Foam	22	600.00	Pair	
	LM 200	Bass Ref.	6½			1	Dome		44-20 ±3	89	20	1.25k	8	10 x 10 x 34	Oiled Oak	Opt., Knit	40	850.00	Pair	
	LM 250	Bass Ref.	8			1	Dome		42-20 ±3	91	20	1.25k	8	11 x 11 x 34	Oiled Oak	Opt., Knit	44	1185.00	Pair	
	LM 250D	Bass Ref.	8			1	Dome		42-20 ±3	91	20	1.25k	8	11 x 11 x 34	Oiled Oak	Opt., Knit	47	1450.00	Pair	
	LM 300	Bass Ref.	10	7	Cone	1	Dome	T	30-20 ±3	91	20	85, 1.25k	8	14 x 15 x 44	Oiled Oak	Opt., Knit	90	1950.00	Pair	
TANNOY	M-20 Mercury	Ducted Port	8			1	Dome		55-20	93	10	3k	8/6	19 x 11 x 9	Wal. Vinyl	Brown Knit	12	398.00	Pair	
	V-30 Venus	Ducted Port	8			1	Dome		50-20	93	10	3k	8/6	21 x 12 x 10	Oiled Wal.	Brown Knit	21	648.00	Pair	
	C-10	Ducted Port	8			1	Dome		57-20	93	10	3.5k	8/6	19 x 11 x 9	Opt. Knit	Black Knit	11	298.00	Pair	
	OC-110	Ducted Port	8			1	Coax Horn		52-20	93	10	3.5k	8/6	19 x 10 x 10	Wal. Vinyl	Brown Knit	16	549.00	Pair	
	DC-125	Ducted Port	10			1	Coax Horn		50-20	93	10	3.5k	8/6	22 x 13 x 11	Oiled Wal.	Brown Knit	27.6	699.00	Pair	
	DC-2000	Ducted Port	10			1	Coax Horn		47-20	93	10	3.5k	8/6	31 x 13 x 11	Oiled Wal.	Brown Knit	55	998.00	Pair	
	DC-4000	Ducted Port	12			2	Coax Horn		47-20	96	10	1.2k	8/6	31 x 16 x 15	Oiled Wal.	Brown Knit	63	1598.00	Pair	
	DC-6000	Ducted Port	15			2	Coax Horn		40-20	97	10	1k	8/6	38 x 19 x 15	Oiled Wal.	Brown Knit	78	1998.00	Pair	
	Stirling	Ported	10			2	Coax Horn	T	35-20	93	10	1.2k	8/6	28 x 19 x 12	Oiled Wal.	Beige Knit	49	2358.00	Pair	
	G.R.F. Memory Westminster	Ducted Port Horn	15			2	Coax Horn	M,T	29-20	95	10	1k	8/6	44 x 32 x 19	Oiled Wal.	Beige Knit	137	3598.00	Pair	
TECHNICS	SB-RX30	Bass. Ref.	9			1½	Flat	No	44-30	88		2.5k	6	10 x 15 x 9	Sim. Wood	Brown	16.5	400.00	Pair	
	SB-RX50	Bass. Ref.	9½			1½	Flat	T	30-48	87		2.2k	6	12 x 19 x 11	Sim. Wood	Brown	36.4	400.00	Pair	
	SB-L35	Bass. Ref.	10			2½	Cone	No	42-22	92		4k	8	13 x 23 x 9	Sim. Wood	Black Knit	16.3	150.00	Pair	
	SB-L55	Bass. Ref.	10	4	Cone	2½	Cone	No	37-22	92		2.5k, 5k	8	13 x 25 x 10	Sim. Wood	Black Knit	18.7	220.00	Pair	
	SB-L75	Bass. Ref.	12	4	Cone	2½	Cone	No	33-22	92		2.5k, 5k	8	14 x 27 x 13	Sim. Wood	Black Knit	23.8	275.00	Pair	
	SB-L95	Bass. Ref.	15	4	Cone	2½	Cone	No	32-22	93		3k, 5k	8	18 x 31 x 13	Sim. Wood	Black Knit	35.9	175.00	Pair	
	SB-M3	Bass. Ref.	13	3½	Cone	1½	Cone	M,T	150-15 ±1.5	90		450, 3.5k	6	16 x 27 x 13	Sim. Wood	Black Knit	68.3	1000.00	Pair	
	SB-F1MK2	Ac. Sus.	4¾			1½	Cone	No	48-35	86		2k	8	6 x 9 x 6	Silv.	Net	6.4	275.00	Pair	
	SB-F2MK2	Ac. Sus.	5½			1½	Flat		55-33	88		2.5k	8/4	6 x 10 x 7	Silv.		11	300.00	Pair	
	SB-R200	Flat Coax					Flat	T	55-30	89		2.7k	8	24 x 15 x 4	Sim. Wal.	Black Knit	19.8	600.00	Pair	
	SB-R100	Flat Coax					Flat	No	55-30	87		2k	8	13 x 13 x 3		Black Knit	9.9	260.00	Pair	
	SB-X300A	Bass. Ref.	9	2	Cone	1½	Coax Cone	No	38-33	90		900, 3k	8/7	12 x 23 x 11		Black Metal	20.9	300.00	Pair	
	SB-X500A	Bass. Ref.	10	3½	Cone	1½	Cone	No	30-33	90		900, 2.5k	8/7	14 x 25 x 13		Black Knit	33	400.00	Pair	
	SB-X700A	Bass. Ref.	12	3½	Cone	1½	Cone	M,T	35-30	90		900, 2.5k	8/7	15 x 27 x 13		Black Knit	39.6	550.00	Pair	

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Introducing the HIDEAWAYSTM — Stillwater Designs' new behind-the-couch surround sound speakers. Designed for use with the new generation of surround sound video decoders, the HIDEAWAYS are fully compatible with any home stereo amplifier or receiver as well. Surround sound video is recreated with a realism you can feel as well as hear!

When the HIDEAWAYS are paired with a set of stereo speakers for recorded music listening, the results are breathtaking—literally placing you on the soundstage while listening from your couch. This is an experience impossible to duplicate with standard stereo speakers. The HIDEAWAYS are truly a new experience in musical enjoyment!

Contemporary ultra-slim design allows the HIDEAWAYS to slip between your couch and wall with minimum space requirements; they are completely out of sight! Should you prefer your main speakers hidden, the HIDEAWAYS provide excellent sound just by themselves.

Because the critical high frequencies are focused upward, the sound is clean and clear from behind your couch. Eight inch polypropylene woofers and ten inch passive radiators reproduce bass and mid-range with startling realism and definition. The HIDEAWAYS must be heard and felt to be believed!

SPECIFICATIONS

Frequency Response35 Hz to 20,000 Hz
Min-Max Amplifier Power10-100 Watts/Channel
Impedance8 Ohms
Speaker Components1" Dome Tweeter, 8" Polypropylene Woofer, 10" Passive Radiator
Crossover3000 Hz
Dimensions17" high x 30" wide x 5 1/4" deep (bottom), 4" deep (top)

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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, Subwoofers - ST	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
TENNESSEE SOUND	Symphony I	Ac. Sus.	6½			1¼	Cone		88	35	1.8k	10.5/8.5	16 x 13 x 11	Opt. Wood	Opt.	21	550.00	
	Symphony II	Ac. Sus. Subwoof.	(2)8						88	35		8/6	33 x 21 x 19	Opt. Wood	Opt.	65	1200.00	
THIEL	CS 3.5	Electr.	10	4	Cone	1	Dome		20-20 ± 2	88	40	400.3k	4/4	13 x 13 x 41	Teak	Black Cloth	75	2450.00
	CS 2	Bass Ref.	8	3	Cone	1	Dome		38-20 ± 2	87	40	800.3k	6/5	12 x 12 x 39	Teak	Black Cloth	62	1550.00
	CS 1	Bass Ref.	6½			1	Dome		57-18 ± 2	87	40	3k	6/5	10 x 10 x 36	Teak	Black Cloth	41	950.00
3D ACOUSTICS	Cube	Ac. Sus.	6			¾	Dome		70-20	88	15		8/5	10 x 10 x 10	Opt.	Black	15	240.00
	Column	Pas. Rad.	6			1	Dome		35-20	88	25		8/5	12 x 31 x 11	Opt.	Black	42	490.00
	610 System	Sat. & Subwoof.	10	6	Cone	1	Dome		30-20	88	30		8/5	Three Pieces	Opt.	Black	79	590.00
	610 Surround	Sat. & Subwoof. Ac. Sus. Subwoof.	10	6	Cone	1	Dome		30-20	88	30	100	16/10	Five Pieces	Opt.	Black	109	885.00
	10								30-100	88	30			16 x 24 x 14	Opt.	None	49	295.00
TIARE ACOUSTICS	TL-17	Trans. Line	7			1.1	Dome		48-22 ± 3	87	50	2.3k	8/6	9 x 12 x 39	Cloth	Cloth	45	895.00
TRIAD DESIGN	HSS-400	Inf. Baf.	8			1	Dome		90-20 ± 3	89	30	2k	8/6	18 x 11 x 9	Black Paint	Silver Knit	15	450.00
	Bass Base	Powered Subwoof.	8						40-125 +0,-3	70	Inc.	8/8	30 x 18 x 14	Black Vinyl	Silver Knit	50	260.00	
	System One	Sat. & Powered Subwoof.	6½	3½	Cone	¾	Dome	W,T	40-20 ± 4	87	70	160.4k	8/4	Three Pieces	Opt. Wood	Black Cloth	23	500.00
	System Two	Sat. & Powered Subwoof.	(2)6½	3½	Cone	¾	Dome	W,T	35-20 ± 4	87	70	160.4k	8/4	Three Pieces	Opt. Wood	Black Cloth	46	800.00
	System Three/3	Sat. & Powered Subwoof.	8	6½	Cone	1	Dome	W	38-20 ± 3	88	70	100.2.5k	8/6	Three Pieces	Opt. Wood	Black Cloth	44	600.00
	System Four	Sat. & Powered Subwoof.	(2)8	8	Cone	1	Dome	W	32-20 ± 3	88	70	100.2.5k	8/6	Four Pieces	Black Paint	Silver Knit	70	1250.00
	HSS-300	Inf. Baf.		6½	Cone	1	Dome		100-20 ± 3	88	20	2.5k	8/6	12 x 8 x 4	Opt. Wood	Black Cloth	28	350.00
	HSW-200	Powered Subwoof.	(2)6½					W	42-120 +0,-3	70	Inc.	8/8	8 x 15 x 11	Opt. Wood	Black Cloth	22	300.00	
	HSW-300	Powered Subwoof.	8					W	38-88 +0,-3	70	Inc.	8/8	10 x 12 x 11	Opt. Wood	Black Cloth	21	250.00	
HSW-400	Powered Subwoof.	(2)8					W	45-115 +0,-3	70	Inc.	8/8	15 x 15 x 13	Opt. Wood	Black Cloth	40	400.00		
ULTRALINEAR	1530	Inf. Baf.	15	4½	Cone	2½	Cone	M,T	40-22 ± 5	92.5	10	1k,5k	6/3	14 x 18 x 30	Wal. Vinyl	Black Knit	55	358.00
	1230	Inf. Baf.	12	4½	Cone	2½	Cone		45-22 ± 5	92.5	5	1k,5k	6/3	14 x 11 x 26	Wal. Vinyl	Black Knit	60	298.00
	1030	Inf. Baf.	10	4½	Cone	2½	Cone		50-22 ± 5	92.5	5	1k,5k	6/3	14 x 11 x 26	Wal. Vinyl	Black Knit	60	258.00
	208	Inf. Baf.	8			2½	Cone		60-22 ± 5	92.5	5	2.5k	6/3	8 x 11 x 18	Wal. Vinyl	Black Knit	36	198.00
ULTRAPHONICS	Ultra Mini	Ac. Sus.	5¼			1	Dome		60-20 ± 4	90	15	3k	8/	12 x 8 x 7	Wood Lam.	Black	24	450.00
	26P	Vented	6½			1	Dome		40-22 ± 3	93	15	3k	8/	16 x 10 x 10	Wood Lam.	Black	28	600.00
	28P	Ac. Sus.	8			1	Dome		38-22 ± 4	92	20	3k	8/	22 x 12 x 8	Wood Lam.	Black	32	600.00
	28J	Ac. Sus.	8			1	Dome		50-20 ± 5	90	20	2.5k	8/	18 x 10 x 6	Wal. Vinyl	Black	24	250.00
	Mesa I	Vented	8			1	Dome		40-22 ± 3	92	20	3k	8/	24 x 11 x 12	Wood Lam.	Black	40	900.00
	310P	Ac. Sus.	10	5	Cone	1	Dome		40-22 ± 3	94	20	700.4k	8/	25 x 14 x 10	Wood Lam.	Black	70	950.00
	310J	Ac. Sus.	10	5	Cone	1	Dome		40-20 ± 5	89	20	700.4k	8/	29 x 13 x 10	Wal. Vinyl	Black	70	600.00
	310N	Vented	10	5	Cone	1	Dome		32-22 ± 3	90	15	700.3k	8/	29 x 13 x 10	Wood Lam.	Black	90	1100.00
	Panel	Ac. Sus.	10	5	Cone	1	Dome		38-22 ± 3	90	30	630.4k	8/	41 x 21 x 7	Wood Lam.	Black	100	1300.00
	410P	Vented	10	5	Cone	1.3	Dome		38-40 ± 3	94	15	700.4k, 10k	8/	25 x 14 x 10	Wood Lam.	Black	80	1000.00
	412P	Vented	12	5	Cone	1.3	Dome, Piezo		28-40 ± 3	95	15	700.4k, 10k	8/	27 x 16 x 12	Wood Lam.	Black	90	1200.00
	313N	Vented	13	5	Cone	1	Dome		30-20 ± 3	91	20	600.3k	8/	32 x 15 x 13	Wood Lam.	Black	130	1500.00
	Mesa II	Trans. Line	12	3	Dome	1.2	Domes		25-25 ± 2	91	40	400.3k, 10k	8/	34 x 12 x 11	Wood Lam. Opt.	Opt.	160	3000.00
	Shelf Subwoofer	Vented Subwoof.	10						22-120	89	30	120	8/4	25 x 14 x 10	Wood Lam.	Black	40	600.00
	Vented Subwoofer		15						20-100	91	30	100	4/	30 x 20 x 12	Wood Lam.	Black	78	900.00
	312P	Vented	12	2	Dome	1	Dome		28-30 ± 3	94	40	700.4k	8/	32 x 15 x 13	Wood Lam.	Black	130	1500.00
	415P	Vented	15	3	Dome	1. (2)3	Dome, Piezos		20-30 ± 3	99	30	700.4k, 10k	8/	36 x 20 x 12	Wood Lam.	Black	180	2800.00

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Separate Lower Crossover? Woofer = W, Tweeter = T	Amperage, Hz to 400 Hz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
										Nominal	Minimum										
UNITY AUDIO	4	Pressure Rel. Sealed Box	7			1	Dome	T	50-19 ± 2	89	30	2.2k	5/4	9 x 9 x 13	Opt.	Black Knit	30 Pair	500.00 Pair			
	7		(2)7			1	Dome		35-19 ± 2	89	50	2.2k	6/4	9 x 9 x 23	Opt.	Black Knit	75 Pair	1100.00 Pair w/ Stands			
	Parm	Sat. & Subwoof. Sealed Box	(2)9	7	Cone	1	Dome		26-24 ± 1.5	90	50	2.3k	6/4	Four Pieces	Opt.	Black Knit	180 Sys.	2950.00 Sys.			
	DC II	Sealed Box Subwoof.	(2)9						26-300 ± 1.5	90	100	180	5/4	12 x 12 x 25	Opt.	Black Knit	100 Pair	995.00 Pair			
	DC I	Sealed Box Subwoof.	(2)12						21-200 ± 1.5	93	100	170	5/4	16 x 14 x 30	Opt.	Black Knit	150 Pair	2600.00 Pair			
	Foundation	Sealed Box Subwoof.	(2)18					16-120 ± 2	98	200	80	5/4	24 x 24 x 35	Opt.	Black Knit	340 Pair	7500.00 Pair				
VANDERSTEEN AUDIO	1B	Trans. Line Pas. Rad.	8			1	Dome	T	38-20 ± 3	90	30	3k	8/6	12 x 10 x 36	Opt., Wood	Opt., Knit	50	650.00 Pair			
	2C		8	4 1/2	Cone	1	Dome	M,T	29-21 ± 3	86	50	500,5k	8/6	16 x 10 x 36	Opt., Wood	Opt., Knit	63	1125.00 Pair			
	4	Inf. Baf.	8, (2)12 (3)8	4 1/2	Cone	1 1/2, 3/4	Domes	M,T	26-30 ± 3	88	70	80,500, 5k,13k 80	8/4	18 x 17 x 52	Opt., Wood	Opt., Knit	150	3850.00 Pair			
	2W	Powered Inf. Baf. Subwoof.							26-80 ± 3			300 Inc.		18 x 17 x 18	Opt., Wood	Opt., Knit	90	1200.00 w/Amp & Xover			
VELDOYNE ACOUSTICS	ULD-12	Powered Servo Subwoof.	12					W	20-Xover ± 3	95	350 Inc.	85 Std./ Opt.	8/6	21 x 16 x 17	Opt.	None	45	699.00			
	ULD-15	Powered Servo Subwoof.	15					W	20-Xover ± 3	95	350 Inc.	85 Std./ Opt.	8/6	22 x 17 x 18	Opt.	None	63	1250.00 w/Amp			
	ULD-18	Powered Servo Subwoof.	18					W	15-Xover ± 3	97	350 Inc.	85 Std./ Opt.	8/6	23 x 31 x 21	Opt.	None	105	1850.00 w/Amp			
VIBE ACOUSTICS	M-1 Mini Monitor	Ac. Sus.	6 1/2			1	Dome		70-20 ± 3	87	15	3.5k	8/6	12 x 8 x 6	Oiled Wal.	Black Knit	15	350.00 Pair			
	STD-1 Studio Monitor	Bass Ref.	12	2	Dome	1	Dome	M,T	38-20 ± 3	91	15	700,4k	8/5	29 x 15 x 14	Oiled Wal.	Black Knit	50	770.00 Pair			
VIDEOTON	Mini-Max	Inf. Baf.	5 1/4		Cone	1	Dome		55-20 ± 4	88	15	3k	8/6	11 x 7 x 8	Teak	Brown	20 Pair	180.00 Pair			
VINTEC ACOUSTICS	Valour	Tuned Port Ac. Sus.	6 1/2			1	Dome		37-22 ± 2	89	15	1.9k	8/	23 x 10 x 11	Opt., Wood	Black Knit	30	760.00 Pair			
	Vinny		(2)4 1/2			1	Dome		49-22 ± 1.5	90	20	1.7k	4/	16 x 8 x 10	Opt., Wood	Black Knit	20	850.00 Pair			
	Vanguard	Tuned Port Vented Subwoof.	8			1	Dome		25-22 ± 2	90	20	1.5k	6/	25 x 12 x 14	Opt., Wood	Black Knit	60	1500.00 Pair			
	Vesuvius		(2)10						18-200 ± 2	93	40		4/	31 x 21 x 22	Opt., Wood	Black Knit	120	1100.00			
VMPS	QSD 404	Ported	8			1	Dome	T	45-18	92	10	2.5k	8/6	18 x 12 x 8	Oiled Wal.	Black Cloth	24	164.00			
	QSD 606	Ported	10			1	Dome	T	38-18	92	10	2.5k	8/6	20 x 13 x 12	Oiled Wal.	Black Cloth	35	239.00			
	QSD 808	Ported	12	5	Cone	1	Dome	M,T	34-20	94	10	600,5k	8/6	26 x 15 x 11	Oiled Wal.	Black Cloth	52	315.00			
	Mini Tower II	Pas. Rad.	12	5	Cone	2,1	Plezo, Dome	M,T, ST	28-30 +0,-3	95	20	80,400, 4k,12k	8/6	35 x 15 x 15	Oiled Wal.	Black Cloth	65	439.00			
	Tower II Holosonic Super Tower/R	Multiband Bass	(3)12	5	Cone	(2)2, 1	Plezo, Domes, M,T, ST		22-30 +0,-3	95	20	80,400, 4k,12k	8/6	43 x 15 x 15	Oiled Wal.	Black Cloth	90	599.00			
	Holosonic Super Tower IIa/R	Multiband Bass	(2)15, (12)	(2)5	Cones	(2)2, (2)1	Domes, Ribbons, M,T, ST		20-50 +0,-3	98	20	80,400, 4k,12k	8/6	49 x 22 x 17	Oiled Wal.	Black Cloth	165	969.00			
	Holosonic Widerange Ribbon & Space Boxes The Subwoofer	Multiband Bass	(2)15, (2)12, 8	69L	Ribbon	2L	Ribbon	M,T	17-50 +0,-3	99	20	80,400, 4k,12k	8/6	76 x 22 x 17	Oiled Wal.	Black Cloth	300	1699.00			
	The Larger Subwoofer	Pas. Rad. Subwoof.	15,12						19-50 +0,-3	94	20, 50	60,80, 280,15k	8/3	Five Pieces	Oiled Wal.	Black Cloth	700 Sys.	7500.00 Sys.			
	The Smaller Subwoofer	Pas. Rad. Subwoof.	(2)12						19-600 +0,-3	94	20	Var.	8/6	27 x 22 x 17	Oiled Wal.	Black Cloth	90	375.00			
								17-300 +0,-3	95	20	Var.	4/4	39 x 22 x 17	Oiled Wal.	Black Cloth	120	549.00				
								28-600 ± 3	92	20		8/6	26 x 16 x 15	Oiled Wal.	Black Cloth	52	299.00				
WATKINS ENGINEERING	WE-1a	Dual Drive	(3)8	(2)5	Cones	1 1/2	Dome	T	22-23 ± 2	90	50	40,100, 1.5k	4/3	13 x 32 x 53	Dak	Brown Knit	129	2995.00 Pair			
WESTLAKE AUDIO	BBSM-4	Ported	(2)4			3/4	Dome	No		89	100	1.5k	4/2	8 x 15 x 10	Opt.	Opt.	25	549.00			
	BBSM-5	Ported	(2)5			1/4	Dome	No	65-20 ± 3	90	100	1.2k	4/2	11 x 18 x 10	Opt.	Opt.	35	649.00			
	BBSM-6	Ported	(2)6	3 1/2	Cone	1	Dome	No	70-18 ± 3	91	100	600,6k	4/2	11 x 22 x 13	Opt.	Opt.	43	895.00			
	BBSM-10	Ported	(2)10	6 1/2	Cone	1 1/4	Dome	No	60-15 ± 3	93	200	600,4.5k	4/2	16 x 30 x 22	Opt.	Opt.	90	1295.00			
	BBSM-12	Ported	(2)12	6 1/2	Cone	1 1/4	Dome	No	50-15 ± 3	94	200	500,4k	4/2	19 x 34 x 23	Opt.	Opt.	123	1495.00			
	BBSM-15	Ported	(2)15	10	Cone	2	Horn	No	38-15 ± 3	96	250	350,1.5k	4/2		Black	None	375	2595.00			



LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Control? Woofer, W. Midrange = M, Tweeter = T, Superwoofer = ST	Anechoic Frequency Response, Hz to KHz, ± dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz		Finish	Grille Color and Material	Weight, Lbs.	Price, \$
							Nominal/Minimum	Dimensions, Inches (to nearest inch)										
WHARFEDALE	Diamond	Ported	4			3/4	Dome		50-20 ±3	86	15		8/6	9 x 7 x 8	Dpt.	Black Knt	225.00	Pair
	708	Ac. Sus.	8			3/4	Dome		40-20 ±3	87	15		8/6	19 x 10 x 9	Opt.	Black Knt	750.00	Pair
	Option One	Dipole & Powered Subwoof.	(6)8	(2)4	Cones	3/4	Dome		25-25 ±3		600 Inc.			Two Pieces per Side	White	Black Knt	16,000.	Pair
	507	Ported	8			3/4	Dome		42-25 ±3	90	15		8/6	19 x 10 x 11	Opt., Wood	Black Knt	425.00	Pair
	510	Ported	8	4	Cone	3/4	Dome		35-25 ±3	90	15		8/6	24 x 11 x 11	Opt., Wood	Black Knt	595.00	Pair
	512	Ported	(2)8	4	Cone	3/4	Dome		30-25 ±3	90	15		8/6	34 x 11 x 11	Opt., Wood	Black Knt	795.00	Pair
	Option Two	Dipole	(4)8	(2)4	Cones	3/4	Dome		50-25 ±3	87	50	4/			Black	Black Knt	3500.00	Pair
	Active Diamond	Powered Ported	4			3/4	Dome		50-20 ±3		20 Inc.			9 x 7 x 8	Dpt., Lacq.	Black Knt	300.00	Pair
	Delta 3	Ac. Sus.	6			3/4	Dome		50-20 ±3	90	15		8/6	15 x 9 x 7	Dpt.	Black Knt	175.00	Pair
	Delta 5	Ac. Sus.	8			3/4	Dome		45-25 ±3	90	15		8/6	19 x 10 x 8	Dpt.	Black Knt	245.00	Pair
	Delta 7	Ac. Sus.	8	4	Cone	3/4	Dome		40-25 ±3	90	15		8/6	23 x 11 x 8	Opt.	Black Knt	295.00	Pair
	Delta 9	Ac. Sus.	10	4	Cone	3/4	Dome		35-25 ±3	90	15		8/6	27 x 12 x 9	Opt.	Black Knt	450.00	Pair
	Delta 11	Ac. Sus.	(2)10	4	Cone	3/4	Dome		32-25 ±3	90	15		8/6	34 x 12 x 11	Opt.	Black Knt	495.00	Pair
	504	Ported	4			3/4	Dome		50-40 ±3	86	15		8/6	11 x 7 x 8	Black Vinyl	Black Knt	325.00	Pair
	WILSON AUDIO SPECIALTIES	WAMM Series IV	Sat. & Subwoof.	18	(2)5, (2)8 1/4 x 11 1/4	Cones, ES	(2)1, (9)5x5	Domes, ES	W, M, T, ST	17-30 ±3	98	50	55,400, 3k	4/3	Four Pieces	Opt.	Black Foam	1650 Sys.
WATT		Ported	6 1/2		1		Dome	No	50-18 ±3	90	30	1.8k	8/5	12 x 14 x 17	Opt.	Black Foam	120 Pair	4400.00 Pair

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LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, inches		Midrange Diameter, inches		Tweeter Diameter, inches		Sensitivity Level Controls: Woofer = W, Midrange = M, Tweeter = T, Superwoofer = ST	Angular Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Nominal/Minimum	Dimensions, inches (to nearest inch)	Finish	Grille Color and Material	Weight, lbs.	Price, \$
WOLCOTT AUDIO	Dmnisphere MDF	Ported	(4)5.5			1.1	Dome	T	30-18 ±3	90	20	2k	6/5	21 x 21 x 50	Diled Wal. Gray Nxtl.	Brown Knit Black Knit	90	3495.00 Pair	
	Dmnisphere MDH	Ported	(4)6.5			1.1	Dome	T	30-18 ±3	90	20	2k	6/5	21 x 21 x 50			90	2695.00 Pair	
XSTATIC SYSTEMS	EC-1	ES	34x74					No	38-21 ±3	87	40		6/2	36 x 18 x 90	Rswd.	Dpt.		8200.00 Pair	
	EC-3	ES	22x72					No	43-21 ±3	85	25		6/2	25 x 18 x 76	Diled Wal.	Dpt.		5200.00 Pair	
YAMAHA	NS-1000X	Inf. Baf.	12	3½	Dome	1¼	Dome	M,T	39-20 ±2	90	30	500.6k	6/5	16 x 27 x 13	Black	Black	92½	999.00	
	NS-1000M	Inf. Baf.	12	3½	Dome	1¼	Dome	M,T	40-20 ±2	90	20	500.6k	8/	15 x 27 x 13	Black	Black	68¼	699.00	
	NS-500M	Inf. Baf.	12	3½	Dome	1¼	Dome	M,T	40-20 ±2	91	20	700.5k	6/	15 x 27 x 13	Black	Black	51¾	399.00	
	NS-200Ma	Inf. Baf.	10	4	Dome	1¼	Dome	M,T	50-20	90	20	800.5k	6/	13 x 23 x 13	Black	Black	36¼	299.00	
	NS-20M	Inf. Baf.	9	1¾	Dome	1½	Dome		55-40	91	20	2k,10k	6/	11 x 16 x 10	Black	Black	21	199.00	
	NS-100X	Inf. Baf.	9	2¾	Dome	1¼	Dome		45-20	91		2k,10k	6/	13 x 21 x 11	Black	Black	30¾	249.00	
	NS-10M	Inf. Baf.	7			1¾	Dome		60-20	90		2k	8/	15 x 9 x 8	Black	Black	13¼	169.00	
	NS-75T	Inf. Baf.	12	2¾	Dome	1¾	Dome	M,T	40-20	90		600.5k	6/	15 x 27 x 13	Brown	Brown	47¼	385.00	
	NS-55T	Inf. Baf.	10	2¾	Dome	1¾	Dome		40-20	89		600.5k	6/	14 x 25 x 12	Brown	Brown	40¾	285.00	
	NS-35T	Inf. Baf.	10			1¾	Dome		40-20	90		1.5k	6/	13 x 22 x 12	Brown	Brown	29¾	195.00	
	NS-25T	Inf. Baf.	8			1¾	Dome		50-20	89		1.5k	6/	11 x 20 x 10	Brown	Brown	21½	135.00	
NS-W2	Subwoof.	10						W	40-100		100		18 x 14 x 13	Black	Black	26¼	249.00		
YANKEE AUDIO	RE-63	Dipole Ribbon/ES	15x52			8x52	ES	T	31-22 ±2	88	100	500	4/2	29 x 63 x 3	Opt., Wood	Dpt.	200 Pair	2695.00 Pair	
	RE-71	Dipole Ribbon/ES	17x60			8x60	ES	T	29-22 ±2	88	100	500	4/2	31 x 71 x 3	Opt., Wood	Dpt.	240 Pair	2995.00 Pair	
	RE-75	Dipole Ribbon/ES	24x64			8x64	ES	T	27-22 ±2	88	100	500	4/2	40 x 75 x 3	Opt., Wood	Dpt.	290 Pair	4795.00 Pair	
YGGDRASIL DESIGNS	Asgard	Inf. Baf.	15	(4)5	Cones	(4)1	Domes		20-23	90	25	350.3k	8/	26 x 18 x 55	Dpt.	Dpt.	100	2300.00 Pair	

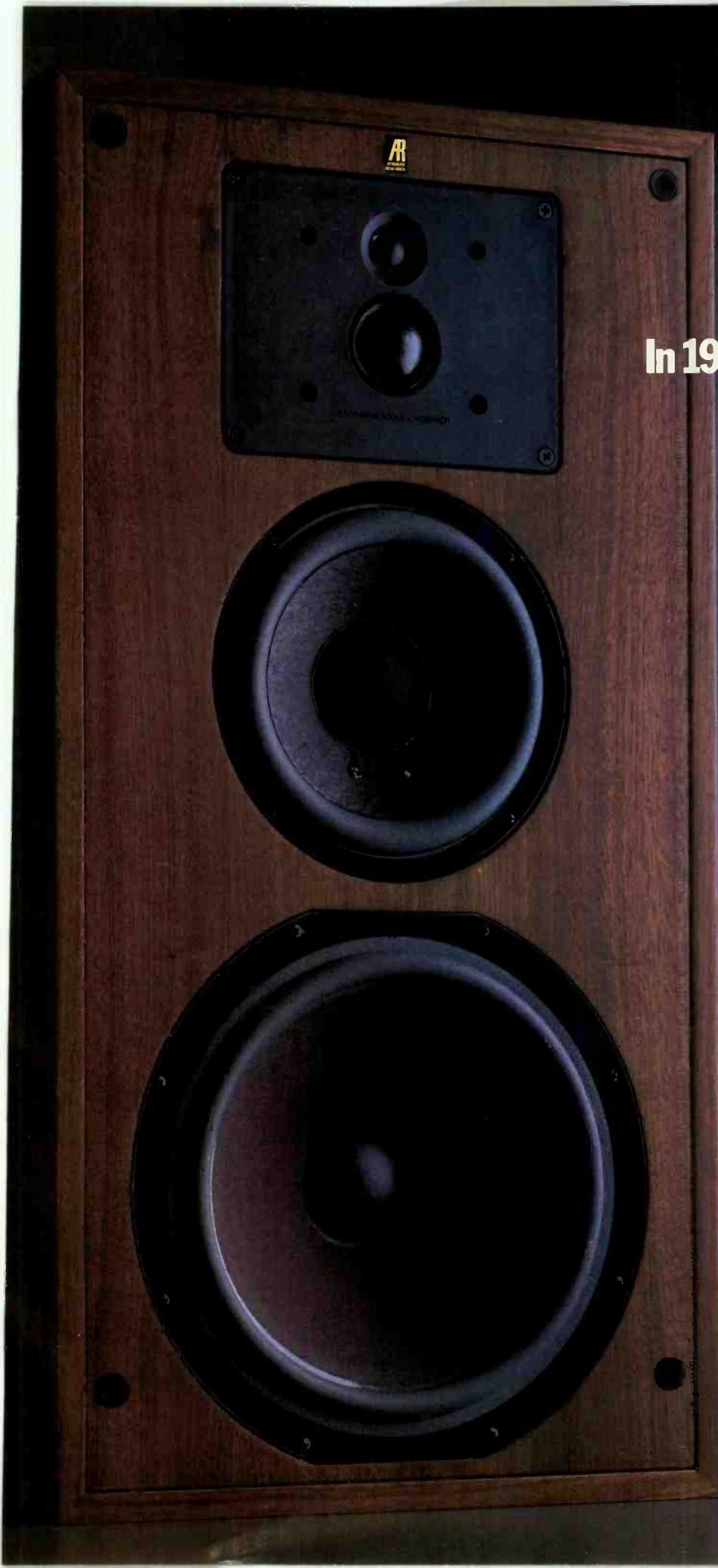


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To build his Acoustic Suspension speakers, Villchur founded a new company: Acoustic Research. Overnight, AR products became the most revered, most sought-after, most imitated speakers in history. In fact, over 70 different speaker manufacturers are using AR's Acoustic Suspension design today.

Since 1954, AR has substantially improved the original Acoustic Suspension speaker. By inventing the dome tweeter, introducing magnetic fluid cooling, building $\frac{3}{4}$ " high-density enclosures, eliminating cabinet diffraction, and solving the problem of speaker/room interface.

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RECORDINGS OF IMPORT



Tchaikovsky: *The Nutcracker*. The Dresden Staatskapelle, Hans Vonk. **Capriccio 10071/72**, two-disc set.

Carl Maria von Weber: *Ouvertüren*. The Dresden Staatskapelle, Gustav Kuhn.

Capriccio 10052.

Pachelbel: *Canon*. New Bach Collegium Musicum of Leipzig, Max Pommer; Ludwig Güttler, trumpet.

Capriccio 10046.

Over the years, recordings from the superb Dresden and Leipzig orchestras have appeared in U.S. record catalogs. In recent years, however, these ensembles have taken a back seat as classical labels bank more heavily on orchestras and conductors with wide international appeal.

During the early '80s a few Denon audiophile import LPs showed just how good things were, musically and technically, in East Berlin, but it has remained for the CD to bring us a wealth of newly recorded material using the most up-to-date digital techniques. The continuing shortage of CDs has spurred the importing of product from everywhere, just to keep the bins full, and many small European labels are cropping up. One of these companies is Delta Music GmbH, of Königsdorf, West Germany, whose Capriccio label is engaged in a number of joint ventures with VEB Deutsche Schallplatten, the state-run East German recording company.

Three Capriccio releases have recently arrived, and they are well worth

raving about. The most ambitious of these is Tchaikovsky's *The Nutcracker* ballet, complete on two CDs. Minimal miking emphasizes precise spatial localization of every section of the ensemble. At the same time, there is enough air and sheen about the sound to satisfy anyone. If we can speak of both the structure and the texture of sound, then this recording has them both in equal measure. The venue was St. Luke's church in Dresden; the acoustics are well managed and never get in the way of the music.

The playing is sensitive and straightforward, and the niceties of Tchaikovsky's orchestration are reproduced with a naturalness that seems to be all too rare in this age of overproduction. Producer Bernd Runge and engineer Eberhard Hinz both deserve special credit for their fine work, as does Hans Vonk, a conductor previously unknown to me. This is a recording not to be missed!

Another Dresden Staatskapelle recording, this time conducted by Gustav Kuhn, is a collection of overtures by Carl Maria von Weber. While it is easy to dismiss these works for what they may lack in emotional dimension, we must take note of von Weber's importance in the evolution of German opera and his conception of the overture as a summary of operatic action. Included here are the well-known "Euryanthe," "Abu Hassan," "Oberon" and "Der Freischütz" overtures. Lesser known are those of the operas "Preziosa," "Beherrscher der Geister" and "Jubel." As before, the recording venue was St. Luke's church and Eberhard Hinz was the engineer. The sonics are equal to those of the Tchaikovsky.

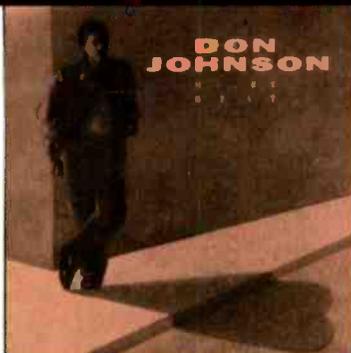
Despite its name, the third Capriccio CD is actually a Baroque sampler, containing 17 assorted movements from concertos and cantatas of various composers (including the ubiquitous Pachelbel "Canon"). The performing group is the New Bach Collegium Musicum of Leipzig conducted by Max Pommer. If there is a featured performer here, it is the trumpeter Ludwig Güttler, whose facility with the various Baroque trumpets is the equal of any soloist active in the West. The group is made up of members of the Leipzig Gewandhaus Orchestra, and the playing is first rate.

Illustration: Rick Tulka

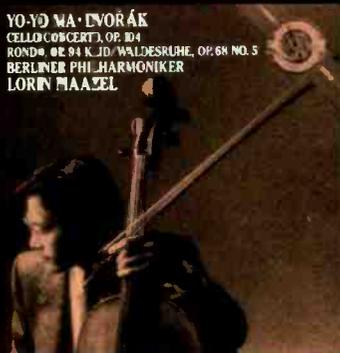
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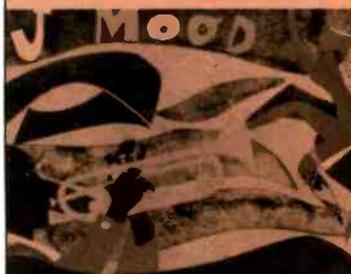
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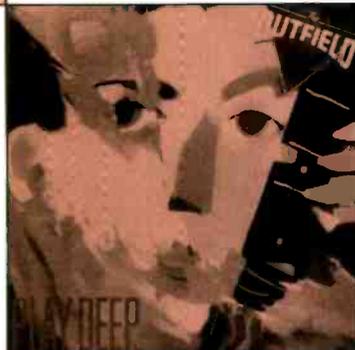
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Heinrich Schiff's cello is recorded with a slight prominence which displays his instrument's ravishing tonal qualities.



All of the Capriccio CDs come with notes in three languages, but the type is quite small and you may have trouble reading it. These superb recordings are distributed in the U.S. by Delos International. *John M. Eargle*

Shostakovich: Cello Concertos Nos. 1 & 2. The Bavarian Radio Symphony Orchestra, Maxim Shostakovich; Heinrich Schiff, cello. **Philips 412 526-2.**

Virtuoso cellist Yo-Yo Ma gave us a superb performance of the Shostakovich First Cello Concerto on a CBS CD, MK 37840. It was coupled with the Kabalevsky Cello Concerto, a tuneful and ingratiating work which becomes more impressive after a few hearings. This new Philips CD logically couples the Shostakovich First Cello Concerto with the Second. The Second Concerto has not yet become a staple of the cello repertoire; in fact, this is the only recording of it currently available in any medium.

Heinrich Schiff's performance of the First Concerto is as virtuosic as Ma's, but he takes a different approach to the work. With his somewhat lighter tone and the benefit of a lovely, very open and transparent sound, there is more delineation of the music's rich sonorities. Schiff achieves a wonderful rapport with conductor Maxim Shostakovich, son of the composer. Maxim's reading is very vigorous and empha-

sizes the rhythmic and dance-like elements of the score. Schiff's cello is recorded with a slight prominence which displays the ravishing tonal qualities of his instrument. Inner balances are well handled, and there are some glorious horn passages which soar with thrilling effect in the spacious ambience of Munich's Herkulessaal.

The Second Cello Concerto has unique scoring that often gives it a mysterious, otherworldly quality, alternating tender lyricism with a sort of wistful melancholy. The finale is very dark and brooding and ends on a sustained diminuendo tone, accompanied by a variety of sharply percussive effects played at fairly low level at a more distant perspective.

Wonderfully evocative performances, splendid playing from the Bavarian Radio Symphony, and compellingly natural sound add up to a most desirable CD. *Bert Whyte*

Telemann: Horn Concertos. The Academy of St. Martin-in-the-Fields. Iona Brown; Hermann Baumann, horn. **Philips 412 226-2.**

A new digital recording, made in London in February 1984, this absolutely delightful CD is outstanding for its clarity and its superb balance among strings, horns and harpsichord in a warmly resonant ambience.

Hermann Baumann, on principal horn, is a virtuoso player. In fact, he

performs these ingratiating concertos in the manner of the original scoring, which is without "stopping"—putting a hand inside the bell of the instrument. The resultant sound is very well projected, with a big, brassy, guttural quality. In the "Concerto in D Major" which begins this recording, the two other horns are equally well reproduced. Conductor Iona Brown elicits some splendid playing from the always eloquent Academy of St. Martin-in-the-Fields orchestra.

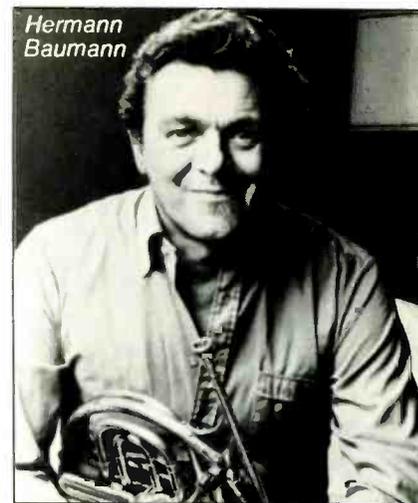
Four horn concertos and a horn suite may be a bit too much for nonstop listening. Sampled individually, they can be most tasty musical hors d'oeuvres! *Bert Whyte*

Primitive Love: Miami Sound Machine **Epic EK 40131.**

The Miami Sound Machine blew in from southern climes and burned a hot little hole in the radio airwaves with its first major-label single, "Conga." The exciting Latin percussion blew away the cooler sounds of British and Brit-influenced American rock and set even staid hearts fluttering and stodgy old feet tapping.

Gloria Estefan's solid, sophisticated vocals blaze out on cuts like "Conga" and "Primitive Love" and waft out gently on delicate ballads like "Words Get in the Way" and "Falling in Love (Uh-Oh)." The hit "Bad Boy" has been encouraging young men all over the country and beyond to think naughty thoughts about lead singer Estefan,

Continued on page 351



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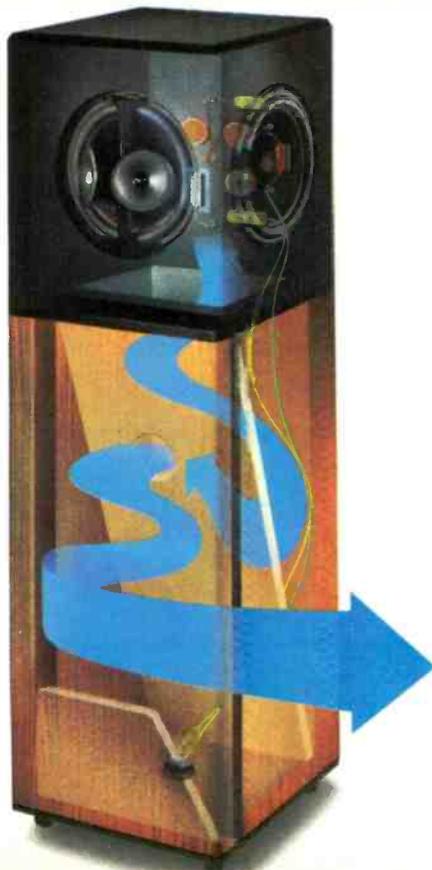
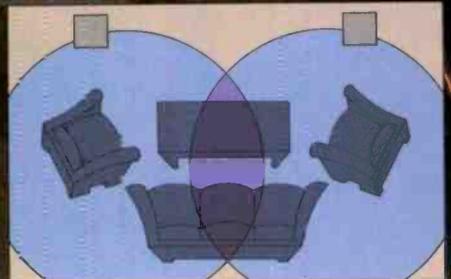
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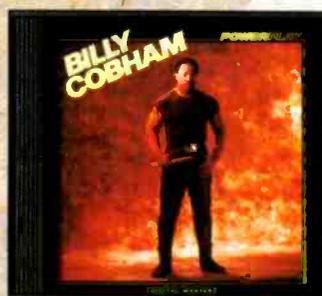
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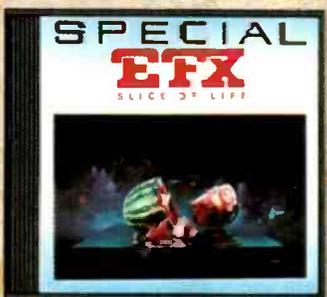
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Despite all of its sonic excellence and technical sheen, this recording of *Diva* seems to be much ado about very little.

Continued from page 346

whose good looks only exacerbate the situation.

This Compact Disc version of the analog original sizzles with the passionate music encoded within. The jungle of percussive effects that bring the 10 cuts to pulsing life are captured crisply and cleanly, running the dynamic gamut from timbales to congas to sweet, silvery chimes. There's a lot of fancy electronic effects here, as vocals are accented and punched into the foreground, synthesizers sweep through the background like banks of stringed instruments, percussion and voices are shifted forward and back, left and right. Although the layering becomes very complex and lush in spots, individual instruments rarely get lost. In general, this is a very exciting, excellent production job.

I do have minor quibbles with some production choices here: The trumpet too often is pulled too far into the background and sounds weak and wimpy as a result; ditto for the whistle that opens the title track. I like my Latin trumpets brassy and blaring, and my disco whistles shrill and piercing—but I guess that's just me.

The CD's extended dynamic range is used to superb effect here. The sense of aural space and movement is excellent, and the ever-glorious digital silences are a perfect launching pad for the percussive explosions of the Miami Sound Machine.

Pour yourself a tall, cool, iced Passion Punch, put on your sunglasses, and flip on the old air conditioner before you tangle with *Primitive Love*. It's hot, hot, hot. *Paulette Weiss*

Diva, Original Soundtrack Recording. Music composed and conducted by Vladimir Cosma.
Ryko RCD 10010.

Jean-Jaques Beineix's mod, glossy thriller had a significant cult following a few years back; it even had a few defenders among the more notable film analysts. It is, I suspect, those partisans who will be interested in this disc; for all its sonic excellence and technical sheen, it seems to me essentially—rather like the film—much ado about very little. Hollow and affectless, it resembles the demimonde it implicitly criticizes. And Vladimir Cosma's score

is apposite. It has something for every musical taste.

The patina of sophistication, perhaps designed to fool the listener/viewer into thinking he has reached the Realms of High Art, is provided by the opening cut: The famous aria for soprano from Catalani's *La Wally*. It is

here sung correctly but without much feeling by Wilhelmina Wiggins Fernandez. After that, the composer plays his "Sentimental Walk," which is virtually a carbon copy of the Erik Satie "Gymnopédies." For the rock-music devotee, there's rock-thriller music; for the Orientalist there are numbers ("The

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Hearing the fullness of The Bangles' vocals when they all chime in together is like being rushed by a phalanx of angelic Amazons.

Zen in the Art of Bread and Butter," if you can believe that) with chaste percussion and alto woodwinds; there's also some high-tech chase music for those accustomed to TV's movie of the week ("Metro Police" it's called, and about as original as the title suggests). In a total of 12 numbers there are several rearrangements, and by the time the disc stops you may not be sure what the heck its spirit was.

The digital recording is superb, the separations clean, the orchestrations aptly lush. But unless you were a devotee of the film, I suspect one hearing might be more than sufficient.

Donald Spoto

Different Light: The Bangles
CBS 40039.

The Bangles are better musicians than The Go-Go's were, but as yet they have confined their material to the same arena of preoccupations as that other girl group did, i.e., clothes and high-school style romance.

On *Different Light* lead vocals (as well as writing chores) are split among the four band members. Their voices work very well together in a sugary, pouty style of singing that the heightened clarity of the CD brings into sharp, sweet relief. When they all chime in at once, hearing the fullness of the sound is like being rushed by a phalanx of angelic Amazons.

Against The Bangles' own serviceable accompaniment, producer David Kahne occasionally adds a breathtaking string or keyboard arrangement that makes the most out of the basic pop stock. The effect—filigree against burlap—presents new possibilities in both the fashion and recording worlds.

Although there's plenty of sustain from various instruments and a generous presence of voices, enough space is left for the CD's extensive dynamic range to shine. On songs without a constant background wash, each note of finger-picked, scratched or muted guitar confidently juts out to add a flattering rhythmic edge to the music. Exceptional care has been taken with the percussion, from top to bottom. On "Walk Like an Egyptian," the tambourine and maracas sparkle like a belly dancer's beads; on other cuts, the envelope of the bass drum consistently brings to mind a quickened heartbeat.

It's sad to say that the album's brightest gems are all covers, including the Prince-penned "Manic Monday" and Jules Shear's poignant "If She Knew What She Wants." The Bangles' exuberance, freshness, and affection for the lighter side of life, however, make them worth attending to, like a trip to 31 Flavors. *Susan Borey*

Vivaldi: The Four Seasons. The Taverner Players, Andrew Parrott; John Holloway, violin.

Denon 38C37-7283.

Although the classical repertoire is expanding very rapidly on CD, in such a new format the music of many composers is not available at all, or has only token representation. Nor are we talking about esoteric, little-known music, but much that certainly is considered to be in the standard repertoire.

Of course, the record companies can hardly be blamed for trotting out all the famous "old warhorses" and assorted other chestnuts for the most basic of reasons—they are sure-fire sellers! Granting this, would you believe that this fine CD recording of Vivaldi's *The Four Seasons* is the 15th version to appear in the fledgling format?

My quibble about this is that 15 versions are a bit much for even the most dedicated devotee of CD and Vivaldi to sort through. Surely a half-dozen recordings by acknowledged masters of this music should be enough? Instead of more redundant versions, the concentration should have focused on the gaps in the classical repertoire.

Be that as it may, this CD joins the Hogwood/L'Oiseau-Lyre and Ozawa/Telarc recordings as one of the most musically and sonically satisfying versions of this ingratiating music. The Taverner Players are a group of exceptionally talented musicians who perform on original instruments or copies of same. Andrew Parrott, their founder and conductor, has had the benefit of studying under such luminaries as Claudio Abbado, Sir Colin Davis and even Leopold Stokowski. In fact, in his finely wrought performance of this work, the very expressive string playing is reminiscent of Maestro Stokowski's renowned string sound.

The engineer who recorded this music is Britisher Tony Faulkner. Tony,

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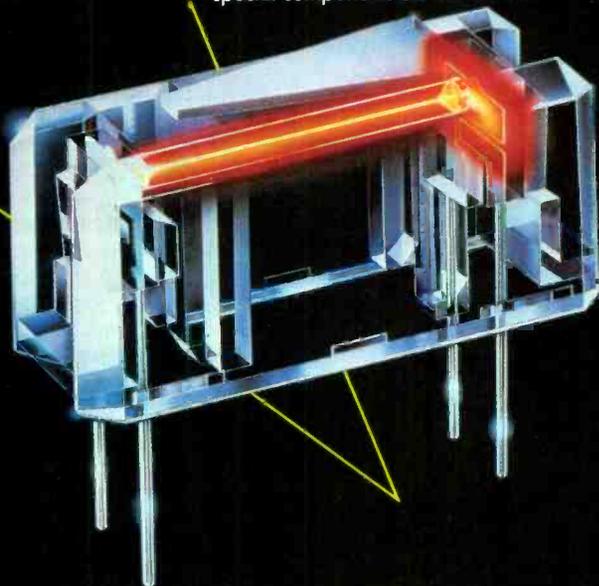
Three high speed ONKYO Opto-Coupling Modules allow transfer of ultra high frequency digital audio data, word clock and bit clock signals which range in frequency from 176.4 kilohertz up to 4.32 megahertz. The module incorporates an optical fiber, between a precision LED light source and focusing lens, and a receiving photo-diode and lens assembly. Three additional opto-isolators are utilized for transfer of left/right clock, de-emphasis and muting signals. Together, these special components eliminate DSI.

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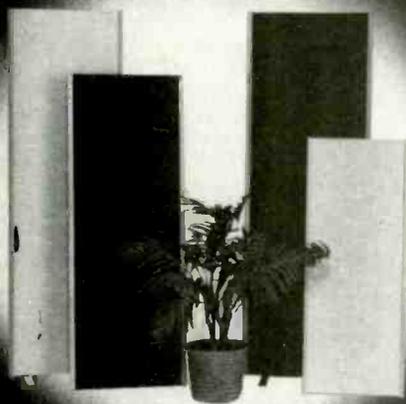
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one of the best classical recording engineers in the business, espouses the use of such "purist" mike techniques as Blumlein (coincident figure-of-eight) or M/S (figure-eight/cardioid "middle-side"), although he has recently been using a pair of the new Brüel & Kjaer omnidirectional condenser mikes. He achieves a lovely, clean sound, with precise localization and a lot of depth, all clothed in the warm ambience of Rosslyn Hill Chapel in London.

Considering the superb performance and the musical realism of the recording, I'd say this Denon CD is the recording of choice for Vivaldi's great "Four Seasons" score. *Bert Whyte*

Tchaikovsky/Mendelssohn: Violin Concertos. L'Orchestre Symphonique de Montreal, Charles Dutoit; Kyung Wha Chung, violin.
London 410 011-2.

Kyung Wha Chung recorded these same two violin concertos for London/Decca early in her career. If I recall, this was in the early '70s, and her interpretations were very well received.

In this splendid new digital recording, her performances clearly reflect growth and maturity as a violin virtuoso of international renown. She has always been secure in the technical mastery of her instrument. Now she adds a new dimension to her artistry with her richly expressive playing and deeper involvement with the music.

Engineer John Dunkerley has developed a recording technique which fully exploits the fabulous acoustics of St. Eustache Church. This is evident from the notable series of recordings he has made with the Montreal orchestra in this locale, and he has provided Kyung Wha Chung with a recording of equal stature. It is a very natural, open sound, yet it never lacks in orchestral definition. The violin is projected just forward of the orchestra and clearly reveals the richness of the artist's tonal resources.

Dutoit's Montrealers get better and better, and his accompaniment for the violinist is nicely balanced, displaying a good rapport between these artists.

How nice to have this kind of wonderful music making on CD, where the high harmonics of the solo violin will remain pristine and audible forever, in-

stead of expiring at the grinding stylus/groove interface of a vinyl disc!

If you are fond of these two great staples of the violin concerto repertoire, you will find this CD particularly rewarding from both musical and sonic viewpoints. *Bert Whyte*

Zoolook: Jean-Michel Jarre
Disques Dreyfus FDM CD-18118.

Sound: A— Performance: B+

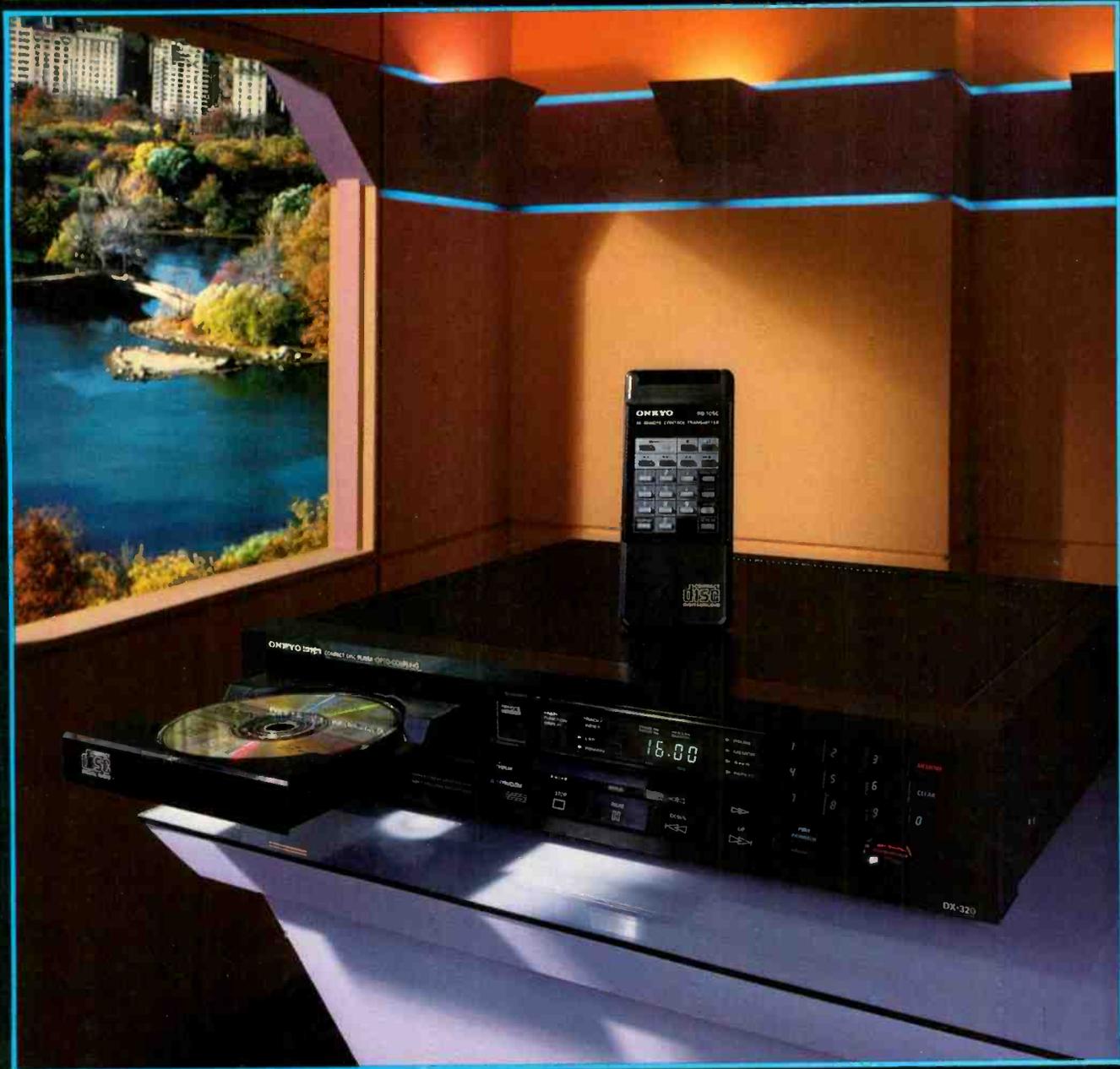
Fans of the "space orchestra" that Jean-Michel Jarre created on his hit *Oxygene* will be surprised by *Zoolook*, an album that seethes with primal rhythms and ethnic atmospheres. Using the latest in digital sampling technology, namely the Fairlight CMI and Emulator, Jarre creates a global dance orchestra, and his instruments are vocal sounds from around the world.

Jarre sampled people speaking and singing more than 20 languages, edited them into phonetic fragments, reprocessed them in his synthesizers and placed them at his fingertips on the keyboard. The result is a colorful and dynamic recording that is well served by this CD, which unveils the many layers of Jarre's arrangements.

Instead of album-length epics, *Zoolook* contains discrete tracks exploring a variety of textures and moods. "Ethnicolor" is a slow-motion panorama with droning choirs and voices calling out at the borders of intelligibility. Bassist Marcus Miller locks in and rips into a dark funk, prowling beneath the wail of jabbering, syncopated voices and swelling synthesizers. Jarre's punchy Linn Drum programming and Miller's catchy bass lines approach hip-hop danceability at times, as on "Zoolookologie." Laurie Anderson puts in an appearance on "Diva," imitating a digital keyboard playing her voice. It's the kind of technological contradiction that Anderson thrives on.

Jarre still has a penchant for corny melodies, a pop sensibility that recalls the '60s Moog ditty "Popcorn." But when he's operating on the plateaus of rhythm and sound, he's exhilarating. The CD format heightens the textural interplay that Jarre is best at, weaving together digital sounds, digitally sampled sounds, and analog sounds into a recording that smashes electro-acoustic distinctions. *John Diliberto*

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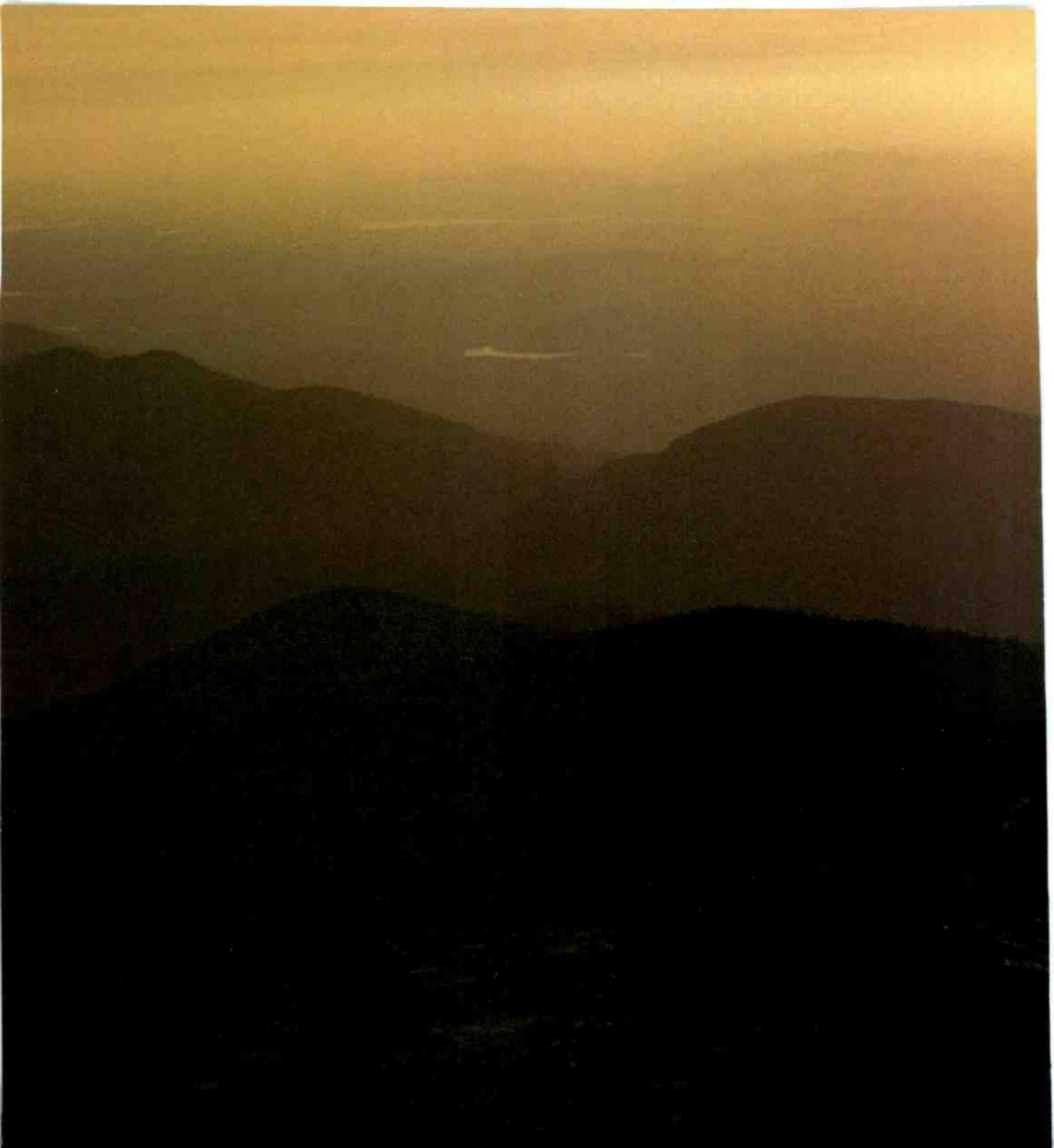
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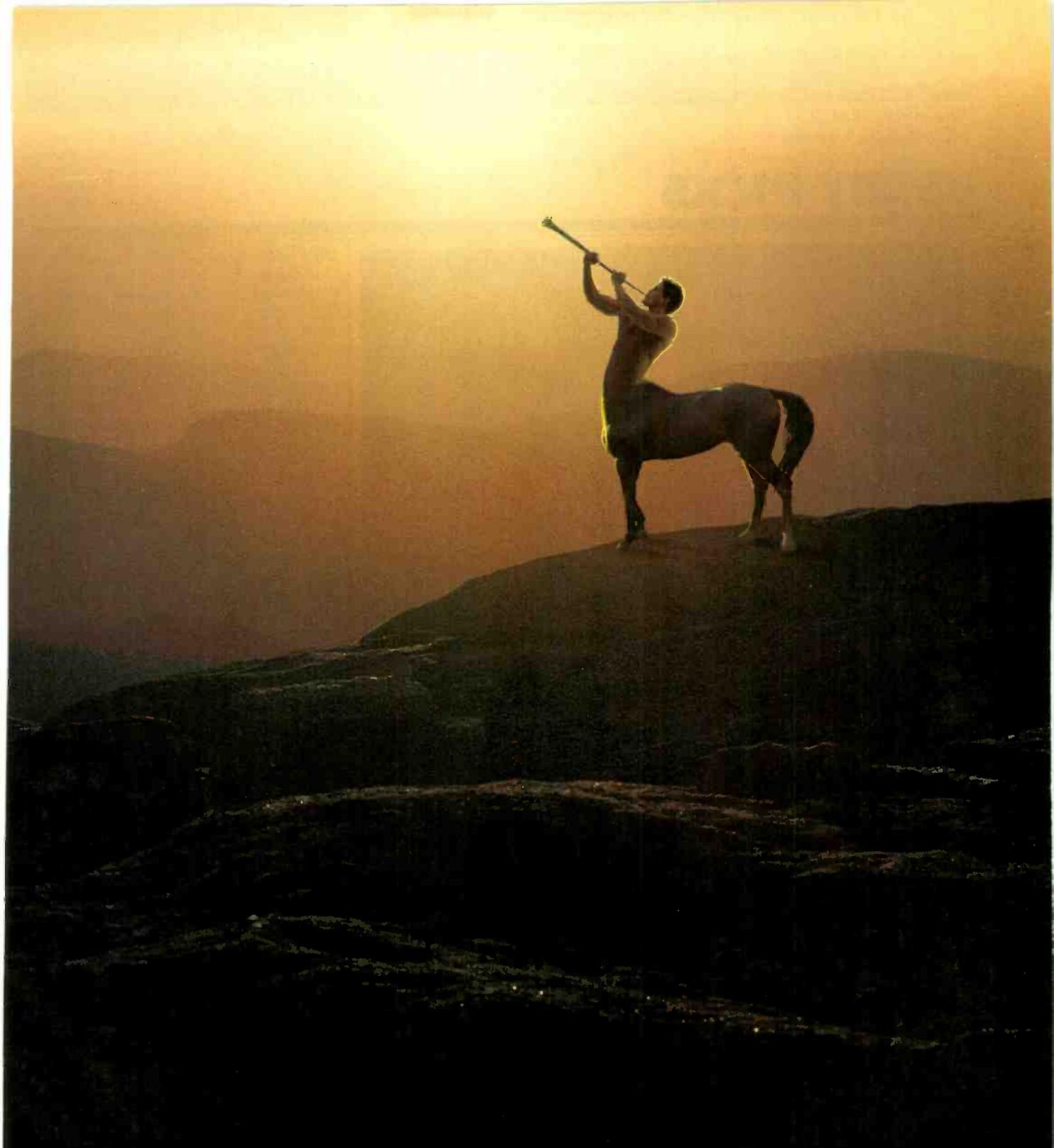


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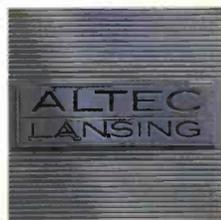
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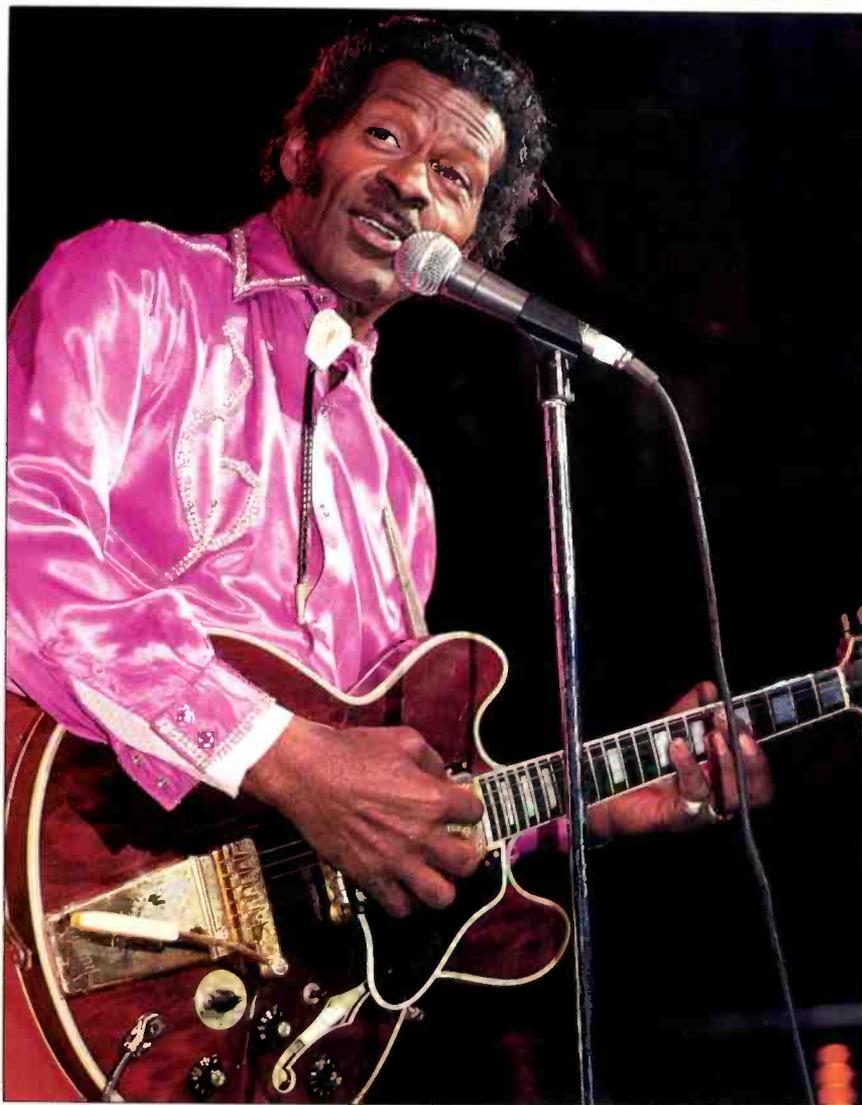


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set, \$8.98.

Sound: Variable Performance: A

When you know a song well enough to have had it insinuate itself almost into your genetic code, you don't quite listen to it with full attention anymore; your brain can play it back for you by itself. However, if the piece is subtly altered your ears will perk up and you'll hear it anew.

That is the kind of thrill *Rock 'n Roll Rarities* is all about. It contains 20 selections, many of which are classics, but what we hear is a little different from what we expect. Several cuts are

presented in stereo mixes from the original two-, three- or four-track masters for the first time; these include "No Particular Place to Go," "You Never Can Tell," "Nadine," "Promised Land," "Bye Bye Johnny," "I Want to Be Your Driver," and the follow-up to "Memphis," "Little Marie." On these, the broader scope of sound is a very pleasant surprise. Other cuts are presented in versions different from those previously released, often with a considerable amount of studio patter included. Among these are such classics as "Rock and Roll Music," "It Wasn't Me," "Rockin' and Reelin'" in its original demo, "Johnny B. Goode," "Little Queenie," "Come On," "Sweet

Little Sixteen," and "Beautiful Delilah." One song, "Time Was," is previously unreleased; the hard-to-find "Run Rudolph Run," "Oh Yeah," and "Betty Jean" complete the set.

Throughout, the sound is better than I anticipated. Given the age of these recordings (1957 to 1965), somewhat variable sound quality is to be expected, but it is always acceptable here. Producer/remixer Steve Hoffman's technical performance is excellent. Helpfully, the package includes data on recording dates and sidemen. Still, further notes about the songs would have been appreciated.

Since MCA acquired the vast Chess/Checker/Argo catalog in 1985, they have barely begun to mine its treasures, and there is much more on the way. In fact, an additional volume of *Chuck Berry Rock 'n Roll Rarities* is scheduled for release by the time you read this. At the very least, don't miss volume one if you fancy yourself at all interested in early rock 'n' roll. This stuff is must listening, as essential as any rock reissue is likely to be.

Michael Tearson

Invisible Touch: Genesis
Atlantinc 81641-1-E, \$9.98.

Sound: B Performance: B

If you're expecting *Invisible Touch* to sound like Phil Collins disguised as Genesis, you're in for a surprise. This is more like Genesis disguised as Peter Gabriel. In the same way that Gabriel shook off the ornate filigree of the band in order to discover his own rhythmic roots, Genesis has pruned its sound down to a fundamental, uncluttered state. Like Gabriel's solo work, it sounds as if it were composed around a rhythm machine. Streamlining has taken place without diminishing the band's power, however; clean, spare, bold strokes do for Genesis what they did for van Gogh.

Percussion of all kinds predominates, further spotlighted by the spaces left by guitars and keyboards. Collins' voice, which is emerging as one of the most popular of the decade, becomes the uncontested focal point of the songs. His excellent R&B edge is sharpened by a sense of vulnerable honesty and a feeling that Phil is working hard to deliver every sweaty note.

The songs, if mostly sad in content, are strongly built, arranged, and performed. Those addressing social issues are forceful without being pretentiously macho; "Land of Confusion" and "The Last Domino" expose a soul-darkening decadence as well as our perverse impulse to revel in the morbid sensationalism of the telly. The love songs actually deal with fractured, destructive relationships mistaken for love, but even the saddest, "In Too Deep," is heart-rending without being melodramatic.

Genesis is not content to merely polish the pop song here—to hit and run, so to speak. Side two features a lengthy panoramic drama that combines the themes of sick love and sick society into a wonderfully wrought, pessimistic pastiche.

Judging by this band's consistency, I bet that if they opened a restaurant they'd achieve instant success and offer delicious fare too. They always seem to be in the right place at the right time—with the right stuff.

Susan Borey

Revenge: Eurythmics
RCA AJLI-5847, \$8.98.

Sound: B+ Performance: B+

Most rock bands start out gathering an album audience and eventually work up to the point where they write and produce a hit single, but Eurythmics—who insist there is no "The" in their name—have gone the opposite way. Before they were able to develop a following on AOR (album-oriented rock) radio, they had a hit single, and since then Annie Lennox and Dave Stewart have been changing from pop to rock. They may have begun with a synth-pop base, but *Revenge* is the work of a guitar band, and one of the primary solo instruments is harmonica. If you were wondering how this has affected their sound, the answer is "only for the better!"

Of course, Dave Stewart has been boosting his rock credibility by producing Tom Petty and Daryl Hall, and he's starting to look like this year's Dave Edmunds. His abilities as a producer have improved with experience—he

Eurythmics



gets quite a crack out of Clem Burke's drum kit. Annie Lennox is confident and cool, singing very well, as usual (no duets with Elvis Costello or Aretha this time, though), and devoting less time to the keyboards now that Patrick Seymour has become a regular member of the ensemble. Eurythmics are becoming, generally speaking, more of a group and less of a duo, although Stewart and Lennox are undoubtedly laying down the law.

The A side of the album is heavily stacked with killers—"Thorn in My Side," "Missionary Man," "The Last Time" and "The Miracle of Love" all rank with the best work this act has recorded. Side B is less obvious in its appeal, and the only track which seems destined for single release here is the excellent "A Little of You." Some of the other songs are a bit disappointing, however—"In This Town" is like "Sisters" meets "Would I Lie to You," with a Howlin' Wolf riff thrown in for good measure. But such quibbles are minute compared to the overall worth of the record.

Who would've guessed that these two would end up every bit as rocking as The Pretenders? As songwriters and stylists, Ms. Lennox and Mr. Stewart have not just grown, they've found new directions which have helped their

Genesis



By bringing in an outside producer, Steve Winwood freed himself to pay more attention to the music, and to create his most mature work ever.

artistry and their appeal simultaneously. This is one bitchin' record for an expop band, so check it out.

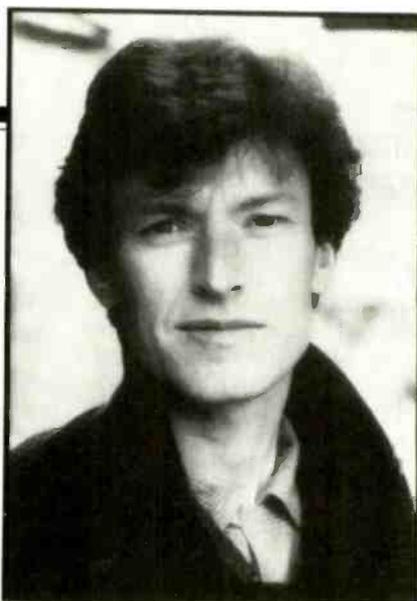
Jon & Sally Tiven

Sleight of Hand: Joan Armatrading
A&M SP 5130, \$8.98.

Sound: B- Performance: B+

Sleight of Hand is Joan Armatrading's twelfth album for A&M. Beyond that, however, it is an album of firsts: It is Armatrading's first self-produced effort, the first to be recorded at her own Bumpkin recording studios, the first on which she does nearly all the guitar playing, and the first on which she has recorded with her touring band (plus, on one cut, drummer Mel Gaynor of Simple Minds).

Lyricaly, Armatrading essentially remains constant on *Sleight of Hand*—introspective, and sometimes wearing her heart on her sleeve. Musically, however, this album is arranged in a harder, heavier style, and the vocals carry more open emotion. Drums and bass are played and recorded solidly and are the heart of this record. In addition, the album is a tour de force of musical textures. Synthesizers, guitars and vocals are well arranged to set the stage for Armatrading's voice, which is one of the finest in all pop music.



Nearly all the tracks on *Sleight of Hand* employ clever, musical use of special effects to enhance the arrangements, although in some instances the effects overshadow the vocals. This problem may well be attributed to a bit of self-production self-indulgence, as Armatrading tries to prove that she can use digital effects as well as the next producer. Recording engineer Mark Wallis has done an exceptional job of putting instruments on tape, especially considering that all special effects are said to have been recorded directly rather than added during the mix. Steve Lillywhite mixed

the album at The Town House Studios in England.

Long-time Armatrading fans may initially be put off by the aggressiveness of *Sleight of Hand*, but a second listen will reassure them that the magic is still there. And if radio program directors finally give her the airplay she has always deserved, new fans will arrive in droves.

Hector G. La Torre

Back in the High Life: Steve Winwood
Island 25448-1, \$8.98.

Sound: B Performance: B+

A whole lot has gone on in Steve Winwood's life since his previous solo album back in 1982. He divorced his wife Nicole and spent a lot of time—even for Winwood—being reclusive. However, with his new album Steve Winwood establishes his strongest public profile since Traffic broke up in 1974. Heck, he's even planning to undertake his first tour since then.

Although Winwood plays multiple parts on every track (all kinds of keyboards, synthesizers, sequencer and drum-machine programming, mandolin and guitar), he's broken from the one-man-band syndrome that characterized his first three solo albums. By engaging the excellent and sympathetic Russ Titleman to be his first outside producer and involving Tom Lord Alge as engineer, Steve freed himself to pay more attention to the music. Titleman also brought in carefully selected sidemen to flesh out the songs into a fuller sound.

The title song might well be the credo of a man who has just emerged from a thick shell and rediscovered the joys the world can hold for him. James Taylor's tightly controlled, rueful harmony is lovely here. Other songs are also optimistic—even the cautionary "Split Decision" (written with Joe Walsh, who adds a stinging slide guitar part) feels upbeat. Only the last song, "My Love's Leavin'," is truly sad.

Rereading what I wrote about 1982's *Talking Back to the Night*, I think I was too kind to an album that now feels incomplete in several of its songs. Titleman has seen to it that such cannot be said of *Back in the High Life*, which is surely Steve Winwood's most fully realized and mature work.

Michael Tearson



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Simply Red

Picture Book: Simply Red
Elektra 60452-1, \$8.98.

Sound: B+ Performance: A-

Simply Red is not simply blues. The Manchester, England sextet's debut album is an amalgam—maybe even an anagram—of musical idioms from jazz to Latin to gospel to R&B and funk. As to the latter two, lead vocalist and chief songwriter Mick "Red" Hucknall displays devotion but never slavishness. Credit is also due in equal parts to producer Stewart (The Crusaders, Randy Crawford) Levine and to the interracial band lineup that makes the name Simply Red ironic.

The smooth-as-rayon sound only costars here with Hucknall's alternately luxurious and pained vocals. Hucknall doesn't throw around self-conscious vocal tricks; he swings through hairpin curves at just the right angles and, when a song requires it, knows how to seal the envelope tight. Like most first albums, *Picture Book* isn't picture perfect—at its worst, it's warmed-over Michael Franks. But the conviction present in such songs as the cover of the Valentine Brothers' Reaganomics lament, "Money's Too Tight (to Mention)," or the contemplative and regretful "Holding Back the Years," is rare and welcome.

The band's musicianship is appropriately imagistic for such material. "Sad Old Red" begins with a creeping be-bop bass line that cooks to a swinging finale. "Heaven" is piano-dominated melancholia, with blues

lines floating behind Hucknall as he sings, "Everybody's trying to get to the bar/the name of the bar/the bar is called Heaven." On the title cut, ghostly melodies mingle with the wails of the walking dead; Edvard Munch could have painted it. *Picture Book* is one appropriate title.

Frank Lovece

Solo: Mimi Fariña
Philo PH-1102, \$9.49.

Sound: B- Performance: B-

Mimi Fariña's first solo album is a warm and friendly one. Mimi, younger sister of Joan Baez and widow of Richard Fariña, is not all that spectacular as a singer, but she knows how to do good work within her limitations. Very empathetic instrumental support is a critical ingredient here. The most valuable players are bassist Mark Egan, late of Pat Metheny's group, producer/engineer/guitarist John Nagy, and the former Youngblood member who goes by the name Banana, who has worked with Mimi for 11 years and plays a variety of instruments here. Nagy's production and sound design provide the warmth which the album's artistic intent requires.

Six of the 10 songs are Mimi's own compositions. Best of the others are Tim Hardin's terribly sad "How Can We Hang On to a Dream" and Richard Fariña's "Quiet Joys of Brotherhood," which Mimi first recorded on *Memoirs*, the final Richard and Mimi album. This last, particularly, showcases Egan's bass and Mimi's vocal.

Solo is best on the more melancholy songs. However, it's not depressing; the melancholy works as a catharsis, ultimately making the album an uplifting experience that celebrates the human spirit.

Michael Tearson

No Free Lunch: Green on Red
Mercury 826 346-1 M-1, \$6.98.

Sound: B- Performance: C-

Green on Red tries valiantly on this EP to inject new life into rock/country fusion, and they very nearly pull it off. Instrumentally, they are right on the money; it is the vocals that let them way down.

With Steve Street and veteran engineer Simon Humphries on the board, *No Free Lunch* has a richly textured instrumental sound driven powerfully by the band's drummer, Alex MacNicol, who keeps wanting to play faster and harder and can barely restrain himself.

But then there's vocalist Dan Stuart, who is also listed as producer. His voice is so raggedy and rough that he almost makes Bob Dylan sound like Pavarotti. By himself he makes listening to Green on Red difficult despite the group's instrumental excellence.

Michael Tearson



Green on Red

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EDWARD TATNALL CANBY

DYNAMIC DUO

Mozart: Sonata in D for Two Pianos; Schubert: Fantasia in F Minor for Piano Duet. Murray Perahia and Radu Lupu, pianos.
CBS IM 39611, digital.

By now, 205 years after it was written, Mozart's brilliant sonata for two of the keyboard instruments of his time really sounds out of place on a pair of large, spare, steely modern grands. Extra volume and power add nothing, at least on record; the scoring that presupposed a much brighter and more wiry sound is thin and too sparse. Our renewed "fortepianos" are basically right but not yet carried to the superb levels of craftsmanship and sound that the modern harpsichord builders show us. So what to do?

Don't worry about it. If two artists of the calibre of Perahia and Lupu can be heard, it is going to do the music credit on any instrument.

The pianos, to be sure, are recorded in what seems to me a long Columbia tradition—rather close, dry, and hard. Not too helpful, if impeccable in the fit (aside from some minor pre-echos, a usual analog fault and extremely hard to avoid in such powerful piano tones). Still, nothing could spoil my enjoyment of these two strong but always careful artists.

The Schubert, on a single piano, is one of those strange and powerful works out of the composer's very last year. It too gets a compelling and well thought-out performance, if somewhat upsetting in terms of the usual conventions of Schubert interpretation today. Not wrong—who can say? We didn't record Schubert himself back in 1828. But here the sounds are not always the expected ones, if you know the piece. I do feel a lack of that wonderful filigree effect in the composer's high-up melodies, and there isn't the right drama in the startling changes of key, which can knock you off your seat if the right player does them the right way. Yet why compare? A new and different interpretation is a lot better than a pedestrian reading of the notes. This is top-level music making, different or no.

Interesting, by the way, to find that the single piano on side two sounds just as big and loud as the two instruments on side one. That's part of the aesthetic impact of recorded music—

again, not good or bad but *different*. Indeed, the Schubert sounds bigger, because his scoring is more favorable to the modern instrument.

Perhaps a more audible stereo separation in the Mozart might have helped to compensate for the sight as well as the sound of a live performance? That sight is very unlike the



visible impact of two players crammed together sidewise at a single keyboard! The one-piano duet has always been popular for informal playing, but to this day we seldom hear it on the concert stage. It sounds good. It looks awful. Two-piano music on stage, in case you have not seen it, is done with

the pianos facing oppositely, curved sides fitting together and the keyboards and performers at the far extremes right and left, visually heightening the sense of separation.

Mahler: Symphony No. 9; Symphony No. 10, Adagio. The Vienna Philharmonic, Loren Maazel.
CBS 12M 39721, digital, two-record set.

Not too long ago I found the Mahler Fourth in this series full of inexplicable faults, including an audible lack of rapport, or so it seemed, between musicians and conductor. In this recording I stopped short at the end of the single long Adagio from the unfinished Tenth—superb! So good, indeed, that I was loath to try the Ninth until I had absorbed the glory of this one LP side. A very great recording.

The Tenth symphony was sketched out by Mahler to its full enormous length, and Deryck Cooke spent long recent years in fleshing out the sketch into a performing version. Even so, the completed opening Adagio seems to stand in some infinite cosmos of its own—I believe that it is one of the great single expressions of Western musical thought.

I have not been an admirer of Maazel—but all that is now changed. One tries to keep an open mind. As for the orchestra, the Viennese musicians rise to their absolute finest. The music is the very end-extreme of Romantic harmony, with sound combinations built on the overtone series, however distantly, and therefore deriving from the bottom upwards. The violins ride in a sort of musical stratosphere, high upon the pinnacle of some of the most extraordinary chords ever imagined, achingly difficult to play, to tune and to understand. There is one razor-sharp dissonance after another, almost microtonal and beyond the tempered scale, with every tone to be heard as part of a *harmony*, on the extreme edge of comprehension. This sort of music is tremendously demanding for the violins, who must play these sounds in agreement with each other. If they misfire, there can be no sense in the listening. They don't.

I assume that this digital recording was made with the multi-mike tech-

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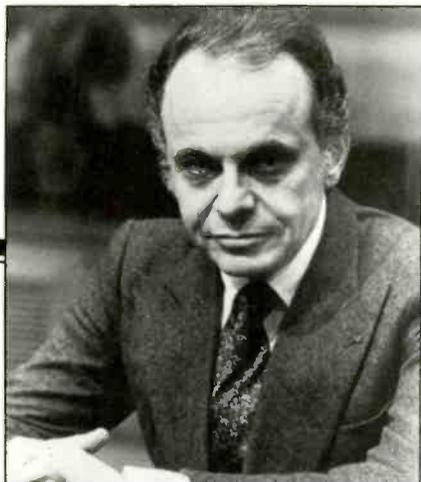
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I haven't been an admirer of Lorin Maazel, but all that is now changed with this very great Mahler recording. One tries to keep an open mind.

nique still in use at CBS; the sound is even and well balanced. Still, those extremely tenuous, ultra-high notes, and the long, slow sweep of the musical sense—often pianissimo, extremely soft—ask for the CD format (CBS M2K 39721). There is loud music too, notably the famous passage where the en-

tire orchestra, huge, plays a chord that includes every note in the chromatic scale simultaneously. Dynamic range with a vengeance! I consider the CD a must, satisfactory though the LP is.

Dvořák: "American" Quartet, Op. 96; Shostakovich: Quartet No. 1 (1938); Turina: La Oracion del Torero. The Fine Arts Quartet.
Gasparo GS 223, \$9.98.

There are some 14 current LP versions of the famous late work of Dvořák, composed, like most of the "New World" symphony, in this country. It is, of course, purely Czech (i.e. Bohemian) music, and any resemblance to American tunes is unimportant. The man was honest enough to be himself and write his own.

I very much recommend this recording, even though several others are now on CD (Denon has it with the Smetana Quartet). The Fine Arts Quartet is one of those curious groups that, though absolutely first-line since their formation in 1946, somehow never got the big headlines, the super publicity. It often happens. Too easygoing? Not their music, but perhaps their collective personality. This quartet has played everywhere and is one of the busiest and most in demand, publicity or no. I rated the original members as tops; I could immediately hear in this recording that the new members, who have taken over one by one, have kept the tradition going. They are excellent, their style and presentation is perfection. They *impress* you, not as a quartet, not as virtuosi, but simply with the impact of the music and their understanding of it. They are far ahead of the Smetana Quartet out of the Czech homeland, as I hear it.

My praise applies not only to the wonderful atmosphere immediately evident in the Dvořák, but equally to the mid-period Shostakovich work, beautifully presented for a superb effect, and the extra filler, a serious Spanish-style piece by Turina. Each is given its own "costume," so to speak, its special style, and each is different.

Perhaps older readers will have had a twinge of memory—the Fine Arts once took on a major role in audio history. This was the group that did the first and most famous "Live vs. Re-

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The young members of the American String Quartet show that they really understand the spirit of Bohemian Romantic music as Dvořák expressed it.

verted popular Czech dance tunes, the last pure expression of the Romantic spirit not yet troubled by incipient decay. These quartets come some 20 years before Dvořák's visit to America, but they are youthfully mature works of the sort that made the composer famous in Europe.

The American String Quartet's only impediment, if I can call it that, is an excess of vibrato, particularly in the lead instrument, the first violin. It makes for difficult listening, somewhat obscuring both the harmonies and the melodic lines. I doubt if Dvořák's own audiences heard the music this way.

corded" comparisons for Edgar Villchur and his AR speakers, put on at various audio shows. I was at some of the recording sessions and they were horrendous—what other group would have been so unflinchingly understanding? The music was recorded outdoors in the middle of a wide meadow—an anechoic chamber deluxe. Incredible problems arose, from the white noise of wind in tree leaves to loud crickets. In playback, the rehearsals involved perfect cuts between the live players and the recorded sound, back and forth—and the quartet even went along with the best trick of all, *pretending* to play their instruments while the sound was actually coming from the loudspeakers. It worked. It sure sold AR too. If I do say so, even I was fooled, though I knew where the shiftovers would occur. A beautifully contrived demo, thanks to the Fine Arts.

Dvořák: String Quartets in D Minor (Op. 34) and E Flat (Op. 51). The American String Quartet.
Nonesuch 79126, digital, \$10.98.

We've heard a number of Czech recordings of Dvořák, recently imported both from that country's Slovak segment and from its dominant musical center, Prague. Czechoslovakia is, of course, Dvořák territory, the old "Bohemia," part of the ex-Austrian Empire and for long a musical center rivalling Vienna itself. (Mozart made his greatest successes there, not in blasé Vienna.) Here, in contrast, are young American musicians, a quartet of them, playing the old-world music. It makes for an interesting comparison.

These people, without the slightest question, really understand the spirit of Bohemian Romantic music as Dvořák expressed it—that wonderfully smoky, atmospheric elegance laced with con-



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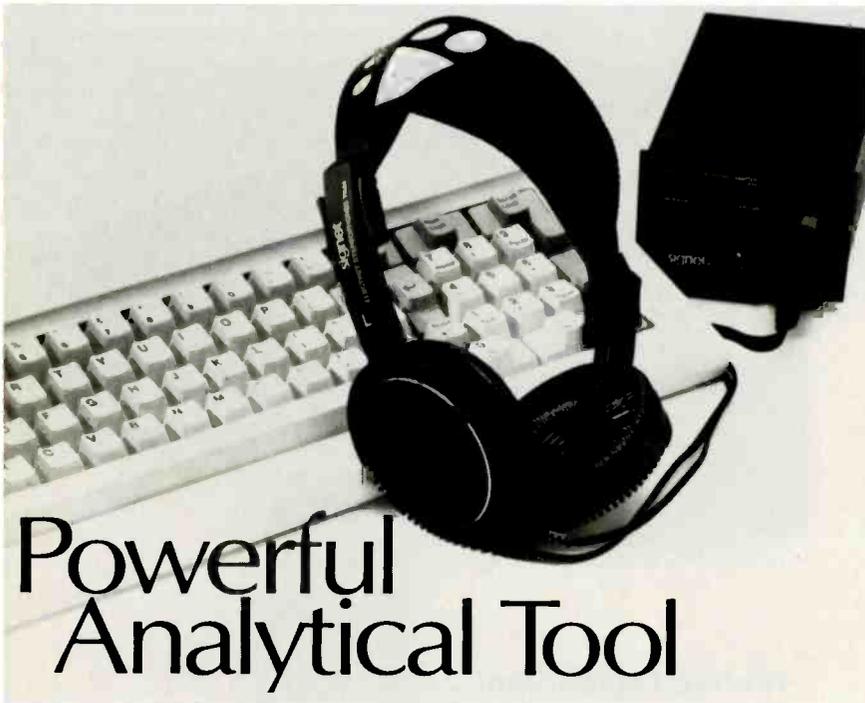
The sound is brilliant, but Jean-François Paillard's ensemble produces only a poor approximation of the lively rhythms inherent in Delalande's music.



Vibrato seems to be a feature of our age, a pseudo-Romantic trait that did not exist in the real Romantic period a century back. But to compensate, the Americans play an uncannily beautiful pianissimo, ultra-soft. A vital element in Dvořák. I'd put these players well ahead of the old-country performers.

Delalande: Simphonies pour les Soupers du Roy, Concert de Trompettes, Trois Caprices. The Jean-François Paillard Chamber Orchestra. Erato 75174, digital, \$10.98.

The mysterious French! Mysterious to us, at least, and never more so than



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in the age of the Sun King, the last years of the 17th century and on. The color photo on the cover of this one is worth the price of the LP: Louis XIV unveiling a wonderfully tortured statue in the gardens at Versailles, a Greekish nude, his backside being eaten by a lion. Crowds of dandies surround the King and Queen, posed in their incredible finery, with the royal Person lit up as though by... well, the sun, more likely a floodlight. He is dressed in gorgeous red and a wide red hat, white stockings, and high-heeled, bowed white shoes. And of course he carries an elegant cane. Great buildings and green, sculptured terraces stand behind him with the royal coach nearby. *Walk?* Heaven forbid. It could be an Ektachrome slide taken at the spot.

What a digression—but necessary! The music is of the sort that accompanied almost every act of the king, from dawn virtually to dawn. It is florid, often dull, and highly ornamented, exactly like the picture—except when Delalande could compose a bit more on his own, at some distance from immediate royalty. In that case he wrote a more intelligent and expressive music which—in its place—was also admired and approved of by Louis.

The Paillard ensemble, playing here, is more than faintly old-fashioned by non-French standards. Not only do they use modern instruments, but they produce a poor approximation of the lively rhythms inherent in the old notation. Some people just don't know how to dance; it is the same in music, old or new. The faster parts do move along satisfactorily and the sound is brilliant. So look at that picture, and listen. Almost like audio/video.

By the way, the required (added) ornamentation is by Wiley Hitchcock, definitely not French; and so it is correct, even if the rhythm of the music tends to be slack. Not his fault. I used to know Wiley in New York.



This French orchestra, led by Jean-Claude Malgoire, plays with a high-tension sound; everything is fast, almost hysterically so.

Handel: Music for the Royal Fireworks, Concerto for Two Horns in F, Ariodante Overture. La Grand Écurie et la Chambre du Roy, Jean-Claude Malgoire.
CBS M 42123.

Handel, the beefy, well-fed German who adopted England along with the Kings George as his new homeland, is claimed by the British and also (of course) by the Germans as one of their own, just on vacation. When the French get into the act, all sorts of things happen. That's what goes on here—the well-known French "authentic" instruments play Handel as he should sound—in France. Not exactly like the German and English.

Malgoire and his curiously named "orchestra" (The Grand Stable and the Chamber of the King) play with a high-tension sound that is not really quite in line with our usual image of Handel—double chins, white wig and all. Everything goes fast, almost hysterically fast. I've never heard such a furious clucking and cackling of old oboes and blating of trumpets and horns! Of course, nobody knows precisely how all this genial music should go, and it is possible that Malgoire has the real Handel sound. It's enough to say that for a modern ear the effect is very French (and hence not very Handelian), and maybe we can like it that way.

The old instruments are expertly played but tend to be more out of tune than the corresponding instruments in several British versions of this same music, also performed with old-type instrumentation. You will note one oddity common to all such versions of this and other 18th-century music: The strings are relatively weak, the winds very prominent. Later strings were beefed up, after 1800, for a louder effect. The older violin is steely in sound and not very loud.

This LP is a revamping, apparently,

of a two-record set that included—appropriately enough—the "Water Music." Now you can sample the French Handel on a single LP.

The "Royal Fireworks Music" had what must have been an inauspicious opening. It was given outdoors and 12,000 or so tried to get into Green

Park in London to listen and to watch the fireworks. Part of the stands caught fire halfway through the music—I have heard that the fireworks also went up all at once—and the show was hastily concluded, evidently without injury. Handel did the whole piece complete a short time later—indoors.



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X-ERCISING



Song X: Pat Metheny & Ornette Coleman

Geffen GHS 24096, \$8.98.

Sound: B- Performance: A+

Geffen Records is either the bravest major label in recent memory or the most distraught. *Song X*, Pat Metheny's first Geffen release after years on ECM, is not the major-label debut people expected. The title itself should have been a hint; it's a long way from "San Lorenzo."

Metheny's reputation lies in his panoramic landscapes laced with reverberant guitar. Brewing beneath the surface, however, have been blistering emotions and free-spirited impulses that have now found their match in the saxophone of Ornette Coleman. Coleman, the iconoclast who's been forging an individual method of composition and improvisation since the 1950s, is both a guide and celebrant.

Metheny's been bringing this cauldron to boil for some time, stoking it by

playing with Coleman alumni on *80/81* and *Rejoicing*, slicing the edges of improvised sound with Dewey Redman, Billy Higgins and Charlie Haden. Haden once again makes his earthy presence and inner strength apparent on this album.

Song X is both exuberant and frightening, cathartic yet calculated. Taut unison lines are stretched across the churning rhythm section, only to give way to twisting, knotted solos. Ornette's alto cries like a lost warrior, cut with acidic wit and quiet nobility.

These musicians have found a common ground—but not in the jangling "harmolodic" structures Ornette's been exploring in recent years nor in Metheny's sculpted fusion. Instead, this harkens back to Ornette's '60s outings, marked by blistering, intuitive interplay emerging from a maze of unison leads.

That's the legacy that emboldens "Endangered Species." Metheny and Coleman cut through like berserkers of

salvation on this 13-minute cyclone. Metheny, playing his digital computer guitar on most of the record, produces horn-like cries, slurring, rushing and intertwining with wails from Ornette that scrape the bone clean. It's a toe-to-toe blowout. Throughout, Jack DeJohnette, the definitive modern drummer, charges with controlled power and high-energy finesse, surrounded by the blipping satellites of Denardo Coleman's electronic drums.

There is wit as well as passion on *Song X*. The Pac Man lines of "Video Games," the witty jaunt of "Trigonometry" and the blues "Mob Job" bespeak the common goals and sensibilities of Coleman and Metheny.

Song X is a real-time experience, recorded live in the studio, with a crisp sound provided by engineer Jan Erik Kongshaug. Metheny has made many gorgeous recordings, but none has been as exhilaratingly confrontational as *Song X*. Of course, Ornette has confronted us for years. *John Diliberto*

False Accusations: The Robert Cray Band

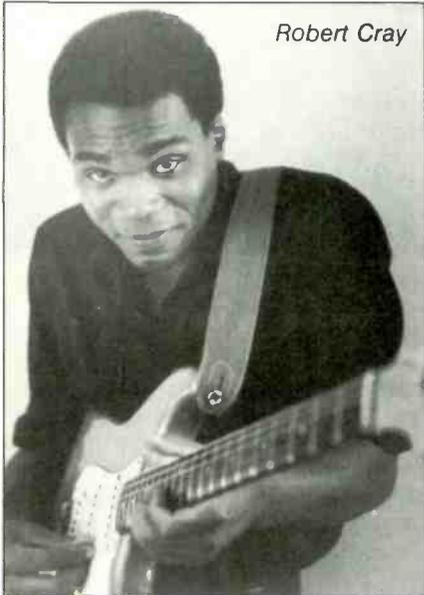
Hightone 8005, \$8.98. (Available from Hightone Records, P.O. Box 8064, Emeryville, Cal. 94662.)

Sound: B+ Performance: B

Robert Cray's peers have already voted him "most likely to succeed," and his last record, *Bad Influence*, earned him a guitar case full of critical praise. Not bad for a 32-year-old bluesman on an independent label.

On this album, his third, Cray's strengths are once again undeniable: A resonant, gospel-rooted voice; accomplished single-note guitar leads, and fresh, distinctive material. *False Accusations* boasts a carefully crafted polish that wouldn't sound out of place on the radio. Part of the credit goes to Cray's producers, Bruce Bromberg and Dennis Walker, who've produced more than their fare share of great blues sessions.

There's one catch, however. *False Accusations* is not what's often thought of as a typical blues album. Fans will listen in vain for a single track that rocks or for a guitar solo that's nursed from an anguished moan to a screaming crescendo. These cuts shun expected blues conventions and spot-



Robert Cray

light Cray's smooth singing; he plays no distracting guitar licks during a song's vocals, and there are no arrangements that might draw attention away from the original songs.

False Accusations isn't a sellout, just a redirection. One can admire Cray for trying to carve a distinctive niche for himself as a soulful balladeer, but something special that once distinguished him as a promising bluesman has been lost in the process. Cray's earliest fans might well trade most of this album for the forceful, biting "That's What I'll Do" from Cray's 1980 debut on the now-defunct Tomato Records.

Roy Greenberg

Blanchard: New World Sonata; Telemann: Suite in A Minor, Amazing Grace. Hubert Laws, Quincy Jones, Chick Corea.

CBS Masterworks M 39858.

Sound: A Performance: A

Throughout his career, flutist Hubert Laws has taken opportunities to merge improvisation with classical pieces. I remember especially fondly two albums he recorded for CTI Records 15 years ago. The new album has similar intentions but at a new level.

Right off the top, I must take note of exceptional sound and pressing quality on this release. Laws' tone is always as rich and warm as it can be. He glows here.

The album is the product of two sessions, one for each side. On the first side is the Blanchard sonata. Harold Blanchard is the chief pianist, but Chick Corea appears for an improvised part. The rest of the small group is percussionist Ndugu Chanler, guitarist Bill Kanengiser, and bassist Bob Magnusson. They play beautifully and with real class. The composition itself is in three aptly named parts: "Security," "Peace," and "Joy."

Side two contains Telemann's "Suite in A Minor" and the hymn "Amazing Grace." Each is set for flute and a string orchestra conducted grandly by Quincy Jones. On "Amazing Grace" Dorothy Ashby has a lovely harp part and John Beasley adds Yamaha DX7. I've got to believe that recording the hymn was very, very special to the players. It has that feeling.

I know I'll be playing this album for many years. It already feels like an old friend.

Michael Tearson

Into the Rainbow: Max Lasser's Ark
Relativity EMC 8058, \$8.98.

Sound: B Performance: B+

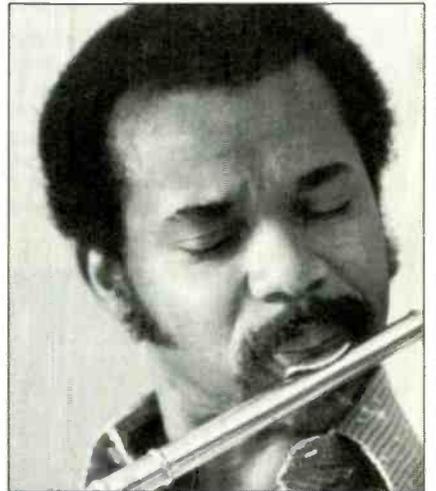
If I didn't know that Max Lasser was Andreas Vollenweider's touring guitarist, my first reference point would've been Pat Metheny. Like Metheny, Lasser favors spacious compositions, deft changes, and airy melodies that make you want to watch a travelog film while you listen. Nowhere is that more evident than on "More Sun, Please," with Lasser's backsliding phrasing over a thrusting rhythm and an ornamental piano, right out of Metheny's "San Lorenzo."

However, Lasser isn't a Metheny clone. His guitar playing has a clean, wide-open plains twang rather than Metheny's digitally delayed, resonant ring. "Ice—The Flood" opens bucolically before turning into a majestic Indian-toned rhythm of rolling thunder drums and a watercolor merger of Lasser's guitar and Christoph Stiefel's electronic flutes.

Like Vollenweider, Lasser creates intricate arrangements with lots of glistening keyboard textures and propulsive, colorful rhythms from drummer Walter Keiser and percussionist Pedro Haldeman, who are also Vollenweider cohorts. Engineer Eric Merz, another



Quincy Jones



Hubert Laws



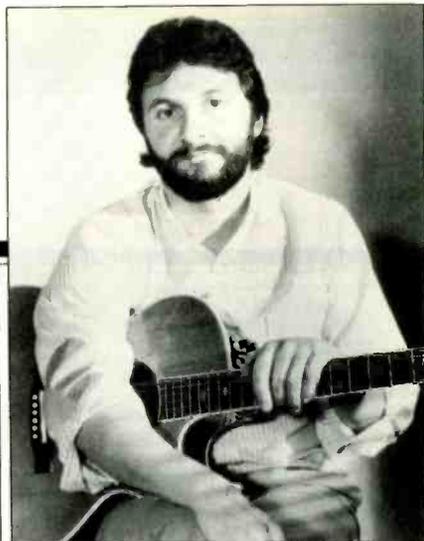
Chick Corea

Max Lasser's guitar has a clean, wide-open plains twang; his compositions are spacious and airy, and his arrangements intricate.

Vollenweider associate, captures the Ark in crystal-clear form, full of natural resonance but without the Lexicon-delay sheen that marks Vollenweider's works.

While Vollenweider spins fairy tales of exotic worlds, Lasser is dashing through sun-speckled landscapes,

maneuvering through shifting moods and environments. The shimmering bells and plaintive theme that open "Into the Rainbow" pave the way for the melancholic meditations woven by Lasser and Stiefel's reedy synthesizers and acoustic piano. "New Morning," on the other hand, is uplifting, with



Stiefel's acoustic piano and synthesized bells rippling through Lasser's lyrical guitar.

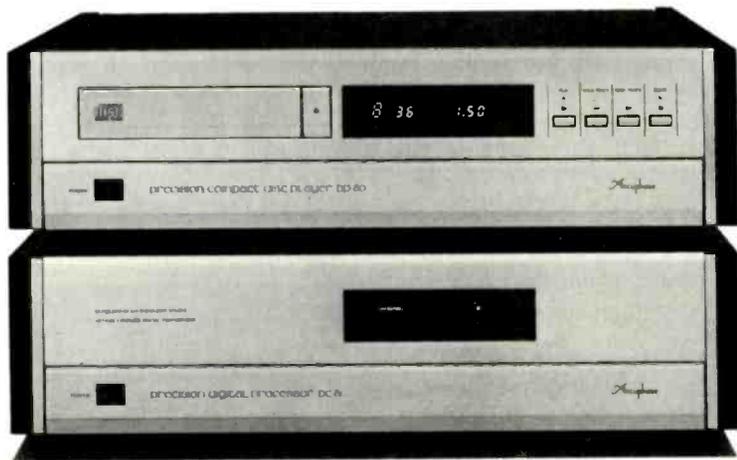
Max Lasser's Ark is a pleasant way to travel. The musicianship is impeccable without being sterile or predictable. Lasser avoids the New Age drivel that he might be associated with, and he knows just when to grip you with a majestic cadence. No innovations here, but lots of pleasant sights.

John Diliberto

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Dancing on the Edge: Roy Buchanan Alligator AL 4747, \$8.98.

Sound: B+ Performance: A

After "Sneaking Godzilla Through the Alley" from last year's *When a Guitar Plays the Blues*, I couldn't wait to wrap my ears around Roy Buchanan's follow-up. Free of the "direction" that interfered with his earlier career output, Roy is now having the sort of fun that finally demonstrates his legendary stature.

Recording "live" with no overdubs (including vocals), Buchanan plugs his monster guitar straight into your frontal lobes with the relentless opening instrumental, "Peter Gunn," and doesn't let up until "Matthew," the gentle guitar duet (with Donald Kinsey) that ends side two. Buchanan's playing is alive with emotion and vitality and boasts a full, wild sound, rich in harmonics, that consistently threatens to go over the edge. Check out the string-choking blues of "The Choking Kind," the frenzied vibrato phrasing of the surf/blues "Jungle Gym," and the wailing slide of "Petal to the Metal."

Admirably augmented by Delbert McClinton's soulful vocals, Stan Szelest's honky-tonk piano, and the very tasty rhythm section of Larry Exum and Morris Jennings, *Dancing on the Edge* is definitely a disc that will get your party started!

Michael Wright

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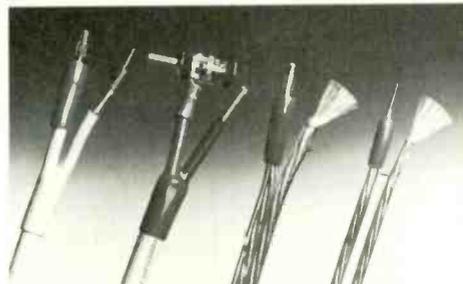


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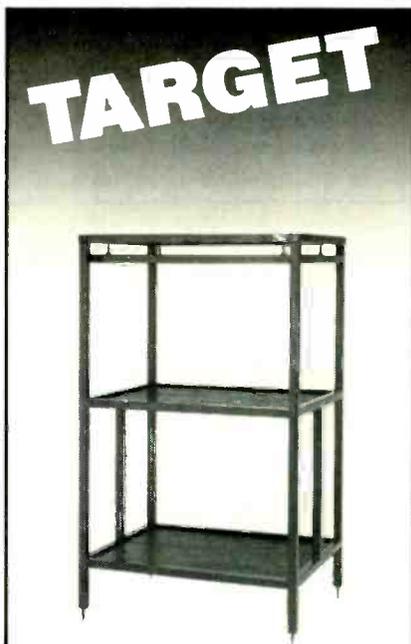
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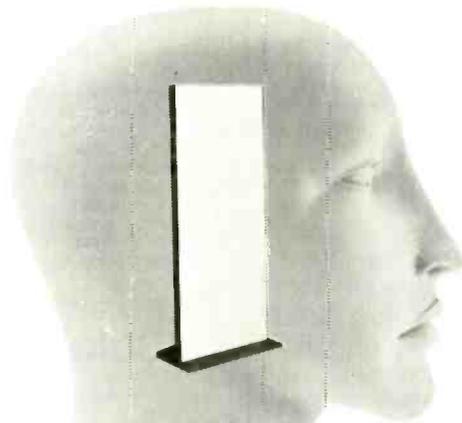
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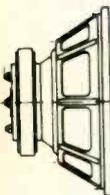
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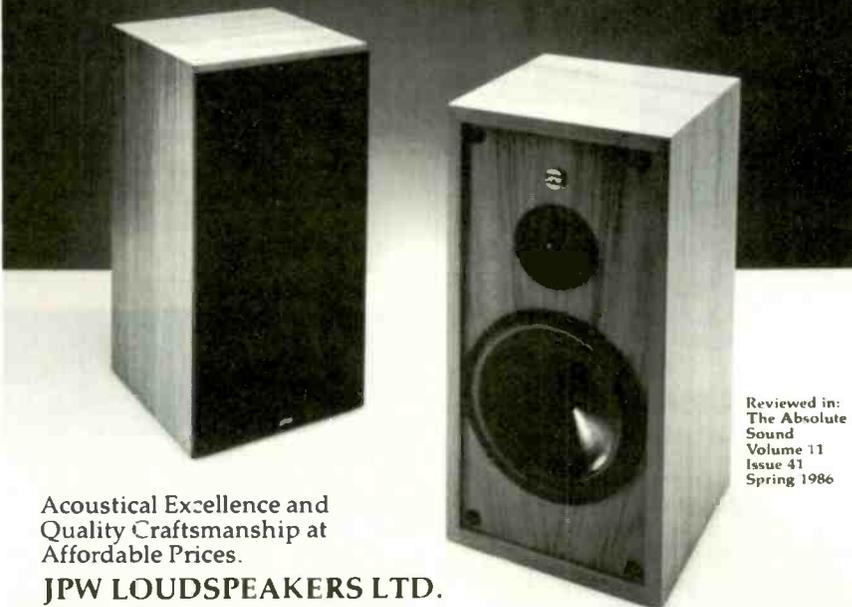
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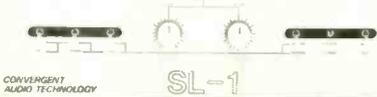
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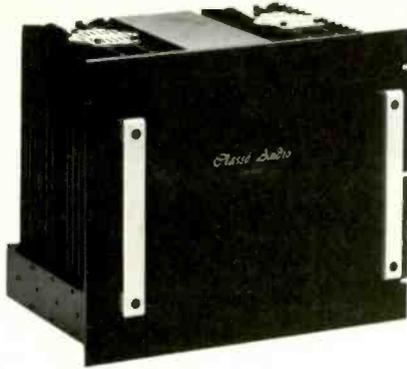
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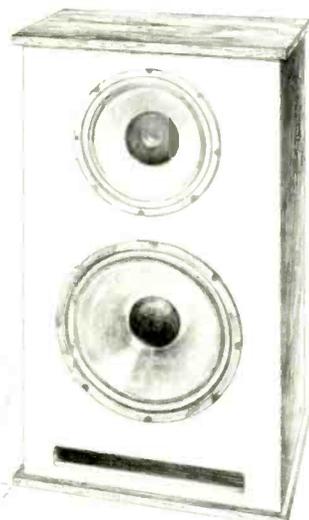
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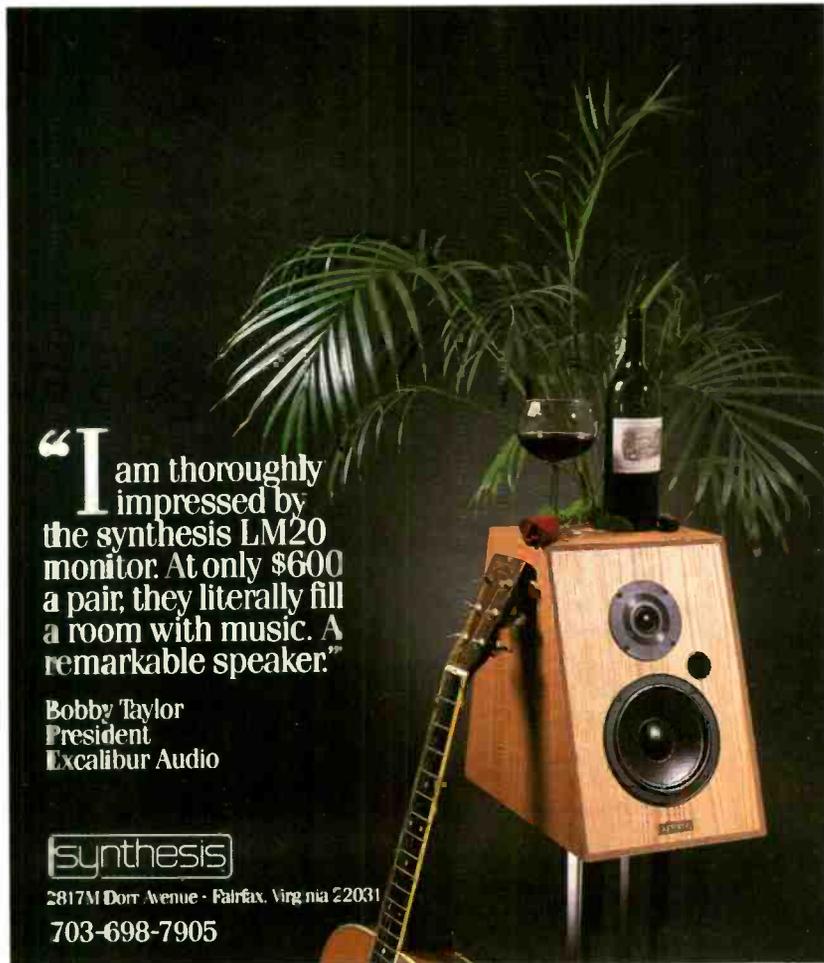
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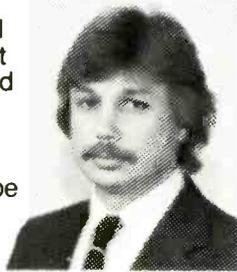
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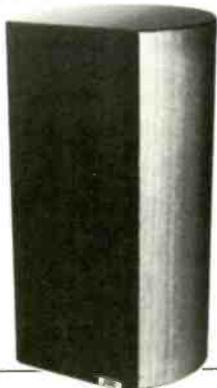
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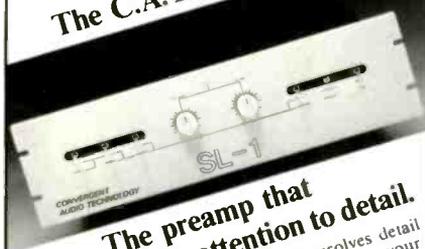
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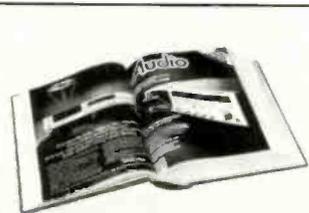
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Canada M9V 3Y6</p> <p>Brystonvermont R.F.D. 4, Berlin Montpelier, Vt. 05602</p> <p>BSC Bennett Sound Corp. 6029 Reseda Blvd. Tarzana, Cal. 91356</p> <p>BSM See Laser-Audio</p> <p>B & W See Anglo-American Audio</p> <p>C</p> <p>Cabasse See Madrigal Ltd.</p> <p>Cadawas Acoustics 92 Oneida Ave. Staten Island, N.Y. 10301</p>	<p>California Audio Labs 21962 Annette Ave. El Toro, Cal. 92630</p> <p>California Audio Technology 8141 E. 2nd St., Suite 515 Downey, Cal. 90241</p> <p>Camber Acoustics 7101 Park Ave., Suite 120 Montreal, Que. Canada H3N 1X9</p> <p>Cambridge Acoustics See Michael Baskin Co.</p> <p>Canason Audio 1759 Britannia Rd. East Unit No. 1 Mississauga, Ont. Canada L4W 4E1</p> <p>Canon One Canon Plaza Lake Success, N.Y. 11042</p> <p>Canton 254 First Ave. North Minneapolis, Minn. 55401</p> <p>Carver Corp. P.O. Box 1237 Lynnwood, Wash. 98036</p> <p>Cascade Audio Systems P.O. Box 2345 Santa Clara, Cal. 95055</p> <p>Castle Acoustics See May Audio Marketing</p> <p>CDE Classical Design & Engineering See Int'l. Trade Associates</p> <p>Celestion Industries P.O. Box 521 Holliston, Mass. 01746</p> <p>Cello Ltd. 55 Circular Ave. Hamden, Conn. 06514</p> <p>Certron 1651 S. State College Blvd. Anaheim, Cal. 92806</p> <p>Cerwin-Vega 12250 Montague St. Arleta, Cal. 91331</p> <p>Chapman Sound Co. P.O. Box 18123 Seattle, Wash. 98118</p> <p>Classé Audio 9414 Cote de Liesse Rd. Lachine, Que. Canada H8T 1A1</p> <p>Clearaudio See Souther</p> <p>conrad-johnson design 2800R Dorr Ave. Fairfax, Va. 22031</p>	<p>Continuum Electronics 1747 35th St. Sacramento, Cal. 95825</p> <p>Convergent Audio Technology 24 Falcon Dr. West Henrietta, N.Y. 14586</p> <p>Mitchell A. Cotter Sales P.O. Box 3456 Chapel Hill, N.C. 27514</p> <p>Counterpoint 10635 Roselle St. San Diego, Cal. 92121</p> <p>Creek Audio Systems See Music Hall</p> <p>Crest Audio 150 Florence Ave. Hawthorne, N.J. 07506</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>Curtis Mathes 1411 Greenway Dr. Irving, Tex. 75038</p> <p>D</p> <p>Dahlquist 601 Old Willets Path Hauppauge, N.Y. 11788</p> <p>DALI Danish American Ltd. Inc. P.O. Box 55386 Valencia, Cal. 91355</p> <p>D'Ascanio Audio 11450 Overseas Hwy. Marathon, Fla. 33050</p> <p>DAX Audio Group 1231 S.E. Gideon St. Portland, Ore. 97202</p> <p>Dayton Wright Group 97 Newkirk Road North Richmond Hill, Ont. Canada L4C 3G4</p> <p>dB Plus See API</p> <p>DB Systems Main St. Rindge Center, N.H. 03461</p> <p>dbx Inc. 71 Chapel St. Newton, Mass. 02195</p> <p>DCM Corp. 670 Airport Blvd. Ann Arbor, Mich. 48104</p> <p>Decca See Rocelco</p>
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East Brunswick, N.J. 08816</p> <p>Dynavector/Audio Interface See Audio Interface</p> <p>E</p> <p>Ebony Acoustics See Mavrick</p> <p>Ego Systems 50 Werman Court Plainview, N.Y. 11803</p>	<p>Eidolon Research P.O. Box 7717 Ann Arbor, Mich. 48107</p> <p>Electrocompaniet See Trade Commission of Norway</p> <p>Electron Kinetics 1055 Empire Dr. 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 508 Cactus St. Tallahassee, Fla. 32304</p> <p>EMT-Franz See Gotham Audio</p> <p>Energy See API</p> <p>Entec 1012 Morse Ave., #19 Sunnyvale, Cal. 94089</p> <p>Entré See Analog Excellence</p> <p>EPI</p> <p>Epicure Products 25 Hale St. Newburyport, Mass. 01950</p> <p>Epik Audio 1720 Lilac Dr. Wainut Creek, Cal. 94595</p> <p>Epoch See Stanton</p> <p>ESM/Energy See API</p> <p>Esoteric Audio Research See Mavrick</p> <p>Esoteric Sound 4813 Wallbank Ave. Downers Grove, Ill. 60515</p> <p>Essence 805 'M' St. Lincoln, Nebr. 68508</p> <p>ESS Laboratory 9613 Oates Dr. Sacramento, Cal. 95827</p> <p>Euphonic Audio RD 1, Box 266 Oakwood Dr. New Egypt, N.J. 08533</p> <p>F</p> <p>Fanfare Acoustics 4650 Arrow Hwy., F-4 Montclair, Cal. 91763</p>	<p>Fidelity Research See Bryston Mfg.</p> <p>Fidelus Audio See Apax Marketing</p> <p>Fisher 21314 Lassen St. Chatsworth, Cal. 91311</p> <p>FMS Favorite Music Systems 319 A St. (Rear) Boston, Mass. 02210</p> <p>Focal 1531 Lookout Dr. Agoura, Cal. 91301</p> <p>Focus Speaker Systems 1101 East Second St. Dayton, Ohio 45403</p> <p>Fourier Systems 578 Nepperhan Ave. Yonkers, N.Y. 10701</p> <p>Frankmann Research P.O. 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East Northport, N.Y. 11731</p> <p>Grace See Sumiko</p> <p>Grado Laboratories 4614 7th Ave. Brooklyn, N.Y. 11220</p> <p>Joseph Grado Signature 921 Tice Pl. Westfield, N.J. 07090</p> <p>Grommes See Precision Electronics</p> <p>GSI 622 Bloomfield Ave. Bloomfield, N.J. 07003</p> <p>Reuben Guss Enterprises 215 West 92nd St. New York, N.Y. 10025</p> <p>H</p> <p>David Hafler Co. 5910 Crescent Blvd. Pennsauken, N.J. 08109</p> <p>Harman America Harman/Kardon 240 Crossways Park West Woodbury, N.Y. 11797</p> <p>Harms Labs 3040 West Vine Dr. Ft. Collins, Colo. 80521</p> <p>Hartley Products 1200 North 23rd St. Suite 105 Wilmington, N.C. 28405</p> <p>Heco See Alphasonik</p> <p>Heybrook See D'Ascanio Audio</p> <p>Highphonic See Analog Excellence</p> <p>Hitachi 401 West Artesia Blvd. Compton, Cal. 90220</p> <p>H.L.X. See Apature</p> <p>I</p> <p>IAI International Audio Imports 723 Bound Brook Rd. Dunellen, N.J. 08812</p>	<p>Imaged Stereo 15445 Ventura Blvd. Suite 1085 Sherman Oaks, Cal. 91413</p> <p>Import Audio Ltd. 3149 Shenandoah St. St. Louis, Mo. 63104</p> <p>Impulse Route 2, Box 477 Dover, Ark. 72837</p> <p>Infinity Systems 9409 Owensmouth Ave. Chatsworth, Cal. 91311</p> <p>Innotech 77 Clinton St. Brooklyn, N.Y. 11201</p> <p>Innovative Techninques 703 Revere Dr. Herbertsville, N.J. 08724</p> <p>Instant Replay 2951 South Bayshore Dr. 8th Floor Coconut Grove, Fla. 33133</p> <p>Interaudio/Bose 100 The Mountain Rd. Framingham, Mass. 01701</p> <p>International Trade Associates 7700 Old Branch Ave. Suite C-102 Clinton, Md. 20735</p> <p>Interworld Electronics 5601 N.W. 78th Ave. Miami, Fla. 33166</p> <p>Itone Audio 3412 Eric El Sobrante, Cal. 94803</p> <p>J</p> <p>Jadis See Madrigal Ltd.</p> <p>Jamo Hi-Fi 425 Huehl Rd., 3A Northbrook, Ill. 60062</p> <p>Janis See John Marovskis</p> <p>JBL See Harman America</p> <p>Jensen 4136 North United Pkwy. Schiller Park, Ill. 60176</p> <p>Jordan E. J. Jordan, U.S.A. 301 North Harrison St. Bldg. B, Suite 252 Princeton, N.J. 08540</p> <p>J.P.W. Loudspeakers See Power Audio Distr.</p> <p>JRM 3716 Broadway N.E. Knoxville, Tenn. 37917</p>
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Novak Loudspeaker
Merrits Island Rd.
Pine Island, N.Y. 10969

Numark Electronics
P.O. Box 493
Edison, N.J. 08818

O
Odyssey Engineering
See Reference Audio Imports

Ohm Acoustics
241 Taaffe Place
Brooklyn, N.Y. 11205

Omni Sound
4833 Keller Springs
Dallas, Tex. 75248

Onix Audio
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Onkyo
200 Williams Dr.
Ramsey, N.J. 07446

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Canada J1L 1X7

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87 South Sixth St.
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Plainview, N.Y. 11803

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Belmont, Cal. 94002

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DeWitt, N.Y. 13214

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Bayside, N.Y. 11361

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Englewood, Colo. 80112

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Philadelphia, Pa. 19120

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Phase Technology
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Jacksonville, Fla. 32244

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Long Beach, Cal. 90801

Plasmatronics
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Suite 101
Albuquerque, N.M. 87106

PLC Audio
13-16 133rd Place
College Point, N.Y. 11356

Polk Audio
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Baltimore, Md. 21215

Posthorn Recordings
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New York, N.Y. 10001

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Liverpool, N.Y. 13088

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Northampton, Mass. 01060

Princeton Acoustics
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PS Audio
4145 Santa Fe Rd.
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PSE
Professional Systems Eng.
7401 Lyndale Ave. South
Minneapolis, Minn. 55423

Q
QED Hi Fi
See May Audio Marketing

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14120-K Sullyfield Cir.
Chantilly, Va. 22021

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9401 West Grand Ave.
Franklin Park, Ill. 60131

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6301 Herndon Place
Stockton, Cal. 95209

R
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201 Route 17, Suite 300
Rutherford, N.J. 07070

Rane
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98043

RATA
See May Audio Marketing

Rauna
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RCA
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**RCS Audio
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Radio Shack
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Fort Worth, Tex. 76102

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46-23 Crane St.
Long Island City, N.Y. 11101

Reel to Real Designs
2105 Claremont
Springfield, Ill. 62703

Reference Audio Imports
Route 1, Box 2650
Mt. Vernon, Maine 04352

Rega Research
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Renaissance Acoustics
802 N. Main St., Suite 240
Gainesville, Fla. 32608

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Marketing

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1425 Elm Hill Pike
Nashville, Tenn. 37210

RH Labs
6844 S.W. 60th Ave.
Portland, Ore. 97219

RMI
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2615 Jacaranda
Carlsbad, Cal. 92008

Robertson Audio
P.O. Box 8449
P.O. Nuys, Cal. 91409

Rocelco
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Rogers
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San Francisco, Cal. 94188

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597 West Hillside Ave.
State College, Pa. 16803

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21212 Vanowen St.
Canoga Park, Cal. 91303

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13101 Yukon Ave.
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La Jolla, Cal. 92037

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West: See Just Speakers

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Portland, Ore. 97232

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North Bergen, N.J. 07047

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48 West 38th St.
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