

Audio

OCTOBER 1985 • \$3.50 U.S. • \$3.95 CANADA

**RETAILER
YELLOW PAGES**

ANNUAL EQUIPMENT DIRECTORY

**MORE THAN 4,000
PRODUCTS! OVER
70,000 SPECS!**



**NOW INCLUDES HI-FI VCRs
AND CROSSOVERS**



DISPLAY UNTIL NOV. 26, 1985

The Sound of Nakamichi



Next time you audition stereo components, close your eyes and concentrate on the sound of music. Don't be surprised to find that most electronics sound the same. They do! Now listen to the Nakamichi ST-7 AM/FM Stereo Tuner, CA-5 Control Amplifier and PA-7 Power Amplifier. Hear the difference? The clarity? The transparency? Nakamichi electronics *sound* better because they're *designed* better. Unlike ordinary power amplifiers that rely on "feedback" to lower distortion, the PA-7 STASIS circuit generates negligible distortion *without* using global feedback. The ST-7's Schotz NR system helps it reach out farther and pull in distant stations cleanly and quietly. And, by eliminating unnecessary circuitry and controls, the CA-5 ensures you the ultimate in sonic purity. Step out of the ordinary... Step up to The Sound of Nakamichi.

 **Nakamichi**

Nakamichi U.S.A. Corporation 19701 South Vermont Ave., Torrance, CA 90502 (213) 538-8150

STASIS manufactured under license from Threshold Corporation. STASIS is a trademark of Threshold Corporation. Schotz Noise Reduction manufactured under license from L.S. Research, Inc., U.S. and foreign patents pending.

*Frank Serafine—
Motion Picture
Sound Designer/Musician
Credits: Tron, Star Trek I
and III, Brainstorm,
Ice Pirates*

*Steve Gilbard—
Concert Sound Engineer,
Tasco Sound Ltd.
Credits: Madonna*

*Ian Eales—
Recording Engineer
Studio City Sound
Credits: Al Jorreau,
Sheena Easton*

Enter Nikko's Sight & Sound Sweepstakes

The 'Power of Technology' will take you on a 'tour de force' of the real world.

Four grand prize winners will take home the selected works of Gilbard, Eales, and Serafine—concerts, records, tapes, and videos they helped engineer. Plus, a Nikko Home Entertainment System to bring it all to life.

And, since there's only one thing better than the sights and sounds of a Nikko System, we'll give you that, too... the sights and sounds of the real world.

Like a week for two at the Sunsplash Festival in Jamaica. Or an exciting week in Paris. How about the Oktoberfest in Munich? Or a week-long Hawaiian luau? European travel arrangements by Sabena.

Sound good? It is. You see, Nikko wants you

to experience the real world—first hand *and* at home. We don't think your components should arbitrarily color the sights you see or the sounds you hear.

So stop by your participating Authorized Nikko Dealer for an official entry blank, and complete details.

Then experience the real difference clean, pure, accurate, unadulterated components can make in your world of sight and sound. Experience Nikko.



SABENA
BELGIAN WORLD AIRLINES

5830 South Triangle Drive, Commerce, CA 90040

Nikko Audio and Video components are available exclusively through Authorized Nikko Audio Dealers. Entries must be received by midnight, January 5, 1986. No purchase necessary. Void where prohibited by law.

For dealer nearest you call toll free 800-633-2252 ext. 221.

AmericanRadioHistory.com

NIKKO AUDIO

The power of technology.

Enter No. 46 on Reader Service Card

Audio

OCTOBER 1985

VOL. 69, NO. 10

ANNUAL EQUIPMENT DIRECTORY

INTRODUCTION	129
CATEGORY COLOR CODES	130, 372
DIGITAL PROCESSORS	133
COMPACT DISC PLAYERS	134
PREAMPLIFIERS	142
AMPLIFIERS	156
TUNERS	171
RECEIVERS	175
TURNTABLES	179
TOPEARMS	191
PHONO CARTRIDGES	194
CASSETTE DECKS	205
OPEN-REEL TAPE DECKS	212
BLANK TAPE	215
MICROPHONES	218
HEADPHONES	228
EQUALIZERS	234
SIGNAL PROCESSORS	242
HI-FI VCRs	245
CROSSOVERS	247
LOUDSPEAKERS	251
COMPANY ADDRESSES	299
AUDIO YELLOW PAGES	306

MUSIC REVIEWS

COMPACT DISCS	328	
ROCK/POP RECORDINGS	Michael Tearson, Jon & Sally Tiven	338
CLASSICAL RECORDINGS	Edward Tatnall Canby	344

DEPARTMENTS

AUDIOCLINIC	Joseph Giovanelli	29
TAPE GUIDE	Herman Burstein	39
SPECTRUM	Ivan Berger	70
AUDIO ETC	Edward Tatnall Canby	77
WHAT'S NEW		84, 108
DIGITAL DOMAIN	Ken Pohlmann	101
SIGNALS & NOISE		121
BEHIND THE SCENES	Bert Whyte	124

The Cover Equipment: Courtesy of VSP Labs, Rogers, Advent, Krell Industries, Electron Kinetics, NAD, Sony, Ariston Audio, Pioneer Electronics, Yamaha, and Radio Shack.

The Cover Photograph: Robert Lewis and Dickie Lavalais; hand-tinting by Lisa Klausner.

Audio Publishing, Editorial and Advertising Offices,
1515 Broadway, New York, N.Y. 10036.

Subscription Inquiries, (800) 525-0643;
in Colorado, (303) 447-9330.



IF CD PLAYERS DO SOUND DIFFERENT, ONE CD PLAYER MUST SOUND BEST.

As audiophiles listen to different Compact Disc players, they're hearing more and more differences. And one CD player has emerged as a cut above.

In Germany, *Audio* magazine chose Denon over Philips and Revox to be their reference CD player. "For the ultimate in laser technology, there is only one choice—the Denon DCD-1800, the reference player."

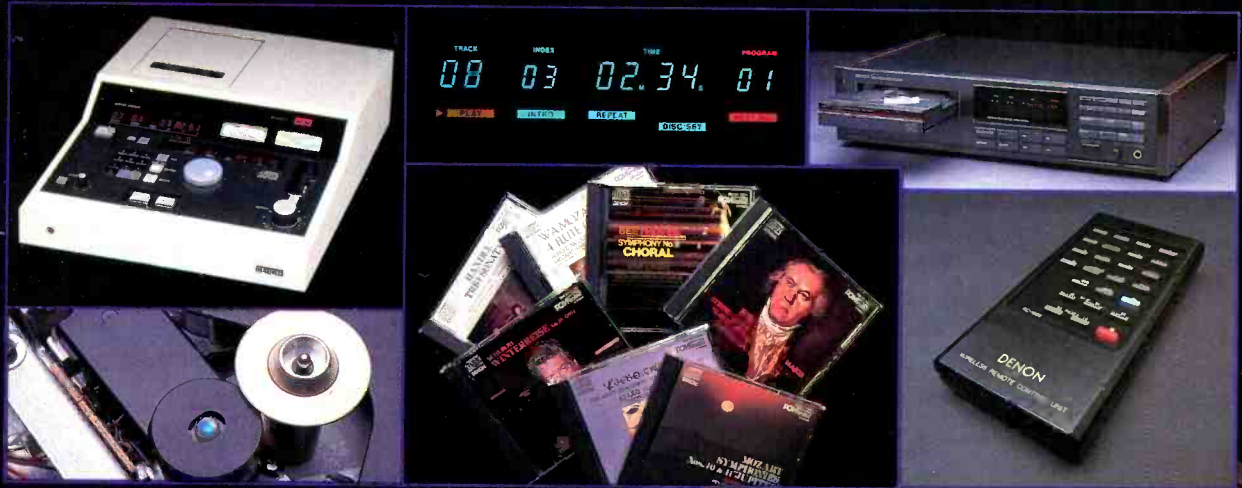
In the U.S.A., *Digital Audio* "compared the Denon with an oversampling player and judged the DCD-1800's sound superior in cleanliness, accuracy, and detail."

What has Denon done to deserve such praise? They started off by inventing digital recording in the first place. Then they gained

experience recording an extensive library of Denon PCM master tapes, and pressing Denon Compact Discs. Finally, they produced the DCD-1800's Direct Digital-to-Analog Converter. It's the world's only D/A converter that's hand-tuned for reduced crossover distortion.

Now Denon raises the CD reference even higher. Introducing the new Denon DCD-1800R, with new high-convenience remote control and high-performance tracking servos. In fact, the editorial board of Japan's *Stereo* magazine has already voted the new Denon CD player "best" in its class!

The Denon DCD-1800R. Officially, the "R" stands for Remote. But to critical listeners, it stands for Reference.



DENON

D E S I G N I N T E G R I T Y

Enter No. 23 on Reader Service Card

Denon America, Inc., 27 Law Drive, Fairfield, N.J. 07006 (201) 575-7810

Sound Principles

HIGH PERFORMANCE. Designed to maximize the performance of your audio and video equipment, all CWD modular component cabinets are handcrafted and lovingly hand-finished from selected natural hardwoods.

TOTAL FLEXIBILITY. Add as your system grows; arrange and rearrange our cabinets to almost any configuration, to fit almost any size or shape room.

REMARKABLE QUALITY. From the precision hardware to the natural oil finish, all CWD cabinets are fine furniture with a look and style you'll love and cherish for years to come.

See for yourself. For the name of the nearest dealer
CALL TOLL FREE 1-800-323-2159 In Illinois, 312-563 1745).



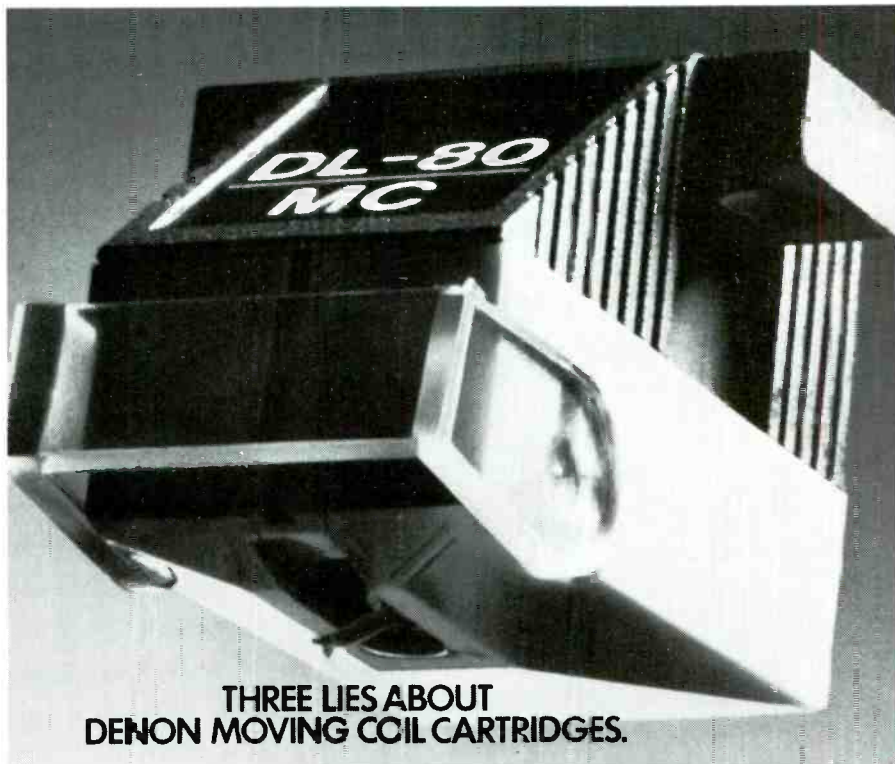
CWD

CUSTOM WOODWORK & DESIGN INC.

The cabinet system shown above in Dark Oak features solid wood, glass and roll wood doors and interior lights. Also in Natural Oak and Natural American Walnut.



High performance modular furniture that keeps pace with your electronic system



THREE LIES ABOUT DENON MOVING COIL CARTRIDGES.

You need a step-up transformer:

False. Denon has three high-output moving coils that connect directly to any system.

You can never replace the stylus:

False. Even the least technical music lover can change the stylus on the new Denon DL-80.

You can't afford them:

While it is true that you can spend \$859 for Denon's spectacular DL-1000, you can also spend as little as \$60 for the DL-80.* And that's the truth.

*Suggested Retail Prices

Denon America Inc., 27 Lew Drive, Fairfield, N.J. 07006

DENON

Enter No. 24 on Reader Service Card

Audio

Eugene Pitts III
Editor

Art Director: Cathy Cacchione

Technical Editor: Ivan Berger
Managing Editor: Kay Blumenthal
Copy Chief: Elise J. Marton
Assistant Art Director: Linda Zerella
Assistant Editor: Andrea Lynne Pieper

Associate Editors:

Edward Tatnall Canby, Bert Whyte, B. V. Pisha

Senior Editors:

Leonard Feldman, Richard C. Heyser,
Howard A. Roberson
Senior Editor/Music Features: Ted Fox
Editor-At-Large: David Lander

Contributing Editors/Artist:

Herman Burstein, David L. Clark,
Anthony H. Cordesman, Ted Costa, John Diliberto,
John M. Eargle, Joseph Giovanelli,
Laurence L. Greenhill, Bascom H. King,
Edward M. Long, C. G. McProud,
Peter W. Mitchell, Jon Sank, Donald Spoto,
Michael Tearson, Jon & Sally Tiven, Paulette Weiss

Business Services Director: Mary Anne Holley
Production Director: David Rose
Production Manager: Patti Burns
Special Projects Coordinator: Phyllis K. Brady
Ad Coordinator: Ruth M. Linehan

Stephen Goldberg
Associate Publisher

ADVERTISING

National Sales Manager: Stephen W. Witthoft
(212) 719-6337
Account Managers: Lesa Rader Giberson
(212) 719-6291
Nick Matarazzo
(212) 719-6346
Western Manager: William J. Curtis
Regional Manager: Randy Patton
(818) 784-0700
Classified Manager: Laura J. LoVecchio
(212) 719-6338
Classified Assistant: Mary Jane M. Adams
(212) 719-6345

CBS MAGAZINES EXECUTIVE STAFF

President: Peter G. Diamandis
Exec. V.P.: Thomas M. Kenney
Exec. V.P., Magazines: Albert S. Traina
Exec. V.P., Operations: Paul H. Chook
Sr. V.P., Advertising: Michael J. O'Neill
V.P., Editorial Director: Carey Winfrey
Sr. V.P.: Robert F. Spillane
V.P., Finance & Admin.: Robert J. Granata
V.P., Circulation: Bernard B. Lacy
V.P., Mfg. & Distribution: Murray B. Romer
Pres., CBS Magazine Mktg.: Robert E. Alexander

AUDIO (ISSN 0004-752X, Dewey Decimal Number 621.381 or 778.5) is published monthly by CBS Magazines, A Division of CBS Inc., at 1515 Broadway, New York, N.Y. 10036. Printed in U.S.A. at Nashville, Tenn. Distributed by CBS Magazine Marketing. Second class postage paid at New York, N.Y. 10001 and additional mailing offices. Subscriptions in the U.S., \$17.94 for one year, \$32.94 for two years, \$45.94 for three years; other countries, add \$6.00 per year. **AUDIO** is a registered trademark of CBS Inc. ©1985, CBS Magazines, A Division of CBS Inc. All rights reserved. **Editorial contributions** are welcomed but should be accompanied by return postage. Submissions will be handled with reasonable care, but the Editor assumes no responsibility for safety or return of manuscripts, photographs, or artwork. The Publisher, in his sole discretion, reserves the right to reject any ad copy he deems inappropriate. **Subscription Service:** Forms 3579 and all subscription correspondence must be addressed to **AUDIO**, P.O. Box 5316, Boulder, Colo. 80302. Please allow at least eight weeks for the change of address to become effective. Include both your old and your new address and enclose, if possible, an address label from a recent issue. If you have a subscription problem, please write to the above address or call (800) 525-0643; in Colorado, (303) 447-9330.

polk audio
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

Enter No. 54 on Reader Service Card

See dealer listing on page 29



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”

W

e 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 2nd 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!

“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 4 years and being selected for the prestigious CES Design and Engineering Exhibition for the last

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

Polk’s Design Goals and Performance Benefits

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 illusion 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.

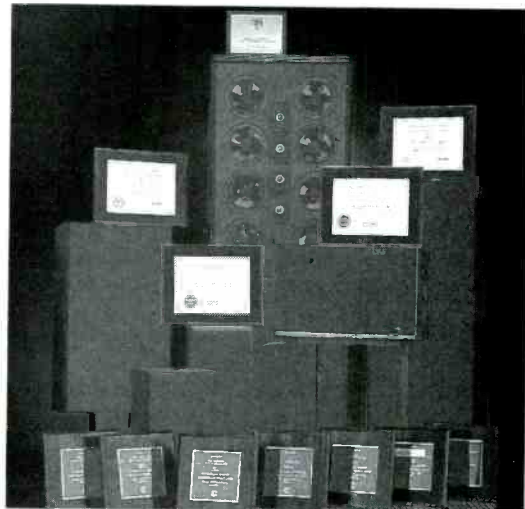
8 years in a row (an unprecedented accomplishment). What is the secret? Polk builds each and every loudspeaker with the same world class standards of construction quality and dedication to sonic performance accuracy.

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
\$1295.00 ea.

Matthew Polk's extraordinary new SDA SRS was honored by its selector for the prestigious 1985 CES Design and Engineering Exhibition.

"The Genius of Matthew Polk Redefines State-of-the-Art"

Matthew Polk's Own Dream Speakers Can Now Be Yours

F

or 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 System is Matthew Polk's own dream speaker. You too can share and experience his dream. He is so proud of the SRS that each one bears his signature, engraved on a solid brass name plaque. 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-SRS is the extraordinary flagship model of Polk's critically acclaimed SDA Series which is comprised of the SDA-1, SDA-2, SDA-CRS and the new SDA-SRS. This remarkable sounding, 3rd generation SDA speaker combines, for the first time, the latest refinements in Polk's exclusive and patented TRUE STEREO technology with time-compensated, phase-coherent multiple driver vertical line-source topology. The result is a high efficiency system of awesome and seemingly limitless dynamic range and bass capability which reproduces music with a precise, lifelike, three dimensional soundstage which is unequalled.

Each 6 $\frac{3}{4}$ " x 21" x 13" cabinet contains 8 Polk 6 $\frac{1}{2}$ " 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. 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, although the high efficiency of the system allows superb performance to be realized with even the most moderately powered receiver. Bass performance, in a word, breathtaking. The use of 8 small

Introducing the New SDA Signature Reference System

A Unique Combination of Features and Benefits

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

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 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.

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 a remarkably rigid cabinet which virtually eliminates coloration due to panel resonances. Separate inputs for high and low frequency sections of the system allows bi-wire or bi-amp operation without the need for a separate electronic crossover. The speakers are beautifully finished, for an elegant loudspeaker which looks as good as it sounds.

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 SRS allows 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 this ultimate loudspeaker system. You simply must hear them for yourself.

*U.S. Pat. No. 4,489,432. Other patents pending U.S. & Foreign



SDA 2
\$2250.00 ea.

SDA SPS
\$1295.00 ea.

SDA CRS
\$395.00 ea.

SDA 1
\$875.00 ea.

Pair's revolutionary TRUE STEREO SDA loudspeakers fully realize the astonishingly life-like three-dimensional imaging capabilities of stereophonic reproduction.

“Polk’s Revolutionary TRUE STEREO SDAs Always Sound Better Than Conventional Speakers”

“You Owe it to Yourself to Audition Them”

High Fidelity Magazine

T

hey 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 4 uniquely superb loudspeaker systems, the SDA-1A, SDA-2, SDA CRS and the incredible new SDA SRS.

SDAs — The First TRUE STEREO Speakers

Without exaggeration, the design principals embodied in the SDAs could be said to 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

Although a lot of effort is devoted to maintaining full stereo separation in your hi fi, much is lost when you use conventional, (non-SDA) speakers. 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

The SDA Signature Reference System (SRS)

(\$1295.00 ea.) is the finest loudspeaker that Polk manufactures. This limited production Flagship model combines Polk’s 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. High Fidelity Magazine said the SRS is “impressive and worthy of Matt Polk’s signature.”

The SDA 1A

(\$875.00 ea.) is a beautifully styled, full size floor-standing system combining Polk state-of-the-art components with our exclusive TRUE STEREO technology for extraordinarily lifelike sound. It has tremendous dynamic range (120 db output) high efficiency and truly awesome bass performance. While efficient enough to be driven by a small receiver, it will handle a 500 watt per channel super amp. High Fidelity Magazine said that “the Polk SDA 1 Loudspeaker provides startling evidence of the audio industry’s essential creative vitality.”

The SDA 2

(\$625.00 ea.) is very similar in construction and performance to the top of the line SDA 1A, but is scaled down in size and price. It represents truly extraordinary value for the dollar. High Fidelity said listening to the SDA 2, is “an amazing experience.”

The SDA Compact Reference System (CRS)

(\$395.00 ea.) is the world’s best sounding bookshelf loudspeaker. It combines the exceptionally lifelike sonic performance achieved by Polk’s exclusive TRUE STEREO technology with a strikingly handsome enclosure of modest proportions, which can be easily and unobtrusively located in any room. A built in rear mounted 10” sub-woofer allows the CRS to achieve remarkably dynamic bass performance. They can be placed right against the back wall, on a stand or on a shelf without compromising the ability of these amazing compact speakers to project a huge sonic image throughout your room. Stereo Review Magazine said the CRS, “is an impressive achievement.”

distortion called interaural crosstalk, which confuses your hearing mechanism.

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. It is this difference signal that acoustically and effectively cancels the interaural crosstalk distortion and thereby restores the stereo separation and imaging lost when you listen to normal “mono” speakers. The sonic benefits are remarkable.

“A new dimension in the sound.”

Stereo Review Magazine

Words alone cannot fully describe how much more lifelike TRUE STEREO reproduction is. Reviewers, critical listeners and novices alike are usually overwhelmed by the magnitude of the sonic improvement achieved by Polk’s Stereo/Dimensional 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, CD’s, tapes, video and FM all benefit equally as dramatically. SDAs allow you to experience the spine tingling excitement, majesty and pleasure of live music in your own 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.”

“Dramatic expansion of the sound stage”
High Fidelity Magazine



SDA SFE
\$1295.00 ea.



SDA 1
\$875.00 ea.



SDA 2
\$625.00 ea.



SDA CRS
\$395.00 ea.

SDA 1
“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 than we were that first day at the system's sometimes 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... It seems to be at its best with simply miked jazz and classical recordings or with heavily produced rock which it can make 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 ambience... 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". And we're going to miss being able to find out when the time comes to send them back to Baltimore. 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... It borders on the spectacular...”

With conventional speakers, each ear hears the sound from the speaker closest to it, followed a short time later by the sound from the opposite speaker. If this delay is eliminated as in the new Polk SDA-1... the resulting sound takes on the spaciousness that most people find desirable... 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... The systems phase response

“Polk REINVENTS the Loudspeaker”

High Fidelity Magazine

Excerpts from the Experts' Rave Reviews of the Polk SDAs

was very good, with a group delay between 0 and .2 millisecond from 2 to 20khz.

Polk 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 2
“Super Stereo from Polk Audio”
High Fidelity Magazine

“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 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... the SDA’s try to create 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 and averaging about ¼ percent at a moderately loud 85db sound pressure level (SPL). Another 10db is required to get the distortion up over ½ percent... 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. Everything sounds a little more solid and there on the SDA-2’s than it does on

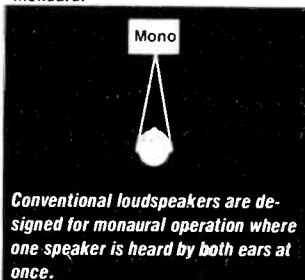
“They truly represent a breakthrough”
Rolling Stone Magazine

“Spectacular”
Stereo Review Magazine

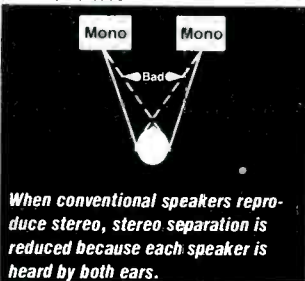
“An amazing experience”
High Fidelity Magazine

Only Polk’s TRUE STEREO SDAs Maintain Full Stereo Separation.

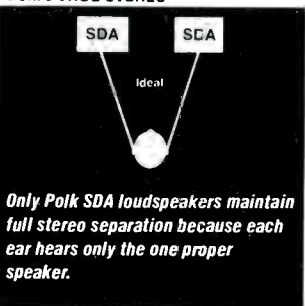
Monaural



Normal Stereo



Polk’s TRUE STEREO



conventional speakers. They also have the ability to place sounds out to the left or right, beyond the confines of the space between the speakers, an amazing experience, and quite startling the first few times you realize it happening... we have yet to hear any stereo program that doesn't benefit... In short these are very fine and utterly fascinating loudspeakers. Even if you know you'll never be able to afford them, you owe it to yourself to audition them, just to see what they can do.”

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... An impressive achievement...”

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.

Dramatic expansion of the sound stage... 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... We listened to the system for hours on end, and 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 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.”



Monitor RTA12C
\$479.95 ea.

Monitor 10B
\$329.95 ea.

Monitor 5Jr
\$129.95 ea.

Monitor 4A
\$84.95 ea.

Monitor 5E
\$129.95 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 Monitor Series Redefines Incredible Sound/Affordable Price”

“At their price, they’re simply a steal”

Audiogram Magazine

P

olk 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 – (\$479.95 ea.) 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 – (\$329.95 ea.) 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 tritamate-polymer bass midrange drivers coupled to a built-in subwoofer for an outstanding bass response and dynamic range.

The Monitor 7C – (\$249.95 ea.) 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 – (\$189.95 ea.) 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 – (\$129.95 ea.) 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 – (\$84.95 ea.) 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

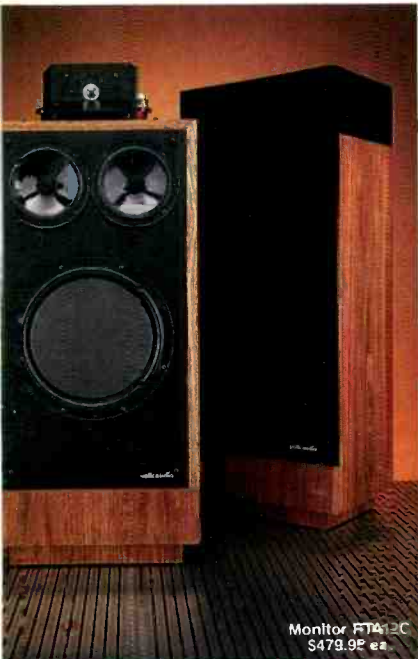
All the Polk Monitors regardless of price offer consistently superb construction and sonic performance. They achieve open boxless, three dimensional imaging surpassed only by the SDAs. The Monitors’ silky smooth frequency response assures natural, non fatiguing, easy to listen to sound; while their instantaneous 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, and more efficient, handle higher power, have greater dynamic range, 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.

“Other comparably priced speakers simply do not come close”
Audiogram Magazine



Monitor FT412C
\$479.99 ea.



Monitor IC8
\$329.95 ea.



Monitor RTA 12
\$249.95 ea.



Monitor 93
\$189.95 ea.



Monitor 1jr
\$129.95 ea.



Monitor 1A
\$89.95 ea.

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
loudspeakers”*

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 12

“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

Excerpts from the Experts Rave Reviews of the Polk Monitors

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 10

"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 well and they care..."

"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

"Highly recommended"

Complete Buyers Guide to Stereo/HiFi Equipment

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 7

"It is amazing"

Audio Alternatives

Within this price range 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 4

"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."



VS 25
\$199.95 ea.

VS 19
\$149.95 ea.

VS 12
\$99.95 ea.

The Polk Audio VideoSound Loudspeaker Series (left to right) VS 25, VS 19 and VS 12.

“Polk’s Superb VideoSound Loudspeakers Will Make Your TV Come Alive”

M

ake the whole TV viewing experience much more lifelike and exciting by combining high quality audio with video. Even with the lifesize images at the movies, high quality sound still dramatically enhances the “you are there” realism. Just imagine the thrill of reality that lifelike sound will bring to your favorite TV shows! Movies will come alive, sporting events will sound like you’re in the stadium, music videos and concerts will be dramatically vibrant and lifelike. Are you ready for the Stereo Video Revolution? Take full advantage of it, by adding the world famous sound quality of Polk Speakers to all your TVs and make them come alive.

Make Your Television Sound Like A Quality Component Hi Fi

Polk VideoSound loudspeakers have been specifically developed for upgrading the sonic performance of televisions to the sound quality of a high quality component hi fi. Their attractive hi-tech styling has been developed to compliment your TV, while their unusual depth takes full advantage of the deep space next to all TVs to achieve greater internal cabinet volume. This results in higher efficiency and dramatically better bass performance. The sound quality is, of course, pure Polk: open, boxless, lifelike, dynamic and three dimensional.

Plug Them Right In for Super Polk Sound

A pair of exceptional sounding Polk VideoSound Loudspeakers can be added to virtually any stereo TV (and be powered by its internal amplifiers) by just plugging them into the auxiliary speaker jacks. If you want the best sound for your TV, you need the best speakers. Polk Audio is The Speaker Specialist! We have achieved worldwide critical acclaim for building better sounding loudspeakers. The renowned sound quality of Polk loudspeakers will make every TV sound its best. Almost all the new TVs and stereo TV receivers have auxiliary output jacks for extension speakers. If you want the best sound plug in on a pair of VideoSound Loudspeakers. Polk VideoSound Loudspeakers are highly efficient (much higher than most built-in and other TV speakers) and will deliver surprising output from even modest 3 and 5 watt per channel built in amps, while their high power handling means you can use a powerful 100 watt per channel amp for really loud listening.

Enjoy The Thrill of Stereo Video

The VS-25 – (\$199.95) is the top model in Polk’s new VideoSound Loudspeaker Series. It utilizes a one inch polymer dome high frequency radiator for sparkingly clear high frequency response matched with a Polk trilaminate polymer bass-midrange driver which activates a 6½” fluid coupled subwoofer for dramatic, silky smooth midrange and bass-performance. The complex Polk Isophase Crossover System perfectly blends the sound of the separate drivers so that they sound like one. The VS-25’s high efficiency and power handling allows use with almost any built in or separate amplifier or receiver.

The VS-19 – (\$149.95) utilizes the same bass-midrange driver, high frequency radiator and Isophase Crossover as the VS-25. Although it is smaller than the VS-25 and lacks the fluid-coupled subwoofer, the VS-19 is still almost as efficient with just slightly less bass response. It is capable of remarkable sonic performance in audio-video or audio systems.

The VS-12 – (\$99.95) is the smallest and least expensive VideoSound loudspeaker. However, it is still built utilizing the same high quality components and uncompromising sonic standards as the larger more expensive VS19 and VS25. It is also highly efficient and has remarkably dynamic bass for a speaker of its size. Plug a pair into a TV today and make it come alive!

Special Technology Polk Drivers Eliminate Magnetic Picture Distortion

All the Polk VideoSound Loudspeakers utilize specially modified Polk components, incorporating unique DOS (Dual/Opposed/Shielded) magnet structures, which enable them to be placed right next to a TV set, without the picture distortion that occurs with conventional speakers. As many unknowing consumers have found out to their chagrin, you cannot locate normal hi fi speakers right next to your TV, because the magnetic field disturbs the picture. Polk VideoSound Loudspeakers do not have this problem because of the specially engineered magnet structures. Otherwise, the sonic performance of the state-of-the-art Polk drivers remain unchanged. They also incorporate the same massive and complex 12db/octave crossover network used in the Monitor Series.

Perfect for Regular Hi Fi’s Too

Of course, Polk VideoSound Loudspeakers also work great in a regular, non-video hi fi. They look great, sound great and have the extra advantage of being able to be placed next to a TV (without picture distortion) should you ever decide to.

**“Highly recommended...
we’re impressed”**

High Fidelity Magazine

Excerpts from the Expert’s Rave Review of the VS 19

“No picture distortion... Polk’s noteworthy far field response can be attributed to excellent drivers and an intelligently designed crossover... you can drive the VS 19 with a low power amplifier, like those built into most monitors... for their size and price they could be highly recommended as conventional stereo speakers... they image well, their response is smooth and extended, and the upper midrange and highs are admirably clean. To say that we’re impressed would be to put it mildly.”



MM XII
\$99.95 ea.



MMIV
\$109.95 ea.



MMVa system
\$109.95 ea.



MM 1a
\$39.95 ea.

polk audio

MMX
\$99.95 ea.



MMIIIa
\$62.50 ea.



Polk Mobile Marketers allow you to experience the Audio Video 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"

H

ome 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 unswerving 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 discreet speaker systems: The MM1a, MM1IIa, MM1V, MM1Va, MM1X and MM1XII. 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 MM1a –

4" Dual Cone Full Range System – (\$39.95 ea.) 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 MM1IIa –

5 1/4" Coaxial System – (\$62.50 ea.) is a unique and remarkable speaker that achieves sonic performance almost equal to the MM1V but in a smaller package at a lower cost. The drivers used are similar to

Turn Your Car Into A Concert Hall

Design Features and Performance Benefits

Natural home quality sound

Turns your car into a concert hall.

Moisture resistant, polymer technology drivers

For life-like high definition sound and total performance reliability.

High power handling

For tremendous dynamic range and high volume listening.

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.

All metal grille construction

Assures long term design integrity.

those of the MM1V, but the more compact package makes it easier to mount in more locations in the car.

The MM1V –

Two-way plate system – (\$109.95 ea.) consists of a polymer laminate cone 5 1/4" 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 1/4" 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 MM1Va –

6 1/2" two piece system – (\$109.95 ea.) 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 MM1VaHF

Satellite Tweeter – (\$39.95 ea.) 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 MM1VaLF

6 1/2" Woofer-Midrange (also called the MM1VLC) – (\$69.95 ea.) 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 MM1X –

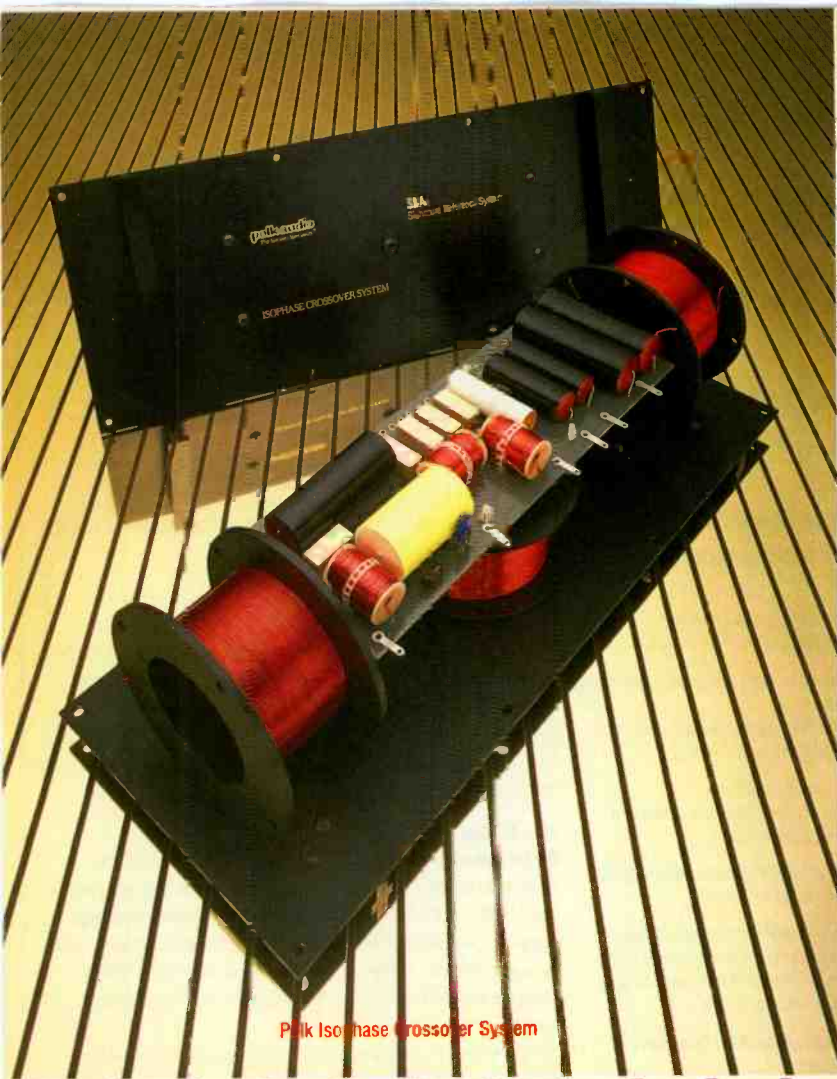
6 1/2" Coaxial System — (\$39.95 ea.) incorporates the same drivers used in the MM1Va, but combines them elegantly into a coaxial configuration which allows easy compact mounting in many areas of your car. The high quality drivers combined with a sophisticated 12/db octave crossover on the tweeter results in smooth, natural, home quality sound not found in other company's automotive speaker systems.

The MM1XII –

6" x 9" Coaxial System – (\$99.95 ea.) utilizes the same drivers and crossover as the MM1X, but mounts them on a 6" x 9" mounting plate to allow easy installation when this size configuration is called for.

The MM1XIVb –

6 1/2" Subwoofer – (\$59.95 ea.) for Bi-amp Installations – is the same basic 6 1/2" driver with grille as used in the MM1X, 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 IsoPhase Crossover System



Polk Silver Cone Dome Radiator



Polk Fluid Coupled Subwoofer



Polk Trilaminate Polymer Driver

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

H

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 and Sonic Benefits

High Definition Reproduction allows you to hear every nuance and 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 seamlessly smooth and coherent sound of the Polks.

The Polk Silver Coil Dome Tweeters 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

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.

The Polk Silver Coil Dome Tweeters

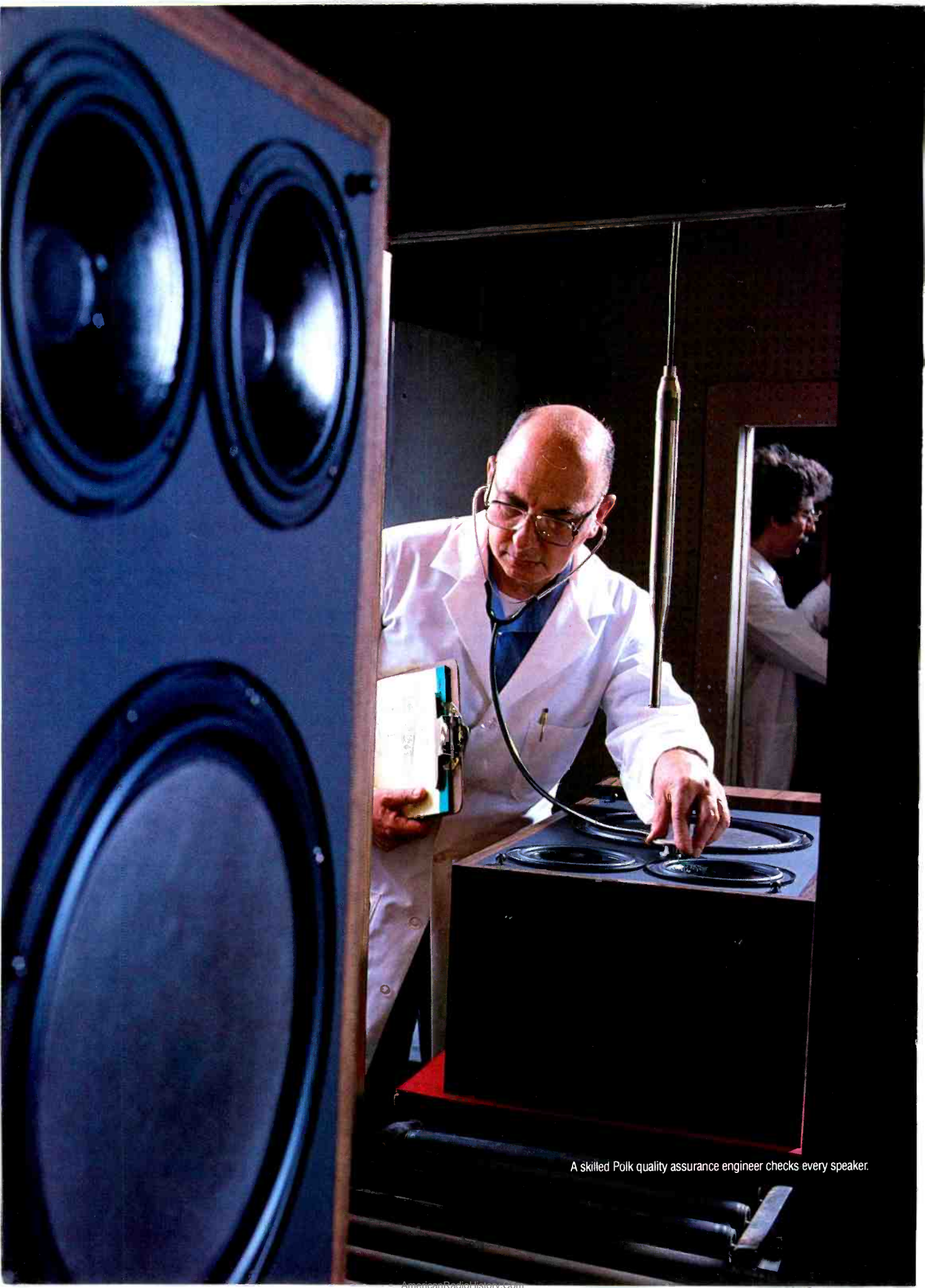
This state-of-the-art transducer is the only tweeter in the world which utilizes a voice coil wound with costly silver coated wire for more extended frequency response. The extremely light polyamide dome allows exceptionally quick transient response while the inherently well damped material eliminates 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.

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 Quality

P

Polk 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 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.

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.

The Human Element

After all, 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. Sometimes there is no substitute for a human being.

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.



The Polk VideoSound Series (left to right) VS 25, VS 19 and VS 12.



POLK AUDIO LOUDSPEAKER SPECIFICATIONS

	A. SDA SRS	B. SDA-1A	C. SDA-2	D. SDA-CRS	E. Monitor 12C	F. Monitor 10B	G. Monitor 7C
Driver Complement	Four 1 inch Polk SL 2000 silver coil domes 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 domes Four 6½ inch Polk tri-laminate polymer bass-midrange drivers (6600x) One 12 inch planar fluid-coupled sub-woofer	Two 1 inch Polk SL 2000 silver coil domes Three 6½ inch Polk tri-laminate polymer bass-midrange drivers (6600x) One 12 inch planar fluid-coupled sub-woofer	Two 1 inch Polk SL 2000 silver coil domes Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6503) One 10 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome Two 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 Two 6½ inch Polk tri-laminate polymer bass-midrange drivers (6503) One 10 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome One 6½ inch Polk tri-laminate polymer bass-midrange driver One 10 inch fluid-coupled sub-woofer
Size (Inches)	63½H x 21W x 13D	43½H x 16W x 12D	39½H x 16W x 12D	12½H x 20W x 9½D	39H x 16W x 11½D	28H x 16W x 11½D	24H x 14W x 9¼D
Shipping Weight	182 pounds	85 pounds	80 pounds	38 pounds	75 pounds	50 pounds	36 pounds
Frequency Response	10 Hz-26,000 Hz	15 Hz-26,000 Hz	16 Hz-26,000 Hz	31 Hz-26,000 Hz	17 Hz-26,000 Hz	22 Hz-26,000 Hz	24 Hz-26,000 Hz
Recom. Assoc. Amplification	10-1000 watts/channel	10-500 watts/channel	10-500 watts/channel	10-200 watts/channel	10-500 watts/channel	10-200 watts/channel	10-125 watts/channel
Crossover Frequency	45 Hz and 2000 Hz	50 Hz, 100 Hz and 2500 Hz	50 Hz and 2500 Hz	100 Hz and 3000 Hz	50 Hz and 2000 Hz	60 Hz and 3000 Hz	60 Hz and 3000 Hz
Nominal Impedance	4 ohms	4 ohms	4 ohms	6 ohms	4 ohms	6 ohms	4 ohms
Maximum Output Level	125dB	120dB	118dB	116dB	118dB	116dB	116dB
Efficiency	93dB	92dB	92dB	92dB	92dB	92dB	91dB
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	\$1295.00 ea.	\$875.00 ea.	\$625.00 ea.	\$395.00 ea.	\$479.95 ea.	\$329.95 ea.	\$249.95 ea.
	H. Monitor 5B	I. Monitor 5jr	J. Monitor 4A	K. VS-12	L. VS-19	M. VS-25	N. MM 1a
Driver Complement	One 1 inch Polk SL 2000 silver coil dome One 6½ inch Polk tri-laminate polymer bass-midrange driver One 8 inch fluid-coupled sub-woofer	One 1 inch Polk SL 2000 silver coil dome One 6½ inch Polk tri-laminate polymer bass-midrange driver	One 1 inch moving coil high frequency radiator One 6½ inch Polk tri-laminate polymer bass-midrange driver	One 1 inch polymer dome high frequency radiator One 6½ inch Polk tri-laminate polymer bass-midrange driver	One 1 inch polymer dome high frequency radiator One 6½ inch Polk tri-laminate polymer bass-midrange driver	One 1 inch polymer dome high frequency radiator One 6½ inch Polk tri-laminate polymer bass-midrange driver One 6½ inch fluid-coupled sub-woofer	Full Range 4 inch polymer-treated system
Size (Inches)	21½H x 10½W x 8½D	17H x 9W x 8¾D	14½H x 8½W x 7¾D	14¼H x 8½W x 11D	17H x 8½W x 11D	21H x 8½W x 11D	5¼ Diam. x ½H
Shipping Weight	29 pounds	45 pounds per pair	32 pounds per pair	19 pounds	22 pounds	25 pounds	5 pounds per pair
Frequency Response	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	80 Hz-15,000 Hz
Recom. Assoc. Amplification	10-100 watts/channel	10-100 watts/channel	10-80 watts/channel	3-80 watts/channel	3-100 watts/channel	3-125 watts/channel	5-50 watts/channel
Crossover Frequency	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	6 ohms	6 ohms	6 ohms	4 ohms
Maximum Output Level	116dB	114dB	114dB	114dB	114dB	116dB	108dB
Efficiency	91dB	92dB	92dB	93dB	93dB	93dB	94dB
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 one year parts and labor
Mounting Depth	—	—	—	—	—	—	1½ inch
Price	\$189.95 ea.	\$129.95 ea.	\$84.95 ea.	\$99.95 ea.	\$149.95 ea.	\$199.95 ea.	\$39.95 ea.
	O. MM 11a	P. MM IV	Q. MM Va	R. MM X	S. MM XII	MM XIVb	MM XIVc
Driver Complement	One ¾ inch ferro-fluid damped polymer dome high frequency radiator One 5¼ inch polymer-treated bass-midrange driver	One ¾ inch ferro-fluid damped polymer dome high frequency radiator One 5¼ inch polymer-treated bass-midrange driver	One ¾ inch ferro-fluid damped polymer dome high frequency radiator One 6½ inch polymer-treated bass-midrange driver Driver: 6¾ Diam. x 1H	One ¾ inch ferro-fluid damped polymer dome high frequency radiator One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver	One ¾ inch ferro-fluid damped polymer dome high frequency radiator One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver	One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver	One 6½ inch Polk tri-laminate polymer-treated bass-midrange driver
Size (Inches)	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	6¾ Diam. x 1H
Shipping Weight	5 pounds per pair	7 pounds per pair	9 pounds per pair	9 pounds per pair	9 pounds per pair	8 pounds per pair	8 pounds per pair
Frequency Response	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	38 Hz-2500 Hz
Recom. Assoc. Amplification	5-100 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	Variable	2500 Hz
Nominal Impedance	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms	4 ohms
Maximum Output Level	112dB	112dB	112dB	112dB	112dB	112dB	112dB
Efficiency	90dB	88dB	90dB	91dB	91dB	90dB	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	2¼ inch	1¾ inch	2½ inch	2½ inch	2½ inch	2½ inch	2½ inch
Price	\$62.50 ea.	\$109.95 ea.	\$109.95 ea.	\$99.95 ea.	\$99.95 ea.	\$59.95 ea.	\$59.95 ea.

Your choice of many beautiful cabinet finishes:

SDA SRS and SDA-1As are available in a beautiful hand-oiled 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, silver and furniture grade walnut vinyl.

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

Polk Audio loudspeakers are manufactured in the USA, by skilled American labor.

polk audio
The Speaker Specialists®

“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

1915 Annapolis Rd., Baltimore, Md. 21230

www.polkaudio.com

AUTHORIZED DEALERS

NORTHEAST
CANADA Call Evolution Technology for nearest dealer 416/335-4422
CONNECTICUT Greenwich, Hartford: Al Den • Fairfield: Audio Design • Norwalk: Acousticronics • Avon, Newington: Hi Fi Stereo House • Groton, New London: Roberts The Music People
MAINE Camden: Harbor Audio Video • Bangor: Sound Source
MASSACHUSETTS N. Dartmouth: Creative Sound Systems • Gloucester: Glass Sailboat • Waltham (Boston): Waltham Camera & Stereo
NEW HAMPSHIRE Concord, Laconia: Audio of New England • Salem: Cuzanos • New London: North Star Electronics
NEW JERSEY Raritan: AC Audio & Video • East Brunswick: Atlantic Stereo • Maple Shade: Bryn Mawr Stereo • Franklin Lakes: Franklin Lakes Stereo • Shrewsbury: Monmouth Stereo • Montclair: West Caldwell: Perdue Radio • Toms River: Randos Camera • Ridgewood: Soundings Board
NEW YORK Buffalo: Absolute Sound • New York City: Huntington, Manhasset: Audio Breakthroughs • Glens Falls: Audio Genesis • Albany, Syracuse: Clark Music • New York City: Electronic Workshop • Vestal: Harl Electronics • Rochester: JB Sound • Scarsdale: Listening Room • Newburgh: Wappingers Falls: Randzio's Electronics • Fredonia: Jamestown: Studio One
PENNSYLVANIA Philadelphia area, Bryn Mawr, Jenkintown, Frazer, Montgomeryville, Quakertown, Allentown, Camp Hill: Bryn Mawr Stereo • Lancaster: Reading: Cris T Stereo • Blakely: Kingston: Harl Electronics • Windeber: Pro Audio • Williamsport: Robert M. Sides • Altoona, Indiana: Sound Concepts • Natrona Heights: Stereo Land • Sellinsgrove: Stereo Shop • Erie: Studio One
RHODE ISLAND N. Providence: Echo Audio
VERMONT Burlington: Audio Den
SOUTHEAST
ALABAMA Birmingham Homewood: Audition • Huntsville: Campozzi's Audio Video • Mobile: Fidler Hi Fi • Tuscaloosa: Gayler's • Montgomery: The Record Shop
DISTRICT OF COLUMBIA Myer Epcoc
FLORIDA Miami: Audio By Carson • Ft. Lauderdale: Audio Insight • Ft. Walton Beach: Audio International • Altamonte Springs: Orlando: Audio Spectrum • Jacksonville: Orange Park: Audio Tech • Tampa: Audio Vision • Boca Raton: Ft. Lauderdale: Miami: Capl Video • W. Palm Beach: Electronic Connection • Pensacola: Fidler Hi Fi • Clearwater: Pyramid Audio • Ft. Pierce: Lakewood: Sound Shack • Melbourne: Merritt Island: Southern Audio • Tallahassee: Stereo Store • Daytona Beach, Hollywood: HiFi: Sympathetic Ear • Gainesville: Tech Electronics
GEORGIA Savannah: Audio Warehouse • Augusta: Stereo City • Atlanta, Duluth, Morrow, Smyrna, Tucker: Stereo Village
KENTUCKY Owensboro: FM High Fidelity • Louisville: Hi Fi Buys • Lexington: Stereo Shop
MARYLAND Frederick: Evergreen Audio • Rockville: Myer Epcoc • Baltimore: Soundscape • Annapolis: Spaceways Sound
MISSISSIPPI Gulfport, Pascagoula: Empress • Jackson: Walters Audio
NORTH CAROLINA Raleigh: Audio Buys • Asheville: Mr. Todd's Stereo Video • Jacksonville: Wilmington: Southcoast Electronics • Charlotte: Stereo Video • Chapel Hill, Greensboro, Raleigh, Winston Salem: Stereo Sound
SOUTH CAROLINA Anderson: John Brooks' • Greenwood, Spartansburg, Columbia: Stereo Shop
TENNESSEE Chattanooga: College Hi Fi • Nashville, S. Madison: Hi Fi Buys • Knoxville: Lindsey Ward • Johnson City, Kingsport: Mr. Todd's Stereo Video • Memphis: Opus II
VIRGINIA Roanoke: Audiotechnics • Virginia Beach: Digital Sound • Leesburg: Evergreen Audio • Richmond: Gary's Stereo • Richmond: Lindsey Ward • Bristol: Mr. Todd's Stereo Video • Falls Church: Myer Epcoc • Charlottesville: Sound Machine
WEST VIRGINIA Barboursville, Beckley, Huntington: Pied Piper • Morgantown, Princeton: Sound Post • Wheeling: Wheeling Sound
NORTH CENTRAL
ILLINOIS Bloomington, Northbrook, Schaumburg, Vernon Hills, Waukegan: Adams Creative Stereo • Moline: Audio Dimensions • DeKalb: Audio Plus • Buffalo Grove, Highland Park, Rockford: Columbia Audio Video • Champaign, Normal: Glenn Pools • Villa Park: Hi Fi Hutch • Sterling: Midwest Hi Fi • Crystal Lake: Northwest Audio Video
MI Prospect: Simply Stereo • Riverdale: Stereo Design • Springfield: Sundown One • Peoria: Team Electronics
INDIANA South Bend: Classic Stereo • Bluffton: Eley TV & Stereo • Greenwood, Indianapolis, Lafayette, Muncie: Hi Fi Buys • Terre Haute, Bloomington: Hoosier Electronics
IDWA Duane Cities: Audio Dimensions • Sioux City: Audio Emporium • Des Moines: Audio Labs
KANSAS Overland Park: Audio Electronics • Junction City: Audio Junction • Wichita: Audio Visions • Emporia, Topeka: Nelson's
MICHIGAN Ann Arbor, Royal Oak: Absolute Sound • Birmingham, Dearborn, Farmington Hills: Almas Hi Fi • Saginaw: Audio King • Duluth: Mel's TV & Audio • Alexandria, Detroit Lakes: Sound Shop • Mankato: Rochester: Sound World
MISSOURI Columbia: D&M Sound • St. Louis: Sound Central • Cape Girardeau: Stereo One
NEBRASKA Lincoln, Omaha: Stereo West
NORTH DAKOTA Minot: Midwest Audio • Bismarck: Pacific Sound
OHIO Cleveland, Fairlawn, Findlay, Mayfield Heights, Toledo, Westlake: Audio Craft • Lima: Classic Stereo • Toledo: Jamieson's • Dayton: Micro Computer Center • Cincinnati, Columbus: Stereo Lab
SOUTH DAKOTA Sioux Falls: Sound World • Rapid City: Team Electronics
WISCONSIN Rhinelander: Audio Broker • Milwaukee: Audio Emporium • Madison: Happy Medium • Marinette: Sound Seller • Appleton, Green Bay, Lacrosse: Sound World
SOUTH CENTRAL
ARKANSAS Little Rock: Leisure Electronics • Searcy: Sound Room
LOUISIANA Shreveport: Audio Fidelity • West Monroe: Audio West • Lafayette, Opelousas: Sound Electronics • Baton Rouge, Gretna, Metairie, New Orleans: Stereo Village
OKLAHOMA Tulsa: Audio Advice • Lawton: Hi Fi Shop • Stillwater: Sound Advice
TEXAS Dallas: Garland, Arland & Morgan • Austin: Audio One • Temple, Waco: Audio Tech • Longview: Audio Techniques • College Station: Audio Video • Beaumont: Brock Audio • Wichita Falls: Hamilton Bryan • Galveston: Island Audio • Houston: Sheffield Audio • Texarkana: Sound Town • El Paso: Soundquest • Lubbock: Ultra Electronics • San Angelo: Walker Audio
WESTERN
ALASKA Fairbanks: Holt's Music • Anchorage: Shimek's
ARIZONA Tucson: Audio Emporium • Mesa: Hi Fi Sales • Flagstaff: Sound Pro • Tucson: Sounds Great
CALIFORNIA Orange: Absolute Audio • Arcata: Arcata Audio • Los Angeles: Beverly Stereo • Fairfield: C&M Stereo Unlimited • Santa Barbara, Santa Maria, Thousand Oaks, Ventura: Creative Stereo • Redding: Clyde's Home Entertainment • Walnut Creek: High Fidelity Shoppe • Santa Monica, Woodland Hills: Shelley's Stereo • Bakerfield: Sound Advice • San Diego: Sound Company • Napa: Sound Connection • Camarillo: Sound Goods • Berkeley: Sounding Board • Chico: Sounds by Dave • San Francisco: Stereo Stereo • Santa Cruz: Stereo Solution • Redondo Beach: Systems Design Group • Fresno, Visalia: Valley Stereo • Davis, Sacramento: West Electronics • Mill Valley, San Francisco: World of Sound
COLORADO Arvada, Aurora, Boulder, Denver, Littleton: Soundcraft • Colorado Springs, Pueblo: Sunshine Audio • Boulder: Wavelength Stereo
HAWAII Honolulu: Stereo Station
IDAHOW Twin Falls: Audio Warehouse • Sandpoint: Electracraft • Boise: Stereo Snoppe
MONTANA Great Falls: Rocky Mountain Hi Fi • Missoula: Spectrum • Bozeman: Thirty Ear
NEVADA Reno: The Audio Authority • Las Vegas: Upper Ear
NEW MEXICO Carlsbad: Beason's • Santa Fe: Dandy Man High Fidelity Shop
OREGON Eugene: Bradford's High Fidelity • Pendleton: Royal Mobile Sound • Klamath Falls: Sound Chamber • Beaverton, Portland: Stereo Superstores
UTAH Salt Lake City: Broadway Music • Vernal: Dirk Labrum Co • Logan store only: Stokes Brothers
WASHINGTON Seattle: Delimithe Audio • Spokane: Electracraft • Walla Walla: Billingham, Mt. Vernon, Oak Harbor: OC Stereo Center • Bellevue, Lynnwood, Seattle, Tukwila: Northwest Audio Video • Richland: Tin Ear Stereo
WYOMING Riverton: Sound Room • Cheyenne: Team Electronics

JOSEPH GIOVANELLI

Cable Length and Signal Degradation

Q. In connecting components together, what effect does cable length have on losses or gains? Is it true that the longer the cable, the greater the signal loss?

Is it also true that certain components should not be placed in close proximity to each other?—Allan Dorfman, Morristown, N.J.

A. Much of today's equipment has very low output impedance, 100 ohms or less. Input impedances of the equipment that accepts signals from these devices will be considerably higher, but the effects of these high impedances are shunted by the low impedance of the driving devices.

All cables have some resistance, and therefore cause some signal loss. But to cause even 6 dB of signal loss, the cable's resistance must equal the component's output impedance. A typical cable, with a resistance of less than 0.5 ohm per foot (including the effects of both its inner and outer conductors), would have to be more than 200 feet long to cause such a loss. Even a 6-dB loss is unimportant if the driving device has the necessary signal level or the gain of the driven device is adjustable.

If this were the only kind of signal degradation associated with cable length, we would never have to consider the problem. Unfortunately, however, there is something known as "cable capacitance," usually described in terms of pF per foot. Although capacitance is not measured in ohms, a property known as "capacitive reactance" is so measured.

Capacitive reactance is not static, as is true of d.c. resistance or capacitance; it varies inversely with frequency. Thus, at high frequencies, it is easier for the desired signal to flow between the inner cable conductor and its shield than it is to flow into the circuit which it is supposed to feed. To make all this clearer, as the length of cable increases, the capacitive reactance at any given frequency decreases. When the length of the cable is such that the capacitive reactance equals the output impedance of the driver, losses at that frequency will be 6 dB.

The lower the capacitance per foot, the higher the capacitive reactance

per foot. Hence one can run a longer cable if its capacitance per foot is low. To me, frequency losses at 20 kHz of more than 1 dB are unacceptable.

If physical arrangements permit, all equipment should be placed close together. Where compromises must be made, avoid locating the phonograph far from its preamplifier. One reason for this is to reduce hum pickup by the interconnecting cables. Also, cable capacitance again can become a factor. Many cartridges require some specific amount of capacitance for proper frequency response. If a cable is short, more capacitance can be added, but if a cable is too long, capacitance cannot be subtracted.

Distances between the preamp and the power amp, tuner, recorder, and CD player are governed by considerations we have already mentioned.

Turntables and loudspeakers should be separated in order to prevent what is known as "acoustic feedback." If such feedback becomes sufficiently intense, damage to both loudspeakers and output stages is possible.

Turntables should be spaced at least 2 feet from sources of strong magnetic fields, such as amplifier power transformers, fan motors, etc. Similar rules govern the location of cassette recorders and VCRs.

Speakers, of course, should be placed far enough apart for proper stereo separation. The exact distance depends on the speaker design and the room's size and acoustics.

"Audible Sidebands" Update

I am writing this regarding the "Audioclinic" item on "Audible Sidebands" in the March 1985 issue. In response to Russel E. Worthy of Massachusetts, you erred in your explanation of the audible information present in his scenario of an AM receiver which is tuned to 1,500 kHz.

Mr. Worthy describes a "perfect" receiver with a "square-topped" i.f. filter stage, tuned to an unmodulated carrier at 1,500 kHz. The 9-kHz i.f. bandwidth means that the i.f. will pass what it

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 amount of current a loudspeaker draws depends on its impedance, not on the output of the amp to which it is connected.

"sees" between 1,495.5 and 1,504.5 kHz. Because we're talking ideal, the i.f. wipes out anything outside this range. Now, there also exists a modulated subcarrier at 1,490 kHz whose sidebands would be at 1,483 and 1,497 kHz because of a 7-kHz sine-wave signal modulating this carrier. With the receiver tuned to 1,500 kHz and the signal mentioned, the i.f. will pass 1,497 and 1,500 kHz to the detector, resulting in a 3-kHz tone being heard. There will be no 7-kHz tone.

If the 1,500-kHz signal were to stop transmitting, then only the 1,497-kHz sideband would be passed by the i.f. and there would be no audible result from detecting this single frequency.

If we were to depart from Worthy's ideal situation and assume our i.f. was wider than 9 kHz, then the same signal inputs would give the 3- and 7-kHz tones, as you stated, but also would result in a 10-kHz audio tone and even a 17-kHz tone. Without the 1,500-kHz signal we would get the 7 kHz, poorly tuned.—Ross M. Jory, Portland, Ore.

I agree with Mr. Jory. I managed somehow not to take note of the "ideal" response of Mr. Worthy's i.f. system.

Guitar-Amp Treble Adjustment

Q. I have installed a treble-cut circuit in my guitar. It consists of a double-throw, center-off switch, with capacitors of different value on each side of the switch, so that one switching direction produces more treble cut than the other. I am happy with the results, except that, when the switch is thrown to either treble-cut position, a loud "click" or "pop" is heard in the loudspeaker. Is there a way to stop these sounds? I have tried polarized capacitors, as well as reversing the setup so that the capacitors are fixed to ground rather than to "hot," with switching made to ground.—Ron Kalstein, Philadelphia, Pa.

A. Without knowing more about the amplifier you are using, I can't say for sure that you can remove the clicks that occur when the switch is thrown to add treble cut. I have one possible scheme which might help.

If there is a small d.c. voltage at the input terminal of the amplifier, this will tend to charge up the capacitors as they are switched into the circuit. This being so, the cure is to remove the d.c.

from your guitar and treble-cut switching system. Add a coupling capacitor of suitable value between your guitar's output and the amplifier input. This should not be an electrolytic capacitor, because such capacitors can leak.

If the clicks are still present, I suggest redoing the circuit so that it employs a potentiometer, placed in series with a capacitor which gives you the greatest amount of treble cut you expect to use. To make adjustment of the pot easier when playing your guitar, and more like the switch to which you have become accustomed, place a pointer knob on the pot's shaft. You should be able to push the pot with a finger, rather than turning it. It will also give you a range of tone color, rather than just two cuts and one flat.

The value of the pot can be so chosen that its operation is crowded toward one end. Thus, you will be able to push the pointer over a short distance and create the tonal changes you need.

Unusual Equalization Problem

Q. Please tell me how to design a tone control for the middle of the audio spectrum. I would like to add this to my preamplifier, which I am using with an electronic musical instrument. Since it is a music producer and not a reproducer, I am not interested in fidelity or in flat frequency response.—Name withheld

A. Many reference books and "applications notes" produced by the makers of semiconductors contain circuits of this kind. Rather than breaking into the amplifier, you could design the circuit to work between the input of the preamplifier and the output of your musical instrument, or between the output of the preamplifier and the devices which follow it.

Remembering, however, that "work" is a four-letter word, I suggest you consider using a graphic equalizer. There are many such units designed to be placed between the output of an instrument and the input of its amplifier.

If you need a really sharp boost over a narrow range of frequencies, I suggest you do what I did when faced with a similar problem. I needed an oboe effect, which was unavailable on the small organ I had. I used a "wah-wah" pedal between the organ's output and the input to the rest of the system. I

peaked the wah-wah to a range of frequencies which added the right nasality to the organ stop I was using, and the result was a very passable oboe. Note that in this application I did not use the wah-wah pedal for its intended purpose. I set it to the desired band of frequencies to be boosted and left it that way for the duration of my recording project. If the peaked frequency region is too sharp, and if the wah-wah has an intensity adjustment, use it to adjust for proper sound quality for your applications. If no such control exists, and if the device has a gain of less than unity, bridge its input/output with a variable resistor (try 100 kilohms). At its maximum value, the resistance will not affect the action of the pedal. As its value is reduced, the "wah" will be less effective. If the overall amplification is greater than unity, this bridging resistor may well cause oscillation, producing a severe howl.

I did have one problem with a sharply tuned wah-wah. This device will emphasize one frequency more than all others. If this frequency corresponds to a note being played, this tone will stand out. If possible, set the wah-wah frequency so it does not directly fall on a note which will be played—tune it "in the cracks," so to speak.

Amplifier Power and Loudspeaker Voice-Coil Damage

Q. I note with some concern that many amplifiers are capable of delivering high output current. One such amplifier claims power "high enough to weld with." Won't this current damage the fine wire of a loudspeaker?—Eugene Bershada, Freehold, N.J.

A. If the load impedance "seen" by an amplifier is low, most of the power developed in the load will be in the form of current rather than voltage (though, of course, power is a combination of voltage and current).

A loudspeaker will only draw current dictated by its impedance. This is the same situation that you would find when considering your home electrical wiring. It may be able to deliver 60 amperes of current, but this does not mean that a device plugged into a wall outlet will draw 60 amperes. A 100-watt lamp will draw about 1 ampere, even though the wiring is capable of delivering much more. A

MISSION ELECTRONICS

because people like music



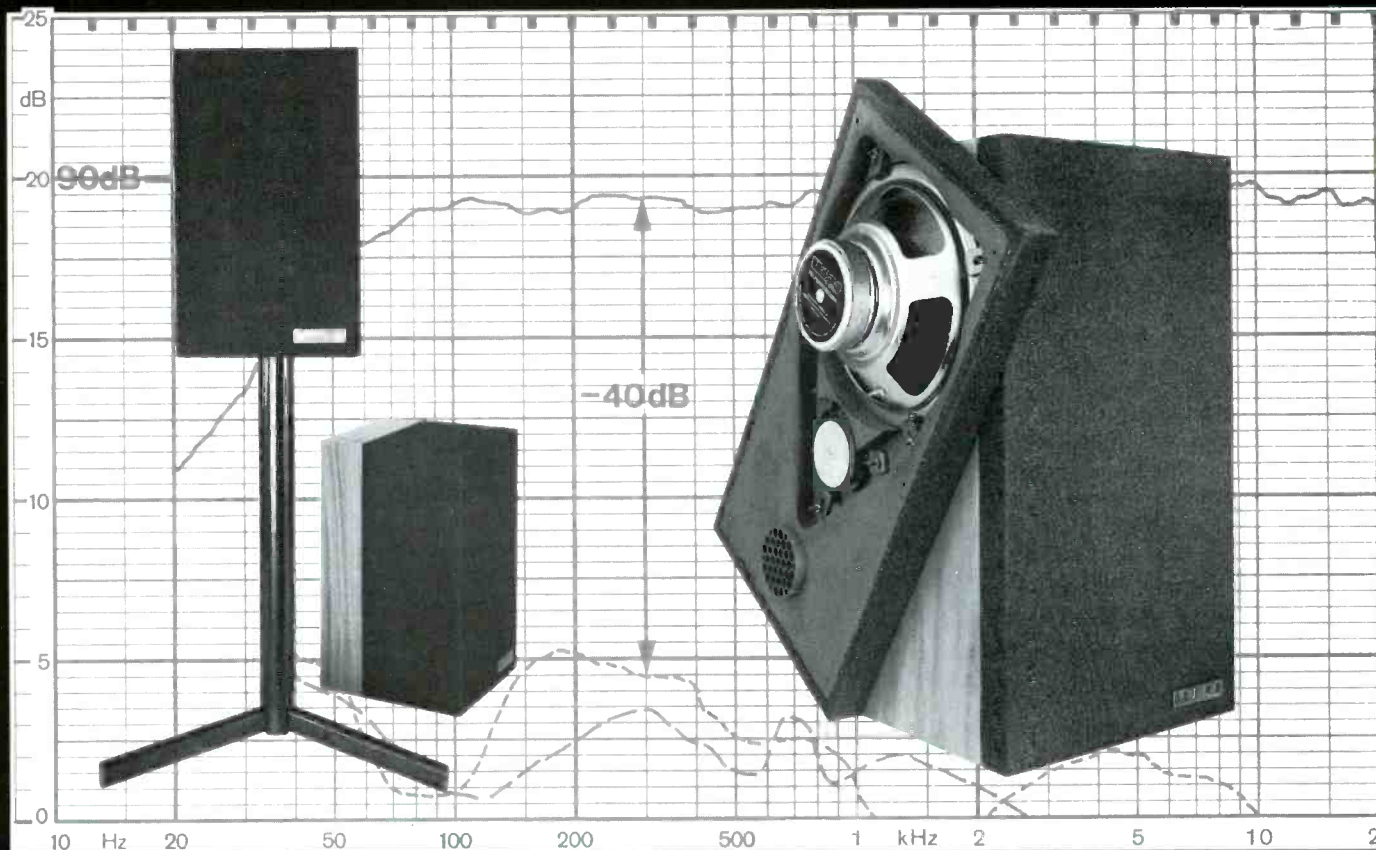
Call Mission North America: Tel: (416) 673 3777

Enter No. 42 on Reader Service Card

www.AmericanRadioHistory.com

MISSION 70

MISSION 700.2



Mission 70

1984's "Loudspeaker of the Year" in Britain; HI FI CHOICE "Best Buy"; winner of "Decibel d'Honneur" in France; acclaimed "Wunderkind" in Austria, the Magnificent 70 is an extraordinary state-of-the-art product.

The design objective was to manufacture the most compact loudspeaker system which was nevertheless capable of reproducing the extremities of the audible frequency range. This resulted in a true hi-fidelity speaker system capable of handling musical materials with exceptional dynamic range, including digital master tapes, and remaining linear at all listening levels. Here we should point out that many loudspeakers can only create the excitement and dynamics of music when played at loud levels. In fact, it is a tragedy for the consumer that most hi-fi systems sound no better than a transistor radio when played at low levels. Indeed, this is why cheap amplifiers offer a "loudness" control to artificially compensate for these inherent weaknesses, and it requires dedicated manufacturers to avoid such complex pitfalls.

The 70 is manufactured of sandwiched construction to dampen and distribute enclosure resonances and uses sculptured MDF for the baffle board. The bass unit is a high quality 7" Mission product with a unique cone design and a quality 19mm-ferrofluid damped dome tweeter. The filter is a full multi-component design incorporating Mission's own electrolytic capacitors and low saturation inductors. The driver geometry is inverted in the novel Mission style resulting in superb three dimensional stereo stage. The total design is carefully integrated to result in a wide bandwidth system free of unwanted resonances, distortions, frequency response anomalies and colorations.

As far as measurements are concerned we would briefly touch on the objective performance of the 70. Whereas the competition for the 70 has an irregular frequency response often as poor as ± 5 dB, the 70 measures flat to within ± 2 dB! When measured off axis it exhibits no mid band cancellations and at 30° off axis the response is still ruler flat. The modulus of impedance is very smooth, does not drop below 6 ohms and does not suffer difficult phase angles, which in turn makes the loudspeakers very easy for any amplifier to drive. Measured at 90dB,

2nd, 3rd and all other harmonic distortions remain below 0.5% – approaching amplifier specifications! and some 10 times better than most other loudspeakers on the market! The efficiency is 89dB.

The 70s are recommended for use on bookshelves or stands and with amplifiers ranging from 20W to 75W per channel.

Mission 700.2

The 700.2 is an updated version of Mission's famous 700 model – acclaimed as the world's finest compact speaker system by the technical press throughout Europe and America.

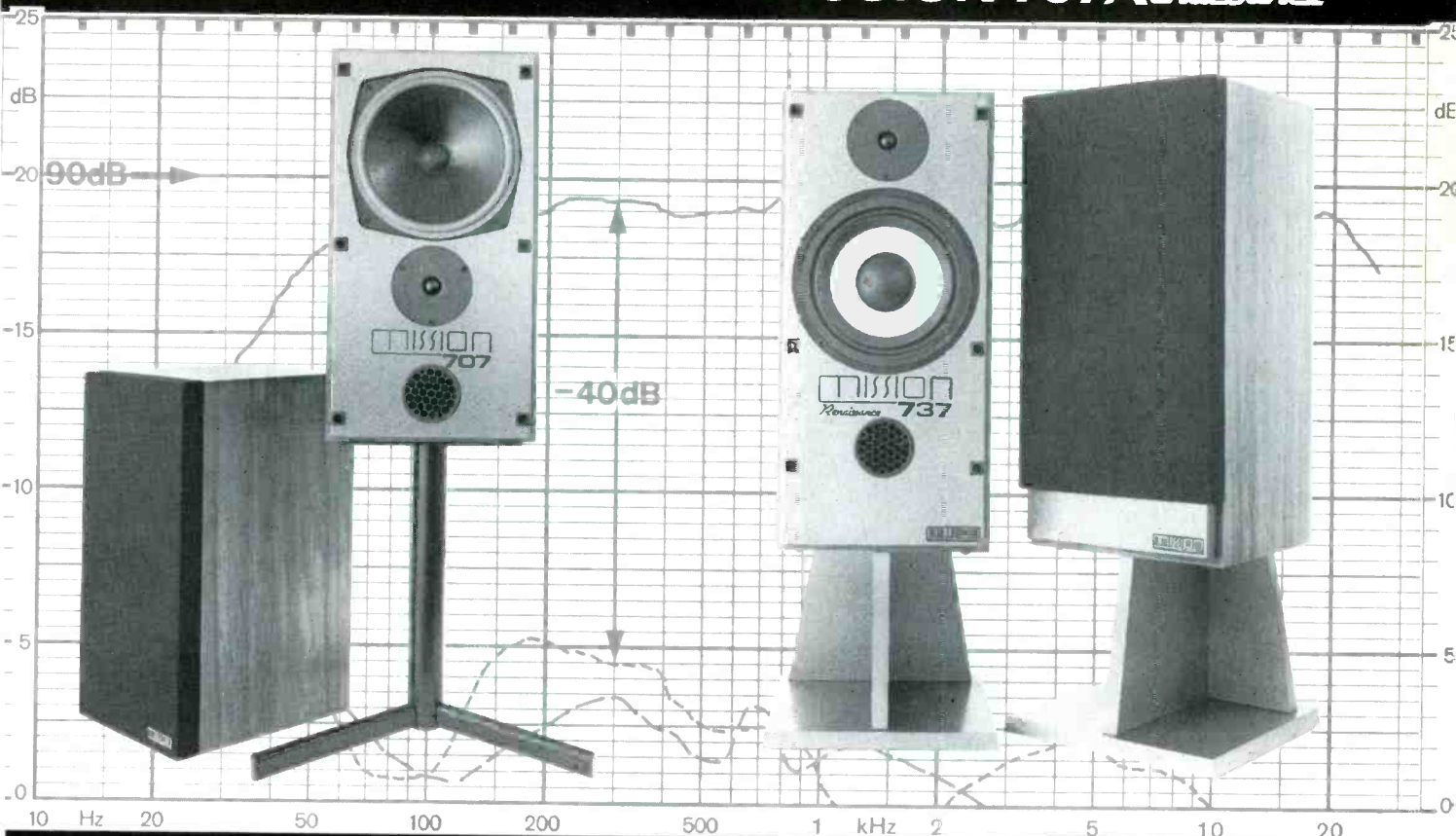
The unusual drive unit geometry first designed by Henry Azima in the Mission 700 ensures equal "path lengths" to the ear when the speakers are conventionally positioned. This is an ingenious engineering principle which makes time aligned and phase-arrayed geometries unnecessary. The effect of such a design is that at the crossover frequency point the radiation lobe is directed towards the listener rather than down to the floor. The proven 700 bass drive unit has been further refined incorporating a much more powerful motor system to ensure improved power handling and sensitivity. The frequency response is now even more linear at different power levels and the highly refined ferrofluid dome tweeter offers greater headroom before saturation than the old 700. The drivers are carefully aligned and mounted in a 32mm thick front baffle board. The direct and rigid coupling of the drive unit chassis to such a baffle board design minimises relative accelerations and displacements between the two structures ensuring exceptional transient response. The cabinet itself now offers the unique Mission construction method of multi-folding, which ensures exceptional rigidity without increasing fundamental wall stiffness. The objective here is to lower the resonant frequency of the cabinet so that it is not set off in the important mid band region.

The 700.2 is a very high performance system offering a rare combination of accuracy, low coloration, extended dynamic range and a high power handling. It is recommended for use on bookshelf or stands and with amplifiers ranging from 20W to 100W per channel.

SPECIFICATIONS	MISSION 70	MISSION 700.2	MISSION
FREQUENCY RANGE:	35Hz–20KHz	35Hz–20KHz	30Hz–20KHz
FREQUENCY RESPONSE:	60Hz–20KHz ± 3 dB	55Hz–20KHz ± 3 dB	50Hz–20KHz
IMPEDANCE NOMINAL:	8 ohms	8 ohms	8 ohms
RECOMMENDED AMPLIFIERS:	20W–75Watts/Channel	20W–100 Wats/Channel	20W–100 W
SENSITIVITY, SPL at 1M, 1W:	89dB	91dB	92dB
TWEETER:	19mm Polymer Dome – Ferrofluid	19mm Polymer Dome – Ferrofluid	19mm Poly
WOOFER:	175mm Plastiflex Cone	200mm Carbon/Paper Cone	210mm Plas
CROSSOVER FREQUENCY:	2.2KHz	2.1KHz	2.2KHz
GRILLES	Fixed	Fixed	Removable
TERMINAL CONNECTIONS:	4mm plug or wire	4mm plug or wire	4mm plug o
EFFECTIVE VOLUME:	12 litres	24 litres	25 litres
CABINET DIMENSIONS: (H x W x D)	350 x 210 x 210 mm	470 x 250 x 270 mm	470 x 250 x
FINISH:	Walnut/Black	Walnut/Black	Walnut/Blac

MISSION 707

MISSION 737 Renaissance



Mission 707

The 707 is a brand new addition to the Mission range. It offers the inverted drive unit arrangement first used in the 700 (for reasons see 700.2). The 707 incorporates Mission's unique multi-folded cabinet construction and sophisticated injection moulded baffle board manufactured from polypropylene and natural minerals – the formula not being made public by Mission. This configuration offers optimum rigidity for accurate transient bass response with controlled and minimal resonances in the mid band region. The tweeter is our proven ferrofluid 19mm polymer dome and the overall results are optimum integration and excellent off axis performance, resulting in quite exceptional stereo stage.

Here we must point out that there is a fundamental design conflict between the efficiency and low frequency performance of a loudspeaker. In the majority of cases efficiency is achieved at the direct expense of bass extension, and frequently high efficiency systems suffer very high coloration. Not so with the new generation of Mission designs. The exceptional motor systems combined with high quality cone materials and precision manufacturing processes have enabled us to offer extraordinary sensitivity and bass extension whilst preserving the mid band magic of classical Mission speakers. Our speakers have always been acclaimed for low coloration, neutrality and transparency in the mid band. This is now coupled to bass extension, with control and articulation. Careful attention is paid to the linearity of both frequency response and distortion at different power levels. Consequently the dynamic headroom is so great that the loudspeaker system will not suffer "saturation" and "compression" at high listening levels.

The 707 offers 92dB efficiency for 1W input measured at 1 metre and can be used with amplifiers ranging from 20W to 100W per channel. Rigid, sand-filled metal Mission stands are available for use with this model, or under special circumstances the 707 may be bookshelf mounted.

Mission 737 Renaissance

In 1978 when polypropylene as a cone material was in its development stages at the research laboratories of the British Broadcasting Corporation, and other manufacturers were carrying on with conventional materials, Mission were negotiating the patent rights for the coming technical revolution. Around the same time Mission became the first licensor in the world for this British patent. Mission's pioneering research in this area resulted in one of the most advanced loudspeakers – the 770. Since then most other manufacturers have attempted to copy the Mission design with varying degrees of success.

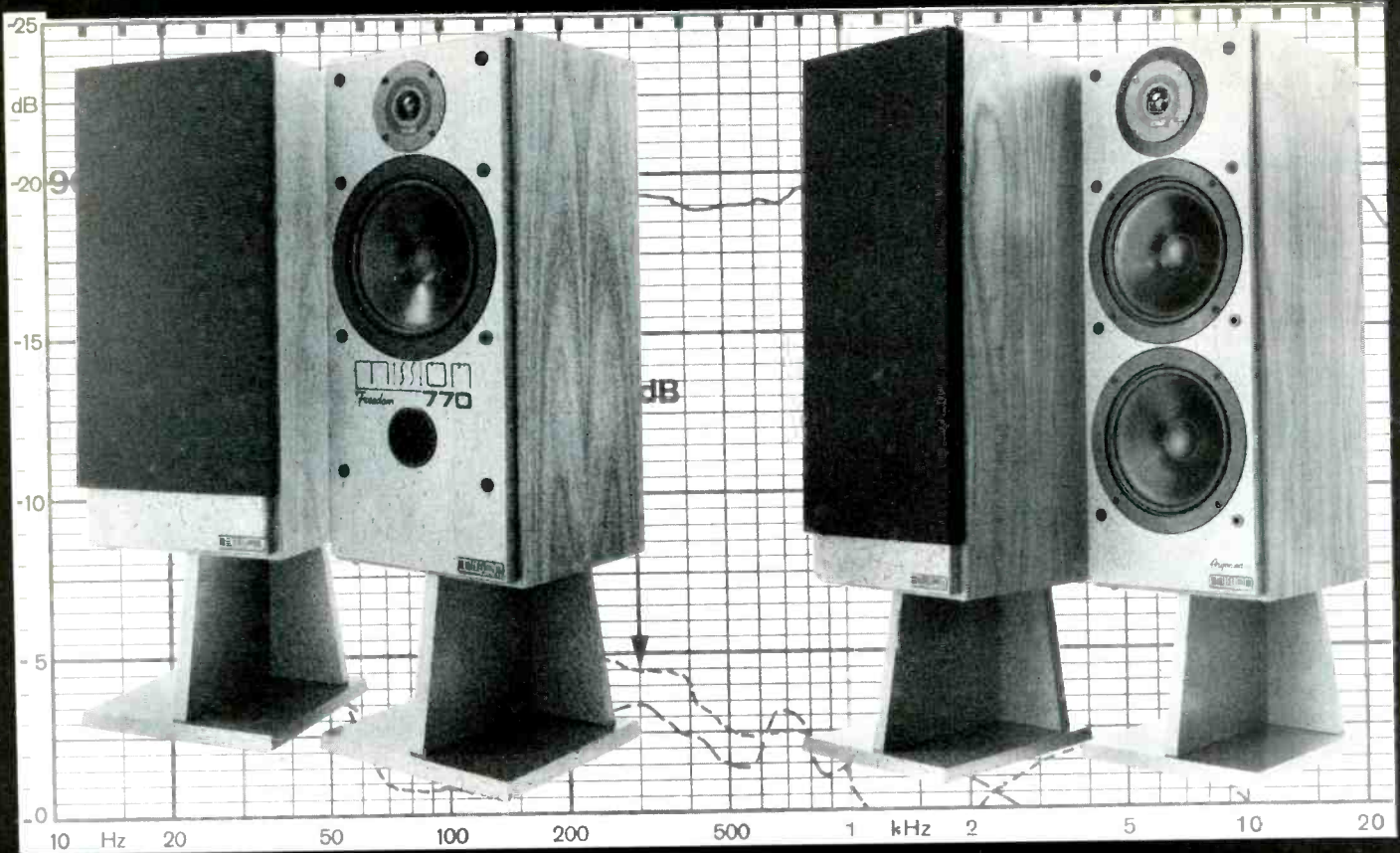
At Mission we have continued to move on. After many years of evolutionary refinements the most advanced version of the 770 drive unit is now designed into our new model 737 Renaissance. The cone membrane for this model offers a unique combination of rigidity, lightness and acoustic opaqueness. The drive unit is manufactured into an esoteric die-cast magnesium chassis to improve rigid coupling. The acoustic properties of the cone are such that they do not allow for internal reflection and standing waves to come out of the cabinet and reach the listener out of phase. Furthermore, a solid block of Mission acoustic foam is built into the inside of the cabinet to attenuate such standing waves. The Renaissance cabinet is of precision multi-folded construction, visco-elastically damped and incorporates our special MDF baffle board. The total system is reflexed using the Mission resistive port and resulting in extended low frequency and power handling performance. The Renaissance now possesses many attributes of its predecessor but at substantially lower cost.

For this model, as well as the 770 Freedom and the 780 Argonaut, special Mission stands are available which lock into the loudspeaker and are offered as an optional extra. The Renaissance is recommended for use with amplifiers ranging from 30W to 120W per channel.

	MISSION 737 RENAISSANCE	MISSION 770 FREEDOM	MISSION 780 ARGONAUT
	30Hz–20KHz	20Hz–25KHz	20Hz–25KHz
	40Hz–20KHz ± 3dB	35Hz–20KHz ± 3dB	30Hz–20KHz ± 3dB
	8 ohms	8 ohms	4 ohms
Channel	30W–120 Watts/Channel	30W–150 Watts/Channel	50W–200 Watts/Channel
	90dB	92dB	94dB
Drive Unit – Ferrofluid	19mm Polymer Dome – Ferrofluid	25mm Polymer Dome – Ferrofluid	25mm Polymer Dome – Ferrofluid
Cone	215mm Polypropylene Cone	215mm Homopolymer Cone	2 x 215mm Homopolymer Reinforced Cones
	2.4KHz	2.0KHz	1.8KHz
	Removable	Removable	Removable
	4mm plug or wire	4mm plug or wire	4mm plug or wire
	30 litres	40 litres	50 litres
	540 x 250 x 270 mm	610 x 270 x 300 mm	710 x 270 x 300mm
	Walnut/Black	Walnut/Black	Walnut/Black

MISSION 770 *Freedom*

MISSION 780 *Argonaut*



Mission 770 Freedom

We are confident that the 770 Freedom is a worthy successor to our legendary 770. Our objective in replacing the 770 was to improve on that model in certain specific areas. Firstly, we wanted to ensure that the frequency range was even more extended. Secondly, our design team felt that the bass response could be tighter and with greater transient attack. Thirdly, we wanted to increase the available headroom so that at high power levels the system did not go into saturation. Finally, we wanted to increase efficiency for the era of digital master tapes.

For the mid/bass drive unit a brand new cone was developed made of an advanced high polymer material impregnated with certain minerals (the formula not being made public by Mission) to offer optimum mass, rigidity, Q and conic shapelessness – a further advance on polypropylene. The voice coil is manufactured using high temperature aluminium former and is carefully ventilated to increase power handling. The motor system is exceptionally powerful for the amount of magnet we have used and this has been achieved by careful geometric design of the pole piece which is turn is brass plated. This arrangement results in minimal magnetic flux wastages into stray fields. The driver is assembled into a sophisticated rigid magnesium die-cast chassis. The high frequency unit is carefully designed for extreme power and exhibits exceptional power/frequency response linearity and no major saturation at high levels. It is further oil cooled to avoid temperature related performance aberrations and for increased saturation thresholds. The cabinet construction is based on Mission's unique multi-folded geometry ensuring rigidity for low frequency transient attack without losing the very open and transparent mid band. The cabinet walls are viscously elastically damped to control and attenuate resonances and minimise stray acoustic output to ensure minimal acoustic phase distortion. The Freedom's low frequency behaviour is totally unusual for a reflex loudspeaker and this has been achieved by careful integration of the drive unit Qs in relation to the 37 litres of internal volume and the use of the Mission resistive reflex port.

On measurement the Freedoms are capable of exceptionally smooth, highly integrated c/f axis frequency response as well as the least amount of distortion we have measured in any other loudspeaker. Indeed, driven at 100% mid band distortion is close to 0.1%!

The Freedom is a powerful expression of Mission's experience and technology. Subjectively, and when used in conjunction with good quality ancillary equipment, the results are exhilarating and most realistic. The Freedom has optional stands as pictured above and is recommended for use with amplifiers ranging from 30W to 150W per channel.

Mission 780 Argonaut

The 780 Argonaut is a brand new Mission product. It is important to point out at this stage that by the nature of its design the Argonaut presents amplifiers with both complex and difficult loads. That is to say, the characteristic impedance at certain frequencies can drop to around 3.5 ohms and even though the phase shift angles are kept to a minimum and for the most part the impedance is purely resistive, nevertheless this can present problems for ordinary amplifiers. This means that only exceptionally well designed amplifiers should be used to drive the Argonauts otherwise the sound quality will be poor and the amplifier could suffer damage. Many good British and American amplifiers, however, are designed to deal with such loads and all Mission designed amplifiers, including the little Cyrus I, are perfectly capable of driving the Argonauts.

The Argonauts are truly exceptional speakers unmatched by any other model at any price. Firstly, for 2.83V of input a single Argonaut produces approximately 94dB of output measured at 1 metre. Secondly, whereas speakers of such sensitivity always lack deep bass, the Argonauts are extremely well extended in low frequencies. Thirdly, whereas nearly all ultra high efficiency speakers use light paper for their cone material and suffer the associated colorations, the Argonaut uses modern polymer based engineering materials and has no significant audible or measured colorations or distortions. The whole speaker is manufactured from MDF rather than conventional chipboard and the walls are visco elastically damped.

The Argonaut has many common features with the 770 Freedom. It parallels up two of its 8" drive units (see 770 Freedom) for mid/bass frequencies and the tweeter takes over at 1.8 KHz to handle the high frequencies. Such low crossover frequency combined with excellent dispersion characteristics of the tweeter result in breathtaking stereo stage such that when the speakers are correctly positioned there is no audible evidence of point source left and right channels. Rather, the system achieves the true definition of stereo – a solid three dimensional stage with tremendous front to back imaging (without any tunnel effect) and no interrupted left to right sound stage. When this happens the speakers effectively "disappear". Such 3-D musical stage is then combined with the Argonaut's awesome dynamic range to produce what Mission designers call Magic!

Special optional stands are available from your dealer which fix into the 780 and we would recommend these speakers for use only with very high quality British and American amplifiers.

Cyrus Electronics

Design Philosophy

The design of a good amplifier remains more obscure and more complex than the design of any other component in the high fidelity chain. In recent years the requirements for the operation of a good amplifier have been the subject of extensive research by academics and manufacturers alike resulting in a new understanding of some of the more important parameters. The problem is somewhat compounded by the substantial improvements made to front-end inputs such as advanced 'turntable-arm-cartridge' combinations, digitally synthesised FM tuners and, of course, the advent of quality compact disc players such as the Mission 7000. Additionally, modern loudspeakers have become far more complex in terms of load factor than their predecessors making the job of the amplifier increasingly more difficult. Hardly any amplifier designed in the 1970s is capable of driving such sophisticated loudspeakers as the Mission Argonauts. Indeed, you will find that the small Cyrus One drives complex speaker loads better than many amplifiers with ten times the power output and sometimes costing ten times as much! The secret lies in appreciation of fundamental design parameters, as well as intuitive, somewhat inspirational application of 'black art'.

You see, there are serious differences between live music and hi-fi. At first people thought these could be dealt with by improving 20 or 30 simple specifications, but as these improved many listeners became more aware of the shortcomings and less satisfied with hi-fi. Indeed, improvements made to certain specifications have ironically turned out to be detrimental to the ability of the amplifier to reproduce music. A prime example of this is the power output specification. For the last 20 years Japanese companies and other commercial designers have been obsessed with giving you more 'Watts' for less money – and always at the expense of the current capability of the amplifier! That is to say, for any given power supply you have a 'see-saw' relationship between power output and current drive. For example, we could at no extra cost to you or ourselves, have designed the Cyrus One with power output in excess of 100 Watts per channel, and of course at the expense of the current capability of the amplifier. In fact, this is exactly how commercial manufacturers satisfy the irrelevant and superficial specifications drawn up by their marketing departments – who have little or no interest in the sonic excellence of their products. Amplifiers with poor current delivery are simply not capable of driving the modern loudspeaker, and unfortunately the problem doesn't just stop there.

Whereas years ago using poor front-end inputs and highly distorted loudspeakers, people could not hear the subtle and, at the same time, important differences between equipment, today such differences are being noticed by a great many. Whereas years ago we were obsessed with such superficial problems as distortion, colouration and power output, today we have the sophistication to research into musical notes themselves. The coherent reproduction of music is a function of such subtle and ethereal qualities that many listeners find hi-fi gives a different, somewhat disembodied interpretation of the original live performance.

For example, music may sound detailed and 'open' but nevertheless sterile and lacking in feeling. At the first encounter with such ideas the less knowledgeable reader may find the phenomena non-scientific and even absurd. However, through careful research carried out by the designers of Cyrus Electronics we can demonstrate both scientifically and musically the validity of these phenomena. For instance, the above mentioned problem of amplifier 'sterility' is associated with, among other causes, amplifier hysteresis due to poor circuit design, incompetent topology, or the use of low grade components. Take a musical note with a given decay characteristic. One high fidelity system would shorten the decay, cutting the continuity of the note, whilst another would over decay to such a degree that it would cause transient response delay to the leading edge of the

next note. The net effect of either aberration would be music which although not muddled, coloured and distorted, nevertheless may sound uncommunicative, incoherent and disembodied. You see, whereas in the 1970s we placed great emphasis on detail and information retrieval, today we have moved on beyond such simplistic concepts and are investigating the true art of the reproduction of music.

If we review another area of subjective performance our explanation will become more lucid. Take two amplifiers, one with uncontrolled, overblown, rather boomy bass and the second with over-damped, rather restricted bass. The subjective difference between these two amplifiers is that the first sounds rather slow and sluggish whilst the second initially sounds fast and impressive. However, both of them, in the long run, will sound quite boring and non-musical. The subjective reason here is simply that neither amplifier is capable of reproducing the musical time correctly. The first slows down the subjective beat and tempo in the music resulting in a tired and sluggish performance, whilst the second hastens the subjective musical time to such a degree that the reproduction loses elegance and majesty.

The important issue here is that music in itself is abstract, intangible and immeasurable, and the high fidelity chain extremely complex. The fundamentals of processing music signals through such a cumbersome series of components, materials, interfaces, conversion of energies etc. are not clearly understood. Laboratory designs, mathematical models and conventional measurements appear to be totally inadequate. To design on subjective grounds alone would also be dangerous. Therefore what is needed is a design that satisfies both criteria, and more importantly introduces the musical dimension.

The genius of Cyrus designs lies in their ability to transcend the classical pedestal ideas of dealing in simplistic specifications, meet the stringent requirements of the musical community, and incorporate music's spiritual and emotional dimension. In a tired world dominated by commercialism, consumerism, designed obsolescence and so much mediocrity your Cyrus amplifier will touch your mind and bring you breathtaking musical experience for many years to come.



Cyrus I

A British critic wrote "... the stunned look on the face of people who first heard the Cyrus One amplifier ..."; a leading Dutch reviewer went on to say: "Cyrus One is probably the best amplifier at any price; a most respected American reviewer added 'the more subtle qualities of Cyrus One can only be matched by the finest of American tube amplifiers'; and the French critics simply awarded Cyrus with 'Decibel D'Honneur'. Since then we have continued to read extraordinary independent test-reports from critics all over the world on this genius of a product. We have learned of astonished music critics replacing their costly 'super-amps' with the little Cyrus One. One can therefore only conclude that in its short history, since its introduction, the Cyrus One has become both a Reference and a living legend.

The Cyrus One is based on a revolutionary circuit design philosophy, details of which are beyond the scope of this brochure and in any case well guarded secrets. The design is then implemented with careful attention to circuit topology in order to minimise the number of components in the signal path and reduce their harmful effects. This 'straight-line' design is then manufactured to the very highest standards using components and materials beyond the reach of most competition. The power transistors, for example, are military grade, ultra-fast and very linear devices especially manufactured for Cyrus Electronics. The driver transistors are equally products of a British military semiconductor manufacturer. World class German produced passive components have been selected including extravagant polypropylene capacitors, polystyrene capacitors, and metal film resistors. The casing for the amplifier is precision injection moulded from a 'non-magnetic', 'non-electroconductive' metal substitute produced by Space Division of American General Electric.

All spurious and harmful stages, such as tone-controls and filters, headphone and loudspeaker switching, protection circuits and balance controls have been eliminated to make the amplifier a 'straight-line', no compromise, state-of-the-art design. The quality control standards are amongst the highest in the industry where every amplifier is tested along nearly 100 parameters on the most sophisticated Hewlett-Packard CAD-CAM systems available. The result is an extraordinary achievement called the Cyrus One integrated amplifier, elegant in appearance, without gimmicks, and capable of producing a breathtaking and spectacular sound stage when used with quality ancillary equipment.

Cyrus Two

The Cyrus Two is an even more sophisticated amplifier with a similar philosophy to that of the Cyrus One. The major differences between the two amplifiers are in the area of greater power output and even more importantly, superior current delivery capabilities. Furthermore, Cyrus Two incorporates one truly exceptional moving coil stage with emphasis on noise and hysteresis factors. Indeed, the MC stage is designed to work with esoteric cartridges often costing many times the price of Cyrus Two. Another unique feature of Cyrus Two is its ability to accept the PSX optional outboard power supply (not available for use with Cyrus One) and, when configured with the PSX, Cyrus Two is capable of competing directly with the finest and most esoteric American 'super-amps'. Independent test reports have frequently suggested that the only problem with Cyrus Two is its modest price tag, which may prejudice the most discerning of audiophiles who tend to look only at very expensive equipment. We suggest that you audition the Cyrus Two, possibly combined with the PSX, against the world's most esoteric equipment before you make your final decision.

Cyrus PSX

Given that the circuit philosophy is capable of reproducing magic and that really is what music is all about, and given that as we have already stated, Cyrus Two uses state-of-the-art components and manufacturing techniques throughout, there is only one other area of potential improvement – and that is in enhanced power supply capabilities.

Whereas the Cyrus Two has a superb internal power supply of its own, capable of unbelievable current delivery of 60 amps peak-to-peak, nevertheless the addition of the PSX can only improve things further. The PSX is manufactured in a similar case to the Cyrus Two, and plugs into the back of the Cyrus Two via an umbilical cord terminated with an XLR connector. The PSX transformer has been the subject of two years research and development and is the ultimate in toroidal transformer technology. The power supply reservoir capacitance is substantial and again the finest available components have been used. We are confident that the discerning music lover will not be able to better the performance of the Cyrus Two, using optional PSX outboard power supply, at any price.



Cyrus Tuner

The advent of digitally synthesised tuners has substantially improved the reception quality of FM broadcasts. A few problems however continue to persist in the design of most FM tuners. The most serious of these problems we consider to be sibilance in high frequencies and poor low-frequency performance. It is common knowledge that the low-frequency performance of tuners lacks authority, control, definition, and articulation — especially when compared to the latest generation CD players.

The objectives of Cyrus Electronics have been to produce an outstanding tuner where the FM section does not suffer the nagging problem of 'pitting' sibilance, and to give bass notes their rightful and necessary musical weight, tempo, and authority. The Cyrus Tuner is manufactured in a case of identical dimensions and appearance to the rest of the Cyrus range, and will suit the requirements of the perfectionist audiophile who owns either a Cyrus One or a Cyrus Two.

The design is based on microprocessor controlled digital frequency synthesised tuning, and provides 18 FM and 9 MW presets with CMOS memory back-up. The unit provides variable speed up/down scanning, automatic search as well as manual

tuning. Automatic FM mute is provided to eliminate irritating interstation noise. Quartz-locked tuning system is adopted for ultimate tuning accuracy and minimal frequency drift. An informative Fluorescent Tube Display electronically generates digital frequency readout, 'Tuning' indication, 'Stereo' reception and, when selected, preset channel number. For finest reception quality under adverse signal conditions the Cyrus Tuner has FET front-ends, dual-gate with automatic gain control (FM). The FM mixer oscillator is buffered to ensure high immunity to interference, and Ceramic filters are incorporated for high selectivity on both AM and FM wavebands. The Cyrus Tuner offers 'Sliding Stereo' decoder maintaining full channel separation on strong signals, and changing gradually to mono for fullstereois suppression on weak signals. PLL decoder circuitry produces a stable audio signal with optimum channel separation, and a SISC filter cuts out interference on stereo broadcasts.

Note: As mentioned earlier the products of Cyrus Electronics exclude harmful protection circuitry to ensure maximum signal integrity. Please be extremely careful not to short the speaker outputs on installation.

Note: Combinations of any two Cyrus products produce the standard rack width of 430mm to match your other equipment.



MISSION ELECTRONICS

The Mission DAD 7000 is an advanced third generation compact disc player and the first of its kind from a quality specialist manufacturer. In the light of great controversy concerning both the absolute standard of reproduction from CD players as well as tremendous variations between the machines from different manufacturers, Mission Electronics hung fire until the fundamentals of the technology had settled and until their own extensive research programme had resulted in what promises to be the world's most advanced CD player.

The Mission DAD 7000 is a 4 times over sampling machine with 16 bit resolution. The machine offers full facilities including motorised front loading tray with anti-jamming protection, studio class access time of average 2.5 seconds, full programmability of up to 99 tracks and in any sequence with repeat capability, queuing to within one second accuracy, automatic disc read after loading the CD, high speed forward or backward music search plus fine step adjustments. The Mission DAD 7000 also offers user-friendly ergonomics and full infra-red remote control.

Other technical features of the Mission DAD 7000 include two separate digital to analogue converters for true stereo reproduction, the unique Philips digital transversal pre-DAC filter as well as Mission's own patented post-DAC filtering. This sophisticated two stage filtering system combined with high sampling frequency results in a perfect audio band frequency response without phase shifts and other aberrations and with mathematically near-perfect impulse response and the associated transient performance. Here it must be noted that most machines on the market suffer from severe inter channel phase shifts or absolute phase shift, and in most cases both. The laser read system is a single focus design eliminating the dangers of manufacturing alignments or subsequent field disturbances. Unlike most inexpensive designs, the Mission DAD 7000 is manufactured into a most sophisticated set of pressure die-cast chassis and structures to ensure total stability and integrity of the fragile transport system and a subsequent reduction in reproduced errors. The machine is precision manufactured to the highest standards using high grade components to offer the best sound quality and long term user satisfaction.

Above all, Mission has a worldwide reputation for state-of-the-art in high fidelity and our design team are confident that the DAD 7000 meets Mission's stringent requirements for the ultimate in sonic performance.



Call Mission North America: Tel: (416) 673 3777

Head Demagnetizers

Q. I recently purchased a battery-powered head demagnetizer which operates in the same manner as the cassette-type units that produce an electronically generated, decaying magnetic field. The field is activated by a momentary pressure on a pushbutton switch. One simply holds the tip against the head, capstan, or guidepost for a 2 to 3-S interval; the decaying field makes it unnecessary to physically move the tip slowly and smoothly away from the head, etc. My question is, are these electronic demagnetizers as effective as the regular, line-operated (120-V a.c.) models?—Roy S. Kikuta, Mililani Town, Hawaii

A. To my knowledge, electromagnetic demagnetizers that operate off the power line can develop a more intense magnetic field and therefore operate more effectively than other types. But this does not necessarily signify that the other types, such as yours, are ineffective. The material of which the head (or other component) is made, degree of magnetization, design and quality of the other types of demagnetizers, and so on, are factors in how well these other types perform.

Azimuth Alignment Tapes

Q. About two years ago I purchased a TDK AC-337 cassette alignment tape, and recently I purchased a TEAC MTT-256 alignment tape. On each of my two cassette decks, which are of good quality, both of these tapes play back about 4 dB lower at 10 kHz than at 1 kHz.

There was a slip of paper with the TEAC tape stating that it conforms to the characteristic specified in IEC Publication 94-1, Fourth Edition. Is it possible that a new playback standard is in use? My old Nortronics AT-200 alignment tape plays back at the same level at 10 kHz and 1 kHz. If this is the case, one would have to increase the high-frequency equalization when using ordinary tape and when playing old libraries of music. Where could I get a copy of the aforementioned IEC Publication 94-1, Fourth Edition?—John M. Kaar, Menlo Park, Cal.

A. Azimuth-alignment tapes made by reputable companies do not necessarily agree with each other. For example, differences have been noted be-

*tween the TDK and BASF tapes. Hence, differences could also exist between the TDK and Nortronics tapes. Fortunately, according to Howard Robertson, who does *Audio's* tape and tape-deck reviews, these differences are smaller among the newer alignment tapes than among the older ones, and are beginning to approach the vanishing point.*

Perhaps the best answer to the problem of varying azimuth of different decks (or of the same deck over time), and therefore of different recorded tapes, is to have easily adjustable playback azimuth. An example is the Nakamichi TD-800 car-stereo unit (see the review in September 1984). Both Nakamichi's TD-1200 car stereo and Dragon home deck adjust themselves automatically for correct playback azimuth by eliminating phase differences between split sections of the playback gap for one of the tracks. Hopefully, an increasing number of decks will facilitate adjustment of playback azimuth, with an easy return to "normal."

When treble loss due to azimuth alignment is moderate, the treble control in one's audio system may be somewhat helpful. A graphic equalizer, which permits sharper correction over a narrower band, can be more helpful in this respect.

The address of the IEC is 1 Rue de Varembe, Geneva, Switzerland.

Generic Tape

Q. Have you come across the new "generic tape"? Does it offer quality for the money or is it a repackaging of the three-for-\$3 schlock?—Oliver Bassett, Omaha, Nebr.

A. What used to be called "white-box tape" in open-reel appears to be called "generic tape" in cassette. Those seeking high-quality results have usually been warned away from white-box tape. Such tape could be unsuitable for quality recording for a variety of reasons, such as poor slitting, inadequate lubrication, nonstandard bias requirements, or improper treble response. White-box tape sometimes consisted of rejected audio tape, sometimes of computer tape slitted to audio size. On the other hand, sometimes it consisted of perfectly good audio tape that, for one reason or another, was available at a bargain price.

The same or similar comments probably apply to generic cassette tape. Perhaps the wise course is to buy just one cassette—if that is possible—and see how well it works.

One reader, Robert Yeager of Avon, Maine, did just that with white-box tape, and has written of his favorable experience. He responded to an ad for 1,800-foot, open-reel tape at only \$1 per reel, and says that he found it to be "government surplus, mostly made by Ampex, used once, and bulk erased. It is of excellent quality. I have used countless reels with never a problem of any kind."

Anyone care to comment?

Repair or Buy?

Q. I have a four-year-old cassette deck which I purchased for \$250. It has three heads, Dolby B NR, signal-to-noise ratio of 61 dB with Dolby B, and rated frequency response of 25 Hz to 17.5 kHz with Type I and II tapes. Two years ago I had it repaired at a cost of \$78, and now it is in need of repair again. Recently I saw a deck for \$300 with two heads, Dolby B and C NR, signal-to-noise ratio of 71 dB with Dolby C, and rated response of 20 Hz to 18 kHz. However, I have been told that decks in this price class just do not put enough signal on the tape. Is this true? I would like your advice on whether to fix the old deck or purchase the new one.—John de Rosa, Mattapan, Mass.

A. I vote for a new deck. Even if another \$78 restores your present deck to satisfactory operation, the need for repair is likely to crop up ever more frequently as the deck gets older. And at best its performance won't match that of today's decks in your price range. As far as noise reduction is concerned, Dolby C will give you a worthwhile improvement over Dolby B, particularly if you play at high levels.

I have never come across the claim that inexpensive decks do not put enough signal on the tape. Of course there might be an odd deck somewhere that, through poor design or

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 principal aural clue to a deteriorated playback head is an audible decline in high-frequency response. But replacement is best indicated by measurement.

alignment, doesn't record at sufficiently high level. But basically, your fear is unfounded. On the other hand, there may be a misunderstanding. Perhaps what was meant is that the signal-to-noise ratios of the less expensive decks are not as great as those of the more expensive ones. This does tend to be true. One reason is that a deck with separate record and playback heads tends to have a somewhat higher S/N ratio, because its playback head can be designed for maximum output (as well as extended treble response). However, the S/N superiority of the expensive decks tends to be only about 3 or 4 dB. An S/N of 71 dB (with Dolby C), such as that of the deck you are contemplating, is very good.

NR Compatibility

Q. How do Dolby B NR and JVC's ANRS differ? To what degree are they compatible?—Russell Stepanchak, Columbia, Pa.

A. Dolby B NR and ANRS are more similar than different—similar enough to be generally considered compatible by many listeners. Results are usually satisfactory if one records with Dolby B noise reduction and plays back with ANRS, or vice versa. Both work on the principle of variable treble boost in recording and variable treble cut in playback; the treble cut restores response to flat (or nearly so) and at the same time reduces noise in the tape system. The two processes differ slightly in the time constants employed and the amount of boost and cut applied. In both cases, the amount of boost and cut decrease as signal level increases; thus, tape saturation is avoided or minimized.

Head Replacement

Q. I have read that cassette-deck heads need to be replaced periodically. How can one tell when this is needed?—Tim Colvin, Dixon, Ill.

A. Head life depends on the material from which the heads are made, the pressure of the tape against the heads, the angles at which the tape approaches and leaves the heads, and the tension exerted by the supply and take-up reels. A head's life can thus vary substantially. For most heads, according to various claims, it can range from 10,000 to as much as 200,000 hours of

use; some manufacturers claim only 2,000 hours.

The best procedure for checking the condition of the tape heads is by measuring their performance with the proper test instruments, and by visual inspection under magnification.

The principal aural clue to a deteriorated playback or record-playback head is an audible decline in high-frequency response, assuming that the head has been cleaned and demagnetized. (Thus, a person with excellent hearing in the very high-frequency range may desire earlier tape-head replacement than a person with limited hearing in the range above 10 kHz or so.) On the other hand, the decline in high-frequency response of a separate playback head may be due not to head wear but to a change in azimuth, either of this head or of the separate record head. Poor erasure would be a clue to a deteriorated erase head, and the presence of distortion might be a clue to a worn record head.

All in all, the time for head replacement (and/or alignment) is best determined by instrument, and not by ear.

Mystery Hum

I'm forced to summarize a problem, because several letters went back and forth before it was solved. The original complaint, from Thomas P. Madero of Ozone Park, N.Y., was that his two tape decks, both of the same make, hummed severely in both playback and recording. Mr. Madero tried all the usual solutions: He inverted the power plugs of his decks in the a.c. outlets, disconnected the ground pigtails of his audio cables, took one deck out of the system, and disconnected his receiver from its earth ground (an I-beam in his basement). Nothing worked.

I suggested that, since the hum occurred with two decks of the same make, the problem might be a design fault, such as a defective filter capacitor, or that it might be in his receiver. I advised that he have these components checked.

Meanwhile, Mr. Madero took his components to a friend's house, where the hum disappeared. When the system was assembled back home, the problem reappeared.

I suggested that Mr. Madero borrow a friend's deck and receiver to substi-

tute for his own, thinking that this would uncover the guilty component. I also suggested using different cables between the decks and the receivers, and that the plugs be twisted back and forth a few times after insertion into the jacks, to ensure that they made good connection. As an afterthought, I asked if Mr. Madero had changed the locations of any of his components.


At that point, he wrote the following to me:

"I am happy to inform you that my problem has been solved: Stacking. I failed to tell you that I had my components stacked one atop the other. When my tape decks checked out okay at the factory repair place, the technician and I both thought my receiver must be at fault. The technician graciously checked my receiver for me, but found nothing wrong. I was ready to send it to its manufacturer when the technician said, 'By the way, where do you keep your equipment?' When I told him, he smiled and said, 'Let me show you something.' He set my deck atop a receiver, and—lo and behold—the hum appeared. My components are now properly located, and I am enjoying music again."

Speed Control

Q. My cassette deck runs about a quarter-tone fast. Can this be corrected? Better yet, can I make or buy a variable-speed unit for it?—Ward G. Erwin, Kissimmee, Fla.

A. While it is possible to build a speed control, this would require a fair amount of effort, technical knowledge, and expense. Articles have been written on the subject, such as the one by Gary McClellan, "Programmable Control," in the April 1981 issue of *Popular Electronics*. I do not know of any speed control unit on the market.

Have you consulted the manufacturer of your deck about your problem? Or an authorized service shop? Sometimes a fairly simple change is all that's needed, such as installing a pulley of slightly different diameter in the transport mechanism. If your deck truly runs about a quarter-tone fast, this corresponds to an error of about 3%, which is far outside the usual tolerance. Most cassette decks stay within 0.5% of correct speed. So you do indeed have a legitimate gripe. 

CARVER



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.

FOUR TECHNOLOGIES THAT HAVE CHANGED AUDIO FOREVER AND THE MAN WHO MADE THEM POSSIBLE.

"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.

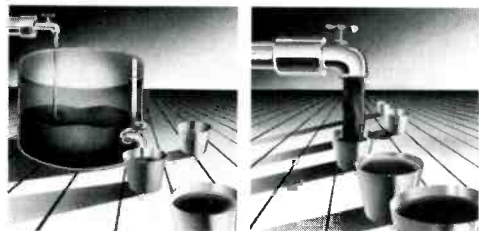
Unlike other companies, which have felt compelled to constantly release streams of me-too products incorporating scarcely discernable "breakthroughs", Carver has slowly and deliberately set about to solve previously unsolvable problems. Problems which have limited musical enjoyment and distanced the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

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

CARVER

PO Box 1237, Lynnwood, WA 98046

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.

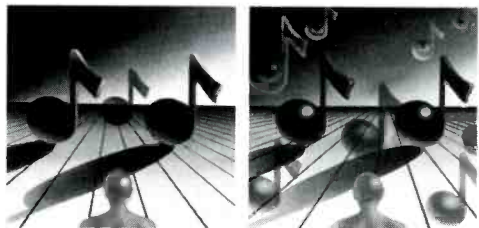
"Why do powerful amplifiers have to be

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.

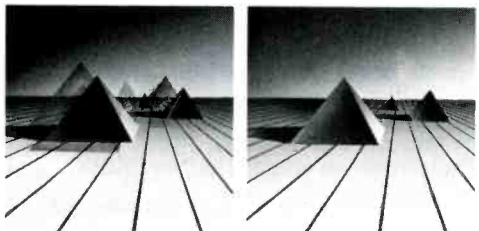
"Why can't the sound field be expanded

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 10 and 11.

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.

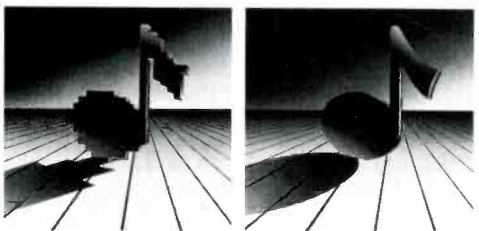
He knew that the method used to broadcast stereo FM was inherently deficient, having been designed for mono transmission and later "patched" to allow for stereo. Thus, conventional improvements in tuning circuitry were of little avail since they actually increased the

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 14 and 15.

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 22 and 23.

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.

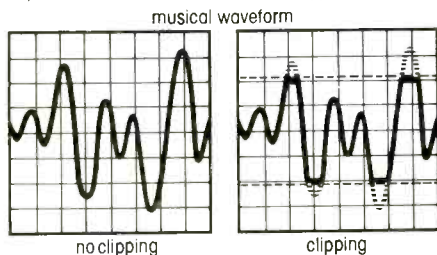
The most basic audio problem has been and always will be how to turn electrical energy into physical waves of sound.

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.

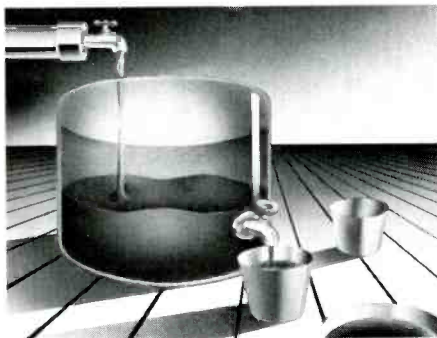


Even though most clipping happens as the amplifier is trying to complete a bass waveform, audible distortion is generated in the treble range. Called clipping distortion, these impulses are spikes of non-musical, high frequency power caused as the amplifier hits the bottom of its power reserves. At moderate 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: $V2 = 80 (n1/n2)$. 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: $(V1 - V2) = -L di/dt$.

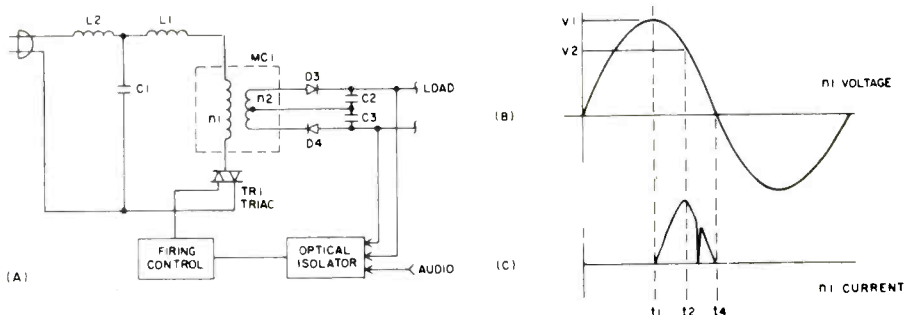


Fig. B1 — Theory of operation of Magnetic Field Coil.

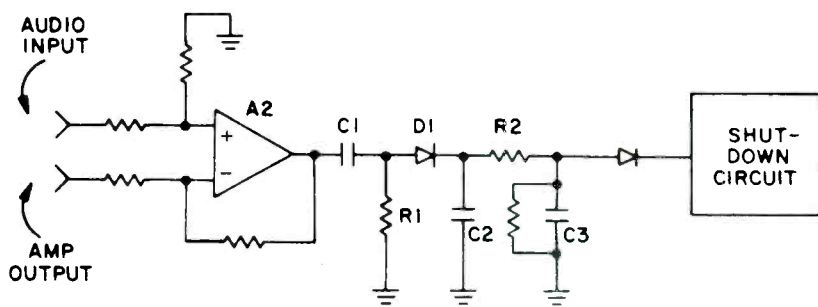


Fig. B6 — Clipping detector circuit.

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.

Reprinted with permission from Audio Magazine © CBS Inc. 1980

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 underpowered 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 $\frac{1}{2}L1i^2$, where i is the current flowing at time $t2$. The amount of power that would otherwise be wasted is: $\text{Power} = \text{energy}/\text{time} = \frac{1}{2}L1i^2/t = \frac{1}{2}L1i^2/(t2 - t1)$.

At time $t2$, 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 $t4$ 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.

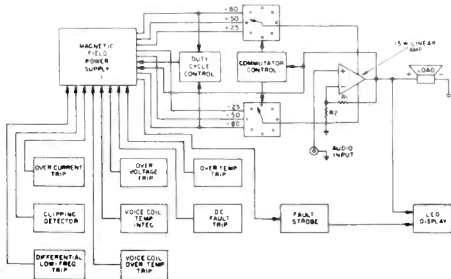


Fig. B5 — Block diagram of Carver Magnetic Field Amplifier.

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.

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.

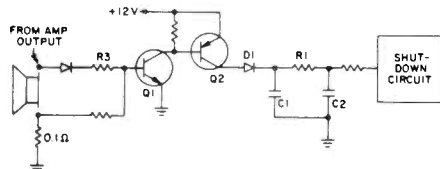


Fig. B7 — Voice-coil temperature integrating circuit.

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 $\int v i dt$, the volt-amp-time product, increases faster for high frequencies than

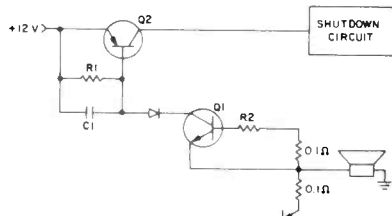


Fig. B9 — Shutdown circuit.

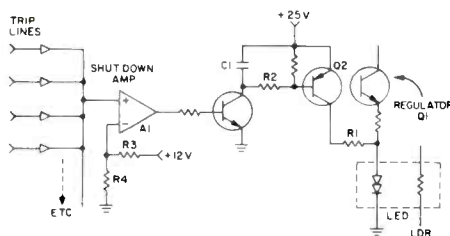
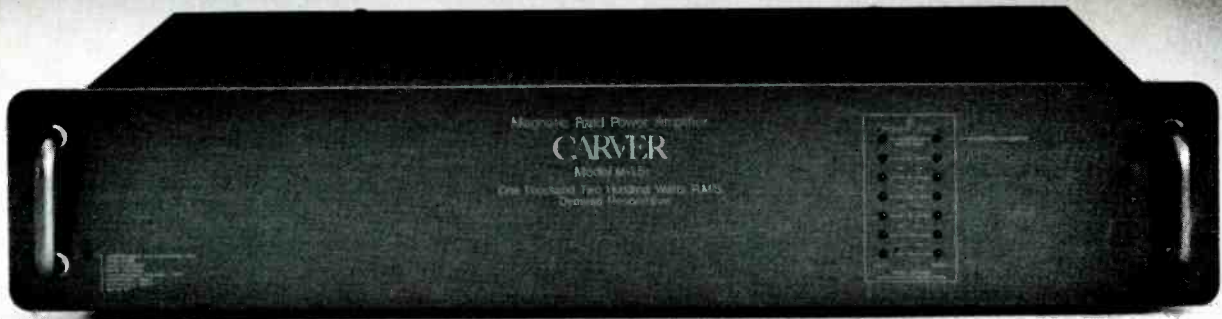


Fig. B8 — Overcurrent trip circuit.



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 one thousand two hundred watts? Music is full of surprises such as explosive crescendos, combinant 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 in between, 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 diagnostic 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

Power @ Clipping: 550 W/channel into 4 ohms; 430 W/channel into 8 ohms

600 W/channel long term power into 8 ohms

S/N: >100dB IHF A-weighted

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

I.M. Dist: 0.15% SMPTE

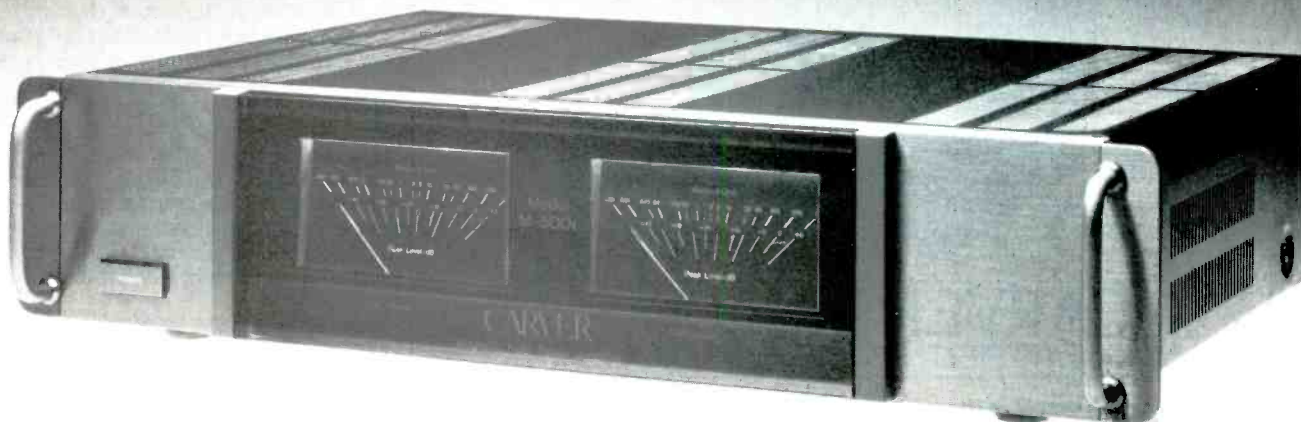
Slew Factor: >200

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: 3½"H, 19"W, 10½"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

Power @ Clipping: 350 W/channel into 4 ohms; 270 W/channel into 8 ohms

Bridged Power: 700W at 8 ohms

S/N: > 100 dB IHF A-weighted

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

I.M. Dist.: .05% SMPTE

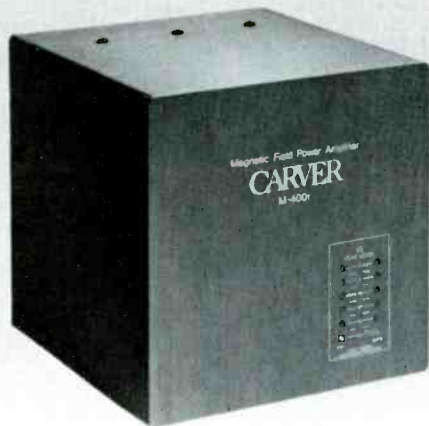
Slew Factor: > 176

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 pre-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 barely 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 3/5" cube, Weight 9 lbs.



CARVER Z-1 WIDE BAND Z COUPLER

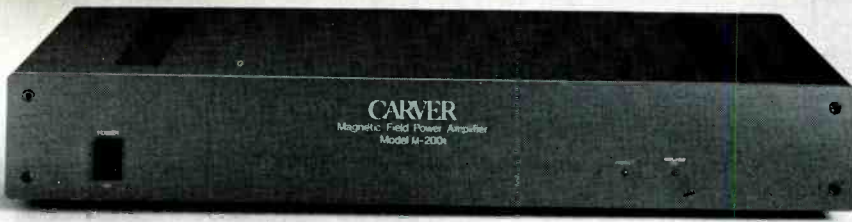
While CARVER Magnetic Field Power Amplifiers are usually found in systems which are controlled by a preamplifier, a growing number of serious audiophiles with modest budgets utilize a Magnetic Field Power Amplifier (connected through a CARVER Z-1 Wide Band Z Coupler) with low-power receivers or integrated 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"



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 CAR AMPLIFIER M240 MAGNETIC FIELD POWER AMPLIFIER

The Carver Car Amplifier introduces Magnetic Field Amplifier technology to autosound. Finally, the traditional weak link between car stereo decks and modern speaker technology has been replaced with Carver creativity. Into less than 1/10th of a cubic foot, Bob Carver has engineered a complete 120 watts RMS/channel amplification system with the fidelity, accuracy and musicality that critics and audiophiles alike have come to expect from his designs.

Essential Power. Unlike traditional car amplifier designs which must derive their power directly from the host vehicle, Carver Magnetic Field Amplification need respond only to the input signal. 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 drains,

but produces the large amounts of wattage 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. With the Carver Car Amplifier, 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 240-watt RMS 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 for a 240-watt/channel car system which will truly do justice to digital without taxing your car's electrical generation system.

Innovative Power. Finally, someone 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, Bob Carver has added a subsonic filter which removes inaudible but 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 unit has powered up, to eliminate startling pops and thumps.

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 called simply, The Carver Car Amplifier, M240.

Specifications M-240

Power: 120 W/channel into 4 ohms, 20Hz to 20kHz, with no more than .15% THD (ref. 13.8 VDC)
Power @ Clipping: 138 W/channel into 4 ohms
Bridged Power: 240W at 8 ohms, 150W into 4 ohms
S/N: > 100dB IHF A-weighted
Freq. Bandwidth: +0, -3dB 1Hz to 100kHz
I.M. Dist: .15% SMPTE
Slew Factor: > 30
Display: Remote on LED
Input Sensitivity: 250mV-4V (variable)
Protection: Short Circuit; Internal Fault; DC Offset; High Frequency
Subsonic Filter: -3dB at 15Hz
Crossover: 115Hz, 18dB/octave
DC Power Supply Voltage: 11-15V
Dimensions: 2.3"H, 12.45"W, 6.0"D, Weight 6 lbs.

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.

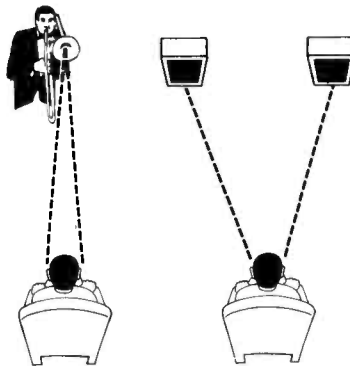
As one reviewer put it, "The effect strains credibility... the miracle is that it uses only the two normal front speakers."

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.

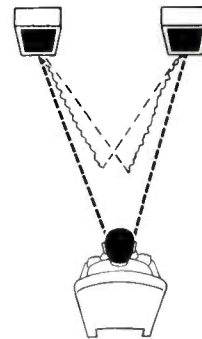
Unfortunately, there was one live instrument... but there are two speakers. A fraction of a millisecond later the sound from the left speaker, after filtering by the acoustic shadow of your head, arrives at your right ear; and similarly the sound from the right speaker arrives at your left ear. Not so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



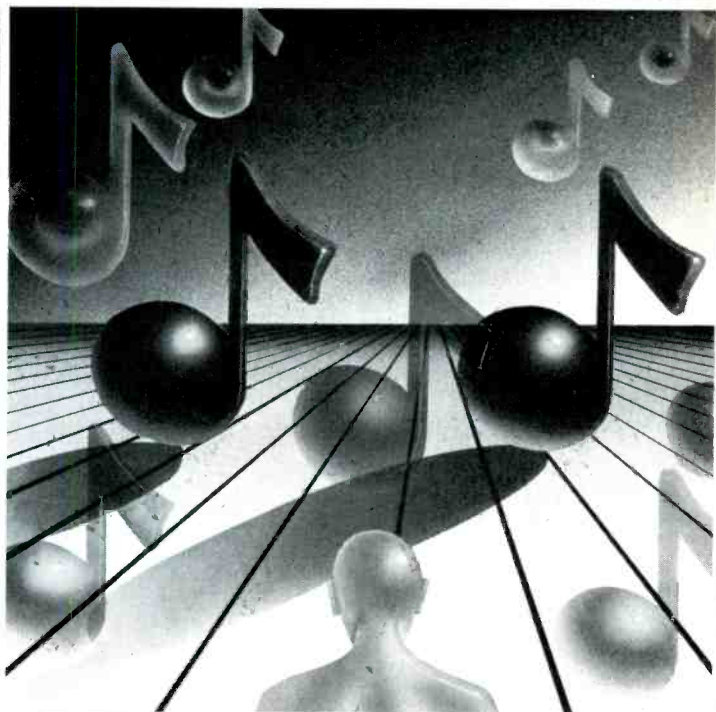
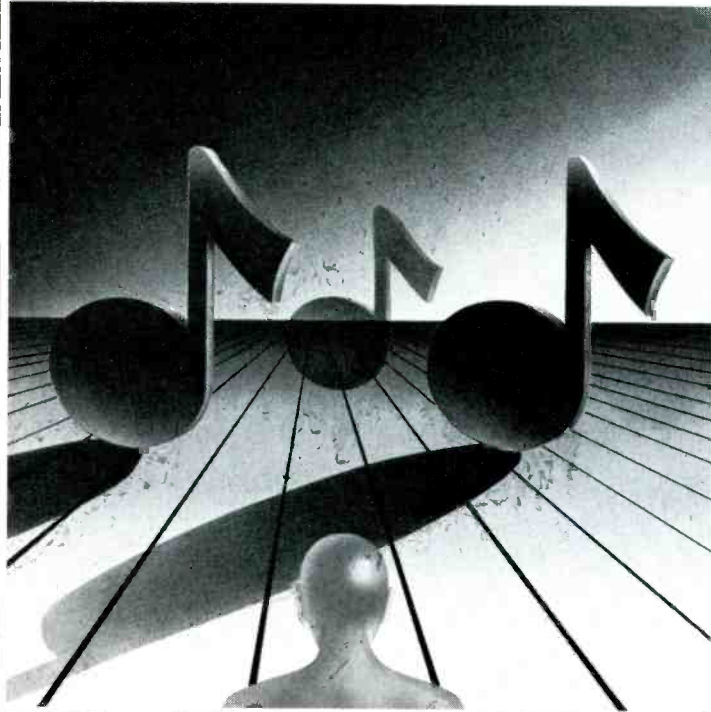
Remember that in the "live" listening experience the single sonic event produced just two arrivals at the ear; the delay and frequency spectrum differences between the arrivals at the two ears are the primary cues which the brain uses to determine the direction of the sound source.

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 buttons and knobs is, first and foremost, one of the finest audio pre-amplifiers in the world. Although the 4000t can combine up to five separate functions to recreate the vivid reality of live sound, its primary role is that of a fine "straightwire" pre-amplifier dedicated to perfectly amplifying real-world musical signals without a trace of distortion.

Its phono stage lets you match virtually any cartridge to the ultra-sensitive phono pre-amp stage where infinitesimal impulses from your cartridge are translated into line level voltage. Not only does the 4000t allow capacitance matching between itself and the cartridge/cable load, it eliminates a main source of noise and distortion in the bargain.

As the signal passes through successive stages it retains fidelity to the point where one watt of real-world output results in just 0.000000251 watts of distortion. Zero normalized phase shift. Zero group delay. Noise performance within 1dB of the theoretical limit of real-world cartridges. No slew limiting. No overload.

A superb range of controls. There are separate tone controls for each channel, plus a choice of turnover frequencies and a defeat for instant comparison. A 12dB/octave infrasonic filter helps eliminate speaker cone flutter and distortion caused by warped records, acoustic feedback, and tonearm resonance, there is a discrete headphone amplifier, and a speaker mute switch which allows you to cut sound momentarily without changing the master volume control setting. A stereo-mono switch instantly checks for cartridge and speaker phasing errors. You can dub between two tape decks interchangeably. Additional external processors may be added at any time and switched from the front panel. And of course ALL sound processing circuitry is instantly defeatable for comparison and for the pursuit of eternal flatness, may it exist in all our hearts and longings.

Yet we think there is more to reality than flatness...

Consider the nature of music. Music arrives at our ears in-phase, alive with all nuances of the reverberant room, the crisp dynamics of instruments, the position, sound quality and even natural spectral frequency responses all vivaciously present. It was this challenge of reproducing reality which set Bob Carver to creating the complete 4000t.

The achievement of Sonic Holography. Consider each sonic event of a musical performance. For example, when a drum strikes a note in front of you, each ear receives a sound arrival which tells it just where that drum is in space: one sound source; two sound arrivals. A pair of speakers attempt to deceive your ear with two sound arrivals just like in real life. But then each ear gets another sound arrival from the opposite speaker. Two sound sources; four sound arrivals. Confusion.

Sonic Holography generates yet another set of signals which *exactly cancel* the spurious second set of sound arrivals. Your ear again hears true sound with two sound arrivals.

Sound suddenly bursts forth wider than your speakers. Higher (and lower) than your speakers. Closer and farther back—even to the sides of you. Instead of a tiny window, the image of sound is a giant panorama, freeing you from the room's dimensions.

Example: "Time" from Dark Side of the Moon by Pink Floyd. Each clock is individually



CARVER 4000t HIGH FIDELITY CONTROL CONSOLE

discernible. Did you know that they were set up in rows?

Example: Suite in F by Holst. You can discern the position of the first and second trumpet sections and even the three saxophones. The tuba's valve sounds are discernible *below* the sound emanating from his bell!

Example: Your favorite music, no matter what your tastes.

Restoring the hall: Time Delay. Along with the sound field in front of us, we must consider the total listening environment including reflected sounds received from behind us. These place us within the listening environment, giving depth and dimension, immersing us in sound.

The 4000t time delay system is designed to re-create this larger feeling of acoustic space with a special processing circuit. This requires just two inexpensive speakers and an auxiliary amplifier which may be unobtrusively placed behind the listener. Adjustments allow you to control the "size" of the environment you wish to simulate; a line level output is provided.

Correcting digital software: The Digital Time Lens. The Digital Time Lens adds the finishing touches of sonic accuracy and realism to Compact Discs. It turns an innovation into near perfection by correcting the ratio of L - R to L + R and restoring the octave-to-octave balance of the original performance. You will hear not only the greater dynamic range, quietness and richer bass you expect from compact disc technology, but also the musicality, spectral balance and spacial qualities of well executed high fidelity stereophonic reproduction.

Eliminating the noise: The Autocorrelator Noise Reduction System. Tape, record vinyl and even your electronics inevitably add hiss to music. Eliminating this final veil between you and reality is achieved by a special circuit which discriminates between random noise and musical information, stripping hiss from 2kHz to 20kHz. Non-random, low

frequency noise such as hum and rumble are removed by a level-sensitive dynamic filter that operates below 200Hz. Music emerges from an almost silent background.

The Carver 4000t as an instrument. With SONIC HOLOGRAPHY, Time Delay, Autocorrelator and Digital Time Lens features, the Carver 4000t opens up the opportunity for truly realistic sound reproduction. And you are in control.

- Precision, gold band, laser trimmed resistors.
- 24K gold contacts on all mating surfaces insure perfect signal transfer.
- G-10 glass/epoxy circuit boards insure electrical stability year after year after year.
- Precision machined (not stamped) metal parts.
- Sealed, lubricated switches eliminate noisy switches over the lifetime of the instrument.
- High clamping pressure, hot molded external connectors with dual wipers insure absolute electrical contact.

Specifications 4000t

Distortion: THD 0.05%/1HF IM 0.003%/TIM 0.0%
S/N: 98dB

Phono 1: 89dB re 5mV @ 47 ohms

Phono 2: 84dB re 5mV @ 47k ohms

Freq. Resp: +0, -3dB, 1Hz to 60kHz

Equalization: ± 6dB at 8kHz and 2kHz/ ± 6dB at 40Hz and 150Hz

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

Infrasonic Filter: 12dB/octave from 15Hz down

Time Delay: 26 msec front to rear placement

Dimensions: 6¾"H, 19"W, 8.5"D, Weight 11 lbs.



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 multi-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-6000 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.

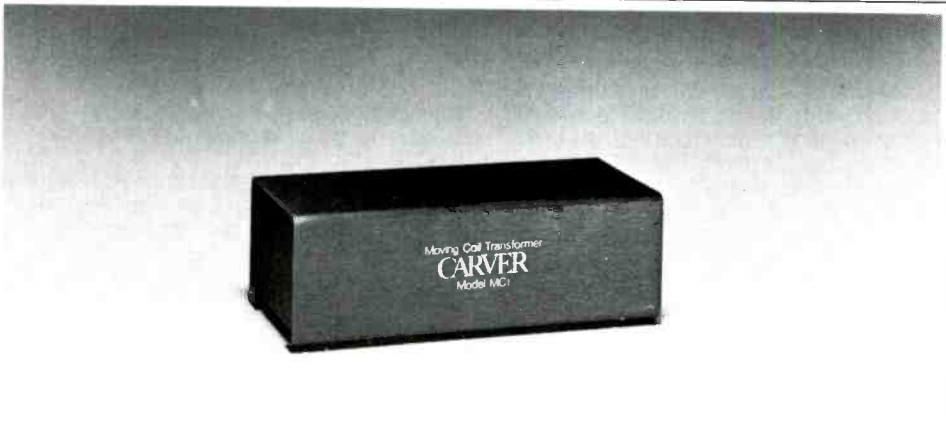
In reality, sound approaches you not just head on but from the sides and from behind. It reverberates through a room, giving you cues as to not only the position of the performers but your position as well. Incidentally, this sort of sonic information is not limited just to classical music recorded in 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 1/4" x 3 3/4" x 17", 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 MCT can be switched to perfectly match the desired impedance of any fine moving coil cartridge.

Massed instruments and voices resolve into individual yet interwoven points of sound. The intricacies of harmonics, overtones and ambience 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.

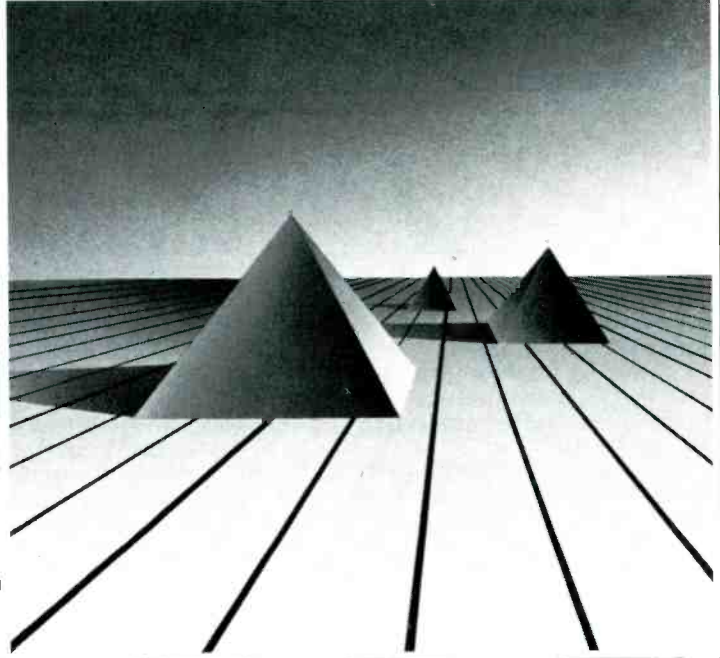
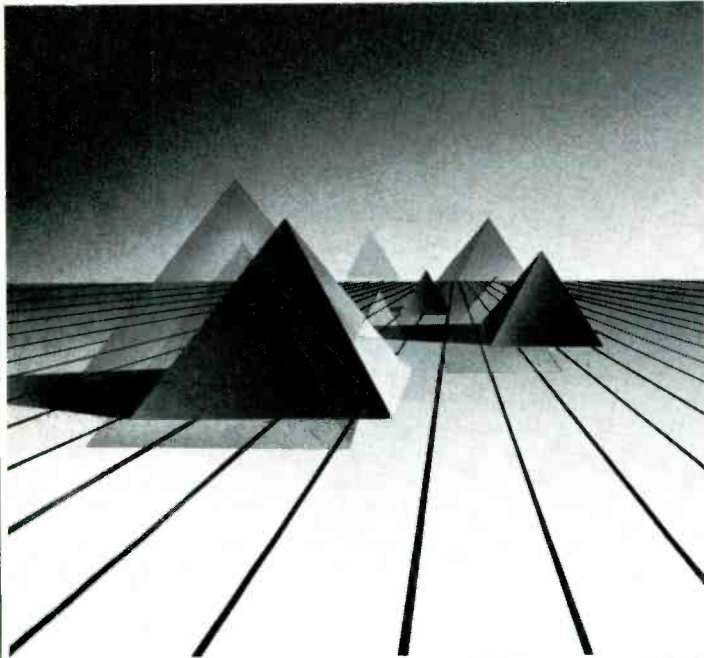
Audition the remarkable MC-t at your Carver dealer soon and learn what moving coil technology can do for the sound of your favorite music.

Specifications

- Dimensions:** 6" wide, 2" high, 3" deep.
- Weight:** 1 lb. 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

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.

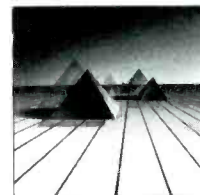
Because any protruding mass—hills, mountains, skyscrapers, other antennas, even bridges—looms up to reflect signals while on their way to your tuner.

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

CAUSE 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 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. 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 psycho-acoustic 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 that the sturdy L + R signal. And out of that, only 5% is really telling our ear-brain center anything important about imaging, spacial 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*

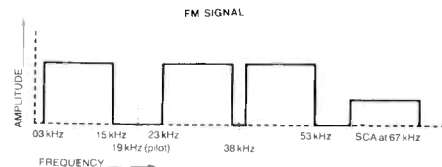
"Its noise reduction for stereo signals ranges from appreciable to tremendous. It makes the majority of stereo signals sound virtually as quiet as mono signals, yet it does not dilute the stereo effect." Julian Hirsch, *Stereo Review*

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 ever 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

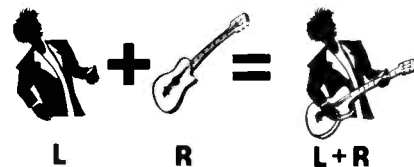
L - R signal is encoded into a subcarrier at 38kHz, two and a half octaves above the upper range of human hearing. In the encoding process, this subcarrier is cancelled out leaving two sidebands. Each is 15kHz wide and also well above the range of human hearing.

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.

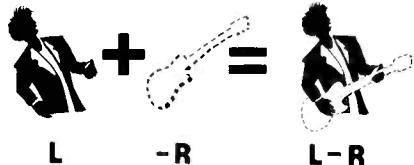
At the receiver the signal is added and subtracted to produce two different channels.

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.

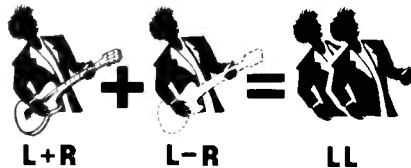


Your FM receiver gets both of these signals, one at 30 Hz to 15kHz and the other in the two sidebands up at 23-38kHz and 38-53kHz. After decoding them, they are processed two different ways.

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:
 $(L + R) + (L - R) = L + R + L - R = 2xL$
 $(L + R) - (L - R) = L + R - L + R = 2xR$

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-11

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

Finally, an FM stereo tuner which can drastically reduce multipath and distant station noise and still provide fully separated stereo reception with space depth and ambience.

A rich, textured sound as it was intended thirty years ago.

Thirty years?

Yes. Back then, FM was a noise-free, wide-band alternative to thin, static-filled AM. But it was monophonic and by the Fifties stereo was the new recording standard.

Unfortunately, the transmission system selected to turn mono FM into stereo ended up degrading the ratio of signal to noise FIFTEEN TIMES! (More than 23 dB) That's the system we live with today: hiss and distortion-filled unless you're in direct line with a strong station.

Understanding FM.

Stereo FM is not like a 2-track cassette with separate signals next to each other. Rather, there is a Left-Minus-Right and a Left-Plus-Right signal. (A receiving circuit adds and subtracts the sums and differences to get Left-only and Right-only Signals.) Left + Right comes in just fine because it's mono. It's that Left - Right signal (stereo information) that's to blame because it's extremely prone to "mishaps" on the way to your home.

Audio Ghosting. To get stereo FM perfectly, you'd have to be in the only house in the middle of a vast flat plain with no other buildings anywhere. Any protruding mass—(hills, skyscrapers, other antennas)—looms up to reflect signals while on their way to your tuner, resulting in two signals.

One directly, and one a fraction of a second later, after it's bounced off something.

The result is not only scratchy reception but rhythmic pulsing of the sound (called "beating") and whole new noises caused as conventional receiver circuitry wrestles with the interference.

Not even the most expensive traditional tuner circuitry can conquer these problems because none of them approach the problem the way Bob Carver's TX-11 does.

Charge-Coupling, the "Find and Cancel" circuit. Almost all noise and distortion is exactly 180 degrees out of phase with itself. For every instantaneous noise or distur-

tion voltage, there is a replica in the opposite channel.

Simply put, the TX-11's Charge-Coupled circuit detects these tell-tale, dirty mirror images and cancels them before they reach your ears.

If that sounds like we're eliminating the L - R channel entirely, we're not.

While 85% of the information carried in the "dirty" L - R channel is duplicated by "clean" L + R signal (and can be edited out by our Charge Coupling circuit), 15% is the critical phase relationship information which produces ambient stereo.

Stopping at 85% would give us stereo plus 15% distortion; knocking off 100% would be mono. Here's how we achieved mono quality with stereo ambience.

The Leading Edge Detector. While studying the relationship of ear and brain during development of Sonic Holography, Bob Carver discovered that only one third of non-redundant L - R information (1/3 of 15%, or just 5%) is required to convince our senses of a fully separated stereo experience. But only if that 5% is properly electronically processed.

The Carver Leading Edge Detector operates on just that part of the L - R signal required for our ears and brain to construct true stereo localization. By blending that 5% back into the TX-11's signal matrix, a net reduction of 93.5% or in excess of 20dB of noise reduction is achieved!

All of the ambient and localizing information is recovered.

Without the hiss.

Without the distortion.

Sixteen presets for a reason. The reason you'll appreciate no less than sixteen different instant FM listening choices.

You'll suddenly pull in stations in surprisingly distant cities and suburbs. Underpowered local 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 tantrums of intolerable racket will be pacified.

The TX-11's special circuitry can't make weak stations louder—you'll have to do that with your volume control—but when you do

turn up a feeble station it will be clean and clear.

Quartz synthesis. The TX-11 uses an incredibly precise circuit which generates a perfect replica of the desired FM frequency and then matches it to the incoming signal for perfect drift-free reception.

Digital tuning... Digital readout. Touch the UP or DOWN button and the tuner automatically stops at each FM station it can adequately tune.

The TX-11 remembers. Not only will it store sixteen stations even when unplugged for up to three weeks, it also remembers the last station you played before it was shut off.

Wide and narrow band selection. In areas with many signals, FM frequency bands can end up close enough to cause interference. The Narrow setting eliminates bleedthrough from other stations without losing frequency response. Use the Wide mode when such interference is not a problem to receive slightly greater dynamic range.

Full instrumentation. Not only does the TX-11 digitally display station response, it also reads out six, 10-dB signal strength stops, indicates when the quartz circuitry has closed on a station and when a stereo station has been detected.

How to sell yourself a TX-11. Visit your dealer and ask to hear the most expensive, famous or esoteric tuner he sells. Tune to a multipath-ravaged, hiss filled station and compare the sound to the affordable Carver TX-11.

Now press TX-11's Multipath and Noise Reduction Circuits. And appreciate what Carver technology has done for the FM tuner.

Specifications TX-11

IHF Sens: 1.0uV
 50dB Quiet in Stereo: 3.1uV
 Distortion: .05% THD
 S/N: 82dB
 Freq. Resp: 20Hz to 15kHz + .1dB
 Stereo Separation: 45dB
 Alt. Channel Select:
 Wide 110dB
 Narrow 35dB
 Capture Ratio: 1.0dB
 Noise Reduction: up to 23dB
 Multipath Reduction: 14dB

Dimensions: 17.5"W, 3.5"H, 12.5"D, Weight 11 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: 1.8uV
50dB Quiet Sens in Stereo: 5.0uV
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: 20uV
S/N: 55dB
Distortion: 0.9%
Selectivity: 42dB
Image Rejection: 45dB
I.F. Rejection: 34dB
AGC Figure Merit: 50dB

ALL SPECIFICATIONS OR FUNCTIONS SUBJECT TO CHANGE WITHOUT NOTICE.



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.

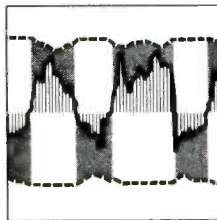
Press the POWER button. Two hundred watts RMS per channel comes alive. Enough to give Compact Discs the impact and clarity they deserve. As the music comes to life, you realize it would be a superb candidate for Sonic Holography. Another touch of the remote control and you're suddenly at the performance, 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.

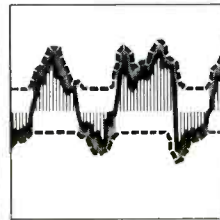
Defeatable tone controls are provided for bass, midrange and treble as well as a preset "loudness" equalization curve for accentuation during low level listening.

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.



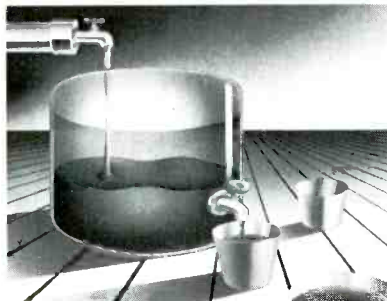
Conventional power amplifier.



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

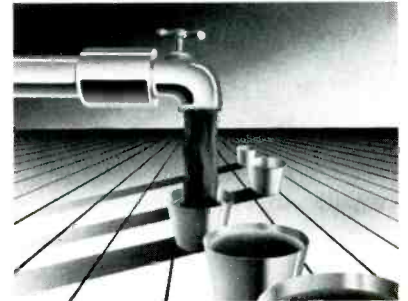


Conventional amplifiers must store massive amounts of power in reserve.

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 130 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 130 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, combinator 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 130 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

stereo 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 tantrums 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: 130 W/channel into 8 ohms, with no more than .05% THD

Power at Clipping: 157 W/channel into 8 ohms
Slew factor: > 80

Frequency Bandwidth: 1Hz to 30kHz \pm 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 \pm 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 NINETY 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 ninety 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. Defeatable 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: 90 W/channel into 8 ohms, 20Hz to 20kHz, with no more than 0.15% THD

Power at Clipping: 108 W/channel at 8 ohms

Slew Factor: > 80
Frequency Bandwidth: 1Hz to 30kHz \pm 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 \pm 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

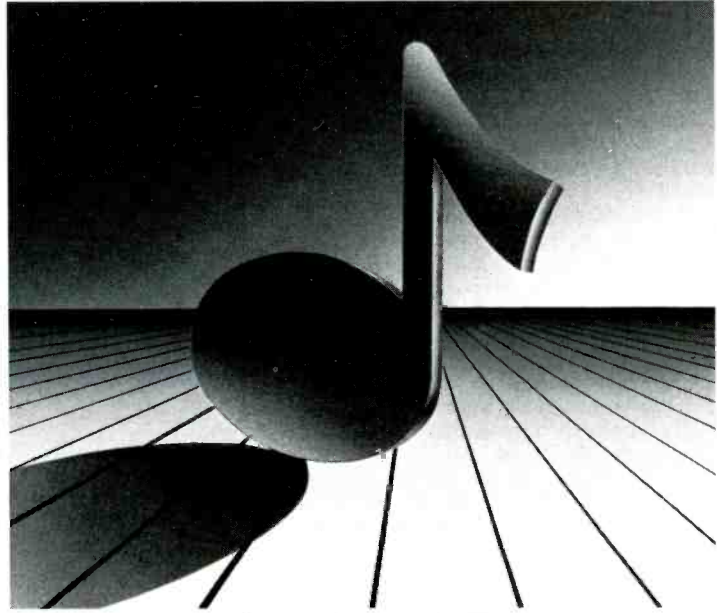
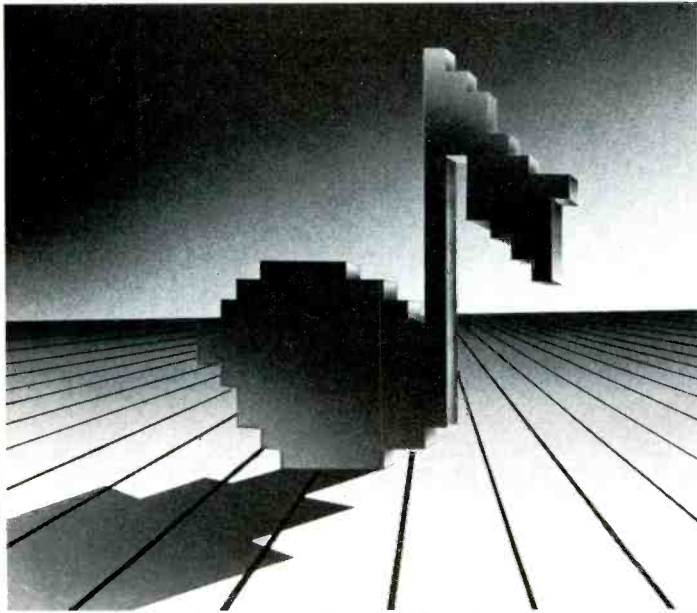
PREAMP:

Distortion: .05
S/N: 90dB
Freq. Resp.: 20 Hz to 20kHz \pm 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 μ V 300 ohms, 11.3 dBf/2.0 μ V	34 dBf/14 μ V 34 dBf/28 μ V	16.3 dBf/1.78 μ V 16.3 dBf/3.57 μ V
50 DB QUIETING SENS.	75 ohms, 16.1 dBf/1.7 μ V 300 ohms, 16.1 dBf/3.4 μ V	37 dBf/19 μ V 37 dBf/39 μ V	23.5 dBf/4.0 μ V 23.5 dBf/8.0 μ V
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.

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

the 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.

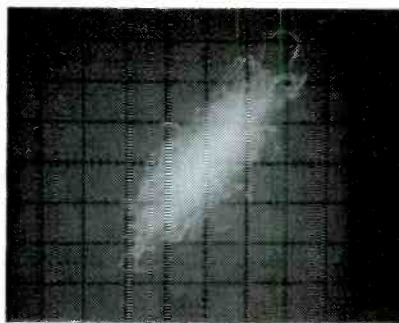


Fig. B2—Lissajous pattern showing $(L - R) / (L + R)$ ratio from an LP record.

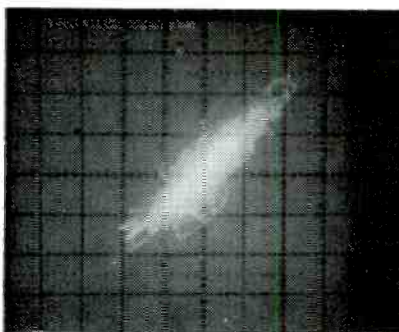


Fig. B3—The same instant of music as in Fig. B2 but taken from the CD version. Note the decreased difference $(L - R)$ content, as shown by the narrowed trace.

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 CD's 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" wide, 4" deep, 1 1/2" high.
- Line Voltage:** 120 VAC 60 HZ Dither signal: OdB. -70 dB adjustable.

ALL SPECIFICATIONS OR FUNCTIONS SUBJECT TO CHANGE WITHOUT NOTICE



THE CARVER COMPACT DISC PLAYER WITH DIGITAL TIME LENS

How logical it is for a company dedicated to delivering music with maximum dynamic impact to offer a state-of-the-art CD player. Anyone who ever wondered why Carver makes amplifiers capable of delivering hundreds of watts of power need wonder no longer after they have heard the Carver Compact Disc Player as a sound source.

There are dozens of brands of Compact Disc players available right now, many of them rushed to market as "me too" line extensions with little regard for the finer technical points of digital playback technology. Carver was in no hurry. They wanted to do digital right.

Because the state of the art has advanced considerably since the first players appeared several years ago. Unlike many of the "off-brand" models now available which employ less advanced technology, the Carver Compact Disc Player makes use of the latest triple laser beam pick-ups and sophisticated oversampling and digital filtering technology.

Except for features like display and programming, the real determining factor in CD player quality is its ability to reconstruct music from digital information bits. And that is not an easy job nor one that can be effectively achieved while skimping on circuitry.

The Carver Compact Disc Player reads discs with more precisely focused laser power than most other models, resulting in improved tracking and less chance of drop-outs when dust or smudges are encountered on a CD.

Along with a potentially audible signal ranging up to 20kHz, there are endless images of the signal at 40K, 80K, 160K etc. While they are above the range of human hearing, they must be removed from the signal to prevent harmonic problems which could turn into audible distortion. Earlier CD models placed an 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 complicated process, frequency bands are suppressed between 20kHz and 160kHz, eliminating harmonic distortion problems early on

before the complicated D/A translation.

The same oversampling process also distributes the same amount of noise over twice as wide a frequency range, resulting in half as much noise in the final signal. Then after translation to analog, the signal is once again filtered for a gentle roll-off above 17kHz that imparts a more natural musical sound to the final output.

One of the important tests applied to determine the effectiveness of digital-to-analog translation circuitry is the reproduction of a square wave. When *Audio Magazine* applied this test to the Carver Compact Disc Player, their test equipment displayed the following:

One doesn't need an engineering degree to recognize the accuracy of the Carver Compact Disc Player's output. The reviewer observed that "*Reproduction of a 1-kHz digitally generated signal was as close to a true square wave as I have ever seen from a CD player that used digital filtering. (The Carver Digital Disc Player) shows a virtual absence of phase error.*"

On top of this unerring ability to produce warm, real-sounding music from the CD's digital bits, the Carver Compact Disc Player has the remarkable Digital Time Lens circuit which can further enhance your listening enjoyment.

When Bob Carver received his first Compact Disc player, he was surprised at the sound derived from some discs. The three-dimensional perspective which his analog system provided in lush abundance on phono discs evaporated into a flat, brittle wasteland. After extensive testing, Bob had uncovered two inherent flaws in some but not all Compact Discs: 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.*

Bob Carver's circuitry adjusts the 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.

In addition, the L + R component of a digital disc is equalized by the Digital Time Lens differently than the L - R component and the level of the L - R band is increased slightly to

enhance ambient effects found on corresponding analog discs.

The result is a warmer sound with more of the three-dimensional ambient information that places us in the same space with performers. You won't need the Digital Time Lens on all CD's. But it is there when you need it. And only on the Carver Compact Disc Player.

Ease of operation is a hallmark of Carver components and the Carver Compact Disc Player is no exception. A subtle but easy-to-read LCD display not only shows selection number, elapsed time and total time of the CD, but also "talks" to the user. Turn on the Carver Compact Disc Player and the display asks for a disc. When the disc tray is open, the display reminds you with an OPEN readout. When a CD has completed playing, the multi-function display reads END.

With the Carver Compact Disc Player's Programmable Random Access Playback System, track search and programming of up to nine different selections is a snap, as is automatic repeat of a previous selection or an entire CD. For classical music lovers, the Carver Compact Disc Player has complete indexing capabilities as well.

The 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.

If you really enjoy music, you owe it to yourself to begin your digital experience with the only full-feature CD player that has the Carver touch. The only CD player that can actually improve on what is already the best playback medium ever offered.

Audition the Carver Compact Disc Player with Digital Time Lens at your Carver dealer soon.

Specifications

Frequency response: 5Hz-20kHz
 THD: 0.5%
 Signal-to-noise ratio: 96dB
 Output voltage: 1.9V
 Channel Separation: 86dB @ 1kHz
 Dynamic Range: 96dB

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-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."

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-11 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-11 has received unprecedented acclaim from reviewers:

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

"What distinguishes the TX-11 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-11."

"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

AUTHORIZED CARVER DEALERS*

* A relatively but not, necessarily, completely accurate listing of AUTHORIZED CARVER DEALERS.
The following is subject to on-going change. (Summer 1985)

ALABAMA

Birmingham
Likis Audio
Huntsville
Southern Sounds
Mobile
Fidler Hi Fi
Montgomery
Record Shop

ALASKA

Anchorage
Pyramid Audio
Fairbanks
Holt's Stereo
Juneau
Alaska Music
Soldatna
C.G. Electronics

ARIZONA

Mesa
Hi-Fi Sales
Phoenix
Buzz Jensen's Sound Advice
Jerry's Audio
Tucson
Jerry's Audio

ARKANSAS

Fayetteville
Stereo One
Ft. Smith
Stereo One
Harrison
Listening Room

CALIFORNIA

Bakersfield
Sound Advice
Belmont
Peninsula Audio Systems
Berkeley
Sounding Board
Big Bear Lake
Long Ear
Burlingame
Kustom Hi-Fi
Chico
Sounds By Dave
Concord
Sound Distinction
El Toro
Genesis Audio
Encino
Sound Factor
Eureka
The Works
Fairfield
C & M Stereo Unlimited
Glendale
Marconi Radio
Huntington Beach
Havens & Hardesty Audio
Lancaster
California Sound Works
Los Angeles
Ametron
Paris Audio
Royal Sound
Mill Valley
World of Sound
Monterey
Monterey Stereo
Napa
Stereo Store
Newport Beach
Newport Audio
North Hollywood
Sound Factor
Orange
Absolute Audio
Redondo Beach
Systems Design Group
Sacramento
Turntables Unlimited
San Diego
Sound Company
San Francisco
Stereo & Plus
Stereo Plus
Stereo Store
World of Sound
San Jose
Century Stereo
Sunnyvale Electronics

San Luis Obispo
Audio Ecstasy
San Rafael
Catania Sound
Santa Cruz
Stereo Solution
Santa Rosa
Catania Sound
South Lake Tahoe
El Dorado Audio
Stockton
Jack Hanna Music
Sunnyvale
Sunnyvale Electronics
Ventura
Dexter's Camera & Hi-Fi

COLORADO

Arvada
Soundtrack
Aurora
Soundtrack
Boulder
Listen Up Audio
Wave Length Stereo
Colorado Springs
The Sound Shop
Denver
Listen Up Audio
Soundtrack
Durango
Gramophone Audio & Video
Littleton
Soundtrack
Sterling
Select Systems
Wheat Ridge
Soundtrack

CONNECTICUT

Avon
Hi-Fi Stereo House
Brookfield
Sounds Incredible
Darien
Music Box
Fairfield
Audio Design
New Haven
Take 5 Audio
New London
The Stereo Lab
Newington
Hi-Fi Stereo House
Norwalk
Audiotronics

DELAWARE

Dover
Sound Studio
Newark
Sound Studio
Wilmington
Sound Studio

DISTRICT OF COLUMBIA

Washington D.C.
Myer-Emco

FLORIDA

Altamonte Springs
Audio Spectrum
Baco Raton
Vern's Stereo & Electronics
Bradenton
Kuban's
Clearwater
Pyramid Audio
Coral Gables
Infinite Audio Systems
Daytona Beach
Audio Video Analysts
Ft. Myers
Stereo World
Ft. Lauderdale
Musical Arts
TM Sound & Lighting
Gainesville
Tech Electronics
Hollywood
Audio Encounters
Jacksonville
Audio Tech

Lakeland
The Sound Factory
Melbourne
Sound Gallery
Southern Audio
Merritt Island
Southern Audio
Miami
Brandmart
Electronic Equipment Co.
Ritz Shop - Las Fabricas
Sounds Great Center
Sounds Great Stereo
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 Sound
Pinellas Park
Stereo Workshop
Sarasota
Kuban's
Tallahassee
Audio Labs
Tampa
Sensuous Sound Systems
Vero Beach
Lake Audio
Winter Park
Absolute Sound

GEORGIA

Athens
Hi-Fi Buys
Atlanta
Hi-Fi Buys
Statesboro
Southern Sound

HAWAII

Honolulu
Bose Home Entertainment Center

IDAHO

Boise
The Stereo Shoppe
Burley
The Sound Company
Moscow
Audio Vision
Sandpoint
Electracraft
Twin Falls
The Sound Company

ILLINOIS

Champaign
Appletree Stereo
August Systems
Charleston
Mr. D's
Chicago
Musicraft
United Audio
Decatur
Appletree Stereo
Deerfield
United Audio
DeKalb
Appletree Stereo
Evergreen Park
Musicraft
Homewood
Musicraft
Lombard
Musicraft
Morton Grove
Musicraft
Mt. Prospect
Simply Stereo
Niles
United Audio
Normal
Appletree Stereo
Oak Park
Musicraft
Palatine
Musicraft
Palos Hills
Gill Custom House

Riverdale
Stereo Designs
Rockford
Appletree Stereo
Sidney
August Systems
Vernon Hill
United Audio
Villa Park
Hi-Fi Hutch
Musicraft

INDIANA

Bloomington
American Audio-Video
Carmel
Sound Productions
Evansville
Risley Electronics
Ft. Wayne
Lehman Electronics
Lafayette
Pro Audio
Sound Bend
Audio Specialists
Terre Haute
Audio Connections
Valpariso
Audio Junction
Vicennes
Risley Electronics

IOWA

Ames
Stereo Sound Studios
Des Moines
Stereo Sound Studios
Triad Productions
Fairfield
Hawkeye Electronics of Iowa
Marshalltown
John's Hi-Fi & Sound
Mason City
Sound
Sioux City
Audio Emporium

KANSAS

Hays
Touch Feeling of Sound
Hutchinson
Hayes Sight & Sound
Junction City
Audio Junction
Lawrence
Kief's Gramophone
Mission
Accent Sound
Overland Park
Audio Electronics
Salina
Electronics
Wichita
Audio Systems

KENTUCKY

Bowling Green
Bowling Green Audio
Lexington
Ovation Audio-Video
Louisville
Music City
Madisonville
Risley Electronics
Paducah
Risley Electronics

LOUISIANA

Baton Rouge
Kadair's
Lafayette
Sound Electronics
Lake Charles
Video Trends
Metairie
Sound Trek Audio

MAINE

Portland
Hawks
South Portland
Great Northern Sound Company
Westbrook
Sound Cellar

MARYLAND

Annapolis
Spaceways Sound
Baltimore
Soundscape
Bethesda
Audio Associates
Professional Products
Frederick
Evergreen Audio
Langley Park
Audio Associates
Rockville
Myer-Emco
Salisbury
Sound Studio

MASSACHUSETTS

Boston
Tweeter Etc.
Brighton
Tweeter Etc.
Brockton
Sound Trak Audio
Burlington
Tweeter Etc.
Cambridge
Lechmere
Tweeter Etc.
Chestnut Hill
Tweeter Etc.
Concord
Sound Waves
Danvers
Lechmere
Tweeter Etc.
Dedham
Lechmere
Tweeter Etc.
Framingham
Lechmere
Natural Sound
Tweeter Etc.
Hyannis
Tweeter Etc.
Sound Dynamics
Lexington
Trolley Stereo
Northampton
Sound & Music
Seekonk
Lechmere
Shrewsbury
Tweeter Etc.
Springfield
Lechmere
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
Pointe Electronics
Jackson
Hi-Fi Buys
Kalamazoo
Stereo Showcase
Lansing
Hi-Fi Buys
Midland
Hi-Fi Buys
Pelosakey
Kurtz Music Center
Saginaw
Listening Room
Traverse City
Kurtz Music

MINNESOTA

Brooklyn Center
Audio King
Burnsville
Audio King
Minneapolis
Audio King

Minnnetonka
Audio King
Roseville
Audio King
St. Cloud
Sound Electronics

MISSISSIPPI

Jackson
Hooper Sound
Meridian
Hooper Sound

MISSOURI

Cape Girardeau
Stereo One
Kansas City
Video Westport
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
Omaha
Custom Electronics

NEVADA

Reno
Audio Authority

NEW HAMPSHIRE

Concord
Sound Waves
Hanover
Hanover Audio
Manchester
Lechmere
Tweeter Etc.
Nashua
Tweeter Etc.
Newington
Tweeter Etc.
Salem
Cuomo's

NEW JERSEY

Deptford
Hi Fi Connection
Franklin
Franklin Lakes Stereo
Lawrenceville
Hal's Stereo
Maple Shade
Bryn Mawr Stereo
Morristown
Sight & Sound
New Brunswick
Hi Fi Haven
Northfield
Sound Incorporated
Thoms River
Rand's Camera & Hi Fi
Upper Montclair
CSA Audio
Wykoff
Conklin's

NEW MEXICO

Albuquerque
Sound Ideas
Las Cruces
The Sound Room
Santa Fe
The Candyman

NEW YORK

Albany
Mom's Stereo Warehouse
Sounds Great
Alfred
Jericho Audio
Amherst
Sounds Great
Batavia
Unicorn Audio

Binghamton
JSG Audio
Brooklyn
Innovative Audio
Cedarhurst
Martr Electronics Lab
Depew
Sounds Great
Fresh Meadows
Sound Stage Audio
Glens Falls
Audio Genesis
Henrietta
Sounds Great
Hicksville
Designatron's Stereo Store
Nanuet
Eardrum
New York
Audio Exchange
Grand Central Radio
Harvey Sound
Leonard Radio
Lyric Hi Fi
Sound Stage Audio
Thalia Hi Fi
Oneonta
Stereo Lab
Paramus
Leonard Radio
Patchogue
Square Deal Radio & TV
Port Jefferson
Designatron's Stereo Store
Potsdam
Northern Music Company
Remsenburg
Media Room
Rochester
The Sound Chamber
Syracuse
Sounds Great
Tanawanda
Stereo Plus
Wappingers Falls
Sound Odyssey
Westbury
Audio Exchange
White Plains
Audio Experts
Harvey Sound
Lyric Hi Fi
Williamspport
Stereo Plus
Woodside
Leonard Radio

NORTH CAROLINA

Asheville
Sound One
Conover
Tri-City Electronics
Durham
Tart's
Fayetteville
Tart's
Goldsboro
Ed Kelly's
Greenville
Stereo Village
Todd's Stereo
Havelock
Rainbow Audio
High Point
Sound Source
Morehead City
Rainbow Audio
Raleigh
High Fidelity
Wilmington
Tart's

NORTH DAKOTA

Bismark
Egger's Audio
Minot
Midwest Audio

OHIO

Akron
Audio Craft
Golden Gramophone
Canton
Audio Corner
Cincinnati
Swallen's
Cleveland
Audio Craft

Columbus
Digital Sights & Sounds
Palmer Electronics
Dayton
Carlin Audio
Heath
Threshold Audio
Lima
Hart's Audio
Lorain
Grasso's Audio
Mansfield
Swallen's
Mayfield Heights
Audio Craft
Middleton
Swallen's
Parma Heights
Phil Reddish Stereo
Sandusky
Audio Force
Westlake
Audio Craft

OKLAHOMA

Bartlesville
Copeland Appliance Center
Edmond
K and F
Midwest City
Audio Midwest
Oklahoma City
K and F
Shawnee
Rave Electronics Sound Systems
Stillwater
Audio Sound
Tulsa
Audio Advice

OREGON

Bend
Audio Video Labs
Corvallis
Good Guys Stereo
Eugene
Good Guys Stereo
Grants Pass
Sheckell's Stereo
Gresham
Fred's Sound of Music
Klamath Falls
The Sound Chamber
LaGrande
LaGrande Stereo & Music
Medford
Larson's Home Appliance
Portland
Fred's Sound of Music

PENNSYLVANIA

Bryn Mawr
Bryn Mawr Stereo
Camp Hill
Bryn Mawr Stereo
Clearfield
Mack Audio
Erie
House of Records
Frazier
Bryn Mawr Stereo
Gibsonia
The Listening Post
Greensburg
Pat's Stereo Center
Jenkintown
Bryn Mawr Stereo
Lewisburg
M & M Stereo
Montgomeryville
Bryn Mawr Stereo
Natrona Heights
Stereo Land
Pittsburgh
Audio Junction
The Listening Post
World Wide Stereo
Quakertown
Bryn Mawr Stereo
Throop
Shehadi Stereo
Washington
Stereo Outlet

West Reading
DS Audio
Windber
Pro Audio

RHODE ISLAND

East Providence
Tweeter Etc.
Providence
Tweeter Etc.
Warwick
Tweeter Etc.

SOUTH CAROLINA

Anderson
John B. Lee "For Music"
Charleston
Read Brothers
Stereo Den
Columbia
Audio Alternatives
John B. Lee "For Music"
Florence
Tart's
Greenville
John B. Lee "For Music"
Greenwood
John B. Lee "For Music"

SOUTH DAKOTA

Aberdeen
Stereo Town
Brookings
Stereo Town
Rapid City
Team Electronics
Sioux Falls
EME Audio Systems
Pro Audio

TENNESSEE

Chattanooga
Capital Audio
College Hi Fi

TEXAS

Abilene
North American Sound
Austin
Austin Audio One
Beaumont
Beaumont Sound
Bryan
Sound Waves
College Station
Audio Video
Corpus Chnsti
Tape Town Audio Video
Dallas
Stereo Dallas
El Paso
Century Sound
Soundquest
Ft. Worth
Marvin Electronics
Houston
B & M Electronics
Groove Audio & Video
Sheffield Audio
Laredo
Metex International Corp.
Nacagdoches
Branch-Patton Appliance
Odessa
Harold's Electronics
Pharr
El Centro Sound Center
San Angelo
Walker Audio
San Antonio
Stereo International
San Marcos
Discovery Audio & Video
Texarkana
Audio Center
Tyler
Stereo & Record Center

UTAH

Logan
Lynn's Audio & Video
Ogden
The Hi Fi Shop
Orem
Allen's Camera & Sound
Salt Lake City
Audio Works

VERMONT

Rutland
Sound Directions
South Burlington
Audio Den

VIRGINIA

Charlottesville
The Sound Machine
Falls Church
Myer-Emco
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
Digital Sound
Sound Shop

WASHINGTON

Bellevue
Magnolia Hi-Fi
Bellingham
QC Stereo
Bremerton
Bremerton Stereo
Ellensburg
Stereocraft
Lynnwood
Magnolia Hi-Fi
Mt. Vernon
QC Stereo
Oak Harbor
QC Stereo
Seattle
Definitive Audio
Magnolia Hi-Fi
Spokane
Huppins Hi Fi
Tacoma
Audio Northwest
Magnolia Hi-Fi
Paulson's
Walla Walla
Stereocraft
Yakima
Stereocraft

WEST VIRGINIA

Charleston
Mack & Dave's
Huntington
Mack & Dave's
Morgantown
Sound Investments

WISCONSIN

Appleton
American TV
Eau Clair
EME Audio Systems
Green Bay
Hi Fi Heaven
LaCrosse
Mountain Electronics
Madison
American TV
Manitowoc
Ray's World of Electronics
Marinette
The Sound Seller
Marquette
American TV
Menomonee
EME Audio Systems
Milwaukee
Port of Sound
Waulesha
American TV
Wisconsin Rapids
Salon 1



POWERFUL

MUSICAL

ACCURATE

DAT WHICH IS TO COME



Double Standards

The Japanese industry group which has been considering standards for home digital audio tape (DAT) has finally approved two standards, one each for fixed-head and rotary-head recorders. The rotary-head version will probably be first out of the starting gate. It can't easily be made

as small as the fixed-head version (a concern of car-stereo makers and portable cassette deck users), but its head drum can be produced using familiar VCR technology. The other type uses a thin-film head which is hard to mass-produce, at least with current techniques.

Both formats are stereo, using 16-bit linear quantization and 48-kHz sampling (with CD-style 44.1-kHz sampling also available on the stationary-head type). The stationary-head (S-DAT) version will flip over, like today's analog Compact Cassette, recording either 35 or 45 minutes per side, depending on the tape thickness used. The rotary-head (R-DAT) version will record 120 to 150 minutes, in one direction.

Both formats will use the same tape width—3.81 mm or 0.15 inch—as the Compact Cassette. The cassette

shells will resemble each other in size and shape (see Table), but you may be able to store quite a few more digital than analog cassettes in the same space, depending on the packaging used. The S-DAT is only 58% as large as the Compact Cassette, and the R-DAT is only 53% as large. It's the spinning head drum, not the cassette shell, that will keep R-DAT players from getting quite as compact as S-DAT players.

Comparative sizes (in mm) of digital and analog tape cassettes.

Format	S-DAT	R-DAT	Compact Cassette
Length	86	73	100.4
Width	55	53.5	63.8
Depth	9.5	10.5	12.1
Volume (cc)	44.9	41.1	77.5

Up to the Nation's Attic

Like many an audiophile, I'm also a computer hobbyist—have been, in fact, since 1976, when I got an Altair, the first personal computer to make a real impact. Since then I've gone on to more manageable machines (TRS-80s and Kaypros), so I just donated the Altair to the Smithsonian Institution. (If you have similar equipment you'd like to donate, contact Dr. Uta Mertzbach at the Department of Mathematics, National Museum of American History, Smithsonian Institution, Washington, D.C. 20560, to see if they'd like it.)

Walking through the museum afterwards, I noted very little in the way of sound equipment, which started me thinking about various pieces of sound gear that have passed through my hands over the years, items which should, perhaps, have wound up in the Smithsonian. My favorite was my first good turntable, a Weathers kit that sold for about \$50 (less arm) and was about the simplest design possible. To get good speed regulation cheaply, it used an electric-clock motor; since that had little torque, the platter was made of a thin aluminum stamping. (Resonance? We didn't ask, in those days.) Since the platter was so light, the drive could be a thin gum-rubber wheel, permanently pressed against



the platter's inside rim. The soft rubber never set in any shape, so it never developed permanent flat spots. The bearing was a single needle, running in bronze bushings. A triumph of simplicity and elegance—at a price that even a young college student could afford.

My first good preamp, a Heath WA-P2, had turnover and roll-off controls for all the then-current (and past) recording equalization curves. I only let it go because I replaced the Heath W-5M amplifier from which the preamp drew its power. My replacement amp was a Dynakit Mark III, a 60-watt tube unit that looked fancy but didn't cost much. My

roommate supplied the Mark III for the other channel, plus an H. H. Scott stereo preamp. He also had a Scott "binaural" tuner—so-called because its AM and FM sides had separate outputs and tuning controls; stereo broadcasts then had one channel on AM and one on FM, while the FCC debated which FM multiplex system to accept.

The stereo preamp I wanted back then was the Lafayette, which had independent left and right controls for everything—even for input selection. (The idea, as I recall, was to let you pipe two different mono signals to two separate rooms when you weren't listening in mono.)

My first tape deck, as I've said before, was a Magnecord PT-6, one of the earliest professional decks, probably a museum piece even then, and certainly one now. Then there was an Advent cassette deck—the first, I think, with Dolby NR. I also had, back then, a I-o-o-n-g SME tonearm (we cared more about tracking error, in those days, than about moving mass, and that long SME was lighter than some shorter arms—of that time, anyway).

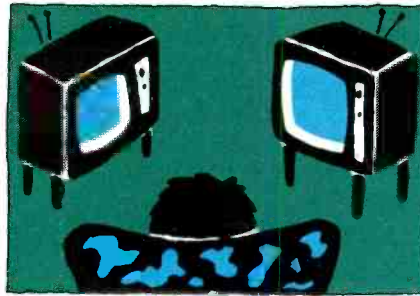
I've had a lot of other gear over the years, of course. But those are the ones which strike me as museum-worthy.

Inching into MTS

MTS stereo is definitely coming. As of July 30, at least 60 to 65 percent of U.S. viewers were within reach of at least one stereo-equipped station, according to *Television Digest*. However, don't expect to be trampled in the rush. For stations it's a big expense—a minimum of about \$30,000 just to ready the transmitter, and as much as \$1 million to equip a mono-only station to originate as well as relay stereo. There isn't that much stereo programming yet, and most of the TV sets in use have neither built-in stereo decoders nor jacks for simple add-ons. Hardware to solve that problem is coming, of course, but there are other barriers.

Few VCRs, as yet, are equipped to pick up stereo, even if they can record and play it. If you want stereo, you feed in stereo sound from some external source or get a prerecorded tape with stereo sound—but you can't tape it off the air. By the time you read this, most major suppliers should have full-stereo video recorders on the market, but the vast majority of VCRs in use won't have that capability.

Nor will it do you much good to have MTS-capable equipment if you're watching over cable, as more than 40% of all U.S. homes now do. Cable systems do send stereo by other means (chiefly via FM carriers on locally unused frequencies), but few have the bandwidth available, in either their head ends or the decoder boxes in subscriber homes, to pass the MTS subcarriers. Not too surprisingly, Zenith (one of the MTS



system's developers) has a full line of stereo-compatible cable head-end and decoder equipment; now all they have to do is convince the cable companies to purchase it. Networks at first took the position that the FCC's "must carry" regulations meant cable companies had to carry everything in the broadcast signal, including the added audio information. The FCC, however, seems disinclined to press the matter—it has, in fact, dropped existing "must carry" provisions, a move which has local stations fearing they'll be cut off from local cable viewers.

The problems of 60-Hz intercarrier buzz which already plague some sets and broadcasts (especially when the picture has a lot of white in it) will plague them even more in stereo, and more still in the second audio program (SAP) channel. This problem may prove temporary, however; I note that National Semiconductor's stereo TV ICs include sound amps designed to reduce intercarrier noise.

Meanwhile, what of the programming considerations? Even Japan, which has had stereo TV longest, has far more mono than

stereo programming. Of that, music and sports predominate, with occasional other applications, such as using the system's "bilingual" capability to offer a choice of commentators, one more detailed than the other. (Japan's system, unlike ours, cannot be used for both stereo and bilingual information simultaneously.) Other possibilities include special narration for the blind, and music shows with vocals on one audio channel and no vocal on the other, for *karaoke* fans who want to sing along.

Drama, of course, is an obvious candidate. But if a camera angle is reversed, the actors' audible positioning will have to shift, too—not just right to left, but nearer and farther, too (i.e., louder and perhaps less reverberant when closer to the camera). The mechanical aspects of these problems can be handled by automation, but there will still have to be some intelligence behind the automation to make sure it does the esthetically proper thing. Though the movies seem to be developing a stereo sound esthetic, it's still new to people in TV. And the problem of maintaining mono compatibility is less critical for the movies than for TV (most of whose listeners have only mono capability).

I expect stereo to make its first and strongest showing in commercials. Ad people have lots more to spend per minute of air time, and a gimmick that will hook more viewers—especially the upscale ones who will predominate among stereo listeners for a while, yet—will be hard to resist.

Live End, Cat End . . . Cured?

While I haven't yet had time to implement a dead end in my new home's listening room, I have gotten two pieces of reader advice about keeping my cats off the acoustical treatment.

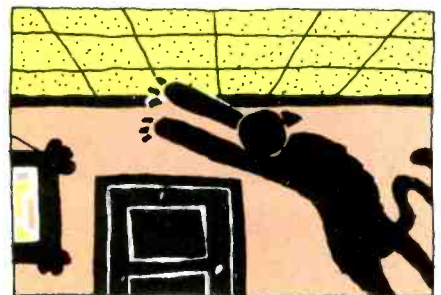
W. E. Craig of Oak Park, Ill., suggested a scratching post. I tried that a decade back, with my previous batch of cats, but they ignored it; my current cats, however, like it fine. It doesn't eliminate their scratching elsewhere, but it cuts it drastically.

J. M. DeMoor of Aiea, Hawaii, says

he saw a pet-training expert on TV claim that inflated balloons on the furniture would keep the cats away: "They only experiment once!" On the other hand, who wants a room full of balloons, except at parties?

The way the room is shaping up, however, the walls behind the speakers will be covered with record cabinets, so I can't put acoustical treatment there. The side walls have more cabinets, an archway into the hall, and a window, which limits my options further. I guess I'll get heavy drapes for the window, and perhaps

put some acoustical treatment on the ceiling . . . where the cats couldn't get at it, in any case.



Keeping Your Distance

It's getting to the point where half the companies who make more than one type of stereo component offer a single remote-control transmitter that will operate several of those components at once (ADS, B & O, Kyocera, Revox, . . .). The other half are working on it. And everyone who makes integrated audio/video systems offers such controls as a matter of course.

But where does that leave audiophiles who'd like remote-control convenience, but prefer to pick and choose their components rather than stick to one maker's line? Pretty far out in left field . . . until lately. A while back, I pleaded for a universal remote control, one which could be used for audio and video components from diverse manufacturers. Well, now there is one.

This doesn't mean that manufacturers have yet gotten together to define their remote-control codes (though the EIA still has a committee working on that, with a target date of 1987). Instead, General Electric has devised a \$150 gadget called Control Central (Model RRC600), which memorizes the codes your existing components use. You place the component's remote control head-to-head with the Control Central

and run through the old remote's functions, and Control Central learns all its command codes. An LCD display on the RRC600 can be programmed to show what functions you're commanding. Up to four components' codes can be memorized.

This presumes, of course, that your components already have wireless remote-control capability. Nowadays, most tape decks, VCRs and videodisc players, plus many receivers and several turntables, do have such capability—but virtually all amps, preamps and tuners don't. If that's your problem, there's not much you can do about the tuner, but you can add remote control of volume, balance, muting, power, and a few other things.

One way is with AR's \$160 SRC remote control (reviewed in *Audio*, January '85), whose "other things" include input/output loops for a tape deck and an external processor. And who's to say you couldn't use both of those as tape loops or as EPLs, or ignore the output function and use them only as remotely selected inputs?

A second way is with a somewhat similar control system, the 50/2000 (\$155), from Digital Audio Control of Mountain View, Cal. Instead of the AR's in/out loops, DAC's Model 50 receiver has one monitor output and three auxiliary high-level inputs. This means you can choose among four inputs (the three on the remote unit plus whichever one your amplifier is switched to), but you can't monitor recordings or patch in an equalizer. As if to make up for that, the system has its own treble and bass control, plus switchable loudness compensation. A "Flat" key on the Model 2000 transmitter automatically neutralizes those alterations and centers the balance. You can also switch from mono to stereo.

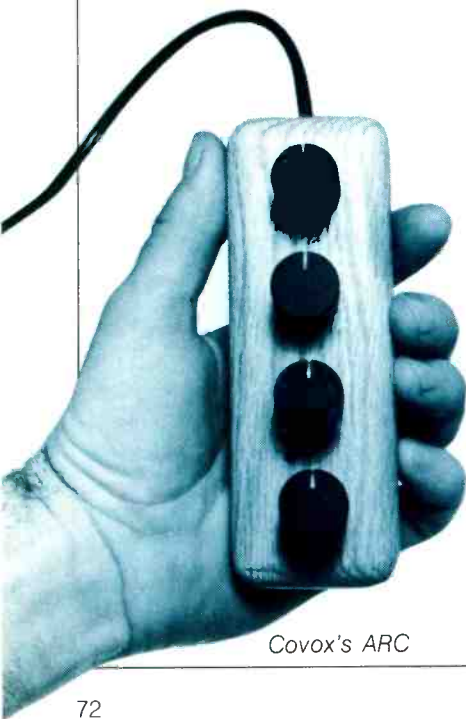
To their credit, wired remotes are hard to lose—you can always trace them by their wires—but their chief advantage is that wires go around corners better than light beams do. You can run a wired remote to places where a wireless one wouldn't reach, such as another room. (The wireless multi-room systems, such as those

from B & O and Revox, run wires to remote infrared receivers in the other rooms, to pick up the hand-held controllers' beams.)

Audio Command Systems of Rockville Centre, N.Y., has for years been doing custom audio installations with such wired remote systems. Now they have a remote, called Mediacom, designed for sale on its own. Mediacom uses wireless controllers, with a big command terminal in the room where the main system is located and smaller terminals wired to it from other rooms. You can select any of several audio and video sources, activate your tuner's station preselecs, operate your tape deck's transport functions, turn speakers on and off in the room where you are or elsewhere in the house, and even simultaneously play two different signal sources in different rooms (or more, if you patch in local sources in specific rooms).

Mediacom can be matched to any existing or future components. It's done by changing interface cards in the main control console and, if the components have no wired control inputs, by modifying the components to accept remote commands. Some interface cards may have to be custom made, which would add to the system's already hefty price tag. The basic command terminal is \$2,400, wireless controllers are \$179 apiece, and remote terminals are either \$645 (for wall-mounted units) or \$745 (for table-top ones). A simpler terminal panel, with only volume, speaker on/off and signal-select controls, is \$150. The 15-conductor cable which connects the rooms is about 40¢ per foot. Though Mediacom literature sounds as if it's aimed at the end customer, I suspect that most sales will be to (or through) custom installers.

On a simpler note, Covox, of Eugene, Ore., has a wired remote control, the ARC, with balance, volume, bass and treble functions on the remote, plus a tape-monitor loop switch on the base unit. Only control voltages, not signals, go through the wire, so you can add 20-foot extension cables to bring the control into other rooms. The system is \$99, and extension cables are \$10 each.



Covox's ARC

Audible Elegance

Audio Components of Uncompromising Quality

Exclusively from Revox of Switzerland



Enter No. 67 on Reader Service Card

From Switzerland, A Harmonious Blend of Elegant Styling



Only Revox can offer complete systems designed and engineered to please both the demanding audiophile and the discriminating, convenience-conscious homeowner. The front faceplates on Revox components do not trumpet unnecessary "high tech" ostentation. Such gimmickry is not needed. A few moments of listening to a Revox system will let you know that, indeed, advanced technology is at work.

All Revox components may be operated via a single infrared remote control transmitter.* The newest generation of microprocessor controlled units also have digital data ports which open the way to external computer control as well as multi-room remote control systems.

This leaflet gives a brief description of the Revox component line. Should you desire more information, please visit your Revox dealer and request a free copy of our 48-page full color catalog.

Revox B285 AM/FM Receiver

A symphony of sophistication and simplicity, the full-featured B285 is surprisingly easy to operate. The secret lies in the B285's two on-board microprocessors. You program the B285 to respond to your listening habits and your room environment. Set it once and, from then on, the B285 remembers all the adjustments for you.

Features include:

- Programmable input sensitivity for all input signals
- 29 AM/FM station presets
- Programmable output levels for A & B speaker terminals
- Multimode LC display
- Advanced digital synthesizer tuner section
- Infrared remote control of 9 functions
- Bi-directional data port for multi-room remote capability
- Power amplifier section with class AB output stage
- Rise time of 3 μ s and slew rate of 100 V/ μ s for superb transient response
- Exceptionally low noise for optimum CD reproduction.

B286 Tuner/Preamplifier

No power amplifier stage; otherwise identical to the B285.

B215 Cassette Deck

Revox has designed a cassette deck to please the most performance-conscious audio enthusiast. Yet this same cassette deck also allows a non-technical music lover to make professional-quality recordings consistently and effortlessly.

A unique microprocessor controlled system, developed by Revox engineers, automatically calibrates the B215's internal bias and equalization for the best possible performance on any tape selected.

Other B215 features include:

- Automatic or manual input level setting
- 3 heads • 4 direct drive motors • Dual capstans driven by quartz-locked Hall-effect motors
- Microprocessor spooling motor control for constant speed winding and jerk-free stops
- Azimuth stable pivoting headblock
- Dolby** B and C NR
- Dolby** HX Pro headroom extension
- Elapsed time counter
- Address locate
- Automatic start-of-record locate
- Loop function
- Automatic fade-in/fade-out
- Bi-directional serial data bus.



and Advanced Technology

B225 Compact Disc Player

Overwhelmingly acclaimed by audio critics as the reference standard CD player, the B225 makes no compromises in sonic performance or user convenience.

B225 features include:

- Oversampling (176.4 kHz) and digital filtering for superior sound resolution and optimum phase response
- Cueing time of less than 3 seconds to any point on the disc
- Pre-programming of nearly every conceivable combination of repeat, skip, pause, loop, and autostop functions
- Programming steps may use track

(selection) or time as boundaries • Dual mode LCD shows total tracks on disc, disc index, track playing, time of track, program step, as well as status of pause, loop, and autostop functions • May be operated using same infrared remote transmitter as other Revox system components.

B791 Tangential Tracking Turntable

With its patented Linatrack tonearm, the B791 provides exceptional sonic performance while rendering record damage of any kind virtually impossible.

B791 features include:

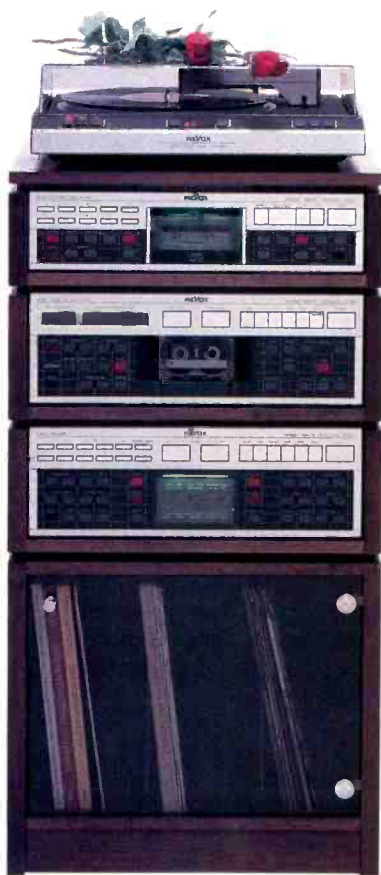
- Servo controlled linear tracking system
- Tonearm less than 1 3/4" long from pivot to stylus tip
- Hall commutated direct drive motor with quartz-locked speed control
- Variable speed control • LED display shows nominal speed and percentage of deviation in variable speed mode.

Agora B Powered Speaker Systems

Digital sound recording challenges the limits of conventional loudspeaker design, and Revox meets this challenge with the new Agora B active speaker systems. Each Agora B enclosure contains three separate power amplifiers—one each for the bass, mid-range, and high-frequency drivers. This tri-amplified design delivers deep, tight bass and breathtaking high frequency transparency.

Agora B speakers also feature:

- Active filter network instead of passive crossovers
- Two bass drivers, one mounted on top of the enclosure and facing inward to eliminate even-order harmonic distortion
- Feedback sensing circuit to compensate for back EMF from bass driver
- High rigidity titanium dome tweeter
- Bass, treble and bass blend adjustment controls.



B205 Remote Control

The lightweight B205 infrared remote control transmitter activates all normal operating functions of your Revox receiver, turntable, CD player, cassette deck, and open reel recorder.

**Transmitter optional. Some units may require optional receiver module.*

***Dolby and Dolby HX Pro are trademarks of Dolby Laboratories.*

Authorized Revox Dealers

ALABAMA

Huntsville
Campbell Stereo
2126 N. Memorial Pkwy.
Huntsville, AL 35801
(205) 539-9806

Mobile
Fidler Hi-Fi
405 Bel Air Blvd.
Mobile, AL 36606
(205) 479-4434

ALASKA

Anchorage
Pyramid Audio
2420 Seward Highway
Anchorage, AK 99503
(907) 272-9111

ARKANSAS

Magnolia
Custom Products
107 E. Calhoun
Magnolia, AR 71753
(501) 234-3778

CALIFORNIA

Berkeley
Sounding Board
2399 Shattuck Ave.
Berkeley, CA 94704
(415) 843-7031

Hollywood
Soundscape
8644 Sunset Blvd.
W. Hollywood, CA 90069
(213) 655-5111

Beverly Hills/Los Angeles
Beverly Electronics
8413 Beverly Blvd.
Los Angeles, CA 90069
(213) 651-3523

Oakland
Pro Audio Electronics
383 40th Street
Oakland, CA 94609
(415) 654-6630

Palo Alto
Western Audio Import
4191 El Camino Real
Palo Alto, CA 94306
(415) 494-2552

San Francisco
House of Music
1718 Union St.
San Francisco, CA 94123
(415) 771-1962

San Juan Capistrano
Home Technology Systems
31742 Rancho Viejo Rd.
Suite B
San Juan Capistrano, CA 92675
(714) 493-2600

Santa Cruz
Water Street Stereo
726 Water St.
Santa Cruz, CA 95060
(408) 427-1604

Santa Monica
Jonas Miller Sound
2336 Santa Monica Blvd.
Santa Monica, CA 90404
(213) 659-1707

Van Nuys
Audio Den
15600 Roscoe Blvd.
Van Nuys, CA 91406
(213) 781-4700

COLORADO

Boulder
Listen Up
2034 E. Arapahoe
Boulder, CO 80302
(303) 444-0479

Denver
Listen Up
999 S. Logan St.
Denver, CO 80209
(303) 778-0780

CONNECTICUT

Greenwich
Audacom
177 Sound Beach Ave.
Old Greenwich, CT 06870
(203) 637-3621

Meriden
Sound of Music
211 S. Broad Street
Meriden, CT 06450
(203) 237-2646

DISTRICT OF COLUMBIA

Washington
Audio Krafters
1815 Wisconsin Ave. N.W.
Washington, DC 20007
(202) 965-1300

FLORIDA

Boca Raton
Sound Plus Wood, Inc.
20 N. Federal Hwy.
Boca Raton, FL 33432
(305) 391-1843

Clearwater
Daiton Audio, Inc.
2118 Drew Street
Clearwater, FL 33515
(813) 447-0987

Caral Gables
Sound Performance, Inc.
4101 Aurora Street
Caral Gables, FL 33116
(305) 446-8055

Ft. Lauderdale
Audio Insight
4461 N. Federal Hwy.
 Ft. Lauderdale, FL 33308
(305) 491-7677

Jacksonville
Audio Etc.
9838 Baymeadows
Jacksonville, FL 32216
(904) 642-1407

Tallahassee
Stereo Sales
637 W. Tennessee St.
Tallahassee, FL 32301
(904) 224-2635

Winter Park/Orlando
Absolute Sound
170 W. Fairbank
Suite 100
Winter Park, FL 32789
(305) 629-1930

GEORGIA

Atlanta/Litburn
The Stereo Shop
4140 Hwy. 29
Litburn, GA 30247
(404) 925-7123

HAWAII

Honolulu
Insight Audio Video
350 Ward Avenue, #106
Honolulu, HI 96814
(808) 538-1981

Sounds
502 Kaahali St.
Honolulu, HI 96817
(808) 847-0104

IDAHO

Pocatello
Sound Wave
416 South 5th St.
Pocatello, Idaho 83201
(208) 234-0221

Sandpoint
Electrocraff
212 North First Avenue
Sandpoint, ID 83864
(208) 263-0347

ILLINOIS

Champaign
Glenn Poor's Audio Video
1912-B Round Barn Rd.
Champaign, IL 61820
(217) 356-5456

Chicago
E-Z Teletronics
2821 W. 59th St.
Chicago, IL 60629
(312) 436-3030

Paul Heath Audio
2036 North Clark
Chicago, IL 60614
(312) 549-8100

Victor Stereo Service
8 East Erie
Chicago, IL 60611
(312) 787-0750

Chicago Heights
Audio Enterprises
202 Halstead
Chicago Heights, IL 60411
(312) 754-6056

Evanston
Audio Consultants
1014 Davis St.
Evanston, IL 60201
(312) 864-9565

Hinsdale
Audio Consultants
110 East Ogden
Hinsdale, IL 60521
(312) 789-1990

Libertyville
Audio Consultants
757 N. Milwaukee
Libertyville, IL 60048
(312) 362-5594

INDIANA

Indianapolis
Stereo Imags
5325 East 82nd Street
Indianapolis, IN 46250
(317) 849-4885

IOWA

Bettendorf
Chase Electronics
2535 Tech Drive
Suite 109
Bettendorf, IA 52727
(319) 332-4246

Des Moines
Audio Labs
2204 Ingersoll
Des Moines, IA 50312
(515) 288-2216

KANSAS

Kansas City/Overland Park
Beatty Electronics
7105 W. 105th St.
Overland Park, KS 66212
(816) 531-3109

LOUISIANA

New Orleans/Metairie
Soundtrek Audio
4408 York St.
Metairie, LA 70001
(504) 888-4776

MARYLAND

Baltimore/Lutherville
Gramophone
10801 Tony Drive
Lutherville, MD 21093
(301) 821-5620

Bethesda
Professional Products
4964 Fairmont Ave.
Bethesda, MD 20014
(301) 657-2141

College Park
Audio Krafters
7419 Baltimore Blvd.
College Park, MD 20740
(202) 965-1300

Rockville
Audio Krafters
11431 Rockville Pike
Rockville, MD 20850
(301) 881-8743

MASSACHUSETTS

Boston
Audio Studio Stereo Lab
303 Newbury Street
Boston, MA 02115
(617) 267-1001

Brookline
Audio Studio Stereo Lab
414 Harvard St.
Brookline, MA 02146
(617) 277-0111

Framingham
Natural Sound
401 Worcester Rd.
Framingham, MA 01701
(617) 879-3556

Newton
Stereo Shop
244 Needham Street
Newton, MA 02464
(617) 964-1020

Wellesley
The Music Box
100 South Second Street
Wellesley, MA 02181
(617) 235-5100

Worcester
O'Coins
239 Mill Street
Worcester, MA 01602-0068
(617) 791-3411

MICHIGAN

Birmingham
Alma's Hi-Fi Stereo
395 E. Maple
Birmingham, MI 48011
(313) 644-5230

Dearborn
Alma's Hi-Fi Stereo
15031 Michigan Ave.
Dearborn, MI 48126
(313) 584-1860

Farmington Hills
Alma's Hi-Fi Stereo
29401 Orchard Lake Rd.
Farmington Hills, MI 48018
(313) 553-4360

MINNESOTA

Minneapolis
Audio Perfection
7401 Lyndale Avenue, S.
Minneapolis, MN 55423
(612) 866-0083

HiFi Sound Electronics
220 S. Willow
Buffalo, MO 65622
(417) 345-7245

St. Cloud
Exclusive Sound
811 St. Germain St.
St. Cloud, MN 56301
(612) 253-8663

MISSOURI

Buffalo
Audio Doctor
220 S. Willow
Buffalo, MO 65622
(417) 345-7245

St. Louis
Antech Labs
11118 Olive St. Rd.
St. Louis, MO 63141
(314) 997-5666

NEW HAMPSHIRE

Hanover
Camera Shop of Hanover
47 St. Main St.
Hanover, NH 03755
(603) 643-4545

NEW JERSEY

Morristown
Sight & Sound
89 Morris St.
Morristown, NJ 07960
(201) 267-6700

Franklin Lakes
Franklin Lake Stereo
792 Franklin Ave.
Franklin Lakes, NJ 07417
(201) 891-4745

Teaneck
Audio Visual Concepts
1258 Teaneck Road
Teaneck, NJ 07666
(212) 532-8844

Westfield
Siuarts Audio Inc.
544 North Ave. E.
Westfield, NJ 07090
(201) 232-0483

NEW YORK

Long Island City
Rosner Custom Sound
1138 31st Ave.
Long Island City, NY 11106
(212) 726-5600

New York
Grand Central Radio
155 E. 45th Street
New York, NY 10017
(212) 599-2630

Lyric Hi-Fi
1221 Lexington Ave.
New York, NY 10028
(212) 535-5710

Thalia Hi-Fi
253 E. 49th St.
New York, NY 10021
(212) 801-0420

Patchogue
Square Deal
456 Waverly Ave.
Patchogue, NY 11772
(516) 475-1857

Rochester
Craig Audio Laboratory
1845 East Ridge Road
Rochester, NY 14622
(716) 266-4555

Gala Sound
650 Monroe Avenue
Rochester, NY 14607
(716) 461-3000

Rockville Centre
Audio Command Systems
46 Merrick Rd.
Rockville Centre, NY 11570
(516) 766-5055

NORTH CAROLINA

Raleigh
Omni Electronics, Inc.
5840 McHines Place
Raleigh, NC 27604
(919) 872-0950

OHIO

Cleveland/Brookpark
Hoffman's House of Stereo
5931 Smith St.
Brookpark, OH 44142
(216) 676-5555

Columbus
Custom Stereo Electronics
1391 S. Hamilton Rd.
Columbus, OH 43227
(614) 235-3531

TOLEDO

The Audio Center
1546 Alexis Road
Toledo, OH 43612
(419) 476-8410

OKLAHOMA

Tulsa
The Phonograph
5150 H. South Memorial Dr.
Tulsa, OK 74145
(918) 665-6363

OREGON

Beaverton
Chelsea Audio, Ltd.
7733 S.W. Circus Dr.
Beaverton, OR 97005
(503) 641-3510

Milwaukie
Brownell Sound & Hi-Fi
3601 S.E. Concord
Milwaukie, OR 97222
(503) 659-0394

PENNSYLVANIA

Bethlehem
Carlen Audio
612 W. Broad Street
Bethlehem, PA 18018
(215) 866-0728

Erie
House of Records
1787 W. 26th St.
Erie, PA 16508
(814) 456-6713

Lancaster
Glick's Audio
1920 Lincoln Hwy. East
Lancaster, PA 17602
(717) 397-4244

Philadelphia
David Mann, Ltd.
New Market 59
2nd & Lombard Streets
Philadelphia, PA 19147
(215) 922-3007

Pittsburgh
Opus One
400 Smithfield St.
Pittsburgh, PA 15222
(412) 391-3800

York
Audio Clinic
2331 E. Market St.
York, PA 17402
(717) 757-2260

Puerto Rico
Puerto Nuevo
Lazer Sound
272 Diego Ave.
Puerto Nuevo, PR 00920
(809) 792-0600

SOUTH DAKOTA

Sioux Falls
Pro Audio
400 N. Main Ave.
Sioux Falls, SD 57105
(605) 336-1466

TENNESSEE

Memphis
Opus Two
747 Brookhaven Circle
Memphis, TN 38117
(901) 683-0117

Nashville
Nicholson's Stereo
115 19th Ave. South
Nashville, TN 37203
(615) 327-4312

TEXAS

Austin
High Fidelity Inc.
1710 Lavaca
Austin, TX 78701
(512) 476-5638

Dallas
Recorder Center
2003 N. Henderson
Dallas, TX 75206
(214) 826-8700

El Paso
Howell Company
2873 Pershing Drive
El Paso, TX 79903
(915) 566-3968

Houston
Audio Prophies
12651 Memorial Drive
Houston, TX 77024
(713) 973-0000

Nacogdoches
Branch Paton's Appliance
801 North St.
Nacogdoches, TX 74961
(713) 564-6131

San Antonio
Bill Case Sound
2625 Broadway
San Antonio, TX 78215
(512) 224-6131

UTAH

Ogden
The Hi-Fi Shop
2236 Washington Blvd.
Ogden, UT 84401
(801) 621-5244

VIRGINIA

Alexandria
Excalibur
323 S. Washington St.
Old Towne Alexandria, VA 22314
(703) 548-3113

NEWPORT NEWS

Sound Approach, Inc.
873 Newport Sq. Shopping Ctr.
Newport News, VA 23601
(804) 596-7621

RICHMOND

Audio Art
2215 E. Broad St.
Richmond, VA 23223
(804) 644-8903

VIRGINIA BEACH

Sound World, Ltd.
4574 Pemproke Meadows
Virginia Beach, VA 23455
(804) 499-8555

WASHINGTON

Seattle
Magnolia Hi-Fi
133 Minor Avenue North
Seattle, WA 98109
(206) 525-9744

Spokane
Huppins Hi-Fi
421 West Main
Spokane, WA 99201
(509) 747-6486

WEST VIRGINIA

Huntington
Pied Piper
1200 3rd Ave.
Huntington, WV 25701
(304) 529-3355

WISCONSIN

Milwaukee
Sound Investments
2500 W. Silver Spring
Milwaukee, WI 53223
(414) 354-4030

WYOMING

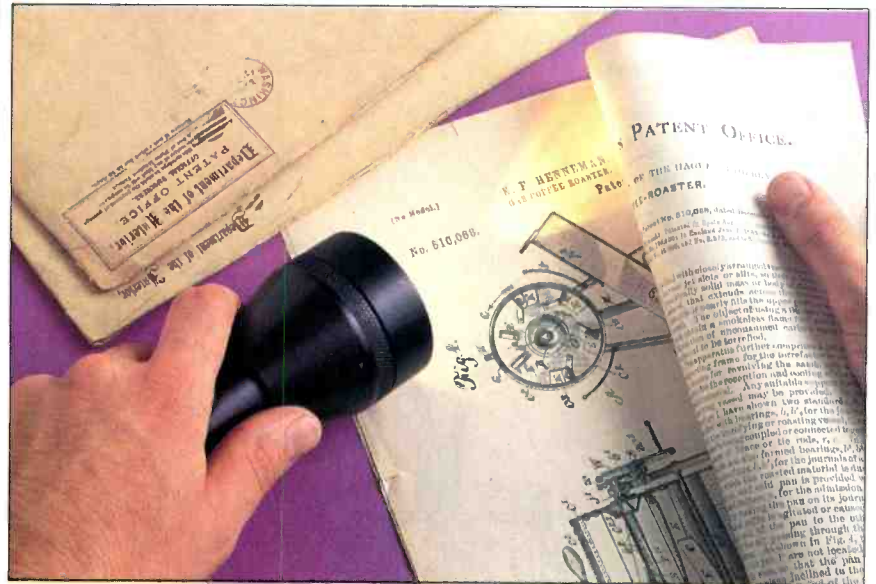
Laramie
Music West, Inc.
100 South Second St.
Laramie, WY 82070
(307) 742-3774

BUREAU-DRAWER DRAWINGS

IS IT FOR REAL? Few of us enjoy having our leg pulled. And yet—sometimes we have to believe. Sometimes we turn out to be right. Momentous discoveries or rediscoveries occur, like Schubert's "Unfinished" Symphony, dug up some 37 years after his death. Or the more than 30 unknown organ works by J. S. Bach rediscovered and performed within this last year. I've managed to hear them twice already. Or take the case of Sir Charles Wheatstone.

Remember the Wheatstone bridge? It was a well-known circuit used to measure electrical resistance. Sir Charles, born in 1802, was one of those dynamic, all-around inventors of the early 19th century—along with Faraday and many others of the Watt-Ohm-Volta age and on to Hertz. It's a wonder we don't have a unit of measurement called a Wheatstone, with concurrent mega-Wheats and kilo-Wheats. The man was a broad thinker and experimenter and, like many of his kind, a doodler of scientific ideas, on impulse or in the informal notebooks inventors seemed always to have with them in those days. He co-invented the Wheatstone-Cooke telegraph system, one of those competing with Morse; he made improvements on the nascent dynamo when the electric current was still mainly derived from batteries of voltaic and other cells. He was into photography, and in its earliest years it was he who suggested the stereo photograph—he is a father of stereoscopy. And he invented the concertina! A musician of sorts. So to my present story.

One morning last spring I casually opened the latest issue of a mag called *Stereo World*. No, this is not a sudden, new addition to the hi-fi journalistic scene. It is the house organ of the National Stereoscopic Association, specializing in stereo photography. Long-time readers will recall that my own interest in this art has always paralleled my later fascination with stereo sound. (Binaural reproduction, a channel for each ear, is the more exact counterpart to a pair of stereo photos, one for each eye.) My earliest homemade stereo picture, black and white on cardboard and printed by myself, dates from c. 1928, even before Keller's work at Bell Labs on sonic stereo. It shows my father shepherding a



batch of kids on a mountain walk. I was among them, lugging a camera . . .

One glance at *Stereo World* and I went off like a bomb. All else was put aside. I put in a frantic call to the editors—for to my astonishment here was an *audio* story to end all audio stories, in a photographic mag and exclusive to it. Wheatstone, the father of stereoscopy, of course, accounted for that. *But did these people know what they had?* Very likely not. Does anybody know his neighbor's field these days? Luckily, the call was not returned; I was, as you might say, in a tizzy, and hardly able to talk. But I didn't give up and I'm still there. It took me days to get back to some coherence.

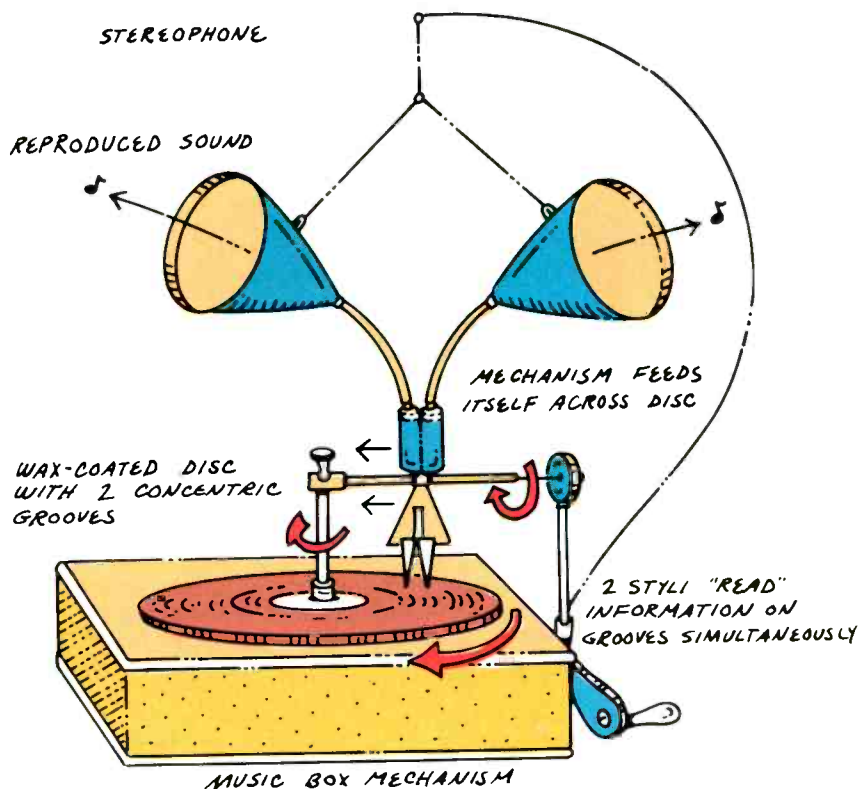
Here was a group of unknown scientific sketches by Sir Charles Wheatstone, dating from the 1830s, rediscovered—where else?—in an old bureau drawer. Don't most old papers of the sort turn up in attics and bureau drawers? Old people die, their attics and bureau drawers are ransacked and out pop the most incredible things, including many genuine treasures. If not here, then from an equally fertile source, world-famous libraries, where anonymous misfiled documents lie for centuries untouched. It's all the same, bureau drawers and libraries—the Bach, above, came out of the Yale University library where it had been sitting for more than a century under some "miscellaneous" category, un-

recognized. So, Wheatstone in a bureau drawer? What more likely.

Stereo World's writer, James Middleton, had done a superb journalistic job: There were the sketches, neatly reproduced as fragments, and there was a detailed explanation of the discovery that confirmed my interest via a remarkable variety of tie-ins with my own past life. The sketches actually turned up, I read, back in the early 1920s and were prepared for publication as a "scoop" in a then brand-new news magazine, no less than *Time*. At the last moment, the story was yanked out and a substitute put in its place. There had been objections. From lawyers for Thomas A. Edison, then very much alive. From the War Department, and its Secretary, name of Weeks. National security! And a conflict with Edison. This was indeed a potential scoop.

The writer of the 1923 article was fired for his pains, it says. He went over to another new magazine, also still existing today, where he was, we are told, an employee for a half-century or so until his recent death in February of this year. But he never again tried to make his Wheatstone discovery public; after all, he had lost his job once, and risked the same again. Thinner reasons than that have kept great treasures hidden away by their owners. Only after his death did the material surface—out of the same bureau drawer. That's the way the story goes.

What really made me jump was a two-trumpet music box. Wheatstone had drawn a phonograph, 40 years before Edison's. And it was stereo, too.



Why so much fuss? Why national security? Sounds far-fetched. But if you glanced more than a moment at the actual drawings you would see why.

These were neat little doodles, not messy like Edison's (remember the famed drawing of the phonograph?) and very much in an early 19th-century style. Little men with tall top hats. They had the visible ring of authenticity. Not working blueprints, just quick idea-sketches, the sort that often go no further than pencil and paper. But coming from Wheatstone? They just had to be significant.

One drawing showed an ingenious device for measuring ocean depth from a ship's deck. A vertical cannon would shoot a ball downwards. As it hit bottom, an impact wave would return to the surface where a large "tympanum membrane" would respond, and send a sound wave into a sort of ear-trumpet listening device. A chronometer would measure the time lapse, which would give the depth. No mention of a muddy bottom, but perhaps

the cessation of sound might be enough in that case. Can you see why the 1923 War Department might be concerned? Of course! This had intimations of sonar, no less. My own experience with exactly the same implication instantly told me this could be the truth. I myself got into similar trouble once, unwittingly, in this very magazine and on the very same basis.

Don't ask me where I had picked the idea up, but I somehow made mention of a reflecting ocean-depth measurement system not unlike radar. When that issue appeared I got a call from the U.S. Navy, and a group of impressive, white-coated Navy brass soon appeared at my New York apartment. They questioned me for most of a long morning. *Just how did I get the information in my Audio article?* I said I didn't really remember, just read it in some magazine, maybe. They persisted. I laughed at the absurdity of it. They did not laugh. They would not go away. It was, I assure you, very frightening. In the end, they departed and I

heard no more. This story, I tell you, is God's truth. So I was quick to believe *Stereo World*. The War Department would surely object to Wheatstone's cannon idea as bad for security. (Yes, it was the Secretary of War, in peacetime. "Defense" was a later euphemism. And, yes, Weeks was the Secretary in 1923. I checked.)

But on to audio. The drawing that made me really jump was of a sort of two-trumpet music box. It had a clock-work mechanism in the bottom (long since perfected as of the 1830s) and on top a round, turning table with, as it said, "concentric grooves" cut in wax, two of them. Overhead dangled a pair of styli, one for each groove, hanging from a sort of overhead screw lathe which moved them across, powered by the turntable itself. These led to tubes and to a pair of small horns or trumpets, suspended above. This device, the drawing said, should "read information" from the grooves.

Well, you may hoot in derision but the drawing is convincing. Indeed, nothing in it was impossible in, say, 1837. It could have been built, though surely it was not—like so many paper ideas surviving from the early inventors' files. It was an idea-sketch, no more. But can you understand why Edison's hawk-like lawyers might object and ask for a postponement for further inquiry? *That 1837 drawing would have been a phonograph, some 40 years before Edison's.* And stereo, too.

I also had experience in this direction, as did many another audio journalist. Edison himself is gone but the Edison people are still right there. With all due respect, I must say that there is no place more difficult to penetrate in a journalistic way than the present Edison domain, even for the simplest info on, say, the Original Phonograph. In 1977, its 100th birthday, I saw it, still there, in Orange, N.J., grimy and blackened, unobtrusively stashed off in a corner, while a resplendent reproduction took, so to speak, the limelight out front. (*Audio* ran a story on a similar model; see December 1977 issue.) I will say no more—but I could believe that Edison's people might well object to the publishing of this innocent little sketch until they had checked very thoroughly into the circumstances.

Continued on page 83

Illustrations: Teresa Anderko, after Stereo World



BEYOND CONVENTIONAL AMPLIFICATION

ONKYO'S NEW REAL PHASE TECHNOLOGY

Today's speakers, with their multiple driver construction and complex crossovers, differ electrically from the simple resistive load used by amplifier designers to simulate the loudspeaker load. The actual load that is "seen" by the amplifier causes severe phase shift between the voltage and current sent to the speakers. This causes an audible loss of sonic clarity and dynamics.

Onkyo's Real Phase Technology uses not one, but two power transformers to correct this problem. A large high capacity primary transformer together with a special

In-Phase secondary transformer prevents this phase shift, providing increased power output into the loudspeaker load as the music demands it. The result is clean, dramatic dynamics; musical peaks are reproduced with stunning clarity.

Now, the dynamic range of the music can be fully realized. On the following pages, you'll find a complete explanation of the Real-Phase story.

Shown is our new A-8067 Integra amplifier, with Real Phase Technology and our exclusive Dual Recording Selector.

Artistry in Sound

ONKYO®

200 Williams Drive, Ramsey, N.J. 07446

Real Phase—To Preserve All the Complex Sound Field Information Contained in the Music

The Integra Series Sound

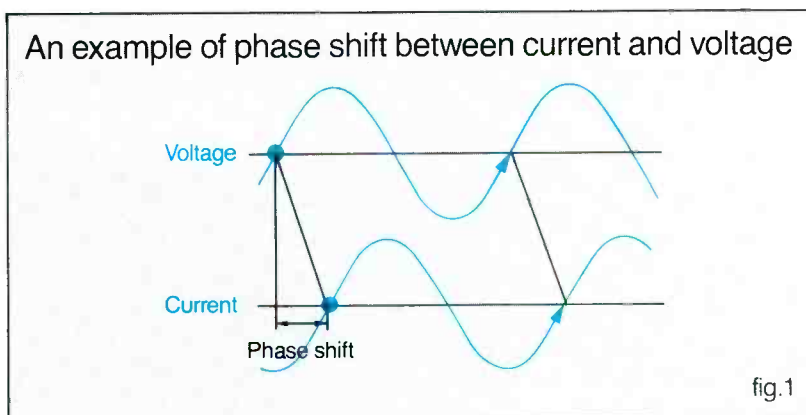
The elusive ideal in sound reproduction is to preserve and faithfully recreate all of the feeling of abundant energy and finely detailed presence of a live performance. Over the years, Onkyo has been tackling the myriad problems involved by developing new ways to solve each obstacle in the path to the ideal. As the name "Integra" implies, this new series of audio components makes full use of Onkyo's wealth of innovative technology to give you, the listener, a sound that is as close as possible to the original, a sound that can only be described as uniquely Integra.

Why Phase Accuracy Is So Critical

The relative difference in timing between the peaks and valleys in the left and right stereo channels, a characteristic called "phase," plays a major role in localization of individual sounds on the stereo "sound stage." If, for example, signals of the same frequency, strength and phase are sent to both speaker systems, the sound will seem to originate from a point precisely between the two speakers. If, on the other hand, the phase of the left and right signals does not coincide, the sound source will appear blurred or out of focus. Accurate stereo imaging, therefore, is possible only if the relative phase of the two stereo channels is not altered by the slightest degree during the amplification process.

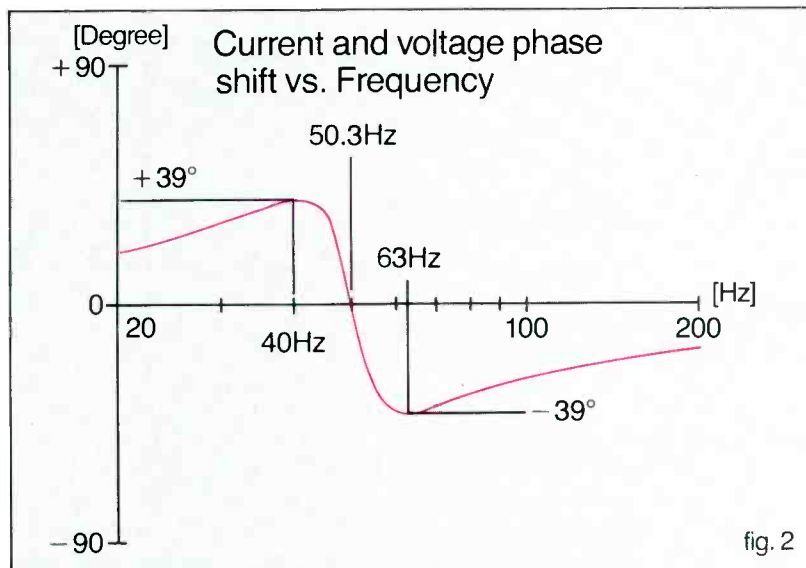
How Phase Accuracy Is Lost In An Ordinary Amplifier

Because the load presented by a speaker system on an amplifier is not a purely ohmic resistance, there is an inevitable shift in phase between the voltage and current in the amp-to-speaker signal path (see fig. 1). This phase shift is most pro-



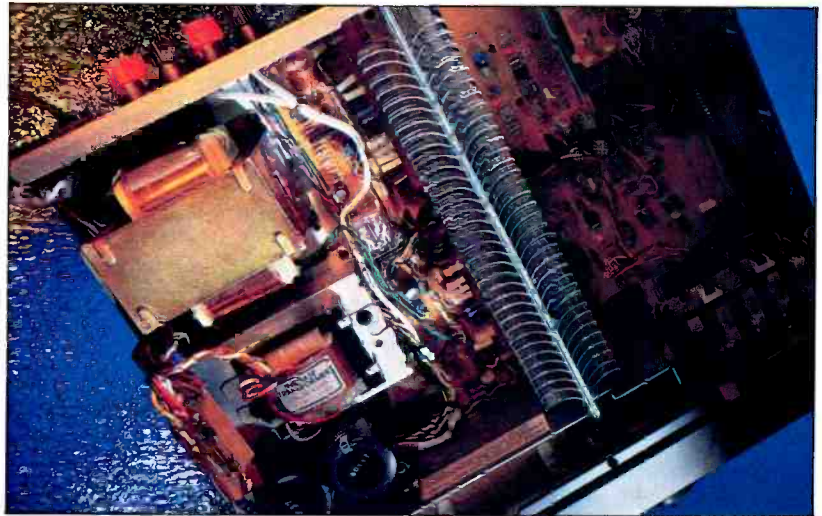
nounced around the speaker's bass resonance frequency, where the phase of the voltage and

current are reversed (see fig. 2). Naturally, this same phase shift also exists between the voltages



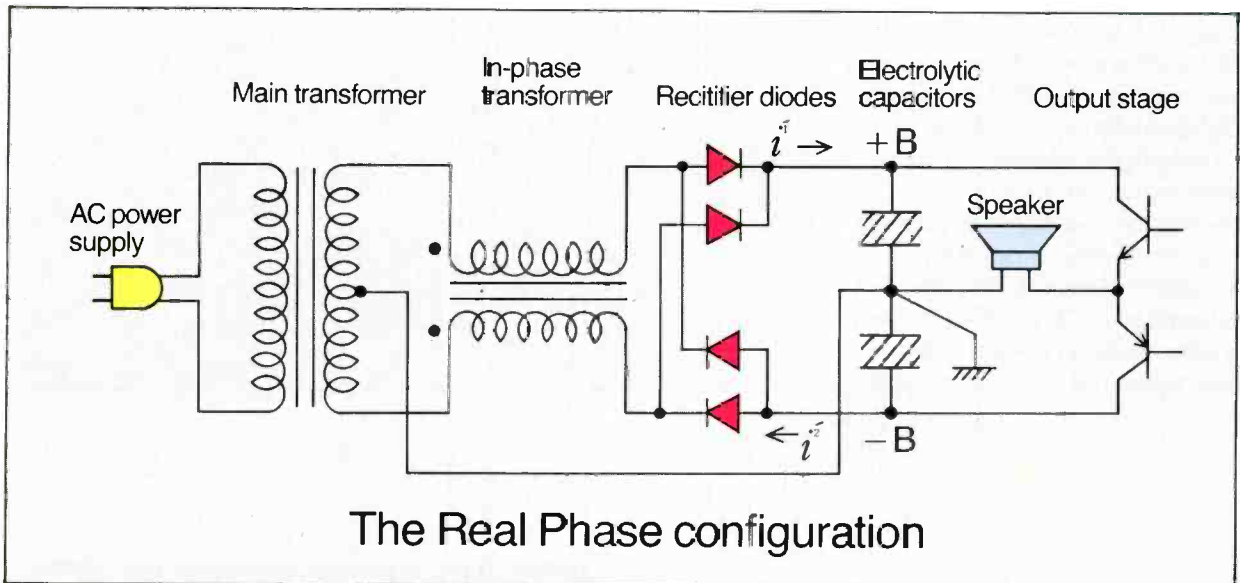
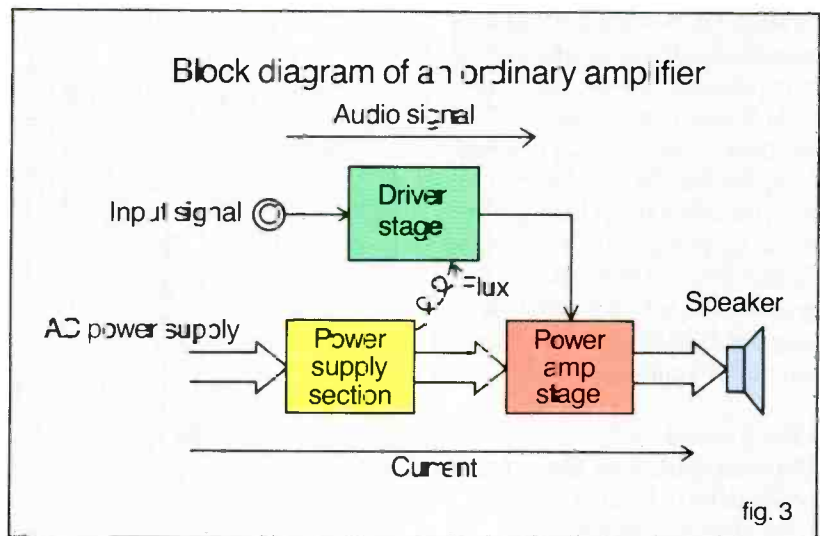
REAL PHASE

and the charging currents in the amplifier's power supply. These charging currents create a problem when the input signal contains very low frequencies (under about 120 Hz—precisely where voltage and current phase differ by the greatest amount) because the currents are made to fluctuate at the same frequency. Electromagnetic flux generated by these "out of phase" charging currents often induces voltages of the same incorrect phase in the nearby driver stage (see fig. 3) through which the audio signal passes. These spurious, fluctuating voltages are amplified and then go on to the speakers. There they set the speaker diaphragms in a false kind of pulsating motion, which in turn causes phase inaccuracies and a particularly obnoxious kind of intermodulation distortion.



The Onkyo Solution—An In-Phase Transformer

Onkyo dealt with the problem of phase dislocation by going straight to the root: the modulated, "out of phase" charging currents caused by very low frequency signal elements. If this



REAL PHASE

undesirable modulation of the charging currents, which occurs every time a very low frequency signal is encountered, could be prevented, the problem would cease to exist. So Onkyo decided to "flatten out" these currents. This is done by taking advantage of the fact that the positive and negative charging currents are mirror images of each other. In the power supply section, an extra transformer (the "In-Phase" transformer) is placed between the power transformer and the capacitors. As the positive and negative charging currents pass through the two windings of this transformer, the unwanted peaks and valleys in the charging currents cancel each other out. The resulting current shapes are perfectly flat (see fig. 4). Another important benefit of having two equal charging currents is that no current flows in the common ground. This prevents another conceivable source of spurious signal fluctuations.

The Benefit—An Unprecedented Degree of Realistic Imaging and Low Range Definition

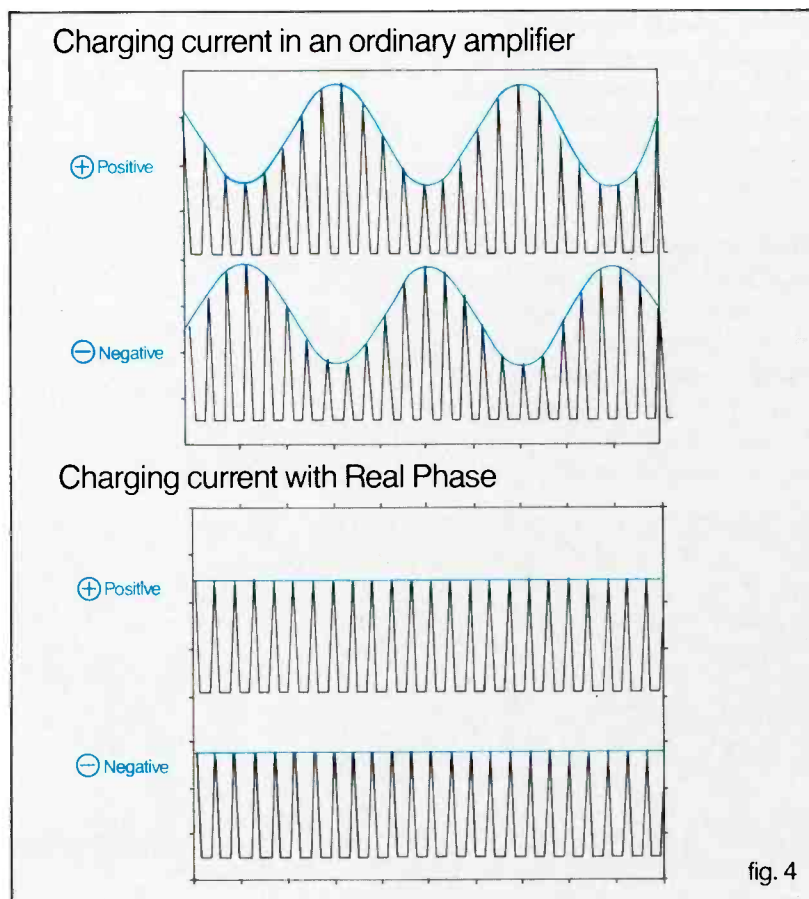
The audible benefits of Onkyo's Real Phase are striking. First and foremost, these amplifiers create an auditory sensation that faithfully reproduces all the sound staging information in the input signal. Since there is no blurring or smearing, instruments and voices appear precisely focused and rock steady. Another advantage of Onkyo Real Phase is better speaker control in the bass range due to the absence of

out-of-phase low frequency signals. You will notice that bass instruments sound much more tightly defined, with no annoying muddiness. It all adds up to unprecedented sound stage realism and image specificity.

A Truly "Digital Ready" Amplifier

With the appearance of compact disc players and other purely digital audio sources, manufacturers are calling all manner of amplifiers "digital ready." However, a closer look often reveals that this so-called "readiness" has been achieved simply

by raising output power a few watts. Onkyo, though, builds digital ready amps which incorporate meaningful improvements in the way they operate. Real Phase is an excellent example of this policy. Because Real Phase guarantees that the output sound pressure waveforms precisely reflect the input signals, it also guarantees that the unparalleled purity of digital sources is faithfully preserved all the way to the speakers. Only an amplifier that incorporates such up-to-date technology is worthy of being called "digital ready."



ONKYO®

200 Williams Drive, Ramsey, N.J. 07446 • (201) 825-7950

There were more drawings here, such as those for a "portable music box" and even for "stereo ear muffs."

Continued from page 78



STEREO EARMUFFS

There was more, including a "portable music box" with tube and ear trumpet, nicely drawn and with humor, and even a set of "stereo ear muffs," with two forward-aimed horns coming out of them to carry sound. But enough.

There were remarkable further ties into my own life. In the *Stereo World* article, the issue of *Time* with the suppressed Wheatstone cover is shown—March 17, 1923, Vol. 1, No. 3. Yes, it is indeed the old *Time*, with the familiar pair of flowery columns on each side; yes, the black-and-white line drawing is right—they used them in early *Time* issues. There is the telegram from the "SecWar" to Henry Luce of *Time*, on the correct-period telegram blank, and there too is Luce's note to colleague Britten Haddon ("Let me handle this") initialed HL, on *Time* stationery. Very convincing. It all checks out. The date, too, is correct: *Time* magazine had made its modest debut just two weeks earlier, on March 3, 1923. You should be able to find the March 17 issue—with a different cover story, of course—in any large library.

There's more. It happens that my father knew and, I think, taught the two young *Time* partners at Yale; he was their considerable adviser while the men were launching their news magazine. And in this very period *Time* shared a smallish office, back to back, with my father's own new magazine, the *Saturday Review of Literature*, saving both enterprises precious money. As a small boy I was almost certainly in and out of that office, as I now can fuzzily remember.

Remarkably, a final aspect of the Wheatstone affair involves another of my close associations, the *New Yorker* magazine. It was to that then-new mag that the author of the Wheatstone piece and owner of the bureau drawer removed himself after being dropped from *Time*—says *Stereo World*. And it was right here that I began to have my doubts. I know the *New Yorker* too well. I've always read it; I have a nephew on the staff right now. The employee in question, who wrote the original article and is said to have died last February, is named as *Eustace Tilley*. Does that ring any Tilley-bells with you?

Eustace Tilley is the man who appears each year on the *New Yorker* anniversary cover, a dandy in a tall hat looking through a monocle at a butterfly. I have heard that he actually existed—in the early 19th century. Say around 1837? So I called Peter Canby, my *New Yorker* spy, to double-check. No, Eustace was *not* an employee and did *not* die last February.



DEVICE PERMITTING WEARER TO HEAR HIMSELF THINK

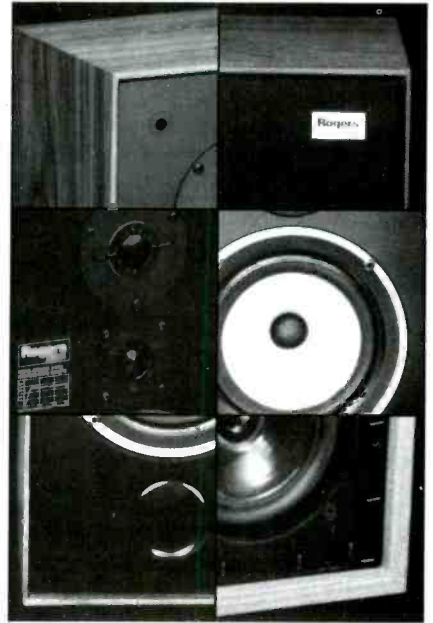
I've been amusing myself by showing *Stereo World* to numerous friends, deadpan. Most say it must be a hoax, yet each finds a different clue, and indeed, among us we've found many more. But for me it was Eustace Tilley who did it.

By all means, rush in your order for the May-June issue of *Stereo World*, while they last. Normally it's for members of NSA only, but the management says that readers of *Audio* may obtain a copy by sending \$3 (\$3.50 for first-class mail) to the National Stereoscopic Association, P.O. Box 14801, Columbus, Ohio 43214.

Rogers

BRITISH  HIGH-FIDELITY

MUSICALLY ARTICULATE
LOUDSPEAKERS FOR
OVER A DECADE



We'll bet you our compact discs that you'll love Rogers loudspeakers!

Better sound is hard to find. And to make sure you hear Rogers at their best, we'll give you up to **three** Digital Music Products compact discs with your purchase.

For a limited time only (October 1/85 to November 30/85), take our challenge, buy any pair of Rogers loudspeakers, and we'll mail up to three Digital Music Products compact discs to you. (Disc rebate forms available from Rogers Dealers.)

FOR MORE INFORMATION CONTACT

 BOX 1840 BRANTFORD ONTARIO CANADA N3T 5W4
BOX 1250 FALLS STA. NIAGARA FALLS NY USA 14303-0290
(519) 756-4860

Enter No. 58 on Reader Service Card

WHAT'S NEW



Thorens Turntable

Instead of the usual subchassis in a hollow base, the Thorens TD 318 turntable's suspension consists of two solid-core chassis, side by side. The larger, "base" chassis

incorporates the drive motor and controls, while a smaller, inset chassis holds the tonearm and platter bearing. The latter is suspended by three springs which can be adjusted from the top of the

unit. The 5.9-pound platter is belt-driven by a new low-speed, low-voltage synchronous motor with electronic speed change. An acceleration clutch on the motor pulley smooths platter startup and reduces drive-belt wear. The straight, low-mass arm has low-capacitance cables, and is attached to a friction-free, velocity-sensing photosensor system for automatic shutoff. Specifications include: 0.04% wow and flutter (DIN), rumble less than -50 dB unweighted or -70 dB weighted, and lateral tracking error not greater than 0.18° per cm of radius (0.46°/in.). Price: \$350.

For literature, circle No. 100



Shure Microphone

The Prologue 8L is a low-impedance cardioid microphone designed for home recording. For easy connection to home audio and video equipment, the 8L has an impedance of

600 ohms and a 15-foot cable terminated in a 3.5-mm mini-plug, for which a ¼-inch phone-plug adaptor is supplied. A table-top stand is also provided. For easy servicing, the transducer cartridge, grille, and on-off switch can be replaced in the field. Price: \$43.75.

For literature, circle No. 102

Talisman Preamplifier

A joint effort of Sumiko and Paracas, the Talisman Alchemist preamp is for use with high-output cartridges. The layout of the single circuit board is designed to eliminate magnetic interactions between components. Selected specifications include: RIAA accuracy of

0.25 dB, S/N of 79 dB for phono and 96 dB for the two high-level inputs, and THD of 0.01%. Price: \$1,275.

For literature, circle No. 101



DCM Loudspeaker

The DCM Time Frame TF 500 is a two-way system using a ¾-inch soft-dome tweeter and a 6½-inch low/mid-frequency driver in a folded, tapered transmission-line enclosure. Frequency range is 38 Hz to 20 kHz, and sensitivity is 90 dB. Price: \$499 per pair. For literature, circle No. 103



NIKKO AUDIO

**Taking technology to the limit
...and beyond.**

Enter No. 47 on Reader Service Card

Nikko knows where 'beyond' begins.

The 50-year history of Nikko Electronics reads like an anthology of technological innovation.

It's a colorful history rooted in ancient traditions of samurai honor blended with the rigorous demands of space-age science.

It's an inspired history that goes beyond enlightened engineers reaching to advance technology and product quality in a variety of commercial and consumer industries.

And it's a courageous history of exploring new ideas, and taking calculated risks to research, develop and define the limits of new technologies.

As one of a group of high-tech companies—including Nikko Breakers, Nikko Denshi, Nikko Tool & Die, and Nikko/Deutsche Aerospace—Nikko Audio has been making innovative, substantive contributions well-beyond the limits of ordinary audio technology for over a quarter century.

We were first, with our exclusive "Terada Circuitry," to intro-

duce fully solid-state MOS FET amplifiers and receivers in the early 60s. We were first with Servo-Lock circuitry that eliminates DC drift; first with circuit breaker protection systems; first with scores of innovations that have helped revolutionize the art and science of high-fidelity. We were even first, in the early 70s, with the black high-tech look that is so much in vogue today.

It should be no surprise that we were first to offer a 3-year, fully-transferable, warranty. With scores of patented innovations to our credit, and as a primary manufacturer, we have a reputation for backing what we design and build.

Founded by some of the same engineers and scientists who have been contributing to America's exploration of space, Nikko Audio is different from most other companies in our industry. It is one of the few whose commitment to engineering and design excellence continues to pervade and dominate a marketing philosophy. A philosophy that goes well-beyond platitudes...whose net

value is measured by the quality of product and satisfaction of customers.

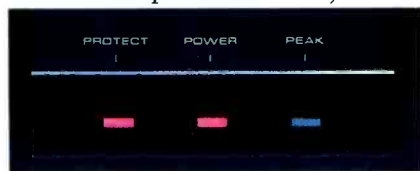
Beyond the limits of audio, we're taking the power of technology forcefully into other areas that challenge traditional precepts of media, of music and the arts, of communications. Into areas that include infrared technologies, communications sciences, and TVRO satellite systems. Into new dimensions that will change the home entertainment experience as we know it today.

Our commitment to the future of high-end audio/video is rooted in the power of technology. We will continue to bring our innovations to market with the consistency and continuity of leading technologies that we help research and develop... technologies that will decide and impact the way we see and hear the music of our time.

Beyond is familiar to us. We've been there many times.

System protection circuitry

As the world's largest manufacturer of circuit breakers and protectors, Nikko has the edge on circuitry that protects electronic components and systems.



Nikko's circuit protection system senses DC current, excessive loads, overheating, and shorted speaker leads. Protects the system.

We were the first company to offer such circuitry in audio/video components. And we are one of the few companies which utilizes sophisticated protection circuitry throughout our entire line of amplifiers and receivers.

Our protection circuitry protects your system in 3 ways:

Speaker protection is ensured if, for example, there is DC present when the system is switched on. DC current is immediately sensed by the amplifier, and the relay will not connect to the speakers, thereby preventing damage.

Or, if there's excessive load caused, for example, by a short in the speaker leads or a short in the voice coil, the amplifier will immediately sense that short, and disconnect, preventing any damage to the amplifier.

And, if there is excessive heat build up in the transformers, the unit will sense this and shut down. After the protection system reviews the stability of

the amp it will reconnect/shut down continuously until satisfied that the problem has been corrected.

Subsonic filter

There are three main problems associated with subsonic frequencies:

First, at higher listening levels, subsonics can cause the woofers to vibrate excessively, often hard enough to actually shift the position of the voice coil on the woofer.

Secondly, when a speaker moves at both subsonic and faster sonic rates, the interaction between the two can cause audible distortion.

Finally, the amount of power wasted when the speakers reproduce subsonic frequencies drastically reduces the amount of power available to reproduce audible frequencies.



Subsonic filters utilize power efficiently, eliminate distortion, protecting speakers from subsonic frequency damage.

Because of the new CD technology, it is even more important to incorporate subsonic filters in lower-powered amps and receivers. And that is exactly what Nikko does. You will find subsonic filters in all Nikko amplifiers, integrated amplifiers, and receivers, from the top of our line on down.

Dual-line selector system (DLSS)

All Nikko preamplifiers and integrated amplifiers incorporate Nikko's unique Dual Line Selector System (DLSS).

The primary benefit of DLSS is that it allows the audiophile to listen to one source while recording from another source. One can listen to stereo or watch TV while recording another source on tape through the same system at the same time.

And DLSS makes system operation remarkably flexible and



Nikko's exclusive Dual Line Selector System permits listening to one source while recording from another source. And, it's simple to operate.

simple. Whatever source is selected on Line Selector 1 is recorded on Tape 1, and whatever source is selected on Line 2 accesses Tape 2. All at the touch of a button.

Another attractive feature, Line Mixing, permits the user to fade music from line 1 into music on line 2.

Nikko's Solid Construction

Just because you can't see it, doesn't mean it's not important. Sometimes what you don't see is critical.

All Nikko components feature a variety of design elements that not only enhance efficiency, but also add to their overall quality and durability.

For example, most Nikko components are housed in solid, commercial-grade die-cast and extruded aluminum chassis, insuring greater protection and durability, rather than molded plastic as found in other brands

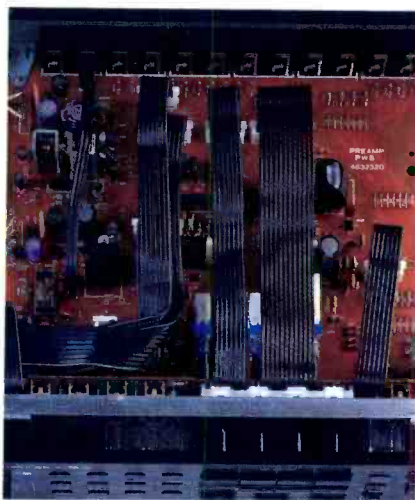


Commercial-grade die-cast and extruded aluminum chassis insure greater protection and durability.

And all input/output circuitry and switching devices are mounted directly onto printed circuit boards. All Nikko circuitry utilizes computer-ribbon wiring, rather than cold-solder joints found in other lines. This means less wiring, and most importantly, less noise. In fact, grounds between each line, within each computer-ribbon wire help to eliminate crosstalk and insure clean, unadulterated, audio reproduction. This, plus electronic gyrator circuits rather than coils, help make our EQs the quietest.

All Nikko amplifiers have

oversize power supplies that allow for the extra wide dynamic range that today's digital technology demands. And, regulated power supplies in the amplifier and pre-amp sections isolate the unit from any excess or decrease in line voltage. The result is that the system will always perform at optimum levels regardless of the voltage coming in.



Computer-ribbon wiring helps eliminate cross talk.

Best warranty in the business

It's no accident that Nikko is the first company to offer a 3-year, fully-transferable, warranty on other than commercial audio components. As a prime manufacturer with double QC aerospace tolerances, we back what we design and build.

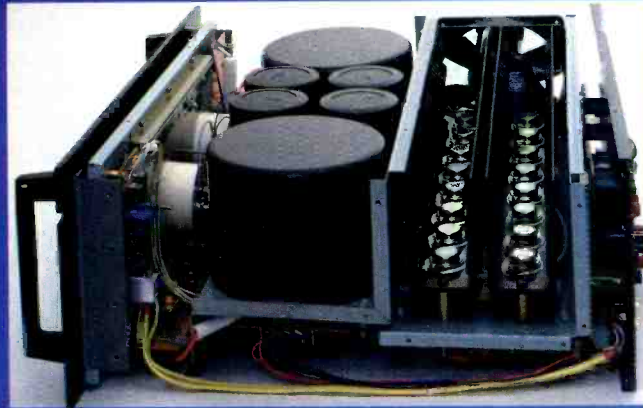
Nikko also guarantees the specifications of its components for the full warranty period. If any component should fail to perform up to its original specifications within the warranty period, Nikko will repair or replace the component at no cost to the owner.

Alpha-650 LABO Series 300 W/Channel DC Power Amplifier:

Designed specifically for recording studio and sound reinforcement applications. Features dual monoaural construction and dual toroidal transformers. It is thermal controlled with a 3-speed fan for constant cool operation. Meters with logarithmically compressed scales assure accurate monitor-

ing. And it is strappable to mono with a built-in BTL (Bridged Transformerless) Phase-shifting Network, that enables it to generate more than 650 watts RMS at 8 ohms mono. The hybrid Class AB circuitry assures stable operation below 4 ohms, and incorporates Nikko's exclusive pro-

tection circuitry system. Input is fronted by an FET with a cascaded 2-staged differential circuit. For reduced power supply impedance the unit uses an FET built constant current power supply for input and 2nd stages.



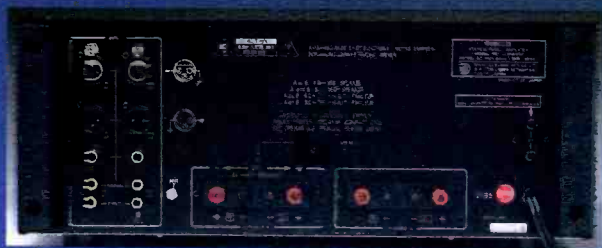
Input is fronted by an FET with a cascaded 2-staged differential circuit. For reduced power supply impedance the unit uses an FET built constant current power supply for input and 2nd stages.



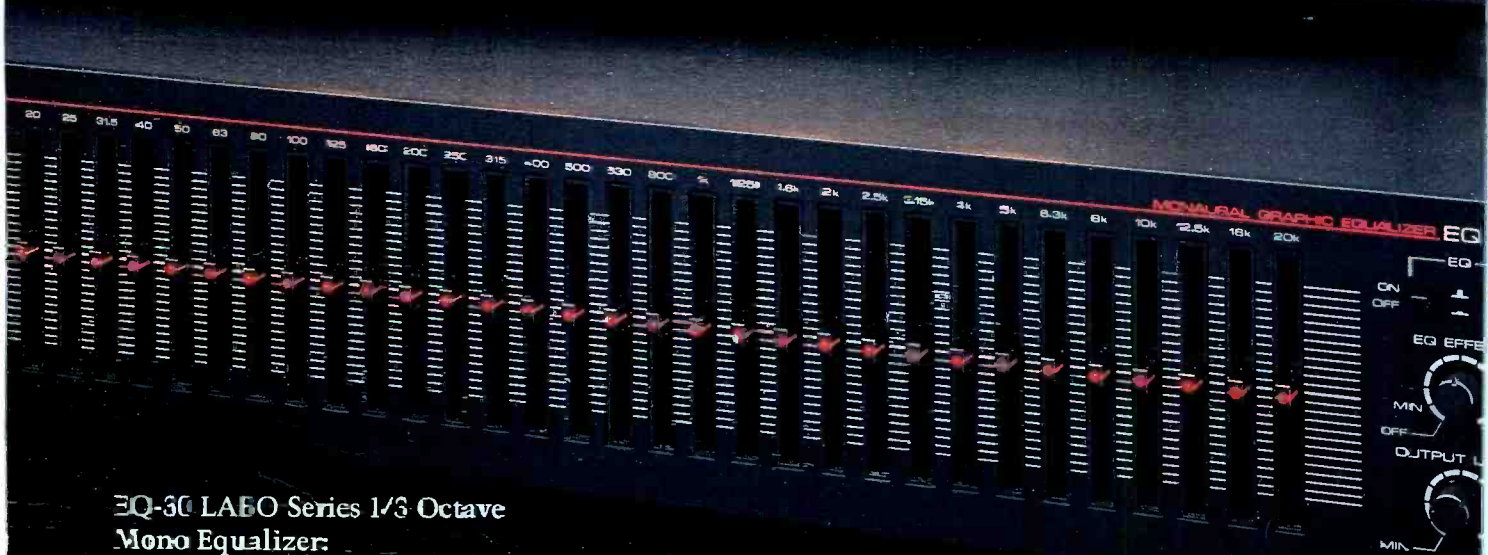
CO-23 LABO Series Active Crossover Network:

Features a 22-point crossover (11 points from 125 Hz to 1.25 kHz with a safety-recessed X10 frequency turnover point), double mids, 2 accessory switchable AC inputs, an accessory ground, 24 karat gold-plated terminals and post windings, built-in circuit

breakers, four variable rheostats, 2 point variable slope at 12 dB and 8 dB, and 2-way stereo or 3-way mono versatility. Safety built for studio and on-the-road applications, its excellent signal-to-noise ratio adds no noise to the system at all.



Back panel features balance-line 24 karat gold-plated LR and RCA plug inputs as well as banana plugs and 1/4-inch mono phono-tack outputs.



EQ-30 LABO Series 1/3 Octave Mono Equalizer:

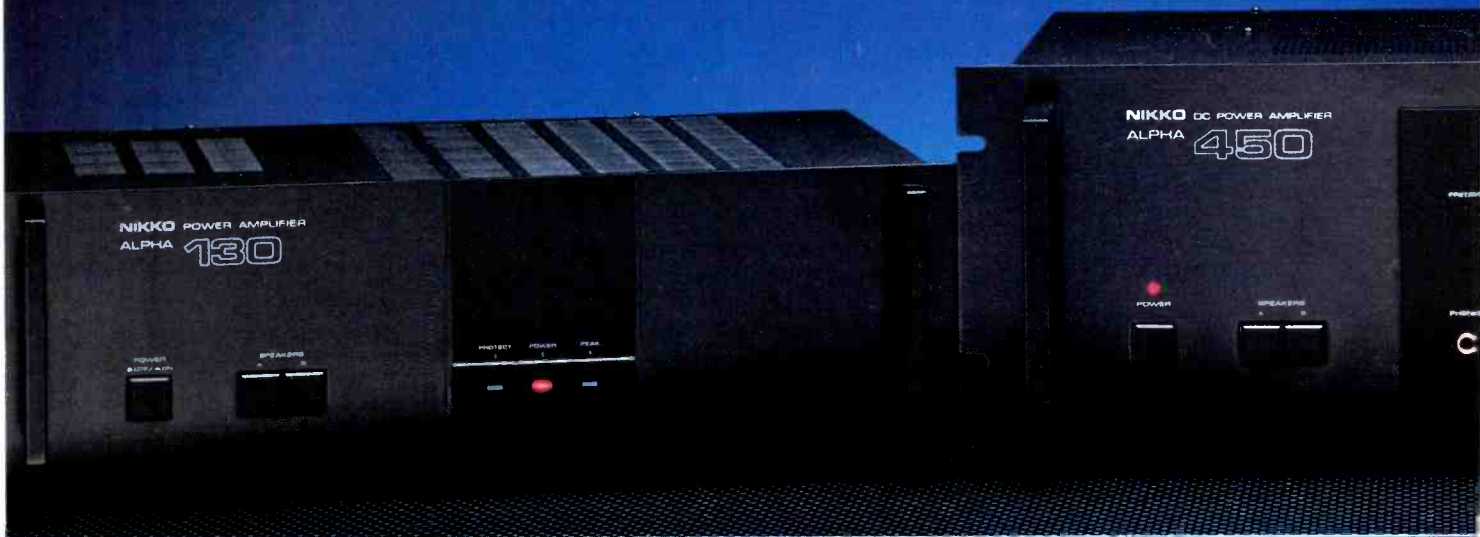
Features 30 bands of equalization that permit total control over speaker characteristics and program material while compensating for room resonances and standing waves. It allows up to 15 dB boost or cut at 1/3 octave intervals with a signal-to-noise ratio of more than 100 dB.

Alpha-130 Professional Series 100 W/Channel DC Power Amplifier:

Features a high-speed design for wide-band response, and includes a 2-stage differential amplifier circuit. Dual low noise, low distortion FET transistors are employed in parallel, and provide greater power dissipation and

higher frequency amplification. Utilizes a hybrid Class AB circuit, which provides for efficient cool operation while assuring true sonic transparency. The impedance selector on the rear panel prevents overheating while

maintaining high current capability under varying load conditions. Incorporates the same exclusive protection circuitry found in other Nikko amplifiers and receivers.



Beta-50 Professional Series Preamplifier:

Functions are logically laid out and are simple to use. Nikko's exclusive Dual Line Selector System (DLSS) enables the user to listen to one input signal while recording from another, also enabling the user to mix from one input signal to the other. Its three sound processor loops and bi-directional tape-dubbing capability facilitate multiple taping. An advanced reed relay eliminates turn-on tran-

sients, and computer-ribbon wiring eliminates crosstalk. All front-panel controls are mounted directly to circuit boards, and a voltage-regulated power supply is maintained regardless of AC-line fluctuations. It utilizes a moving-coil head-amp, video CD inputs, a subsonic filter, and it has a built-in amp for headphone monitoring.

Beta-30 Professional Series Preamplifier:

Utilizes the same basic design as the Beta 50 II, but with 1 sound processor loop.



**Alpha-450 Professional Series 220 W/Channel DC Power Amplifier:
Alpha-230 Professional Series 120 W/Channel DC Power Amplifier:**

Features include high-speed bi-polar output transistors with a DC servo-feedback loop, non-switching output Class A operation, and dual-FET input circuitry. Its toroidal power supply and DC Servo-Lock provide for stable performance and cool operation.

Incorporates Nikko's exclusive variable bias circuit, which maintains superb sound quality associated with Class A designs, but without their characteristic heat build up and inefficiency. Direct (DC) operating mode switches. Separate input level

controls. Relay controlled speaker selectors. It uses DC sensing rush-current protection circuitry with LED power and protection indicators on the front panel.



Gamma-30 Quartz-Lock Crystal Digital Frequency Synthesized AM/FM Stereo Tuner:

Assures drift-free, distortion-free listening. It features 14 station presets (7 AM/7 FM) with illuminated preset buttons, auto/manual tuning, and 4-digit fluorescent display. A pilot cancelling IC removes 19kHz leakage for better off-the-air recording. Its IF

linear phase ceramic filters improve group-delay characteristics. A ratio detector and DC circuitry improves frequency response. And its front-panel variable muting threshold eliminates interstation noise as its high-order filter reduces FM noise.

EQ-25 Stereo Graphic Equalizer:

Features 12-band/channel equalization at octave intervals from 31.5-16,000 Hz. Boost/cut is +12 dB. Pre-EQ and Post-EQ tape monitor switches for A/B comparison and EQ Gain control for total flexibility. LED illuminated slide controls assist with easy assessment of frequency response curve. Utilizes computer-ribbon wiring.



NR-850R Infra-Red Remote 65 W/Channel Stereo Receiver:

Utilizes completely discrete circuitry with oversize transformers and computer ribbon wiring. With CD, TV, and 2 video inputs for VCR-to-VCR audio dubbing, 20 station presets (10 AM/10 FM), and 2 tape monitors for bi-directional dubbing. Stancy switch. Audio muting. Its present volume with indicator LEDs assures that the volume is at the proper level when

power is activated from a remote source. A microprocessor monitors and controls all input/output functions on this component.

The hand-held remote module controls power on/off, volume, treble and bass, balance, audio mute and function switching. Also incorporates an advanced 4-gang tuning system with Quartz-Lock digital-synthesized

circuitry and a variable FM muting threshold level. It is able to accommodate as many sound processors as desired without tying up the tape monitors via the processor insert. Complete with a moving-coil cartridge head amp, loudness contour, tone defeat, and auto/manual and preset tuning, this remote receiver exhibits audiophile quality throughout.



NR-750 Digital Synthesized 48 W/Channel Stereo Quartz-Lock Receiver:

NR-650 Digital Synthesized 38 W/Channel Stereo Quartz-Lock Receiver:

NR-350 32 W/Channel Receiver:

All three of these Nikko receivers incorporate several features normally found only in high-power receivers, including a subsonic filter, oversize transformers, and Nikko's exclusive circuit protection system. The digital receivers also feature super-sensitive

3-gang tuners.

The NR-650 features 12 presets (6 AM/6 FM) and 1 tape monitor, while the NR-750 has 14 (7 AM/7 FM) and 2 tape monitors and dubbing. Both receivers have CD/Video inputs, an FM

muting switch, a one-touch push-button input selector with signal display, and loudness contour. Even our 32 W/Channel, bottom of the line, lowest no-frills, high-quality receiver has a sub-sonic filter.



NT-700 II Digital-Synthesized Quartz-Lock Tuner:

Features 12 station presets (6 AM/6 FM), auto/manual scanning, and stereo-to-mono FM mute switching. It provides excellent sensitivity and precise selectivity.

NA-2000 Integrated 100 W/Channel DC Amplifier:

Employs 3-stage, high-stability differential circuitry. With discrete components, this amp is audiophile ready.

Features include mono-to-stereo, continuously variable switching for transforming mono TV sources to stereo. Nikko's independent record-out selector permits recording out from any source while listening to any

other input. CD/Video inputs. 2 tape-monitor inputs with bi-directional dubbing. Subsonic filter. Loudness contour. Audio muting. High-frequency filter. A high-gain phono head amp permits use of moving coil cartridges with even the lowest gain. Optionally rack mountable.



NR-1000 Digital-Synthesized 65 W/Channel Stereo Receiver:

For enthusiasts who want the same audiophile qualities as the NR-850R, but without the remote control switch-

ing. Includes 12 station presets (6 AM/6 FM).



NCD-600 Programmable Compact Digital Disc Changer:

The most sophisticated digital disc player on the market today randomly accesses selections on up to 60 stored compact discs. Permits 45 hours of continuous-play programming in any disc order, or up to 5 selections in any selection order. It can be fiber-optic linked to other NCD-600s, expanding program access to as many as 240 discs.

Featuring a linear 16-bit, 3-beam laser pickup, it can be interfaced with an RS232 and 8-pin DIN RGB input on the side panel, and can be interfaced with the new CD ROM, making use of the latest in digital technology. Displays disc/selection numbers of both tunes being played and of tune to play next. Permits key control and tempo maintenance control between program selections.

Applications include home entertainment library, professional studio/reinforcement, sound-effects reference library, restaurant juke box, etc. Optionally rack mountable.



NCD-200R Infra-Red Remote Compact Digital Disc Player: NCD-100 Compact Digital Disc Player:

Both of these CD players feature a third-generation 3-beam laser optical-diode pickup system.

The NCD-200R performs random-access programming of up to 9 selections in any order, and is fully remote. Its high-speed search with pause feature insures spacing between selections accommodating dubbing onto tape where spacing is critical to quick-search detection features found on

some advanced decks.

Both players utilize a unique timer-play feature that can be set to wake you up to favorite selections. Block memory allows you to find any index number within any track, and to program start and stop. Its multi-function display shows track number, index number, elapse time, time remaining and total time. Both players are optionally rack mountable.

ND-750 Logic Cassette Deck:

Features an optical sensor for 1/4-second quick reverse. Its precision transport and dual servo-motor capstan drive system insures accurate speed and low wow and flutter. Utilizes a standard DC takeup motor. Auto search. Dolby

C & B. Membrane one-touch recording. Timer Playback/Record. Optionally rack mountable.

Created for audiophiles who want smooth, accurate, efficient, high-performance, but at a moderate price. Features bar-graph LED peak meters. Cue & Review. Dolby C & B. Optionally rack mountable.

ND-350 Full-Logic Cassette Deck:

Basic, accurate, workhorse deck.



ND-1000 Professional Series Full-Logic Cassette Deck:

Features micro-computer TECS (Tape Evaluation & Control System), which automatically "tests" the electromagnetic properties of each tape as it's played, and then adjusts the bias/equalization/sensitivity of the deck. 3-Head configuration optimizes head-gap width on record and playback, permitting monitoring of tape during record mode. 2-Motor transport: DC servo-motor capstan drive. Standard

DC-motor takeup. Memory start/record. Dolby C & B. Optionally remote and rack mountable.

ND-850 High-Speed Double Cassette Deck:

Combines double-deck convenience with precision recording. Features selectable continuous play auto-reverse: Tape 1, A + B, Tape 2, A + B,

or Tapes 1 & 2, A + B. Full-logic, solenoid-touch control transport. Uses optical sensor for 1/4-second quick reverse. Dolby C & B. Play/Record timer. High-speed quick-search. Optionally rack mountable.



NPS-IR Infra-Red Remote Control Access Module:

Converts any home audio/video system into an infra-red remote-controlled system. Remote functions include power On/Off, variable volume Up/Down, Bass, Treble, Balance, and a 20dB Audio Mute. Optionally rack mountable.



EQ-500 Stereo Graphic Equalizer:

Features 6 band/channel equalization with center detents ranging from 40 Hz to 12.5 kHz. Variable + or -12 dB boost/cut permits significant adjustments. Pre-EQ and Post-EQ tape monitor switches allow user to equalize source material onto tapes. It incorporates an EQ Bypass switch.



AVC-3 Audio/Video Computer Interface:

Provides total control of all audio/video and computer components. Receives up to 5 source inputs and distributes signal to 4 outputs. Format includes 8-pin DIN RGB, composite video with RCA jacks, RF video at 75ohms, and a built-in channel 3/4 decoder. With computer interface, it permits mixing of graphics or character-generated text over, along side, or dropped out of video program material. Features an audio/video fade out/in control for mic/line as

well as video. Allows mixing of audio independent of video. Permits sound-on-sound and sound-with-sound while monitoring. Optionally rack mountable.

VCR-12 Distributor/Enhancer:

Permits multiple dubbing from up to 2 sources cut to 12 audio/video outputs. Has inputs/outputs on front panel for use with portables. Variable split-screen function can display enhanced and unenhanced video

signals side-by-side. Its continuously-variable rheostats permit adjustment of sharpness and reduction of video noise, effectively eliminating video distortion ("snow"), reducing video drop out to well-below 10dB. Also includes audio noise reduction circuitry with variable audio/video gain. A/B audio/video source switching. Applications include home, business, and studio audio/video presentations. Optionally rack mountable.





NP-750 Linear-Tracking Fully-Automatic Turntable:

Its micro-computer chip controls all tone-arm and platter functions. High-precision DC servo-controlled, direct-drive platter motor. 2 high-precision tone-arm motors. Features Auto Return, Auto Cueing, and Repeat Play. Shock-resistant rubber feet reduce external rumble. P-mount type cartridge headshell (includes cartridge).



NP-550 Semi-Automatic Belt-Driven Turntable:

Its high-precision, 4-pole synchronous motor and very precise low-mass tone-arm system, is quiet and efficient. Has the same rubber feet system found in the NP-750. P-mount type cartridge headshell (includes cartridge).

NSR-150G NSR-350 NSR-350G Professional Audio Racks:

All racks feature high-density, 1-inch thick laminated side panels. The NSR-150G comes with $\frac{3}{16}$ " tempered-glass door, adjustable shelf, and measures 37 $\frac{5}{8}$ "H x 19 $\frac{3}{8}$ "W (17 $\frac{5}{8}$ "W inside) x 15 $\frac{1}{2}$ "D. The NSR-350 includes side rails for rack mounting, and measures 47"H x 21 $\frac{1}{2}$ "W (19"W inside) x 16 $\frac{3}{8}$ "D. The NSR-350G is finished with a durable, black, high-gloss Melamine laminate, and comes with $\frac{3}{16}$ " tempered-glass double doors and top, and removable center shelf and side rails. Measures 51 $\frac{1}{2}$ "H x 21"W (19"W inside) x 16"D.



DRM-3000 3-Way Digital Reference Monitors:

Excellent low and high-frequency response. A flanged tweeter reduces diffraction between the baffle board and the tweeter, resulting in better high-end dispersion and less overall distortion. A ribbed recessed mid-range and 12" ribbed-cone woofer back up a power-handling capacity of 100 Watts RMS continuous per speaker, with an efficiency (1w, 1m) of 95 dB.



U.S. SPECIFICATIONS

AMPLIFIERS	LABO Series Alpha 650	Pro Series Alpha 450	Pro Series Alpha 230	Pro Series Alpha 130	(Integrated) NA2000	NR-850R	RECEIVERS NR-1000
Continuous Power Output minimum RMS W/Channel into 8Ω from 20-20,000Hz at rated THD both channels driven:	300W+300W	220W+220W	120W+120W	100W+100W	100W+100W	65W+65W	65W+65W
Both Channels Driven at 1,000Hz (8Ω)	340W+340W	240W+240W	125W+120W	110W+110W	110W+110W	70W+70W	70W+70W
Total Harmonic Distortion At rated power (at 8Ω)	0.008%	0.008%	0.008%	0.003%	0.001%	0.03%	0.03%
At half power (at 8Ω)	0.006%	0.006%	0.006%	0.002%	0.001%		
Intermodulator Distortion	0.01%	0.008%	0.008%	0.003%	0.001%	0.03%	0.03%
Damping Factor at 8Ω	150	150	70	50	50	45	45
Slew Rate	100V/μs	100V/μs	100V/μs	100V/μs	100V/μs		
Signal-to-Noise Ratio (HF-A)	120dB	120dB	115dB	115dB	115dB	110dB	110dB
Frequency Response 5Hz - 100kHz	+0, -1dB (Direct 0 - 100kHz)	+0, -0.5dB (Direct 5 - 100kHz)	+0, -0.5dB (Direct 5 - 100kHz)	+0, -0.5dB (Direct 5 - 100kHz)	+0, -0.1dB (20Hz - 20kHz)	(20Hz - 20kHz)	(20Hz - 20kHz)
Residual Noise	0.2mV	0.2mV	0.2mV	0.2mV	0.2mV	0.2mV	0.2mV
Input Sensitivity & Impedance	1,000mV/50kΩ	1,000mV/50kΩ	1,000mV/50kΩ	1,000mV/50kΩ	1,000mV/50kΩ	1,000mV/150kΩ	1,000mV/50kΩ
Speaker Load Impedance A or B		4-16Ω	4-16Ω	4-16Ω	4-16Ω	4-16Ω	4-16Ω
A + B		8-16Ω	8-16Ω	8-16Ω	4-16Ω	8-16Ω	8-16Ω
Protector Primary Speaker	Fuse Relay	Fuse Relay	Fuse Relay	Fuse Relay	Fuse Relay	Fuse Relay	Fuse Relay
Power Requirements	AC, 120V, 60Hz	AC, 120V, 60Hz	AC, 120V, 60Hz	AC, 120V, 60Hz	AC, 120V, 60 Hz	AC, 120V, 60Hz	AC, 120V, 60Hz
Power Consumption	1.3kW (1.4KVA)	800W (980VA)	480W (620VA)	480W (620VA)	610W (750VA)	320W	320W
Power Bandwidth (HF)	10 - 40kHz THD 0.05%	5 - 100kHz THD 0.05%	5 - 100kHz THD 0.05%	10 - 40kHz THD 0.05%	5 - 45kHz THD 0.05%		
Dimensions (WxHxD)	19"x7 1/4"x18 1/2"	19"x7 1/4"x18 1/2"	19"x5 1/2"x13 1/2"	19"x5 1/2"x13 1/2"			
Weight (lbs.)	60 1/2	47 1/2	29 1/2	28 1/2			
PREAMPLIFIERS & INTEGRATED AMPLIFIERS	Pro Series Beta 50 II	Pro Series Beta 30					
Input Sensitivity/Impedance PHONO (MC)	0.25mV/100Ω	0.25mV/100Ω			0.25mV/100Ω	0.25mV/100Ω	0.25mV/100Ω
PHONO (MM)	2.5mV/47kΩ	2.5mV/47kΩ			2.5mV/47kΩ	2.5mV/50kΩ	2.5mV/50kΩ
TUNER, AUX, TAPE	150mV/47kΩ	150mV/47kΩ			150mV/47kΩ	150mV/40kΩ	150mV/40kΩ
Phono Overload Level (at 1kHz, 0.01% THD) MC	20mV	20mV			20mV	150mV	150mV
MM	200mV	200mV			200mV	15mV	15mV
Output Level/Impedance Pre-out (rated)	1,000mV/560Ω	1,000mV/560Ω			1,000mV/560Ω		
Rec-out	150mV/2.2kΩ	150mV/2.2kΩ			150mV/2.2kΩ	150mV/2.2kΩ	150mV/2.2kΩ
Total Harmonic Distortion PHONO (MC)	0.006%	0.006%					
PHONO (MM)	0.004%	0.004%					
HIGH LEVEL	0.004%	0.004%					
Signal-to-Noise Ratio PHONO (MC)	70dB	70dB			68dB	70dB	70dB
PHONO (MM)	88dB	88dB			86dB	88dB	88dB
TUNER, AUX, TAPE	100dB	100dB			105dB	100dB	100dB
Frequency Response PHONO (MC)	20Hz - 20kHz ±0.5dB	20Hz - 20kHz ±0.5dB				20Hz - 20kHz ±0.5dB	20Hz - 20kHz ±0.5dB
PHONO (MM)	20Hz - 20kHz ±0.5dB	20Hz - 20kHz ±0.5dB			20Hz - 20kHz ±0.3dB	20Hz - 20kHz ±0.5dB	20Hz - 20kHz ±0.5dB
TUNER, AUX	10Hz - 20kHz ±0.1dB	10Hz - 20kHz ±0.1dB			10Hz - 100kHz -2dB	20Hz - 20kHz ±1dB	20Hz - 20kHz ±1dB
Tone Controls Bass (70Hz)	±8dB	±8dB			±8dB	±7.5dB	±7.5dB
Treble (10kHz)	±8dB	±8dB			±8dB	±7.5dB	±7.5dB
Subsonic Filter	12dB/Octave at 15Hz	12dB/Octave at 15Hz			12dB/Octave at 15Hz	12dB/Octave at 15Hz	12dB/Octave at 15Hz
Power Consumption	13W (16VA)	10W (12VA)					
Dimensions (WxHxD)	19"x2 1/2"x10"	19"x2 1/2"x10"			17 1/4"x4 1/2"x14 1/8"		
Weight (lbs.)	11	8 1/2			22		
TUNERS	Pro Series/Gamma 30	NT-700 II					
FM SECTION							
Usable Sensitivity 300Ω terminal	2μV (11.2dBf)	2μV (11.2dBf)				1.9μV (10.8dBf)	1.9μV (10.8dBf)
75Ω terminal	0.9μV (5.2dBf)						
50dB Quieting Sensitivity MONO	2.8μV (14dBf)	(14dBf)				3μV 14.7dBf	3μV 14.7dBf
STEREO	5.4μV (20dBf)	(20dBf)				3.5mV 15.5dBf	3.5mV 15.5dBf
Signal-to-Noise Ratio (at 65dBf) MONO	70dB	75dB				70dB	70dB
STEREO	67dB	68dB				60dB	60dB
Total Harmonic Distortion MONO	0.15%	0.1%				0.1%	0.1%
STEREO	0.2%	0.2%				0.2%	0.2%
Frequency Response 50Hz-15kHz	+1dB, -1.5dB						
Alternative Channel Selectivity	60dB	60dB				60dB	60dB
Capture Ratio	1.5dB	1.5dB				1.5dB	1.5dB
Spurious Response Ratio	70dB	70dB				70dB	70dB
Image Response Ratio	70dB	75dB				75dB	75dB
IF Rejection Ratio	80dB	80dB				80dB	80dB
AM Suppression Ratio	50dB	60dB				60dB	60dB
Stereo Separation 100Hz	40dB					45dB	45dB
1kHz	45dB	49dB				40dB	40dB
10kHz	35dB	40dB				65dB	65dB
Subcarrier Suppression Ratio	65dB	65dB					
Muting Threshold Level (Variable)	15 - 55dBf					2μV - 350μV	2μV - 350μV
Antenna Impedance	75/300Ω	75/300Ω				75/300Ω	75/300Ω
Output Level	150mV	150mV				150mV	150mV
Frequency Drift -15°C - 25°C	0kHz	0kHz					
25°C - 55°C	0kHz	0kHz					
FM High Blend	(1kHz) 21dB						
AM SECTION							
Usable Sensitivity	300μV/m	350μV/m				350μV/m	350μV/m
Selectivity	30dB	30dB				30dB	30dB
Signal-to-Noise	50dB	50dB				50dB	50dB
Image Rejection	30dB	30dB				30dB	30dB
Dimensions (WxHxD)	19"x2 1/2"x11 1/2"	17 1/4"x4 1/4"x13 1/2"				17 1/4"x4 1/4"x13 1/2"	17 1/4"x4 1/4"x13 1/2"
Weight (lbs.)	8 1/2	9 1/2				19 1/2	19 1/2



**For the nearest
Authorized Nikko Audio Dealer
near you
call toll free
1 (800) 633-2252, Extension 221**

NIKKO AUDIO
5830 South Triangle Drive
Commerce, California 90040
(213) 721-1168
TLX: 371-9546/Answer Back: HAMMARS
FAX: (213) 726-3489

NIKKO ELECTRIC MFG, CO. LTD.
4-1, Okusawa 3-chome, Setagaya-ku
Tokyo 158, Japan
(03) 729-1171
TLX: 246-6175
FAX: (03) 728-4644

In Canada:
Audio/Video Specialists Inc.
2134 Trans Canada Hwy., South
Montreal, Quebec H9P 2N4
(514) 683-1771
TLX: 05-821881
FAX: (514) 683-5307

Printed in U.S.A. © 1985 Nikko Electric Corporation of America

EVERYTHING IN MODULATION

Frankly, I am encouraged. It wasn't so long ago that people were largely mystified by digital audio technology; a vague notion of ones and zeroes constituted their universe of knowledge. Today, perhaps thanks to the rapid proliferation of the Compact Disc, everyone's an expert. Last week, when a little kid with a portable CD player was in the pause mode, I asked him how all that music is squeezed onto such a small disc. "Eight-to-fourteen modulation, of course," he answered as he kicked my left shin, hit the play button, and moved away as if afflicted by a rhythmic nervous disorder.

Well, obviously the brat had read my June column about EFM, but maybe he had missed an important point. While EFM is used specifically to encode the pit information on a CD, it occurs within the larger context of the granddaddy of digital audio coding, pulse code modulation (PCM). The vast majority of digital recordings were originally mastered on PCM digital audio recorders, and at the output of a CD player, at the D/A converter, the data momentarily returns to its PCM birthright. We'll look at PCM this month, and next time progress to PCM derivatives such as delta modulation.

Modulation is the process of encoding source information prior to transmission or storage. In general, a carrier signal forms the basis of the channel, and the source information itself merely affects the carrier's parameters. For example, in amplitude modulation (AM) the carrier's amplitude varies relative to the information's amplitude at a rate relative to the information's frequency. In frequency modulation (FM) the carrier's frequency changes by an amount relative to the information's amplitude, again at a rate relative to the information's frequency. Your radio receiver is given the task of demodulating the carrier and outputting the original information. In AM and FM both the modulation and the modulating signal are continuous; they are classified as wave-parameter modulation schemes.

When the original information is digital, the carrier also is digital, and the nature of the modulation is altered. Two classifications of digital modulation are commonly employed. The first,

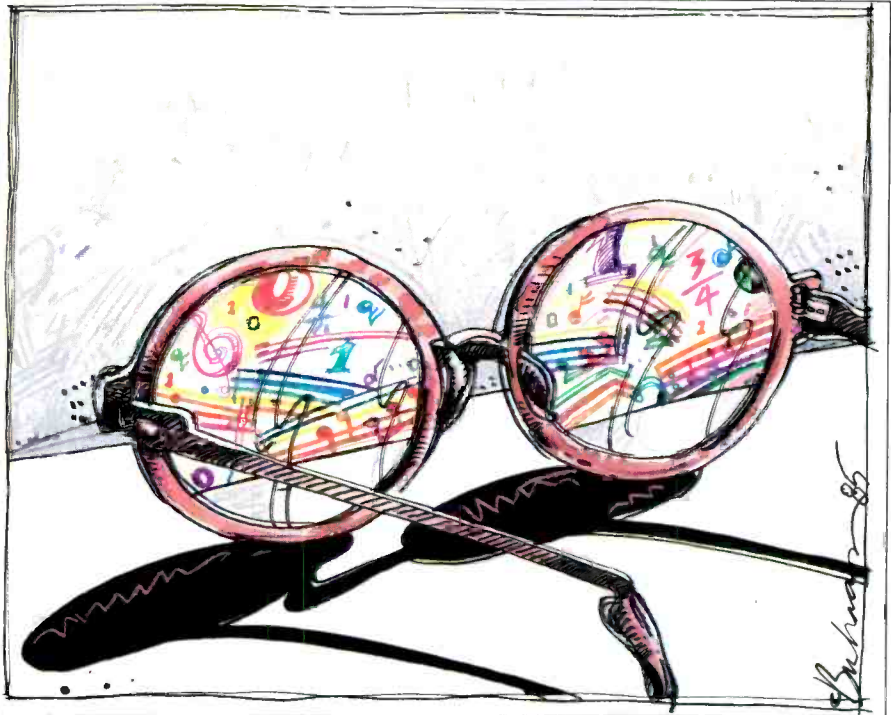


Illustration: Yvonne Buchanan

pulse parameter modulation schemes, are hybrid in nature; a parameter of the transmitted pulse carries the information by varying as an analog of the original signal (Fig. 1). This is most easily seen in pulse amplitude modulation (PAM), in which the varying amplitude of the signal pulses visibly echoes the varying signal amplitude. (PAM forms an important intermediate waveform in digital audio systems, where the audio signal exists as a "staircase" PAM waveform just prior to A/D conversion and immediately following D/A conversion.) In pulse position modulation (PPM), the signal amplitude for the sampling instant encoded by each pulse is represented by the pulse's position within its timing interval (the clock pulses along the bottom of the graph). In pulse width modulation (PWM), signal amplitude is indicated by the width of the pulse.

The other basic classification, numerical pulse parameter modulation (Fig. 2), is purely digital; that is, it encodes the *numerical value* of the signal amplitude at each sampling instant, rather than the amplitude itself. In pulse number modulation (PNM) a pulse count is used to encode the value of the information; in pulse code modulation (PCM) the waveform itself

encodes the binary digits. Both of these techniques readily lend themselves to encoding and decoding by digital circuits, but PNM is plagued by bandwidth problems; a large number of pulses is required to encode a high-resolution signal.

PCM neatly overcomes this problem. Since the binary code itself is retained, the required bandwidth is much narrower. A full-scale, 16-bit amplitude would require only 16 ones. In addition, the coded signal is fully compatible with digital circuits, which are usually designed to operate with a binary code. Because of its highly efficient use of bandwidth and its compatibility with off-the-shelf circuitry, PCM has proved itself to be the ideal choice for digital audio. It is an especially efficient means of representing audio data during recording or reproduction signal processing. When it comes to storage on magnetic tape or optical disc, other forms of modulation (e.g. EFM) may be more efficient.

Pulse code modulation is especially handy when confronting the essential problem of an audio digitization system: The conversion from analog to digital and back again. When the analog audio signal is sampled, and an analog value is held by the sample-

Buy any Sony Compact Disc Player and save up to \$200 on 100 great CD titles.

Sony's just found a way to give you a compact disc library on a silver platter.

Starting September 1, when you buy any Sony® home, car or portable compact disc player, you'll be entitled to receive a Sony Compact Disc-Count Coupon Book good for up to \$200 in discounts on your choice of 100 select compact disc titles.* Each coupon is worth \$2.00 off the regular retail shelf price on select CD titles.**

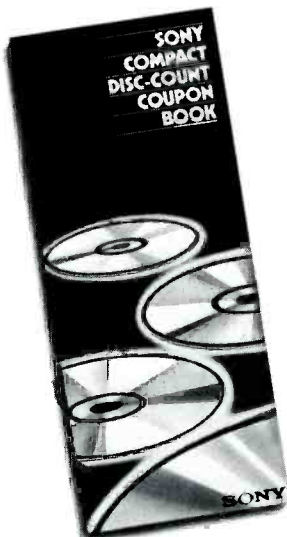


Just look for the discount certificate inside specially marked Sony cartons. With it, you'll be able to build a complete CD library in no time.

But hurry, because this offer is for a limited time only. So see your Sony Compact Discount Center for details on the best offer in compact discs you've heard in a long time.

SONY THE LEADER IN DIGITAL AUDIO™

*Compact Disc Players must be purchased between September 1 and December 31, 1985.
**All coupons must be redeemed prior to March 31, 1986.



© 1985 Sony Corporation of America. Sony is a registered trademark of Sony Corporation. The Leader in Digital Audio is a trademark of Sony Corporation of America.

Because of its highly efficient use of bandwidth and its compatibility with off-the-shelf circuitry, PCM is the ideal choice for digital audio.

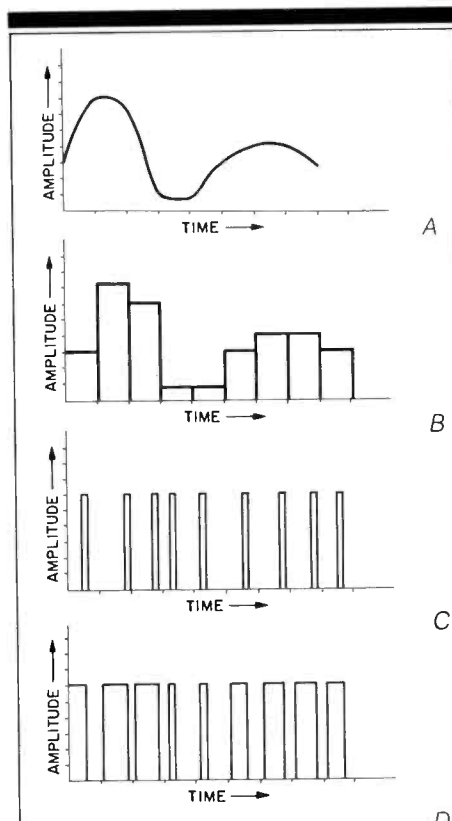


Fig. 1—Three types of pulse parameter modulation: Pulse amplitude modulation (B), pulse position modulation (C), and pulse width modulation (D). All are based on the same analog waveform (A).

and-hold circuit to form a PAM waveform, quantization must document the instantaneous amplitude of the staircase and generate a binary data word to be stored. PCM uniquely solves the problem by creating the required binary code directly at the output of the A/D converter. Similarly, the D/A converter will directly accept PCM data and convert it to a PAM waveform. To ice the cake, PCM data is easily multiplexed—that is, several channels of data may be merged to form one. Fig. 3 shows the entire PCM A/D encoding process of analog inputs, PAM signals, PCM encoding, and multiplexing.

Given a converter with word length of "n" bits, 2^n unique code words are created to represent amplitude values. For example, a 16-bit system would encode 65,536 amplitude intervals. In the simplest incarnation, binary 0000

0000 0000 0000 would represent decimal 0, and binary 1111 1111 1111 1111 would represent 65,535. In practice, however, that might not be the most efficient mapping of the audio waveform; for instance, the signal is typically bipolar, and the PCM data would not reflect this. Thus a different arrangement of data might be used.

Two examples of alternative binary coding are sign-and-magnitude notation and 2's-complement notation, as shown in Table I. In sign-and-magnitude notation the absolute values of samples are expressed in binary code; their sign is expressed in the left-most bit. In 2's-complement notation two ascending binary counts are used, the left-most bit again representing sign. More specifically, negative numbers are formed by taking the complement of the positive equivalent and adding 1. For example, the 2's complement of 0100 is 1100 ($1011 + 0001$). Humans appreciate 2's-complement notation because the left digit always denotes

Continued on page 107

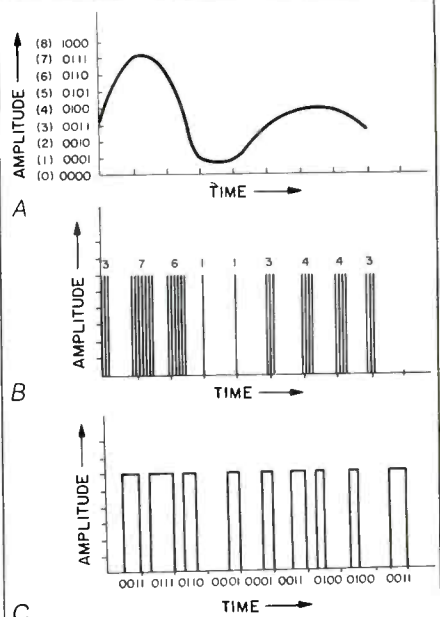


Fig. 2—Two types of numerical pulse parameter modulation: Pulse number modulation (B) and pulse code modulation (C). Both are based on the numerical values obtained by sampling the analog waveform (A); amplitude values are indicated in binary form to its left.

Digital Precision

The precision of digital electronics has revolutionized the art of music reproduction. A signal-to-noise ratio of 90 dB. Perfectly flat frequency response throughout the audible spectrum. Wow and flutter so low it defies measurement. And over 90dB of dynamic range to widen your music horizons. Akai has made the dream of musical purity a reality with Compact Disc players that everyone will enjoy.



AKAI

Enter No. 7 on Reader Service Card

The Sound of



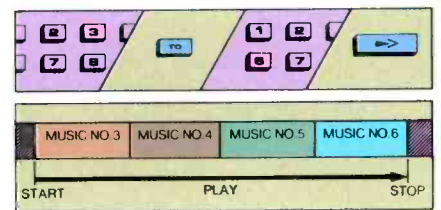
The tracks on a Compact Disc are only 1.6 microns apart, and are scanned at 1.2 to 1.4 meters every second—tolerances a hundred times greater than conventional records that require a perfectly accurate tracking system. Akai's 3-beam tracking system uses three lasers for incredibly precise tracking. In addition to the laser pickup, two other lasers instantly sense and compensate for any deviations before they have a chance to affect tracking. Signal dropouts caused by mistracking are eliminated for stable, reliable playback.

Akai's Unique Program Order System

The Unique Program Order System takes the guesswork out of operation. Along with 10-key input, the track

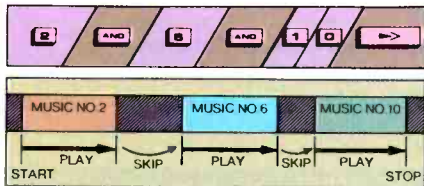
selection controls—[TO] [AND] [WITHOUT]—are marked for easier understanding. The playback of any or all selections in the recorded order is as easy as using your fingertips to “talk” to the player.

For example, to play selections 3, 4, 5, and 6, just press [3]—[TO]—[6]—[START] . . . it's that easy.

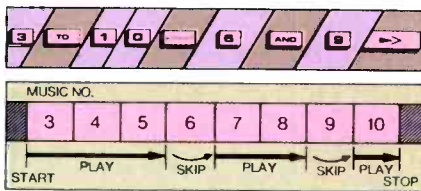


Musical Purity

Playing certain selections is no problem either. To listen to selections 2, 6, and 10, just press [2]—[AND]—[6]—[AND]—[10]—[START] . . . anyone can do it.



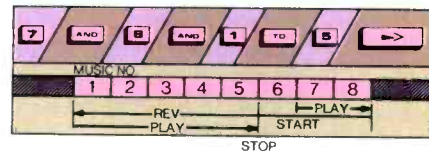
How about skipping certain selections, say 6 and 9? Pressing [3]—[TO]—[10]—[WITHOUT]—[6]—[AND]—[9]—[START] is all you have to do.



Random Programmed Playback

Since Akai's Unique Program Order System responds to simple commands, playing up to 16 selections in any order you like is no more complicated than normal playback. Let's say you'd like to hear selections 7, 8, 1, 2, 3, 4, and 5 in that order. Programming is straightforward—press [7]—[AND]—[8]—[AND]—[1]—[TO]—[5]—[START] for

a total of eight key inputs. Enjoy your favorite songs—in your favorite order!



Since up to 16 key inputs can be programmed, a virtually unlimited number of selections can be ordered for playback in an endless number of ways for total playback versatility from any Compact Disc. Repeat, selected repeat, index search, and auto play functions are all available by pushbutton control. The wireless remote control unit allows operation of nearly all functions.



Quick Access System

Regardless of the number or order of selections, playback is begun almost immediately. Access time, which is the amount of time required to cue and play a selection, is 2.6 seconds or less. With Quick Access, there are no annoying gaps between songs.

Full Feature Convenience

The brilliant Centralized FL display shows selection number, elapsed time, and other operating information at a single glance. The front-panel output level control allows you to match the volume with other components in your system. Headphone output for private listening.

The CD-A7 is available in black or silver finish. 440mm wide to match standard-size components



AKAI

Specifications for Akai CD-A7TB Compact Disc Player

Specifications

CD-A7

Sensor type	Optical
Quantum bit	16
Channel	2
Sampling frequency	44.1kHz
Frequency response	5 to 20,000Hz \pm 0.5dB
T.H.D.	0.005%
Channel separation	85dB
Dynamic range	90dB
S/N ratio	90dB
Wow & flutter	Below measurable limits
Line output level	2V
Access time	2.6 sec.
Power requirements	120V, 60Hz for USA & Canada
Dimensions	17.3(W) \times 3.0(H) \times 10.0(D) inches (440 \times 76 \times 255mm)
Weight	12.8 lbs. (5.8kg)

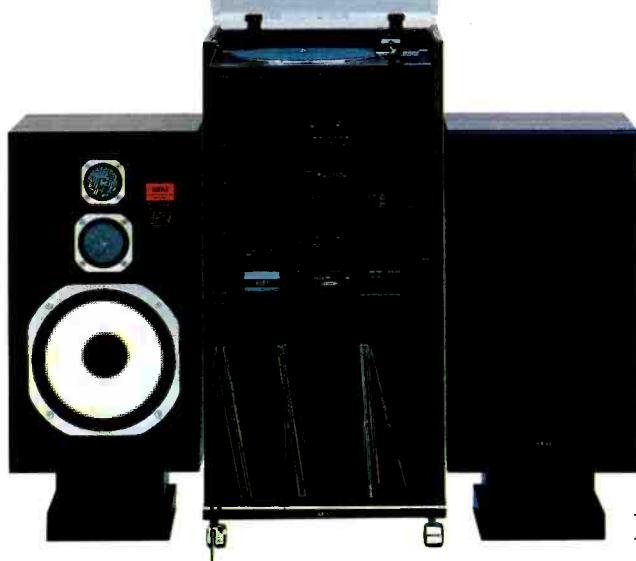
Remote control unit

RC-M80

Type	Infrared pulse position modulation
Carrier frequency	38kHz \pm 0.2kHz
Range	8m
Directivity	\pm 30
Power supply	R6 (AA or UM-3) \times 2 (3V) batteries
Dimensions	3.0(W) \times 0.7(H) \times 6.4(D) inches (75 \times 18 \times 162mm)
Weight	150g (including batteries)

•For improvement purposes, specifications and design are subject to change without notice.

Designed to complement Akai's sophisticated Pro Series of Component Music Systems



Look how easily a CD player integrates into your system. The CD-A7 is shown with the Pro Series components which feature an integrated design for full compatibility.

Pro Series

For further information contact:

Akai America, Ltd.
800 W. Artesia Blvd.
P.O. Box 6010
Compton, CA 90220-6010

East Coast office at
6 Kilmer Rd.
Edison, NJ 08817

AKAI

While a fixed, linear-PCM amplitude scale is the classic design, it can be modified in the interest of cost or data economy.

Continued from page 102

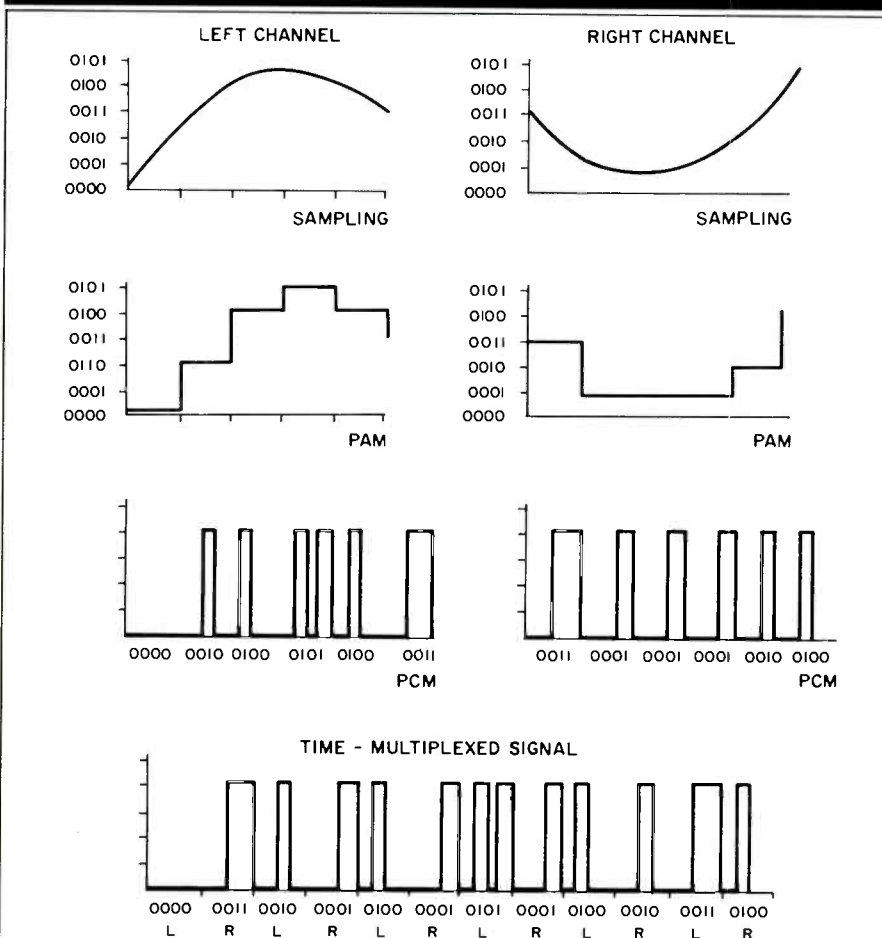


Fig. 3—A complete PCM A/D encoding process: PAM conversion, quantization and conversion of PCM, and multiplexing of the left and right signals into one bit stream.

measuring scale nonlinear. Using techniques similar to those used in analog noise-reduction circuits, the signal could be compressed prior to PCM A/D conversion and expanded after D/A conversion to improve the S/N ratio of a lower-bit word system. In essence, low-level signals would be measured with small increments, high-level signals with large ones.

In another effort to avoid the cost of a long-word A/D converter, a floating-point PCM system, in which the scale is no longer fixed, may be employed. The binary word may be divided into an exponent and a mantissa, separated by a binary point. For example, in a 3.10 system, a 3-bit exponent would manipulate the gain of the signal prior to a 10-bit PCM A/D converter. By continually adjusting the gain of the signal over $8 (2^3 = 8)$ levels, the 10 bits of the A/D are always efficiently utilized to maximize the S/N ratio. Of course, to properly recover the signal at the D/A, the 3-bit exponent must again be used to adjust the gain of the signal.

In other applications, such as satellite transmission, data reduction is critical because cost is based on the number of bits transmitted per second. Most efficient might be a block floating-point design, whereby a 16-bit A/D converter is used to convert a memory block of samples, after which a calculation is made to determine the largest value in the block. Based on that value, all the words in the block are digitally attenuated by a calculated scale factor. Usually the number of bits in the output is much lower than the number of bits originally in the converted block. The scale factor must accompany the data block for proper rescaling during D/A conversion. Because only one scaling factor is required for an entire block, and the number of bits in the block has been reduced, data reduction is accomplished.

All in all, no matter which binary notation is used or how it is incorporated in the system architecture, PCM is a particularly clever modulation. Its built-in code makes it very slick. In its absence, at the very least, audio digitization systems would be more complex and more costly. To give credit where credit is due, we should note that PCM was originally conceived by Alex Reeves, back in 1937. Thanks, Al. **A**

Comparison of 2's-complement and sign-and-magnitude binary notation.

Decimal	2's Complement	Sign and Magnitude
7	0111	0111
6	0110	0110
5	0101	0101
4	0100	0100
3	0011	0011
2	0010	0010
1	0001	0001
0	0000	0000
-1	1111	1000
-2	1110	1001
-3	1101	1010
-4	1100	1011
-5	1011	1100
-6	1010	1101
-7	1001	1110
-8	1000	1111

the sign of the number (as it does not in some other notations, not shown here); digital circuits appreciate it because subtraction can be performed with an addition operation, which is simpler.

Many A/D and D/A converters used in audio digitization systems use PCM data in 2's-complement notation to guarantee ease of interface between the converters and the microprocessors and other devices used for signal processing, error correction, etc.

The architecture of a fixed, linear-PCM amplitude scale comprises the classic audio digitization design. However, in the interests of cost or data economy, the fixed, linear design may be modified. For example, to avoid the cost of 16-bit converters a compander could be used; this would make the

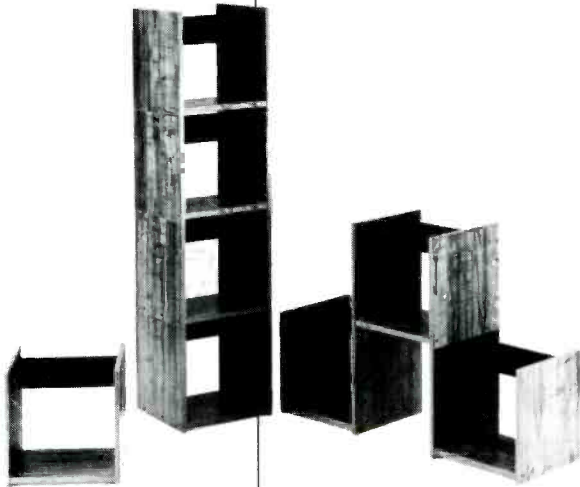
WHAT'S NEW



Speakerlab Car-Stereo Subwoofer

Speakerlab calls it the Iron Lung: It's a 15-inch polypropylene-cone woofer with a dual voice-coil, designed to mount in a car's trunk, with bass ducted to two 5-inch grilles on the rear deck. The 4-ohm speaker has a rated frequency response of 20

to 200 Hz, ± 3 dB; recommended minimum power is 30 watts and the maximum is 150 watts. Price: \$309. For literature, circle No. 104



Naiad Record Rack

Each module of the RF-1 Recordfile storage system holds more than 100 records, and additional modules can be stacked. The modules are made of high-density board with a wood-grain finish. A top (TP-1) is also available. Prices: RF-1, \$19.95; TP-1, \$9.95.

For literature, circle No. 106

Phoenix Noise Reducer

The P-522 is the factory-finished version of the 2:1 companding, encode/decode noise reducer whose plans we ran in our February 1985 issue. The unit reduces tape hiss and increases headroom sufficiently to add 30 dB of dynamic range to tape decks. Simultaneous encode and decode circuits allow off-the-tape monitoring with three-head decks. The unit features a switchable, hard-wire



bypass, and return-level trim adjustments. Price: factory-wired, \$139; complete kit, \$79.

For literature, circle No. 105

SME Tonearm

Bearing very little resemblance to previous SME arms, the SME Series V is a totally new design. The shaft is a magnesium die-casting, with integral headshell and counterweight rails, to keep the cartridge's resonant energy from reflecting back from shaft/shell joints. Magnesium keeps the arm's effective mass at a low 10 to 11 grams while damping induced vibrations; the shaft also tapers, to minimize standing waves. Bearings are pre-loaded ball-race types, and the horizontal bearing axis is at the record-warp median level to reduce warp wow. Vertical tracking angle can be adjusted during play, then locked down rigidly. The large-crystal internal cabling ends in an output socket which rotates to loop the cable for free movement of spring-suspended turntables. Cartridges between 4 and 18 grams in mass may be used with the arm. Price: \$1,667.

For literature, circle No. 107



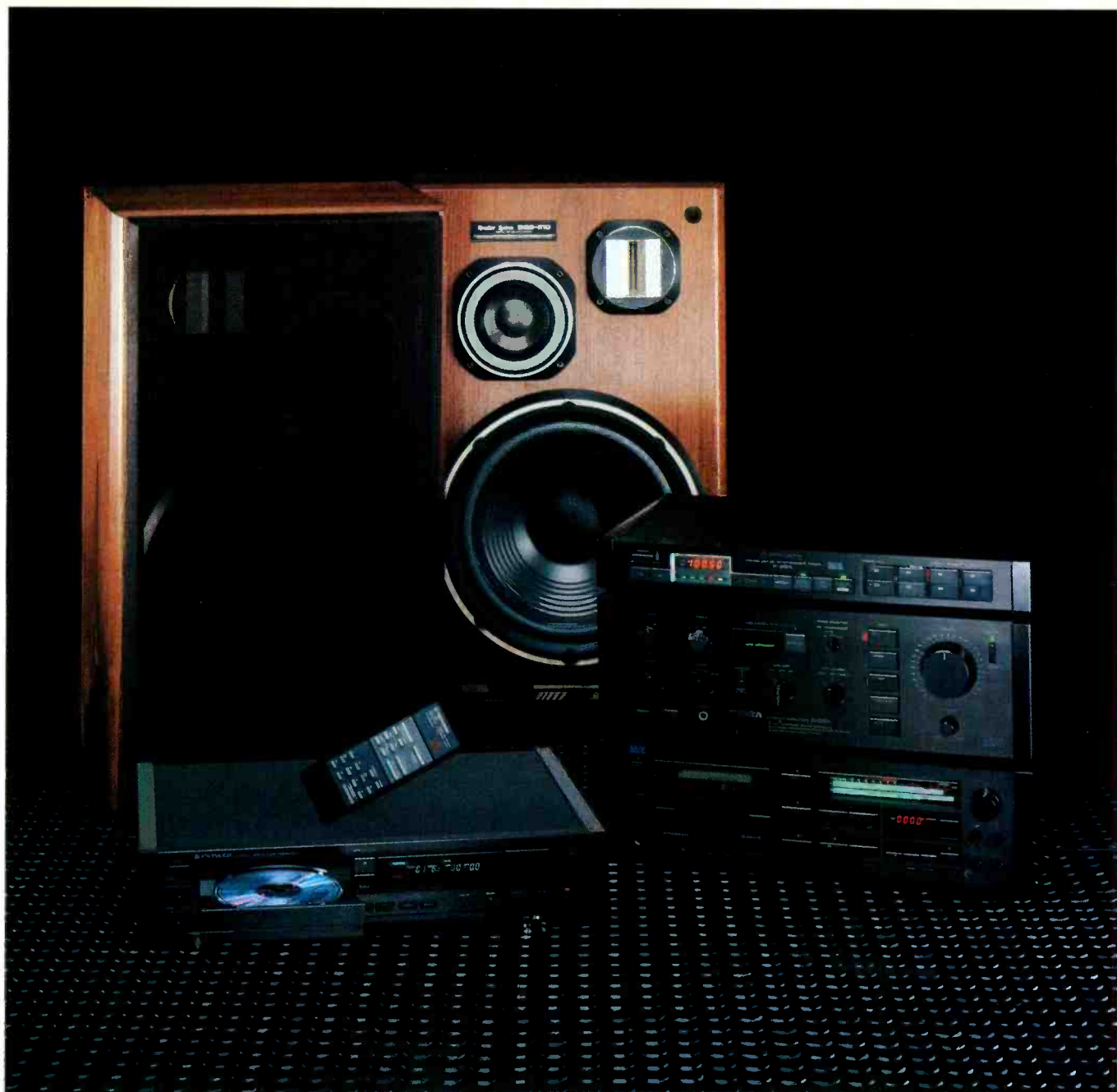
ELITE HI·FI

C O M P O N E N T S

 PIONEER®

Enter No. 52 on Reader Service Card

AmericanRadioHistory.com



ELITE HI · FI COMPONENTS

In this brochure you will be introduced to Pioneer's most elite hi-fi components. They are elite because each is the finest, most distinguished and most powerful representative in its category. These are no-compromise components designed to

meet one specific criterion—to handle the tough musical demands of digital programs, and so reproduce every nuance of music as faithfully as current technology allows.

The digital audio age we are now in has revolutionized design and construction of audio components. Digital program material created an entirely new set of problems for us to solve, and new specifications for us to achieve.

How successful were we? Completely. Listen to a system made up of Pioneer elite components and you'll agree.

Pioneer elite components—the first choice of audio purists.



P D · 9 0 1 0 X · B K

Compact Disc Player

E L I T E H I F I

The PD-9010X (BK) Compact Disc player is specifically designed for the most demanding music and audio enthusiasts. It incorporates Pioneer's finest electronic, optical and mechanical technologies to ensure its sound is nonpareil.

The new technological coup in the PD-9010X (BK) is the digital filter. In most CD players, an analog filter is employed to eliminate "sampling noise" from the output signal, but this filter tends to add phase aberration and make sound imaging unclear. Pioneer employs a digital filter instead; by using the advanced "oversampling" technique it eliminates most of the sampling noise *without* causing phase delay in the audible range. What little noise that remains is removed by a low-pass filter specially designed for accurate phase response beyond 20kHz. The overall result is clean, low-distortion reproduction.

As with a turntable, a CD player's disc tracking ability is greatly affected by vibration and sound pressure from the speakers, and mistracking can lead to noise and other sonic aberrations. In most CD players, a disc in play is practically free-standing, therefore it can easily vibrate, particularly under sound pressure from the speakers. It is true that in a CD player a sophisticated servo system locks the pickup to the disc's microscopic track, but excessive vibration can overwhelm the servo system and cause the pickup to mistrack, increasing the noise level and otherwise degrading sound quality. In the PD-9010X (BK), the Disc Stabilizer newly developed by Pioneer clamps the disc over its entire upper surface, thus completely damping vibration. By increasing the accuracy of the signal readout, Pioneer has ensured that sound is clearer and glitch free.

Pioneer has reduced vibration (hence improved the sound) in another effective way: by doubly insulating the pickup system from the cabinet. First, the entire player is set on insulators made from a material that is firm and offers superior damping characteristics. Then, the optical pickup and drive mechanism are floated free of the base. This new "omni-directional" insulation system effectively shuts out vibration, no matter what its orientation—vertical (as caused by footsteps) and horizontal (sound waves).

Dirty or scratched discs can cause mistracking and dropouts, but they are hardly a problem when played on the PD-9010X (BK); its Linear Servo System checks the condition of the track ahead and automatically controls the amount of servo, allowing the pickup to pass over the dirt and scratches, so dropouts or mistracking almost never occurs. Off-

centered and warped discs are another threat to accurate tracking: Pioneer ensures the PD-9010X (BK) plays them accurately with the Cross Parallel Suspension for the pickup. Another system, the Focus Parallel Drive Mechanism, has increased the sensitivity and responsiveness of the pickup.

The PD-9010X (BK) is extremely easy to use. It offers direct access to any track, permits programming of up to 32 tracks on a disc for play in any order, and repeats all or programmed tracks. For recording convenience, pauses can be programmed as well. The versatile display shows the number of the track in play and its index number, its elapsed play time, and other track/time information. The standard wireless remote control duplicates all essential disc control functions, plus it has a numeric keypad for direct track access.

S P E C I F I C A T I O N S

GENERAL	
System:	Compact Disc digital audio system
Disc	
Diameter:	4-3/4 inches (120mm)
Thickness:	3/64 inch (1.2mm)
Playing Time:	over 60 minutes (stereo)
Scanning Velocity:	3.9ft—4.6ft/sec. (1.2—1.4m/sec.)
Rotation:	Counterclockwise (as viewed from playing side)
Signal Format:	
Sampling Frequency:	44.1kHz
Quantization:	16 bits linear/channel
Transfer Bit Rate:	4.3218M bits/sec.
Modulation System:	EFM
Error Correction:	CIRC system
Pre-emphasis:	50/1.5µsec. (automatic switching)
Pickup Laser:	Semiconductor laser; wavelength, 0.78µm

AUDIO SECTION	
Frequency Response:	2—20,000Hz ±0.3dB
Signal-to-Noise Ratio:	98dB (1kHz)
Dynamic Range:	96dB (1kHz)
Channel Separation:	95dB (1kHz)
Wow and Flutter:	Unmeasurable (dependent on precision of crystal oscillator)
Distortion:	0.001% (1kHz)
Distortion and Noise:	0.0022% (1kHz)
Output Voltage:	2V (0dB, 1kHz)
Number of Channels:	2 (stereo)

MISCELLANEOUS	
Power Requirement:	120V 60Hz
Power Consumption:	18W
Dimensions (W x H x D without package):	18 x 3-3/4 x 12-3/16 inches 457 x 95 x 310 mm
Weight (without package):	12 lbs. 8 oz./5.7kg

Note: Specifications and design subject to modification without notice.



NON SWITCHING AMP*

A · 8 8 X · B K

Non-Switching Stereo Amplifier*

E L I T E H I F I

Digital audio (Compact Discs et al.) subjects the amplifier to far greater stresses than ever before. To accurately reproduce digital program material, the amplifier must offer high power, low noise and distortion, high stability, and high current supply capability. The Pioneer A-88X (BK) scores high in each of these digital requirements.

Since after all it's the power supply that makes or breaks an amplifier, Pioneer lavished its most advanced power supply technology on the A-88X (BK). It consists of three transformers and no fewer than seven individual power supplies, two of which are assigned to the power amp, one for each channel. And to prevent interference between channels, the amplifier is built on the "two-mono-amps-in-one" design. As a result, the listener can enjoy uncommonly clean sound, and clear and precise imaging.

This elaborate power supply also permits the amplifier to capably handle low impedances, assurance that the vastly wider dynamic range of digital programs may be fully enjoyed. Here is why: all speakers have rated impedances, say 8 ohms, but when actually driven by an amplifier, they present a varying impedance to the amplifier, depending on frequency. So in actual use, impedance can be as low as 2 ohms, and this is particularly true with digital programs because of their much improved transient response. Lower impedances require that more current be supplied by the power supply to the power amplifier. If the power supply cannot match momentary current demands, the result is, simply, distortion.

In the A-88X (BK), each channel of the power amplifier has its own power supply, combining an oversized transformer

and huge capacitors offering a total 20,000 μ F capacitance. And power transistors are arranged in an elaborate triple parallel push-pull configuration. Thus the power supply is able to feed two to three times as much current as does that of a conventional amplifier. As a result, the A-88X (BK) has the ability to increase power to match any reduction in impedance—for instance, 169W + 169W of dynamic power at 8 ohms, 300W + 300W at 4 ohms and 441W + 441W at 2 ohms (on EIA dynamic test signal).

The power amplifier itself is upgraded to the new Non-Switching* Circuit Type II. In addition to preventing switching distortion, it improves thermal stability to reduce thermal distortion, and increases linearity in the output thirtyfold.

To keep sound degradation caused by parts and devices to a minimum, Pioneer

uses the best available throughout the A-88X (BK). For instance, capacitors, resistors and other components use copper leads. Connections and the power cable use oxygen-free copper wires. Input/output terminals are plated with non-magnetic tin.

Despite the emphasis on digital, "analog" programs also sound vastly better as well. The circuit for moving-coil phono cartridges, for instance, is a combination of a pre-amplifier and a stepup transformer. This "hybrid" circuit offers extended high frequency response, accurate phase response, smooth overall frequency response, and fast transient response.

*Non-Switching is a trademark of Pioneer.

S P E C I F I C A T I O N S

AMPLIFIER SECTION

Continuous average power output of 120 watts* per channel, min., at 8 ohms, or 135 watts* per channel, min., at 6 ohms, from 20 hertz to 20,000 hertz with no more than 0.003% total harmonic distortion

Total Harmonic Distortion: (20—20,000Hz, 8 ohms)	0.003% (continuous rated power output)
Intermodulation Distortion: (50Hz: 7,000Hz=4:1, 8 ohms)	0.003% (continuous rated power output)
Damping Factor:	100 (20—20,000Hz, 8 ohms)
Input Sensitivity/Impedance	
PHONO (MM):	2.5mV/50k ohms
PHONO (MC):	0.25mV/40 ohms, 0.15mV/3 ohms
CD, TUNER, AUX, TAPE:	150mV/30k ohms
PHONO Overload Level (1kHz, T.H.D. 0.003%)	
MM/MC:	250mV/22mV (40 ohms), 13mV (3 ohms)
Output Level/Impedance	
TAPE REC:	150mV/2.2k ohms
SPEAKER:	A, B, A+B, OFF
HEADPHONES:	Low impedance

Frequency Response

PHONO (RIAA Equalization):	20—20,000Hz \pm 0.2dB
CD, TUNER, AUX, TAPE:	10—100,000Hz 0dB, —3dB

Tone Control

BASS:	\pm 8dB (100Hz)
TREBLE:	\pm 8dB (10kHz)
Filter (SUBSONIC):	15Hz (—6dB/oct.)

Hum and Noise (HF, A-network)

PHONO MM/MC:	89dB/76dB (40 ohms), 76dB (3 ohms)
CD, TUNER, AUX, TAPE:	110dB
Muting:	—20dB

MISCELLANEOUS

Power Requirement:	120V 60Hz
Power Consumption:	670W (UL)
Dimensions (W x H x D without package)	18 x 6 1/8 x 16-13/16 inches
	457 x 155 x 427 mm
Weight (without package):	39 lbs. 11 oz./18.0kg

*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.



NON SWITCHING AMP*

A · 7 7 X · B K

Non-Switching Stereo Amplifier

E L I T E H I F I

The A-77X (BK) is designed to the same concept as the A-88X (BK) introduced on the preceding page: great attention has been paid to its power supply, amplifying circuits, and the parts and devices used, to give the amplifier the ability to handle digital programs well.

The power supply design is as critical as the amplifying circuits themselves. Therefore, Pioneer has provided the A-77X (BK) with three power transformers and seven power supplies. Of the seven supplies, two are reserved exclusively for use by the power amplifier, one for each channel. This elaborate power supply prevents any one circuit from interfering with the others. The A-77X (BK) is built on the "two-mono-amps-in-one" design to completely separate the left channel circuitry from the right, thus minimizing interference between channels and improving channel separation. It all adds up to

precise sound imaging and clear, crisp reproduction.

This 3-transformer, 7-power-supply design pays off in another important way: it makes the amplifier ready to handle the wide dynamic range requirements of digital programs. When actually playing music, a speaker system rated at, say, 6 ohms, presents a varying load to the amplifier, which can be as low as 2 ohms at certain frequencies. And with digital programs, the impedance can be that low quite often, because of the much wider dynamic range and faster transient response. This means that, as the impedance decreases, the current supply to the power amplifier must be increased accordingly—otherwise distortion results.

The power amp of the A-77X (BK) has a separate power supply for each channel,

consisting of a large transformer and 16,400 μ F (total) capacitors. Its power transistors are arranged in an advanced parallel push-pull configuration. Thus the power supply is able to feed as much current as required to the power amplifier, however transient and dynamic the music may be. Indeed, this power supply is so well designed that the power amplifier can produce almost double the power output at half the rated impedance — 141W+141W of dynamic power at 8 ohms, 237W+237W at 4 ohms, and 324W+324W at 2 ohms (on EIA dynamic test signal). This makes the A-77X (BK) suitable for digital programs.

The circuitry of the power amplifier is an improved version of the Pioneer-exclusive Non-Switching Circuit (Type II). Now, not only is harmful switching distortion eliminated, but also thermal distortion due to temperature changes is reduced,

and linearity is improved in the output stage thirtyfold.

Much attention has been given to the choice of parts and devices used, and in the chassis layout. For instance, oxygen-free copper wires are employed for leads in capacitors and resistors, for connection cables, and for the power cord. Sturdy binding post type terminals are used for speaker connection to maximize current flow. Pin jacks are plated with non-magnetic tin to reduce magnetic distortion. Separate grounding is used for the power supply system and the amplifier circuit to reduce noise.

S P E C I F I C A T I O N S

AMPLIFIER SECTION

Continuous average power output of 100 watts* per channel, min., at 8 ohms, or 110 watts* per channel, min., at 6 ohms, from 20 hertz to 20,000 hertz with no more than 0.003% total harmonic distortion

Total Harmonic Distortion:	0.003%
(20—20,000Hz, 8 ohms)	(continuous rated power output)
Intermodulation Distortion:	0.003%
(50Hz: 7,000Hz=4:1, 8 ohms)	(continuous rated power output)
Damping Factor:	100 (20—20,000Hz, 8 ohms)
Input Sensitivity/Impedance	
PHONO (MM):	2.5mV/50k ohms
PHONO (MC):	0.2mV/100 ohms
CD, TUNER, AUX, TAPE:	150mV/30k ohms
PHONO Overload Level (1kHz, T.H.D. 0.003%)	
MM/MC:	250mV/16mV
Output Level/Impedance	
TAPE REC:	150mV/2.2k ohms
SPEAKER:	A, B, A+B, OFF
HEADPHONES:	Low impedance

Frequency Response

PHONO (RIAA Equalization):	20—20,000Hz \pm 0.2dB
CD, TUNER, AUX, TAPE:	10—100,000Hz 0dB, — 3dB

Tone Control

BASS:	\pm 8dB (100Hz)
TREBLE:	\pm 8dB (10kHz)
Filter (SUBSONIC):	15Hz — 6dB/oct.)

Hum and Noise (IHF, A-network)

PHONO MM/MC:	88dB/70dB
CD, TUNER, AUX, TAPE:	108dB
Muting:	— 20dB

MISCELLANEOUS

Power Requirement:	120V 60Hz
Power Consumption:	530W (UL)
Dimensions (W x H x D without package)	18 x 6-1/8 x 16-13/16 inches
	457 x 155 x 427 mm
Weight (without package):	33 lbs. 12 oz./15.3kg

*Measured pursuant to the Federal Trade Commission's Trade Regulation Rule on Power Output Claims for Amplifiers.



F · 99X · BK

Digital Direct Decoder FM/AM Tuner

E L I T E H I F I

The revolutionary F-99X (BK) FM/AM tuner, in effect, moves radio stations right next door. Now, whether the station is far or near, it is received clearly, completely free from interference and noise caused by more powerful stations. The reason is the Pioneer Digital Direct Decoder Type II.

The theory behind the Pioneer DDD is quite simple: the signal from the output of the IF stage is converted into a digital signal by a pulse converter, and then directly added to the sine-wave subcarrier in the adder of the stereo multiplex decoder. In the process, the FM signal remains in digital form from the pulse converter until it reaches the stereo demodulator. In other words, the Digital Direct Decoder detects and demodulates an FM signal not in two steps, but in one. Moreover, since digital signals are intrinsically immune to noise and distortion,

the DDD dramatically improves tuner specifications and performance: the signal-to-noise ratio, distortion, separation and interference-rejection capabilities are all significantly superior to those of standard tuner designs. The decoder also makes it unnecessary to use an anti-birdie filter, a major source of distortion and signal deterioration in standard tuners. In the latest DDD Type II circuit used in the F-99X (BK), a C-MOS IC is added to the pulse converter, to help reduce distortion and improve the signal-to-noise ratio further.

Other tuner circuits have received the same attention to detail for better sound and more stable reception. A Pioneer-developed ID MOS FET in the front end offers low noise, low distortion, high sensitivity and high interference rejection response. High-performance twin-varicaps and a balance-hold capacitor

improve reception. A balanced mixer enhances not only stability but also the interference rejection capability. A quartz oscillator improves stability and the signal-to-noise ratio, while keeping drift due to temperature or humidity change to a minimum.

Pioneer uses quality parts throughout to assure best possible tuner sound, including a low-impedance power transformer, oxygen-free copper wire cables, non-magnetic tin-plated output terminals, and a coil-less active output filter. Of special note are the newly-developed semiconductive capacitors: like common ceramic capacitors, they handle RF signals, but distortion is substantially lower, because they are semiconductive and epoxy coated to damp vibration. All in all, the F-99X (BK) adds exceptional purity to reproduced sound.

The Pioneer F-99X (BK) also abounds in conveniences for easy operation. Up to 16 FM and AM stations can be random preset for one-touch recall. A choice of two IF bandwidths are available for each station to assure good reception in the city or out in the country—WIDE permits lower distortion and best hi-fi sound, NARROW rejects interference for lower noise. Displays include a digital frequency readout, a 3-level signal strength indicator, and IF bandwidth indicator, a STEREO indicator, and an AM stereo adapter terminal.

Last but not least, the F-99X (BK) comes standard with attractive rosewood-veneer side panels.

S P E C I F I C A T I O N S

FM SECTION

Usable Sensitivity (mono):	10.8dBf (0.95 μ V, 75 ohms)
50dB Quieting Sensitivity	
Mono/Stereo:	12.8dBf (1.2 μ V, 75 ohms)/34.8dBf (15 μ V, 75 ohms)
Signal-to-Noise Ratio	
Mono/Stereo:	94dB/87dB (at 80dBf)
Distortion (at 80dBf)	
100Hz (mono/stereo):	0.015%/0.02%
1kHz (mono/stereo):	0.0095%/0.02% (Narrow; 0.09%/0.5%)
Frequency Response:	20—15,000Hz +0.2dB, -0.8dB
Capture Ratio:	0.8dB
Alternate Channel Selectivity:	85dB (400kHz)
Spurious Response Ratio:	80dB
Image Response Ratio:	70dB
IF Response Ratio:	100dB
AM Suppression Ratio:	70dB
Subcarrier Product Ratio:	60dB
Muting Threshold:	25.2dBf (5 μ V, 75 ohms)
Stereo Separation:	65dB (1kHz), 55dB (20—10,000Hz)
Antenna Input:	75 ohms unbalanced

AM SECTION

Sensitivity	
IHF, Loop antenna:	150 μ V/m
Selectivity:	18dB
Signal-to-Noise Ratio:	50dB
Image Response Ratio:	40dB
IF Response Ratio:	60dB
Antenna:	Loop antenna

AUDIO SECTION

Output (Level/Impedance)	
FM (100% Mod, Fixed):	650mV/900 ohms
AM (30% Mod, Fixed):	150mV/900 ohms

MISCELLANEOUS

Power Requirement:	120V 60Hz
Power Consumption:	20 watts
Dimensions (W x H x D without package)	18 x 2 1/2 x 12 5/16 inches
	457 x 63.5 x 312 mm
Weight (without package):	9 lbs. 15 oz./4.5kg



CT · A9X · BK

3-Head Cassette Deck with
"Reference Master Mechanism"

E L I T E H I F I

In designing the CT-A9X (BK), the engineers at Pioneer pulled out all the stops. The result is a deck with sound so superior, it is the new reference standard by which all other decks should be judged. No wow and flutter is audible, noise and distortion are reduced below the audible threshold, and frequency response is flat across the entire audible range. Best of all, its sound is superb and its dynamic range is as wide as that of digital equipment.

The "Reference Master Mechanism" the deck is built around is a masterpiece of precision engineering. It uses a Pioneer-perfected closed-loop dual-capstan drive system that dramatically reduces modulation noise and level variations. A Quartz-PLL servo motor directly drives the capstan. This combination of an advanced drive system and a precision motor results in amazingly low wow and flutter

of a barely measurable 0.018% (WRMS). The tape drive mechanism is controlled by a competent 4-bit micro-computer, operating in conjunction with a new absolute encoder. It coordinates and times the mechanism for exquisite operating feel and precise tape control.

The CT-A9X (BK) uses redesigned Pioneer-exclusive Ribbon Sendust heads. The advantages of these new low-impedance heads are many: extended high-frequency response, a higher signal-to-noise ratio and wider dynamic range. Moreover, because separate heads are employed, one for recording and one for playback, each has been given an optimum gap width. This means smooth, extending response.

For wide dynamic range, Pioneer extensively employs its latest amplifier technology. For instance, a DC playback

equalizer is directly coupled with the head using no capacitors, thus minimizing coloration and improving transient response. Special audio-use capacitors and metal film resistors are used to reduce noise and distortion, adding clarity and improving sound.

The Pioneer Auto BLE (Bias, Level and Equalization) system now records with different MOL (Maximum Output Level) weighting depending on the type of music. So not only does it derive flat response and low distortion from every tape during recording, but by finely adjusting bias, it provides the widest dynamic range for each type of music—rock and pop, electronic and classical.

Despite its state-of-the-art status, however, the CT-A9X (BK) is simple to use, thanks to microcomputer technology. The Auto Loader automatically closes the

door to the cassette compartment and takes up tape slack. Power Eject stops the tape, automatically opens the cassette lid, and pushes the cassette up. Tape Return stops the tape at a counter reading of "0000" in the FF or Rew mode. Auto Monitor automatically switches from SOURCE to TAPE as recording starts, and back to SOURCE when it stops.

More quality features are built in: the Dolby® B/C noise reduction system, MS (Music Search), tape/remaining-time counter, auto tape selector, timer standby, auto record mute, master level control with L/R level presets, and 35-segment fluorescent level meters.

*"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.
(Note: Auto Tape Loader may not work when the cassette shell is transparent.)*

S P E C I F I C A T I O N S

Type:	4-track, 2-channel recording and playback stereo cassette tape deck
Motors:	Quartz-PLL direct-drive motor for capstan drive x 1, Cordless DC motor for reel drive x 1
Heads:	"Ribbon Sendust" recording & playback combination head, Special alloy erasing head x 1
Fast Winding Time (C-60 tape):	80 seconds
Wow and Flutter (WRMS):	:0.018%
Frequency Response	
Normal tape (-20dB):	20-21,000Hz (30-19,000Hz ±3dB)
Chrome tape (-20dB):	20-22,000Hz (25-20,000Hz ±3dB)
(0dB):	20-11,000Hz
Metal tape (-20dB):	20-23,000Hz (25-21,000Hz ±3dB)
(0dB):	20-16,000Hz

Signal-to-Noise Ratio (Dolby off):	58dB*
Harmonic Distortion (0dB):	0.8%
Inputs (Sensitivity/Impedance)	
LINE (pin jack x 2):	63mV/100k ohms
Outputs (Reference level/Load impedance)	
LINE (pin jack x 2):	630mV/7k ohms
HEADPHONES	
(6mmφ stereo jack x 1):	0.45mW/8 ohms
Power Requirement:	120V 60Hz
Power Consumption:	52W
Dimensions (W x H x D without package)	18 x 5-1/8 x 14-3/4 inches
	457 x 130 x 374 mm
Weight (without package)	21 lbs. 1 oz./10kg
*S/N is improved by 10dB with Dolby B and by 19dB with Dolby C, both at 5kHz.	



CT · A 7 X · B K

**3-Head Cassette Deck with
"Reference Master Mechanism"**

E L I T E H I F I

The CT-A7X (BK) shares many of the same quality features as the CT-A9X (BK) on the preceding page. It uses the same precision "Reference Master Mechanism," the same Pioneer-exclusive Ribbon Sendust Heads, and the same clear-sounding DC playback equalizer. And like the more expensive model, the CT-A7X (BK) is designed to record the wide dynamic range of digital programs without compressing them.

The "Reference Master Mechanism" is the newest version of the sophisticated closed-loop dual-capstan drive perfected by Pioneer. Using two sets of capstan/pinch rollers, the mechanism ensures that the tape running across the heads is always taut. Since the capstans and pinch rollers have different diameters and run at different speeds, they provide constant tape tension for better tape-to-head contact. And since they have stag-

gered peaks in their wow and flutter response, resonance is damped.

Improvements achieved by the Pioneer-developed drive mechanism are wide ranging: wow and flutter, modulation noise, level variations and dropouts are all dramatically reduced for audibly better sound. Further, since the mechanism is controlled by a 4-bit microcomputer, working with an absolute encoder, operation is foolproof, reliable and smooth.

The Pioneer-exclusive Ribbon Sendust heads are of a new lower impedance design. As a result, they combine good high-frequency response, high sensitivity, low distortion, and a high saturation level. Two are used in the sophisticated discrete head design—one for recording and one for play: they are mounted together in one housing and then fine-adjusted for minimum azimuth error.

As a result, crosstalk and "crossfield" (mutual interference between heads) are greatly reduced. Further, the playback head is direct coupled with the DC amp for clearer reproduction. Of course, separate recording and playback heads mean better performance particularly at high frequencies, since each has an optimum gap width.

Ease of use is another hallmark of the CT-A7X (BK). Thanks to the Auto Tape Loader, as a tape is slipped into the cassette compartment, it is automatically loaded and slack taken out of the tape. At the touch of a button, Power Eject automatically stops the tape and pushes it up for easy access. Tape Return conveniently stops the tape at a counter reading of "0000" in the FF or Rew mode. Auto Monitor switches from SOURCE to TAPE as a recording starts, and back to SOURCE when it stops, thus

making it easy to check if the recording is being made properly. Auto Record Mute creates a 4-second blank and then stops the tape at the touch of a button.

More features for easy operation and better sound include the Dolby B/C noise reduction system, MS (Music Search), 4-digit electronic tape counter, auto tape selector, timer standby, 18-segment fluorescent level meters, and an over-recording warning indicator for each type of tape.

(Note: Auto Tape Loader may not work when the cassette shell is transparent.)

S P E C I F I C A T I O N S

Type:	4-track, 2-channel recording and playback stereo cassette tape deck
Motors:	DC-servo motor for capstan drive x 1, DC motor for reel drive x 1
Heads:	"Ribbon Sendust" recording & playback combination head, Special alloy erasing head x 1
Fast Winding Time (C-60 tape):	80 seconds
Wow and Flutter (WRMS):	0.028%
Frequency Response	
Normal tape (-20dB):	20-20,000Hz (30-19,000Hz ±3dB)
Chrome tape (-20dB):	20-20,000Hz (25-19,000Hz ±3dB)
(0dB):	20-11,000Hz
Metal tape (-20dB):	20-20,500Hz (25-20,000Hz ±3dB)
(0dB):	20-16,000Hz

Signal-to-Noise Ratio (Dolby off):	57dB*
Harmonic Distortion (0dB):	0.8%
Inputs (Sensitivity/Impedance)	
LINE (pin jack x 2):	63mV/120k ohms
Outputs (Reference level/Load impedance)	
LINE (pin jack x 2):	630mV/3k ohms
HEADPHONES	
(6mmØ stereo jack x 1):	0.45mW/8 ohms
Power Requirement:	120V 60Hz
Power Consumption:	38W
Dimensions (W x H x D without package)	18 x 5-1/8 x 14 3/4 inches
	457 x 130 x 374 mm
Weight (without package):	17 lbs. 7 oz./7.9kg
*S/N is improved by 10dB with Dolby B and by 19dB with Dolby C, both at 5kHz.	



D S S · E 1 0

3-Way Bass-Reflex Speaker System— DSS (Digital Standard Speaker) Series

E L I T E H I F I

In the development of the DSS-E10, Pioneer involved a number of audio reviewers, critics and other people in the know across the nation, to ensure that its sound is exactly what the critical audiophile demands. The result is a speaker system that excels in reproducing digital programs: It combines high linearity, high power, extended frequency response, and flat, smooth overall response.

A large amount of Pioneer-developed innovation has gone into the 12-inch (30cm) woofer of the DSS-E10. The first is the LDMC (Linear-Drive Magnetic Circuit) consisting of a new pole piece and an additional "subpole" mounted at the top of the piece. In the new design, the magnetic flux formed by the pole and top plate is distributed symmetrically in relation to the center of the long-travel

voice coil. As a result, the voice coil offers linear back-and-forth movement over a much wider range than a conventional design permits. This has led to a higher signal-to-noise ratio and lower distortion in bass frequencies, adding clarity and delicacy to the overall sound.

The second innovation in the woofer is the EBD (Electronic Bass Drive). This design uses two voice coils wound on the bobbin, one upon the other. To one are applied low frequencies, and to the other only ultra-low frequencies. EBD effectively doubles the amount of *usable* low-frequency output; the audible result is more extended bass response.

The DRS (Dynamic Response Suspension) is the third Pioneer feature incorporated into the woofer. It improves the linearity of the damper and surround, so that the

woofer responds linearly to a wide range of inputs, from the loudest to the softest sounds. Like the LDMC, the DRS contributes to expanding the dynamic range of the woofer so that it can match that of digital programs.

The last Pioneer feature of the woofer is the material from which its cone is made—PG or Polymer Graphite.* It is firm, airtight, and resistant to ageing and temperature and humidity changes. Since cone breakup rarely occurs, distortion due to cone deformation is far less. Moreover, since PG has excellent internal damping, response is smooth for accurate, uncolored sound.

Naturally, Pioneer innovation extends to the other speaker units as well. The midrange driver is suspended by a DRS damper to improve linearity and widen

the dynamic range. Its 4.3/4-inch (12cm) cone is fashioned out of hard boron in one piece with the center dome, in order to improve sensitivity and achieve natural response. The tweeter is a Pioneer direct-radiation beryllium ribbon unit offering improved transient response and lower distortion.

As a final touch, Pioneer has rounded the front baffle corners to reduce diffraction and thereby assure smooth response and improved transient response. The DSS-E10 is attractively finished in natural wood veneer, and supplied in mirror-image pairs to improve stereo imaging.

**Polymer Graphite is a trademark of Pioneer.*

S P E C I F I C A T I O N S

Enclosure	Bass-reflex bookshelf type
Unit Layout:	Symmetrical
Speakers	
Woofer:	12-inch (30cm) PG™ cone type
Midrange:	4.3/4-inch (12cm) boron cone type
Tweeter:	Beryllium ribbon type
Impedance:	6 ohms
Frequency Range:	30–50,000Hz

Sensitivity (1m):	91dB/W
Maximum Music Power:	240W
Rated Power:	80W
Crossover Frequencies:	650Hz (Low/Mid), 4,000Hz (Mid/High)
Dimensions (W x H x D without package)	15-3/8 x 26-3/4 x 13-7/8 inches
	390 x 680 x 353 mm
Weight (without package):	57 lbs. 5 oz./26kg



D S S · E 6

3-Way Bass-Reflex Speaker System— DSS (Digital Standard Speaker) Series

E L I T E H I F I

Like the DSS-E10, the DSS-E6 is designed specifically so that the critical audiophile can fully enjoy digital programs at their best. A number of Pioneer exclusive features—LDMC, EBD, DRS, PG, ribbon tweeter, etc.—are incorporated which, together, give the DSS-E6 high linearity at high power, extended high/low-frequency response, and flat, smooth overall response.

In the woofer are found four new innovations from Pioneer that make the DSS-E6 ready for digital. One is the LDMC (Linear Drive Magnetic Circuit) consisting of a new pole piece and a “subpole” attached at the top. In conventional magnetic circuit designs, the magnetic flux pattern is not symmetrical in respect to the center of the voice coil, which leads to noise and distortion. In the new Pioneer design, however, the magnetic flux distribution

pattern is not only uniform but also symmetrical in respect to the center of the long-travel voice coil. Thus, the voice coil offers linear travel over a much wider distance. This means a higher signal-to-noise ratio and lower distortion in the bass region.

The EBD (Electronic Bass Drive) is the second Pioneer exclusive in the woofer. It uses two voice coils, one wound upon the other on the bobbin. To one are applied low frequencies, and to the other only ultra-low frequencies. The EBD generates double the normal amount of *usable* low-frequency output, thus adding an extra octave or two to the low end.

The DRS (Dynamic Response Suspension) is a new suspension system using a newly-developed damper and rolled surround for the woofer. This suspension

allows the diaphragm to respond uniformly and linearly to a wide range of input levels, from the softest to the loudest sounds. It extends the low-frequency response of the DSS-E6 so it easily handles the high-energy bass of digital programs.

The 8-inch (20cm) woofer cone is constructed from a Pioneer-exclusive material—PG or Polymer Graphite. It too has ideal response, making it a perfect choice for digital. Beside being resistant to temperature and humidity changes, and highly stable over time, PG is firm and airtight; therefore it does not suffer from cone breakup even at high input levels, thus reducing distortion due to deformation. The internal damping of PG is excellent, so response is smooth and sound is uncolored.

The same high technologies are incorporated into the midrange and the tweeter of the DSS-E6. As in the woofer, the midrange features the DRS to assure linear diaphragm excursion and wide dynamic range. Again, its 2-1/2-inch (6.6cm) cone is made of a single piece of rigid boron (including the center dome), to improve sensitivity and create natural response. The DSS-E6’s tweeter uses a thin, direct-radiating beryllium ribbon developed by Pioneer for improved transient response, smooth frequency response and lower distortion.

The front baffle has rounded corners. They not only add a touch of class to the speaker system but also reduce sound diffraction to improve stereo imaging.

S P E C I F I C A T I O N S

Enclosure	Bass-reflex bookshelf type	Sensitivity (1m):	90dB/W
Unit Layout:	Symmetrical	Maximum Music Power:	120W
Speakers		Rated Power:	40W
Woofer:	8-inch (20cm) PG™ cone type	Crossover Frequencies:	1,000Hz (Low/Mid), 5,000Hz (Mid/High)
Midrange:	2-1/2-inch (6.6cm) boron cone type	Dimensions (W x H x D without package)	10-5/8 x 18-1/2 x 9-9/16 inches
Tweeter:	Beryllium ribbon type		270 x 470 x 243 mm
Impedance:	6 ohms	Weight (without package):	23 lbs. 2 oz./10.5kg
Frequency Range:	40–50,000Hz		

A U T H O R I Z E D D E A L E R S

Royal Sound
4365 W. Pico Boulevard
Los Angeles, CA 90019

Tunxis Electronics
281 North Main Street
Bristol, CT 06010

Sounds Alive
555 Boston Post Road
Orange, CT 06477

Audio Plus
12241 S. Dixie Hwy
Miami, FL 33156

Ritz Shop, Inc.
104 N.E. Second Avenue
Miami, FL 33132

Hunter & Shows
P.O. Box 1352
Pensacola, FL 32596

Bergers Audio & T.V.
110 W. Sixth Street
Tifton, GA 31794

Consumer Electronics
10382 Overland
Boise, ID 83709

Phase 4 Stereo & Electronics
238 Northgate Mile
Idaho Falls, ID 83401

K-B TV
6448 West Cermack
Berwyn, IL 60402

Video Encounters
20 Yorktown Center
Lombard, IL 60148

1st in Video—Music World
2812 Broadway
Quincy, IL 62301

Lehman Electric
551 North Jefferson Street
Huntington, IN 46750

Todd's, Inc.
301 East Market
Logansport, IN 46947

Butterfly, Inc.
124 S. Buffalo Street
Warsaw, IN 46580

Mayo, Inc.
520 South Mayo Trail
Pikeville, KY 41501

Bridgewater Audio & Video
P.O. Box 474
Bridgewater, MA 02324

Audio Buys
16512 S. Westland Drive
Gaithersburg, MD 20877

Troys Video, Inc.
106 Prospect Road
Mt. Airy, MD 21771

Crowells
309 Main Street N.W.
Lenoir, NC 28645

Hi-Fi Haven, Inc.
28 Easton Avenue
New Brunswick, NJ 08901

Hi-Fi Electronics
152 Delancy Street
New York, NY 10009

Salem Sound Center
3996 Portland Road, N.E.
Salem, OR 97303

High Technology Video
12266 S.W. Scholls Ferry Road
Tigard, OR 97223

Sunrise Electronic
2655 Philadelphia Avenue
Chambersburg, PA 17201

Skidor Associates
814 Lititz Park
Lititz, PA 17543

Eastern Discount
1113 Mineral Spring Avenue
N. Providence, RI 02904

El Arca, Inc.
924 East Levee
Brownsville, TX 78520

Hammond Electronic
4334 Scottsdale Street
Dallas, TX 75240

Casa Sonido, Inc.
722 S. Stanton Street
El Paso, TX 79901

Metex International
1217 Lincoln Street
Laredo, TX 78040

Universal Dealer Service
3167 South State Street
Salt Lake City, UT 84115

Southern Autotronics
3300 Norfolk Street
Richmond, VA 23230

Videorama Corp.
5325 Cleveland Street
Suite 305
Virginia Beach, VA 23462

To find your nearest dealer
for any Pioneer product,
call 1 (800) 447-4700, toll
free in the United States,
except Alaska and Hawaii.



Pioneer Electronics (USA) Inc.
P.O. Box 1540
Long Beach, CA 90801

Reliable Reporting

Dear Editor:

Thank you for producing a quality audio magazine. In particular, I would like to echo the feelings of William W. Menz. His letter, in your August "Signals & Noise" column, refers to (but doesn't name) another audio magazine which never seems to find fault with the equipment it tests. Menz and I must be reading the same magazine, for I have long felt the same way toward one of your competitors. Their reviews are always complimentary and never mention any shortcomings of the equipment they test. *Audio's* test reports, on the other hand, tell of both the strong and weak points of components and are always accurate and informative. Congratulations to you and your excellent staff. Keep up the good work.

Kevin Bradley
Fairfax, Va.

High-Priced Spreads

Dear Editor:

I admit I am a bit confused. I have been reading the review of the Technics SP-10MK3 turntable (February 1985). I have also seen reviews in years past on the Sequerra tuner and read about Mark Levinson's extrapolations *ad infinitum*. Then there are the Infinity speakers at a mere \$31,500 plus or minus a few sesterces.

I understand the idea to sell ultimate quality, as McIntosh attempts to do. But why do we need such extravagantly priced hardware if the software we can buy does not warrant it? The weakest link determines the quality of the end product. As long as multipath exists, the very best tuner possible will not solve the problem. We have to wait until music is digitally transmitted and computer-driven filters can filter out the later-arriving signals. FM may be dead by then, under the same slow-death warrant which has been signed for the 12-inch LP with the advent of CDs. The Technics SP-10MK3 is therefore equally moribund. The high-priced product is an overkill as long as we have records that produce pops and ticks after only the second playing, not to mention record wear, limited dynamic range, and those thousands of discs that have pops and ticks from birth. Multipath, and the deterioration of the LP, are inherent problems of the sys-

tem. I guess until nonmechanical ROMs are developed with enough storage capacity we will always have mechanical-wear problems.

So, I wonder. These manufacturers, do they do any market research? Mark Levinson obviously did not. Technics can afford one loser, since Uncle Matsushita has many millions of sesterces stashed away. The simple logic behind all this escapes me, however.

Paul A. Elias
Fountain Hills, Ariz.

Mixed Emotions

Dear Editor:

I didn't know whether to laugh hysterically or run screaming out of the house after reading the March issue with its articles on FM quality. For about five years we were one of the better sounding FM stations in the area. Recently, new owners took over our only FM competitor in town. There is one AM station. The new owners decided to buy some new equipment which would give them greater loudness (with greater distortion). Our manager and/or owners felt the necessity to compete, so a new piece of audio processing equipment was purchased and adjusted to do battle with the dreaded competitor. *Wonderful?* We still aren't louder than they, even though both stations are using the same audio processor/exciter combination, but we do sound as bad as, or worse than, they do. Our modulation monitor needle very seldom varies more than 1 dB! In the midst of all this, our owner/manager extolls the quality sound of our station compared to brand "X"!

Shortly after the "rape" occurred, I noticed that stereo shops in town were playing records or running our station at *low* volume. One dealer even spent half an afternoon trying to find a defect in his antenna system that he thought was causing the distortion! Our "consulting engineer" was unable to exert enough influence to preserve some of the quality sound we once had, and he feels frustration. A friend of mine commented on the "flat" sound we have. He covers several states as a salesman, getting into our area every few weeks or so, *and is not a hi-fi buff!* As far as I'm concerned, as long as salesmen out of the ranks of the AM world

are in the positions of power, *most* FM stations will be little more than bastardizations that would probably send Major Armstrong out of the window again.

The kicker on this whole thing is that we are an Adult Contemporary FM station with Rock at night, and the competitor is Country! The AM station has far more dynamic range than either FM station. Why our manager is concerned about dynamic range on the AM and isn't bothered by the lack of it on the FM is beyond me.

I commend those FM stations who are interested in allowing people to enjoy the program over a long period of time, and who respect the fact that a lot of people spent a lot of money on their systems so they can enjoy music. It seems to me that those are the people to keep for the benefit of the advertisers. (By the way, I am in sales.)

Thank you for allowing me to blow off some steam.

Name and address
withheld by request

Repairman Wanted

Dear Editor:

I am looking for someone who might be able to repair an old stereo, a Stewart Warner model number R457. Would you possibly be able to give me some information regarding this? I would be most grateful.

James S. Jordan
Houston, Tex.

Editor's Note: Can anyone help Mr. Jordan? Let us know, and we'll relay your reply to him.—E.M.

Static on FM Fidelity

Dear Editor:

The article "FM Fidelity: Is the Promise Lost?" which appeared in the March issue was very interesting.

Having worked with lots of FM station operators, I can assure you that very few of them are concerned with "quality." Most of them are more concerned with their bank accounts, and, as such, simply will not spend money for good equipment. Many stations have equipment which is far inferior to most home systems these days.

I assume that the two pictures of towers on page 49 were supposed to represent FM station towers. However, those shown are microwave relay

"Bravo for your use of double-blind tests! As a former psychology major I am acutely aware of how easily a desired result may appear to be real."

towers, with no visible FM-transmitting antenna bays.

Also, the issue of FCC-mandated proofs is now moot; they are no longer required by the FCC. A few quality-conscious stations (like WFMT) will probably continue with them, but rest assured that 99% of all FM operators will use this as an excuse to save even more money. After all, why spend \$20,000 for a new control board to replace the old one that couldn't pass the proof? That money can be used for more important things, like a new car for the owner or a cruise for the general manager's family.

Larry Fuss
Broadcast Consultant
Contemporary Communications
Jackson, Ga.

At Your Service

Dear Editor:

This letter is to inform you of the outstanding service I have received from one of your advertisers.

Mr. David Wasserman, of Stereo Exchange in New York City, purchased a set of old McIntosh tube equipment from me last week. David promised to send payment for the articles upon receipt. He was true to his word; I received payment in full within 24 hours after talking with him on the telephone.

Such forthright service is rare in the stereo industry these days. As a snowbird I'm impressed with the service you give to your northern neighbors. We could use your kind of business acumen here in Canada.

W. J. Donnelly
Edmonton, Alberta
Canada

Push/Pull

Dear Editor:

I would like to cast my vote of approval over your publication of the interplay between David L. Clark and Laurence L. Greenhill regarding the subjective sound of the Sansui C-2301 preamp and the B-2301 amp (April 1985 "Equipment Profile"). While it may be difficult to present such discussions without making one or the other look bad (different readers will probably draw different conclusions), it is worth involving subjective influences since listening to music is about as subjective as you can get. The obvious

flaw in leaning too heavily on subjective data is that it will tend to reflect the taste of the reviewer. As such taste is developed through personal experience, the yin/yang approach of Clark/Greenhill has merit.

John H. Roberts
Phoenix Systems
Stone Mountain, Ga.

Rave Review

Dear Editor:

Upon receipt of the May issue of *Audio* I promptly rushed over to the Rock/Pop record reviews. My eyes were amazed to see the form of Laurie Anderson staring out of the slick page of your glorious magazine. I was amazed that a mass-market magazine would give a New Music artist as unusual as Anderson a full page of review. This reinforced my faith in your publication and increased my respect for Michael Tearson.

So many times, we New Music devotees (who are not Devo fans) get the shaft from the "average" publications. I can now say that *Audio* is not one to run and hide when something unique rolls around.

Now, how about a review of Jean-Michel Jarre's new album, *Zoolook*, that will really freak 'em out?

Steven Sawyer
Miami, Fla.

For Sale

Dear Editor:

As a long-time subscriber to *Audio*, I have a 10-year accumulation of the magazines which I must dispose of. These are in excellent condition and are complete for the years 1974 through 1983. I would appreciate knowing of anyone who would be interested in these issues.

H. L. Messerschmidt
Clarendon Hills, Ill.

Editor's Note: If there are any takers, please send your responses to us here at *Audio* and we will be happy to forward them to Mr. Messerschmidt.—A.P.

Component Comparisons

Dear Editor:

Bravo for your use of the ABX comparator for double-blind tests of audio equipment! Your procedures should be the industry standard. As a former

empirical psychology major I am acutely aware of how easily a desired result may appear to be real.

May I suggest an improvement to your procedure? You compare the test component to your reference unit. This is probably a neutral and high-priced unit, chosen without the benefit of ABX tests. How about adding to each test series a good, moderate-priced, widely sold component (maybe a \$450 to \$600 receiver—a Carver, perhaps?), and a "bargain" component (maybe a \$300 receiver, like an NAD or Proton or Radio Shack)? Similar choices could easily be made for other components.

In my experience, the results of this modification are sure to be embarrassing to "golden ears" and "experts." (The test subjects should not know which pair of components are under audition at any time.)

Please abandon the type of "It sounds okay to me" review that characterized your test of the Stax Lambda Pro headphones (January 1985).

Jeffrey Asher
Professor of Consumerism
Dawson College
Montreal, Quebec
Canada

Point of Reference

Dear Editor:

I'm writing to applaud *Audio's* new directions. Contrary to Roy Allison ("Signals & Noise," April 1985), I don't get the impression that two different magazines are trying to inhabit the same covers. I feel the "Auricle" reviews (especially Anthony Cordesman's) make an interesting contrast to the regular scientific, technical ones.

I also thoroughly enjoy the reviews by Richard Heyser, Bascom H. King, Greenhill and Clark, and Ed Long. Keep them on the staff at all costs!

Now to pick a few nits: Would it be possible to get Richard Heyser and Ed Long to identify the reference equipment they use in subjectively reviewing? Greenhill and Clark, as well as Mr. King, already do this and I feel it gives the readers of *Audio* some insight into the objective as well as subjective preferences of various reviewers.

Thanks again for one of the best commercial audio publications.

Robert F. Joyce
Jackson, Mo.

“Light my Lucky.”



Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health.

Lights 8 mg. "tar", 0.7 mg. nicotine av. per cigarette by FTC method.

BEHIND THE SCENES

BERT WHYTE

WINDY CITY WINDUP

Last month in my initial report on the 1985 Summer Consumer Electronics Show, I reported on the new 8-mm videocassette recorders and on audio/video package systems, but touched only briefly on the considerable speculation that CD players would reach new low price points. This proved accurate when Pioneer introduced a "budget" CD player to retail at \$299, Magnavox showed its FD1041 at \$299, Technics had its SL-PJ1 CD player priced at \$300, and Symphonic premiered its CD100 at \$180. There are supposed to be some CD players from Korea and Taiwan that will be offered at a list price of \$249. Many people involved with the marketing of CD players fully expect that by the time this column appears lots of dealers will be discounting CD players down to \$199! To me, it is incredible that such a sophisticated product—with its laser tracking, servo control and digital circuitry—can be produced to sell at such a price and still make a profit for a dealer!



Denon DCD-1800R CD player

There are many marketing people who feel this kind of pricing will make CD players a mass-market product. The fly in this ointment is the price of CD software. Even with the deep discounts on CDs available from New York City's big record dealers, we're still talking about \$10.95 to \$11.95 per disc, with many labels at higher prices. Perhaps down the line, when the CD is actively tied in with computers, there will be an impetus to bring down the retail cost of a CD to \$7 or \$8, and then the CD floodgates will really open! But as it is, to make and sell a CD, it costs about 10 times what it costs to make and sell an LP.

As I pointed out in the first part of my SCES report, most CD players offered by the various manufacturers are actually sourced from the likes of Matsushita and Sony, and differ mainly in features and cosmetics. Here, I am going to deal first with some of the more specialized players, and those which claim specific points of superiority.

Two schools of thought are current among manufacturers of audiophile-type CD players, most of whom are too small to make entire players from scratch. One approach, exemplified by Meridian, is to buy a specific model that can be extensively modified. The other approach is to buy certain critical and hard-to-fabricate CD parts, such as the laser pickup and tracking assembly, the tracking servo system and drive motor, and the D/A converters. These parts are then incorporated into special chassis along with special, high-quality digital and analog circuitry and convenience features.



Sansui PC-V100 CD player

McIntosh, the venerable high-end amplifier manufacturer, chose to go this route, and at the SCES they introduced their MCD-7000 CD player. The aforementioned parts come from Philips, as McIntosh has decided to use the Philips quadruple-oversampling (176.4 kHz) and noise-shaping technique for CD playback. Gordon Gow, "the canny wee Scot" who presides over the destiny of McIntosh, is justifiably proud of what his engineers have wrought in this new CD player. A very rigid chassis is employed, along with what they call a precision platform. On this platform are mounted all the moving parts of the reproduction system. This in turn is supported by a special suspension system, to isolate these assemblies from external vibration and shock. Motor control uses digital phase-locked-loop circuitry. Double digital filtering is a feature, along with parallel D/A converters. This filtering is claimed to be completely effective in removing signal spurious without altering phase relationships. The McIntosh uses CIRC error correction, but has an additional ERCO error-correction system which its makers claim affords the best error correction in any CD player.

As you might expect, a CD player of this quality has all sorts of convenience features under microprocessor control, as well as an elaborate display for track and timing information, etc. Most

functions are duplicated on the wireless remote control. The MCD-7000 is a beautiful-looking CD player, styled in the McIntosh tradition and priced at \$1,399.



Pioneer PD-9010X CD player

Bob Stuart, Meridian's dynamic digital expert, was showing off his new Meridian MCD Professional CD player. Like the standard Meridian MCD, this unit is developed from the Philips CD101 chassis (now said to be exclusively reserved for Meridian). The MCD Professional is approximately 1½ inches higher than the standard MCD; this provides extra space outside the original Faraday cage fitted to the bottom of the CD101 chassis. This space has additional electronic circuitry, including a new, very high-performance integrator and analog filtering stage, and the first digital, absolute-phase correction system—a new Meridian development. These new circuit sections, located away from the digital and servo sections, are powered by a totally separate transformer and regulated power-supply system. All of this special electronic circuitry is hard-wired to the player section to avoid timing errors said to be inherent in CD players using two separate chassis.

The MCD Professional also has a new master oscillator that affords 40 dB less jitter and modulation than earlier generation CD players. This refinement is claimed to allow true 16-bit resolution under dynamic music-replay conditions. (Standard CD players are said to achieve 10 bits at high frequencies.) The MCD Professional also features d.c. coupling, with low-frequency response to 0.5 Hz, and a digital output. The new Meridian Professional CD player should be available by the time you read this, and will cost \$1,399.

The \$2,000 two-piece CD player from Cambridge, which I described in the April 1985 issue of *Audio*, will also be available by the time this issue reaches you.

Among old-line companies offering special circuitry in new CD players was

NO OTHER HIGH-BIAS CASSETTE CAN MATCH THESE NUMBERS:

10111000101110001101



Other Type II (high-bias) cassettes are a long way from home when it comes to reproducing the pure, dynamic sounds of digitally encoded music sources.

But, number for number, TDK HX-S audio cassettes are number one.

Their exclusive metal particle formulation reproduces a wider dynamic range and higher frequency response. This enables HX-S to capture all the crispness and purity of digital performance on any cassette deck with a Type II (high-bias) switch.

With four times the magnetic storage ability of other high-bias cassettes, HX-S virtually eliminates high frequency

saturation, while delivering unsurpassed sensitivity throughout the audio spectrum.

Additionally, HX-S excels in retention of high frequency MOL, which no other high-bias formulation attains.

And HX-S superiority is not just numerical. To maintain its dynamic performance, HX-S is housed in TDK's specially engineered, trouble-free Laboratory Standard mechanism. It's your assurance of unerring reliability and durability, backed by a Lifetime Warranty.

For optimum results with Type II (high-bias) and digitally-sourced recordings, get TDK HX-S. You'll feel more at home with it, wherever you go.

TDK
THE MACHINE FOR YOUR MACHINE.

There are two schools of thought among makers of high-end CD players: To modify existing units or to assemble critical parts in special chassis.

Denon. Of course, Denon has been working with digital recording and allied technology since 1969. Their new DCD-1800R CD player has all the bells and whistles of a top-drawer player, but of major interest is its new DDAC (Direct Digital-to-Analog Conversion) circuitry. Tiny errors in the MSB (most significant bit) can overwhelm the information carried by the LSB (least significant bit). Denon claims that conventional D/A converters do not correct these errors, and cause a glitch at the crossover point of the transfer function. This nonlinearity is said to produce distortion similar to crossover distortion in a Class-B amplifier. With Denon's DDAC, a special conversion-error detection circuit corrects the values of the MSB and the SSB (second significant bit). Thus, conversion is much more linear and there is less audio distortion.

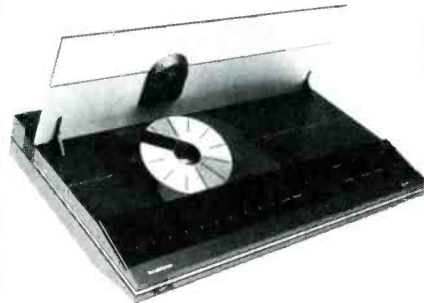


Audio-Technica AT-CD10 CD player

Another interesting point about this CD player is that the power transformer has separate windings for the transport/servo section, the analog amplifier, and the digital display section. To avoid mutual interference and hum induction, the transformer is mounted outboard on the back panel of the player. The DCD-1800R is available now at a price of \$949.

Denon also introduced the DCD-1500, at \$579.95. It uses the new DDAC in the left and right output channels, thus eliminating the 11.36- μ S interchannel delay caused by single D/A converters using time-division multiplexing. Three other, lower priced Denon players, the DCD-1000, DCD-1100, and DCD-1400, also debuted.

Harman/Kardon introduced their first CD player, the HD500, which will sell for \$600. In addition to all the standard bells and whistles and the wireless remote control, the HD500 has some special circuitry. It uses a 16-bit linear D/A converter with double (88 kHz) oversampling. They claim a special,



Bang & Olufsen CDX CD player

ultra-low-distortion analog output section enabling them to use a simple analog filter with a gentle slope. No negative feedback is employed, and the analog section uses discrete components. A sample-and-hold circuit reduces interchannel switching noise, and there are separate analog and digital power supplies. The player is direct-coupled from the analog converter to the audio output jacks to improve low-frequency performance.

New CD players were introduced by Sansui (the PC-V750 and PC-V100, both at \$350), by Magnavox (the FD1041 at \$299, mentioned above, and FD1051 at \$349), by Audio-Technica (the AT-CD10 at \$399), and by Kyocera (the DA-610, priced at \$550). There were also new players from Yamaha and Akai, and several very stylish "Danish Modern" units from Bang & Olufsen. Pioneer's top-of-the-line PD-9010X costs \$539.95. NEC showed their CD-607E; they are very big on its non-delay filter plus 5-pole active analog filter, which they claim reduces group delay by 96%. Luxman's D-03 CD player will sell for \$600, and their combination LaserVision/CD unit will be priced at \$1,300.

In CD players for cars, the Pioneer and Sony units have been joined by models from Alpine, Sanyo, Grundig, Blaupunkt, Yamaha, Kenwood, Panasonic and several others. The big stumbling block in this market appears to be delivery, with even the first-announced Sony and Pioneer players still slow to reach dealers. Yamaha, which had shown prototypes of its car CD player at the WCES, said they would be shipping a production model by now. Yamaha claims to have developed a floating suspension system that makes their YCD-1000 player as stable

as their home CD units. The player's novel CD cartridge system allows both disc protection and easy insertion. A CD is loaded into a plastic cartridge; when this is inserted into the slot of the YCD-1000, a shutter built into the cartridge opens to allow laser tracking. When ejected, the shutter is closed and the CD remains protected from dirt, fingerprints, etc. Ten of these disc cartridges will be included with each YCD-1000 player.



Harman/Kardon HD500 CD player

Needless to say, there were some other interesting products at the SCES. For instance, Electrocompaniet can always be counted on to furnish a civilized demonstration of really excellent sound, and they were showing off their new Ampliwire Three power amplifier. This is probably the "beefiest" amplifier they have made, with a very large power transformer and power supply.



Akai CD-M88 CD player

It is rated at 125 watts/channel into 8 ohms, with a whopping maximum peak current output of 80 amperes! THD at 50 watts into 8 ohms is rated at a very low 0.005%. Driving a pair of their interesting pyramid-shaped Prisma speakers (\$1,690 per pair), it produced a very smooth, clean, highly detailed sound, with good depth and imaging. The Ampliwire Three will be available this month at \$2,150.

In the Krell room, Dan D'Agostino was very proud of his new PAM-5 stereo preamp, which has a single outboard power supply. With top cover removed, the \$1,500 unit looked very high-tech, with its beautifully laid-out boards and precision wiring. Dan also

A big stumbling block in the car-CD market seems to be delivery, with even the first models still slow to reach dealers.

was showing a 200-watt-per-channel stereo amplifier priced at \$3,800. Like most Krell amplifiers, this one's innards were dominated by a king-sized toroidal power transformer.

MOS-FET output amplifiers and tube/MOS-FET amplifiers are apparently becoming more popular. Now Perreaux of New Zealand has their new PMF 1050, a 100-watt-per-channel (into 8 ohms) amplifier with a Class-A driver stage and extended Class-AB MOS-FET output. Rise time is rated at



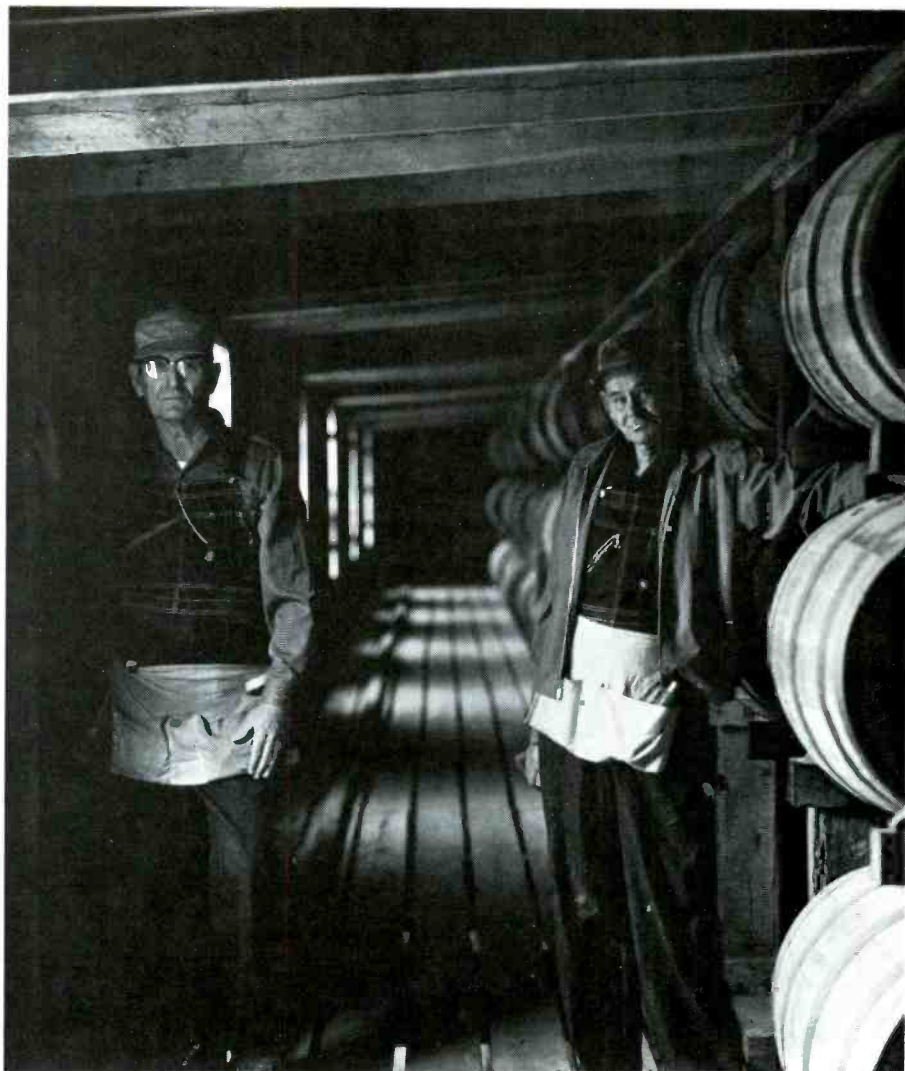
Yamaha YCD-1000 car CD player

under 1.5 μ S, with a bandwidth of 10 Hz to 200 kHz between -3 dB points. The price of this unit is \$850. There is a companion SX-1 preamp, with both moving-magnet and moving-coil inputs, at \$650. Perreaux has also introduced its first stereo FM tuner (not necessarily a companion piece), featuring frequency-synthesized tuning and switchable de-emphasis; 17.5 μ V (36.1 dBf) input will provide 50 dB of quieting. Its price is \$500.

Counterpoint was showing their SA-12 hybrid amplifier. This uses a tube driver stage and a MOS-FET output stage providing 80 watts/channel into 8 ohms; frequency response is from 5 to 100 kHz. The price is \$995.

Harvey Rosenberg of New York Audio Labs was on hand, replete with his flamboyant merchandising policies. The man has boundless enthusiasm for his Moscode amplifiers, which have—here again—tube stages driving MOS-FET outputs. Harvey has four such amplifiers including a 500-watt-per-channel (8 ohms) beast that is priced at \$3,000.

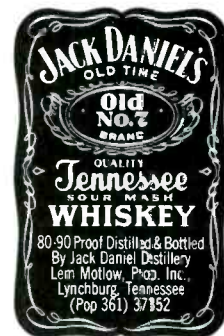
There were a few interesting speakers, and several other noteworthy products that will have to be covered in the course of time—and enough other products to fill a book!



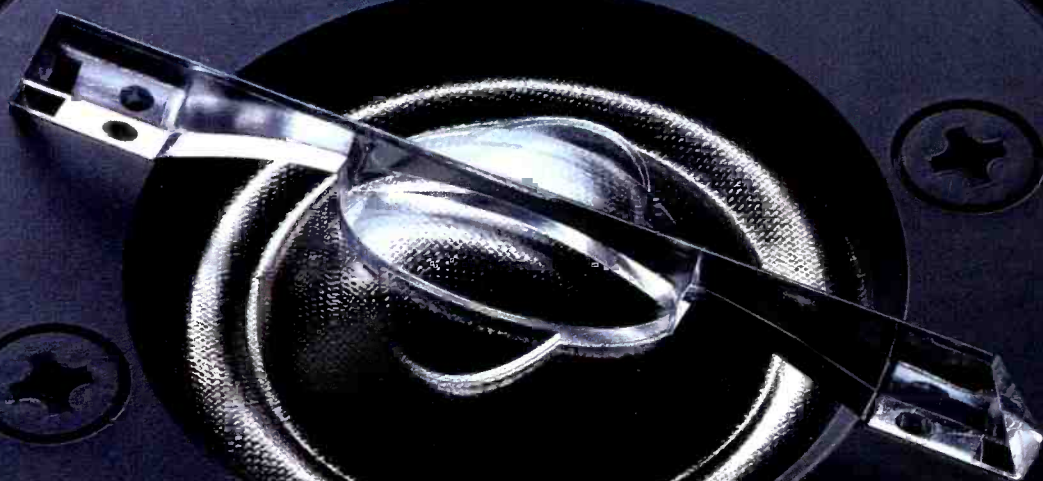
If you're a Jack Daniel's drinker, let us hear from you sometime.

THESE MEN KNOW EXACTLY what's happening inside every barrel in a Jack Daniel's warehouse.

In the heat of summer the whiskey is expanding into the charred inner wood of the barrel. Come Halloween, it's starting to cool. And inching its way back toward the center. Over the aging period, this gentle circulation of whiskey is going on constantly. Of course, it can't be perceived by the human eye. But after a sip of Jack Daniel's, we believe you'll recognize its importance.



Presenting the TLX Series from JBL. Why we overbuild underpriced loudspeakers.



The titanium laminate tweeter, abbreviated TLX™, is the most significant innovation yet afforded to budget-minded audiophiles. Borrowing lessons learned with our no-holds-barred Titanium Series, we vapor-deposited titanium onto a phenolic cone high frequency driver, enabling us to combine the best characteristics of both a soft and a hard dome: good internal damping to control unwanted resonances, fast response to capture the musical transients of extreme dynamics in digital recordings.

Then we added a unique acoustic contact lens above the dome, to insure phase coherence and further reduce distortion.

That commitment to every detail affecting sonic accuracy has made JBL the reference standard of the music industry for more than 35 years. So if the TLX Series seems overbuilt, you'll understand why. It's a habit with us. One you'll appreciate no matter how little you pay.



From top to bottom: JBL TLX titanium laminate tweeter with unique acoustic contact lens.

JBL

harman america
JBL in U.S.A.
5000 Brush Hollow Rd.
Westbury, NY 11590
Telephone: (516) 364-3800

5861

ANNUAL EQUIPMENT DIRECTORY

Welcome to *Audio Magazine's* 28th Annual Equipment Directory. Once again, it is the largest we've ever produced, this year listing over 4,000 products in 19 categories. I believe that the Directory includes more than 75,000 individual pieces of data. Part of this 10% increase in models over last year's "Big D" is due to the inclusion of two new categories: Hi-Fi VCRs and crossovers. In addition, the number of Compact Disc player models has doubled from 58 to 117. Another big gainer was amplifiers, which went from 352 to 407, but far and away the largest category is loudspeakers, which has over 1,200 models listed. What it means I don't know, but LP turntable models is up slightly (236 to 242), in spite of the jump in CD player models. Outright losers included receivers (down 10%), headphones (down 5%), separate tonearms (from 68 to 60), and open-reel tape decks (from 32 models to 27). Sharp-eyed readers will note that we've expanded the noise-reduction category into a more-general signal processors listing.

Also new this year, and a devil of a lot of work, I might add, is the *Audio Yellow Pages*, which presents the names and cities of hi-fi retailers. It's located just behind the list of manufacturer addresses at the end of the Directory tables. We



will welcome your feedback on this new feature of the Annual. These retailers are arranged by Postal Zip Code, a brilliant suggestion (I think) from Ivan Berger, *Audio's* Technical Editor. We figured that you'd be able to find the zip codes close to your own, and since the folks at the Postal Service have the zip system arranged by quasi-geographic area . . .

Department of The Usual Notes: We've fine-tuned most of the category heads again this year, so you shouldn't cross-check data from this year to other years without double-checking the head. (Editors

have to do something to justify their existence, you know.) The data given is supplied by the manufacturers, rather than being the result of *Audio* lab tests. We do try to normalize data where it seems appropriate, e.g. we'll change μV to dBf in a tuner listing. The entries for "Speaker Design Principle" continue to be confusing in some cases and amusing in others; these we try to spell consistently, which is not to say correctly.

I hope you'll find this Annual Directory to be the best yet. Special thanks go to Frank Lovece, Directory Data Slave, and to Kay Blumenthal, Massaging Editor. (The Commendation Certificates can be exchanged for eye exams at any local draft board.)—E.P.

D/A PROCESSORS,
CD PLAYERS

PREAMPLIFIERS

AMPLIFIERS

TUNERS

RECEIVERS

TURNTABLES

TOPEARMS

PHONO
CARTRIDGES

TAPE DECKS

BLANK TAPE

MICROPHONES

HEADPHONES

EQUALIZERS

SIGNAL
PROCESSORS

HI-FI VCRs

CROSSOVERS

LOUDSPEAKERS

COLOR BARS

HOW THEY WORK

One of the problems in dealing with BIG Directories like this one is finding individual sections. Big chunks, like loudspeakers, are fairly easy, but little ones, like tuners, are hard to find. We thought up several ways to attack this difficulty; some of the methods considered weren't physically possible, others weren't even remotely cost-effective, and still others could not be mailed because of postal regulations.

Audio's Art Director, Cathy Cacchione, and our Production Director, David Rose, together worked out the basics of a color bar section-flag system for this issue. Additional thanks go to Patti Burns, our Production Manager, for helping carry it out.

So, how does the system work? The color bars along the side of this page are color-keyed to individual sections; use the color bar, and the section name next to it, and then just riffle the issue pages until you see that color. The location of the individual color bars, up or down along the side of the magazine, is fixed—the color at the top will always be at the top, the color in the middle will always be in the middle.

We think you'll find the color-bar system easy to use and effective. We believe it will be easier to use than flipping several times to find page numbers. But let us know what you think.—E.P.

A few words for those who haven't experienced Sony's new Compact Disc Player.

Listen to it.



Enter No. 63 on Reader Service Card

A few words for those who have.

INTRODUCING THE THIRD GENERATION CD PLAYER THAT'S LIGHT YEARS AHEAD OF THE COMPETITION.

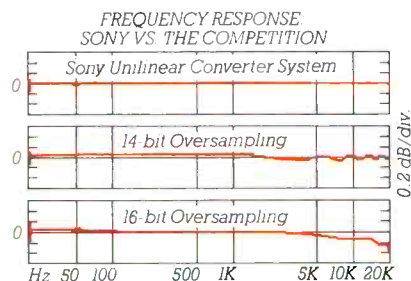
After listening to one of Sony's new third generation component CD players, you begin to realize you're hearing something not possible in any first, or even second generation player.

It's a whole new level of technological achievement not merely designed for those who appreciate great specs, but those who appreciate great music, as well.

A RESPONSE CURVE THAT ISN'T A CURVE.

All CD players are endowed with a much flatter response curve than any turntable or tape deck is capable of reproducing. Unfortunately, most are also endowed with a conventional converter/filter system. Which tends to cause high frequency irregularities.

However, take the response curve of Sony's new CDP-302 (the one that's flat as a board).



As you can see, it's far more uniform than the one found in conventional models. What this should tell you is that when you listen to even the most intricate piece of music, you'll be hearing precisely what the musicians recorded. Nothing more. And nothing less.

YOU CAN'T BEAT OUR CLOCK.

Perhaps the most interesting "little" feat of engineering is Sony's new Unilinear Converter System. Its high-speed, digital-to-analog converter works by virtue of a "master clock." Using this single clock dramatically

reduces intermodulation distortion common to "multiclock" converter systems.

When you combine all this with our new, high-resolution digital filter, it results in something even the most ardent audiophile will find no fault with: incredibly flat response, remarkable phase linearity and the conspicuous absence of spurious noise caused by conventional oversampling.

Of course, you'll need a master's degree in engineering to fully understand all the intricacies of our new Unilinear Converter. But you certainly don't need one to appreciate it.

A NEW CHIP OFF THE OLD BLOCK.

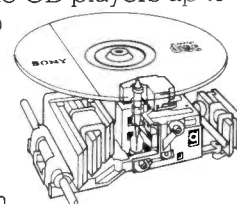
The heart of our new CD player is a thing of beauty. This award-winning microchip governs nine different functions usually requiring multiple chips in conventional players. But more importantly, it simplifies the signal path and improves reliability.

CHANGE TRACKS AT THE SPEED OF LIGHT.

Sony has done away with the lumbering gear-driven tracking mechanism, and instead, created a whole new Linear Motor Tracking System. It uses a compact laser optic assembly that's one-third the size of typical units. And its linear, noncogging motor allows the laser to move

faster and more precisely.

If you're wondering what speed has to do with these mechanisms, we'd like to remind you of the fact that it takes some CD players up to 15 seconds to go from the first to the last track on a disc. But with ours, you can go from track 1 to 99 in less than a second.



FEATURES WORTH HEARING MORE ABOUT.

Not all of these advances are audible to the naked ear.

Both of our new CD players come complete with Sony's Remote Commander® unit which provides direct access to up to 99 tracks or subcoded selections. In addition, both have Automatic Music Sensor™ high-speed search and three-way repeat. (The CDP-302 shown here also allows for programmability of up to 16 of your favorite songs.)

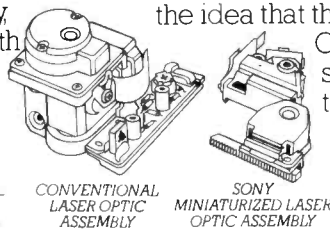
We'd also be remiss in not telling you about our built-in subcode port. Which in the not-too-distant future you can make good use of when CDs are integrated with graphic information.

By now, you're beginning to get the idea that the new line of Sony CD players not only sound remarkable, they are.

So having heard and read just about all there is to hear and read about

them, we suggest there's only one thing left to do. Go to your Sony hi-fi dealer and purchase one.

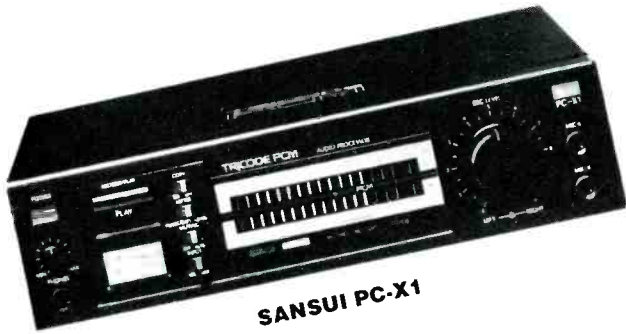
Of course, there's no rush. It will take our competition at least one or two generations to catch up.



© 1985 Sony Corporation of America. Sony and Remote Commander are registered trademarks of Sony Corporation. Automatic Music Sensor and The Leader in Digital Audio are trademarks of Sony Corporation of America. Model CDP-102 also available.

SONY
THE LEADER
IN DIGITAL AUDIO.™

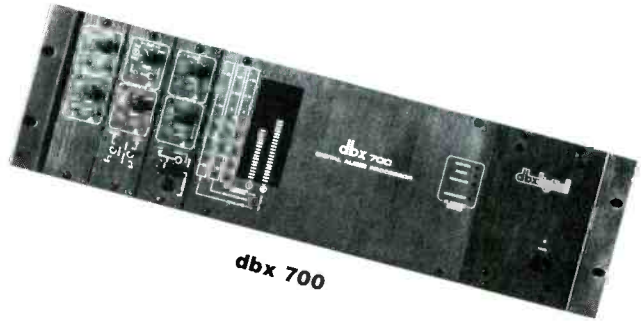
DIGITAL PROCESSORS



SANSUI PC-X1



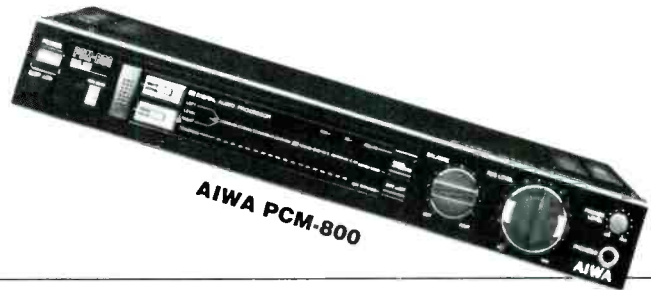
SONY PCM-501ES



dbx 700



TECHNICS SV-100



AIWA PCM-800

MANUFACTURER	Model	Unit Type: Recorder = R, Processor = P, Both = RP	II Recorder, Tape Format Type	Coding Format	Quantization: No. of Bits, Floating Point = F	Linear = L, 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		Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
											Outputs: Headphone = H, Line = L, Digital Video = V					
AIWA	PCM-800	P		EIAJ 14L		2-20 +0.5, -0.7		86	0.007	MLV	HLV	13 x 12 ³ / ₈ x 2 ¹ / ₂	7.7	650.00	PCM adaptor.	
DBX	700	P		dbx CPDM †	A	10-20 ± 0.5		110	0.05	MLD	HLV	19 x 5 ¹ / ₄ x 11 ¹ / ₂	35	††	†Compressed Predictive Delta Modulation; ††\$4600.00 without mike preamps, \$4970.00 with pro levels and connections.	
LIRPA LABS	DAWG	RP	†	KGB 2F	6	C 5 & 10		11		MCLX				99.95	†Avco Cartrivision.	
NAKAMICHI	DMP-100	P		EIAJ 14L, 16L		A 10-20 ± 0.5		†	††	MLV	HLVD	8 ¹ / ₂ x 3 ¹ / ₄ x 12 ¹ / ₈	8 ⁷ / ₈	1800.00	†88 dB for 14-bit, 92 dB for 16-bit; ††0.007% for 14-bit, 0.005% for 16-bit; power supply measures 4 ¹ / ₄ x 3 ¹ / ₄ x 12 ¹ / ₈ inches and weighs 7 ¹ / ₈ pounds.	
SANSUI	PC-X1	P		EIAJ 14	B	5-20		86	0.007	MLDV	HLV	10 ¹ / ₂ x 2 ⁷ / ₈ x 11 ¹ / ₂	5 ¹ / ₂	1000.00	Battery operated; a.c. adaptor available.	
	PC-X11	P		EIAJ 14	B	5-20		86	0.007	LDV	HLV	17 x 2 ¹ / ₄ x 12 ³ / ₈	11	899.00		
SDNY	PCM-501ES	P		EIAJ 14L, 16L	480	A/B 5-20 ± 0.5		96	0.005	L	HLV	17 x 3 ¹ / ₄ x 14 ⁷ / ₈	16	750.00		
	PCM-F1	P		EIAJ 14L, 16L	120	A 5-20 ± 0.5		96	0.005	ML	HLV	8 ¹ / ₂ x 3 ¹ / ₄ x 12 ¹ / ₈	8 ³ / ₄	1700.00		
TECHNICS	SV-110	P	VHS	EIAJ EIAJ, NTSC	14L 14L	A/B 2-20 ± 0.5		86	0.01	MLDV	HLV	17 x 3 x 14 ³ / ₈	13	800.00	Separate power pack.	
	SV-100	P				A 2-20 ± 0.5		86	0.01	MLDV	HLV	9 ³ / ₈ x 3 ³ / ₈ x 9 ⁵ / ₈	6.4	900.00		

COMPACT DISC PLAYERS



PIONEER VIDEO CLD-900



ADS CD3



PANASONIC SL-P3610



KYOCERA DA-910

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, Kilohms	Headphone Output = H, Headphone Output with Level Control = HL, Front Slide but Drawer = S, Top = T	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
ADC	CD-100X	10-20 ± 0.8	96	95	90	0.004	2F		S	13 3/8 x 3 1/8 x 11 1/2	8	299.95	Three-beam laser.
ADCOM	GCD-300	5-20 ± 0.5	96	98	90	0.004	2.5F		S	17 x 10 1/2 x 3 3/4	12	499.95	Sound window linear-phase correcting circuit. As above.
	GCD-200	5-20 ± 0.5	96	98	90	0.004	2.5F		S	17 x 10 1/2 x 3 3/4	12	399.95	
ADS	CD3	20-20 ± 0.25	96	102	86	0.01	2F		HL S	17 1/2 x 2 3/4 x 14 3/4	20	895.00	
AKAI	CD-M88T	5-20 ± 0.5	90	90	85	0.005	0-2	47	HL S	13.8 x 2.8 x 10	14.3	499.00	
	CD-A7T	5-20 ± 0.5	90	90	85	0.005	0-2	47	HL S	17.3 x 3 x 10	12.8	499.00	
AUDIO-TECHNICA	AT-CD10	5-20 + 0.5, -1	95	100	90	0.005	F		HL S	13 3/8 x 3 3/8 x 11 1/2	8	399.95	
BANG & OLUFSEN	CD-50	4-20 ± 0.3	95	95	94	0.003	2F		None S	16 1/2 x 3 x 12 3/4	17.8	999.00	
	CD-X	3-20 ± 0.3	96	96	94	0.003	2F		None T	16 1/2 x 3 x 12 1/4	13.4	699.00	
CAMBRIDGE AUDIO	CD1	10-20 ± 0.5	100	100	100	0.005	0.1-12	47	S	16 x 11 x 5/16 x 11 x 3	20 10	1985.00	Mechanism on lead; three separate power supplies.
CARVER	Carver Compact Disc	50-20 ± 0.5	96	96	86	0.05	1.9F		S	19 x 3 1/2 x 11 1/4	13	650.00	Digital Time Lens inc.
DBX	DX3	10-20 + 0.5, -1	96		90	0.002	2F	5	None S	17 1/8 x 3 3/4 x 11 1/2	10	599.00	
DENON	DCD-1000	5-20 ± 1	95	95	90	0.004	F		HL S	13 1/2 x 12 x 3 1/2		360.00	Without remote, Model DCD-1800, \$800.00.
	DCD-1100	5-20 ± 1	95	95	90	0.004	F		HL S	17 1/2 x 14 x 3 1/2		430.00	
	DCD-1500	5-20 ± 0.3	96	96	95	0.0025	F		HL S	17 1/2 x 14 x 3 1/2		580.00	
	DCD-1800R	5-20 ± 0.5	96	96	94	0.003	F		HL S	19 x 15 x 4 1/2		950.00	
DISCRETE TECHNOLOGY	LS I	2-20 ± 0.3	96	96	98	0.0001	2.0F, 0-2.0	10	None S	16 1/2 x 3 1/2 x 11 3/8	16 1/2	1195.00	
FISHER	AD-823B	20-20	90	90	90					17.3 x 3.4 x 11.3		399.95	
HARMAN/KARAOON	HD500	4-20 ± 0.5	94	100	83	0.01	0-2.4	10	HL S	17 3/8 x 4 x 13 1/4	12 7/8	600.00	
HITACHI	DA5000	5-20	95	95	92	0.003	2.5F	40	S	12 1/2 x 12 1/8 x 3 1/4	9	300.00	
	DA500	5-20	95	95	92	0.003	2.5F	40	S	17 1/8 x 10 3/8 x 3 1/4	10	350.00	
	DA501	5-20	95	95	92	0.003	2.5F	40	H S	17 1/8 x 10 3/8 x 3 1/4	10	450.00	

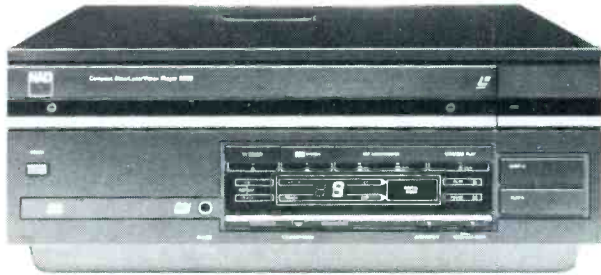
COMPACT DISC PLAYERS



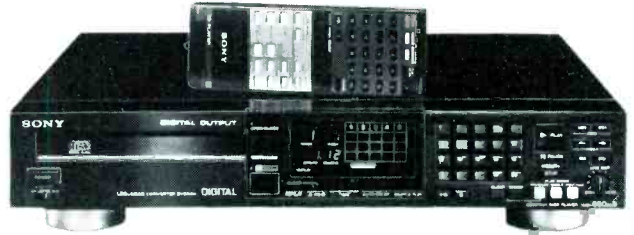
VECTOR RESEARCH VCD-800



DENON DCD-1800R



NAD 5900



SONY CDP-650ESD

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 Functions: Entire Disc = D, Track = T, User-Marked Phrase = P, Index = I, 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, Both Confirmation Beep = B	No. of Remote Control Functions?	Output Level Control?	Decoding System: 16 Bit = A, 14 Bit Oversampling = B, 16 Bit Oversampling = B	Filteration: Digital = D, Analog = A, Both = B				
ADC	CD-100X	B	B	Yes	No	Yes	16R	D T E	Yes	No	4	Yes	Yes	None		No	A	A				
ADCDM	GCD-300	B	B	Yes	Yes		99R	D T P E				Yes					C	D				
	GCD-200	B	B	Yes	Yes			D T P E				Yes					C	D				
ADS	CD3	B	B	Yes	Yes	Yes	30R	D/T/P/E	No	Yes	3	Yes	No	Dpt., I	All	Yes	C	B				
AKAI	CD-M88T	B		Yes	Yes	Yes	16R	D/T/P/E	No	Yes	2.6	No	No		27	Yes	A	A				
	CD-A7T	B		Yes	Yes	Yes	16R	D/T/P/E	No	Yes	2.6	No	No		27	Yes	A	A				
AUDIO-TECHNICA	AT-CD10	D		Yes	Yes	Yes	9R	D/T	No	Yes		Yes	No			Yes	C	B				
BANG & OLUFSEN	CD-50	B		Yes	Yes	Yes	34R	D T E	No	Yes		No	Yes		13	No	C	B	Remote controllable via Beomaster 5000 control panel.			
	CD-X	B		Yes	Yes	Yes	40R	D T E	No	No		No	No	None		No	B	B	Dual D/A converter.			
CAMBRIDGE AUDIO	CD1	T		Yes	Yes		99	D T E	No	Yes	2	No		None		Yes	C	A	Three decoders per channel, separate D/A chassis, six selectable filters.			
CARVER	Carver Compact Disc	B	D	Yes	Yes	Yes	9R	D T E	Yes	Yes		Yes	Yes			No	C	B				
DBX	DX3	B		Yes		Yes	9R	D/T/E	No	Yes	2	Yes	No	None		No	C	B	Over Easy compression, Ambience control, and Digital Audio Impact Restoration circuits.			
DENON	DCD-1000	B		Yes	Yes	Yes	9R	D/T/E		Yes	2	Yes	No	↑			A	A	↑Remote with C7V system.			
	DCD-1100	B		Yes	Yes	Yes	9R	D/T/E		Yes	2	Yes	No		12		A	A				
	DCD-1500	B	B	Yes	Yes	Yes	20R	D/T/P/E		Yes	2	Yes	No		12		A	B	↑88.2 kHz, 2x oversampling.			
	DCD-1800R	B		Yes	Yes	Yes	15R	D/T/P/E		Yes	2	Yes	Yes		12		A	B				
DISCRETE TECHNOLOGY	LS I	B	T	Yes	Yes	Yes	20R	D/T	No	No		No	Yes			Yes	B	B				
FISHER	AD-823B			Yes	Yes					Yes							A					
HARMAN/KARDON	HD500	T		Yes	No	No	15	D/P	No	No		Yes	No		10	Yes	C	B				
HITACHI	DA5000	T		Yes	Yes	No	15R	D T P E		Yes		Yes	No			No	A	A				
	DA500	T		Yes	Yes	No	15R	D/T/P/E		Yes		Yes	No			No	A	A				
	DA501	T		Yes	Yes	No	15R	D/T/P/E		Yes		Yes	No		18	Yes	A	A				

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, Ohms	Headphone Output = H, Headphone Output with Level Control = HL, Loading From Side-Door = D, Top = T	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes	
JVC	XL-V500B	5-20 +0.5, -1	95	96	90	0.003	2		HL	S	17¼ x 3½ x 11¼	13		
	XL-V400B	5-20 +0.5, -1	95	95	90	0.003	2		HL	S	17¼ x 3¼ x 11½	8.9		
	XL-V200B	5-20 +0.5, -1	95	93	90	0.004	2		HL	S	17¼ x 3¼ x 11½	8.4		
	XL-V3B	5-20 +0.5, -1	95	96	90	0.0035	2			S	13¾ x 3¾ x 11½	9.7	450.00	
KENWOOD	DP-1100H	2-20 ±0.5	95		90	0.0015	2.0F		HL	S	17¾ x 12¼ x 3½	15	725.00	
	DP-900	4-20 ±0.5	95		90	0.002	2.0F		HL	S	17¾ x 12¼ x 3½	13.2	510.00	
	DP-840	5-20 ±0.5	96		90	0.003	2.0F		HL	S	16½ x 12½ x 3¼	10.5	395.00	
KINERGETICS	KCD-1	2-20	100	100	94	0.003	0-2.0	5		S	19 x 3¾ x 15	25	850.00	Separate power supply.
KYOCERA	DA-910	5-20 ±0.5	90	95	90	0.005	Sel.	1	H	S	17 x 15½ x 13	22	1600.00	
	DA-810	5-20 ±0.5	90	95	90	0.005	Sel.	1	H	S	18½ x 4 x 12½	18¼	950.00	
	DA-610	5-20 ±0.5	90	90	90	0.005	2.0F	1	HL	S	18½ x 3¼ x 12½	18	550.00	
	DA-01	20-20 ±0.5	90	90	90	0.005	0-2.0	0.5		D	18¼ x 5¼ x 12½	18½	1050.00	
LIRPA LABS	LSD	4-37 ±23	25	34	No	1.8	0-90F			TS	36 x 42 x 30	180	300.00	With electronics, \$4300.00.
LUXMAN	D404	5-20 ±0.5	96	96	90	0.003	2F			S	17½ x 3¾ x 12¾	13.2	500.00	CD/LaserVision player.
	D405	5-20 ±0.5	96	96	90	0.003	2F			S	17½ x 3¾ x 12¾	13.2	600.00	
	D408	5-20 ±0.5	96	96	90	0.003	2F		HL	S	16½ x 6½ x 17½	34.7	1300.00	
	DD3	5-20 ±0.5	97	97	93	0.003	2F			S	17½ x 3¾ x 13	13.3	1500.00	
MAGNAVOX	FD1040	20-20 ±0.15	105	96	94	0.003	2F	10		S	12½ x 11¼ x 3½	20	289.99	
	FD2040SL	20-20 ±0.15	105	96	94	0.003	2F	10	H	S	16½ x 11¼ x 3½	25	299.99	
	FD3040SL	20-20 ±0.15	105	96	94	0.003	2F, 0-2	10	H	S	16½ x 11¼ x 3½	35	449.00	
	FD1041BK	20-20 ±0.15	105	96	94	0.003	2F	10		S	12½ x 11¼ x 3½		289.99	
	FD1051BK	20-20 ±0.15	105	96	94	0.003	2F	10		S	12½ x 11¼ x 3½		349.99	
	FD2041SL	20-20 ±0.15	105	96	94	0.003	2F	10	H	S	16½ x 11¼ x 3½		299.99	
MARANTZ	CD150	5-20		96	90	0.005	2			S	4 x 16½ x 11½	9.5	399.95	
	CD74	4-20		96	90	0.004	2		H	S	3¾ x 16¾ x 11¾	17.9	599.95	
McINTOSH	MCD7000	20-20 ±0.3	96	96	94	0.003	2F, 0-2	5	HL	S	16 x 5½ x 13	22	1399.00	
MELOS AUDIO	CD-1	20-20 ±0.3	90	90	90	0.004	2.0F	10		S	16½ x 12 x 3½	17	850.00	
MERIDIAN	MCD	20-20 +0, -0.3	90	90	90	0.004	2F	1		T	12.8 x 3 x 10.7	11	699.00	
MISSION ELECTRONICS	DAD7000R	20-20 ±0.3	95	95	95	0.004	2.0F	10		S	12.6 x 3.4 x 11.4	15½	749.00	
MITSUBISHI	DP107	5-20 ±0.5	95		90	0.003	2F		HL	S	16¾ x 11¾ x 3¾	9.3	280.00	
NAD	5900	5-20 ±0.5	96	96	94	0.003	1.8F	0.6	HL	S	16½ x 17¾ x 6½	34½		CD/LaserVision player.
	5355	20-20 ±1	97	97	84	0.0058	1.8F	2.5	None	S	16½ x 12½ x 3¾	10½	498.00	
NAKAMICHI	OMS-7	5-20 ±0.5	92	92	92	0.003	2.0F		HL	S	17½ x 3¾ x 12½	16¾	1295.00	
	OMS-5	5-20 ±0.5	92	92	92	0.003	2.0F			S	17½ x 3¾ x 12½	16¾	995.00	
NEC	CD-509E	5-20 ±0.5	90	95	86	0.005	2F	1	HL	S	16¾ x 3½ x 12½	11	449.00	
	CD-607E	5-20 ±0.5	90	95	90	0.005	2.5F	1	HL	S	16¾ x 3½ x 12½	11	599.00	
	CD-705E	5-20 ±0.5	90	95	90	0.005	2.5F	1	HL	S	17 x 4¾ x 14¼	22.7	749.00	
NIKKO	NCD-100	5-20 ±0.5	96	92	90	0.003	2F	50	HL	S	17.3 x 3.6 x 12.2	12.3	399.00	Programmable, automatic changer; †tray holds 60 discs.
	NCD-200	10-18 ±0.5	96	82	90	0.003	2F	50	HL	S	17.3 x 3.7 x 11.4	10	599.00	
	NCD-600 Changer	10-20 ±0.5	96	85	90	0.007	Var.	50	H	†	18.6 x 14.6 x 13.7	60	1799.00	
DNKYD	DX-200	2-20 ±0.5	96	96	93	0.003	2.0F, 0-2		HL	S	17½ x 13¾ x 4	13½	599.95	
	DX-150	10-20 ±2	93	93	87	0.005	2.0F			S	17½ x 13¾ x 3¾	11	364.95	
PANASONIC	SL-P3610	4-20 ±0.5	96	96	100	0.002	2.0F		None	S	16¾ x 3¼ x 12½	11.2	374.95	
PARASOUND	COP-900	20-20 ±0.2	102	102	95	0.003	0-2.0	10	H	S	17¼ x 10 x 4	14	349.95	Less than 10° phase shift at 20 kHz.
PIONEER ELECTRONICS	PD-7010BK	2-20 ±0.5	95	96	93	0.0015	2F		HL	S	16½ x 3¾ x 12¼	10.6	459.95	
	PD-6010BK	2-20 ±0.5	95	96	93	0.002	2F		H	S	16½ x 3¾ x 12¼	10.6	349.95	
	PD-5010BK	2-20 ±0.5	95	96	93	0.002	2F		H	S	16½ x 3¾ x 12¼	10.6	299.95	
	PD-5010													
	P-DX700	5-20	93	95	93	0.0045	2F			S	12½ x 3¾ x 10¼	10.2	539.95	
PD-9010XBK	2-20 ±0.3	96	98	95	0.001	2F			HL	S	18 x 3¾ x 12¼	12.8	539.95	

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-Marked phrase P, Index=I, Entire Program=E	Maximum Access Time, Seconds?	Available Fast Search?	Auto Scan of Track Beginnings?	Remote Control Type: Infrared=I, Wired=W, Invis. Communication=Beep=B	No. of Remote Control Functions	Decoding System: 16 Bit=A, 14 Bit=B, Oversampling=B	Filtration: Digital=D, Analog=A, Both=B	Notes					
JVC	XL-V500B XL-V400B XL-V200B XL-V3B	B B B B	B B B B	Yes Yes Yes Yes	Yes Yes No No		15R 15R 15R 8R	D/T/P/E D/T/P/E D/T D/T				Yes Yes Yes Yes	Yes Yes Yes Yes	I I I I	16 16 16 16			B B B B			
KENWOOD	DP-1100H DP-900 DP-840	B B B	D D D	Yes Yes Yes	Yes Yes No	Yes Yes Yes	16R 16R 8R	D/E D/E D/E		Yes	4 4 4	Yes Yes No	Yes Yes No	I I I	24 24 24	Yes Yes Yes	A A A	B B B			
KINERGETICS	KCD-1	T	No	Yes	No	Yes	20R	E	No	No	3	Yes	No	I	9	Yes	C	D			
KYOCERA	DA-910 DA-810 DA-610 DA-01	T T T B	D D D B	Yes Yes Yes Yes	Yes Yes No Yes	Yes Yes Yes Yes	24R 24R 16 24R	D/E D/E D/E T/P/E	No No No Yes	Yes Yes No Yes	3.5 3.5 4	Yes Yes No No	No No No No	I I I I/B	8 8 8 8	Yes Yes No Yes	C C A C	B B A B			
LIRPA LABS	LSD	†			††		41	E	No	Yes	99			B	2				†From 1 AD; ††card-file.		
LUXMAN	D404 D405 D408 D03	D B D B	B B B B	Yes Yes Yes Yes	Yes No Yes Yes	Yes Yes Yes Yes	8R 1S 1R 20R	D/T/E D/P D/T/P D/T/E	No No Yes Yes	No Yes No Yes		Yes Yes No Yes	No No No Yes	† None I I	4 22 7	No No No No	A A A A	A A A A	†Remote with Luxman R406.		
MAGNAVOX	FD1040 FD2040SL FD3040SL FD1041BK FD1051BK FD2401SL	T T T T T T	B B B B B B	Yes Yes Yes Yes Yes Yes	No No Yes Yes Yes Yes	Yes Yes Yes Yes Yes Yes	20R 20R 24R 20R 20R 20R	D/T/E D/T/E D/T/P/E D/T/P/E D/T/E D/T/E	No No Yes No No No	No No Yes No No No	6 6 10 3 3 3	No No No Yes No Yes	No No No No No No	I I I I I I	9 8 8 8 8	No Yes No No No No	B B B B B B	B B B B B B			
MARANTZ	CD150 CD74	T T	D	Yes Yes	No Yes	No Yes	16R 24R	D/T/P/E D/T/P/E	No No	No Yes		Yes No	No Yes			No Yes	A B	D D			
McINTOSH	MCD7000	B		Yes	Yes	Yes	21R	D/T/E				No	Yes	I	13	Yes	C	B			
MELDS AUDID	CD-1	B	T	Yes	Yes	Yes	20R	D/T/E	No	No		No	No	None		No	C	B			
MERIDIAN	MCD	No	No	Yes	No	Yes	15R	D/T/E	No	No	8	No	No	None		No	B	B			
MISSION ELECTRONICS	DAD7000R	T	No	Yes	No	Yes	20R	D/T/E	No	No	2.5	No	No	I	9	No	C	B			
MITSUBISHI	DP107	T		Yes	Yes	Yes	9R	D/E				Yes	No				A				
NAD	5900 5355	B B	B B	Yes Yes	Yes No	Yes Yes	8R	D/T D	Yes No	Yes	4 2	No Yes	No No	I I	28 6	No No	C A	A B			
NAKAMICHI	DMS-7 OMS-5	T T	B B	Yes No	Yes No	Yes No	24R No	D/E D		Yes No		Yes Yes	No No	I I	7		B† B†	B B	†4x oversampling.		
NEC	CD-509E CD-607E CD-705E	T B B	B B B	Yes Yes Yes	Yes Yes Yes	Yes Yes Yes	15R 15R 15R	D/T/P/E D/T/E D/T/E	No No Yes	No No No	3 3 3	Yes Yes Yes	No No No	None I I		No No No	C C C	B† B† B†	†High-speed C-MOS D/A switching, five-pole active low-pass filter.		
NIKKO	NCD-100 NCD-200 NCD-600 Changer	B B B B	D B B B	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes	S 15R 50R	D/T/P D/T/P D/T/P	No Yes Yes	Yes Yes Yes	2 2			I Dpt.. I	9	No No Yes	A C C	B B B			
ONKYO	DX-200 DX-150	T T	B T	Yes Yes	Yes No	Yes Yes	16R 16R	D/T/P/E D/T/E	No No	Yes No	2 3	Yes No	No No	I I	13	Yes No	C C	B B	Three-beam laser. Single-beam laser.		
PANASONIC	SL-P3610	T	No	Yes	Yes	No	15R	D/T/E	No	Yes		Yes	No	None		No	A	A			
PARASDUND	CDP-900	B	D	Yes	Yes	Yes	S	O			2	Yes				Yes	A	B			
PIONEER ELECTRONICS	PD-7010BK PD-6010BK PD-5010BK/ PD-5010 P-DX700 PD-9010XBK	T T T T	D D D O	Yes Yes Yes Yes	Yes Yes Yes Yes	Yes Yes Yes Yes	32R 27R 27R 10R 32R	D/T/E D/T/E D/T/E D/T/P/E D/T/E		Yes		Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	I I I I I	13 9 9 9 13			A A A A D			

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, Kilohms	Headphone Output = H, Headphone Output with Level Control = D, Loading From Slide-Out Drawer, S, Top = T	Dimensions, inches	Weight, lbs.	Price, \$	Notes				
PIONEER VIDEO	CLD-900	5-20 ± 0.5	96	96	94	0.003	0.2F	HL	S	16½ x 17½ x 6½	34½	1200.00	CD/LaserVision player.				
PS AUDIO	CD-1	20-20 ± 0.3	90	90	90	0.004	F	10	None	S	19 x 12 x 3	18	690.00				
QUASAR	CD8975YE CD8975YW	4-20 ± 0.5 4-20 ± 0.5	96 96	96 96	90 90	0.003 0.003	F F		S S	4½ x 18¼ x 12½ 4½ x 18¼ x 12½	11 17	399.95 434.95					
REALISTIC	CD-1200 (42-5002) CD-2000 (42-5001)	5-20 +0.5, -1 5-20 +0.5, -1	90 90	92 88	90 90	0.004 0.004	2F 1.8F	10 47	S S	14 x 10½ x 2½ 12½ x 12 x 3½	10 8½	299.95 259.95					
REVOX	B225	20-20 +0, -0.6	96	100	90	0.006	2F, 0-2	47	HL	S	18 x 13¼ x 4¾	18¾	1150.00				
RDTL	RCD-850	20-18 ± 1		90	80	0.03	2F			S	17 x 10½ x 3¼		499.00				
SANSUI	PC-V750 PC-V100	5-20 5-20	95 95		90 90	0.003 0.003	2 2			S S	17 x 3½ x 12½ 13½ x 3½ x 11¾	10.7 7.9	350.00 350.00				
SANYO	CP660	5-20	96	92	92	0.0025	2F	47	HL	S	16½ x 10½ x 3½	7¾	299.95				
H. H. SCOTT	959DA 949DA	3-20 +0.5, -1 5-20 ± 0.5		98 95	90	0.002 0.003			HL	S S		10½ 10	500.00 400.00				
SEARS ROEBUCK	9751 9752	20-20 ± 1 20-20 ± 1	90 90	90 90	90 90	0.015 0.015	2.0 2.0	10 10	H H	S S	16½ x 10½ x 2½ 16½ x 10½ x 2½	11 11	250.00 250.00				
SHARP	DX-600 DX-100	5-20 ± 0.5 5-20 ± 0.5	96 96	96 96	90 90	0.005 0.005	2.0 2.0	10 10	H H	S S	17 x 3½ x 11¾ 13 x 3½ x 11¾	11.7 10.4					
SHERWOOD	CDP-200 CDP-220	6-20 ± 0.5 6-20 ± 0.5	96 96	100 100	90 90	0.2 0.2	2.0F 2.0F	1 1	HL HL	S S	17¾ x 3¾ x 11¾ 17¾ x 3¾ x 11¾	9¾ 10	399.95 499.95				
SONY	D-5 CDP-7F CDP-30 CDP-70 CDP-102 CDP-302 CDP-520ES CDP-620ES CDP-650ESD	5-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.5 2-20 ± 0.3 2-20 ± 0.3 2-20 ± 0.3	90 90 90 90 96 96 96 96	85 90 90 90 95 95 95 95	85 90 90 90 95 95 95 95	0.008 0.004 0.004 0.004 0.003 0.003 0.003 0.0025 0.0025	2F 2F 2F 2F 2F 2F 2F 0.05-2 0.05-2		HL HL HL HL HL HL HL HL	T T S S S S S S	5 x 1½ x 5¼ 8½ x 3½ x 12 14 x 2½ x 11 17 x 2½ x 12 14 x 3½ x 13¼ 17 x 3½ x 13¼ 17 x 3½ x 13¼ 17 x 3½ x 14	1¾ 9 9 9 13 15 15 20	299.95 299.95 330.00 350.00 450.00 550.00 600.00 950.00 1300.00	Portable; battery pack and case opt.			
SYLVANIA	FDD104SL FDE203SL	20-20 ± 0.15 20-20 ± 0.15	105 105	96 96	94 94	0.003 0.003	2F 2F	10 10		S H			449.95 259.00				
SYMPHONIC	CD100	10-18	90	92	86	0.006	2F	100		S			180.00				
TEAC	PD 22 PD 300 PD 500	5-20 5-20 3-20	95 95 96		90 90 95	0.003 0.003 0.0015	F 2F	50k 50k 50k	None None HL	S S S			17½ x 3½ x 11¾	10½			
TECHNICS	SL-XP7 SL-P1 SL-P2 SL-P3	4-20 +0.5, -1 4-20 ± 0.5 4-20 ± 0.5 40-20 ± 0.5	90 96 96 96	90 96 96 96	90 100 100 100	0.006 0.0015 0.0015 0.0015	2.0F 2.0 2.0 2.0F, Var.		HL None HL HL	T S S S			5¾ x 2¼ x 6 17 x 3¼ x 13½ 17 x 3¼ x 13½ 17 x 3¼ x 13½	1.5 11.2 11.5 11.5	299.00 400.00 500.00 600.00	Portable.	
TOSHIBA	XR-40 XR-V11 XR-V22	5-20 ± 0.5 5-20 ± 0.5 5-20 ± 0.5	96 96 96	96 96 96	90 90 90	0.005 0.005 0.005	2.0F, 0-2.0 2.0F 2.0F	50 50 50	HL S †	S S S			16½ x 12½ x 3¾ 13¾ x 12½ x 3¾ 13¾ x 14¼ x 4¾	10.6 9 13.4	399.00 399.00 499.00	†Two slide-out drawers, continuous play.	
ULTRX	CP400	5-20	96	92	92	0.003	2F	47	HL	S			16½ x 12½ x 3½	14	599.95		
VECTOR RESEARCH	VCD-800	5-20 ± 0.5	95	95	86	0.005				S			17 x 12½ x 3½	11	350.00		
YAMAHA	CD-2 CD-3 CD-37 CD-X2	3-20 +0.5, -1 3-20 +0.5, -1 3-20 +0.5, -1 5-20 +0.5, -1	96 96 96 95	102 100 100 100	95 90 90 90	0.0015 0.002 0.002 0.003	2.0F 2.0F 2.0F 2.0F	100 100 100 100		S HL HL HL	S S S S			17½ x 11½ x 3¾ 17½ x 11½ x 3¾ 17½ x 11½ x 3¾ 13¾ x 11½ x 3¾	10½ 9¾ 9¾ 7¾	599.00 499.00 449.00 299.00	

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?	Program-Recall: Number of Sections: Random = R, Sequential = S	Repeat Functions: Entire Disc = D, Track = T, User-Marked Phrase = P, Index = I, Entire Program = E	Random Access By Time Within Track?	Maximum Access Time - Seconds	audible Fast Search?	Auto Scan of Track Beginnings?	Remote Control Type: Infrared = I, Wired = W, Both = B	No. of Remote Control Functions	Output Level Control?	Depending State: 16 Bit = A, 14 Bit Oversampling = B	Filtration: Digital = D, Analog = A, Both = B	Notes			
PIONEER VIDEO	CLD-900	T	D	Yes	Yes	No		D/T/P		Yes		Yes	No	I		No	A	A			
PS AUDIO	CD-1	B	T	Yes	Yes	Yes	20R	D/T/E	No	No		No	No	None		No	B	B			
QUASAR	CD8975YE CD8975YW	T	No	Yes	Yes	No	15R	D/T	No	Yes		Yes	No		No	A	A				
REALISTIC	CD-1200 (42-5002) CD-2000 (42-5001)	T	No	Yes	Yes	Yes	16	D/P/E	No	No	3	Yes	Yes	None		No	A	A			
		T	D	Yes	Yes	Yes	15	D/T/E	No	Yes	2	Yes	Yes	None		No	A	A			
REVOX	B225	B		Yes	Yes	Yes	19R	D/T/P/E	Yes	Yes	3	No	Yes	I/W	6	Yes	B	B	Digitally generated 1-kHz calibration tone, remote access to serial bus.		
ROTEL	RCD-850			Yes	Yes		9R														
SANSUI	PC-V750 PC-V100	B	T	Yes	Yes	Yes	8R	D/T	No	Yes	2	Yes	No	None		No	A	B			
		B	No	Yes	Yes	Yes	9R	D/T/P	No	Yes	3	Yes	No	None		No	A	B			
SANYO	CP660	T	D	Yes	Yes	Yes	16R	D/T/P	Yes	Yes	2	Yes	No	None		No	A	A			
H. H. SCOTT	959DA 949DA	B	B	Yes	Yes	Yes	99R	D/T/P	No	Yes	2	Yes	No	I		Yes	A	D			
		B	B	Yes	Yes	Yes	23R	D/T/P	No	Yes	2	No	No		Yes	A	D				
SEARS ROEBUCK	9751 9752	No	No	Yes	No	No	15R	T	No	No		No	No	None		No	C	D			
		No	No	Yes	Yes	No	15R	T	No	No		No	No	None		No	C	D			
SHARP	DX-600 DX-100	D		Yes	No	Yes	15R	D/T	No	No	6	Yes	No	None		No	A	D			
		D		Yes	No	Yes	15R	D/T	No	No	6	Yes	No	None		No	A	D			
SHERWOOD	CDP-200 CDP-220	B		Yes	Yes	Yes	9R	D/T/P	No	Yes		Yes	No	I	All	No	A	B			
		B		Yes	Yes	Yes	9R	D/T/P	No	Yes		Yes	No	I	All	No	A	B			
SONY	D-5 CDP-7F CDP-30 CDP-70 CDP-102 CDP-302 CDP-520ES CDP-620ES CDP-650ESD	T	D	Yes	No	No	16R	D/T/P/E	No	No	4	Yes	No			No	A	A			
		T	D	Yes	No	Yes	16R	D/T/P/E	No	No	4	Yes	No	Opt., I	9	No	A	A			
		T	D	Yes	No	Yes	16R	D/T/P/E	No	No	4	Yes	No			No	A	A			
		T	D	Yes	No	Yes	16R	D/P/E	No	No	4	Yes	No	Opt., I	9	No	A	A			
		T	D	Yes	No	Yes	16R	D/T/P/E	No	No	1	Yes	No	I	11	No	C	D			
		T	D	Yes	Yes	Yes	16R	D/T/P/E	No	Yes	1	Yes	No	I	11	No	C	D			
		T	D	Yes	Yes	Yes	16R	D/T/P/E	No	Yes	1	Yes	No	I	11	No	C	D			
		B	B	Yes	Yes	Yes	20R	D/T/P/E	No	Yes	1	Yes	No	I	15	Yes	C	D			
		B	B	Yes	Yes	Yes	20R	D/T/P/E	No	Yes	1	Yes	No	I	15	Yes	C	D	Subcode output. As above. As above. As above. As above, digital output stage.		
SYLVANIA	FDD104SL FDE203SL	T		Yes	No	Yes	20R	D/T/E	No	No	6	No	No	Opt., I		No	B	B			
		T		Yes	Yes	Yes	20R	D/T/E	No	No	3	Yes	No		8	No	B	B			
SYMPHONIC	CD100	T	No	Yes	Yes		16R	D/T/E	Yes	No	2	Yes	No				A	B			
TEAC	PD 22 PD 300 PD 500	D	D	Yes	Yes	Yes	15R	D/T/P	No	Yes	2	Yes	No	None		No	A	B			
		D	D	Yes	Yes	Yes	15R	D/T/P	No	Yes	2	Yes	No	None		No	A	B			
		B	B	Yes	Yes	Yes	15R	D/T/P	No	Yes	2	Yes	No	I	11	No	A	B			
TECHNICS	SL-XP7 SL-P1 SL-P2 SL-P3	T	D	Yes	No	Yes	15S	D/E	No	No		Yes	No	None		No	A	A			
		T	D	Yes	Yes	No	15R	D/E	No	Yes		Yes	No	I		No	A	A			
		T	D	Yes	No	No	15R	D/T/P/E	No	Yes		Yes	No	I	13	No	A	A			
		T	D	Yes	Yes	Yes	15R	D/T/P/E	No	Yes	3	Yes	Yes	I		Yes	A	A			
TOSHIBA	XR-40 XR-V11 XR-V22	D	D	Yes	Yes	Yes	8R	D/T/E	No	No	3	No	No	None		Yes	A	A			
		D	D	Yes	Yes	Yes	8R	D/T/E	No	No	3	No	No	None		No	A	A			
		D	D	Yes	Yes	Yes	30S	D/T/E	No	No	3	No	No	None		No	A	A			
ULTRX	CP400	T	D	Yes	Yes	Yes	16	D/T/P	Yes	Yes	2	Yes	Yes	Opt., I	10	No	A	A			
VECTOR RESEARCH	VCD-800	T		Yes	Yes	Yes	15R	D/T/P/E	No	Yes		Yes					C	D			
YAMAHA	CD-2 CD-3 CD-37 CD-X2	B	B	Yes	Yes	Yes	12R	D/T/P/E		Yes	3	Yes		I	8	No	C	B			
		B	T	Yes	Yes	Yes	9R	D/T/P/E		No	3	Yes		I	12	No	C	B			
		B	T	Yes	Yes	Yes	9R	D/T/P/E		No	3	Yes				No	C	B			
		B	T	Yes	Yes	Yes	9R	D/T/P/E		No	3	Yes				No	C	B			

IF YOU COULD HEAR THIS TAPE,



YOU'D BUY THIS AD.

Introducing The Memorex CDX II. You've Got To Hear It To Believe It.

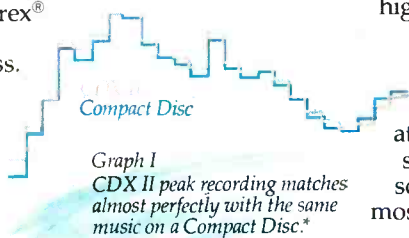
Without a doubt, the new Memorex® CDX II is in a very special class.

Consider these points:

- The CDX II is a metal tape that can be recorded and played at the high bias setting.

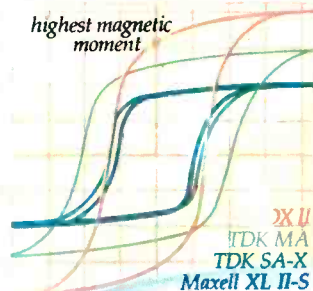
- The CDX II comes extremely close to matching (see Graph I) the capability of today's most challenging sound source—the Compact Disc.

- The CDX II outperforms leading high bias tapes hands down. Fact is, we compared (see Graph II) the CDX II to TDK SA-X and Maxell XLII-S. The result? When it comes to high energy recording, no one can match our levels. That's right. No one.

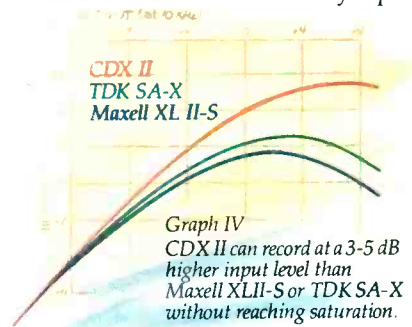


This metal particle produces the highest magnetic moment of any tape we tested. Nearly twice as high as any conventional high bias tape—even higher than pure metal, until now the industry champ (see Graph III). To you, that translates into more head room.

Which means you can accurately reproduce even the most sudden bursts of high energy sound that comes with the most demanding music sources.



bias tapes. At critical high frequencies, Memorex CDX II can faithfully repro-



duce music without saturating at a 3-5 dB higher input level (see Graph IV).

Now you can record at higher levels to minimize hiss, and still capture the loud passages, the peaks, the crescendos—without distortion or loss of high notes. In fact, you can almost capture the fantastic imaging digital discs have become famous for. But you can do it on tape. And do it with ease. Loud and clear. All at the high bias setting.

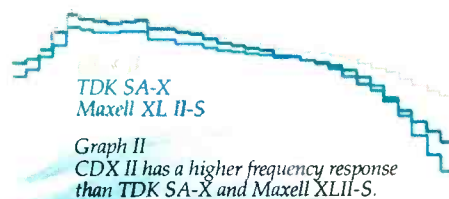
Compare The CDX II. You'll Find There's No Comparison.

We urge you to put loyalty aside and compare CDX II to the tape you're sold on now. Or, to any other tape you think can beat it. You'll never know what you're missing until you do.

Just send a dollar (to defray handling and shipping costs) to Memorex CDX II, P.O. Box 4261, Dept. C, Monticello, MN 55365, and we'll send you a new CDX II 90-minute cassette. Limit one per household. Allow 6-8 weeks for delivery (offer expires December 31, 1985).

*Comparison of CDX II performance versus Compact Disc containing high-energy electronic music.

Data based on independent laboratory tests and examinations.



What Makes The Memorex CDX II So Special?

A bona fide breakthrough in metal chemistry. The development of a super alloy. One which lets us turn iron, the most magnetic material there is, into a super-magnetic particle only 12 millionths of an inch long.

A Tape This Good Demanded A Superior Cassette.

So, we spent two years designing our new five-screw cassette from the ground up. This precision-engineered system assures that the CDX II works as great as it sounds. In fact, we guarantee it for life.

It Unlimits Your Limitations.

The Memorex CDX II can record critically demanding music substantially better than the best conventional high

IS IT LIVE OR IS IT MEMOREX

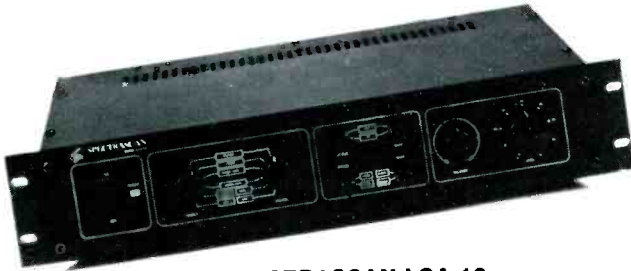
PREAMPLIFIERS



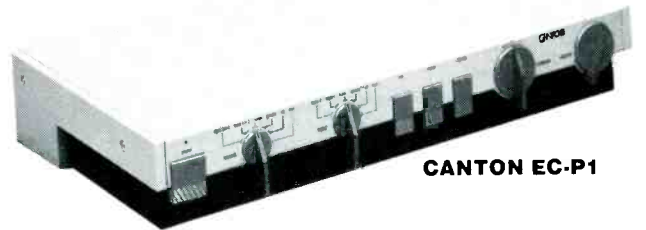
CROWN SL-2



PHOENIX SYSTEMS P-100-MM



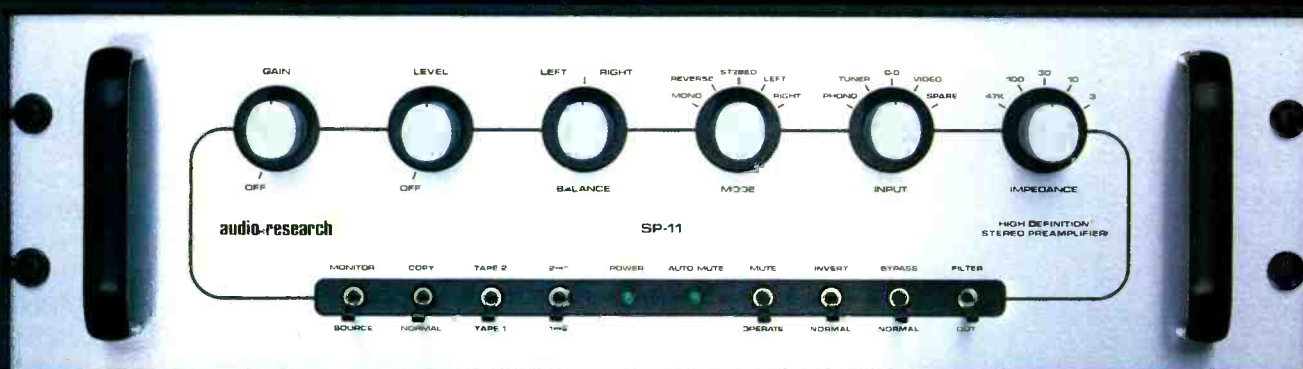
SPECTRASCAN LCA-10



CANTON EC-P1

MANUFACTURER	Model	Unit Type	K _t & Tube	MC	MM	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, "A"	MM Phono S.N. - dB, "A"	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
ACCU PHASE	C-280		1-500			10	0.005		2	0.5	300	82	76	31.5	†	47k	Yes	No	39.9	4100.00	†Selectable loudness compensation. Eleven inputs.	
	C-200L		1-500			8	0.005		3	0.5	300	82	76	31.5	4	47k	Yes	No	30	2150.00		
	C-222		1-500			8	0.005		2	0.5	300	82	76	31.5	†	47k	Yes	No	21.3	1500.00		
	C-17	MC	1-500			††	0.005					76				Yes	No	19.7	1395.00	††2.0 mV.		
ACOUSTAT	TNP		2-250			16	0.01	0.01	2	3.5	240	90	80	250	0	Sel.	47k	Yes	No	12	695.00	Pure FET, achromatic phono EQ.
ACOUSTIC ELECTRONICS	Air 1.1		3-100			7			1	2	140	80	80	25	0	250	47k	Yes	No	15	1495.00	Focus control, separate power supply.
	Air CD-4	†	1-100			7			1		1-100			25	0		Var.		15	895.00	†Line level only, four inputs, focus control.	
ADCOM	GFP-1A		6-40			10	0.007	.0012	3	0.65	290	85	76	150	2	Sel.	Sel.	Yes		16	375.00	Record sel., tone defeat.
AGI	511A		20-20			9.5	0.005	0.005	3	1.3	160	82		230	0	Sel.	Sel.	No	No	13	650.00	
	511AH		±0.1			9.5	0.005	0.005	3	0.56	70	82		230	0	Sel.	Sel.	No	No	13	650.00	
	511AM		±0.1			9.5	0.005	0.005	3			77	230	0	Sel.	Sel.	Yes	No	13	740.00		
AMBER ELECTRONICS	FF 17		2-150			9	0.005	0.005	3	5	250	90	70	500	2	Sel.	47k	Yes	No	12	699.00	Separate MC/MM circuits.
	SL 17		2-150			9	0.005	0.005	3	5	250	90		500		Sel.	47k	No	No	12	499.00	Two AUX inputs.
APT	P205	P	30-15			24	0.006	0.006		1.25	180	76	85		2	Sel.	Sel.	Opt.	No	11		Balanced output, separate L & R level and high-frequency controls, infrasonic filter defeat, discrete phono section.
	P2		±0.5			10	0.006	0.006	1	1.25	180	76	85	320	2	Sel.	47k	Yes	No	13	450.00	Tape-to-tape dubbing, infrasonic filter, dedicated phono balance.
	HP		±0.5			10	0.006	0.006	3	1.25	180	76	85	320	4	Sel.	Sel.	Opt.	No	13	680.00	Infrasonic filter, dedicated phono balance, discrete phono section.
AUDIBLE ILLUSIONS	Modulus II	T	10-100			60	0.02	0.02	1	0.5	1.2V	75		50		40	47k		Yes	13	595.00	
	Uranus III	T	±1			60	0.02	0.01	1	0.5	600	78		50		40	47k		No	21	1295.00	External power supply.

UNCOMPROMISED

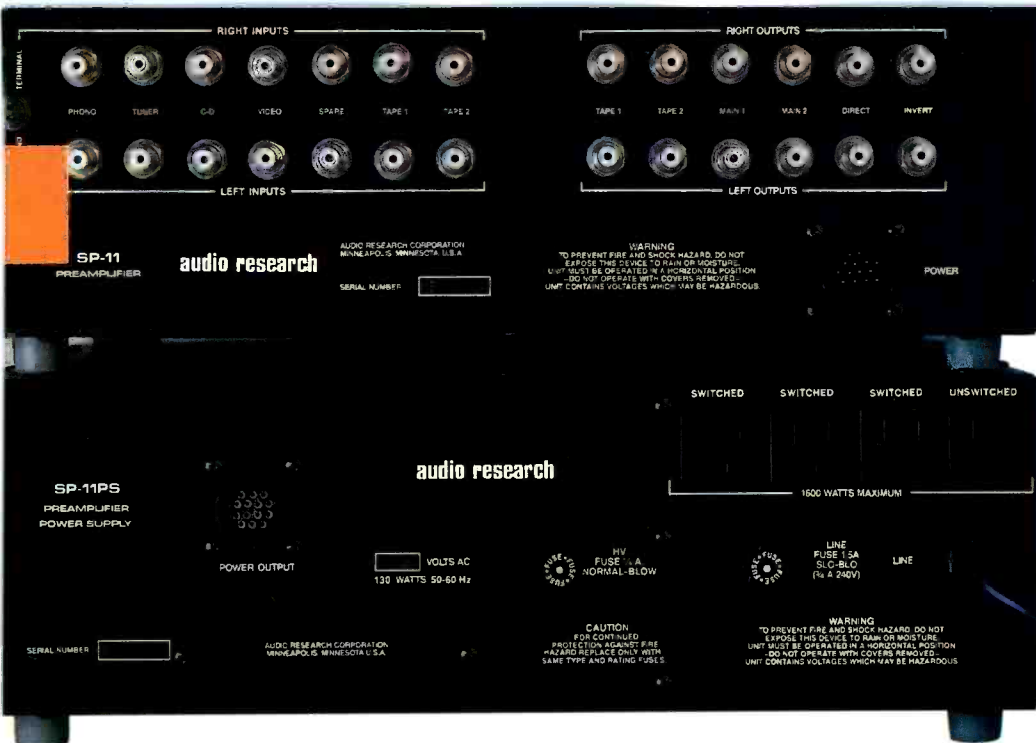


Introducing
a new
reference-standard
stereo preamplifier
from
Audio Research.

audio research corporation

6801 Shingle Creek Parkway, Minneapolis, MN 55430 Phone (612) 566-7570, Telex 290-583

Enter No. 10 on Reader Service Card



SP11

Stereo Preamplifier

Rarely, perhaps only once in a lifetime, a product appears in a given field that is truly unique. And, it must be experienced. It cannot otherwise be related. We think the SP11 is such a product.

SPECIFICATIONS

FREQUENCY RESPONSE: High level, $\pm 5\text{dB}$ 1Hz to 100kHz, -3dB points .2Hz and $>250\text{kHz}$.

PHONO: $\pm 2\text{dB}$ RIAA accuracy 20Hz to 40kHz.

HARMONIC DISTORTION: $<.005\%$ @ 2V RMS output, 5 to 30kHz (Typically $<.001\%$ midband).

GAIN: High level inputs, 30dB; Phono, 76dB.

NOISE: Output noise (gain down), -110dB IHF weighted ref 2V RMS output. Input noise, high level, gain maximum $<5\mu\text{V}$ equivalent input, IHF weighted, or 106dB below 1 Volt RMS input. Phono, RIAA IHF weighted $<.2\mu\text{V}$ or 74dB below 1mV input.

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 18dB/octave. Front panel switchable.
- 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.
- All 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.
- Aircraft quality power connectors and cable.

Partial specifications above are preliminary and subject to change. SP11 shown in optional solid-wood cabinets, available in light oak or dark walnut. Black front panels available at additional cost.

Available for audition at your authorized Audio Research dealer late September, 1985.

Call or write for literature on the complete line of Audio Research products.

audio research corporation 6801 Shingle Creek Parkway, Minneapolis, MN 55430 Phone (612) 566-7570, Telex 290-583

PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: KI = K Type, MC = M, MC = M, Moving Coil Stage Only = P, Moving Coil Stage Only = MC	Frequency Response, Hz to kHz, \pm dB	THD, %	Maximum Output, V	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, "A" Wid. re. 5 mV	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Weight, lbs.	Price, \$	Notes		
AUDIO INTERFACE	CST-80/II	MC	10-95 +0, -1	1	0.01	0.01				90				Yes	No	2	400.00	Transformer.		
	CSA-50/II	MC	3-500 +0, -1	4.7	0.01	0.01				65				Yes	No	1½	300.00			
	ES-10		3-450 +0, -1	11	0.01	0.01	1	1	800	80	65	500	0	20	47k	Yes	No	11½	2500.00	Remote control has absolute phase switch.
AUDIONICS	SC-3		10-50 +0, -1	8	0.01	0.01	2	1	150	80	70	100			Yes	No	12	549.00	Selectable cartridge gain and loading.	
AUDIO RESEARCH	MCP2	MC	0-400 +0, -3	1.5	0.005	0.01								Yes	No	16	1395.00			
	MCP33	T/MC	10-250 +0, -3	10	0.005	0.01								Yes	No	14	1395.00			
	SP7		0.1-400 +0, -3	14	0.002	0.002	1	0.5	500	68		25	0	30	50k	No	No	16	995.00	
	SP8	T	1-100 +0, -3	60	0.01	0.002	1	0.5	900	68		25	0	40	50k	No	No	22	1895.00	
	SP10	T	1-100 +0, -3	60	0.01	0.002	1	0.13	300	82		25	0	40	50k	Yes	No	31	3700.00	
	SP12RM	T	1-70 +0, -3	50	0.02	0.07	1	0.5	600	60		50	0	40	50k	No	No	16	1195.00	
AUDIO VOIS	V21B		10-50	2			3	2.0	200	70	60	80	0		Yes	No	11	690.00	With S-22 power supply, split rail.	
AUDIRE	DIHet 2		0-100 +0, -25	18	0.005	0.001	2	1.0	285	86	72	100		100	47k	Yes	Var.	7	855.00	Selectable MC impedance.
	Legato		0-100 +0, -25	10	0.005	0.001	2	1.0	150	75				170	47k	No		6	410.00	
BEDINI ELECTRONICS	66		20-150 ±3	†	0.015		1		500	96		155	0	47		No		6	460.00	†11.5 V.
	2010		5-150 ±3	10	0.015		2		500	98		155	0	47		No		10	2200.00	
BELLES RESEARCH	DMC		20-20 ±0.5	9	0.005	0.005	2	1.25	200	85	80	63	2	130	47k	Yes	†	7	475.00	†Tone control inverts phase.
	DMM		20-20 ±0.5	9	0.005	0.005	2	1.25	180	85		63	2	130	47k	No	†	7	350.00	
DAVID BERNING CO.	TF-10A	T	7-100 ±0.5	10	0.5	0.5	2	1.2	230			250	0	45	47k	No	No	14	1845.00	
	TF-10HA	T	7-100 ±0.5	10	0.5	0.5	2	1.2	230			250	0	45	47k	Yes	No	14	2095.00	
B & K	Pro 10MC		10-100 ±0.5	6	0.01	0.01	1	0.5	100	86	75	45		100	†	Yes	No		550.00	†47.5 kilohms.
	Pro 10		10-100 ±0.5	6	0.01	0.01	1	0.5	100	86		45		100	†	No	No		440.00	
BOZAK	E-90SA		20-40 ±0.25	13	0.04	0.04	2	2.5	100	80		260	4	250	250	No	No	12½	599.50	Record EQ.
BRITISH FIDELITY	The Preamp II													Yes				398.00		
	MVT													Yes				1200.00		
BROADCAST ELECTRONICS	EP-1	P	30-20 ±0.5		0.008	0.008	††	320	88			0	110	47k	Yes	No	4½	385.00	†For 1 V out; 600-ohm balanced resistive output.	
	EP-2	P	30-20 ±0.5		0.2	0.008	††	320	88			0	110	47k	Yes	No	4½	400.00	150-600-ohm balanced transformer output.	
	BETMS-100	P	50-15 ±1		0.25				65			0	50	47k	Yes	Yes	3½	225.00	150-ohm unbalanced output.	
	BETMS-200	P	50-15 ±1		0.25				65			0	50	47k	Yes	Yes	3½	295.00	150/600-ohm balanced transformer output.	
BRYSTON	.5B		20-20 ±0.1	15	0.005	0.005	1	0.5	200	80		50	0	Sel.	50k		Var.	8	600.00	
	1B		20-20 ±0.1	20	0.005	0.005	2	0.5	200	80		50	0	Sel.	50k		Var.	12	875.00	
	1B-MC		20-20 ±0.1	20	0.005	0.005	2	0.5	200	80	79	50	0	Sel.	50k	Yes	Var.	14	1300.00	MC response, 5 Hz to 30 kHz, \pm 0.5 dB.
	TF-1	MC	5-30 ±0.5		0.005	0.005				84		0	Sel.		Yes	No	3	450.00		
B & W	CU 810			8	0.005	0.005	2	5.0	150	80	77	91	0		Yes	No	14	2000.00		
CAMBRIDGE AUDIO	C75		20-80 ±0.1	12	0.005	0.005	2	2.6	170	82		200	0		Yes	No	12	449.00		
CANTON	EC-P1		0-200 +0, -1	12	0.002	0.002	3		98	77		0		Yes			13½	1500.00		
CARVER	C-4000		5-200 +1, -3	7	0.003	0.003	3	0.8	100	81	75	500	4	Sel.	Sel.	Yes	No	11	1099.00	Time delay, peak expander, noise reduction and Sonic Hologram Generator Inc.
	C-1		5-200 +1, -3	7	0.003	0.003	3	0.8	100	81	75	500	4	Sel.	Sel.	Yes	No	6½	549.00	Sonic Hologram Generator Inc.
	C-2		3-80 +1, -3	7	0.003	0.003	3	0.8	100	83	77	500	2	Sel.	Sel.	Yes	No	6½	375.00	

PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: K = Tube, M = Mono, W = Moving Coil Stage Only, P = Phono, MC = 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	MC Phono S/N, -dB, "A" Wtd. re. 5 mV	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Impedance, Ohms	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes	
CASCADE AUDIO SYSTEMS	SNP-1C	MC	5-120 +0, -1.5	0.8	0.04	0.025				81			Yes	No	2½	185.00	Gain varies inversely to cartridge impedance.		
CLASSE AUDIO	DR-7 NIL-2	MC	0.3-150	0.5			2			80			Yes Yes	No No	15	3195.00 1095.00			
CONRAD-JOHNSON	PV3k PV4 PV6 PV5 Premier 3 HV2 Premier 6	K/T T 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 20-100 +0, -1	10 25 25 25 25 10 10	0.1 0.1 0.05 0.05 0.05 0.05 0.05	0.1 0.1 0.05 0.05 0.05 0.05 0.05	1 1 2 2 2 2 2	0.32 0.80 0.22 0.15 0.20	500 500 500 500 500	70 70 72 72 72	25 65 20 20 20	0 0 0 0 0	150 150 150 150 150	47k 47k 47k 47k 47k	No No No No No Yes Yes	No Yes No No No Yes Yes	4 5 12½ 12½ 21 7 12	299.00 485.00 850.00 1485.00 2850.00 585.00 985.00	
CONTINUUM	CA-1	MC	10-100 ±1	5	0.05	0.03				82			Yes	No	4	450.00	Has RIAA, selectable input loading.		
MITCHELL A. COTTER	MK-3L MK-3K PSC-3 CM-3 NFB-3 SYD-3	MC MC P P P P	2-40 2-40 2-40 2-40 15-40 2-40		0.002 0.002 0.005 0.005 0.002 0.005	0.002 0.002 0.005 0.005 0.002 0.005			20 300 96	300 96			40 35 0	0 0 0	No No No No No Yes	No No No No No No	3½ 3½ 2½ 10 2½ 33	850.00 850.00 1000.00 3300.00 900.00 8200.00	Shielded transformer for 1 to 10-ohm source resistance. As above, but for 10 to 100-ohm source. Requires PW-2B power supply. As above, high-level inputs. Requires PW-2B power supply. Models CM-3, MK-3, PSC-3, NFB-3, and PW-2B power supply.
COUNTERPOINT	SA-2 SA-3.1 SA-5.1 SA-6 SA-7.1	T/MC T T T/MC T	0.5-350 2.5-30 ±0.1 0.5-88 ±0.1 1-30 2-30 ±0.1	38 70 70 30 30	0.18 0.18 0.08 0.08 0.07 0.3	0.18 0.18 0.08 0.08 0.07 0.3	1 1 1 1 1	2.5 0.5	800 80 700 86 500	80 86		Var. Var.	Var. Var.	Yes Yes Yes Yes Yes	Yes Yes Yes Yes Yes	18 18 24 10 13	995.00 995.00 1795.00 450.00 595.00	External transformer. As above, auto mute. External power supply, auto mute. External transformer. Auto mute.	
CROWN INTERNATIONAL	Straight Line Two DL-2		10-50 ±0.25 10-50 ±0.1	2.5 11	0.009 .0003	.0025 0.002	2 4	6.6 6.6	330 330	87 87	250 250	2 5	50 51k		No Yes		11 20	595.00 2999.00	
DAYTON WRIGHT	SPA Mk 1b SPD Mk 1 DW-536 DW-999		0.55-290 ±1 1-400 ±1 9-300 ±1.5 5-800 ±1	8 8 1.5 2	0.001 0.001 0.004 0.001	0.001 0.001 0.004 0.001	2 2	0.2 0.2	160 160	82 85	76 79	15 15	38 38	47k 47k	Yes Yes Yes Yes	Yes Yes No No	11 15 6 8	1980.00 4500.00 482.00 1300.00	Dual mono. As above.
DB SYSTEMS	DB-1B/ DB-2A DB-1A/ DB-2A DBR-15B/ DB-2A DB-4B		20-20 ±0.04 20-20 ±0.04 20-20 ±0.04 10-100 ±0.1	9 9 10 2	.0008 .0008 .0008 .0008	0.001 0.001 0.001 0.001	1 1 1	0.9 0.9 0.9	150 150 150	77 77 77	120 120 120	6	100 100 100	47k 47k 47k	No No No Yes	Var. Var. Var. No	7.6 4.6 11.2 1.1	650.00 495.00 1085.00 205.00	External power supply. As above. As above; without oak cabinet, \$935.00. †2000 pF; DB-2A power supply or DBP-1 cable required.
DEFINITIVE AUDIO	SS1 SS1A	T/MC T/MC	5-100 +0, -1.2 5-100 +0, -1.2										Yes Yes			159.95 199.95			
DELAY LABS	Entre Nous		2-1.5M +0, -3	14	0.002	0.002	1			86		0	Sel. Sel.	No	Yes	20	2200.00	Cascode FET.	
DENNESEN	Sirius JC 80		5-100 ±0.1 1-2M ±0.1	10 20	0.01 0.005	0.01 0.005	2 2	2 500	200 100	80 80	125 100	0 100	100 Adj.	47k	No Yes	No Adj.	7 15	489.00 4000.00 Pair	External power supply.
DENON	PRA-1000 II PRA-2000Z		10-100 +0, -0.3 10-100 +0, -0.3	10 12	0.002 0.001	0.002 0.001	2 2	2.5 2.5	320 500	90 90	77 80	150 150	2 2		Yes Yes		14 24	495.00 1300.00	

Warning: The Surgeon General Has Determined That Cigarette Smoking Is Dangerous to Your Health.

Winston. America's Best.

Excellence.
The best live up to it.



10 mg. "tar", 0.8 mg. nicotine av. per cigarette by FTC method.

PREAMPLIFIERS

MANUFACTURER	Model	Type	Unit Type: K=K, Tube=1, MC=MC, Photo Amp Only=P, 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	MC Phono S/N, -dB, "A" Wdg. re: 5 mV		High Level Sensitivity, mV		Number of Tone Controls	MM Phono Input Capacitance, pF	MM Phono Input Impedance, Ohms	Moving Coil Input?	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			0.1-200	+0, -1.5	85	0.01	0.01	2				1.45	550		79	60	0.7	0								
EIDOLON RESEARCH	Julla	T	0.1-200	+0, -1.5	85	0.01	0.01	2	1.45	550	79	60	0.7	0	100	47k	No	18	22	795.00	1095.00			3400.00	Dual mono.	
	Montat	T	0.2-150	+0, -1.5	85	0.01	0.01	2	1.45	550	79	60	0.7	0	100	47k	Yes	20					2200.00	External power supply.		
	Salesia	T	0.5-100	+0, -1.5	70	0.02	0.01	2	4.4	700	70						Yes	15					1200.00	Passive RIAA.		
ELECTRO-COMPAIET	Preamp II Preamp I MC-2	MC	10-2M		16	0.002	0.002	2		250	75				220	47k	Yes	No	12					1245.00		
			10-2M		16	0.004	0.004	2				80						Yes	Yes	12				1595.00		
			0-1M			.0001	.0001					70						Yes	Yes	1					445.00	
GSI	4tp 5tp	T	20-300		50	0.3	0.3	1		600	80		0.7	0	100	47k	No	No	18					795.00	Kit available.	
		T	20-250		55	0.3	0.3	1		700	88		0.7	0	100	47k	No	No	22					1095.00		
DAVID HAFLE CO.	DH-100 DH-110		20-20		8	0.005		1	1.2	180	87		50	2	130	47k	No	No	7					225.00	Kit, \$175.00.	
			20-20	+0, -0.1	14	0.001		3	1.25	300	87		50	2	Adj.	47k	No	No	8½					440.00	Kit, \$360.00.	
HARMAN KARDON	hk825		0.1-180		8	0.006		2	1.1	220	83	80	135	2	Sel.	47k	Yes	No	15					425.00		
HEYBROOK	C-2		20-20		9	0.01	0.01	1									Yes		16					598.00		
HITACHI	HCA8500 MKII		20-20		1.0	0.005	0.005	2	2.5	47	90	75	150	2	250	500	Yes		10					370.00		
JANIS	CPA-100 PPA-202	MC	1-200		12	0.01	0.01	1	2.5	300	75		98		40	44k	Opt.	Yes	14					1995.00		
			0.05-1.5M	+0, -3	1	0.01	0.01				73							Yes	No	2					300.00	Plug-in for above.
JRM	Preamp		5-50	+0, -1	10	0.01	0.01	2	1.25		81		150	Opt.	Sel.	Sel.	Opt.	No						450.00		
JVC	P-L10		2		2	0.002		2	2.5	300	85	77	150	2	Adj.	Adj.	Yes	No	26.4						1650.00	
KENWOOD	Basic-C2 Basic-C1		1-350	+0, -3		0.001		2	2.5		88	70	150	2		47k	Yes		9.9					295.00		
			1-250		5	0.004		2	2.5		87	70	150	2		47k	Yes		9.3					225.00		
KINERGETICS	KPA-1		1-300	+0, -3	7.5	0.05	0.05	2	0.3	20	77	73	150	0	Var.	Var.	Yes	Yes	20					775.00	Dual mono.	
KLYNE AUDIO ARTS	SK-2A SK-4 SK-5	MC	0.8-350	+0, -3	3	0.005	0.005					72					Yes	No	4					695.00	Switchable high-frequency contour and input impedance.	
			0.5-250	+0, -3	10	0.005	0.005	0	5	100	85	72	Adj.	Adj.	Adj.	Yes	No	10					2150.00	Straight-line version of SK-5.		
			0.5-250	+0, -3	10	0.005	0.005	1	5	100	85	72	Adj.	Adj.	Adj.	Yes	Var.	12						2795.00	Dual mono.	
KRELL	PAM-5 PAM-3 KRS-1A		0.1-500		10	0.01	0.01	2		200	90	75	150	0	100	47k	Yes	No	20					1400.00	Dual mono, plug-in boards.	
			0.1-800		10	0.01	0.01	2		280	95	78	150	0	100	47k	Yes	No	35					2850.00		
			0-800		26	0.008	0.008	2		6V	95	78	150	0	Var.	47k	Yes	No	110					7200.00		
KYOCERA	C-910		0-200	+0, -3	25	0.003		2	0.55	300	85	76	125	2	100	47k	Yes	No	22					1200.00		
MARK LEVINSON	ML-6A ML-7 ML-10A ML-12A	M	20-20	±0.1	6	0.01	0.01	0			86				0	Sel.	Sel.	Yes	No	18				6320.00	External power supplies.	
			20-20	±0.1	6	0.01	0.01	2				86				0	Sel.	Sel.	Yes	No	21			4595.00	External power supply.	
			20-20	±0.1	6	0.02	0.02	1				86				0	Sel.	Sel.	Yes	No	18				2960.00	
			20-20	±0.1	6	0.05	0.05	1				86				0	Sel.	Sel.	Yes	No	14				1415.00	Optional PLS-124 power supply, \$400.00.
LINN PRODUCTS	LK1																	11					650.00			
LIRPA LABS	PMS	K/T	7-11		0.1	9.909	32	6	12	8	12	99						††		62				699.00	†-2 (counteracts other system tone controls); ††coil input firmly fastened.	
LOGAN LABS	PA-10B HLE-1010T PA-101 HLE-20T	T/MC T/MC T T/MC	20-100	±1	160	0.2	0.2								0			Yes	Yes	7				5395.00	Separate power supply.	
			20-100	±1	50	0.2	0.2									0			Yes	Yes	6½				2495.00	As above.
			20-100	±1	160	0.2	0.2	3						300	0				Yes	Yes	10				1995.00	Tube/FET hybrid, separate transformer.
			20-100	±1	50	0.2	0.2									0			Yes	Yes	4½				695.00	Separate transformer.
LSR&D	The Leach Pre-Preamp		0.2-200	+0, -3	4	0.005	0.005				85	160					Yes	No	3					149.00	Selectable input resistance; kit, \$95.00.	

PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: Kit, K; Type: T; Mono: M; Stereo: S; Moving Coil Stage: MC	Frequency Response, Hz to KHz, ±dB	Maximum Output, V	THD, %	IHF IM Distortion, %	Number of Tone & Processor Loops	MM Phono Sensitivity, mV, for 0.5 V Output at 1 kHz	MM Phono Overload, mV	MC 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?	Weight, Lbs.	Price, \$	Notes				
LUXMAN	C02 C05		10-100 +0, -1 2-100 +0, -0.5	18	0.005							Yes				15.4	500.00					
				18	0.005							Yes				24.3	1800.00					
MAVRICK AUDIO	Spatial II Spatial IIM	M										No Yes	No No	20 25		3500.00	10,000.	External power supply. As above, dual mono.				
McINTOSH	C-33 C-30 C-504 MCP-1	MC	20-20 +0, -0.5 20-20 +0, -0.5 20-20 +0, -0.5 20-70 +0, -0.5	10	0.01	0.01	2	0.4	84	250	6	65	47k		No	26	2450.00	Built-in 20 watt/channel headphone amp and compander. Built-in headphone amp.				
				10	0.007	0.007	2	0.4	84	200	6	65	47k		No	18	1649.00	As above.				
					0.01	0.01	2	0.44	84	250	4	50	47k		No	14	1090.00	As above.				
					0.01	0.01			83					†	No	3	649.00	†Four MC inputs.				
McLAREN AUDIO	602 402		5-100 +0, -1 5-100 +0, -1	16	0.015		1	0.5	150	82	76	100		47k	Yes	Var.	14¼	850.00				
				16	0.015		1	0.5	150	82	76	100	2	47k	Yes	Var.	14¼	1250.00				
MEITNER AUDIO	PA-6		1-100 +0, -3	8	0.01	0.01	1		95	85	500	0		†	Yes	††	5¾	1495.00	†Neg-Z current MM input; ††remote has polarity inversion.			
MELOS AUDIO	GK-1	T	2-300 ±1	40	0.09		1	1.0	600	90	70	50		180	47k	Yes	Yes	22	1195.00	Separate power supply.		
MICRO-TRAK	6410 6411 ST-11	M/P P P			0.05 0.05 0.05	0.05 0.05 0	0 0 0		300 300 300	72 72 72				1 1 0	No No No	No 2 1	179.50 229.50 169.50					
MONOLITHIC	MDT SSP		5-50 +0, -3 5-50 +0, -3	20	0.1	0.1	1	Adj.						500	Adj.	Adj.	Yes	Sel.	16	899.00		
				10	0.05	0.05	1	Adj.						500	2	Adj.	Adj.	Yes	Sel.	8	499.00	

NORTHEASTERN

Compact Discs and Cassettes

29 North Hillside Lane
Monroe, CT 06468

CLASSICAL CD's from \$11.00
POP/JAZZ/COUNTRY CD's from \$10.00

ORDERS ONLY

TOLL FREE

1-800-231-5811

FOR COMPACT DISCS AND CASSETTES

1-800-382-2242

FOR COMPACT DISCS, CASSETTES
COMPUTER SOFTWARE/HARDWARE

(203) 452-1490

FOR INQUIRIES AND CONNECTICUT ORDERS

- EXTENSIVE DOMESTIC AND IMPORTED SELECTION
- WRITE OR CALL FOR A FREE CATALOGUE
- ALSO CALL US FOR THE BEST PRICES ON COMPUTER SOFTWARE/HARDWARE



For Fast Delivery send cashier's check, certified check, or money order. Personal and company check allow 3 weeks to clear. Shipping —(\$1 minimum). C.D.D. add an additional \$1.00. Alaska, Hawaii, Canada, PO, APO, and FPO \$5.00 minimum. Mastercard & Visa include card no. and expiration date). Connecticut residents add 7.5% sales tax. We ship same day for most orders. Prices subject to change without notice. Defective merchandise replaced with the same item only. All sales are final.

Enter No. 49 on Reader Service Card

PREAMPLIFIERS

MANUFACTURER	Model	Type	Un. Tone: Kit, K; Tube = T; Wtd. 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	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Controls	MM Phono Input Capacitance, pF	Moving Coil Input?	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes
			10-100 +0, -1	10-100 +0, -1																	
MOTIF	MC7		10-100 +0, -1	10	0.1	0.1	1	0.4	150	76	68	22	0	150	47k	Yes	No	14	3500.00		
	MC8		10-100 +0, -1	10	0.1	0.1	2	0.4	150	76	68	22	0	150	47k	Yes	No	14	2250.00		
MUSIC REFERENCE	RM-4	T/MC	2-200 +0, -1	20	0.01	0.01				84	64		0	Adj.	Adj.	Yes	Yes	7	650.00	Adjustable gain and loading, auto mute. Adjustable line gain, auto mute.	
	RM-5	T	2-100	30	0.05	0.05	2	1.0	1V	81		25	0	200	47k		Yes	10	950.00		
NAO	1155		20-80	10	0.04	0.04	3	0.33	230	80	80	20	3	100	47k	Yes	No		298.00		
	1130		20-30	8	0.03	0.03	2	0.4	170	76	76	26	3	100	47k	Yes	No		178.00		
	1020B		20-30		0.03	0.03	1	1.25	200	75	72	86	2	100	47k	Yes	No	10.1	148.00		
NAIM AUDIO	NAC42N		20-20 ± 0.5				1	2.0				75	0		470			8	395.00		
	NAC42S		20-20 ± 0.5				1					100	75	0		Yes		8	395.00		
	NAC32		20-20 ± 0.5				2	2.0				100	75	0	470	Yes		9	695.00		
NAKAMICHI	CA-5		1.5-100 +0, -3	16	0.002		2	0.6	170	81	78	50	0	Sel.	47k	Yes		8 1/8	650.00		
NEW YORK AUDIO LABORATORIES	NCP-III	T	10-100 ± 0.5	80	0.02		2	0.75	900	85	85	200	0	100	47k	Yes	No	40	4000.00	High-gain cascode.	
	Moscoda Minuet	T	10-100 ± 0.5	40	0.02		2	0.75	750	80	80	200	0	100	47k	Yes	No	10	720.00	As above; tube/MOS-FET hybrid.	
	Moscoda Sarabande	T	10-100 ± 0.5	40	0.02		2	0.75	750	80	80	200	0	100	47k	Yes	No	12	1199.00	As above.	
	Moscoda Continuo	T	10-100 ± 0.5	40	0.02		2	0.75	750	80	80	200	0	100	47k	Yes	No	14	1499.00	As above.	
	Moscoda IT	T	10-100 ± 0.5	25	0.02		0	0.75	750	80	80	200	0	100	47k	Yes	No	5	169.00	As above.	
NIKKO	Beta 50H		10-20		0.004	0.004	5	2.5	200			150	2		47k	Yes	No	8.4	470.00		
	Beta 30H		10-20		0.004	0.004	3	2.5	200			150	2		47k	Yes	No	8.4	320.00		
NOVA ELECTRO-ACOUSTICS	CPA-100		1-200 +0, -3	12	0.01	0.01	1	2.5	250	75		98	0	40	44k	Dpt.	Sel.	14	1995.00		
	PPA-202	MC	0.05-1.5M +0, -3	1	0.01	0.01						73				Yes	No	2	300.00		
NUMARK	PE-100		20-20 ± 0.6	8	.0089		2	2.5		84		150	†	Sel.	47k	Yes		11 1/2	399.95	†EQ with 10 tone controls per channel.	
ONKYO	P-3060R		0.8-170 +0, -3	20	0.002	0.003	2	2.5	300	82	76	150	2		47k	Yes	No	21	549.95	Passive tone controls, rec out selectors.	
	P-3030		0.8-170 +0, -3	13	0.003	0.003	2	2.5	300	82	76	150	2		47k	Yes	No	15	379.95	As above; EQ for LP and 78 rpm.	
PARASOUND	PR200		10-100 ± 1	†	0.01	0.01	2	2	200	88		150	2	150	50k		No	8 1/2	199.95	†12.5 V; variable loudness; bass EQ; needs no step-up for MC cartridges.	
PERFECTIONIST AUDIO	Pretentious One A	T	0.5-4M ± 0.01	27	0.29	0.29	2	1.2	500	85	80	300	0	100	Sel.	Yes	No	100	†	†\$54,665.52; guaranteed for life, free upgrades, operates on all voltages.	
PERREAUX	SM2		20-50 ± 0.25	27	0.009	0.009	1	2	1.2V	86	72	110		Var.	Var.	Yes	No	12	1299.00	Class A.	
	SA2		20-50 ± 0.25	15	0.009	0.009	1	1.85	500	86	66	110		Var.	Var.	Yes	No	12	850.00	As above.	
	SX1		10-50 ± 0.3	7	0.008	0.008	1	2	300	86	70	110	4	100	50k	Yes	No	13	650.00		
PHOENIX SYSTEMS	P-100-MMA	P	20-20 +0, -0.1	8	0.05	0.1	0	5	100	80			0	100	47k	No	No	4	149.00	Kit, Model P-100-MM, \$99.00.	
	P-10-MMA		20-20 +0, -0.2	8	0.01	0.01	0	5	150	85			1V	0	100	47k	No	Sel.	5	200.00	Kit, Model P-10-MM, \$150.00.
	P-10-MCA	MC	20-20 +0, -0.2	8	0.01	0.01					88		1V	0		Yes	Sel.	5	200.00	Kit, Model P-10-MC, \$150.00.	
PICKERING	P75	MC	10-120 ± 3	4	0.035	0.002										Yes		1.2	189.00	For LZ cartridges; uses two 9-V batteries.	
PRECISION FIDELITY	C-8	T	20-20 ± 0.5		0.05	0.05	2	1.0	800	90	80	100	0	70	47k	Yes	Yes	12	649.00	Hybrid.	
PRINCETON DESIGN GROUP	Active Cartridge Stabilizer	P/MC	0-150 ± 0.5										0	Dpt.	Dyn.	Yes	Yes	3	395.00	Electronic damping; no RIAA; 26-dB MC gain.	
PROTON	1100		20-20 ± 0.2	18	0.01	0.01	2	1.75	300	92	80	150	2	Sel.	47k	Yes	No		329.00		

PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: Ki = K, Tape = T, Mono, MM 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	High Level Sensitivity, mV	Number of Tone Controls	MM Phono Input Capacitance, pF	Moving Coil Impedance, Ohms	Does Unit Invert Phase?	Weight, lbs.	Price, \$	Notes		
																			0.1-2M ± 0.1	16
PS AUDIO	IVH		0.1-2M ± 0.1	16	0.01	0.01	1	.875	160	88	80	177	0	150	Var.	Yes	No	15	419.00	External, high-current power supply. External power supply; kit, \$329.00, inc. power supply.
	SR-1		0.1-2M ± 0.1	16	0.01	0.01	1	.875	160	88	80	177	0	150	Var.	Yes	No	15	419.00	
PSE	Studio One		5-100 +0, -0.5	12	0.005	0.005	2	9	200	80	75	250	2	20	47k	Opt.	Sel.	16	760.00	With MC input, \$880.00.
	Studio SL		5-100 +0, -0.5	12	0.005	0.005	1	9, 3	200	80		250		20	47k		Sel.	14	590.00	
QUAD	34		30-20 ± 0.3	1.5	0.005		1	Var.	150	75	68			100	Yes	No	4	595.00	†Bass lift, step and high/low shelving.	
	44		30-20 +0, -1	5	0.002		2	Var.	300	75	72			Var.	Yes	No	6	795.00		
QUICKSILVER AUDIO	MC Transformer	MC	†	2.8										Yes	No	2	250.00	†3 dB at 1 Hz and 175 kHz.		
REVOX	B252		20-20 +0, -0.2	12	0.01	0.01	2	Adj.	23	75	75	160	2	Adj.	47k	Opt.	No	17	1200.00	†Tuner-preamp; see also "Receivers," Model B285, for tuner specs.
	B286	†	20-20 +0, -0.3	6	0.005	0.01	2	Adj.	50	80	76	160	2	Sel.	47k	Opt.	No	20	1400.00	
RGR	Four-2		0.2-270 ± 3	10	0.012	0.015	2	0.5	150	68	70	200	2		47k	Yes	Var.	13	850.00	
ROBERTSON AUDIO	Twenty		0.2-400	†	0.009	0.005	1	2.6	127	88				Sel.	47k	No	No	16	995.00	†14.5 V.
	Twenty		0.2-400	†	0.009	0.005	1	2.6	127	88	72			100	47k	Yes	No	18	1495.00	External power supply.
	Twenty MC EK-1		0.1-400	19	0.01	0.01	1					160				No	35	2000.00	With strain gauge cartridge.	
ROTEL	RC 870		20-20		0.004	0.004	2		150	78	64		0		Yes		11½	293.00		
ROWLAND RESEARCH	Coherence		1-250 ± 3	25	0.05	0.05	1	5	500	85	80	100	0	Sel.	47k	Yes	No	26	2450.00	Strain gauge inputs opt.

Enter No. 68 on Reader Service Card

Tandberg's TCA-3008A Preamplifier embodies the company's more than 50 years of research into the art and science of sound reproduction. At Tandberg, our engineers explored every technical nuance: from the characteristics of individual components such as high spec polypropylene capacitors and metal film resistors, to the interaction of discrete circuits; all aspects have been uniquely researched for their influence on the reproduction of music.

The musicality of the TCA-3008A exceeds that of traditional high end products and is considered to be among the most esoteric preamplifiers, while simultaneously providing the fine appearance, affordability and reliability made possible by our position as Europe's most respected manufacturer of audio instruments.

The TCA-3008A: Uncompromised performance through unexcelled technology.

TANDBERG OF AMERICA
One Labriola Court, Armonk, NY 10504
(914) 273-9150



PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: K = K Type - J Only; P = Mono; M = Phono Stage Only; MC = 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	High Level Sensitivity: mV	Number of Tone Controls	MM Phono Input Capacitance: pF	Moving Coil Input?	Does Unit Invert Phase?	Weight: Lbs.	Price: \$	Notes		
																			20-20	7.5
SAE	P101		20-20	11	0.008	0.008	2	0.3	240	85	80	250	0	Sel.	Yes	Yes	20	650.00	Automatic bridging circuit; opt. speaker switcher. Model RS-101. \$50.00.	
	P102 X1P		20-20 20-20	17	0.025 0.01	0.025 0.01	3 1	0.07	120 250	82 74	75 80	150 230	2 0	Sel.	47k Sel.	Yes Yes	No No	20 14	399.00 1200.00	Separate power supply.
SANSUI	C-2301		0-500 +0, -3	1.2	0.003		3	2.0	350	90	80			47k	Yes		46.1	2400.00		
	C-2101		0-300 +0, -3	1	0.003		2	2.0	300	88	70		2†	47k	Yes		13.2	700.00	†Built-in parametric EQ.	
SESCOM	SC-2		20-20 +0, -1	7.5	0.01	0.01		1.75	150	71		250		No	No	9	206.00	Balanced outputs and mono output. PO-1 power supply required.		
	PO-11		20-20 +0, -1	10	0.01	0.01		1.75	150	71				No	No	1	40.00			
SHERWOOD	S-6020CP		10-76 +25, -3	10	0.005	0.005	2	1.25	250	100		150	2	150	47k	No		11	249.95	
SHURE	M64		40-15 ±2	6	1		9	100	78		20	1	350	50k	No	No	1¾			
SIMA ELECTRONICS	P-2001			11	0.005	0.005	1	1	225	78	69	100		100	100	Yes	No	10	695.00	
SONDEX	Disc Equalizer OE-1 PCU-1	P †	20-20 ±0.25	10	0.02	0.03	Sel.	2	100	92		0	100	47k	Dpt.	8	399.00	Disc input-level matching via optional plug-in boards, \$29.95 each. †Six passive inputs: DE-1 or equivalent required for phono.		
																	4		299.00	
SONTEC	PPP-102		1-400 ±1	15	0.003	0.003	0	Var.	150	88	68		Var.	Var.	No	No	6	785.00		
SOTA	Head Amp II	MC	1-500 +0, -3	2	0.03	0.03					90	100			Yes	No	4	500.00	Dual mono, selectable impedance.	
SOUND-CRAFTSMEN	DX4200		5-100 ±0.25	10	0.01	0.005	4	Adj.	300	97	97	90	†	Adj.	47k	Yes	No	25	699.00	†Dual 10-band EQ; auto bridging circuitry. As above.
	DX4100		5-100 ±0.25	10	0.01	0.005	3	1.4	200	97		90	†	100	47k	No	No	22	549.00	As above.
	DX4000		5-100 ±0.25	10	0.01	0.005	4	1.4	200	97		90	0	100	47k	No	No	20	399.00	As above.
SPECTRAL	OMC-10 Series Gamma OMC-5		0-1M	15	0.01	0.01	1				102		100	Sel.	Yes	No	25	2795.00		
			0-1M	15	0.01	0.01	1				95		100	Sel.	Yes	No	17	1795.00		
SPECTRASCAN	LCA-10		3-250 +0, -3	15	0.05	0.05	2	1.0	300	85	78	100	0	Sel.	47k	Yes	No	17	1095.00	With tone controls, Model LCA-20.
STANTON	310 SP98	P MC	20-20 10-120 ±3	10 4	0.05 0.035	0.002		0.5	120	70		2	Adj.	47k	No Yes	No No	1.2	240.00 189.00	For LZ cartridges; uses two 9-V batteries.	
STAX	SRA-14S		0-1M	15	0.003		2	2.5	200	80	78	150	0		47k	Yes	No	14	1800.00	External power supply; Class-A driver for Stax headphones. Special order; dual mono.
	CA-X Professional		0-1M	20	0.002	0.003	1	1	200	90	68	100	0	Adj.	47k	Yes	No	34	4000.00	
STREETS ELECTRONIC SYSTEMS	FET1000		0.5-100 +0, -1	12	0.05	0.05	2	0.9	200	88	85	†	0	68	47k	Yes	Sel.	22	1950.00	†100 mV for 1 V.
STRELIOFF	PS 1		10-60 ±1.5	25	0.01	0.01	3	1.0	250	92	85	100		Sel.	Sel.	Yes	No	33	2000.00	Special order.
	PS 11		10-60 ±1.5	25	0.01	0.01	3	1.0	250	97	90	100		Sel.	Sel.	Yes	No	39	3000.00	As above; dual mono.
SUMIKO	The PhonoAmp	P	1-1M	10	0.02	0.02	1		500	85	80		0	50	Var.	Yes	No	2	700.00	Front-mounted, variable cartridge damping.
SUMO	Electra		2-100 +0, -3	18	0.01	0.01	1	0.37	125	85	80	50	2	10	47k	Yes	No	12	499.00	
SUPERPHON	Revelation Basic		2-170 +0, -1	15	0.005	0.01	1	0.78	190	80		250	0	100	47k	No	No	8½	329.00	
SWISS PHYSICS	MON 831		0.01-500	40	0.001	0.001	1	3	2V	90	94	100	0		Adj.	Yes	Adj.	15	3950.00	
TALISMAN	Alchemist		6-150 ±3	10	0.01	0.01	1	0.85	200	79			0	Adj.	Adj.	No	No	12	1275.00	
TANDBERG	3008 A		1.6-250 +0, -3	10	0.003	0.003	2	1	300	80	76	70	2	Adj.		Yes	No	12½	795.00	

PREAMPLIFIERS

MANUFACTURER	Model	Unit Type: K=K Tube, P=Phono Stage Only, MC=Moving Coil Stage Only	Frequency Response, Hz to kHz, ±dB	THD, %	IHF IM Distortion, %	Number of Tape & Processor Loops	MM Phono Sensitivity, mV for 0.5 V Output @ 1 kHz	MM Phono S/N, -dB	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?	Weight, Lbs.	Price, \$	Notes			
TANNOY	DR-3		20-20	1.1	0.01	1	Adj.	Adj.	140	0	Adj.	Adj.	Yes		4.4	498.00	MOS-FET.			
TECHNICS	SU-A8		0-100 +0, -3	8	0.002	2	1.25	76	75	75	2		47k	Yes		9.9	350.00	Specs for sensitivity and S/N based on 1966 IHF standards.		
	SU-A6MK2		0.5-200 +0, -3	8	0.002	3	0.63	150	80	77			47k	Yes		12.8	600.00			
	SU-A4MK2		0-100 +0, -3	8	0.006	2	1		92	82			47k	Yes		17.6	1100.00			
	SH-305MC	MC	3-300 ±0.2		0.001								Yes			10	400.00			
THRESHOLD	FET one		1.5-125	14	0.02	2		368	82	82			0	Sel.	47k	Yes	No	12	2200.00	Selectable MC impedance. As above.
	FET two		1.5-125	14	0.02	1		368	80	80			0	Sel.	47k	Yes	No	9½	1290.00	
VANDERSTEEN AUDIO	OL-1	MC	0.5-500 +0, -3	1	0.01	0.01				80					Yes	No	4	285.00	Variable loading.	
VENETTA RESEARCH	SCP-1	MC	0.1-1M	0.3	0.01	0.01				90				Yes	Yes	5	895.00			
VSP LABS	Straight-wire II		10-60 ±0.5	9	0.05	0.02	2	0.5	245	82	72	500	0	47	47k	Yes	No	23	1090.00	
YAMAHA	C-80		20-20 +0, -0.2	8.5	0.001	0.002	2	2.5	500	95	91	150	2	Sel.	Sel.	Yes	Yes	15	750.00	Two-band parametric EQ.
	C-60		20-20 +0, -0.2	8.5	0.002	0.002	2	2.5	500	95	90	150	2	Sel.	Sel.	Yes	No	15	500.00	
	C-40		20-20 +0, -0.2	11	0.002	0.002	2	2.5	170	94	90	150	2	220	47k	Yes	No	15	350.00	
	C-2X		20-20 ±0.2	10	0.002	0.002	2	2.5	500	100	94	150	2	Sel.	Sel.	Yes	No	17½	1300.00	

BRYSTON PERFECT HARMONY



Models .5B and 2B-LP

Models 1B and 3B

Models 1B-MC and 4B

A CHOICE WITHOUT MUSICAL COMPROMISE

These Bryston combinations provide a choice based on input switching flexibility and power requirements. Simply choose the combination which satisfies your needs and budget without compromising the quality, reliability and musical accuracy inherent in all Bryston audio components.

For further information contact:

In the United States:

BRYSTON VERMONT

RFD #4, Berlin, Montpelier, Vermont 05602
(802) 223-6159

In Canada:

BRYSTON MARKETING LTD

57 Westmore Dr., Rexdale, Ontario, Canada M9V 3Y6
(416) 746-0300

PRE-AMPLIFIERS by Soundcraftsmen

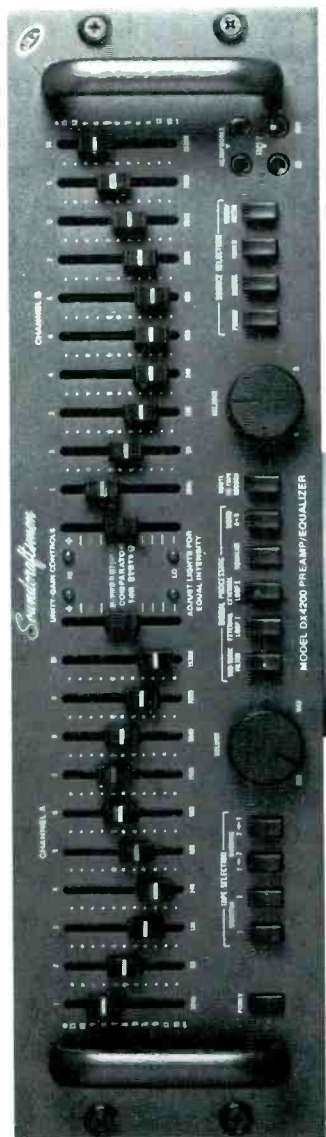
DX4200 DESCRIPTION

The new DX4200 Preamplifier/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 TRIPILING 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.

FEATURES

- | | | |
|--------|--------------------------|---|
| DX4200 | <input type="checkbox"/> | Dual 10-Band ± 15 dB equalization. |
| DX4100 | <input type="checkbox"/> | Dual 10-Band ± 12 dB equalization. |
| DX4000 | <input type="checkbox"/> | Differential/Comparator® Unity Gain/LED adjustments |
| | <input type="checkbox"/> | Sub-Sonic Filter: -3dB @ 15Hz, 12dB/octave rolloff |
| | <input type="checkbox"/> | Auto/Bridge® |
| | <input type="checkbox"/> | Variable cartridge loading |
| | <input type="checkbox"/> | Individual phono input level adjustments |
| | <input type="checkbox"/> | Moving-coil cartridge inputs |
| | <input type="checkbox"/> | Two mono phono preamplifiers |
| | <input type="checkbox"/> | CD Digital Audio Inputs |
| | <input type="checkbox"/> | Noble 31-position volume control |
| | <input type="checkbox"/> | Inputs for audio portion of video source |
| | <input type="checkbox"/> | Three-way tape dubbing |
| | <input type="checkbox"/> | Two-way tape dubbing |
| | <input type="checkbox"/> | Low-impedance headphone output jack w/amplifier |
| | <input type="checkbox"/> | Front-Panel tape inputs & outputs |
| | <input type="checkbox"/> | Three signal-processor loops |
| | <input type="checkbox"/> | Two signal-processor loops |
| | <input type="checkbox"/> | Handles |
| | <input type="checkbox"/> | 19" rack-mount front panel |
| | <input type="checkbox"/> | Frequency Spectrum Analyzer Test Record |
| | <input type="checkbox"/> | Computone Charts |
| | <input type="checkbox"/> | Genuine Walnut or Oak side panels available |



DX4200 \$699.



DX4100 \$549.



DX4000 \$399.

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: 23 LBS.
SIDE PANELS: Genuine Oak or Walnut, optional

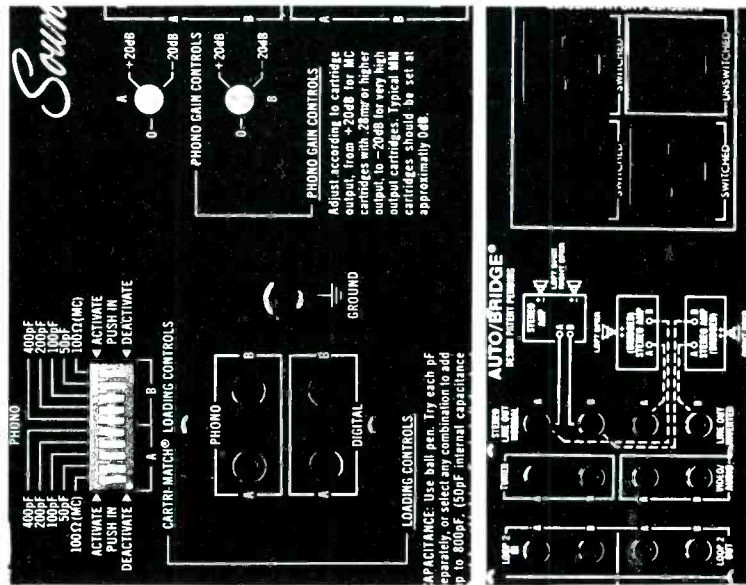
CARRI-MATCH[®]

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



ROBERTSON SIXTY TEN



NESTOROVIC α-1



LINN LK2

MANUFACTURER	Model	B/M	Unit Type = 1 Base = B, Type = M, M, K, K, Moving Coil Input = MC		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	MM Phono S.N. - dB, "A" Wtd. re: 5 mV	Maximum MM Phono Input, mV	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
			500	800																	
ACCUPHASE	M-100	B/M	500	800	20-20	0.01	0.003	AB							M	Sel.	91.4	7000.00	Class A, 30 watts.		
	P-600	B	300	500	20-20	0.01	0.01	AB							M	No	84.7	3950.00			
	P-500	B	250	420	20-20	0.01	0.003	AB							M	No	73.7	3400.00			
	P-300L	B	170	250	20-20	0.01	0.003	AB							M	No	44	2150.00			
	P-266	B	130	200	20-20	0.005	0.003	A/AB							M	No	44	1600.00			
	E-303X	I	150	200	20-20	0.01	0.01	AB	80	0.22	300		13.9		M	No	45.2	900.00			
	E-302	I	120	180	20-20	0.01	0.01	AB	80	0.22	300		7.1		M	No	35.6	1495.00			
	E-204	I	75	90	20-20	0.01	0.01	AB	80	0.22	200		13.9		M	No	30	1950.00			
ACOUSTAT	TNT120	B	120	180	2-450	0.01	0.01	AB				160			1.2	No	28	745.00	Pure FET, zero output impedance, complement feedback. As above.		
	TNT200	B	200	325	2-400	0.01	0.01	AB				160			1.2	No	40	1195.00			
ACOUSTIC ELECTRONICS	Air 2.2A	B	110	205	20-20			A/AB					1.25V		Yes	40	1750.00	No negative feedback, 10 power supplies.			
ADCOM	GFA-555	B	200	325		0.09	0.05	AB							†	34	599.95	†Distortion indicators. Dual power supplies.			
	GFA-2	B	100	170		0.05	0.05	AB							†	29	375.00				
ADS	A2	I/MC	80	100	20-20	0.05	0.05	AB	80	0.26	120	30	35	M, I	2	Yes	20	519.00	Rail-switching amp.		
AKAI	AV-UB	I	22		10-30	0.08		B	80	2.5	70		150				15.4	399.95	Built-in 4-inch monitor, A/V switching and dubbing. No negative feedback, open loop, MOS-FET. No negative feedback, open loop.		
	AM-A90	I/MC	130	180	10-80	0.5		B	86	2	400		150		No	27.6	499.95				
	AM-A70	I/MC	100	150	10-80	0.5		B	86	2	400		150		No	25.4	399.95				
	AM-A401	I	80		10-30	0.05		B	72	2	120		150	M, I	No	14.8	249.95				
AMBER ELECTRONICS	Series 70	B	70	120	1-60	0.01	0.02	AB				25			No	32	599.00	Bridgeable, no current limiting. Preamp-out jacks.			
	Series 50b	I	50	80	2-55	0.01	0.02	AB	80	5	250	25	500		No	24	699.00				
APT	A1	B	125	250	20-20 = 0.2	0.01	0.01	AB				60	900	I	3	No	26	748.00	Speaker impedance selector; bridges to 500 watts.		
AUDIBLE ILLUSIONS	S-75	B	75	150	20-20	0.01	0.01	AB1					1.5V		No	45	595.00				
	S-150	B	150	300	20-20	0.01	0.01	AB1					1.5V		No	55	1295.00				
	M-80	B/T/M	80	80	20-20	0.3		Pure A					1.5V		No	45	1795.00				
AUDIONICS	CC-3 mkII	B	100	170	5-60	0.15	0.15	AB				50	1V	I	2	No	20	795.00	High-current toroidal power supply.		
AUDIO RESEARCH	D70MKII	B/T	60	60	15-30	1	0.1	AB1				10			No	49	1995.00				
	D79CMKII	B/T	75	75	15-40	1	0.5	AB1				10		M	No	105	6000.00				
	D115MKII	B/T	100	100	12-60	1	0.1	AB1				15			No	68	2995.00				
	D120	B	120	200	6-150	0.25	0.05	AB1				40			No	43	1995.00				
	D250MKII	B/T	240	240	12-60	1	0.1	AB1				25			No	138	5995.00				
	M100	B/T/M	100	100	12-60	1	0.2	AB1				15			No		2495.00				
AUDIO VOIS	V21B/V210B	MC	40	60	10-50	0.1	0.1	AB	70	2.0	200		80		No	24	1190.00	Two chassis.			
	V100B	I	20	30	10-50	0.1	0.1	AB	70	2.0	200		80		No	10	495.00				
AUDIRE	Parlando	B	100	200	2-50	0.02	0.003	A				50			No	90	2850.00	190 watts into 1 ohm.			
	Otez	B	250	500	2-50	0.015	0.015	A				50			No	90	2750.00				
	Forte II	B	25	50	2-50	0.025	0.008	A				50			No	45	1050.00				
	Forte	B	125	250	2-50	0.025	0.008	AB				50			No	45	990.00				
	Crescendo	B	75	130	2-50	0.05	0.01	AB				45			No	25	435.00				
BEDINI ELECTRONICS	25/25 MK II		25	50	0-75	0.1	0.25	A		0.5		55		1	Yes	25	1000.00				
	50/50 MK II		50	100	0-100	0.1	0.25	A		0.5		40		2	Yes	25	1195.00				
	100/100 MK II		100	200	0-100	0.1	0.25	A		0.5		45		1.5	Yes	45	1500.00				
	250/250 MK II		250	475	20-50	0.1	0.11	A		0.5		55		8	Var.	47	2195.00				
	100/100		100	200		0.01	0.01	A		0.5		270		8	Yes	70	3800.00				
	1 Meg																				

Soundcraftsmen presents...

NEW ULTRA-HIGH-CURRENT MOSFET AMPLIFIERS...



MODEL PM1600 MOSFET STEREO AMPLIFIER

**375 watts/chan. @ 8 ohms 20Hz-20kHz, < 0.05% THD...
600 watts/chan. @ 4 ohms, and 900 watts/chan. @ 2 ohms!**

It is well known that all Loudspeakers have, in addition to a "Static" Impedance, a far more important "Dynamic" Impedance that can extend as low as 2 ohms, and averages less than 4 ohms in many cases. Therefore, it is extremely important to consider the performance of an amplifier into loads as low as 2 ohms. The inability of an amplifier to fully drive such low-impedance loads is audible as a compression of the music signal, and as a distortion or roughness during high level passages, Soundcraftsmen's new ultra-high-current amplifiers are designed to handle these low impedance loads with ease.

These new amplifiers are also especially designed for the high dynamic range requirements of the Digital Disc and Hi-Fi VCR audio source materials. They feature Phase-Control-Regulation®, which allows operation at maximum power output even when speaker impedance loads drop below 2 ohms.

Current-limiting is eliminated entirely, completely avoiding the sonic degradation typical of this type of commonly-used output stage protection circuitry. True-Clip indicators for each channel are designed to detect waveform distortion, thus providing an accurate indication of actual clipping.

For musically full and accurate reproduction of the most demanding passages, your stereo system's loudspeakers need the continuous low impedance power that can only be supplied by an Ultra-High-Current amplifier. Ask for a High Current demonstration with your favorite recording, and you'll hear music you've never heard before!

FEATURES: BOTH MODELS

Output Devices	POWER MOSFET fully complementary circuit design.
Heatsink	Aluminum heatsink utilizing special multidirectional surface area designed for maximum heat dissipation.
Protection	Anti-Surge turn on delay Multi-Sensor PCR Thermal protection
Outputs	5-way binding posts.
Indicators	True clipping, each channel.

SPECIFICATIONS: PM1600—\$1199

Power Output (per channel)	1800 watts @ 4 ohms bridged 900 watts @ 2 ohms, stereo 600 watts @ 4 ohms, stereo 375 watts @ 8 ohms, stereo
IM Distortion	Less than 0.05%
Frequency Response	20Hz to 20kHz ±0.1dB
Rise Time	2.2 Microseconds
Slew Rate	50 volts/microsecond
Size	5¼" H x 19" W x 16½" D, plus 1½" for handles. Rack Mount.

SPECIFICATIONS: PM860—\$499

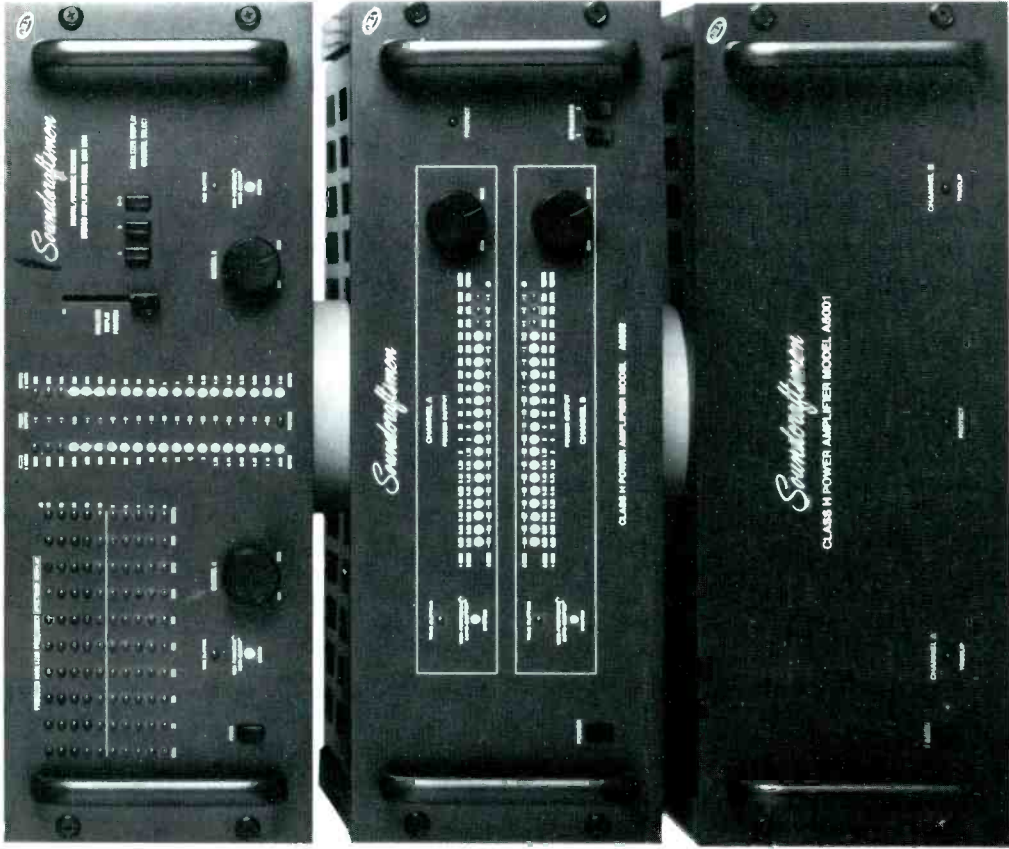
Power Output (per channel)	900 watts @ 4 ohms Bridged 450 watts @ 2 ohms, stereo 300 watts @ 4 ohms, stereo 205 watts @ 8 ohms, stereo
THD	Less than 0.05% 20Hz-20kHz @ 8 and 4 ohms stereo
IM Distortion	Less than 0.05%
Frequency Response	20Hz to 20kHz, ±0.1dB
Hum & Noise	-105dB
Rise Time	2.2 microseconds

Soundcraftsmen



**AMERICA'S PERFORMANCE-VALUE LEADER
IN STEREO COMPONENT SEPARATES...**

AMPLIFIERS by Soundcraftsmen

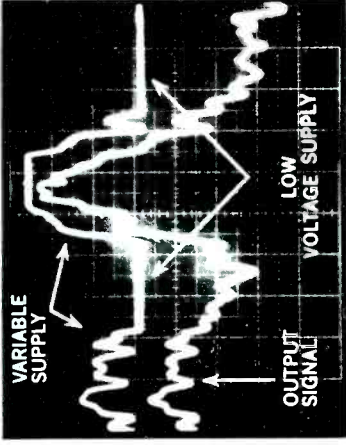


CLASS H

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 parallel 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 DISPLAY** (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 adapter. **CALIBRATED 20-LOG 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): 15 gauge triple-braced steel chassis with plugin 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

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.

AMPLIFIERS

MANUFACTURER	Model	Unit Type	Integr. Tube-Moving Coil	Integr. Tube-Moving Coil	Cont. Average Watts/Channel	Cont. Average Watts/Channel	Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation	MM Phono S/N	MM Phono Sensitivity, mV	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
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.	
BELLES RESEARCH	One Two	B B	100 50	165 95	25-50 25-50	0.2 0.2	0.2 0.2	AB AB				50 50	1.15V 890	No No	1 1	No No	30 16	700.00 475.00		
DAVID BERNING CD.	EA-230 EA-2100	B/T B/T	30 100	30 100	20-50 20-40	2 1		AB AB				15 15	1V 1V	2 2	No No	30 40		895.00 2695.00		
BGW SYSTEMS	85 150 250D 250E 320B 620B 750D 850 2125 6500 7500 8000	B B B B B B B B B B B B	35 50 100 100 100 200 250 275 100 100 200 225	45 75 150 150 150 300 400 450 150 130 300 350	15-50 15-50 15-50 15-50 20-20 20-20 10-50 10-50 20-20 10-50 10-50 10-50	0.1 0.1 0.1 0.1 0.2 0.03 0.01 0.01 0.05 0.02 0.05 0.1	0.03 0.02 0.02 0.02 0.05 0.06 0.03 0.01 0.05 0.02 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				840 1V 1.41V 1.41V 700 700 1.4V 1.47V 700 1.23V 1.23V		1.3 1.2 1.3 1.3 No No 1.5 1.5 No No 1.0 1.0 1.2	No No No No No No No No No No No No	14 18 33 33 39 58 46 49 31 25 36 44	449.00 699.00 869.00 989.00 939.00 1239.00 1499.00 1799.00 589.00 749.00 899.00 1149.00	25/70 V out. As above. Drives 2-ohm loads. 25/70 V out. Drives 2-ohm loads.		
B & K	ST140 EX442 Pro 600 ST202	B B B B	70 200 250 100	70 300 400 150	5-45 5-45 5-45 5-45	0.09 0.09 0.09 0.09	0.09 0.09 0.09 0.09	AB AB AB AB				11 15 15 11		2 0.5 0.1 No	No No No No	25 35 40 25	440.00 895.00 1195.00 495.00	MDS-FET output. As above, dual mono, 42 amps peak-to-peak. As above but 60 amps. MDS-FET output.		
BOZAK	E-929A E-939A	B B	150 75	190 90	3-30 3-30	0.05 0.05	0.05 0.05	AB AB					M 3	3 3	No No	53 35		1200.00 600.00		
BRITISH FIDELITY	Synthesis Dr. Thomas Studio T	I/MC B B	70 120 150	200 250	30-20 10-55 10-55				70	25							17 36 50	498.00 900.00 1200.00		
BRYSTON	2B-LP 3B 4B	B B B	50 100 250	100 200 400	5-100 5-100 5-100	0.01 0.01 0.01	0.01 0.01 0.01	AB AB AB				60 60 60	I I I	No No No	20 35 55		550.00 975.00 1500.00	Bridging and ground-lift switches, dual mono. As above. As above; with LED power meters, \$1750.00		
B & W	MPA 810	B/M	680	†	0-100	0.005	0.005	AB				100	M, I				44	3000.00	†1100 watts.	
CAMBRIDGE AUDIO	P35 A75	I/MC B	60 100	90 120	20-20 20-20	0.05 0.06	0.05 0.06	AB AB	80	3	170				No No	17 21		449.00 449.00	Tone controls. Dual mono.	
CARVER	M-1.5I M-500I M-400I M-200I	B B B B	350 251 201 120	550 350 300 200	1-250 1-100 1-100 1-80	0.1 0.1 0.1 0.1	0.1 0.1 0.1 0.1	AB AB AB AB				100 80 80 80	M, I M, I M, I I	3 0.5 0.5 0.5	No Yes Yes Yes	16 22 9 10.2	799.00 559.00 449.00 375.00			
CLASSE AUDIO	DR-3 DR-2A	B B	25 50	50 50	0.3-80 0.1-80	0.1 0.1	0.1 0.1	Pure A Pure A				800 800		7 4	No No	70 65		2895.00 2195.00		
CONRAD-JOHNSON	MV50 MV75 Premier 4 Premier 1 Premier 5	B/T B/T B/T B/T B/T/M	50 75 100 200 200	50 75 100 200 200	20-15 20-15 20-15 20-15 20-15	1.0 1.0 1.0 1.0 1.0	1.0 1.0 1.0 1.0 1.0	AB AB AB AB AB						No No No No No	33 43 80 140 81		1385.00 1750.00 2950.00 4350.00 3000.00			
COUNTERPOINT	SA-4 SA-8 SA-12	T/M T T	130 200 85	80 300 140	1-22 5-140 5-100	0.2 1.0 0.8	0.65	AB Var. AB					M	2 3 3	No Yes No	60 45 38		5225.00 Pair 2395.00 995.00	No output transformer, d.c. coupled. Hybrid tube front-end. MDS-FET output. As above.	
CREEK	CAS 4040 CAS 4140	I I	40 40	70 70	10-60 10-60	0.05 0.05	0.01 0.01	AB AB		2.0 2.0		400 400			No No	10 10		299.00 369.00	No tone controls, additional current output.	
CREST AUDIO	4000 3000 2501A 2001A 1501A 1001A Powerline 400 Powerline 300	B B B B B B B B	325 240 200 125 80 40 290 220	550 430 360 200 130 75 450 325	1-50 1-50 20-20 20-20 20-20 20-20 20-20 20-20	0.003 0.003 0.005 0.005 0.005 0.005 0.01 0.01	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	AB AB AB AB AB AB AB AB				70 60 40 33 25 20 70 40	Sel. Sel. 1V 790 610 420 1.17V 1V	M, I M, I I I I I I I	1.5 1.5 1.5 1.5 1.5 1.5 1.5 1.5	No No No No No No No No	58 46 38 32 17 17 38 32	2160.00 1720.00 1199.00 999.00 799.00 649.00 1160.00 879.00	900 watts into 2 ohms; without meters, Model 4001, \$1960.00. 720 watts into 2 ohms; without meters, Model 3001, \$1520.00. 540 watts into 2 ohms, bridges to 1080 watts into 4 ohms. 350 watts into 2 ohms, bridges to 700 watts into 4 ohms. Bridges to 280 watts into 8 ohms. As above but 165 watts. As above but 1000 watts. As above but 720 watts.	

AMPLIFIERS

MANUFACTURER	Model	Unit type: Integrated = I, Basic = B, Tube = †, Mono = M, Kit = K, Moving Coil Input = MC	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' Wld. re: 5 mV	MM Phono Sensitivity, mV	Maximum MM Phono Input, mV	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	†1300 watts.
	D-150A	B	80	125	1-20	0.001	0.05	AB/B			6	1.19V	I				24	729.00	
	DC-300A-2	B	155	250	1-20	0.001	0.05	AB/B			8	1.75V	I				45	1149.00	
	PSA2	B	220	350	1-20	0.002	0.01	AB			30	2.1V	I				57	1179.00	
	Delta-Omega 2000	B/M	730	†	0-45	0.05		AB/B			32	Sel.	I				92	2995.00	
	Micro-Tech 1000	B	250	350	20-20	0.1	0.05	AB/B			13	Sel.	I				38	995.00	
	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	1.76V	I				55	1259.00	
	Power Line Two	B	50	60	20-20	0.001	0.02	AB/B			8	970	I				15	625.00	
	Power Line Three	B	90	140	20-20	0.001	0.02	AB/B			12	1.3V	I				25	995.00	
Power Line Four	B	165	265	20-20	0.001	0.02	AB/B			16	1.76V	I				55	1495.00		
Micro-Tech 1000LX	B	250	350	20-20	0.1	0.05	AB/B			13	Sel.	I				38			
DB SYSTEMS	DB-6A	B	40	60	20-40	0.003	0.002	AB			15	1V	I	3	No	18	750.00	Subsonic filter.	
	DB-6A-M	B/M	140	225	20-40	0.008	0.004	AB			30	1V	I	3	No	18	750.00	As above; per pair, \$1450.00.	
DENNESEN	Antares II	B	75	120	5-100	0.01	0.01	AB			50	1V		3	No	21	600.00	MOS-FET.	
DENON	PMA-737	I/MC	60	85	5-80	0.007			†	2.5	160	150				19	300.00	†86 dB re: 2.5 mV.	
	PMA-757	I/MC	80	100	5-80	0.005			†	2.5	200	200				23	450.00	†87 dB re: 2.5 mV.	
	PMA-777	I/MC	100	120	5-80	0.003			†	2.5	200	250				28	620.00	†88 dB re: 2.5 mV.	
	PDA-1500I	B	150	240	5-80	0.005					400	1V	M, I			44	695.00		
	PDA-3000Z	B	250	400	5-80	0.002					500	1V	M, I			66	2000.00		
DUAL	CV1260	I	60	80	10-45	0.03	0.03	A	64	2.5	250	50	100	M	3	No	18	250.00	
ELECTRO-COMPAIET	Ampliwire 50	B	50	90	10-2M	0.002	0.002	A/AB			350				No	28	995.00	40 amps peak-to-peak.	
	Ampliwire 85	B	85	160	10-1.6M	0.005	0.005	A/AB			350				No	32	1595.00	80 amps peak-to-peak.	
ELECTRON KINETICS	Eagle 7A	B	300	550	0-300	0.1	0.1	AB			680	2.1V		0	No	110	3950.00		
	Eagle 2	B	120	200	0-130	0.1	0.1	AB			120	1.3V		1.5	No	32	895.00		
ESOTERIC AUDIO RESEARCH	509	B/T/M	100	100	12-60	0.25	0.2	A			300			3		35	2200.00	Pair	
	511	B/T/M	100	100	12-60	0.25	0.2	A			300			3		36	3300.00	Pair	
	529	B/T/M	500	500	12-60	0.25	0.2	A			1.5V			3		88	11,000.00	Pair	
FOCAL	Module 130	B	60	60	5-60	0.03	0.03				600					7½	260.00	Bridges to 130 watts.	
GOETZ SYSTEMS	Muriel	B	125	220	1-300	0.01	0.01	AB			45		No	10	No	39	1895.00	High current, direct coupled.	
	Genie	B	60	75	1-100	0.05	0.05	AB			45		No	6	No	25	1195.00	As above.	
GROMMES	G252HF	B	90	125	20-20	0.05	0.05	AB			30	750	M	1.5	No	31	679.80	Bridges to 250 watts.	
GSI	A1	B/T	70	100	.5-100			AB			50		I		No	25	1095.00	Tube/MOS-FET, d.c.-servo hybrid.	
DAVID HAFLER CO.	DH-500	B	255	400	5-40	0.025		AB			45	145			No	45	850.00	Kit, \$675.00; mono bridge kit opt.	
	DH-220	B	115	175	5-40	0.02		AB			30	145			No	26	500.00	Kit, \$400.00; as above.	
	DH-120	B	63		10-40	0.009		AB			16	145			No	16½	320.00	Kit, with mono bridging and ambience recovery, \$260.00.	
HARMAN/KARDON	PM625	I	20		10-80	0.09		AB	78	2.2	130	80	135	No		12¾	195.00		
	PM645	I	40		10-80	0.09		AB	78	2.2	130	90	135	No		14¼	250.00		
	PM655	I/MC	60		10-100	0.08		AB	78	2.2	220	180	135	No		22¼	425.00		
	PM665	I/MC	100		10-100	0.08		AB	78	2.2	220	180	135	No		33	625.00		
	hk870	B	100		10-80	0.06		AB	78	2.2	220	180	135	No		30	525.00		
HEYBROOK	P-2	B	80	150	20-50	0.01	0.01	AB								30	798.00		
HITACHI	HMA8500 MKII	B	100		20-20	0.005	0.005	A					M			35	650.00	FET.	
	HA5	I/MC	100		20-20	0.005	0.005		90	2.5		150				25	430.00		
ILP	RM80	B		180		0.005	0.006				20	500				26	699.00	Toroidal transformer, MOS-FET.	
	RM70	B	120	120		0.005	0.006				20	500				21	529.00	As above.	
JRM	Power Tower	B	†	††	3-50	0.02	0.02	AB			60	†††	M, I	1.0	No	65	2500.00	†(2)180 and (2)60 watts; ††(2)280 and (2)110 watts; †††(2)2.5 and (2) 1.1 V; all cascode; will drive 2-ohm speakers.	
	Power Tower/B Pro	B	†	††	3-50	0.02	0.02	AB			60	†††	M, I	1.0	No	75	3100.00	†(2)600 and (2)150 watts; ††(2)900 and (2) 300 watts; †††(2)2.2 and (2)1.1 V; as above; bridged outputs.	

Perfect bass...Perfect treble... Perfect sound...forever

ROTEL introduces a refreshing new range of audio equipment designed exclusively to appeal to hi fi enthusiasts. Its acceptance in the UK, where Rotel was designed and conceived, is overwhelming.

HI FI TODAY says "Rotel have engineered some outstanding products which offer amazing sound and remarkable value".

NEW HI FI SOUND says "The sound was open, lively, detailed and enjoyable to listen to, and as for the RA820B amplifier, well, it was a real gem".

WHAT HI FI says "The most obvious ability of Rotel is the way it allows music to live and breathe".

HI FI CHOICE says "The Rotel system stands out in its ability to play records properly. The stereo soundstage is well defined, and with a good cartridge there is clarity, precision, and evenness of reproduction that allows the music to sound lively and vivid... Quite clearly, its performance is something special".

Listen to Rotel yourself and let's hear what YOU have to say.



ROTEL

P.O. Box 653, Buffalo N.Y. 14240 U.S.A. (416) 297-0599

Enter No. 59 on Reader Service Card

AmericanRadioHistory.com

AMPLIFIERS

MANUFACTURER	Model	Unit Type: Integrated = Basic = B, Tube = T, Mono = M, Kit = K, Moving Coil Input = MC	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 Sensitivity, mV	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
			160	300	160	300															
JVC	M-L10	B	160		5-100	0.002	0.002														
	A-X900B	I/MC	120		7-60	0.003	0.001			83	2.5	150		200			No		61.6	2100.00	
	A-X500VB	I/MC	100		5-40	0.007	0.005			83	2.5	120		200	M		No		27.6	550.00	
	A-X400	I/MC	70		5-40	0.007	0.005			85	2.5	100		150	M		No		17.2	300.00	
KENWOOD	Basic-M2A	B	220		5-100	0.004	0.004														
	Basic-M1A	B	110		5-60	0.004	0.004														
	KA-110QSD	I/MC	150		5-90	0.004	0.005			88	2.5	200	100						34.1	600.00	
	KA-880SD	I/MC	100		5-50	0.005	0.005			86	2.5	200							20	330.00	
	KA-94	I	125		10-60	0.05	0.02			73	2.5	140							32.3	705.00	
	KA-74	I	75		10-55	0.09	0.02			73	2.5	150							20.7	355.00	
KINERGETICS	KBA-100	B	100	150	3-70	0.01	0.01	AB					60	1.5V			No		29	830.00	
	KBA-200	B	200	300	3-100	0.01	0.01	AB					90	1.5V			No		55	1495.00	Dual mono.
KRELL	KSA50	B	50	100	1-100	0.05	0.05	A					80				No		60	2300.00	
	KSA100	B	100	200	1-500	0.05	0.05	A					500				No		105	3000.00	
	KSA200	B	200	400	1-500	0.08	0.08	AB					300				No		130	3800.00	
	KMA100	B	100	200	0-800	0.05	0.05	A					800				No		70	4900.00	
	KMA200	B	200	400	0-800	0.01	0.01	A					1V				No		140	7500.00	Pair
KYOCERA	B-910	B	150	200	10-50	0.02	0.02	AB					2V				No		60	2000.00	
	A-910	I	150	200	10-35	0.03	0.03	AB	85	2.2	180		90	250	I	1.2	No		50 ^{3/4}	1500.00	
	A-710	I	100	140		0.03	0.03	AB	85	2.2	190		60	200	I	0.7	No		44	800.00	
MARK LEVINSON	ML-2	B/M	25	50	20-20	0.1	0.1	A					50	860			1	Sel.	65	8848.00	Pair
	ML-3	B	200	400	20-20	0.2	0.2	AB2					15	1.3V			No		116	5745.00	
	ML-9	B	100	200	20-20	0.2	0.2	AB2					15	1.5V			No		56	3050.00	
	ML-11	B	50	100	20-20	0.3	0.5	AB2					15	633			No		25	1860.00	
LINN PRODUCTS	LK2	B	75		20-20														19	650.00	
LIRPA LABS	BMA	B/T/MC	10.0	10.1	0-999	9.999	0.999	MIT '04							†	††	Yes	†††	60	1234.56	†Sulks if criticized; ††constant peak clip indicator; †††in Southern Hemisphere.
LSR&D	The Leach Amp	B	160	300	.37-220	0.05	0.05	AB					70	1.8V	I	1.7	No		34	899.00	Twin toroidal power supply; kit, \$565.00. As above.
	The Leach Super Amp	B/M	300	500	.3-200	0.05	0.05	AB					80	2.4V	I	2.0	No		34	899.00	
LUXMAN	L210	I	40		20-20	0.02		AB	90										14.8	200.00	
	L400	I	55		20-20	0.02		AB	90										17.4	300.00	
	L430	I	100		20-20	0.018		AB	90										28.7	500.00	
	M02	B	140		20-20	0.025		AB											31.9	700.00	
	M05	B	105	210	20-20	0.025		A							M				88.4	2800.00	
MARANTZ	PM-74	I/MC	100	125	20-20	0.01	0.01	AB	90	2.5	225		150						26 ^{1/2}	369.95	
McINTOSH	MC2500	B	500	500	20-20	0.02	0.02	AB					750	M, I			No		129	3495.00	
	MC2255	B	250	250	20-20	0.02	0.02	AB					750	M, I			No		82	2995.00	
	MC2250	B	250	250	20-20	0.02	0.02	AB					750	I			No		80	2495.00	
	MC2155	B	150	150	20-20	0.02	0.02	AB					750	M, I			No		65	2295.00	
	MC2150	B	150	150	20-20	0.02	0.02	AB					750	I			No		58	1925.00	
	MC752	B	75	100	20-20	0.02	0.02	AB					1.4V	I		2.6	No		21	895.00	
	MC2002	B	200	300	20-20	0.01	0.01	AB					1.4V	M, I		2.1	No		50	1850.00	
	MC502	B	50	75	20-20	0.02	0.02	AB					750	I			No		27	1200.00	
	MA6200	I	75	100	20-20	0.02	0.02	AB	79	2			250	I			No		30	1795.00	
McLAREN AUDIO	702	B	100	160	10-50	0.05											No		28 ^{1/2}	995.00	
	902	B/M	250	400	10-50	0.05											No		29 ^{1/2}	995.00	
MEITNER AUDIO	M200	B/M	200	400	1-100	0.01	0.01	AB					100				No		60		Pair
MELOS AUDIO	TM-90	B/T/M	80	80	7-40	0.2	1.0	AB								4	No		45	1500.00	Pair
MICRO-TRAK	10-P	B	10	13	20-20	0.4	0.4	A									No		4	199.50	
MISSION ELECTRONICS	Cyrus I	I	25	50	20-20	0.004	0.005	AB	83	0.4	115	150	325			1.4	No		10	399.00	
	Cyrus II	I	50	100	20-20	0.004	0.005	AB	83	0.3	115	150	325			1.4	No		11	599.00	
MONOLITHIC	100h	I/T/M	100	200	5-50	0.05	0.05	A, AB	80	0.5	500	60	500						36	1499.00	Internal crossover.
	a150	B	150	240	5-50	0.05	0.05	AB				160							30	899.00	
	200m	B/M	200	400	5-50	0.05	0.05	AB				160							35	699.00	
	a100	B	100	200	5-50	0.05	0.05	AB				160							26	699.00	
MOTIF	MS100	B	100	200	5-100	0.1	0.1	AB									No			2800.00	
	MM200	B	200	400	5-100	0.1	0.1	AB									No			2800.00	
MUSIC REFERENCE	RM-9	B/T	100	100	20-40	0.2	0.2	A					500	M		1.5	No		50	1750.00	

AMPLIFIERS

MANUFACTURER	Model	Unit Type: Integrated = I, Basic = B, Tube = T, Mono = M, Stereo = S, Kit = K, Moving Coil Input = MC	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	Maximum MM Phono Input, mV	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
			200	20-80	0.03	0.03														
NAD	2200	B	100	200	20-80	0.03	0.03													
	2155	B	55	90	20-30	0.03	0.03													
	3155	I/MC	55	90	20-30	0.03	0.03		78	0.4	6	20								
	3130	I/MC	30	48	20-20	0.03	0.03		76	0.45	5	15								
	3020B	I/MC	20	40	20-20	0.02	0.02		75	0.55	5									
	3120	I/MC	20	40	20-20	0.02	0.02		75	0.55	5									
NAIM AUDIO	NAIT	I	20		20-20															
	NAP110	B	40	55	20-20			B	2.5		75									
	NAP160	B	50	80	20-20			B												
	NAP250	B	70	125	20-20			B												
	NAP135	B/M	75	135	20-20			B												
NAKAMICHI	PA-7	B	200	330	5-50	0.1	0.1	Stasis												
	PA-5	B	100			0.1	0.1	Stasis												
NEC	A-7E	I/MC	50	100	20-20	0.006	0.006	AB	90	2.5	150	110	150		No	28	349.00		69.5 amps peak-to-peak, power supply inc.	
	A-10IE	I/MC	60	120	20-20	0.004	0.004	AB	90	2.5	150	120	150		No	53	599.00		76.8 amps peak-to-peak, dual transformers, power supply inc.	
	A-11E	I	70	140	20-20	0.003	0.003	AB†	90	2.5	300	120	150		No	48.4	799.00		†Phono, Class A; 85.8 amps peak-to-peak, three toroidal transformers, power supply inc.	
NEI	A100	I	100	160	3-70	0.1	0.1	AB					1V		No	23	449.00		Bridgeable.	
NESTOROVIC LABS	α-1	B/T/M	150	150	20-20	0.2	0.1	AB							Var.	65	2200.00			
NEW YORK AUDIO LABORATORIES	Moscocode 150	B/T	75	90	2-200	0.05		AB			200			3	No	18	599.00		Tube/MOS-FET hybrid.	
	Moscocode 300	B/T	150	220	2-200	0.05		AB			200			3	No	25	399.00		As above.	
	Moscocode 600	B/T	300	500	2-200	0.05		AB			200			3	No	54	1599.00		As above.	
	Megamoscode 1000	B/T/M	500	800	2-200	0.05		AB			200			3	No	75	3300.00		As above.	
	Megamoscode Mega1000	B/T/M	500	800	2-200	0.05		AB			200			3	No	150	5000.00		As above; two chassis.	
	Julius Futterman OTL-1	B/T/M	100	75	2-200	0.05		AB			30			M	3	No	150	12,000.		Four chassis; 5-kV power supplies.

Enter No. 69 on Reader Service Card

Tandberg's TPA-3009A Mono Power Amp is uniquely designed to meet the amplification needs of today... and the future: a high power, high current (55 amps) MOSFET amplifier in an advanced configuration, totally free of negative feedback and voltage/current-limiting circuits.

It handles - with ease and precision - the reactances and very low load impedances found in today's high performance loudspeakers, as well as custom multi-speaker system installations - and fully compliments the dynamic range and ultra low distortion made possible by digital recording. The amplifier is elegant, compact, rugged and affordable.

The TPA3009A: Engineered for the most demanding loudspeakers... and discriminating ears.

TANDBERG OF AMERICA
One Labriola Court, Armonk, NY 10504
(914) 273-9150



TANDBERG

AMPLIFIERS

MANUFACTURER	Model	Unit Type	Cont. Average Power	Power Bandwidth	Rated THD	Rated IHF IM	Class of Output Operation	MM Phono S/N	MM Phono Sensitivity	Rated Slew Rate	High Level Sensitivity	Meters	Dynamic Headroom	Does Unit Invert Phase?	Weight, Lbs.	Price, \$	Notes		
		Integrated = I, Basic = B, Mono M, Kit = K, Moving Coil Input = MC	Watts/Channel into 8 Ohms	Hz to kHz	%	%		-dB	mV	V/μs	mV		dB						
NEW YORK AUDIO LABS (Continued)	DTL-2	B/T	30	15	2-200	0.05	AB									4000.00	Triode output.		
	DTL-3	B/T/M	100	75	2-200	0.05	AB									6000.00			
	DTL-4	B/T	60	30	2-200	0.05	AB									4000.00			
NIKKO	A-650	M	300	600	10-40	0.008	A			1V	M		Var.	60.5	1999.95	Uses variable bias circuit. As above. As above.			
	A-450	B	220	440	5-100	0.008	A			1V	I		Var.	47.3	999.95				
	A-230	B	120	240	5-100	0.008	A			1V	I		Var.	29.3	549.95				
	A-130	B	100	200	10-40	0.003	AB	86		1V	I		Var.	28.5	399.95				
NOVA ELECTRO-ACOUSTICS	DMA-300	B	150	275	20-20	0.02	0.01	Lin. AB		40	1V		2.0	No	45	1695.00			
NUMARK	MA-4700	I	60	70	20-20	0.5	0.3	AB	75	1.70					23 1/2	499.50	Built-in mixer EQ, mike input.		
	SA-110	B	55	60	20-20	0.1		AB							19	399.95			
SA-220	B	125	180	20-20	0.1		AB								589.95				
ONKYO	M-5060R	B	130		20-20	0.005	0.005	Lin. AB						No	41	799.95	440 watts into 2 ohms. As above but 360 watts. As above but 340 watts. As above but 295 watts. As above but 190 watts. 100 watts into 3 ohms. 1.3 kW into 2 ohms.		
	M-5030	B	100		20-20	0.005	0.005	Lin. AB						No	38	599.95			
	A-8087	I	100		20-20	0.015	0.005	Lin. AB	80	2.5	200	35	150	2.3	No	28		499.95	
	A-8067	I	80		20-20	0.015	0.005	Lin. AB	80	2.5	200	32	150	1.9	No	27		399.95	
	A-8057	I	65		20-20	0.018	0.005	Lin. AB	80	2.5	200	30	150	1.5	No	23		299.95	
	A-8037	I	50		20-20	0.06	0.06	Lin. AB	75	2.5	200	20	150	1.5	No	15		209.95	
	M-510	B	300	500	20-20	0.005	0.003	Lin. AB						1.3	No	160		4000.00	
PAOLI	Sons	B/T/M	80	80	20-30	1.0	1.0	AB1						No	49	5829.00	Pair		
PARASOUND	CA250	I	50	85	20-40	0.03	0.015	AB	88	2	200	55	500	I	2	No	16	269.95	Bridges to 150 watts. DNR, stereo synthesizer.
	CA215	I	15	28	30-20	0.1	0.03	AB	82			22	500	I	1	No	11	129.95	
	PA260	B	60	90	20-20	0.02	0.02	AB				95	250	I	2	No	15	219.95	
	VSE-1	I	12.5	18	20-20	0.5	0.05	AB				15	250	I	0.6	Var.	11	119.95	
PEAVEY ELECTRONICS	CS1200	B	350	600	5-50	0.03		AB			50	1.4V	M, I		No	70	1199.50	Dual power supplies. 300 watts into 2 ohms.	
	CS800	B	200	400	5-40	0.05		AB			20	1.4V	I		No	59	799.50		
	CS400	B	100	200	5-40	0.05		AB			20	1V	I		No	50	599.50		
	M-2600	B	65	130	20-30	0.1		AB			15	1V	I		No	29	379.50		
	M-3000	B/M	100	210	10-30	0.1		AB			15	1V	M, I		No	29	379.50		
	DECA 1200	B	300	600	5-20	0.1		DECA			1V	M, I			No	26	1199.50		
	DECA 700	B	200	350	5-20	0.1		DECA			1V	M, I			No	30	849.50		
PERFECTIONIST AUDIO	Amp One	B/T/M	150	150	20-1.5M	0.1	0.01	A			100	1.5V	I	0	No	200†	51,999.	†Compressor and pump, 600 pounds.	
	Bass Amp	B/M	500	500	.5-100	0.0001	0.0001	A			500	1.5V	I	0	No	200†	50,000.	Built-in crossover, 18 dB, 80 Hz.	
	Tweeter Amp	B/T/M	12	12	4k-38.5k	0.1	0.01	A			100	1V	I	0	No	64†	50,000.	As above but at 4 kHz.	
PERREAUX	5150 B	B				0.03	0.03	A/AB							3	No	110	3500.00	30 amps continuous, 220 V peak-to-peak. 164 V peak-to-peak. 120 V peak-to-peak. 650 watts into 2 ohms.
	2150 B	B	200	400	10-3M	0.009	0.009	A/AB							3	No	52	1550.00	
	1150 B	B	100	200	10-3M	0.009	0.009	A/AB							3	No	36	1150.00	
	PMF 1050	B	100	130	10-200	0.006	0.009	A/AB							2	No	35	800.00	
	9000B	B	500	900	10-50	0.09	0.09	AB			50		I		No	66	3000.00		
	8000C	B	500	900	10-50	0.09	0.09	AB			50		M, I		No	66	3300.00		
	6000B	B	300	500	10-50	0.09	0.09	AB			60		I		No	55	2200.00		
	6200B	B	270	450	10-50	0.09	0.09	AB			60		I		No	55	2000.00		
	3000B	B	170	260	10-300	0.06	0.06	AB			60		I		No	33	1000.00		
PIONEER ELECTRONICS	SA-V1160(BK)	I	100		20-20	0.05	0.05		81	2.5	150				17.1	329.95			
	SA-960(BK)	I	70		20-20	0.08	0.08		81	2.5	150				14.9	229.95			
	A-88XBK	I	120		20-20	0.003	0.003		89	2.5	250				39.1	699.95			
	A-77XBK	I	100		20-20	0.003	0.003		88	2.5	200				33.1	499.95			
PIONEER VIDEO	SA-900D	I/MC	120			0.003	0.003	†	89	73	250			3	36 1/2	600.00	†Nonswitching Type II. Full remote control.		
	SA-V70	I	50			0.09			72						13 3/4	249.00	With 10-watt Surround Sound rear amps.		
VSA-30	I	30			0.4														
PRECISION FIDELITY	M-8	B/T	100	125	5-45	1	1	AB			80			1.5	No	36	999.00	Hybrid.	
PRINCETON DESIGN GROUP	Power Twin	B/M	150	230	2-200			AB			30			No	35	1550.00	Linear transfer front-end; no feedback; per pair, \$2995.00.		
PROTON	520	I/MC	20	36	10-60	0.02	0.01	AB	90	2.5	250	20	150		4	No	11.7	200.00	
	540	I/MC	40	80	10-60	0.02	0.008	AB	92	2.5	250	30	150		6	Yes	19.1	350.00	
	1200	B	100	160	10-60	0.02	0.008	AB				50		M	6	No	549.00		
PS AUDIO	HC +	B	70	140	2-200	0.02	0.02	AB			100			No	22	725.00			
	HC	B	55	110	2-200	0.02	0.02	AB			100			No	22	450.00			
	200C	B	200	400	0-250	0.02	0.01	AB			250			No	70	1495.00			
	Elite +	I/MC	70	140	2-200	0.02	0.02	AB	80	1.7	160	150	177	No	25	970.00			
PSE	Studio II	B	80	140	0-100	0.02	0.02	AB			100	100		No	23	790.00			
QED	A230	I	30	50	15-30	0.1		AB	65	3	120	300	No	No	10	269.00			

CAMEL LIGHTS

It's a whole new world.



Today's
Camel Lights,
unexpectedly
mild.

Warning: The Surgeon General Has Determined
That Cigarette Smoking Is Dangerous to Your Health.

9 mg. "tar", 0.8 mg. nicotine av. per cigarette by FTC method.

© 1985 R.J. REYNOLDS TOBACCO CO.

AMPLIFIERS

MANUFACTURER	Model	Unit Type: Integrated = I, Basic = B, Tube = T, Mono = M, S/M, K, Moving Coil Input = MC		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	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	Power Bandwidth, Hz to kHz	Rated THD, %	Rated IHF IM, %	Class of Output Operation															
QSC	1080	B	35	50	20-20	0.1	0.01	AB						I	2	Yes	12	488.00				
	1200	B	100	150	20-20	0.1	0.025	AB						I	2	Yes	28	548.00				
	1400	B	200	300	20-20	0.1	0.025	AB						I	2	Yes	37	768.00				
	1700	B	325	500	20-20	0.1	0.01	AB						I	1.9	Yes	57	1098.00				
	3200	B	110	140	20-20	0.1	0.02	AB						I	3.0	Yes	26	958.00				
	3350	B	200	300	20-20	0.1	0.02	AB						I	3.0	Yes	41	1248.00				
	3500	B	300	450	20-20	0.1	0.02	AB						I	3.0	Yes	50	1488.00				
	3800	B	360	600	20-20	0.1	0.02	AB						I	2	Yes	75	1958.00				
QUAD	405-2	B	100	145	20-50	0.01		B								Yes	20	650.00		Feedforward.		
QUICKSILVER AUDIO	Mono Amp	B/T/M	60	60	13-55			AB									No	30	645.00			
RCA	Dimensia MSA 100	I	50			0.05			75									12 1/2	300.00		Auto source switching; separate listening/dubbing. As above.	
	Dimensia MSA 200	I	100			0.05			75									19 1/2	390.00			
REVOX	B740 B251	B I/MC	100 100	175 140	20-20 20-20	0.04 0.01	0.04 0.01	AB AB	75	1.6	23	30	1V 160	M †	2	No	44 18 1/2	1600.00 1500.00			†LCD bar.	
RGR	Five-2	B	100	180	10-40	0.01	0.01	AB										33	1385.00			
ROBERTSON AUDIO	Forty Ten Sixty Ten	B B	60 200	120 400	5-330 5-250	0.1 0.1	0.05 0.0023	AB AB									No No	25 65	995.00 2550.00			
ROTEL	RB 880	B	100	200	20-20	0.03	0.03											40 1/2	875.00			
	RB 870	B	60	118	20-20	0.03	0.03											27	375.00			
	RA 870	I/MC	60	118	20-20	0.03	0.05		80		300							21 1/2	475.00			
	RA 840BX	I/MC	40	58	20-20	0.03	0.03		78		140							16 1/2	350.00			
	RA 820BX	I	25	35	20-20	0.03	0.03		75		140							12	250.00			
	RA 820	I	25	35	20-20	0.08	0.08				140							12	185.00			
ROWLAND RESEARCH	7	B/M	350	700	2-80	0.25	0.25	A AB				25	2.6V		1.0	No	95	3500.00		No negative feedback. As above.		
	5	B	100	200	2-80	0.18	0.18	A AB				25	1.5V		1.5	No	70	2950.00				
SAE	I102	I/MC	60	90	20-20	0.025	0.025	AB	82		150	150	M			No	26	499.00				
	A202	B	100	150	20-20	0.025	0.025	AB					M			No	31	449.00				
	A502	B	200	300	20-20	0.025	0.025	AB					M	1.2		No	40	649.00		Bridges to 600 watts. Bridges to 375 watts; current slew rate, 20 amps/μs. Current slew rate as above.		
	A201	B	100	150	20-20	0.025	0.025	AB					M			No	35	650.00				
	A1001	B	500	750	20-20	0.025	0.025	AB					M	1.0		No	80	1550.00				
	X10A	B	100	150	20-20	0.02	0.02	A					M	1.0		No	35	900.00		Current slew rate as above.		
P50	B	70	115	20-20	0.05	0.017	AB				25		I	3	No	21	600.00					
P500	B	500	750	20-20	0.05	0.025	AB				25		M	1	No	80	1700.00					
SANSUI	B-2301	B	300		20-20	0.003	0.003					300		M, I				81.6	2600.00		X-balanced circuitry. As above.	
	B-2101	B	200		20-20	0.003	0.003					350		M, I				39.7	800.00		As above.	
	AU-G90X	I	130			0.003	0.003		90	2.5	300	350						37.4	799.00		As above.	
	AU-G99X	I	160			0.003	0.003		88	2.5	200	350		M				38	899.00		As above.	
	AU-G77X	I	110			0.003	0.003		85	2.5	200	300		M				25.8	499.00		As above.	
	AU-G55X	I	65			0.004	0.004		85	2.5	150	200		M				18.5	369.00		As above.	
	AU-G33X	I	45			0.004	0.004		85	2.5	150	200						17.9	299.00		As above.	
	AU-G11X	I	25			0.008	0.008		83	2.5	150	120						11.7	199.00		As above.	
	H. H. SCOTT	4955A	I	120		20-20	0.03	0.03		82	2.5				M, I					450.00		
4855A		I	90		20-20	0.03	0.03		82	2.5				M, I					380.00			
4555A		I	65		20-20	0.03	0.03		82	2.5				M, I					280.00			
SESCOM	SH-1 MKII	B	10	10	20-20	0.01	0.01					250						No	9	180.00		
	PO-3	B	2	2	20-20	0.01	0.01					250						No	1	45.00		Requires PO-1 power supply. As above; balanced input. Supply as above.
	PO-4	B/M	4	4	50-15	0.01	0.01					775						No	1	32.50		
PO-5	I	2	2	20-20	0.01	0.01		71	1.75	200		250						No	1	75.00		
SHERWOOD	S-6040CP	I	100	180	20-20	0.03	0.03		88	2.5	140			M	1.67			31	349.95		MDS-FET.	
SILVER LAKE RESEARCH	Boulder 500	B	150	250	0-100	0.005		AB				35		I	0	No	51	2450.00		Bridges to 500 watts.		
	Boulder 160	B	60	80	0-200	0.005		AB				18		I	0	No	40	990.00		Bridges to 160 watts.		
SIMA ELECTRONICS	PW-2000	I	45	70	20-20	0.2	0.05	AB	78	3	175	45	200				No	17	695.00			
	W-2002	B	125	225	20-20	0.05	0.05	AB				60	1V	I		No	29	775.00				
	W-2003	B	250	450	20-20	0.05	0.05	AB				60	1.5V	I		No	49 1/2	1500.00				
SONOEX	S230II	I	30	50	10-60	0.05	0.06	AB	88	2							No	8	399.00		MM or MC disc-matching plug-in boards, \$29.95; passive high-level inputs.	
SONY	TA-AX320	I	80		10-30	0.08	0.08	AB	74	2								12.8	200.00			
	TA-AX520	I	100		10-40	0.03	0.03	AB	74	2								19.9	300.00			
	TA-V77	I	60		10-40	0.08	0.08	AB	73	2.5								13.7	370.00			
	TA-F555ES	I	100	100	5-100	0.004	0.004	AB	83	2.5	150	100	150		1.8			33.1	640.00		All measurements at 6 ohms.	
	TA-F444ES	I	80	80	5-100	0.004	0.004	AB	83	2.5	150	100	150		1.8			30	490.00			

THE FORCE!!

PHASE-CONTROL-REGULATION®

FROM *Soundcraftsmen*

205 W/P/C
\$449.00



THE SOUNDCRAFTSMEN PCR800 PHASE-CONTROL-REGULATION® STEREO AMPLIFIER

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.

Recently, "novelty" amplifiers boasting unbelievably high power, small size, light weight and low prices have appeared. Within certain tightly-controlled laboratory conditions, some of them will actually meet their specifications. Unfortunately, under real-life home music system use, they exhibit irritating "quirks," such as repeated shut-downs. The fact is, amplifiers, even honestly-rated heavy-duty ones, don't like low-impedance loads. And yet, virtually every popular loudspeaker system's actual impedance drops well below its nominal rated impedance at various points in its frequency response; some drop to under 1 ohm at midrange frequencies! Try to reproduce music with extended dynamic range at realistic volume levels through many loudspeakers, and most of these lightweight amplifiers will quickly overheat and turn off. Throw in an accidental dead short in the speaker line and many amps literally self-destruct.

ENTER PHASE-CONTROL-REGULATION

Soundcraftsmen's PCR technology makes possible an amplifier that is not only small, lightweight and low in cost, but one which continues to operate normally, in actual real-world systems, at any impedance down to zero ohms! Even a dead short won't harm the PCR800! Current-limiting, the most commonly-used form of amplifier protection circuitry, is totally eliminated in the PCR800, along with the inherent sound degradation commonly associated with current limiting protection circuits.

HOW DOES IT WORK? An electronic "brain," fed by multiple precision temperature sensors located strategically throughout the amplifier (we call it Thermo-Coupled Feedback), constantly monitors the operating temperature of its various sections. It directs the internal cooling fan to supply the required amount of fresh air whenever needed. If the operation of the PCR800 is so extreme that high speed cooling is inadequate, the "brain" constantly adjusts the voltage fed to the POWER MOSFET output transistors, eliminating any destructive tendencies while permitting continuing operation. **THE RESULT?** Clean, clear, unstrained sound under any operating condition, optimum power available into any impedance at all times.

GUARANTEED SPECIFICATIONS

- **POWER Output:** 205 watts per channel at 8 ohms (20Hz/20KHz, less than .05% THD); 300 watts per channel at 4 ohms; 275 watts per channel at 2 ohms; 600 watts @ 8 ohms, Mono Mode • **THD:** Less than .05%
- **IM:** Less than .05% • **TIM:** Unmeasurable • **Signal-To-Noise Ratio:** Greater than 105dB • **Slew Rate:** Greater than 40 V/microsecond • **Rise Time:** Less than 2.2 microseconds • **Frequency Response:** ±0.1dB, 20 Hz/20kHz • **Size:** 4 7/8" x 8 1/2" x 12" Deep • **Weight:** 18 pounds

FREE!

CIRCLE READER SERVICE
CARD # 30

Engineering White Paper Explaining Phase-Control-Regulation® and Complete 16-Page Brochure with Full-Color Photos, Features, Specs and Prices of All 17 Models.

2200 So. Ritchey, Santa Ana, California 92705, U.S.A./Telephone (714) 556-6191/U.S. Telex/TWX 910-595-2524 • International Telex: 910-595-2524/Answer back Code SDCRFTSMN SNA

AMERICA'S LEADER IN AMPLIFIER, PREAMPLIFIER, EQUALIZER AND TUNER TECHNOLOGY...




Enter No. 30 on Reader Service Card

AMPLIFIERS

MANUFACTURER	Model	Unit Type	Integrated	Basic	Cont. Average	Watts	Channel	into	8 Ohms	Rated THD, %	Rated IHF IM, %	Class of Output	MM Phono S/N, -dB	MM Phono S/N, -dB	MM Phono S/N, -dB	MM Phono S/N, -dB	Maximum MM Phono Input, mV	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
			1	1	1	1	1	1	1																
SOUND-CRAFTSMEN	PCR800	B	205	300	20-20	0.05	0.05	AB								40	950	I		No	23	449.00	Phase control regulated.		
	PMB60	B	205	300	20-20	0.05	0.05	AB								40	950	I		No	23	499.00	As above.		
	PM1600	B	375	600	20-20	0.05	0.05	AB								50	1.2V	I		No	63	1199.00	As above.		
	A2502	B	125	190	20-20	0.05	0.05	AB								40	950	M, I	2.0	No	30	649.00	MOS-FET.		
	A2801	B	140	205	20-20	0.05	0.05	AB								40	950	I	2.6	No	30	549.00	As above.		
	A5001	B	250	375	20-20	0.09	0.05	H								50	1.3V	I	2.1	No	50	749.00	Vari-portionial signal tracking supply.		
A5002	B	250	375	20-20	0.09	0.05	H								50	1.3V	M, I	2.1	No	52	899.00	As above.			
DOR1200	B	250	375	20-20	0.09	0.05	H								50	1.3V	M, I	2.1	No	55	1199.00	As above.			
SPECTRAL	DMA-100	B	100	200	0-1M	0.01	0.01	A								600	1.4V			No	66	3795.00	Balanced line input.		
	DMA-50	B	80	160	0-1M	0.01	0.01	AB1								600	1.4V			No	32	1895.00			
SPECTRASCAN	BPA-101B	B	100	175	2-120	0.07	0.07	AB								40	1V	I	†	No	40	1195.00	†Regulated power supply.		
STAX	DA-100M	B, M	100	200	5-60	0.008	0.008	A								100	1.4V	I	2	No	34	2000.00	Special order.		
	DA-50M	B, M	50	100	5-60	0.008	0.008	A								100	1.4V	I	1	No	30	1000.00	As above.		
STREETS ELECTRONIC SYSTEMS	950	B	95	180	0.5-80	0.1	0.1	AB1								70	†		0	No	55	2295.00	†160 mV for 1 watt.		
STRELIOFF	SC1 300	B, M	400	650	10-30	0.15	0.15	AB								45	1.5V		1.5	No	65	2000.00	Special order.		
	SC1 500	B, M	600	850	10-30	0.15	0.15	AB								55	1.5V		1.5	No	75	2500.00	As above.		
	SC1 800	B, M	†	†	10-30	0.15	0.15	AB								65	1.5V		1.5	No	87	3000.00	†1000 watts; ††1450 watts; as above.		
SUMO	Nine	B	60	120	20-20	0.25	0.05	A								15	1.0V			No	35	799.00			
	Nine Plus	B	65	120	20-20	0.10	0.05	A								15	1.0V		1.0	No	35	999.00			
	Andromeda	B	200	350	20-20	0.05	0.05	AB								20	1.8V		1.5	No	35	899.00			
	Polaris	B	100	175	20-20	0.05	0.05	AB								40	1.3V		1.5	No	27	499.00	MOS-FET.		
SWISS PHYSICS	MDN 100	B	120	240	0-500											400				No	35	3950.00			
	MDN 300	M	300	600	0-500											400				No	35	6950.00	Pair		
TANDBERG	3006 A	B	150	250	20-20	0.004	0.004	AB								400	150	I		No	24	995.00	No negative feedback or limiting on voltage and current.		
	3009 A	M	200	330	20-20	0.004	0.004	AB	78	1.9	290					400	150	I		No	25	995.00	As above.		
3012 A	I	100	150	20-20	0.004	0.004	AB								100		I		No	22	995.00				
TANNOY	DR102	B	90	110	20-40	0.015		A								80		No	6		16.6	498.00	External power supply; MOS-FET.		
	DR302	B	240	320	20-40	0.008		A								80		No	24		27.6	1628.00	As above.		
SR840	B	250	440	20-20	0.05	0.03	A									80		I	24		50.7	2598.00	Bridgeable; MOS-FET.		
TECHNICS	SE-A7	B	60	60	20-20	0.007	0.003	New A								130	M	M	1.5		21	500.00			
	SE-A5MK2	B	150	150	20-20	0.002	0.002	New A								90	M	M	1		40.6	800.00			
	SE-A3MK2	B	300	300	20-20	0.002	0.002	New A								55	M	M	1		86	2200.00			
	SU-V4X	I/MC	65	65	20-20	0.004	0.004	New A								19					14.8	300.00			
	SU-V6X	I/MC	100	100	20-20	0.003	0.003	New A	77	0.25	170					15					24.3	380.00			
	SU-V7X	I/MC	100	100	20-20	0.003	0.003	New A	77	0.25	150					15					24.3	460.00			
	SU-V10X	I/MC	120	120	20-20	0.003	0.003	New A	78	0.25	150					15					29.8	600.00			
THRESHOLD	SA-1	B, M	160		7-100	0.1	0.1	Stasis, Class A								50		M		No	78½	3000.00	Output current: 40 amps continuous, 60 amps peak-to-peak.		
	SA-2	B, M	100		7-100	0.1	0.1	Stasis, Class A								50		M		No	56	2300.00	As above but 30 and 45.		
	S/1000	B, M	500		7-100	0.1	0.1	Stasis								100		M		No	78½	3500.00	As above but 20 and 50.		
	S/500	B	250		7-100	0.1	0.1	Stasis								50				No	78½	3200.00	As above but 16 and 40.		
	S300	B	150		7-100	0.1	0.1	Stasis								50				No	56	2200.00	As above but 12 and 30.		
S150	B	90		7-100	0.1	0.1	Stasis								50				No	44	1450.00	As above but 8 and 20.			
VECTDR RESEARCH	VA-1100	I	40	60	20-20	0.03	0.03	AB	78	2.5						150	I		2.5		13	240.00			
	VA-1400	I, M	60	100	20-20	0.03	0.03	AB	80	2.5						150	I		2.5		20	300.00	Bridgeable.		
	VA-1450	B	60	100	20-20	0.03	0.03	AB											2.5		20	280.00	As above.		
VSP LABS	TransMos 150	B	150	200	20-20	0.05	0.05	AB								70	1.76V		3	No	42	1050.00	Transconductance MOS-FET.		
	Gold Edition	B	200	300	20-20	0.05	0.05	AB								70	2V		1.6	No	57	1500.00	As above.		
WINGATE AUDI0	2000A	B	100	200	0.06-250	0.5	0.5	Pure A								100			1.6	No	95	1295.00	No negative feedback; MOS-FET.		
	2000M	B, M	200	400	0.06-250	0.5	0.5	Pure A								100			1.6	No	95	1295.00	As above.		
YAMAHA	M-80	B	250	330	10-100	0.003	0.003	A/AB								150	M, I		1.6		50%	950.00			
	M-60	B	160	210	10-100	0.003	0.003	A/AB								150	M, I		1.6		33	650.00			
	M-40	B	120	170	10-100	0.003	0.003	A/AB								150			1.4		30%	400.00			
	A-1000	I/MC	120	170	10-100	0.003	0.002	A/AB	94	2.5	165					150			1.4	No	28%	590.00			
	A-700	I/MC	105	150	10-100	0.003	0.002	A/AB	92	2.5	165					150			1.4	No	24%	450.00			
	A-520	I/MC	75		10-50	0.007	0.005	AB	92	2.5	150					150			1.5	No	16½	300.00			
	A-420	I/MC	50		10-50	0.01	0.005	AB	90	2.5	150					150			1.5	No	13	200.00			

YOU CAN INCREASE YOUR
FM SIGNAL RECEPTION
1800% JUST BY
TURNING THIS PAGE.



Enter No. 74 on Reader Service Card

AmericanRadioHistory.com

PRESENTING THE TERK OMNIDIRECTIONAL FM STEREO ANTENNA™

THE WORLD'S FIRST AND
BEST NOW HAS A NEW NAME.
THE PERFORMANCE IS
STILL LEGEND.

The Terk 8403 Omnidirectional FM Stereo Antenna™ is the best way to beat the cost of living high, low, or in outlying areas—places that are plagued with poor FM reception.

It gives more power to you in the computer-designed form of a built-in amplifier that boosts incoming signals up to 24dB. Weak signals can be increased up to 1800% with no background noise. And multipathing is totally eliminated, because the Terk 8403 picks up and amplifies only the main signal, ignoring those exasperating echoes.

THE ONLY THING YOU
HAVE TO ADJUST IS YOUR
ATTITUDE ABOUT FM
STEREO ANTENNAS.

Because this hand-built antenna is omnidirectional, it accepts signals from all sides—with equal strength.

So after the simple installation—just attach it to your tuner and plug it in—you'll never have to adjust it to receive different stations.

And with its handsome Italian design, you won't sacrifice looks for listening pleasure.

After all, your superb tuner is just a glorified paperweight unless it can pull in the signals. With the Terk 8403 Omnidirectional it can. Loud and clear.

The monumental result of this mere 16¾" high antenna is an impressive increase in the number of FM stations you'll receive. As well as the quality of that reception.

IT NOT ONLY PULLS IN
SIGNALS BETTER. IT'S PULLED
IN MARVELOUS REVIEWS, TOO.

From the flatlands of Dallas to the grand canyons of Manhattan, reception has never been better. Sound editor Hans Fantel in The New York Times writes:

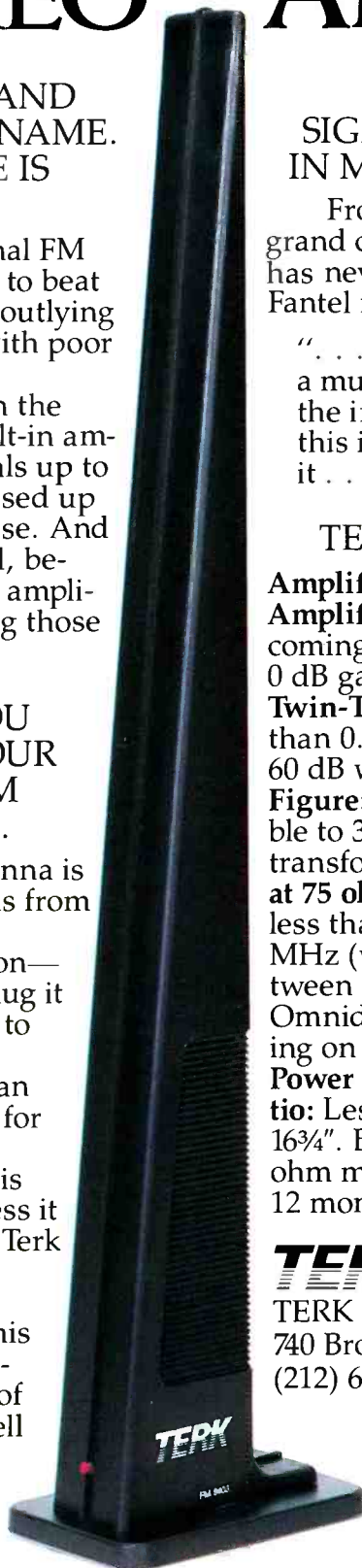
“. . . effectiveness comparable to that of a much larger antenna . . . considering the improvement it is likely to bring . . . this ingenious gadget seems well worth it . . .”

TECHNICAL INFORMATION

Amplifier Gain: Adjustable 0 to 24dB.
Amplification: Capable of amplifying incoming signal up to 18 times. **Selectivity:** 0 dB gain at 50 MHz and at 150 MHz.
Twin-Tone Modulation Distortion: Less than 0.1% at 100mV. **Distortion:** Less than 60 dB with an output of 100 mV. **Noise Figure:** 3dB. **Impedance:** 75 ohm adaptable to 300 ohm input with matching transformer. **Output Matching Accuracy at 75 ohms:** SWR (Standing Wave Ratio) less than 1.2:1 **Operating Band:** 5 to 150 MHz (with optimal amplification between 88 and 108 MHz.) **Pickup Pattern:** Omnidirectional, or directional (depending on physical orientation). **Range:** 360°. **Power Supply:** 110V. **Stationary Wave Ratio:** Less than 1.2:1 **Dimensions:** Height, 16¾". Base, 2¼" x 3½". Includes 75/300 ohm matching transformer. **Warranty:** 12 months.

TERK™

TERK Technologies Corp.,
740 Broadway, New York, NY 10003
(212) 673-0200



TUNERS



TANDBERG 3001 A



KYOCERA T-910



AMBER MODEL 7

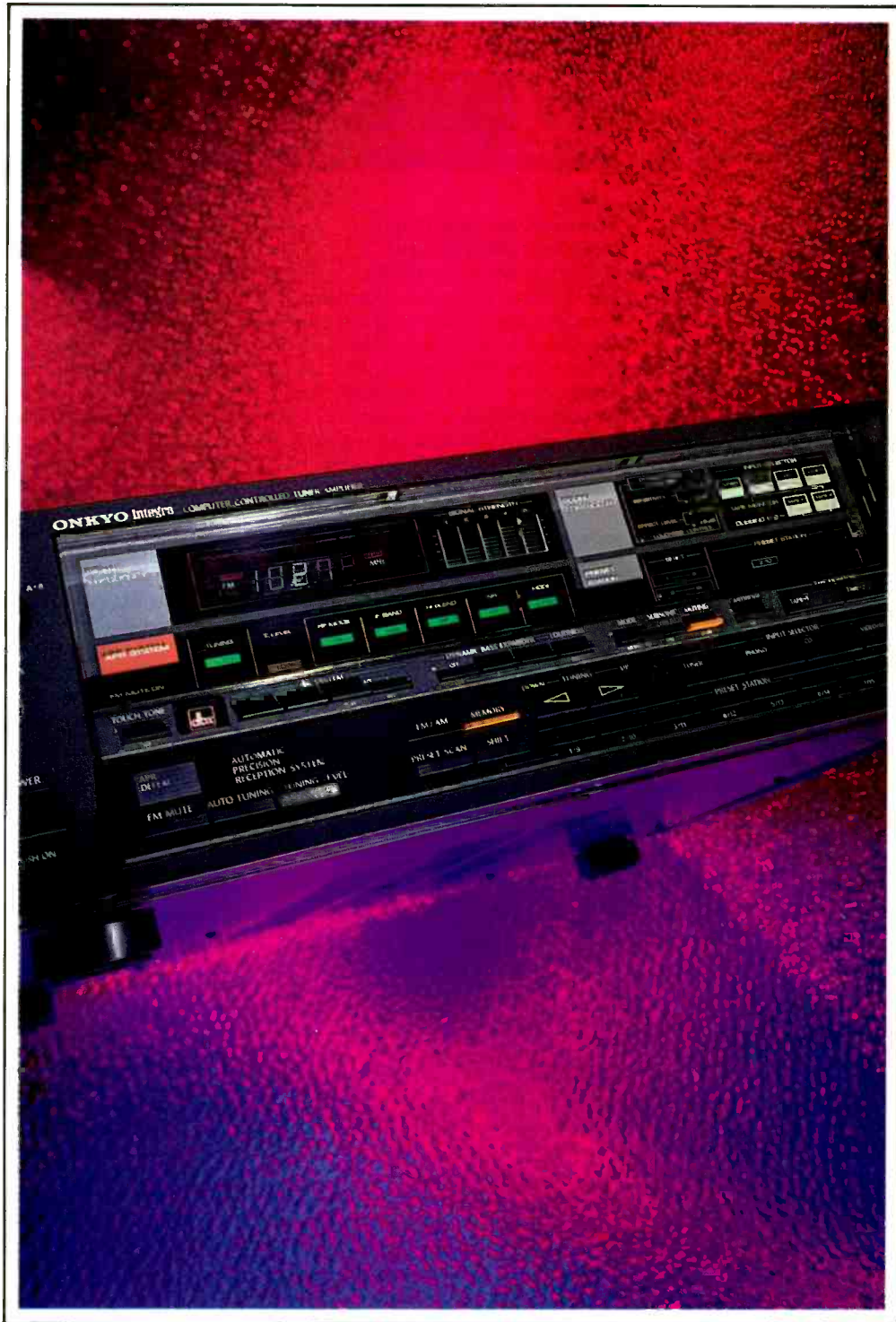


CROWN FM-THREE

MANUFACTURER	Model	AM STEREO CODE		FM Only = F, Digitally Synthesized = D	AM Stereo Capable? See Code	IHF Sensitivity, dbi, Mono Stereo	Signal Strength for 50-dB Quieting, dbi, Mono Stereo	Capture Ratio, db, Mono Stereo	AM Suppression, db	Alternate Channel Selectivity, db, Wide-Narrow	Total Number of 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, \$
		D	F/D														
ACCPHASE	T-106 T-107	D	F/D			11/29 11/29	17/37 17/37	1.5/1.5 1.5/1.5	80 80	70/100 70/100	14 12	50 50	0.04/0.04 0.04/0.04	0.04/0.06 0.04/0.06	83/79 90/85	19.8 12.8	1100.00 750.00
ADCOM	GFT-1A GFT-2	D	No	No	No	9.8/	17.2/34.7 17.5/38.5	1.0 1.2	50	85 70	16 14	55 50	0.08/0.1 0.09/0.18	0.09/0.15 0.1/0.22	80/75 75/70	14 14	375.00 249.95
ADS	T2	D	No	No	No	11.0/26.1	14/35	2.5	55	75	16	38	0.15/0.2		70/65	13.2	379.00
AKAI	AT-A301	D	No	No	No	11.2/	16.2/37.2	1.5	60	60	16	45	0.1/		75/65	5 1/4	159.95
AMBER ELECTRONICS	7	D	No	No	No		15.2/37.2	1.0	58	60	12	48	0.08/0.2	0.2/0.3	75/73	8 1/2	379.00
BELLES RESEARCH	DCA	F	No	No	No	8.8/11.2	13.2/34.0	1.5/1.5	60	50/83	0	60	0.02/0.023	0.02/0.023	75/73	7	475.00
CAMBRIDGE AUDIO	T35																499.00
CARVER	TX-11 TX-2	F/D				11.3/16.3 11.3/16.3	16.3/21 16.3/23.5	1.0/1.5 1.5	65 50	65/110 58	16 16	50 40	0.04/0.08 0.3/0.3	0.04/0.08 0.3/0.3	82/85 73/75	11 1/4 8 1/4	599.00 375.00
CREEK	CAS 3040	F	No	No	No							40				8	299.00
CROWN INTERNATIONAL	FM Three	D	No	No	No	9.31/	14.2/30.3	1.5	80	75	12	60	0.05/0.05		80/75		795.00
DENON	TU-720 TU-747 TU-767	D	No	No	No		15.6/34.7 14.2/35.2 14.2/35.2	1.0 1.0 1.0/	55 60 65	65 65 50/60	0 16 16	55 50 57	0.04/0.06 0.08/0.1 0.03/0.04		86/84 84/80 88/82	8 1/2 7 1/4 8 1/2	200.00 250.00 325.00
DUAL	CT 1260	D	No	No	No	8.7/39.2		1.5	70	80	15	40	0.08/0.25	0.08/0.25	75/70	7 1/2	250.00
DAVID HAFER CO.	DH-330	F/D				11.3/	17.2/37.2	1.5		70	5	45	0.15/0.18		72/68	9	460.00 Kit, 385.00
HARMAN/KARDON	TU905 TU910 TU915		No	No	No	10.8/	16.4/37.3 16.4/37.3 16.4/37.3	1.3 1.0 1.0	50 54 60	70 70 70		45 58 16	0.09/0.15 0.06/0.1 0.05/0.08		77/71 82/74 82/74	10 12 12	175.00 215.00 345.00
HITACHI	FT5500MKII	D				10.8/	17.2/38.2	1.0/	65	35/80	16	65	.02		88/82	9	350.00
JVC	T-X900B T-X300B T-X200	D	No	No	No	10.3/	16.3/38.1 16.3/38.1 16.3/38.1	1.0/	65 60 55	30/80 65 60	20 18 16	60 50 45	0.04/0.06 0.08/0.08 0.15/0.2		88/82 82/78 80/76	8.4 7.1 5.8	350.00 270.00 150.00
KENWOOD	KT-880 KT-74 KT-54	D	No	No	No		16.2/38.8 14.5/37.2 14.5/37.2	1.0 1.5 2.0	70 65 55	65 50 50	12 10 14	68 45 45	0.018/0.02 0.10/0.15 0.2/0.3	88/83 77/73 76/70	7.3 6.4 6.4	325.00 200.00 160.00	
KINERGETICS	KBT-1	D	No	No	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	No	No	9.8/	14.8/35	1.0/	65	40/85	16	58	0.06/0.07	0.06/0.07	88/76	26 1/2	590.00
LUXMAN	T240 T02 T407	D	No	No	No	10.3/	10.3/				24 24	50 55	0.8/0.10 0.05/0.06		76/74 81/77	6.6 10.6 10.1	200.00 400.00 600.00
MAGNUM/DYNALAB	FT-101	F/D	No	No	No	8.8/11.2	13.2/34.0	1.5/1.5	60	50/83		60	0.02/0.023		75/73		495.00
MARANTZ	ST-74	D	No	No	No	10.3/	13.2/37.3	1		70	16	48	0.1/0.25		80/72	7.3	259.95
McINTOSH	MR80 MR500	F				13.2/16 13/16	14.7/	16.8/37.3	60	90/110 70	4 6	50 50	0.08/0.18 0.08/0.18	0.1/0.25 0.1/0.25	80/75 80/75	18 18	2499.00 1599.00
McLAREN AUDIO	1002	D	No	No	No	10.8/	18.2/37.2	1.0/	56	55/75	16	53	0.08/0.15		76/71	12	595.00
MISSION ELECTRONICS	Cyrus	F/D	No	No	No	26.46			84		27	45	0.09/0.09		76/73	4.2	299.00

TUNERS

MANUFACTURER	Model	FM Only = F, Digitally Synthesized = D	AM Stereo Capable? See Code	IHF Sensitivity, dbi, Mono/Stereo	Signal Strength for 50-dB Quieting, dbi, Mono/Stereo	Capture Ratio, db, Mono/Stereo	AM Suppression, db, Wide/Narrow	Average Channel Selectivity, db, Wide/Narrow	Total Number of Memory Presets	Separation, db, 1 kHz	THD, % 100% Modulation	THD, % 100% Modulation	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$
NAD	4155 4130		No												
NAIM AUDIO	NAT 01	F											20	1595.00	
NAKAMICHI	ST-7	F/D	No	10/17	14/28	1.9	60	60	16	55	0.06/0.08		80/76	10%	595.00
NEC	T-6E	D	No		15.9/36.8	1.0		80	14	55	0.06/0.08		83/78	8.6	229.00
NIKKO	Gamma 30 NT-700II	D	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 1/2 9 1/2	299.95 229.95
ONKYO	T-9090 T-4087 T-4057 T-4037	F/D D D D	No No No No	12.8/18.0 8.1/17.2 10.8/17.2 11.2/17.2	15.8/37.2 16.0/35.8 16.1/36.1 16.2/36.1	1.0 1.0 1.3 1.5	55 55 50 50	80 80 55 55	20 20 20 16	55 45 40 40	0.009/0.02 0.03/0.07 0.1/0.2 0.1/0.2		95/85 85/77 75/68 73/66	14 1/2 10 9 7 1/4	599.95 349.95 239.95 164.95
PARASOUND	ST220	D	No	10.8/37.7	16.1/	1.4	65		12	48	0.1/0.15		82/76	10	219.95
PERREAUX	TU 1	F/D	No	10.31/	15.8/36	2	55		6	55	0.1/0.12		75/70		550.00
PIONEER ELECTRONICS	TX-V1160(BK) F-77 TX-1060(BK) F-99XBK	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 16 16 16	40 60 40 16	0.2 0.05/0.08 /0.35 .0095/0.02		80/75 86/81 78/76 94/87	9.1 5.2 5.5 9.2	329.95 224.95 149.95 324.95
PIONEER VIDEO	FT-V70 w/MTS Decoding	D							36	40			75	9 1/4	350.00
PROTON	420 440 450	D D D	No No No	10.8/ 10.3/ 10.3/	16.1/37.3 14.2/33.2 14.2/36.1	1.5 1.5 1.5	60 65 65	65 65 65	12 50 10	45 50 50	0.1/0.2 0.08/0.15 0.08/0.15	0.15/0.5 0.1/0.4 0.1/0.4	78/73 80/75 80/75	8.4 8.4 8.8	170.00 270.00 295.00
PS AUDIO		F	No	10.8/6.8	13.5/36.1	1.5/	70	50/70	0	40	/0.015	/0.05	75/70		450.00
PSE	Studio III		No		17/40	1	70		6	55	0.1/0.2		75/70	9	530.00
QED	T231	F	No					55	6				72/	18	269.00
QUAD	FM4	F/D	No	11.2/	19.5/39.2	2.5			8			0.05/0.10	76/70	6 1/2	595.00
RCA	Dimensia MAT110	D		11.2/	19.2/38.2	1.0	50		16	45			82/77	5 1/4	250.00
REVOX	B261	D	No	10.8/34.8	13.2/34.8	2	72	78	20	43	0.031/0.07	0.01/0.01	79/75	18 3/4	1500.00
ROTEL	RT 830 RT 850	D D	No No			1.5 1.0		60 65	0 16		0.2/ 0.07/		70/65 75/73	7 8 1/2	175.00 275.00
SAE	T101 T102	D D	No No	10.3/17.0 10.3/17.0	14.0/35.3 14.0/34.0	1.2/2.2 1.7/	60 55	40/100 30/80	16 16	55 45	0.05/0.08 0.10/0.15	0.10/0.15 0.15/0.2	75/70 75/70	20 17	650.00 349.00
SANSUI	TU-D99X TU-D99AMX TU-D55X TU-D33X	D D D D	U	10.8/ 10.8/ 10.8/ 10.8/	16.2/ 16.2/ 16.0/ 16.0/	1.0 1.0 1.0 1.0			16 16 16 12		0.015/0.02 0.015/0.02 0.05/0.08 0.08/0.12		90/ 90/ 85/ 78	7.7 7.7 6.2 5.1	349.00 389.00 279.00 189.00
H. H. SCOTT	595T	D	No	10.8/	15/35	1.5	47		14	47	0.15/0.1		80/75	8	200.00
SHERWOOD	S-6010CP	D	No	10.3/	15.3/36.5	1.0		80	16	50	0.09/0.09		75	10	249.95
SONY	ST-JX220 ST-JX550 ST-V77 ST-S555ES ST-S444ES	D D D D D	No No No No No	10.3/ 10.3/ 10.3/ 10.3/ 10.3/	16.1/38.3 16.1/37.9 16.1/37.9 16.8/37.9 16.8/37.9	1.0 1.2 1.0 1.0 1.0	54 65 54 65 65	55 75 80 60/90 60/90	10 10 10 8 8	45 50 50 60 60	0.3/0.4 0.1/0.25 0.08/0.15 0.03/0.04 0.03/0.04		80/75 82/76 86/80 92/86 92/86	5.3 7.3 6.5 12.7 11.2	160.00 270.00 280.00 450.00 340.00
SOUNDCRAFTSMEN	T6200	D	No	9.5/30	12/36	1.0		70	18	50	0.08/0.1		80/75	10	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	3001 A 3011 A	F F	No No	6.8/ 8.5/	9.3/32.1 14.8/37.3	0.4/3 0.9	70 70	30/100 100	8 8	70 40	0.03/0.04 0.2/0.3	0.03/0.1 0.3/0.4	95/92 78/75	15.3 12.6	1295.00 895.00
TECHNICS	ST-G3 ST-G6T ST-G7 ST-S8	D D D D	No No No No	10.8/ 12.8/ 12.8/ 10.8/	16.3/37.2	1.0/		60 60 70 55	16 16 16 16	50 55 65 55/25	0.09/0.18 0.02/0.03 0.01/0.02 0.04/0.06		76/71 80/73 80/74	4.9 5.1 9 9	185.00 270.00 400.00 500.00
VECTOR RESEARCH	VU-1200 VU-1500	D		11.2/ 11.2/	16/39 14.6/37	2 1	62 58	60 60	16 16	40 50	0.3/0.6 0.08/0.2	0.2/0.3	70/65 75/73	6 3/4 8 1/2	100.00 180.00
YAMAHA	T-80 T-1000 T-700 T-520 T-320 T-2X	D D D D D D	No No No No No No	10.3/ 10.3/ 10.3/ 9.3/ 9.3/ 10.3/	15.3/37.2 15.3/37.2 15.3/37.2 15.1/37.7 15.1/37.7 15.3/37.2	1.2 1.5 1.5 1.5 1.5 1.2	70 65 60 55 55 70	85 85 85 85 85 85	10 10 10 16 40 10	65 65 58 40 40 68	0.03/0.03 0.03/0.05 0.05/0.07 0.1/0.2 0.15/0.3 0.009/0.015	0.06/0.07 0.06/0.08 0.1/0.15	94/86 92/85 89/84 81/76 81/76 94/86	11 8 3/4 8 3/4 6 1/2 7 15 1/4	395.00 320.00 280.00 220.00 160.00 600.00



The Onkyo Integra TX-85

ONKYO®

TX-85 Computer-controlled Tuner-Amplifier

Expanded 5-Mode APR (Automatic Precision Reception) System

To obtain the best possible sound quality from an FM broadcast, the optimum combination of several reception modes must be determined. Onkyo's APR system does this for you, using the unit's microcomputer to select the best settings for five modes according to the quality of the incoming signal and the unique reception characteristics of the area where you live. The five modes are DX/LOCAL input sensitivity, wide-narrow IF bandwidth, hi-blend on-off, FM noise reduction on-off and stereo-mono. Imagine how long it would take to find the right settings yourself from among the 25 possibilities. An APR defeat switch makes it easy to quickly compare sound quality with and without the APR system operating.



Random 16-Station Memory With Preset Memory Scan Tuning

The TX-85 incorporates a random memory capable of storing any combination of up to sixteen radio stations. With this freedom, you can easily store all of your favorite broadcasts whether they are predominantly AM or FM. The memory section also includes an automatic scan function that tunes in each station in the memory for about 5 seconds. To listen to the station currently being heard, just press its preset tuning key or the preset scan button during the 5 second period.

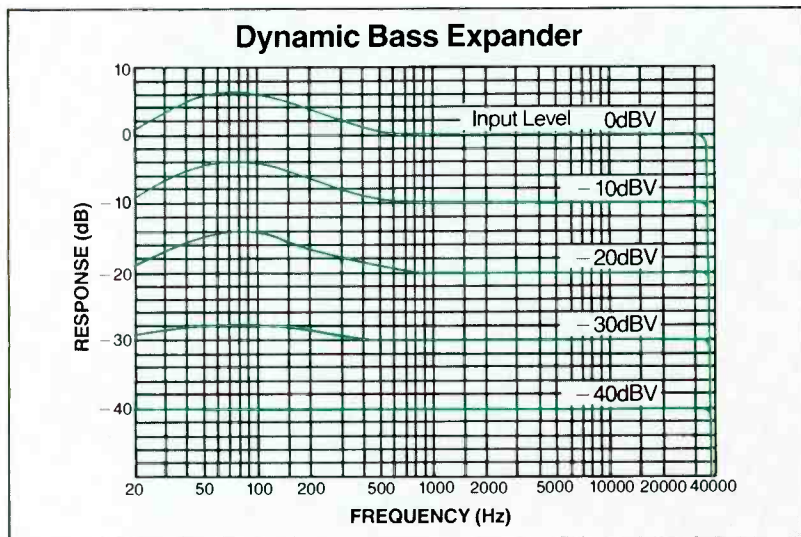
Tuning Level Switch To Adjust Muting Threshold

The FM muting level can be set to a high or low mode to meet the particular FM reception requirements in your area. When in the high mode, only powerful broadcasts are heard so that you are not bothered by weak FM stations during manual and auto scan tuning. Only powerful stations capable of providing low noise, high quality sound are audible. To receive weak FM broadcasts simply set the tuning level to the low mode.

dbx Noise Reduction For Records and Tapes

The TX-85 has dbx noise reduction circuitry that can be used to listen to dbx-encoded phonograph records and cassette tapes or to make your own dbx-encoded tape recordings. The dbx system, used by many professional recording studios, greatly expands the dynamic range that a record or cassette tape can contain. It also has a noise reduction effect of at least 30dB, much more than Dolby B or C. By including dbx, the TX-85 allows you to enjoy the benefits of this powerful noise reduction system without having to purchase a dbx-equipped cassette deck. To use, simply set the dbx selector to the DISC, TAPE PLAY or TAPE REC positions.

dbx is a trademark of dbx labs.



Dynamic Bass Expander

In addition to having a normal bass tone control, the TX-85 is also equipped with Onkyo's exclusive (patent pending) dynamic bass expander system. It's called dynamic because the amount of boost varies according to the level of the input signal. The dynamic bass expander offers many benefits over an ordinary bass tone control: surprisingly rich low range response, particularly from small to middle sized speaker systems, the impression that low

range sonic energy leaps out at you from the speakers, and the ability to adjust the input level at which expansion (boosting) begins and the amount of expansion to be applied. By altering the input level and degree of expansion, it is very easy to obtain the precise effect desired for any kind of music, something a bass tone control alone can not even begin to do. A switch is provided to let you turn off the dynamic bass expander when it is not needed.

Many More Valuable Features

- Separate Compact Disc input terminals and Video/Aux input terminals
- Digital fluorescent display for the tuned frequency and preset station numbers
- Automatic and manual tuning modes
- OFF/A/B/A + B speaker selector
- Loudness control
- Subsonic filter switch
- High cut filter activated when treble control is turned all the way down
- Rear panel switched and unswitched power outlets
- 5-step signal strength indicator
- MM/MC cartridge selector
- Muting switch to temporarily lower the volume level with one-touch ease
- Wood grain side panels

RECEIVERS



KYOCERA R-861



NAD 7155



SHARP SA-X35



ONKYO TX-37

MANUFACTURER	Model	AMPLIFIER SECTION										TUNER SECTION						
		FM Only = F, Digitally Synthesized = D, AM Stereo Capable = A	Average Watts per Channel, & Ohms/Ohms	THD, %	IHF IM, %	Rated Power Bandwidth, Hz to kHz	MM Phone S/N, -dB, *A	MM Phone Wid. re: 5 mV	Dynamic Headroom, mV	Total Number of Memory Presets	IHF Sensitivity, dB, Mono/Stereo	Signal Strength for 50-dB Quieting, dB, Mono/Stereo	Capture Ratio, dB, Mono/Stereo	THD, % 100% Modulation, Wide/Narrow	Alternate Channel Selectivity, dB, Wide/Narrow I.F. Bandwidth	Maximum S/N, -dB, Mono/Stereo	Weight, lbs.	Price, \$
ADS	R1		35	0.1	0.05	20-20	73	80	2.0	5	11.2/31	16.5/37.7	1.8	0.15/0.25	75	70/67	17.4	499.00
AKAI	AA-V401	D	80	0.05		5-70	75	150		20	11.2/	16.2/37.2	1.5	0.1/0.3	60	75/65	21.8	399.95
	AA-V301	D	60	0.05		5-70	75	150		16	11.2/	16.2/37.2	1.5	0.1/0.3	60	75/65	18.5	329.95
	AA-V201	D	40	0.05		5-60	75	150		16	11.2/	16.2/37.2	1.5	0.1/0.3	60	75/65	13.6	229.95
	AA-A1	D	35	0.3		10-40	70	120			12.7/	19.2/40.2	2.0	0.2/0.4	60	70/62	10.6	169.95
BANG & OLUFSEN	Beomaster 8000	F/D	100/150	0.05	0.1	20-20	77	125	2	9	13/15	19/34	1.8	0.05/0.1	65	76/72	46.3	1599.00
	Beomaster 5000	F/D	55	0.09	0.15	20-20	74	110	1	9	15/17	21/42	1.8	0.3/0.35	56	70/67	19.2	1399.00
	Beomaster 6000	F	75	0.08	0.05	20-20	75	80	0.7	6	15/17	21/40	1.8	0.02/0.18	65	77/71	32	899.00
	Beomaster 3000	F	30	0.1	0.1	20-20	75	50	1.6	5	17/22	23/43	1.7	0.3/0.35	60	72/67	15	599.00
CARVER	Rec 2000 Receiver	D/A	200/	0.15	0.05	5-100	84	100	1.3	12	11.3/16.3	16.1/23.5	1.5	0.15/0.2	62	82/85	35	1499.00
	Rec 1300	D	130/	0.05	0.05	5-100	82	100	1.3	12	11.3/16.3	16.1/23.5	1.5	0.15/0.2	58	80/84	28 1/2	750.00
	Rec 900	D	90/	0.15	0.05	5-100	82	100	1.3	16	11.3/16.3	16.1/23.5	1.5	0.15/0.2	56	80/84	32	599.00
DENON	DRA-355	D	41/86	0.05		5-40	80	150	3	10		16.4/38.5	1.2	0.07/0.12	55	82/80	15	280.00
	DRA-555	D	55/95	0.015		5-40	86	150	3	16		16.4/38.5	1.2	0.07/0.12	55	82/80	17 1/2	420.00
	DRA-755	D	75/175	0.01		5-40	90	200	3	16		16.4/38.5	1.2	0.05/0.07	55	85/81	21 1/2	550.00
FISHER	TA-102 (2 Units)	D	100/	0.05	0.05	20-20				16	16.1/25.2	17.2/42.1	1.5	0.4/0.5		70/65	21.1	399.95
	TA-150 (2 Units)	D	150/	0.009	0.009	20-20				16	13.2/19.2	17.2/40	1.0	0.4/0.5		75/70	32.9	599.95
HARMAN/KARDON	hk385i		30	0.09		10-60	80	185		10	11.21/	16.8/37	1.5	0.08/0.12	60	74	13 3/8	235.00
	hk395i	D	30	0.09		10-60	80	185		10	10.8/	15.6/37	1.2	0.08/0.12	65	75	13 3/8	335.00
	hk495i	D	45	0.09		10-60	80	185		16	10.8/	15.6/37	1.2	0.08/0.12	65	75	13 3/8	435.00
	hk690i	D	60	0.06		10-100	80	220		16	10.8/	14.6/37	1.0	0.06/0.08	70	76	24 1/4	700.00
HITACHI	HTA2		20	0.1	0.1	40-20	70	150			18.2/35.0	76/70		0.15/0.25			12	140.00
	HTA25F	D	25	0.5	0.5	40-20	72	150		6	20.2/38.2	74/70		0.3/0.4			11	200.00
	HTA35F	D	35	0.05	0.05	20-20	72	150		8	20.2/38.2	74/70		0.3/0.25			12	250.00
	HTA55F	D	55	0.05	0.05	20-20	72	150		20	20.2/38.2	74/70		0.15/0.25			15.4	400.00
	HTA70F	D	70	0.03	0.03	20-20	72	150		20	20.2/38.2	74/70		0.15/0.25			17.6	540.00
JVC	R-X500B	D	100/	0.007	0.007		80	120		30	10.8/	14.8/38.3	1.5	0.08/0.1	75	82/73	20.5	650.00
	R-X400B	D	70/	0.007	0.007		80	120		30	10.8/	14.8/38.3	1.5	0.08/0.1	75	82/73	19.6	500.00
	R-X370VB	D	50/	0.15						20	10.8/	14.8/38.3	1.5	0.08/0.15	60	82/73	14.4	350.00
	R-X330VB	D	55/	0.03	0.03					30	10.8/	14.8/38.3	1.5	0.08/0.15	60	82/73	15.5	330.00
	R-X220	D	40/	0.5						16	10.8/	16.3/38.3	1.5	0.15/0.3	60	80/73	9.5	240.00
	R-X110	D	25/	0.5						16	10.8/	16.3/38.3	1.5	0.15/0.3	60	80/73	8.4	175.00
KENWOOD	KVR-A90R	D	70	0.007	0.002		85			20		14.2/36.8		0.07/0.1			19.8	490.00
	KVR-A70R	D	55	0.008	0.002		73			20		14.2/36.8		0.07/0.1			18.5	400.00
	KR-A70	D	55	0.008	0.002		73			20		14.2/36.8		0.07/0.1			18.1	320.00
	KR-A20	D	40	0.5	0.1		73			16		17.2/37.2		0.2/0.3			12.1	230.00
	KR-A10	D	30	0.5	0.1		73			16		17.2/37.2		0.2/0.3			11.7	185.00

RECEIVERS

MANUFACTURER	Model	FM Only = F, Digitally Synthesized = D, AM Stereo Capable = A, Average Wav. Per Channel, 8 Chms & Chngs	AMPLIFIER SECTION										TUNER SECTION					
			THD, %	IHF IM, %	Rated Power, W to kHz	MM Mono S/N, -db	MM Stereo S/N, -db	Dynamic Overload, mV	Total Harmonic Distortion, db	IHF Sensitivity, dbi, Mono/Stereo	Signal Strength for 50-dB Quieting, dbi	Capture Ratio, db, Mono/Stereo	THD, % 100% Modulation, 1 kHz, Mono/Stereo	Alternate Channel Selectivity, db, Wide Narrow	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$	
																		THD, %
KYOCERA	R-861	F/D	100	0.02	0.02	10-60	85	150	1.0	14	9.8/17.3	14.8/35	1.0	0.06/0.07	40/85	82/76	27	975.00
	R-661	F/D	70	0.02	0.02	10-60	82	150	1.0	14	10.1/17.5	15.5/36.5	1.0	0.07/0.1	40/75	80/74	25	750.00
	R-461	F/D	50	0.02	0.02	10-80	82	150	2.1	12	10.3/17.8	17.0/37.2	1.2	0.09/0.15	55	77/72	18 1/2	550.00
LUXMAN	R404	D	33	0.08		20-20	76			16	10.8/						13.4	300.00
	R405	D	55	0.05		20-20	76			16	10.8/						17.7	400.00
	R406	D	60	0.05		20-20	76			16	10.3/						18.7	570.00
MARANTZ	SR250	D	25	0.25	0.25	20-20	75	120		16	12.1/	16.8/39.2	1.5	0.35/0.6	45	70/62	13.2	189.95
	SR640	D/A	45	0.02	0.02	20-20	82	175		16	10.3/	14.4/36.0	1.2	0.1/0.2	60	70/62	18.3	299.95
	SR840	D/A	70	0.02	0.02	20-20	83	200		16	9.8/	13.1/35.0	0.9	0.1/0.2	65	72/65	26.5	449.95
	SR940	D/A	100	0.01	0.01	20-20	85	225		16	9.8/	13.1/35.0	0.9	0.1/0.2	65	72/65	28.7	549.95
McINTOSH	MAC4200		75/100	0.02	0.02	20-20	84			12	11.3/16	13/28	1.5	0.08/0.12	65	75/70	40	2890.00
MITSUBISHI	DA-R56	D/A	70/	0.015		20-20				7			1.5	0.2/0.3	60	82/75	21 3/4	450.00
	DA-R46	D	50/	0.015		20-20				7			1.5	0.2/0.3	60	82/75	20 1/2	390.00
NAD	7155	D	55/90	0.03	0.03	20-20	78	170	3	5	9.8/32	13.2/42	1.5	0.09/0.09	70	82/75	20.5	598.00
	7140	D	40/65	0.03	0.03	20-20	78	170	3	5	9.8/32	13.2/42	1.5	0.09/0.09	70	82/75	20.3	478.00
	7130	D	30/48	0.03	0.03	20-20	76	170	3	5	10.3/34.2	14.2/44.3	1.5	0.09/0.09	70	82/75	17.7	348.00
	7125	D	25/35	0.03	0.02	20-20	75	140	3	5	10.8/33	14.2/44	1.5	0.09/0.09	70	80/75	11.5	248.00
NIKKO	NR-1050	D	100/175	0.03	0.03	10-50	88	200	20	7.3/35	7.3/35	1.5	0.1/0.2	60	70/67	24 3/8	699.95	
	NR-850	D	65/120	0.03	0.03	10-50	88	200	20	7.3/35	14/20	1.5	0.1/0.2	60	70/67	19 7/8	599.95	
	NR-750	D	48/75	0.04	0.04	15-35	75	150	16	14/20	14/20	1.0	0.1/0.2	60	70/67	14 3/4	379.95	
	NR-650	D	38/65	0.05	0.05	15-35	75	150	16	14/20	14/20	1.0	0.1/0.2	60	65/60	13 1/2	289.95	
	NR-350	D	32/50	0.05	0.05	15-35	75	150	16	14.2/35	13.2/35.2	0.75	0.1/0.2	60	65/60	12 7/8	199.95	
ONKYO	TX-85B	D	80	0.02	0.02	20-20	87	180	1.2	16	10.3/17.2	14.7/37.2	1.3	0.1/0.18	70	76/70	33	619.95
	TX-65	D	60	0.025	0.025	20-20	87	180	1.5	16	10.9/17.2	17.2/37.2	1.5	0.1/0.2	70	73/67	25	484.95
	TX-RV47B	D	55	0.08	0.08	20-20	75	150	1.2	16	11.2/29.5		1.5	0.15/0.3	55	71/66	20	499.95
	TX-37	D	55	0.04	0.04	20-20	79	180	1.4	16	10.9/17.2	17.2/37.2	1.5	0.15/0.25	55	72/67	19	349.95
	TX-27	D	40	0.08	0.08	20-20	79	180	1.3	16	11.2/17.2	17.2/37.2	1.5	0.15/0.3	55	71/66	17	264.95
	TX-17	D	25	0.3	0.1	40-20	79	180	0.8	12	12.4/19.2	18.2/38.2	1.5	0.15/0.3	55	70/65	13	199.95
PARASOUND	DR65	D	65/100	0.04	0.015	20-40	88	200	2.0	12	10.3/39.2	15.3/39.2	1.6	0.1/0.2	68	80/77	23	449.95
	DR40	D	40/70	0.04	0.03	20-20	88	200	2.0	10	10.3/38.1	15.3/38.1	1.6	0.1/0.2	68	80/77	19	299.95
	DR25	D	25/40	0.04	0.03	20-20	88	180	2.0	10	10.3/38.2	15.3/38.2	1.6	0.15/0.25	66	80/77	16	199.95
	SR222	D	22/33	0.1	0.1	20-20	70	140	1.0	10	10.3/39.2	15.3/39.2	2.5	0.3/0.5	64	70/65	14	179.95
PIONEER ELECTRONICS	SX-V900	D	125	0.005	0.005	20-20	86	150	20	10.8/	16.2/37.7	1.0	0.02/0.04	85	88/82	33.1	769.95	
	SX-V500	D	80	0.005	0.005	20-20	83	160	24	10.8/	15.7/37	1.0	0.1/0.15	65	80/75	18.5	459.95	
	SX-V400	D	60	0.005	0.005	20-20	73	160	24	10.8/	15.7/37	1.0	0.1/0.15	65	80/75	15.1	329.95	
	SX-V300	D	45	0.08	0.08	20-20	72	140	16	10.8/	15.7/37	1.0	0.4/0.4	65	80/75	11.7	249.95	
	SX-V200	D	30	0.3	0.3	20-20	72	140	16	10.8/	15.7/37	1.0	0.4/0.4	65	80/75	10.9	209.95	
	SX-313	D	45	0.3	0.3	40-20	71	150	10.7/	15.3/37.6	2.5	0.3/0.6	50	75/70	11	174.95		
	SX-212	D	25	0.3	0.3	40-20	71	150	10.7/	15.3/37.6	2.5	0.3/0.6	50	75/70	9.8	126.95		
	PROTON	940	D	40/62	0.02	0.008	10-60	92	250	6	16	10.3/	14.2/33.2	1.5	0.08/0.15	65	80/75	18
QUASAR	CJ8494XE	D	45/	0.03		20-20	72		1.2	12	16.1/10.8	16.1/38.3	1.0	0.15/0.3	65	77/71	18.3	699.95
RCA	Dimensia MSR150	D	50/		0.05	20-20				16		21/38		0.13/0.15		75/69	16 1/2	350.00
REALISTIC	STA-2500 (31-3012)	D	100	0.05	0.01	20-20	84	160		12	9.8/28	16/28	1.5	0.09/0.2	70	70/		499.95
	STA-2270 (31-3005)	D	65	0.05	0.01	20-20	85	165		12	9.8/28	16/28	1.25	0.04/0.08	75	75/		399.95
	STA-780 (31-2068)	D	45	0.08	0.05	20-20	84	120		12	10.8/23	16/37	1.5	0.09/0.2	70	72/70		349.95
	STA-114 (31-2007)	D	30	0.05	0.01	20-20	84	155		12	9.8/28	17/30	1.5	0.09/0.2	60	70/		299.95
	STA-870 (31-3001)	D	65	0.08	0.05	20-20	83	175			9.8/19	17/37	1.0	0.1/0.15	65	78/		359.95
	STA-115 (31-2098)	D	24	0.03	0.05	20-20	85	120			10.8/21	16/37	1.2	0.1/0.2	60	74/		199.95
	STA-450 (31-2094)	D	14	0.3	0.1	20-20	81	120			13.7/22	19/39	2.0	0.1/0.3	60	78/		159.95
	STA-19 (31-1975)	D	5	0.09	0.04	40-20	70				22.3/22.3	28/	3.0	0.5/1.0	55	60/		119.95
REVOX	B285	D	70/90	0.03	0.03	20-20	80	50	3	29	12.8/	15.2/36.8	2	0.15/0.3		84/80	33 1/4	1600.00
RDEL	RX 830	D	20	0.08	0.08	20-20	80	90		16		17.2/40.7	2.0	0.3/0.5	65		13	199.00
	RX 850	D	30	0.05	0.05	20-20	80	150		16		17.2/40.7	1.5	0.15/0.4	60		15	299.00
SAE	R102	D	50	0.025	0.025	20-20	82	150	0.2	16	11.2/17.2	14.4/35.8	1.7	0.10/0.15	30	75/70	26	499.00
SANSUI	S-XV1000	D/A	80/	0.01		20-20	85			16	10.3/19	14/37	1.0	0.1/0.15	80	20.3	599.00	
	S-X1130	D/A	130/	0.005	0.005	20-20	85			16	10.3/19	14/37	1.0	0.03/0.05	80	35.9	950.00	
	S-X1100	D/A	100/	0.005	0.005	20-20	85			16	10.3/19	14/37	1.0	0.1/0.15	80	32.4	800.00	
	S-X1070	D/A	55/	0.02	0.02	20-20	80			12	10.8/	17/37	1.0	0.2/0.3	76/	15	400.00	
	S-X1050	D	35/	0.02	0.02	20-20	73			12	10.8/	17/37	1.0	0.2/0.3	76/	12.6	300.00	
	S-X1030	D	25/	0.05	0.05	20-20	73			12	10.8/	17/37	1.0	0.2/0.3	76/	11.2	250.00	

A MASTERPIECE OF HIGH FIDELITY

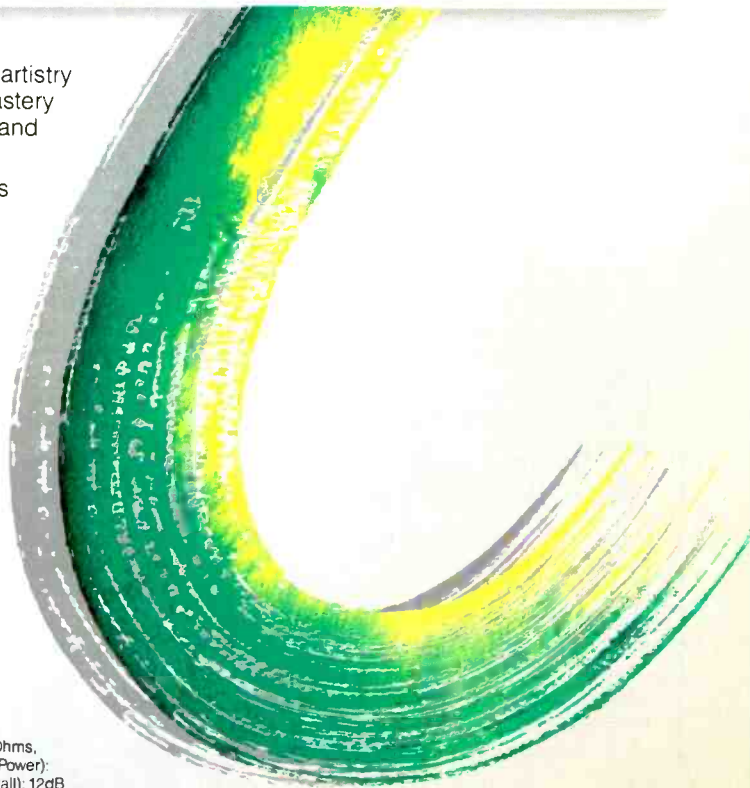


The hk690i is Harman Kardon's unique expression of ultimate artistry in high fidelity. In it are found the same control of technique, mastery of detail and creative excellence inherent in every great and enduring work of art.

The hk690i receiver is exemplary of the technological strokes of genius created and perfected by Harman Kardon throughout its more than 30 year history. 45 Amps of High Instantaneous Current Capability allows the hk690i to develop up to 150 Watts per channel into 2 Ohms under peak conditions. An Ultrawideband Frequency Response of 0.2Hz to 150kHz delivers extremely fast and accurate transient response. Low Negative Feedback results in the virtual elimination of TIM distortion. An exclusive Sample-And-Hold Multiplex Decoder decreases high frequency switching noise while eliminating the need for much of the filtering normally required in FM processing. And, the use of Discrete Components demonstrates Harman Kardon's inherent technical integrity.

With this dedication, Harman Kardon stands ready to deliver the ultimate in high fidelity listening pleasure with every model in their entire product line.

Harman Kardon... Dedicated to mastering the fine art of high fidelity.



SPECIFICATIONS Power Output, (FTC) RMS, per channel, both channels driven into 8 Ohms, 20-20,000Hz: 60 Watts per channel @ <.06% THD 4 Ohms, 1kHz, IHF Signal (Dynamic Power): 120 Watts 2 Ohms, 1kHz, IHF Signal (Dynamic Power): 150 Watts Negative Feedback (overall): 12dB HCC (High Instantaneous Current Capability): 45 Amps Power Bandwidth, at half-rated output, 8 Ohms: <10Hz-100kHz Frequency Response, at 1 Watt output, +0/-3dB: 0.2Hz-150kHz TIM: Immeasurable Slew Rate: 200V/μsec Usable FM Sensitivity: mono (dB/μV-75 Ohms): 10.8dB/0.95μV Stereo Separation: 1kHz, 65dB, 100% mod: 55dB FM THD: mono 1kHz, 100% mod: 0.06%; stereo: 0.08%.

harman/kardon

RECEIVERS

MANUFACTURER	Model	AMPLIFIER SECTION											TUNER SECTION					
		FM Only = F, Digitally Synthesized = D, AM Stereo Capable = A	Average Wtts per Channel, @ 1000 Hz	THD, %	IHF IM, %	Rated Power Bandwidth, Hz to kHz	MM Phono S/N, -db	MM Phono Overload, mV	Dynamic Headroom, mV	Total Number of Memory Presets	IHF Sensitivity, dbi, Mono/Stereo	Signal Strength for 50-db Durling, dbi, Mono/Stereo	Capture Ratio, db, Mono/Stereo	THD, % - 100% Modulation, 1 kHz, Mono/Stereo	Alternate Channel Selectivity, db, Wide/Narrow I.F. Bandwidth	Maximum S/N, -db, Mono/Stereo	Weight, Lbs.	Price, \$
H. H. SCOTT	388RS 366RS 355RS	D D D	85/65/45	0.03/0.03/0.03	0.03/0.03/0.03	20-20/20-20/20-20	80/80/80		14/14/14		9.8/9.8/9.8	1.0/1.0/1.0		70/70/70	80/75/80/75	9.3/10	550.00/450.00/350.00	
SHARP	SA-X25 SA-X35	D	25/35	0.9/0.5	0.2/0.15	40-20/40-20	75/75	100/130	12	11.7/10.8			0.4/0.6/0.15/0.3	56/56	70/65/70/65	9.3/10	119.95/199.95	
SHERWOOD	S-2610CP S-2620CP S-2640CP S-2660CP S-2680CP	D D D D D	20/28 20/32 35/53 50/70 70/100	0.08/0.05 0.05/0.05 0.05/0.05 0.05/0.05 0.05/0.05	0.08/0.05 0.05/0.05 0.05/0.05 0.05/0.05 0.05/0.05	20-20/20-20/20-20/20-20/20-20	85/88/88/92/92	140/140/140/250/250	1.3/1.4/1.2/1.2	0/10/10/16/16	11.2/10.8/10.8/10.3/9.8	14.7/37.3/15.8/39.2/15.8/39.2/15.3/36.5/14.1/36.5	1.5/1.5/1.5/1.2/1.2	0.15/0.151/0.15/0.15/0.1/0.1	65/65/65/70/70	80/75/78/72/15/17/20/22	15/15/17/17/22	149.95/179.95/279.95/379.95/479.95
SONY	STR-AV260 STR-AV360 STR-AV460 STR-AV560 STR-AV760	D D D D D	25/35/45/60/80	0.08/0.03/0.008/0.008/0.006	0.08/0.03/0.008/0.008/0.006		78/83/83/93/93			10/10/10/10/10	11.2/11.2/11.2/10.3/10.3	17.3/38.3/17.3/38.3/17.3/38.3/16.1/38.3/16.1/38.3	0.15/0.3/0.15/0.25/0.15/0.25/0.05/0.1/0.05/0.1	60/60/60/30/65/30/65	78/73/80/75/80/75/82/76/82/76	10.5/13.5/14.1/17.7/19.5	180.00/240.00/300.00/400.00/500.00	
TECHNICS	SA-120 SA-150 SA-360 SA-460 SA-560	D D D D D	35/25/40/50/70	0.5/0.5/0.05/0.007/0.007	0.5/0.5/0.01/0.01/0.01	40-20/40-20/20-20/20-20/20-20	73/73/76/75/75	120/140/150/150/150	1.0/1.2/1.2/1.2/1.8	14/16/16/16/16	10.8/10.8/10.8/10.8/10.8	16.1/38.3/16.1/38.3/16.1/38.3/16.1/38.3	1.0/1.0/1.0/1.0/1.0	0.15/0.3/0.15/0.3/0.15/0.3/0.08/0.15	60/65/65/70/70	76/70/77/71/78/72/78/72	10.8/9.3/11.9/14.5/17.4	150.00/170.00/220.00/320.00/550.00
VECTOR RESEARCH	VR-2200A VRX-3500 VRX-7100 VRX-9100		20/25/30/40/40/60/70/100	0.08/0.08/0.08/0.08	0.08/0.08/0.08/0.08	20-20/20-20/20-20/20-20	80/80/80/80		2.0/2.5/3.0/3.0	16/16/16/16	10.8/10.8/10.2/10.2	17.2/17.2/14.6/14.6	1.0/1.0/1.0/1.0	0.15/0.3/0.15/0.3/0.08/0.1/0.08/0.1		75/70/80/75/80/75	13/17/17/23	170.00/250.00/350.00/450.00
YAMAHA	R-9 R-8 R-7 R-5 R-3	D D D D D	125/85/65/144/50/35	0.015/0.015/0.015/0.015/0.04	0.01/0.01/0.01/0.01/0.04	10-50/10-50/10-50/10-50/10-40	92/92/92/88/88	110/110/110	1.58/1.84/1.8/1.76/1.88	16/16/16/16/16	8.8/8.8/9.3/9.3/9.3	14.8/37.3/14.8/37.3/15.1/37.7/15.1/37.7/15.1/37.7	1.2/2.2/2.2/2.2	0.05/0.07/0.05/0.07/0.05/0.07/0.07/0.1/0.1/0.2	85/85/85/85/85	85/81/80/75/80/75/81/76	26 1/2/24 1/4/14 1/2/12 1/2/11 1/2	799.00/599.00/469.00/299.00/229.00

Discwasher.[®] The clear choice for record care.

Where do you turn to get the best sound from your records? The answer is clear. To the Discwasher D4+™ Record Care System. Its scientific design uses a unique fluid and directional micro-fiber pad to clean

records safely. Without leaving residues behind. And the SC-2™ Stylus Care System loosens and wipes away damaging stylus contaminants. All to keep your records playing clean and clear.

You can trust Discwasher.

The clear choice for tape and video care, too.

Discwasher, leader in the technology of audio and video care products, also provides advanced systems for cleaning tape decks and VCR's.



The sound and sight come through clean and clear.

discwasher

TURNTABLES



HEYBROOK TT-2



SOTA SAPPHIRE



THORENS TD320

MANUFACTURER	Model	Speeds—See Code	Wow & Flutter . % @ 33 1/3 rpm, DIN 45-507	Rumble, -dB, DIN 45-539-B	Drive System	TONEARM/CARTRIDGE										Price, \$				
						Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: P=Powered, L=Linear, S=Servo	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: Fixed-F, Removable Shell=R, P-Mount=P, Changeable Wand=W	Dimensions, Inches, Including Dustcover	
ACOUSTIC RESEARCH/AR	EB-101	B	0.05	72	Belt				P	8.4			Yes	3-9		R	17 1/2 x 14 1/2 x 6 1/2	399.99		
ACOUSTIC RESEARCH/CONNOISSEUR	ES-1	B	0.04	78	Belt		No	No	P	8.4			Yes	3-9	85	F	18 1/4 x 15 1/4 x 7	350.00; 475.00 w/Arm		
ACOUSTIC RESEARCH/RESEARCH SERIES	ETL-1	B	0.03	81	Belt		No	No		9 1/2							20 1/2 x 17 1/2 x 7 1/2	700.00		
ADC	LT 34 LT 60	B B			Belt Belt		Yes Yes	No No	L L		C/R C/R	1.25 1.25		5.9 5.9		P P	13 1/4 x 3 1/2 x 13 3/4 16 1/2 x 5 x 15 1/2	99.95 139.95		
ADS	P2/C P4	B B	0.05 0.035	70 75	Direct Direct		5 5	Yes Yes	No No	P P	8 3/4 8 3/4	R C/R	1.2-1.8 0-2	Yes Yes		150 150	R R	17 1/2 x 14 1/4 x 4 3/8 17 1/2 x 4 1/2 x 14 1/4	399.00 w/Cart. 499.00	
AKAI	AP-A50 AP-A201 AP-X1	B B B	0.045 0.045 0.05	70 70 70	Direct Direct Belt			Yes Yes Yes	No No No	L R P	6.5 8.7 8.7	C/R R R	1.25 1.25 1.25	No No No	5.9 5.9 5.9	P P P	17.3 x 4.2 x 15.6 17.3 x 3.9 x 13.7 17.3 x 4 x 13.6	169.95 135.00 99.95		
ARISTON AUDI0	RD20 RD20 Superieur RD40 RD40 Superieur RD80 RDII Superieur	B B B B B B B B	0.08 0.08 0.08 0.07 0.07 0.06 0.06	65 65 68 68 70 70 70	Belt Belt Belt Belt Belt Belt Belt		0.02 0.02	No No	No No	P P P P		R R	0.1-3.0 0.1-3.0	No No		F F	16 1/2 x 13 3/8 x 5 1/8 16 1/2 x 13 3/8 x 5 1/8	199.00 230.00		
	RD40 Superieur RD80 RDII Superieur	B B B B	0.08 0.07 0.07 0.06	68 68 70 70	Belt Belt Belt Belt		0.02 0.02	Yes Yes	Yes Yes	P P			0.1-3.0 0.1-3.0	Yes Yes		F F	16 1/4 x 13 1/2 x 5 3/4 16 1/4 x 13 1/2 x 5 3/4	375.00 575.00		
	RD80 RDII Superieur	B B	0.07 0.06	70 70	Belt Belt		0.02 0.02	No Yes	No Yes	P P			0.1-3.0	Yes		F F	17 1/2 x 14 1/8 x 6 5/8	450.00 670.00		
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 5005	B	0.03	80	ESD 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	ESD 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	ESD 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	340.00	
	Beogram 2000	B	0.035	75	ESD 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 7/8	280.00	
	Beogram 1800	B	0.035	75	ESD 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 7/8	250.00	
	Beogram RX	B	0.045	65	ESD Belt		0.5		No	No	P	9 1/4	C/R	1-1.5	Yes	100	F	17 3/8 x 3 3/8 x 13 3/8	199.00	
BROADCAST ELECTRONICS	12C	C	0.1	38	Rim		+1, -0		Yes	No									350.00	
	12C2	B	0.1	38	Rim		+1, -0		Yes	No									350.00	
	16C	C	0.1	38	Rim		+1, -0		Yes	No									610.00	
	Galaxy II	D	0.14	38	Rim		+1, -0		Yes	No									695.00	
MITCHELL A. COTTER	B-1	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	7200.00

BRINGING · IT · ALL · BACK · HOME





CELESTION DL

If you've ever been to a live concert, the chances are you've heard Celestion speakers.

For many years our speakers have been the choice of professional musicians who demand the ultimate in accuracy, definition, and reliability on stage.

The same demands from critical listeners at home led us to develop the SL6 and SL600, winning design awards worldwide.

The experience gained in creating live music and recreating it in the home now brings you the DL series from Celestion.

The DL series are compact, affordable speakers that deliver clean, transparent sound. They bring you the excitement of a large sound stage, yet they fit easily into your listening room.

Each model, DL4, DL6, and DL8, are laser-designed, a proven Celestion technique, to reproduce the full dynamic range of live concerts with moderately-priced audio systems. The latest technology, the thrill of the stage performance, are now available to every music lover.

From Celestion. The DL series that brings it all back home.

Celestion Industries, Inc.
Kuniholm Drive — Box 521,
Holliston, MA 01746
(617) 429-6706 — Telex 948417
Outside Massachusetts
1-800-CEL-SPKR

Visit us at Booth 2-26 McCormick Center

Enter No. 79 on Reader Service Card

TURNTABLES

MANUFACTURER	Model	Speeds—See Code	Wow & Flutter DIN 45-501	Rumble—dB, DIN 45-539-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Dials/Slide Dustcover?	Multi-Play? Number of Discs	Arm Type	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	Cat. Mount Fixed—F, Removable Shell—R, P, Mount—P, Changeable Wand—W	Dimensions, Inches, Including Dustcover	Price, \$
DENON	DP-7F	B	0.018 wrms	75	Direct	0.01		Yes	P/S	8 5/8	C/R	1.25	No	Fixed	P	14 3/8 x 14 1/4 x 3 3/4	160.00		
	DP-23F	B	0.020 wrms	75	Direct	0.002		Yes	P/S	8 5/8	C/R	0-3.0	No	0.4-9.0	R	17 1/8 x 14 1/4 x 4 1/8	200.00		
	DP-30LII	B	0.015 wrms	78	Direct	0.002	5	No	P	8 5/8	R	0-2.5	Yes	4.5-9.0	R	17 3/4 x 15 7/8 x 5 1/2	275.00		
	DP-35FB	B	0.012 wrms	78	Direct	0.002		Yes	P/S	8 5/8	C/R	0-3.0		4.0-9.0	R	17 1/8 x 16 1/4 x 5 3/8	250.00		
	DP-37F	B	0.01 wrms	78	Direct	0.012		Yes	P/S	8 5/8	C/R	0-3.0		4.0-9.0	R	17 1/8 x 16 1/4 x 5 3/8	300.00		
	DP-45F	B	0.012 wrms	78	Direct	0.002		Yes	P/S	8 5/8	C/R	0-3.0		4.0-9.0	R	17 1/8 x 16 1/4 x 5 3/8	350.00		
	DP-61F	B	0.008 wrms	82	Direct	0.002		Yes	P/S	9 3/4	C/R	0-3.0		3-12	R	17 7/8 x 17 1/2 x 5 7/8	500.00		
	DP-62L	B	0.008 wrms	82	Direct	0.002		No	P/S	9 3/4	R	0-3.0		4-15, 11-20	(2)W	19 1/8 x 16 1/4 x 7 1/4	595.00		
	DP-72L	B	0.008 wrms	82	Direct	0.002		No	P/S	9 3/4	R	0-3.0		4-15, 11-20	(2)W	19 1/8 x 16 1/4 x 7 3/4	695.00		
DUAL	CS5000	C	0.02	80	Belt	0.03		No	P		C	1.0-3.0	Yes	2.5-10	150	R	17 1/4 x 5 3/4 x 15 1/4	300.00	
	CS505-2	B	0.05	78	Belt	0.035	6	No	P		C	1.0-3.0	Yes	2.5-10	150	R	17 1/2 x 4 1/2 x 14 1/2	200.00	
	CS530	B	0.06	75	Belt	0.035	6	Yes	No		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	
	CS515	B	0.07	72	Belt	0.045	6	Yes	No		C/R	1.0-3.0	Yes	2.5-10	150	R	17 1/2 x 4 1/2 x 14 1/2	135.00	
	CS514	C	0.07	72	Belt	0.05		Yes	No		C/R	1.0-3.0	Yes	2.5-10	150	F	17 1/4 x 4 1/4 x 14 1/4	100.00	
	CS630Q	B	0.02	80	Direct	0.02	12	Yes	No		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	
	CS620Q	B	0.025	78	Direct	0.025	12	Yes	No		C/R	0.5-3.0	Yes	2.5-10	150	R	17 1/4 x 4 1/4 x 14 1/4	200.00	
	CS616Q	B	0.025	75	Direct	0.025	12	Yes	No		C	0.5-3.0	Yes	2.5-10	150	R	17 1/4 x 4 1/4 x 14 1/4	180.00	
	EMT-FRANZ	EMT 938	C, D	0.075	70	Direct	0.01	10	Yes	No	P	9 3/4		Yes			R	19 1/2 x 17 1/2 x 7 1/2	2550.00
ENTEC	Granite	B			Direct			Yes	1								38 x 23 x 23	6000.00	
FISHER	MT-25CD	A	0.04	55	Belt	1.5		Yes	P								R	13 1/4 x 4 1/4 x 13 1/4	99.95
	MT-36CD	B	0.04	55	Belt	1.5		Yes	P								R	15 3/4 x 4 1/4 x 13 3/4	79.95
	MT-710CD	B	0.08	55	Belt	1.0		Yes	P	8 3/4	R		Yes			R	17 3/8 x 4 1/4 x 13 3/4	89.95	
	MT-720CD	B	0.035	70	Direct	0.5	3	Yes	P	8 3/4	R		Yes			R	17 3/8 x 4 1/4 x 13 3/4	99.95	
	MT-730CD	B	0.035	70	Belt	1.5		Yes	P	6 1/4	C/R					P	17 3/8 x 4 1/2 x 14 1/2	179.95	
	MT-750CD	B	0.035	70	Direct	1.5		Yes	L	6 1/4	C/R/P					P	17 3/8 x 4 1/2 x 14 1/2	229.95	
GOLDMUND	Studiott	B			Direct	0.02		Yes										18 1/2 x 17 x 7	1575.00
	Studio	B			Direct	0.02		Yes										19 x 19 1/2 x 8	2500.00
	Reference	D			Belt	0.02	4	Yes										26 3/4 x 21 1/4 x 29 1/2	12,900.
HARMAN/KARDON	T30C	B	0.05	65	Belt		3	Yes	No	P	8 1/2	C	1-3	Yes	4.5-7	160	R	17 3/8 x 5 3/4 x 14 7/8	195.00
	T35C	B	0.04	68	Belt		3	Yes	No	P	8 1/2	C	1-3	Yes	3-8	160	R	17 3/8 x 5 3/4 x 14 7/8	245.00
	T55C	B	0.035	68	Belt		3	Yes	No	P	8 1/2	C	1-3	Yes	3-8	Sel.	R	17 3/8 x 5 3/4 x 15 1/8	365.00
	T65C	B	0.025	70	Belt		3	Yes	No	P	8 1/2	C	1-3	Yes	4.5-13	Sel.	R	17 3/8 x 5 3/4 x 15 1/8	495.00
HEYBROOK	TT-2	B	0.1	73	Belt			No									6 1/4 x 17 1/2 x 14 1/4	398.00	
HITACHI	HT17	B	0.045		Belt			Yes	P		R						P	17 1/8 x 14 3/8 x 3 3/8	90.00
	HTL303UTB	B	0.045		Belt			Yes	P		P		Yes				P	17 1/8 x 12 3/8 x 3 3/4	180.00
JVC	QL-Y66F	B	0.03		Direct	0.002		No	No	P/S	10	C/R	0-3	Yes			W	19 1/2 x 7 3/8 x 16	470.00
	QL-L208	B	0.045		Direct	0.005		Yes	No	L		C/R	1.25				P	17 1/4 x 3 7/8 x 14 1/4	240.00
	L-L10B	B	0.07		Belt			Yes	No	L		C/R	1.25				P	17 1/4 x 3 7/8 x 14 1/4	175.00
	QL-FX5B	B	0.045		Direct	0.005		Yes	No	P		C/R	0-3				P	17 1/4 x 4 1/4 x 14 1/4	150.00
	L-FX4	B	0.055		Direct			Yes	No	P		C/R	0-3				P	17 1/4 x 4 1/4 x 14 1/4	125.00
	L-AX3	B	0.07		Belt			Yes	No	P		C/R	0-3				P	17 1/4 x 4 1/4 x 14 1/4	90.00
KENWOOD	KD-770D	B	0.02	80	Direct			No	No	P	9 5/8		Yes	2-12			R	19 3/8 x 16 1/8 x 6 3/8	410.00
	KD-74F	B	0.05	75	Direct			Yes	No	L		R					P	16 1/2 x 14 1/8 x 3 1/2	245.00
	KD-64F	B	0.05	75	Direct			Yes	No	P		C/R					P	16 1/2 x 14 1/8 x 3 1/2	205.00
	KD-54R	B	0.05	74	Direct			No	No	P		R					P	16 1/2 x 14 3/8 x 4 5/8	120.00
	KD-34R	B	0.07	70	Belt			No	No	P		R					P	16 1/2 x 14 3/8 x 4 5/8	110.00
	KYOCERA	PL-701	B	0.03	70	Belt		3	Yes	No	P	8 1/2	C/R	0-3	Yes	3-10	190	R	18 1/8 x 6 x 15 3/8
PL-601		B	0.035	68	Belt		3	Yes	No	P	8 1/2	C	0-3	Yes	3-10	190	R	18 1/8 x 6 x 15 3/8	350.00
PL-910		B	0.025	78	Belt		3	No	No									18 x 7 1/2 x 15 1/4	2000.00
LINN	Linn Sondek LP12	A	0.03	70	Belt	0.02		No										17 1/2 x 14 x 9 1/2	795.00
LOGIC LIMITED	DM101	B	0.08	78	Belt		3	No	No	P	8 1/4		1.0-4.0	Yes	4-8	180	F	19 x 15 x 6	795.00
	Tempo	B	0.08	78	Belt	0.02		No	No	P	8 1/4		1.0-4.0	Yes	4-8	180	F	18 x 14 x 6	495.00
LUXMAN	P405	B	0.06	69	Belt		3	Yes	No	P		P	0.75-4	Yes			R	16 3/8 x 4 3/4 x 14 7/8	200.00
	P406	B	0.04	70	Belt		3	Yes	No	L		P	1-1.5				P	16 3/8 x 4 1/2 x 14 1/8	270.00
MAPLENDLL	Athena	B	0.07	77	Belt	0.02		Yes	1	L			1.0-6.0		2.5-10		R	18 7/8 x 17 7/8 x 6 1/2	795.00
	Artemis	B	0.07	81	Belt	0.01		Yes	1	L		C/R	1.0-6.0		2.5-12		R	18 x 25 1/4 x 6 1/2	1395.00
	Apollo	B	0.03	81	Belt	0.01	3	Yes	1	L		R	1.0-6.0		2.5-16		R	18 x 25 1/4 x 6 1/2	2695.00
MARANTZ	TT151	B	0.09	65	Belt			Yes	No	P							P	4 x 16 1/2 x 14 3/8	99.95
	TT251	B	0.07	68	Direct		6	Yes	No	P		R		Yes			P	4 x 16 1/2 x 13 1/4	139.95
	TT451	B	0.05	70	Belt			Yes	No	L		C/R					P	3 3/4 x 16 3/8 x 13 1/2	199.95
MERRILL AUDIO	Merrill	B	0.02	60	Belt	0.05		No	No									19 x 15 x 8	789.00
J. A. MICHELL (Continued)	Focus One	B	0.05	75	Belt	0.1	No	No	No									17 1/4 x 14 3/4 x 5 1/4	390.00
	Focus 'S'	B	0.05	76	Belt	0.1	No	No	No									17 1/4 x 14 3/4 x 5 1/4	499.00



FOR THE SHEER LOVE OF MUSIC

There's a big difference between real music and "hi-fi". Unfortunately, even with the most expensive systems all you usually end up with is spectacular "hi-fi", not music. This doesn't have to be the case. When proper attention is paid to the hierarchy of the components, even a moderately priced system can provide music in your home.

The system above features Linn's new Index Loudspeaker at \$325 a pair, a

Naim Nait Integrated Amplifier at \$395, the Linn Basik Plus Arm and Cartridge at \$160, and the Linn Sondek LP12 Turntable at \$795. The total price of the system is \$1,675.

Whether you plan to purchase an entire system, or simply improve your existing system, we suggest that you visit your Linn/Naim dealer. He will see to it that your purchase does indeed bring you more enjoyable music, rather than simply more spectacular "hi-fi".

Distributed in the United States and Canada by:
AUDIOPHILE SYSTEMS, LTD., 6842 HAWTHORN PARK DRIVE, INDIANAPOLIS, INDIANA 46220
ALDBURN ELECTRONICS, LTD., 50 ROLARK DRIVE, SCARBOROUGH, ONTARIO M1R 4G2

Enter No. 9 on Reader Service Card



You've got what it takes.

Salem Spirit

*Share the spirit.
Share the refreshment.*

KIN 3: 17 mg. "tar", 1.3 mg. nicotine, 100's: 17 mg. "tar",
1.4 mg. nicotine, av. per cigarette by FTC method.

**Warning: The Surgeon General Has Determined
That Cigarette Smoking Is Dangerous to Your Health.**



TURNTABLES

MANUFACTURER	Model	Speeds—See Code	Wow & Flutter DIN 45507	Rumble —dB, DIN 45539-B	Drive System	Speed Inaccuracy, ±%	Speed Adjustment Range, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type: Pivot=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: Fixed=F, Removable Shell=R, P-Mount=P, Changeable Wind=W	Dimensions Inches, Including Dustcover	Price, \$	
																				SPEED CODE A—33 1/3 B—33 1/3, 45 C—33 1/3, 45, 78 D—Continuously Variable
REALISTIC	TAB-1600 (42-2905)	B	0.05	65	Belt	0.4		Yes	No	L/S	C/R	1.5	No		168	W	13 1/4 x 13 3/4 x 4	159.95		
	TAB-2100 (42-2911)	B	0.025	75	Direct		5	Yes	No	L/S	C/R	1.5	No		270	W	13 3/4 x 15 x 4 1/2	159.95		
	TAB-430 (42-2914)	B	0.05	70	Direct		5	Yes	No	P	8 1/2	R	1.75- 2.25	Yes	2-10	200	R/P	15 x 13 3/8 x 5 1/8	129.95	
	TAB-320 (42-2915)	B	0.07	64	Belt	0.4		Yes	No	P	7 3/4	R	2.5-3.5	Yes	2-10	300	R	13 3/4 x 14 1/4 x 4 1/2	99.95	
	TAB-85 (42-2984)	B	0.1	56	Belt	1.0		No	3	P	8	C/R	2.5-4	No		320	F	15 x 13 1/8 x 5 3/8	79.95	
	TAB-79 (42-2985)	B	0.1	56	Belt	1.0		No	3	P	8	C/R	4-6	No		320	F	15 x 13 1/8 x 5 3/8	69.95	
REGA	Planar 2	B			Belt	0.05		No	No	P	9 3/8		0-3.5	Yes	4.5-10	100	F	17 1/2 x 14 x 5	325.00	
	Planar 3	B			Belt	0.05		No	No	P	9 3/8		0-3.5	Yes	4.5-15	100	F	17 1/2 x 14 x 5	450.00	
REVOX	B791	B	0.05	70	Direct	0.01	9.9	Yes	No	L/S	1 1/2	C/R	0.8-2.0	No	2.5-10	220	F/P	17 1/2 x 15 x 5 1/2	725.00	
	B795	B	0.05	70	Direct	0.01		Yes	No	L/S	1 1/2	C/R	0.8-2.0	No	2.5-10	220	F/P	17 1/2 x 15 x 5 1/2	579.00	
ROTEL	RP830	B	0.03		Belt			No	No	P			0.5-3	Yes			R	17 x 5 3/8 x 14	250.00	
	RP850	B	0.03		Belt			No	No	P			0.5-3	Yes			R	17 x 5 3/8 x 14	375.00	
SANSUI	XP-99	B	0.012	78	Direct			Yes		P		C/R		Yes			W	17 x 6 3/8 x 6 1/2	399.00	
	XR-07	B	0.009	80	Direct			Yes		P		C/R		Yes			W	19 3/8 x 7 x 17	499.00	
	P-195R	B	0.08	72	Direct			Yes		(2)L		C/R/P				(2)F	17 1/2 x 5 x 14	500.00		
	P-L75	B	0.035	72	Direct			Yes		P		C/R/P					P	17 x 3 3/4 x 14 3/4	34.00	
	P-L55	B	0.035	72	Direct			Yes		L		C/R					P	17 x 3 3/4 x 14 3/4	21.00	
	P-L45	B	0.035	72	Direct			Yes		L		C/R					P	17 x 3 3/4 x 14 3/4	18.00	
	P-L35	B	0.035	72	Direct			Yes		L		C/R					P	17 x 3 3/4 x 14 3/4	16.00	
	P-D15	B	0.04	72	Direct			Yes		L		R					P	17 x 3 3/8 x 14 1/2	12.00	
	H. H. SCOTT	PS69Q	B	0.045	55	Direct			Yes		S		R/P					P		150.00
PS69		B	0.045	55	Direct			Yes		S		R/P					P		130.00	
PS59		B	0.045	55	Belt			Yes		S		R/P					P		110.00	
S. E. E. LTD.	Revolver w/Linn Basik LVX arm & Basik III cartridge	B	0.08	65	Belt	0.02		No	No	P	9		0.75-3.0	Yes	2.0-10.0	100	R	16 1/2 x 14 1/4 x 4 1/4	450.00	
SHARP	RP-25	B	0.1	60	Belt	2.0		No		P	8 1/2	R	3.0	No	4-6		P	17 x 4 1/4 x 14 1/2	79.95	
	RP-19 (Front Load)	B	0.06	65	Belt	+2.0, -1.5			†	(2)L	3 3/8	C/R/P	3.0	No			F	13 x 4 1/8 x 13 3/8	249.95; †2 sides	
SHERWOOD	ST-870/ ST-870B	B	0.09		Belt			Yes	No	P	8.9	R	1.2-2.2	Yes			F	17 3/8 x 4 5/8 x 14 1/4	99.95	
	ST-891	B	0.04	63	Direct	0.3	3	Yes	No	P	8.5	R	1-1.5	Yes			P	17 3/8 x 5 1/8 x 15	129.95	
	ST-910	B	0.04	65	Direct	0.3		Yes	No	L/S	6.5	C/R	1.5-2.5	No			R	17 3/8 x 4 5/8 x 16	199.95	
SHINON	Silk Drive	B			Belt		10	Yes										18 1/2 x 14 1/2 x 8	595.00	
SONOGRAPHE	SG3	B	0.02	65	Belt		0	No	No									18 1/4 x 14 1/2 x 6 3/4	395.00	
SONY	PS-LX240	B	0.06	70	Belt			Yes		P	8 5/8	R		Yes			P	17 x 14 x 4 3/8	90.00	
	PS-LX340	B	0.06	70	Belt			Yes		P	8 5/8	C/R		Yes			P	17 x 14 x 4 3/8	120.00	
	PS-LX520	B	0.045	75	Direct			Yes		L		C/R					P	16 7/8 x 14 3/8 x 3 3/4	180.00	
	PS-LX550	B	0.06	70	Belt			Yes		L		C/R					P	14 x 14 7/8 x 3 3/4	165.00	
	PS-FL7II	B	0.045	70	Direct			Yes		L		C/R					P	17 x 15 1/8 x 3 7/8	250.00	
	PS-FL770	B	0.045	70	Direct			Yes		L		C/R/P					P	14 x 15 3/4 x 3 1/2	290.00	
	PS-FL9	B	0.045	75	Direct			Yes		L		C/R/P					P	17 x 15 1/8 x 3 7/8	350.00	
	PS-X555ES	B	0.025	78	Direct			Yes		L/S		C/R/P			10-19.5		R	17 x 16 3/4 x 4	420.00	
SOTA	Sapphire	C	0.03	84.5	Belt	0.02	5	No	No									20 1/4 x 16 1/2 x 7 1/2	895.00	
	Sapphire Vacuum	C	0.03	84.5	Belt	0.02	5	No	No									20 1/4 x 16 1/2 x 7 1/2	1345.00	
	Star Sapphire Star Acrylic	C	0.03	84.5	Belt	0.02	5	No	No									20 1/4 x 16 1/2 x 7 1/2	1450.00	
SYSTEMDEK	IIX	B	0.08	77	Belt	0.15		Yes	No									18 3/4 x 14 1/2 x 5 1/2	269.00	
	IIX-E	B	0.08	77	Belt	0.013		No	No									18 3/4 x 14 1/2 x 5 1/2	399.00	
	IV-E	B	0.06	77	Belt	0.013		No	No									19 1/2 x 15 1/2 x 6	679.00	
TECHNICS	SL-BD1	B	0.045	70	Belt	0.06	6	Yes		P	9 1/8		1.25	No	6	90	P	17 x 4 x 14 3/4	90.00	
	SL-BD2	B	0.045	70	Belt	0.06	6	Yes		P	9 1/8	R	1.25	No	6	90	P	17 x 4 x 14 3/4	100.00	
	SL-B92	B	0.045	70	Belt	0.06	6	Yes		P	9 1/8		1.25	No	6	90	P	17 x 4 x 14 3/4	100.00	
	SL-BD3	B	0.045	70	Belt	0.06	6	Yes		P	9 1/8	C/R	1.25	No	6	90	P	17 x 4 x 14 3/4	120.00	
	SL-QD2	B	0.025	78	Direct			Yes		P	9 1/8	R	1-1.5	No	6	90	P	17 x 4 x 14 3/4	130.00	
	SL-QD3	B	0.025	78	Direct			Yes		P	9 1/8	C/R	1-1.5	No	6	90	P	17 x 4 x 14 3/4	140.00	
	SL-QX200	B	0.025	80	Direct			Yes		P	9 1/8	R	1-1.5	Yes	6	90	P	17 x 4 x 14 1/8	200.00	
	SL-QX300	B	0.025	80	Direct		6	Yes		P	9 1/8	C/R	1-1.5	Yes	6	90	P	17 x 4 x 14 1/8	215.00	
	SL-MA1	B	0.025	81	Direct	0.002		Yes		P/S	9 1/8	C/R	0-2	Yes	6		P	17 7/8 x 6 3/4 x 16 1/8	350.00	
	SL-M2	B	0.031	82	Direct	0.002	6	Yes		P	9 1/8		1-1.5	Yes	6		P	17 7/8 x 6 3/4 x 16 1/4	400.00	
	SP-25	B	0.025	78	Direct		8	No	No									R	13 3/4 x 3 1/4 x 14 5/8	400.00
	SL-1200MK2	B	0.025	78	Direct		8	No	No	P	9 1/8		0-2.5	Yes	3-9.5		R	17 7/8 x 6 1/4 x 14 1/4	400.00	
	SL-M3	B	0.008	82	Direct	0.002	6	No	No	L	9 3/8	C/R	1.25		6		P	20 3/4 x 8 1/8 x 15 3/4	450.00	
	SP-15	C	0.025	78	Direct		9.9	No	No									P	13 3/4 x 3 3/8 x 14 3/8	700.00
	SP-10MKIIA	C	0.025	78	Direct		9.9	No	No									P	14 1/2 x 4 x 14 1/2	1100.00
	SP-10MKIII	C	0.021	92	Direct			Yes	No									P	14 1/2 x 4 1/2 x 14 1/2	1700.00
	(Continued)	SL-J1	B	0.025	78	Belt	0.002		Yes		L	4 1/8	C/R	1.25	No	6		P	12 3/8 x 3 1/2 x 12 3/8	150.00

Play the hits. With no errors.

By now, you're probably familiar with the virtues of compact discs. The wide dynamic range and absence of background noise and distortion. And the playback convenience.

Yet as advanced as the medium is, it's still not perfect.

Which is why you need a compact disc player as perfected as Yamaha's new CD-3.

The CD-3 uses a Yamaha-developed tracking servo control LSI to monitor its sophisticated 3-beam laser pickup. This LSI makes sure that horizontal and vertical tracking accuracy is consistently maintained. And that even small surface imperfections like fingerprints or dust will not cause tracking error and loss of signal.

Even more rigorous servo tracking control is provided by a unique Auto Laser Power Control circuit. Working with the tracking LSI, this circuit constantly monitors the signal and compensates for any manufacturing inconsistencies in the disc itself.

Then we use another Yamaha-developed signal processing LSI that doubles the standard 44.1 kHz sampling frequency to 88.2 kHz. This over-sampling allows

us to use a low-pass analog filter with a gentle cutoff slope. So accurate imaging, especially in the high frequency range, is maintained.

We also use a special dual error correction circuit which detects and corrects multiple data errors in the initial stage of signal reconstruction.

So you hear your music recreated with all the uncolored, natural and accurate sound compact discs have to offer.

Another way the CD-3 makes playing the hits error-free is user-friendliness.

All multi-step operations like random playback programming, index search, and phrase repeat are performed with ease. And visually confirmed in the multi-function display indicator.

And the wireless remote control that comes with the CD-3 allows you to execute all playback and programming commands with the greatest of ease.

But enough talk. It's time to visit your Yamaha audio dealer and tell him you want to play your favorite music on a CD-3. You can't go wrong.

Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622



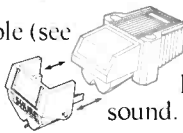
TURNTABLES

MANUFACTURER	Model	Speeds—See Code Wow & Flutter, DIN 45-507 Rumble, —dB, DIN 45-539-B Drive System	Speed Inaccuracy, ±%	Speeds—See Code Wow & Flutter, DIN 45-507 Rumble, —dB, DIN 45-539-B Drive System	Speed Inaccuracy, ±%	Controls Outside Dustcover?	Multi-Play? Number of Discs	Arm Type	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 = F, Removable Shell = R, P-Mount = P, Changeable Wand = W	Dimensions Inches, Including Dustcover	Price, \$	TONEARM/CARTRIDGE	
																	Speeds—See Code Wow & Flutter, DIN 45-507 Rumble, —dB, DIN 45-539-B Drive System	Speed Inaccuracy, ±%
TECHNICS (Continued)	SL-J2	B	0.025	78	Direct	0.002		L	4 3/8	C/R	1.25	No	6		P	12 3/8 x 3 1/2 x 12 3/8	190.00	
	SL-J3	B	0.025	78	Direct	0.002		L	4 1/8	C/R/P	1.25	No	6		P	12 3/8 x 3 1/2 x 12 3/8	230.00	
	SL-L1	B	0.025	78	Direct	0.002		L	4 1/8	C/R	1.25	No	6		P	17 x 3 1/2 x 13 3/4	160.00	
	SL-L2	B	0.025	78	Direct	0.002		L	4 1/8	C/R	1.25	No	6		P	17 x 3 1/2 x 13 3/4	200.00	
	SL-L3	B	0.025	78	Direct	0.002		L	4 1/8	C/R/P	1.25	No	6		P	17 x 3 1/2 x 13 3/4	230.00	
	SL-QL1	B	0.025	78	Direct	0.002		L	4 1/8	C/R	1.25	No	6		P	17 x 3 1/2 x 13 3/4	470.00	
	SL-B500	B	0.045	70	Belt		6	P	9 1/8	C/R	1.25	Yes	6		P	17 x 7 1/8 x 14 1/4	200.00	
	SL-D500	B	0.03	75	Direct		10	P	9 1/8	C/R	1.25	Yes	6		P	17 x 7 1/8 x 14 1/4	240.00	
THORENS	TD166 MKII	B	0.05	70	Belt	0.5		P	9	1-3	Yes	3-8	190	F	17 x 14 1/4 x 6 3/8	220.00		
	TD318	B	0.04	70	Belt	0.2		P	9 1/8	C	1-3	Yes	3-8	150	F	17 3/8 x 13 3/4 x 6 3/4	350.00	
	TD320	B	0.035	72	Belt	0.2		P	9 1/8	C	1-3	Yes	3-8	100	W	17 3/8 x 13 3/4 x 6 3/4	500.00	
	TD126 MKIIIC	C	0.035	72	Belt	0.1	6	P	9	C	1-3	Yes	3-8	190	W	19 1/8 x 15 1/2 x 6 3/4	800.00	
	TD321	B	0.035	72	Belt	0.2		P	9	C	1-3	Yes	3-8	190	W	17 3/8 x 13 3/4 x 6 3/4	395.00	
TD126 MKIIIB	C	0.035	72	Belt	0.1	6	P	9	C	1-3	Yes	3-8	190	W	19 1/8 x 15 1/2 x 6 3/4	645.00		
ULTRX	UTB3	B	0.05	70	Belt			P		R	1.25	No		P	16 1/2 x 14 1/4 x 5	89.95		
	UTD3	B	0.04	70	Direct			P		R	1.25	No		P	16 1/2 x 14 1/4 x 5	99.95		
	UTQ3	B	0.03	70	Direct			P		R	1.25	No		P	16 1/2 x 14 1/4 x 5	119.95		
VECTOR RESEARCH	VT-160	B	0.08	63	Belt			P				Yes		P	16 3/8 x 13 1/2 x 4	90.00		
	VT-240	B	0.05	70	Belt		3	P				Yes		P	16 3/8 x 14 1/4 x 4 1/2	150.00		
	VT-280	B	0.05	70	Belt			L						P	16 1/4 x 13 3/8 x 3 3/4	170.00		
VPI	HW-19 MKII	B	0.04	77	Belt	0.02									21 1/4 x 17 1/2 x 6 1/2	885.00		
C. J. WALKER	CJ-61	B	0.06	77	Belt	0.02	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	P	9		0.5-3.0	Yes	3-12	100	R	18 3/4 x 14 1/2 x 6	289.00; 587.00 w/Arm	
YAMAHA	PF-1000	B	0.023	78	Belt		6	P	8 3/4	R	1-3	Yes	2.5-9	110	R	18 3/8 x 14 3/4 x 6 1/8	599.00	
	PF-800	B	0.028	78	Belt		6	P	8 3/4	R	1-3	Yes	2.5-9	110	R	18 3/8 x 14 3/4 x 6 1/8	499.00	
	PF-50	B	0.015	78	Direct			P	8 3/4	C	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14	195.00		
	PF-30	B	0.04	78	Belt			P	8 3/4	C	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14	145.00		
	PF-20	B	0.04	78	Belt			P	8 3/4	R	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14	125.00		
	P-520	B	0.015	78	Direct		3	P	8 3/4	C	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14 1/8	189.00		
	P-320	B	0.04	78	Belt			P	8 3/4	C	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14 1/8	149.00		
	P-220	B	0.04	70	Belt			P	8 3/4	R	1-3	Yes	2.5-9	R/P	17 1/8 x 4 3/8 x 14 1/8	129.00		

Stylus wear. By the time you hear it, it's too late.

If you haven't replaced your stylus (needle) in the past year, you may be permanently damaging every record you play.

Replacing your stylus is simple (see diagram). And selecting the proper stylus to replace it with is also easy. Make certain it's a genuine Shure stylus.



All Shure styli are designed to exacting specifications for precise stereo reproduction. And *only* a Shure stylus can restore your Shure cartridge to its original standard of performance.

Don't accept substitutes. Protect your records *and* your sound. Get a genuine Shure Replacement Stylus. Soon.

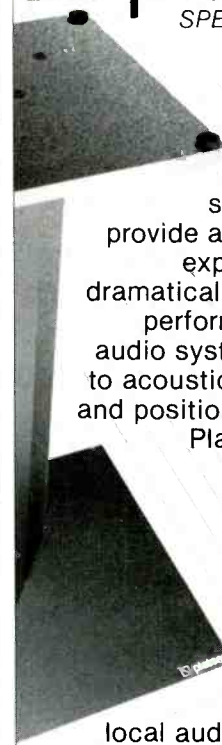
SHURE®

BREAKING SOUND BARRIERS

For the name and location of the Shure Stylus replacement center in your area, call or write: Shure Brothers Inc., 222 Hartrey Avenue, Evanston, IL 60202 (312) 866-2553.

Enter No. 61 on Reader Service Card

plateau®
SPEAKER STANDS



Plateau speaker stands provide an easy and inexpensive way to dramatically improve the performance of your audio system. Designed to acoustically decouple and position the speaker, Plateau provides tighter bass, more focused midrange and precise stereo imaging.

Contact your local audio retailer and ask for Plateau by name.

naiaa

Box 1840
Brantford, Ontario
N3T 5W4

Box 1250 Falls Sta
Niagara Falls, N.Y.
14303-0290

RECORD CLEANING

PERFECTED!

Have you ever listened to a *truly clean* record? If so, you know the musical results can be intoxicating. But, if you aren't familiar with **Nitty Gritty Record Care Products**, your answer would have to be, "No." The fact is, if you're not cleaning your records on a Nitty Gritty, your records are still *dirty!*

Dust, grease, and static electricity contaminate your records. Record brushes and their related ointments do little to change this. Microscopic examination reveals the garbage left behind by these hand held cleaners. This garbage is preventing you from hearing as much as 30% of the music. And it's ruining your records and stylus prematurely.

Nitty Gritty record cleaners employ a unique cleaning fluid, deep scrubbing action, and a powerful vacuum that *totally* purifies the record's grooves. The results of a Nitty Gritty cleaning is the elimination of dust, grease, and static electricity. And much more musical enjoyment.

Your local Nitty Gritty dealer would be happy to demonstrate these results. Call or write for information and a list of dealers.



MODEL 2.5 Fi

Awarded: "**Product of the Year**" in 1984 by **AUDIO VIDEO INTERNATIONAL**.

Selected for the "**Design and Engineering Exhibit**" at the Consumer Electronics Show in June 1985.

Recommended by:

STEREO REVIEW - "... Nitty Gritty is a very effective record cleaning system. It performed much better than one of the most highly regarded manual systems in a direct comparison."

AUDIO MAGAZINE - "(Nitty Gritty) yeilded massive improvements in noise and musical detail over the best hand brushes . . ."

STEREOPHILE - "... these record cleaners effect a major sonic improvement, even on new records . . . they literally clean up the highs, improve tracking, yield better *air* and imaging and extend record life. You will be amazed . . ."

AUDIO AMATEUR - "This is the first time I have felt that I have record care under control."

INTERNATIONAL AUDIO REVIEW - "(Nitty Gritty) made previously dirty records sound like heaven . . ."

SENSIBLE SOUND - "Thanks to Nitty Gritty, there is now no reason for any music lover to deprive themselves of the best possible sound their record collection can provide."

SON HI FI - "The Nitty Gritty is, in conclusion, the best audio component this decade has produced."



CD CLEANER

Major manufacturers of compact disc players now recommend that CD's be *cleaned* for best results. The reason for this is simple: any obstruction of the player's light beam will cause a reading error.

The new Nitty Gritty **CD CLEANER** is the first motorized CD cleaner to use bi-directional, asymmetrically pitched rotation. It's faster, easier to use, and more thorough than any other CD cleaner.

But, that's not all. Nitty Gritty **PURE CD** is the first CD cleaning fluid that restores tiny surface scratches and even protects against future surface damage while it cleans and destats. Your CD's will love Nitty Gritty just as much as your records.

NITTY GRITTY, 4650 ARROW HIGHWAY #F4, MONTCLAIR, CALIFORNIA 91763 (714) 625-5525

Enter No. 48 on Reader Service Card

MCLAREN AUDIO



- McLaren 602 Straight Line Preamplifier, 60 or 80 dB gain.
- McLaren 402 Full Feature Preamplifier (pictured above).
- McLaren 702 100/100 watt Stereo Power Amplifier.
- McLaren 902 250 watt Mono-block Power Amplifier.
- McLaren 1002 AM/FM Digital Stereo Tuner, 16 presets.

McLaren Audio builds all their products to the very highest standards. Build quality and parts selection are as you would expect, beyond reproach. This equipment sounds as good as it looks!

DISTRIBUTED BY:

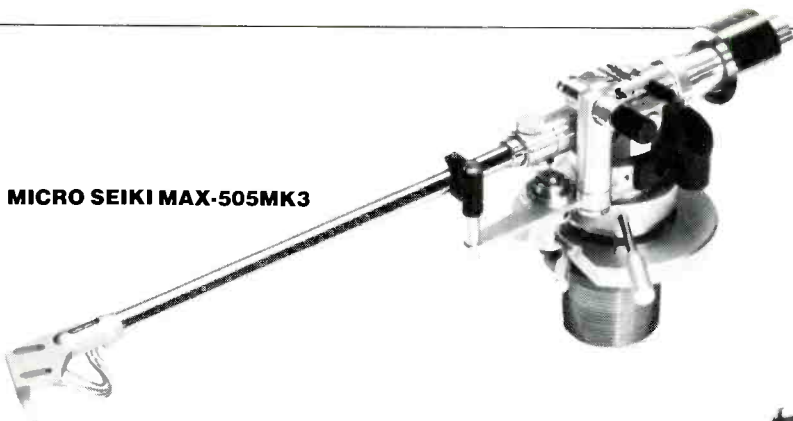
audioquest

412 North Coast Highway, #B-360, Laguna Beach, California 92651 • (714) 497-1214

Enter No. 78 on Reader Service Card

TONEARMS

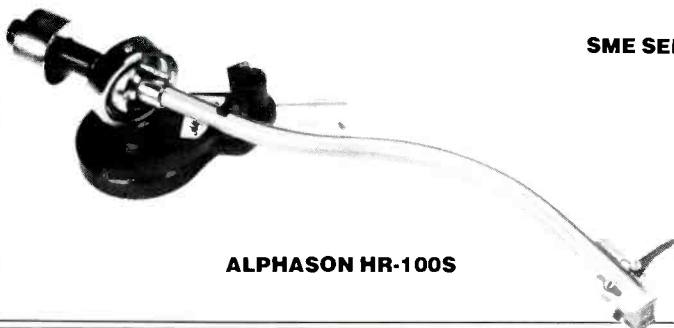
MICRO SEIKI MAX-505MK3



SME SERIES V



ALPHASON HR-100S



LINN BASIK PLUS



MANUFACTURER	Model	Type: Pivoted = P, Linear = L, Servo = S	Cartridge Mount: Fixed = F, Removable Shell = R, P-Mount = P	Changeable Wind: W	Cueing?	Anti-Skating Adjustment?	Adjustable Vertical Tracking Angle?	Pivot-Stylus Distance, Inches	Overall Length, Inches	Maximum Tracking Error, Degrees per Inch Range, Grams	Recommended Tracking Force	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	Mounting Hole Diameter, Inches	Price, \$	Notes
ALPHASON	HR-100S	P	F	Yes	Yes	Yes	9	11 5/8		0-3	3-25	100	1 1/4	795.00	Titanium tube; carbide bearings; with mono-crystal silver wire, Model HR-100S-MCS, \$895.00. Titanium tube.	
	Xenon 115	P	F	Yes	Yes	Yes	9	11 5/8		0-3	3-12	100	1 1/4	495.00		
	Delta 112 Opal 117	P P	F F	Yes Yes	Yes Yes	Yes Yes	9 9	11 1/2 11 1/2		0-3 0-3	3-15 3-15	100 100	1 1			
AUDIOQUEST	AQ 407	P	R	Yes	Yes	Yes	9.8	12 1/2	1.3	0.5-3.0	4-14	92	1 1/8	495.00		
AUDIO-TECHNICA	AT1010	P	R	Yes	Yes	Yes	9 1/2	13	1.5	0-2.5	4-14	48	1	375.00	Planar pivot.	
BROADCAST ELECTRONICS	S-320	P	R	Yes	Yes	Yes	9	12 1/4	1.0	1.0				150.00		
	S-260	P	R	Yes	Yes	Yes	12 1/2	15 3/4	1.0	1.0				175.00		
CADAWAS ACOUSTICS	Columbia One			Yes	Yes	Yes				0-60	1-50			500.00	Modification.	
MITCHELL A. COTTER	TAB-1	P	R	Yes	Yes	Yes	12	16	0.235	2-10	3-35	250	1 5/8	1450.00		
DENNESEN	ABLT-1	L†	W	Yes		††	Adj.	12	0	Adj.	Any	100		1450.00	†Air-bearing; ††VTA adjustable during play.	
DYNAVECTOR	DV-501	P	R	Yes	Yes	Yes	9 1/4	12		0-3	4-12	84	1 1/2	600.00	Electrodynamic damping. As above.	
	DV-507	P	R	Yes	Yes	Yes	9 1/2	11 1/2		0-3	4-12	84	1 1/2	850.00		
EMINENT TECHNOLOGY	One	L†	R	Yes		Yes	7 3/8	10 1/4	0	0-5	0-12	16		600.00	†Air-bearing; pump inc.; optional damped cueing, \$80.00. Pump inc., calibrated VTA adjustment, decoupled counterweight.	
	Two	L†	W	Yes		Yes	7 3/8	10 3/4	0	0-5	0-16	22		850.00		
FIDELITY RESEARCH	FR-64fxn	P	R	Yes	Yes	Yes	9.8	12.5	2	0-3	0-20	80	1.2	649.95	Oxygen-free copper wires. Silver wires. Transcription tonearm, oxygen-free copper wires. Transcription tonearm, silver wires.	
	FR-64fxs	P	R	Yes	Yes	Yes	9.8	12.5	2	0-3	0-20	30	1.2	709.95		
	FR-66fxn	P	R	Yes	Yes	Yes	12.3	15.2	1.6	0-3	5-20	77	1.2	899.95		
	FR-66fxs	P	R	Yes	Yes	Yes	12.3	15.2	1.6	0-3	5-20	30	1.2	979.95		

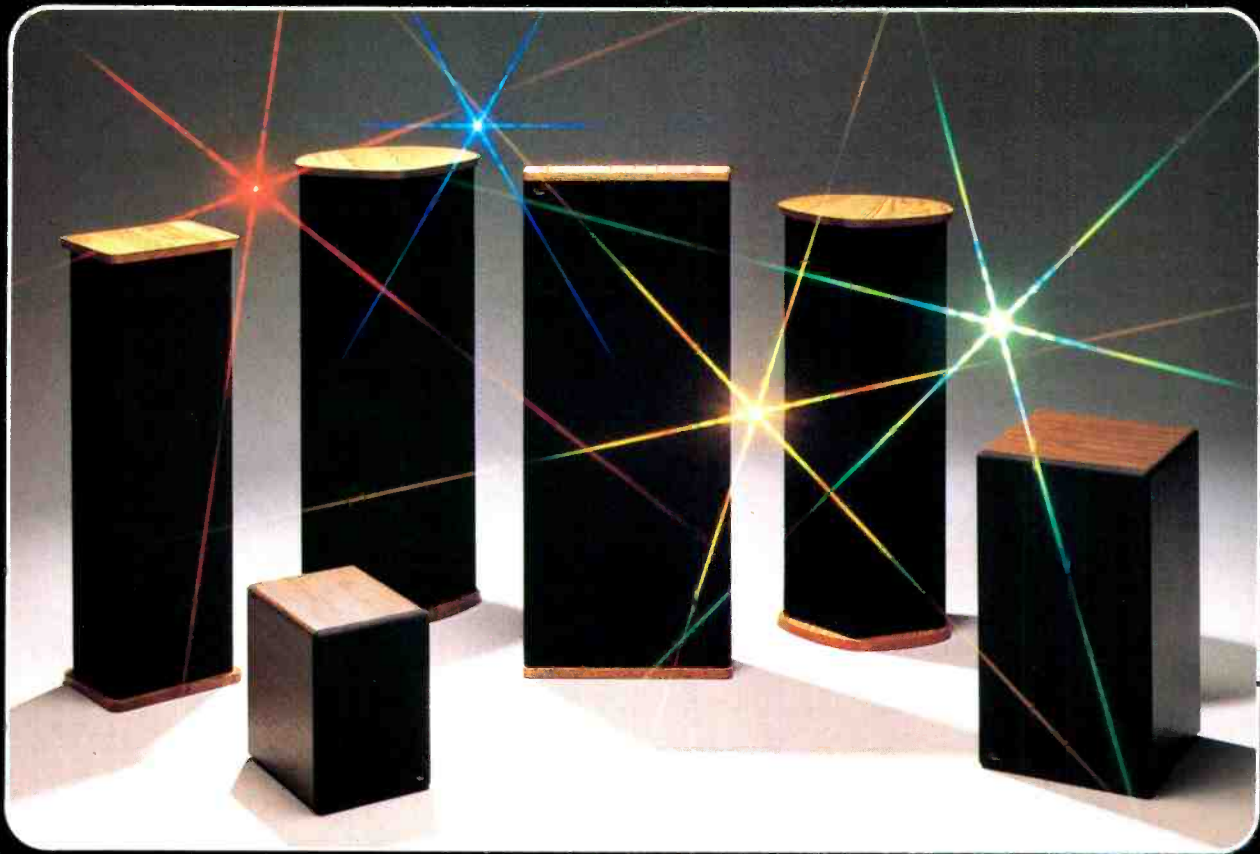
TO NEARMS

MANUFACTURER	Model	Type: Pivoted = P, Linear = L, Servo = S		Carriage Mount: Yes = F, No = R, Removable = P		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, Grams	Cartridge Weight Range, Grams	Total Cable Capacitance, pF	Mounting Hole Diameter, Inches	Price, \$	Notes
		L/S	R	Yes	No												
GOLDMUNO	T3 F	L/S	R	Yes			Yes			0.1		4-22				3000.00	Fully automatic, computer-based servo control. Servo control.
	T5	L/S	R	Yes			Yes			0.1		4-22				1575.00	
GRACE	G-707II	P	F	Yes	Yes	Yes	Yes	9.3	11.7	0.4	0-3	4-10	86	1		225.00	Metal headshell, azimuth adjustable.
	G-747	P	R	Yes	Yes	Yes	Yes	9.3	11.7	0.4	0-3	4-10	86	1		300.00	
	G-707 Mark III	P	F	Yes	Yes	Yes	Yes	9.3	11.7	0.4	0-3	4-10	86	1		300.00	
GRADO	Signature	P	R	Yes	Yes	Yes										485.00	
LINN	Ittok LV-II	P	F	Yes	Yes	Yes	Yes	9	11¼		0.75-3	2-15	100	1¼		520.00	Includes cartridge. As above.
	Basik Plus	P	F	Yes	Yes	Yes	Yes	9	11¼		0.75-3	2-10	100	1¼		160.00	
	Basik LVX	P	R	Yes	Yes	Yes	Yes	9	11¼		0.75-3	2-10	100	1¼		160.00	
MICRO-SEIKI	MAX-237	P	F/R/W	Yes	Yes	Yes	Yes	9.3	13	1.5	0-3	4-32		1.6		795.00	
	MAX-282	P	F/R/W	Yes	Yes	Yes	Yes	11	15	1.5	0-3	4-32		1.6		895.00	
	MAX-505III	P	F	Yes	Yes	Yes	Yes	9.3	12.75	1.5	0-3	4-15		1.4		375.00	
	MA-500	P	W	Yes	Yes	Yes	Yes			1.5	0-3					195.00	
MICRO-TRAK	303	P	R	No	†	Yes	Yes	8¾	12½	2	0.5-12			1¼		129.50	†Fluid anti-skate mechanism; memory balance. As above.
	306	P	R	No	†	Yes	Yes	10¾	14¾	1.25	0.5-12			1¼		169.50	
THE MOD SQUAD	Triplanar	P	F	Yes	Yes	Yes	Yes	9¾	12¾	0.03	0.05-3.0	4-22				2000.00	
MUSIC & SOUND	MAS 282 Series II	P	R	Yes	Yes	Yes	Yes	9	11¼		0.5-3.0	3-12	100	1		169.00	Internally damped tube.
NAKAMICHI	TA-100	P	W					9¾	12			4-11				85.00	
ODYSSEY ENGINEERING	RPI-XG MKII	P	W	Yes	Yes	Yes	Yes	9¾	10¾		0.5-4	2-12	150	1¼		895.00	Three interchangeable tubes; oxygen-free copper wire.
PREMIER	MMT	P	R	Yes	Yes	Yes	Yes	9.4	12		0-3	4-14	100	¾		250.00	Low-capacitance, oxygen-free copper wires; magnesium headshell. Wiring as above; azimuth adjustable; inc. VTA device, flexible link interconnect device.
	FT-3	P	F	Yes	Yes	Yes	Yes	9.4	12		0-3	4-14				475.00	
PRO-ACOUSTICS	Profile II	P	R	Yes	Yes	Yes	Yes	9	10¼		0-3.5	4-9		7/8		169.95	Straight arm tube, azimuth adjustable headshell. As above but S-shaped arm tube. Integral auto-lift mechanism.
	Profile IIS	P	R	Yes	Yes	Yes	Yes	9	10¼		0-3.5	4-9		7/8		199.95	
	Profile III	P	F	Yes	Yes	Yes	Yes	9	10¼		0-3.5	4-10		7/8		349.95	
REGA	RB300	P	F	Yes	Yes	No	Yes	9¾	12	1.0	0-3.5	4.5-15	100	1		195.00	
SAEC	WE-308N	P	R	Yes	Yes	Yes	Yes	9.5	13	1.1	0-3.0	5-40		1.2		250.00	Double knife-edge bearing; longer version, Model WE-308L. \$295.00. Bearing as above. Ceramic headshell inc. Transcription length. As above; straight; ceramic headshell.
	WE-317S	P	R	Yes	Yes	Yes	Yes	9.2	12.7	1.1	0-3.0	5-36		1.2		375.00	
	WE-407/23	P	R	Yes	Yes	Yes	Yes	9.2	12.6	1.1	0-3.0	5-34		1.7		495.00	
	WE-506/30	P	R	Yes	Yes	Yes	Yes	11.6	16.4	1.1	0-3.0	5-34		1.2		850.00	
WE-8000S T	P	R	Yes	Yes	Yes	Yes	12.1	16.7	1.1	0-3.0	3.5-12		1.2		1000.00		
SIGNET	XK 50	P	F/R/W	Yes	Yes	Yes	Yes	9½	13¼	1	0-1.6	4-11	75	1		450.00	Damped planar pivot. As above.
	XK 35	P	F	Yes	Yes	Yes	Yes	9½	11¾	1	0-2	2-9	75	1		300.00	
SME	Series V	P	F	Yes	Yes	†					0-3	4-18	100	Oval		1650.00	†VTA adjustable during play; one-piece magnesium tube, ball-race bearings, fluid damping.
SOUTHER ENGINEERING	Junior	L	W	Yes		Yes	Yes	2.0	10	0	0.5-2.5	1-20	†	(2)¼		550.00	†User-supplied. For 12-inch records; stainless steel; gold-plated, Tribeam 12 Model G, \$3200.00. For 16-inch records; stainless steel; gold-plated, Tribeam 16 Model G, \$3700.00.
	Tri-Quartz	L	W	Yes		Yes	Yes	2.0	10	0	0.5-2.5	1-20	†	(2)¼		850.00	
	Tribeam 12 S	L	W	Yes		Yes	Yes	2.0	10	0	0.5-2.5	1-20	†	(2)¼		3000.00	
	Tribeam 16 S	L	W	Yes		Yes	Yes	2.0	10	0	0.5-2.5	1-20	†	(2)¼		3500.00	
SYRINX	PU-3	P	F	Yes	Yes	Yes	Yes	9¾	11½			3-16		1.2		700.00	Split effective mass, azimuth adjustable. Azimuth adjustable.
	LE-2	P	F	Yes	Yes	Yes	Yes					3-12		1.2			
TECHNICS	EPA-250	P	W	Yes	Yes	Yes	Yes	9.8	10	2.1	0-2	5-11	41	2.4		450.00	Five interchangeable tubes.
WELL TEMPERED LAB	The Well Tempered Arm	P	F	No	Yes	Yes	Yes	9	12	Adj.	0.5-3	2-12	15	¼		500.00	Ligament suspension.
ZETA	Zeta	P	F	Yes	Yes	Yes	Yes	9			1-4	4-12	100	1		875.00	

IN DEFERENCE TO
TWENTY PAGES
OF MARKETING RHETORIC...

OUR SPEAKERS
DO NOT HYPE WELL!

THEY PERFORM



DCM Corporation

670 Airport Blvd.
Ann Arbor, Michigan 48104 U.S.A.
313-994-8481

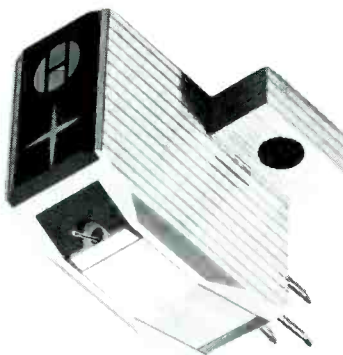
Achieving Performance
Through Excellence

Enter No. 22 on Reader Service Card

PHONO CARTRIDGES



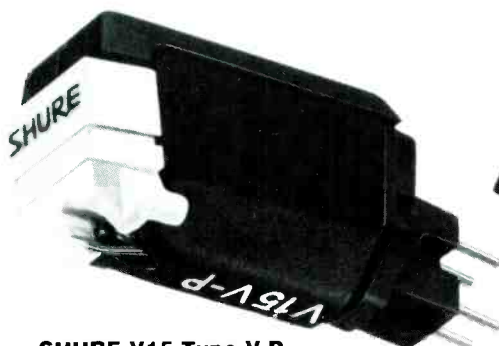
PICKERING XLZ/7500S



HIGHPHONIC MC-D15



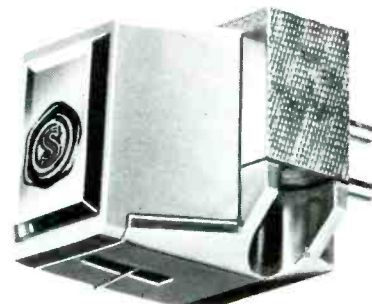
LINN KARMA



SHURE V15 Type V-P



EPOCH II HZ9S



SIGNET MK 440ml

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Stylus Type	Principle Moving Iron = MI, Induced Magnet = IM, Moving Coil = MC	Individual Response	Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Output, mV, 1 kHz, dB	Recommended Tracking Force Range, Grams	Recommended Load Capacitance, pF	Stylus Radius (Radius), Mils	Dynamic Compliance, µm/mM, Vertical/Lateral		Stylus Replacement: U = User, P = Mount, F = Factory	Mating: Integral Shell = I, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$
												Stylus Type	See Code					
ACCPHASE	AC-2	20-20 ± 1	MC	Yes	30	0.18	1.5-2.5		E	0.6 x 3.5	15 15	F	S			475.00	238.00	
	AC-3	20-20 ± 1	MC	Yes	30	0.20	1.5-2.0		M	0.2 x 7	18 18	F	S			375.00	188.00	
ADC	TRX-3	20-30 ± 1.5	IM	No	30	3	1-1.4	275	X	0.12 x 0.06 x 0.05	40/40	U		8		300.00	125.00	
	TRX-1	20-26 ± 1.5	IM	No	30	3	1-1.4	275	X	0.3 x 0.22 x 0.5	40/40	U		8		225.00	87.50	
	PSX-40	20-24 ± 1.5	IM	No	28	3.5	1.05-1.45	275	E	0.2 x 0.7	35/35	U	P/S	5-9		135.00	67.50	
	PSX-30	20-23 ± 2	IM	No	26	3.5	1.05-1.45	275	E	0.3 x 0.7	35/35	U	P/S	5-9		110.00	55.00	
	PSX-20	20-22 ± 2	IM	No	20	4	1.05-1.45	275	E	0.3 x 0.7	30/30	U	P/S	5-9		90.00	45.00	
	PSX-10	20-20 ± 2	IM	No	20	4	1.05-1.45	275	C	0.65	30/30	U	P/S	5-9		60.00	30.00	
ADCOM	HC-E II	20-20 + 2.5, -1	MC		22	2.3	1.6-2.0		E	0.3 x 0.7		F	S		4.7	140.00	77.00	
	HP-E II	20-20 + 2.5, -1	MC		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	2.3	1.6-2.0		V	0.2 x 2.8		F	S		4.7	220.00	121.00	
	XC-LT II	20-20 ± 1	MC		25	2.3	1.6-2.0		X	0.15 x 1.5		F	S		4.7	260.00	143.00	
	XC-MR II	20-20 ± 1	MC		25	2.3	1.6-2.0		M	0.15 x 3.0		F	S		4.7	325.00	179.00	
	SXC-vdH	20-20 + 3, -0	MC		25	2.3	1.8		V	0.15 x 3.3		F	S		4.7	450.00	248.00	
AKG	P100LE		MI	No			1.35	470	V			F	S		3.5	1000.00		
	P1000LE vdH II		MI	No			1.35	470	V			F	S		3.5	1000.00		
	Super Nova P8ES	10-28	MI	Yes			1.0-1.5	470	V			U	S		3.5	450.00	270.00	
	P25 MD-MKII	10-28	MI	Yes	30	25	4.75	0.75-1.25	470	X	0.2 x 0.7	24/	U	S		3.5	250.00	150.00
	P15MD-MKII	10-25	MI	Yes	30	22	4.75	1-1.5	470	E	0.3 x 0.7	25/	U	S		3.5	165.00	82.00
	P10ED-MKH	20-20	MI	Yes	25	15	8.25	1-1.5	470	E	0.3 x 0.7	20/	U	S		3.5	115.00	57.50
	P10ED-Studio	20-20	MI	No	25	15	8.25	2.5-4.5	470	E	0.3 x 0.7	20/	U	S		3.5	120.00	60.00
	P5ED	20-20	MI	No	25	15	8.25	1.25-2.0	470	E	0.3 x 0.7	20/	U	S		3.5	80.00	40.00
	P4	20-20	MI	No	20	15	5	1.0-2.0	470	E	0.3 x 0.7	15/	U	S		5.5	50.00	25.00
	P4DP	20-20	MI	No	20	15	5	1.0-2.0	470	E	0.3 x 0.7	15/	U	P		6	50.00	25.00
ANDANTE	FGV	12-40	MM	No	30	25	5.0	1.3-2.3	100	X		20/20	U	S		6	200.00	120.00
	E	12-30	MM	No	30	25	5.0	1-2.5	100	E	0.2 x 0.8	18/18	U	S		6	100.00	60.00
	S	18-27	MM	No	28	23	5.0	1-2.5	100	S	0.5	18/18	U	S		6	75.00	37.50
	HSP	18-25	MM	No	27	22	6.0	1-2	100	E	0.2 x 0.7	18/18	U	S		6	65.00	32.50
	H	18-25	MM	No	27	22	10.0	1-2.5	100	S	0.5	15/15	U	S		6	55.00	27.50
APATURE	Maui	15-40	MC		20	15	3.0	1.5-2.5		E	0.3 x 0.7	8/8	U/F	S		4.2	100.00	50.00
	Kooc	10-50	MC		25	22	3.2	1.5-2.25		X	0.2 x 0.7	10/10	U/F	S		4.2	200.00	100.00

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz ±dB	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	Principle: Moving Iron—MI; Induct. Magnet—IM; Moving Coil—MC.				Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Dolby, mV, 1 kHz, 5 cm/Sec. rms Lateral Velocity Range, Grams	Recommended Tracking Force	Stylus Type—See Code	Stylus Radius (Radius), Mils	Dynamic Compliance, $\mu\text{m/mN}$, Vertical/Lateral	Stylus Replacement: User = U, Factory = F Moulding, Integral Shell = I P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price \$
				Yes	No	30	25											
ARGENT	Diamond w/Sapphire MC-110	10-50	MC	Yes	30	25	0.2	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	8	1200.00	600.00	
	w/Sapphire MC-300	10-50	MC	Yes	30	25	0.2	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	8	385.00	190.00	
	MC-310	10-40	MC	Yes	25	20	0.1	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	7	200.00	100.00	
	MC-500H	10-40	MC	Yes	25	20	0.1	1.8-2.2	100	E	0.3 x 0.7	8/	F	S	7	175.00	95.00	
	Boron MC-500HS	10-40	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	7	200.00	100.00	
	Sapphire MC-500HR	10-50	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	7	260.00	130.00	
	Ruby MC-500HL	10-50	MC	Yes	25	20	1.9	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	7	300.00	150.00	
	Beryllium MC-110II	10-50	MC	Yes	30	25	0.25	1.8-2.2	100	X	0.3 x 0.6	8/	F	S	8			
ASTATIC	MF-100-MR	10-20 ±1	Moving Flux	No	30	25	3.5	1-1.5	100	M	Parabolic	/50	U	S	5.5	320.00	147.50	
	MF-100	10-20 ±1	MF	No	30	25	3.5	1-1.5	100	X	Parabolic	/45	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	/35	U	S	5.5	180.00	80.00	
	MF-300	10-20 ±2.5	MF	No	25	18	4.2	1.5-2	100	E	0.3 x 0.7	/45	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	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	
	MC-4	10-40	MC	No	25		2.5	2.0		X	0.3 x 0.7	8/8	F	S	4.5	150.00	85.00	
	AQ 404H	10-50	MC	Yes	25		2.2	2.0		X	0.3 x 1.6	8/8	F	S	9.1	225.00	135.00	
	AQ 404M	10-50	MC	Yes	25		1.1	2.0		X	0.3 x 1.6	8/8	F	S	9.1	225.00	135.00	
	AQ 404L	10-50	MC	Yes	25		0.2	2.0		X	0.3 x 1.6	8/8	F	S	9.1	225.00	135.00	
	AQ B-100H	10-50	MC	Yes	25		2.2	2.0		M		10/10	F	S	9.2	595.00	350.00	
	AQ B-100M	10-50	MC	Yes	25		1.1	2.0		M		10/10	F	S	9.2	595.00	350.00	
	AQ B-100L	10-50	MC	Yes	25		0.2	2.0		M		10/10	F	S	9.2	595.00	350.00	
	AUDIO-TECHNICA	AT30E MC	15-25	MC	No	25	15	0.3	1.4-2.0		E	0.3 x 0.7		U	S	5	140.00	65.00
		AT30HE MC	15-25	MC	No	29	20	2.0	1.4-1.8		E	0.3 x 0.7		U	S	5	140.00	65.00
		AT31E/MC	15-28	MC	No	29	20	0.4	1.2-1.8		E	0.2 x 0.7		U	S	4.8	185.00	80.00
		AT35E/MC	15-30	MC	No	30	20	0.4	1.2-1.8		E	0.2 x 0.7		U	S	4.3	275.00	100.00
		AT105	20-20	MM	No	26	16	4.5	1.5-2.5	100-200	C	0.6		U	S	7	55.00	30.00
		AT110EB	20-22	MM	No	26	17	4.5	1.0-2.0	100-200	E	0.4 x 0.7		U	S	7	70.00	35.00
AT120E		15-25	MM	No	29	20	5	1.0-1.8	100-200	E	0.3 x 0.7		U	S	6.4	95.00	45.00	
AT125LC		10-28	MM	No	29	20	5	1.0-1.8	100-200	X	0.3 x 0.7		U	S	6.4	135.00	60.00	
AT211EP		15-25	MM	No	29	18	5	1-1.5	100-200	E	0.4 x 0.7		U	P	6	75.00	35.00	
AT216EP		15-27	MM	No	29	20	5	1-1.5	100-200	E	0.3 x 0.7		U	P	6	100.00	45.00	
AT221EP		10-28	MM	No	31	20	5	1-1.5	100-200	E	0.2 x 0.7		U	P	6	135.00	65.00	
AT231LP		10-30	MM	No	31	21	3.5	1-1.5	100-200	X	0.3 x 0.7		U	P	6	130.00	60.00	
AT312EP		15-25	MC	No	30	20	0.3	1-1.5	100-200	E	0.3 x 0.7		U	P	6	160.00	65.00	
AT130E		10-30	MM	No	30	20	5	0.8-1.8	100-200	M	0.2 x 0.7		U	S	6.4	125.00	50.00	
AT140ML		5-32	MM	No	30	20	5	0.8-1.8	100-200	E			U	S	6.5	185.00	75.00	
AT155LC		5-35	MM	Yes	31	21	5	0.8-1.6	100-200	X			U	S	8.2	240.00	100.00	
AT160ML		5-35	MM	No	31	21	5	0.8-1.8	100-200	M			U	S	8.2	275.00	125.00	
AT132EP		10-30	MM	No	30	20	5	0.8-1.8	100-200	E	0.2 x 0.7		U	P	6	150.00	50.00	
AT152MLP	5-35	MM	No	31	21	5	0.8-1.8	100-200	M			U	P	6	240.00	100.00		
AT201P	20-22	MM	No	26	16	5	1-1.5	100-200	C	0.6		U	P	6	55.00	25.00		
AT201EP	20-25	MM	No	26	17	5	1-1.5	100-200	E	0.4 x 0.7		U	P	6	65.00	30.00		
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-10C	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	MMC1	20-20 ±1	MI	Yes	30	22	2.12	1	200-400	X	0.1 x 0.1	30/30	P	P	1.6	445.00	
MMC2		20-20 ±1.5	MI	Yes	25	20	2.12	1	200-400	X	0.12 x 0.12	30/30	P	P	1.6	290.00		
MMC3		20-20 ±2	MI	Yes	25	20	2.12	1.2	200-400	E	0.15 x 0.15	25/25	P	P	1.6	180.00		
MMC4		20-20 ±2.5	MI	Yes			2.12	1.2	200-400	E	0.2	25/25	P	P	1.6	105.00		
MMC5		20-20 ±3	MI	Yes			2.12	1.5	200-400	E	0.25	20/20	P	P	1.6	60.00		
BENZ-MICRO	Benz-Micro	10-60 +1.8-1.3	MC	Yes	35	30	0.35	1.5-1.8	100	M		20/	F	S	7.3	695.00	300.00	
CLEARAUDIO	Goldmund	20-20	MC	Yes	35			2.22		X			F		4.4	895.00		
MITCHELL A. COTTER	ADB 1	20-45 ±1	MC	Yes	35	30	1.0	2.5-8		X	0.08 x 12.0	4.8/4.8	F	S	23	800.00	500.00	
	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	20-22 ±3		No	25	20	5	1.5-2.0	220	V		5/12	F	S	6.7	450.00	200.00	
DENON	DL-80		MC		25		1.6	1.50-2.1		X	0.1 x 0.2		U	S	4.5	60.00	36.00	
	DL-110		MC		25		1.6	1.50-2.1		X	0.1 x 0.2		F	S	4.8	85.00		
	DL-160		MC		28		1.6	1.3-1.9		X	0.07 x 0.14		F	S	4.8	115.00		
	DL-301		MC		28		0.3	1.2-1.6		X	0.07 x 0.14		F	S	4.7	159.00		
	DL-302		MC		28		0.18	1.1-1.5		X	0.05 x 0.1		F	S	7	260.00		
	DL-304		MC	Yes	28		0.18	1.0-1.4		X	0.05 x 0.1		F	S	7	395.00		
	DL-305		MC	Yes	28		0.20	1.0-1.4		X	0.05 x 0.1		F	S	5.8	559.00		
	DL-1000		MC	Yes	30		0.12	0.7-0.9		X	0.06		F	S	6	859.00		

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Stylus Type	Principle Moving Iron - MI, Induct. Magn. - IM, Moving Coil - MC, Moving Magnet - MM	Individual Channel Response	Channel Separation, 1 kHz, dB	Channel Separation, 10 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 Replacement, μm/mN, User = U, Factory = F	Mounting, Integral Shell = I, P Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$
DIGITRAC	450SE	20-30 ±3	MI		24	4	1.0-1.5	200-500	E			35/35	U	P/S	6	149.00	75.00	
	380NE	20-25 ±3	MI		22	4	1.25-1.75	200-500	E			30/30	U	P/S	6	89.00	45.00	
	280E	20-20 ±3	MI		20	4	1.25-1.75	200-500	X			25/25	U	P/S	6	69.00	35.00	
DYNAVECTOR	DRT	20-100	MC	Yes	25	25	0.1	1.7-2		E	0.25 x 0.7		F	S	9	1100.00	715.00	
	DV-1702MR	20-100	MC	Yes	20	20	0.2	1.8-2		X	0.16 x 0.2		F	S	5.3	480.00	288.00	
	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	192.50	
	DV-19A	20-70	MC	Yes	20	20	0.25	1.7-2		E	0.25 x 0.7		F	S	5.3	230.00	125.00	
	DV-50-A	20-50	MC	Yes	20	25	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	160.00	88.00	
ELAC	ESG 791E	10-20	MM	No	22		8	1.5-2	550	E	0.2 x 0.7	15/15	U	S	6.5	65.00	39.00	
	ESG 792E	10-20	MM	No	22		12	1.5-2	550	E	0.2 x 0.7	18/18	U	S	6.5	115.00	69.00	
	ESG 793E	10-22	MM	No	24	20	5.6	1.1-25	300	E	0.2 x 0.7	30/30	U	S	6.5	140.00	89.00	
	ESG 794H	10-23	MM	No	26	20	5.6	0.75-1	300	V	0.2 x 3	40/40	U	S	6.5	200.00	99.00	
	ESG 795E	10-25	MM	Yes	27	20	5.6	1.5-1.75	300	E	0.2 x 2	20/20	U	S	6.5	225.00	129.00	
	ESG 796H	10-30	MM	Yes	28	20	5.6	1-1.25	300	V	0.2 x 3	30/30	U	S	6.5	300.00	179.00	
	EMC 1	10-50	MC	Yes	28	20	0.14	1.25-1.75		V	0.2 x 3	20/20	F	S	6.8	400.00		
	EMC 2	10-30	MC	Yes	28	20	0.14	1.5-1.75		V	0.2 x 2	20/20	F	S	6.7	315.00		
	EMM 130	10-20	MI	No	22		8	1.5-2	500	E	0.2 x 0.7	22/22	U	S	6.5	50.00	29.00	
	EMPIRE SCIENTIFIC	MC1000	20-50 ±1	MC	No	30	30	0.35	1.7		V			F	S	7	600.00	300.00
MC5M		10-50 ±1	MC	No	30	20	0.3	1.8		X			U	S	6.2	250.00	175.00	
4000D/III		5-50 ±1	MM	No	30	20	3.0	0.25-1.25	100	X	0.1		U	S	5.5	199.95	150.00	
2000E/III		5-35 ±2	MM	No	28	20	4.5	0.75-1.5	100	E	0.2 x 0.7		U	S	5.5	129.95	63.50	
2000E		10-30 ±3	MM	No	25	20	4.5	1.25-2.5	100	E	0.3 x 0.7		U	S	5.5	100.00	49.50	
3500E		12-24 ±3	MM	No	25	20	4.5	1.75	100	E	0.3 x 0.7		U	S	5.5	100.00	26.00	
250E		12-24 ±3	MM	No	25	15	4.5	2.0	100	E	0.4 x 0.7		U	S	4.8	80.00	21.25	
150C		15-22 ±3	MM	No	25	15	4.5	2.0	100	E	0.6		U	S	4.8	60.00	17.25	
580LT		7-34	MI	No	28	20	3.0	1-1.5	300	X	0.25 x 2.5		U	P	6	175.00	92.50	
480LT		7-32	MI	No	28	20	4.0	1-1.5	150-400	E	0.3 x 0.7		U	P	6	170.00	65.65	
875LT		20-20 ±2	MI	No	30	20	4.5	1-1.5	150	E	0.2 x 0.7		U	P	6	160.00	56.25	
390LT		10-26	MI	No	30	18	4.5	1-1.5	100-300	E	0.3 x 0.7		U	P	6	145.00	25.00	
290LT		12-24	MI	No	24	15	4.0	1-1.5	100-300	E	0.3 x 0.7		U	P	6	80.00	25.00	
190LT		15-22	MI	No	24	15	4.0	1-1.5	100-300	C	0.6		U	P	6	60.00	20.00	
EMT-FRANZ		XSD 15	40-12 ±2	MC	Yes	25		1	2-3		X		/15	F	I		450.00	185.00
ENTRÉ	MC-1 Basic	20-30 ±3	MC	No	22		0.5	2.0		E	0.3 x 0.8	15/15	F	S	5.9	150.00	90.00	
	MC-5 Boron	20-30 ±3	MC	No	26		0.25	1.8		E	0.3 x 0.8	15/15	F	S	5.9	295.00	180.00	
	MC-9 Sapphire	20-30 ±3	MC	No	26		0.25	1.8		E	0.3 x 0.8	15/15	F	S	5.9	375.00	240.00	
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	4	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	
FIDELITY RESEARCH	MC-44	20-20 +3 -1	MC	No	26	18	0.2	1.15-1.65		X	0.1 x 0.1	20/20	F	S	6.2	299.95	168.00	
	MC-45	20-20 +0.5 -1	MC	No	30	20	0.2	1.15-1.65		X	0.1 x 0.1	20/20	F	S	6.2	399.95	250.00	
	MC-201	20-20 +0.5 -1	MC	No	26	20	0.16	1.5-2.0		X	0.3 x 2	18/18	F	S	7.5	329.95	225.00	
	FR-MK31	20-20 +0.5 -1	MC	No	27	20	0.14	1.75-2.25		X	0.3 x 3	18/18	F	S	10	264.95	185.00	
	MC-202	20-20 +3 -1	MC	No	26	20	0.17	1.65-2.0		X	0.1 x 0.2	16/16	F	S	7.5	369.95	259.00	
GOLDBUG	Medusa	20-20 ±1	MC	Yes	27		0.2	1.8-2.0		X	0.3 x 0.7	12/9	F	S	5.8	250.00	125.00	
	Clement	20-20 ±1	MC	Yes	27		0.2	1.5-1.7		X	0.3 x 0.7	36/13	F	S	5.6	490.00	245.00	
	Mr. Brier	20-20 ±1	MC	Yes	27		0.22	1.5-1.7		X	0.3 x 0.7	17/15	F	S	7	990.00	495.00	
GRACE	F-9E Ruby	10-50 ±2	MM	No	30	25	2.6	1.25-2	400	E		20/20	U	S	6	300.00	200.00	
	F-9E Super	10-47 ±2	MM	No	30	25	3.75	1.25-2	200	E		20/20	U	S	6	200.00	100.00	
	F-9L	10-40	MM	No	30	25	5.5	1.25-2	350	E		20/20	U	S	6	180.00	90.00	
	F-8L	20-20	MM	No	25	20	5.5	1.25-2	100	E		20/20	U	S	6	125.00	62.50	
GRADO	Signature 8M		MI													200.00		
	Signature 10M		MI													400.00		
HIGHPHONIC	MC-2E	20-50	MC	Yes	30	25	0.12	1.2		X		18/18	F	S	6.5	195.00	120.00	
	MC-A3	10-70	MC	Yes	30	27	0.12	0.8-1.2		X	0.1 x 1.2	18/18	F	S	6.5	250.00	150.00	
	MC-R5	10-75	MC	Yes	30	30	0.12	0.8-1.2		X	0.1 x 1.2	18/18	F	S	6.5	395.00	240.00	
	MC-A6	10-85	MC	Yes	34	30	0.12	0.8-1.2		X	0.1 x 1.2	18/18	F	S	6.5	495.00	300.00	
	Signature MC-D15	10-120	MC	Yes	35	32	0.12	0.6-1.0		X	0.1 x 1.2	18/18	F	S	6.5	1200.00	750.00	
IMS-NAGATRONICS	165S	10-20	IM	No	25	21	4.0	1.7-2.3	320	S	0.5 x 0.5		U	S	5.6	55.00	17.00	
	185E	10-22	IM	No	25	21	4.0	1.7-2.3	320	E	0.3 x 0.7		U	S	5.6	65.00	27.00	
	1400ER	20-22	IM	No	20	16	3.5	1.75-2.25	320	S	0.6 x 0.6		U	S	5.4	55.00	14.00	
	1440E	20-22	IM	No	22	17	3.5	1.75-2.25	300	E	0.4 x 0.7		U	S	5.4	65.00	17.00	
	1466E	20-22	IM	No	25	21	3.5	1.5-2.0	280	E	0.4 x 0.7		U	S	5.4	80.00	26.00	
	ME1000	20-20	IM	No	17	14	2.5	1.5-2.0	320	E	0.4 x 0.7		U	S	4.6	70.00	15.00	
	MC-5	16-25	MC	No	20	16	2.5	1.7-2.3	280	S	0.6 x 0.6		U	S	3.7	150.00		
	P2000	20-20	IM	No	20	16	3.0	1.25	300	S	0.6 x 0.6		U	P	5.9	70.00	24.00	
	P2500	20-30	IM	No	20	16	3.0	1.25	300	E	0.3 x 0.7		U	P	5.9	110.00	40.00	
	KISEKI	Lapis Lazuli	20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	20/20	F	S	11	3500.00	2100.00
Agaat Ruby		20-50	MC	Yes	30	25	0.4	2.0		X	0.14 x 0.6	20/20	F	S				

AN OFFER THAT'S MUSIC TO YOUR EARS



Buy a Dual turntable with an Ortofon cartridge, and get up to 3 Original Master Recordings™ from Mobile Fidelity Sound Lab free!

Mobile Fidelity Sound Lab has earned a reputation for producing some of the world's finest reproductions of recorded music. When it came to selecting a cutting system for their disc mastering they chose Ortofon.

And when Dual needed a phono cartridge manufacturer to aid in the design of the ultimate Low Mass Tonearm system for their new turntables, they too chose Ortofon.

Now these 3 industry leaders combine to make a unique, limited time offer. Simply purchase any new Dual turntable combined with a new Ortofon phono cartridge.

What you'll get is the finest reproduction of music for your money anywhere. Because of their legendary Black Forest craftsmanship and design, every Dual turntable offers superior performance in it's class. And when reproduced with the Dual/Ortofon U.L.M. tonearm/cartridge system, the sound from your records will astound you!

And to be sure that you have the finest possible music source to listen to, just send us proof of purchase and we'll send you FREE up to 3 "Original Master Recordings™" from the complete library of Mobile Fidelity Sound Lab.

Your participating Dual/Ortofon dealer has all the details.

mobile fidelity
sound lab
a division of MFSL, INC.

ortofon

Dual NEW TECH

Ortofon Inc.
122 Dupont St., Plainview, NY 11803
(516) 349-9180

Enter No. 50 on Reader Service Card

Freedom of Choice

What else could we offer? AudioSource has already given thousands of audio enthusiasts the freedom to choose the way they listen to their favorite music with the EQ-One Graphic Equalizer/Spectrum Analyzer. Now, with the purchase of the

system that will make your favorite records sound as if you were hearing them for the very first time.

For a limited time only, AudioSource lets you choose a free audiophile recording to complement your newly transformed system, allowing you to fully enjoy its increased performance level. Available on Compact Disc, Metal Tape, or Master Recorded LP, these stunning Proprius



critically acclaimed EQ-One Series II, you get the freedom to choose either a Compact Disc, Half-Speed Mastered LP, or Metal Tape Cassette. Free!

Achieving Sonic Pleasure

With its on-board, real-time analyzer, the EQ-One Series II visually 'reads' the response of your listening room, providing you with an exact display of its characteristics. The dual ten-band graphic equalizer allows you to correct for room resonances while shaping the music to suit your own personal taste. The result is a dramatic improvement in any sound

recordings are the perfect match for your new EQ-One Series II . . . and the 'new' sound of your old system.

This offer is good from participating dealers only. Choose from "Jazz at the Pawnshop" or "Cantate Domino."



AudioSource®

1185 Chess Drive, Foster City, CA 94404, 415 574-7585

©1984 AudioSource

Enter No. 11 on Reader Service Card

AmericanRadioHistory.com

PHONO CARTRIDGES

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Stylus Type	Principle Mounting from MM Induced Magnet = MM Moving Magnet = MC	Individual Response	Channel Separation, 1 kHz, dB	Channel Separation, 10 kHz, dB	Output, mV, 1 kHz, 5 cm/sec, rms Lateral Velocity Range, Grams	Recommended Tracking Force	Stylus Radius (Radius), Mils	Stylus Type - See Code	Dynamic Compliance, µm/mN, Vertical/Lateral	Stylus Replacement, µm/mN, User = U, Factory = F	Mounting Integral Seal = 1, P-Mount = P, Standard = S	Weight, Grams	Price, \$	Replacement Stylus Price, \$
STANTON	981 LZS	10-50	MM	Cal.	35	25	0.06	0.75-1.5	100	X	0.3 x 2.8	30/	U	S	5.5	250.00	90.00
	981 HZS	10-50	MM	Cal.	35	25	0.7	0.75-1.5		X	0.3 x 2.8	30/	U	S	5.5	250.00	90.00
	881S	10-25	MM	Cal.	35		0.9	0.75-1.25	275	X	0.3 x 2.8	30/	U	S	5.5	180.00	75.00
	681 EEE MKIIS	10-22	MM	Cal.	35		0.7	0.75-1.5	275	X	0.3 x 2.8	25/	U	S	6.3	120.00	45.00
	L847S	10-36	MM	No	35		2.5	0.75-1.5	275	X	0.3 x 2.8		U	P	5.9	180.00	60.00
	L837S	10-30	MM	No	35		3.0	0.75-1.5	275	X	0.3 x 2.8		U	P	5.9	140.00	55.00
	L747S	10-25	MM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8		U	P	5.7	125.00	40.00
	L737S	10-22	MM	No	35		4.4	0.75-1.5	275	X	0.3 x 2.8		U	P	5.7	100.00	36.00
	L737E	10-22	MM	No	35		4.4	0.75-1.5	275	E	0.3 x 2.8		U	P	5.7	85.00	29.50
	L727E	10-20	MM	No	32		4.4	0.75-1.5	275	E	0.3 x 2.8		U	P	5.7	75.00	24.50
	L727E	10-22	MM	No	29		3.0	0.75-1.5	275	E	0.4 x 0.7		U	P	5.7	55.00	22.00
	L725E	10-22	MM	No	29		3.2	0.75-1.5	275	E	0.4 x 0.7		U	P	5.7	50.00	20.00
	L720EE	10-20	MM	No	35		0.6	0.75-1.5	100	X	0.3 x 2.8	25/	U	S	5.5	150.00	60.00
	885LZS	20-40	MM	No	30		0.6	0.75-1.5	100	E	0.2 x 0.7	20/	U	S	5.5	100.00	45.00
	785LZE	20-30	MM	No	30		1.1	3.5-4	275	E	0.4 x 0.7		U	P	8.4	106.00	30.00
	L680EL	20-18	MM	No	30		1.1	2.5	275	E	0.4 x 0.7	13.5/	U	S	5.5	106.00	30.00
	680EL	20-18	MM	No	30		1.1	2.4	275	E	0.4 x 0.7	12.5/	U	S	6.3	110.00	39.00
	681SE	10-10	MM	Cal.	35		1.0	2.5	275	S	0.7	13.13	U	S	5.5	90.00	25.00
	680AL	20-18	MM	No	30		1.1	2.5	275	S	0.7	10/	U	S	5	53.00	12.00
	500AL	20-17	MM	No	28		1.0	2.5	275	S	0.7		U	S	8.4	53.00	12.00
	L500AL	20-17	MM	No	28		1.0	3.5-4	275	S	0.7		U	S	8.4	65.00	12.00
	500AL-DP	20-17	MM	No	28		1.0	3.5-4	275	S	0.7		U	S	8.4	53.00	12.00
	680EE(S)	10-20	MM	No	35		0.82	0.75-1.5	275	X	0.3 x 2.8	18/18	U	S	6.3	95.00	43.75
	680EE	20-20	MM	No	35		0.82	0.75-1.5	275	E	0.3 x 0.7	18/18	U	S	6.3	76.00	31.25
	600EE(S)	20-20	MM	No	35		0.82	1-2	275	X	0.4 x 0.7		U	S	5	66.00	27.50
	600E	20-20	MM	No	35		1.0	1.5-3	275	E	0.4 x 0.7		U	S	5.5	56.50	25.00
	500EE MKII	10-22	MM	No	35		1.0	0.75-1.5	275	E	0.3 x 0.7	16/	U	S	5.5	50.00	25.00
	500E MKII	10-22	MM	No	35		1.0	0.75-1.5	275	E	0.4 x 0.7	14/	U	S	5.5	45.00	20.00
	500A MKII	10-20	MM	No	35		1.0	1-2	275	S	0.7	14/	U	S	5.5	37.50	12.00
	SUPEX	SDX 3300 Boron High Output		MC	Yes			1.75			X	0.3 x 0.7		F	S	5.3	600.00
SDX-3300 Boron			MC	Yes			0.2			X	0.3 x 0.7		F	S	5.3	600.00	360.00
SDX-2000 Boron High Output		10-45 ± 2	MC	Yes			2.0			X	0.3 x 0.7		F	S	4.75	500.00	250.00
SDX-2000 Boron		10-45 ± 2	MC	Yes			0.2			X	0.3 x 0.7		F	S	4.75	500.00	250.00
SD-330		20-45 ± 2	MC	Yes			0.2			X	0.3 x 0.7		F	S	3	225.00	125.00
SD-900 Mk IV TQA		20-45 ± 2	MC	Yes			2.0			X	0.3 x 0.8	18/18	F	S	8	275.00	137.50
SD-901 Mk IV TQA	20-45 ± 2	MC	Yes			2.0			X	0.3 x 0.8	15/15	F	S	8	275.00	137.50	
TALISMAN	Alchemist HIS	10-60	MC	Yes	30	25	2.0	1.5-2.5		X	0.3 x 0.7	15/12	F	S	6.7	425.00	245.00
	Alchemist IA	20-40	MC	Yes	25	20	2.0	1.5-2.1		E	0.3 x 0.7	15/12	F	S	6.7	225.00	130.00
	S	10-60	MC	Yes	30	25	0.26	1.7-2.3		X	0.2 x 1.2	15/12	F	S	6.3	300.00	175.00
	B	10-50	MC	Yes	30	25	0.26	1.5-2.1		X	0.2 x 1.2	15/12	F	S	6.3	235.00	135.00
	A	20-40	MC	Yes	25	20	0.22	1.5-2.1		E	0.3 x 0.7	15/12	F	S	6.3	175.00	100.00
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	20.00
	EPS-P22ES		MM	No	25		2.5	1.0-1.5		E	0.3 x 0.7		U	P	6	70.00	
	EPC-P540	20-35 ± 3	MM	No	25		2.5	1.0-1.5		E	0.3 x 0.7		U	P	6	100.00	
	EPC-P550	20-35 ± 3	MM	No	25		2.5	1.0-1.5		E	0.2 x 0.7		U	P	6	200.00	
	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	250.00	
	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	280.00	
	EPC-205CMK4	20-15 ± 0.5	MM	Yes	25	20	2.5	1.0-1.5		E	0.2 x 0.7		U	P	15.5	280.00	
	EPC-305MC2	5-100	MC	Yes	25	20	2.5	1.0-1.5		E	0.2 x 0.7		U	P	15.5	300.00	
VAN DEN HUL	MC-One		MC	Yes	40	40	0.45	1.5-1.75		V			F	S		630.00	
	MC-1B (EMT)		MC	Yes	30	25	0.4	1.75-1.9		V			F	S		1375.00	
YAMAHA	MC-1000	10-20 ± 1.5	MC		30		0.17	1-1.4		E	0.3 x 1.6	16/12	F	I	5.3	280.00	
	MC-3	10-20 ± 1.5	MC		28		0.2	1-1.4		E	0.3 x 1.6	16/17	F	I	5.9	240.00	
	MC-4	10-20 ± 1.5	MC		28		0.2	1.2-1.6		E	0.3 x 1.6	10/13	F	I	5.9	220.00	
	MC-505	10-20 ± 1.5	MC		28		0.35	0.3-1.5		E	0.14 x 0.07	14/16	F	I	3.4	200.00	
	MC-501	10-20 ± 1.5	MC		28		0.35	0.3-1.5		E	0.14 x 0.07	11/13	F	I	3.4	150.00	
	MC-9	10-20 ± 1.5	MC		28		0.3	1.2-1.8		E	0.3 x 0.8	9/11	F	I	5.3	100.00	
	MC-11	10-20 ± 1.5	MC		28		0.35	1.5-2.1		E	0.3 x 0.8	7/10	F	I	5.3	90.00	
	MC-21	10-20 ± 1.5	MC		28		2.0	1.5-2.1		E	0.3 x 0.8	7/10	F	I	2.8	70.00	



THE DIFFERENCE YOU CAN HEAR!

INTRODUCING ORIGINAL MASTER RECORDINGS™

• Cassettes • Compact Discs • Lp's

... for those who want to REALLY HEAR The Beatles, Frank Sinatra, Huey Lewis, The Chicago Symphony, Aretha Franklin, Luciano Pavarotti, The Rolling Stones and a host of your other favorites.

ORIGINAL MASTER RECORDINGS. The most spectacular-sounding albums and cassettes you've ever heard. Why? Because they are transferred direct and exclusively from the original master recording tapes of your favorite artists. Your current home or automobile stereo (even your Walkman) will suddenly amaze you with awesome sound reproduction. Free from pops, clicks, ticks. We use the world's highest quality vinyl and cassette tape and provide you with an exclusive warranty against defects.

There are new Original Master Recording High Fidelity Cassettes, Lp's and Compact Discs released every month by Mobile Fidelity Sound Lab. They are available in stereo stores, record shops and autosound dealers nationwide.



ORIGINAL MASTER RECORDING COMPACT DISCS

Mobile Fidelity Sound Lab's Original Master Recording Compact Discs are created from the recording artist's original analog master tape. A proprietary music transference process allows for the total recovery of this original analog sonic information in the digital format. The high fidelity results, when played through your own stereo/CD system, are stunning.

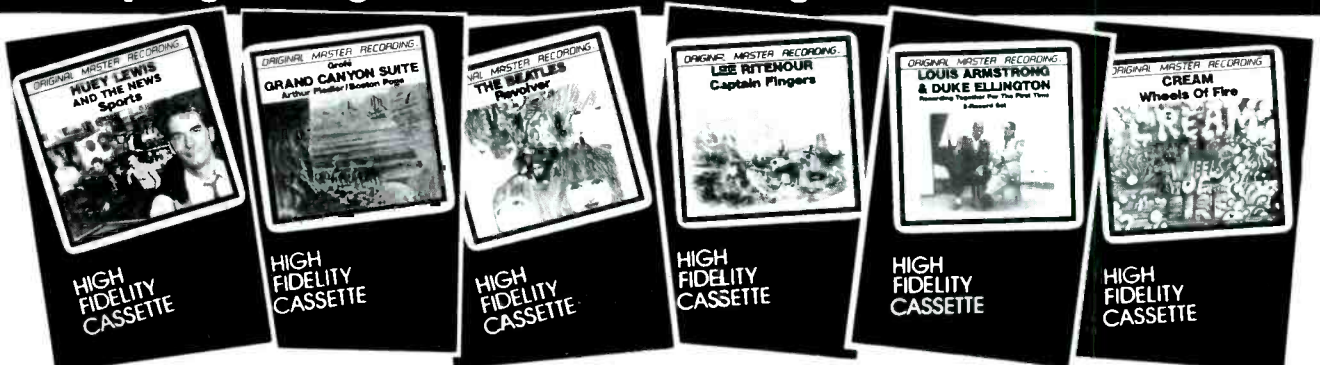
There are Original Master Recording Compact Discs for every musical taste, including such artists as Joe Cocker, Procol Harum, Aretha Franklin, Johnny Mathis, Miles Davis, Loggins & Messina, The Alan Parsons Project, Shelly Manne, Art Pepper, Louis Armstrong & Duke Ellington, The Saint Louis Symphony, The Cincinnati Symphony, and many more.



"SGT. PEPPER'S LONELY HEARTS CLUB BAND" by THE BEATLES Limited Edition!

This legendary Beatles classic is now available as an individual Original Master Recording Lp and cassette. Prior to this, it was only available as part of THE BEATLES/THE COLLECTION, our 14-Lp, deluxe boxed-set of Beatles Original Master Recordings that quickly sold-out (and is now selling among collectors for upwards of \$1000 each). You might think that you've heard this masterpiece before, but you really haven't... until you've experienced the Original Master Recording. The daring high fidelity experimentation that The Beatles developed for this album will virtually explode through your stereo system. Songs include: "Lucy In The Sky With Diamonds," "A Little Help From My Friends," "When I'm Sixty-Four," "A Day In The Life," "Getting Better," "Fixing A Hole," "She's Leaving Home," "Being For The Benefit Of Mr. Kite," "Lovely Rita," "Good Morning, Good Morning," and "Sgt. Pepper's Lonely Hearts Club Band."

A Sampling Of Original Master Recording Cassettes Now Available:



For more information, a copy of our newest free catalogue or the name of a store near you that carries ORIGINAL MASTER RECORDINGS, please write: Mobile Fidelity Sound Lab, 1260 Holm Rd., Petaluma, CA 94952. Or call (800) 423-5759 (In California: (707) 778-0134) Enter No. 44 on Reader Service Card

ORIGINAL MASTER RECORDINGS

woodstock

The Complete Recordings—A Limited Edition Collection
Available on Lp and Compact Disc Formats

Exclusively transferred
direct from the original
master tapes of the
legendary Woodstock
Festival.

The Lp collection (5
albums) utilizes Mobile
Fidelity Sound Lab's
exclusive "Half-Speed
Mastering" process for
total sonic accuracy.

The Compact Disc
collection (4 discs)
features Mobile Fidelity
Sound Lab's "Analog-To-
Digital" Master Tape
Transference Technology.

Each collection is
individually numbered to
authenticate its limited
edition status.



FEATURING:

Joan Baez
The Butterfield Blues Band
Canned Heat
Joe Cocker
Country Joe & The Fish
Crosby, Stills, Nash & Young
Arlo Guthrie
Richie Havens
Jimi Hendrix

The Jefferson Airplane
Melanie
Mountain
Santana
John B. Sebastian
Sha-Na-Na
Sly & The Family Stone
Ten Years After
The Who

For more information, a copy of our
newest catalogue or the name of a store
near you, please write: Mobile Fidelity
Sound Lab, Dept. A, 1260 Holm Rd.,
Petaluma, CA 94952.

Or call: (800) 423-5759
(In California call (707) 778-0134)

 **mobile fidelity**
sound lab
a division of MFSL, INC.

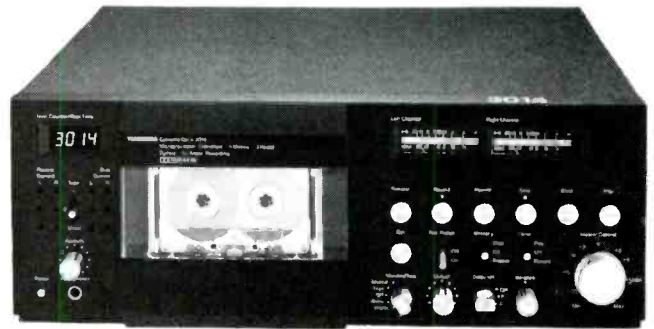
CASSETTE DECKS



UHER CR 1601



VECTOR RESEARCH VCX-350



TANDBERG 3014



AIWA AD-F990B

MANUFACTURER	Model	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 = B, Dolby C = C, dbx = D, HK 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	18.5	449.00	Has 2 speeds; specs here at 1 7/8 ips. Specs here at 3 3/4 ips.
	C3	20-20 ± 2	3	0.04	58	74	B/C		4	No	No	P	T	No	2	No	19.6	799.00	
		25-22 ± 2		0.035	60	76													
AIWA	AD-R550U	20-15 +2, -3	2	0.038	60	78	B/C/H	M	3	Yes	Yes	P	T	Yes	2	No	11 1/2	300.00	NR detect. 0.2-S auto reverse.
	AD-R450U	25-15 +2, -3	2	0.04	60	78	B/C	M	3	No	No	P	T	Yes	0	No	10	250.00	
	AD-F350U	25-15 ± 3	2	0.035	60	78	B/C	M	3	No	No	P	T	No	0	No	9	190.00	
	AD-F250U	25-15 +2, -3	2	0.038	60	78	B/C	M	3	No	No	P	T	No	0	No	9	150.00	
	AD-WX220U	20-15 +2, -3	2	0.038	61	78	B/C	M	3	Yes	Yes	P	T	No	1	Yes	12 1/4	460.00	
	AD-W20U	20-15	2		61	78	B/C	M	3	Yes	Yes	P	T	Yes	0	Yes	12 1/4	400.00	
	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-F660U	20-18 ± 3	3	0.028	63	80	B/C/H	M	3	Yes	Yes	PH	T/R	No	2	No	12	375.00	
	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	320.00	
	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	Yes	0	No	11	360.00		
AKAI	GX-9	20-20 ± 3	3	0.025	60	80	B/C	A/M	3	Yes	Yes	P†	T/E/R	No	0	No	15 1/2	499.95	†Spectrum indicator; auto fader, double toning, bias.
	GX-A5X	20-18 ± 3	2	0.05	60	92	B/C/D		3	No	No	P	T	No	2	No	9	229.95	Auto fader. As above.
	HX-A3X	20-17 ± 3	2	0.05	59	92	B/C/D		3	No	No	P	T	No	2	No	9	199.95	
	HX-AA301W	30-16 ± 3	2	0.05	56	66	B		3	No	No	P	T	No	0	Yes	8 1/2	199.95	
	HX-AA201	30-16 ± 3	2	0.05	56	76	B/C		3	No	No	P	T	No	2	No	7	159.95	
	HX-AA101	30-16 ± 3	2	0.05	56	66	B		3	No	No	P	T	No	2	No	7	139.95	
	GXR99	20-19 ± 3	4	0.028	60	80	B/C	A/M	3	Yes	Yes	P†	T/E/R	Yes	0	No	19	799.95	
	GXR70	20-18 ± 3	2	0.05	60	92	B/C/D		3	Yes	No	P†	T/E	Yes	0	No	11	399.95	
	GXR60	20-18 ± 3	2	0.05	60	92	B/C/D		3	Yes	No	P	T	Yes	0	No	10 1/2	299.95	
	HXR40	20-17 ± 3	2	0.05	58	80	B/C		3	Yes	Yes	P	T	Yes	2	No	10	229.95	

CASSETTE DECKS

MANUFACTURER	Model	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: Bobby B = B, Doby C = C, dbx = D, HX Pro = H	Noise Reduction, -dB	Continuously Adjustable Bias: Auto = A, Manual = M	Number of Preset Bias EQ Positions	Program Search?	Program Scan?	Level Indicators: Meter = A, Pop = P, Peak Hold = PH	Counter Indications: Number of Turns = T, Elapsed Time = E, Remaining Time = R	Auto Reverse?	Number of Mixer Inputs	Dual Weights?	Weight, Lbs.	Price, \$	Notes
		20-20 ± 3	2		0.04	55																
AUDIO-TECHNICA	AT-RMX64	20-18 ± 3	2	0.04	55	68	B/C			No	No	A	T	No	6	No	48 1/2	1495.00			Four-track cassette with six-input stereo mixer.	
BANG & OLUFSEN	Beocord 9000	20-20 ± 1.5	3	0.045	60	80	B/C/H	A	4	Yes	No	P	E/R	No	2	No	17	1299.00			Computer-controlled calibration.	
	Beocord 8004	20-20 ± 3	2	0.045	58	75	B/C/H	A	3	Yes	No	P	E	No	2	No	16.5	699.00				
	Beocord 5000	30-18 ± 3	2	0.078	56	74	B/C/H	A	3	Yes	No	P	T	No	2	No	18.7	699.00				
	Beocord 2000	30-15 ± 3	2	0.08	56	65	B	A	3	Yes	No	P	T	No	0	No	9	450.00				
DENON	DR-M10	35-17 ± 3	2	0.05 wrms		73	B/C	M	3			A				0		12 1/4	249.95			
	DR-M11	30-18 ± 3	2	0.05 wrms		73	B/C	M	3	Yes	Yes	A				0		12 1/4	300.00			
	DR-M22	30-19 ± 3	3	0.045 wrms		73	B/C	M	3			A				0		12 1/4	400.00			
	DR-M33HX	25-20 ± 3	3	0.04 wrms		75	B/C/H	M	3			A/PH	E			0		12 1/2	500.00			
	DR-M44HX	25-20 ± 3	3	0.035 wrms		75	B/C/H	A	3			A/PH	E/R			0		12 1/2	600.00			
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	CR-W36	50-14	2.2	0.06	50	60	B					A	T			Yes	7	149.95			Synchronized one-touch dubbing. High-speed synchronized dubbing. As above.	
	CR-W37	50-14	2.2	0.06	51	70	B/C					A	T			Yes	7	199.95				
	CR-W52B	50-14	2.2	0.06	51	70	B/C					A	T			Yes	10	249.95				
FOSTEX	X-15	40-12.5	2	0.1		60	B			Yes	No	P	T/E	No	2		4.6	495.00			Response spec at 1 7/8 ips; 4-track rec; variable pitch. Response at 3 3/4 ips; 4-track rec. Response at 1 7/8 ips; 4-track rec.	
	250	20-18 ± 2.5	2	0.1		71	C			Yes	No	P	T/E	No	4		19	995.00				
	250AV	20-16	2	0.1		71	C			Yes	No	P	T/E	No	4		19	1300.00				
HARMAN KAROOD	TD192	20-20	2	0.05	57	65	B	M	3	No	No	P	T	No	0	No	12 5/8	250.00				
	TD292	20-21	2	0.05	57	73	B/C	M	3	No	No	P	T	No	0	No	12 5/8	335.00				
	TD392	20-22	3	0.05	57	73	B/C/H	M	3	No	No	P	T	No	0	No	12 5/8	550.00				
	TD492	20-24	3	0.025	58	75	B/C/H	M	3	Yes	No	P/PH	T/E	No	2	No	14 3/8	825.00				
HITACHI	DE17	20-17	2	0.08		66	B		3			A	T		2		6	130.00				
	DW400	20-17	3	0.08		66	B		3			A	T		2		7	200.00				
	DW440	20-17	3	0.08		66	B		3			A	T		2	Yes	7	250.00				
	DX6	20-19	2	0.04		74	C		3	Yes	Yes	A/PH	E/R	Yes	2	Yes	9	290.00				
	DX10	20-21	3	0.03		75	C	A/M	3	Yes	Yes	A	E/R	Yes	2	Yes	12	660.00				
	DW800	20-18	3	0.04		72	C		3	Yes	Yes	A	E/R	Yes	2	Yes	10	390.00				
JVC	DD-VR9	25-18 ± 3	3	0.03	60	80	B/C	A	3	Yes	Yes	P/PH	T/E/R	Yes	0	No	15.7	800.00				
	DD-VR77	20-17 ± 3	2	0.035	58	78	B/C	M	3	Yes	Yes	P/PH	T/E/R	Yes	0	11.4	500.00					
	KD-V6	20-19 ± 3	3	0.05	58	78	B/C	M	3	Yes	Yes	P/PH	T	No	0	10	350.00					
	KD-VR5	30-16 ± 3	2	0.05	58	78	B/C	M	3	Yes	Yes	P/PH	T	Yes	2	10.2	320.00					
	KD-VR320	30-15 ± 3	2	0.05	58	78	B/C	M	3	Yes	Yes	P	T	Yes	2	9.5	250.00					
	KD-V220	40-15 ± 3	2	0.08	58	78	B/C	M	3	Yes	No	P	T	No	2	7.8	200.00					
	KD-V120	40-15 ± 3	2	0.08	58	68	B	M	3	No	No	P	T	No	2	7.8	125.00					
	KD-W55	30-16 ± 3	3	0.06	58	68	B	M	3	No	Yes	P	T	No	1	10.8	340.00					
	TD-W20	40-15 ± 3	3	0.08	58	78	B/C	M	3	No	No	P	T	No	2	Yes	210.00					
	TD-W10	40-15 ± 3	3	0.08	58	68	B	M	3	No	No	P	T	No	0	Yes	150.00					
KENWOOD	KX-780	22-18 ± 3	3	0.05	57	74	B/C	M	3			P	T		2	No	10.6	355.00				
	KX-790R	20-17 ± 3	2	0.05	57	74	B/C		3	Yes	No	P	T	Yes	2	No	10.6	355.00				
	KX-94W	30-15 ± 3	2	0.06	56	73	B/C		3	Yes	Yes	P	T	Yes	1	Yes	10.1	365.00				
	KX-74	30-15 ± 3	2	0.06	56	73	B/C		3	Yes	Yes	P	T	Yes	2	No	8.1	275.00				
	KX-64W	30-15 ± 3	2	0.09	56	72	B/C		3	Yes	No	P	T		1	Yes	9.9	260.00				
	KX-54	30-15 ± 3	2	0.09	56	72	B/C		3	Yes	No	P	T		2	No	8.4	175.00				
	KX-44	30-15 ± 3	2	0.09	56	64	B		3	Yes	No	P	T		2	No	8.4	160.00				
KYOCERA	D-811	20-20 ± 3	2	0.02	58	78	B/C/H	A/M	3	Yes	No	PH	T/E/R	No	2	No	17 1/2	625.00			Wireless remote. As above.	
	D-611	20-20 ± 3	2	0.035	58	78	B/C	M	3	No	No	P	T	No	2	No	16	485.00				
LUXMAN	K220	20-18	2	0.06	58	70	B/C	M	3	Yes	No	P	T		2	No	10.3	200.00				
	K240	20-18	2	0.04	59	71	B/C	M	3	Yes	No	P	T		2	No	11.7	300.00				
	K405	30-18	2	0.05	60	90	B/C/D	M	3	Yes	No	P	T	Yes	2	No	9.9	400.00				
	K03	20-20	3	0.022	60	70	B/C	M	3	Yes	No	P	T/R		2	No	24.6	1000.00				
MARANTZ	SD-142	40-14	2	0.08	51	59	B			No	No	P		No	2		7.5	139.95				
	SD-242	40-15	2	0.05	52	66	B/C			No	No	P		No	2		7.5	159.95				
	SD-155	40-15	2	0.08	54	64	B			No	No	P		No	2		10.4	219.95				
	SD-255	40-15	2	0.08	54	70	B/C			No	No	P		No	2		10.4	239.95				
	SD-351	35-16.5	2	0.05	55	72	B/C			Yes	Yes	P		Yes	2		9.9	249.95				
	SD-551	35-16.5	2	0.05	55	80	B/C/D			Yes	Yes	P		Yes	2		10.4	329.95				
	SD-74	30-18.5	3	0.04	56	82	B/C/D			Yes	Yes	P	E/R	Yes	2		14.3	499.95				



BEYOND CONVENTIONAL RECORDING

Onkyo's new generation of cassette decks create recordings that are virtually indistinguishable from the original program material—even with today's digital sources.

Onkyo was one of the first to provide adjustable bias for recording, and every deck has either Accubias or Auto Accubias controls. These allow you to fine tune recordings for optimum frequency response, no matter what tape formulation. This factor is especially critical when using high bias and metal tapes, or when making recordings for a car stereo where frequency response performance is generally less than in a home deck.

All Onkyo decks feature our Computer Controlled Silent Mechanism transport, be they 1, 2, or 3 motor configurations. This provides precise, smooth and quiet tape handling, with

inaudible Wow and Flutter. And, all our decks include state of the art noise reduction systems, from Colby B & C, to Dolby B, C, Hx Pro and dbx!

A Real Time Counter precisely measures the elapsed and remaining tape times, so you won't run out of tape in the middle of recording, and our Automatic Music Control (AMCS) gets to the selection you want quickly, previewing the beginning of each for 10 seconds.

Shown is the TA-2056 which incorporates a three head design; separate recording and playback heads specifically optimized for their respective function.

Onkyo's new cassette decks go beyond conventional recording. Discover the audible difference at your Onkyo dealer now.

Artistry in Sound

ONKYO®

200 Williams Drive, Ramsey, N.J. 07446

*Dolby B, C and Hx Pro are registered trademarks of Dolby Laboratories, Inc. †dbx is a registered trademark of dbx Inc.

CASSETTE DECKS

MANUFACTURER	Model	Frequency Response with CrO ₂ Tape (Type II), Hz to KHz, ±dB	Number of Heads	Wow & Flutter, %	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 Biases/EO Positions	Program Search?	Program Scan?	Level Indicators: Average=A, Peak=P, Peak-Hold=PH	Counter Indications: Number of Turns=T,Elapsed Time=E, Remaining Time=R	Auto Reverse?	Number of Mike Inputs	Dual Wells?	Weight, Lbs.	Price, \$	Notes
MITSUBISHI	DT-46 DT-156	20-17 30-17	2 3	0.12 0.12	59 58	79 68	B C B	A A		No Yes	No Yes			No Yes		9 20	200.00 330.00	Programmable, 7-cassette magazine.	
NAD	6155 6050C 6130 6125	30-20 30-18 30-17 30-16	2 2 2 2	0.02 0.05 0.04 0.05	62 56 56 56	78 70 70 70	B C H B C B C B C	M M M M	3 3 3 3	No No No No	No No No No	P P P P	T T T T	No No No No	1 2 1 1	No No No No	348.00 248.00 198.00 198.00	"Play Trim" adjustment.	
NAKAMICHI	Dragon RX-505 RX-303 BX-300 RX-202 BX-125 BX-100 MR-1	20-21 20-20 20-20 20-20 20-20 20-20 20-20 20-20 ±3	3 3 3 3 2 2 2 3	0.04 0.08 0.08 0.048 0.11 0.11 0.11 0.048	72 70 68 70 68 62 70	B/C B/C B/C B/C B/C B B/C	M M M M M M M	3 3 3 3 3 3 3	Yes		P P P P P P P	T T T T T T T	Yes Yes Yes No No No No	0 0 0 0 0 0 0	No No No No No No	21 22 22 12 ³ / ₈ 19 ³ / ₈ 12 ³ / ₈ 12 ³ / ₈ 13 ³ / ₈	1850.00 1090.00 890.00 695.00 595.00 399.00 299.00 895.00	Balanced input/output lines for pro applications.	
NIKKO	ND-1000C ND-850 ND-750 ND-350 ND-550	30-19 30-19 30-16 30-16 30-16	3 4 4 2 2	0.05 0.05 0.045 0.05 0.05	75 75 73 72 72	B C B C B C B C B	A M M M M	3 3 3 3 0	No Yes Yes No No	No No No No No	P P P P P	T T T T T	No Yes Yes No No	2 2 2 2 2	No Yes Yes No No	11.6 12.5 8.6 8.1 8.1	550.00 400.00 300.00 200.00 180.00		
ONKYO	TA-209D TA-2056 TA-2047 TA-2027 TA-2017 TA-RW99 TA-W55 TA-R22	25-19 25-17 30-16 30-15 30-15 30-15 30-15 30-15 30-15	3 3 2 2 3 4 4 2	0.02 0.045 0.045 0.05 0.07 0.06 0.07 0.08	60 60 60 58 56 58 56 58	B/C B/C B/C B/C B/C B/C B B/C	A M M M M M	3 3 3 3 3 3	No No No No No Yes	Yes Yes Yes Yes No No	PH P P P P P	E/R E/R E/R T T	No No No No No Yes	2 2 2 2 2 1 2	No No No No No Yes No	20 14 ¹ / ₂ 13 10 ³ / ₄ 7 ³ / ₄ 15 11 ³ / ₄ 11	799.95 399.95 299.95 209.95 164.95 414.95 249.95 259.95	†All four NR circuits. Computer-controlled. As above, timer rec/play. Timer rec/play. High-speed dubbing. continuous play. As above, 5-track mixing. Blank skip.	
PARASOUND	CD400	20-18	2	0.05	65	73	B C	M	3	Yes	No	P	T	No	2	No	14	229.95	
PIONEER ELECTRONICS	CT-Z99W CT-S99WBK CT-S88RBK CT-S77W CT-S66RBK CT-S55R CT-S44 CT-S22 CT-S11 CT-A9XBK CT-A7XBK	25-15.5 25-17 25-17 25-15 25-16 25-16 30-15 30-15 30-15 20-22 20-20	4 3 2 3 2 2 2 2 2 3 3	0.04 0.06 0.055 0.07 0.08 0.08 0.07 0.07 0.07 0.018 0.028	57 92 57 58 92 58 92 57 57 57 58 57	B B/C/D B/C/D B/C B/C/D B/C B/C B B/C B/C	A A A A A A A A A A	3 3 3 3 3 3 3 3 3 3 3	Yes Yes	No No No No No No No No No No No	A A A A A A A A A A A	T T T T T T T T T R T	Yes No Yes Yes Yes Yes No No No No No	1 0 0 0 2 2 2 2 2 0 0	No Yes No Yes No No No No No No No	17.7 14.2 12.5 10.9 8.1 8.6 7.1 7.8 7.1 21.1 17.7	499.95 459.95 324.95 239.95 229.95 199.95 174.95 149.95 114.00 799.95 499.95		
PIONEER VIDEO	CT-V70	25-18 ±3	4	0.06	57	92	B/C/D	M	3	Yes	No	P	T	Yes	0	Yes	14 ³ / ₈	420.00	
PROTON	740	25-17	2	0.05	57	78	B/C/D		3	Yes	No	PH	E	No	2	No	10 ¹ / ₂	240.00	
REALISTIC	SCT-60 (14-648) SCT-72 (14-637) ±5 SCT-80 (14-631) SCT-43 (14-629) SCT-35 (14-636)	40-13 ±3 40-12.5 ±5 40-15 ±3 40-13 ±3 40-14 ±3	2 2 2 2 2	0.1 0.12 0.07 0.17 0.09	53 53 56 53 53	70 60 72 67 64	B/C B B/C B/C B		3 3 3 3 3	No No Yes Yes No		P P P P P	T T T T T	No No Yes No No	2 2 2 2 2	No No No No No	199.95 159.95 239.95 139.95 99.95		
REVOX	B215	30-20 +2, -3	3	0.1	58	72	B C H	A	6	Yes	No	P	E	No	0	No	20 ¹ / ₄	1400.00	
ROTEL	RD850	30-17 ±3	2	0.08	55	64	B C	M	3	No	No	P	T	No	2		17 ¹ / ₂	199.00	
SAE	C101 C102	20-20 ±3 20-20 ±3	3 2	0.04 0.06	74 72	B C B C	M A	4 3	No Yes	No No	A PH A PH	T E R T E R	No No	0 0	No No	20 22	650.00 429.00		
SANSUI	D-905R D-W10 D-W9 D-95WR D-75CW D-75BW D-65CR D-35CF D-35BR D-99DR	30-19 20-18 20-19 20-17 20-17 20-17 20-17 20-17 20-17 20-19	3 2 2 2 2 2 2 2 2 2	0.034 0.05 0.04 0.06 0.06 0.06 0.05 0.06 0.06 0.04	60 57 58 58 58 58 58 58 58 58	80 73 78 78 78 68 78 78 68 78	B/C B/C B/C B/C B/C B B/C B/C B/C/D	A A A A A A A A A A	Yes Yes Yes Yes Yes Yes Yes No No Yes	Yes Yes Yes Yes Yes Yes Yes No No Yes	P/PH P P P P P P P P P	T T T T T T T T T T	Yes Yes Yes Yes Yes Yes Yes No No Yes	1 1 1 1 1 1 1 1 1 1	No Yes Yes Yes Yes Yes Yes No No No	11 13.4 14 11.9 9.3 9 8.6 7.3 7.3 13.2	699.00 499.00 449.00 480.00 380.00 270.00 240.00 180.00 160.00 649.00	Optional remote.	
SANYO	RDS17 RDS27 RDS37 RDW40 RDW44 RDW55 RDW77	40-14 40-14 40-15 40-13 40-13 40-13 40-15	2 2 2 3 3 3 3	0.1 0.1 0.1 0.1 0.1 0.1 0.1	53 53 53 51 51 50 57	62 62 70 60 60 60 65	B B/C B/C B B B B	M M A A M A A	3 3 3 3 3 3 3	No No No No No No No	No No No No No No No	A A A A A A A	T T T T T T T	No No No No No No Yes	2 2 2 2 2 2 2	No No No Yes Yes Yes Yes	5 5 4 ⁵ / ₈ 5 ¹ / ₂ 3 ¹ / ₂ 8 ⁷ / ₈ 8 ⁷ / ₈	64.95 69.95 79.95 79.95 99.95 129.95 199.95	

THE LEAST EXPENSIVE HIGH-END AUDIO PRODUCTS EVER BUILT.

There was a time when the quality of hi-fi components was measured in dollars. If you wanted state-of-the-art design, you had to pay the price.

Now Denon, long a favorite of audiophiles, incorporates much of our sophisticated technology into our most affordable products.

Denon's new DP-7F is solid proof. Priced at only \$160,* this P-mount turntable has the Dynamic Servo Tracer tonearm and magnetic speed detection found on Denon's expensive models.

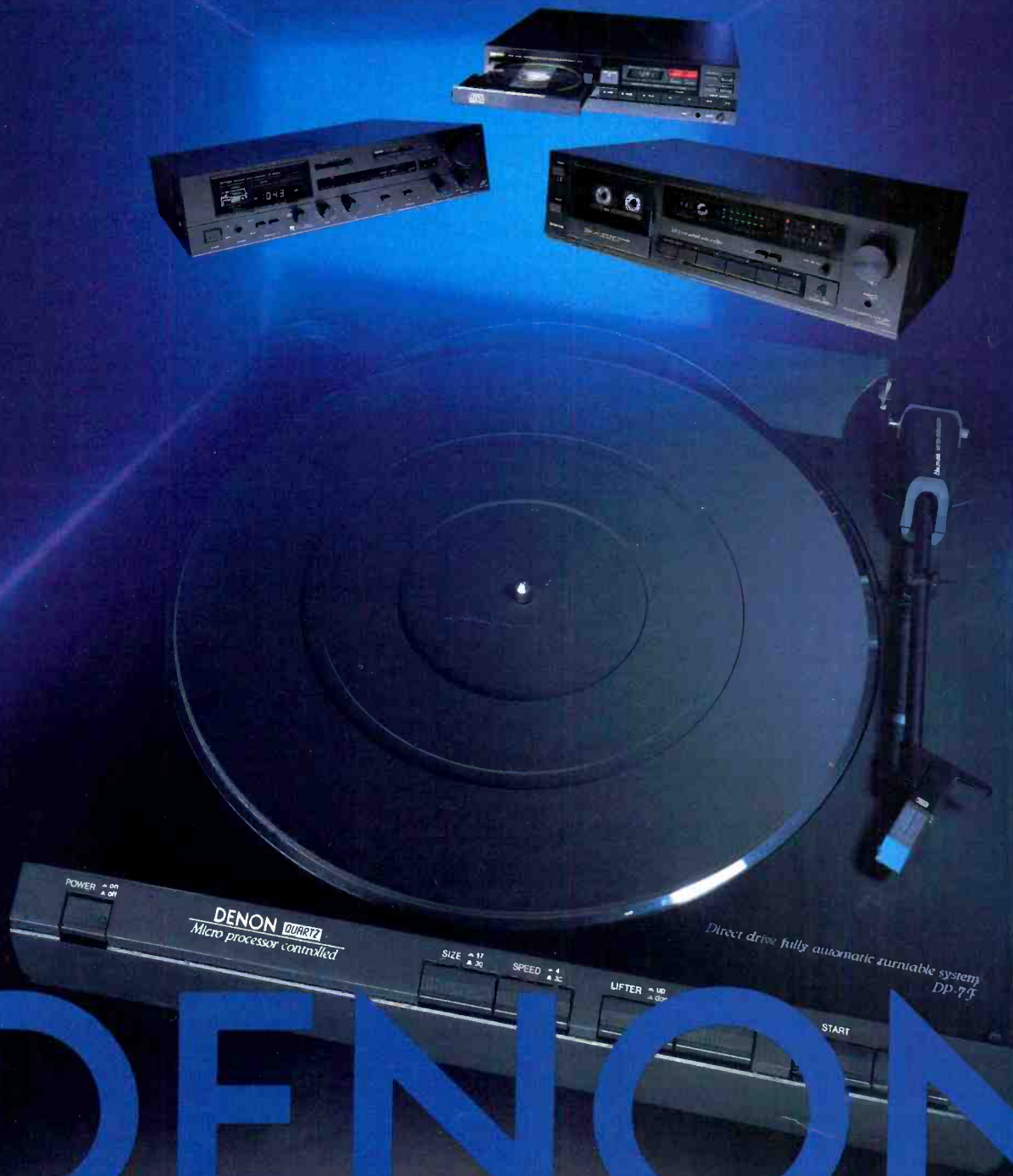
The same Design Integrity is evident in Denon's DR-M10. It's a \$250* cassette deck with three motors, bias trim, motor-

driven head assembly, non-slip reel drive, and Dolby® C NR.

Denon's new DRA-355 Receiver offers our famous Class A non-switching circuitry, liquid-cooled heat sinks, and full video switching—all at \$280.*

In Compact Disc Players, the Company that *invented* digital recording presents the world's only digital-to-analog convertor that's hand-tuned for reduced D/A transfer distortion. The new DCD-1000 has it, plus real-time phase correction, for an unthinkable low \$359.95.*

Can components priced like these live up to the Denon reputation? The proof is in the performance.



DENON

D E S I G N I N T E G R I T Y

*Suggested retail prices.

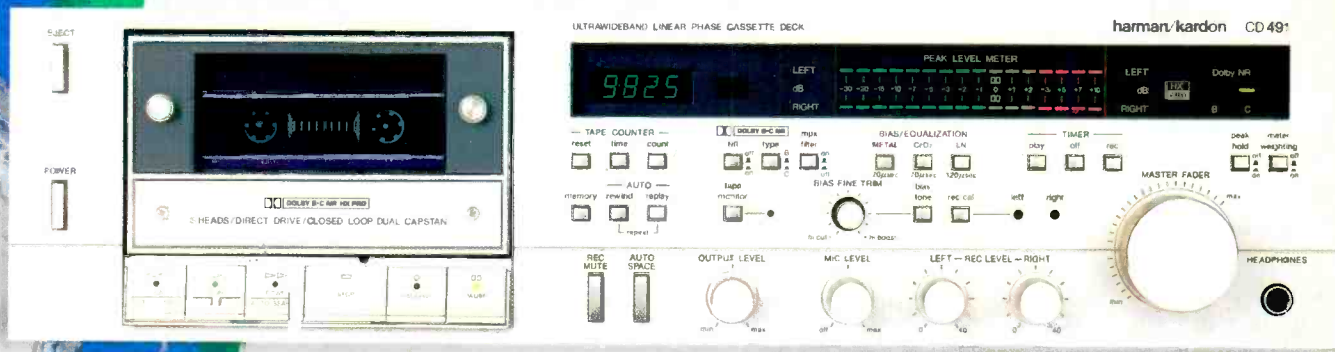
Enter No. 26 on Reader Service Card

Denon America, Inc., 27 Law Drive, Fairfield, N.J. C7006

CASSETTE DECKS

MANUFACTURER	Model	Frequency Response with CrO ₂ Tape (Type I), Hz to kHz, ±dB	Number of Heads	Wow & Flutter	S/N without Noise Reduction, -dB	S/N with Noise Reduction, -dB	Noise Reduction Circuit: Dolby B, C, Dolby C, C-C, dbx=D, HX Pro=H	Number of Preset Biases/EQ Positions	Program Search?	Program Scan?	Legal 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 Winks?	Weight, Lbs.	Price, \$	Notes		
H. H. SCOTT	695DD	30-16 ± 3	2	0.04	66	58	B/C	M		Yes	Yes	PH	E/R	No	1	Yes	400.00			
	685DD	30-16 ± 3	2	0.08	66	58	B	M		No	No	P	E/R	No	1	Yes	300.00			
	655DD	30-16 ± 3	2	0.08	66	58	B	M		No	No	P	E/R	No	1	Yes	230.00			
	645D	25-17 ± 3	1	0.045	66	58	B	M		No	No	P	E/R	No	1	No	175.00			
SEARS ROEBUCK	932D	50-15 ± 6	4	0.1	50	60	B/C	No	3	No	No	P	E	No	2	Yes	111.00	High-speed dubbing.		
	932A	50-15 ± 6	4	0.1	50	70	B/C	No	3	No	No	P	E	No	2	Yes	150.00			
SHARP	RT-110	50-12 ± 3	2	0.1	52	62	B	M	3	No	No	P	T	No	2	No	5.7	79.95		
	RT-120	40-13 ± 3	2	0.07	56	66	B	M	3	No	No	P	T	No	2	No	6.4	89.95		
	RT-160	40-13 ± 3	2	0.07	56	66	B/C	M	3	No	No	P	T	No	2	No	6.4	109.95		
	RT-310	50-12 ± 3	2	0.09	52	62	B	M	3	No	No	P	T	Yes	2	No	6.4	119.95		
	RT-320	50-13 ± 3	2	0.08	56	66	B/C	M	3	No	No	P	T	Yes	2	No	7.1	149.95		
	RT-360	40-14 ± 3	2	0.06	57	67	B/C	M	3	Yes	↑	P	T	Yes	2	No	7.5	189.95		
	RT-1010	40-14 ± 3	3	0.07	56	66	B	M	3	Yes	No	P	T	No	2	Yes	8.2	199.95	↑Intro scan.	
	RT-W600	50-12 ± 3	3	0.09	52	62	B	M	3	No	No	P	T	No	2	Yes	7.5	149.95	High-speed dubbing. As above.	
SHERWOOD	S-90	25-16	2	0.08	57	66	B	M	3	No	No	P	T	No	2	No	10	99.95		
	S-95	30-16	2	0.08	56	73	B/C	M	3	No	No	P	T	No	2	No	12	159.95		
	S-160	30-16	2	0.08	56	73	B/C	M	3	Yes	No	P	T	No	2	No	12	179.95		
	S-260R	25-16.5	2	0.08	56	73	B/C	M	3	Yes	No	P	T	Yes	2	No	14	249.95		
	S-270DD	30-16	2	0.1	56	65	B	M	3	No	No	P	T	No	1	Yes	14	229.95		
SONY	TC-W3	30-14 ± 3	4	0.15	56	69	B/C	No	3	No	No	P	T	No	2	Yes	9.6	200.00		
	TC-W5	30-14 ± 3	4	0.06	57	70	B/C	No	3	No	No	P	T	No	2	Yes	10.8	250.00		
	TC-W7R	30-15 ± 3	4	0.045	57	70	B/C	No	3	Yes	No	P	T	Yes	2	Yes	12.2	450.00		
	TC-V77WR	30-15 ± 3	4	0.045	57	70	B/C	No	3	Yes	No	P	T	Yes	2	Yes	11	470.00		
	TC-FX220	30-14 ± 3	2	0.08	56	63	B	No	3	No	No	P	T	No	2	No	7.3	120.00		
	TC-FX320	30-14 ± 3	2	0.05	56	69	B/C	No	3	No	No	P	T	No	2	No	8	160.00		
	TC-FX420R	30-16 ± 3	2	0.045	56	69	B/C	No	3	No	No	P	T	Yes	2	No	8.5	200.00		
	TC-FX520R	30-17 ± 3	2	0.045	57	70	B/C	No	3	Yes	Yes	P	T	Yes	2	No	10.3	270.00		
	TC-K501R	30-17 ± 3	2	0.04	58	71	B/C	M	3	Yes	Yes	P	E	Yes	2	No	13.7	450.00		
	TC-K555ES	30-18 ± 3	3	0.04	62	75	B/C	M	4	No	No	PH	E	No	0	No	13.5	500.00		
	TC-K666ES	30-19 ± 5	3	0.025	63	76	B/C	M	4	No	No	PH	E	No	0	No	16	650.00		
	TANDBERG	3014 A	18-20 +1, -1.5	3	0.06	72	80	B/C	M	3	Yes	Yes	P	T/E	No	0	No	21.6	1450.00	With remote.
	TEAC	V 340	30-16	2	0.06	55	65	B	No	3	No	No	PH	T	No	2	No			
V 380 C		30-16	2	0.06	55	70	B/C	No	3	No	No	PH	T	No	2	No				
V 326		30-16	2	0.06	55	65	B	No	3	No	No	PH	T	No	2	No				
R 400		30-16	2	0.06	50	60	B/C	No	3	No	No	PH	T	Yes	2	No				
V 427 C		30-16	2	0.06	55	65	B/C	Yes	3	No	No	PH	T	No	2	No				
V 450 X		30-16	2	0.06	55	90	B/C/D	No	3	No	No	PH	T	No	2	No				
D 500 C		25-17	3	0.06	59	69	B/C	No	3	Yes	Yes	PH	T	No	2	Yes				
V 750		20-20	3	0.035	60	70	B/C	M	3	No	No	PH	T	No	2	No				
R 850 X		20-20	3	0.035	60	70	B/C/D	No	3	No	No	PH	T	No	2	No				
R 888 X		20-20	3	0.04	60	70	B/C/D	No	3	Yes	Yes	PH	E	Yes	2	No				
TECHNICS	RS-B12	20-16	2	0.07	56	66	B		3	No	No	P	T	No	2	No	6.8	130.00		
	RS-B14	20-17	2	0.07	57	75	B/C		3	No	No	P	T	No	2	No	6.8	150.00		
	RS-B18	20-17	2	0.07	57	92	B/C/D		3	No	No	P	T	No	2	No	7.1	180.00		
	RS-B24W	40-14 ± 3	2/2	0.08	56	66	B		3	No	No	P	T	No	0	Yes	7.7	180.00		
	RS-B11W	20-17	1/2	0.07	57	67	B		3	No	No	P	T	No	1	Yes	8.8	210.00		
	RS-B28R	20-17	2	0.08	57	92	B/C		3	No	Yes	P	T	Yes	2	No	7.9	220.00		
	RS-B33W	20-18	2/2	0.07	57	92	B/C/D		3	No	Yes	P	T	No	1	Yes	9.5	280.00		
	RS-B49R	20-17	2	0.08	57	92	B/C/D		3	No	Yes	PH	T	Yes	2	No	7.9	290.00		
	RS-B78R	20-19	2	0.045	58	92	B/C/D		3	Yes	No	PH	T/R	Yes	0	No	11.7	400.00		
	RS-B85	30-19 ± 3	3	0.05	60	95	B/C/D	M	3	No	No	PH	T/E/R	No	0	No	11.5	480.00		
	RS-B100	20-21 ± 3	3	0.022	60	92	B/C/D	M	3	Yes	No	PH	T/R	No	0	No	12.3	800.00		
	UHER	CR 160AV	30-16 ± 1	2	0.2	55	64	B/C	M	4	No	No	P	T	No	2	Yes	7	869.00	Sync. sound dubbing.
		CR 260AV	30-16 ± 1	3	0.2	58	64	B	A	4	No	No	P	T	Yes	2	Yes	7	995.00	As above.
CR 1601		20-19 ± 1	3	0.2	50				4	Yes	Yes	P	T	No	1	No	7	1749.00	Record time, 8 hours; 3 speeds: mono.	
ULTRX	RDC 11	30-13.5 ± 3	2	0.06	57	67	B/C	M	3	No	No	A	T	No	2	No	7.3	129.95		
	RDC 21	30-15 ± 3	2	0.06	57	67	B/C	M	3	No	No	A	T	No	2	No	7.3	149.95		
	RDR 31	30-13	2	0.08	50	60	B	M	3	No	No	A	T	Yes	2	No	9.7	149.95		
	RDC 41	20-16 ± 3	2	0.05	59	68	B/C/H	A	3	No	No	PH	T	No	2	No	8.4	199.95		
	RDR 51	30-16 ± 3	2	0.05	53	62	B/C/H	A	3	No	No	A	T	Yes	2	No	9.7	199.95		
	RDC 61	20-18 ± 3	2	0.05	60	77	B/C/H	A	3	Yes	No	PH	E/R	No	2	No	8.4	249.95		
	RDR 81	20-17 ± 3	2	0.04	60	76	B/C/H	A	3	Yes	Yes	PH	E/R	Yes	2	No	9.9	299.95		
	RDW 201	30-15	3	0.1	53	72	B/C	A	3	No	No	P	T	No	2	Yes	5.1	199.95		
VECTOR RESEARCH	VCX-220	30-17 ± 3	2	0.05	56	74	B/C		3	No	No	P	T	No	2	No	7 ³ / ₄	150.00		
	VCX-250	30-18 ± 3	2	0.05	56	74	B/C		3	Yes	No	P	T	No	2	No	14	190.00		
	VCX-350	30-18 ± 3	2	0.05	56	75	B/C		3	No	No	P	T	No	2	Yes	15	230.00		
	VCX-450	30-18 ± 3	2	0.04	56	75	B/C		3	Yes	Yes	P	T	Yes	2	No	18	330.00		
	VCX-650	20-21 ± 3	3	0.04	57	76	B/C		3	Yes	Yes	P	T	No	2	No	20	450.00		
YAMAHA	K-1020	20-20 ± 3	3	0.06	59	95	↑	M	3	Yes	Yes	P	E/R	No	0	No	16 ³ / ₄	599.00	↑All four NR circuits.	
	K-720	30-19 ± 3	2	0.08	59	90	↑	M	3	Yes	No	P	E/R	Yes	2	No	12 ¹ / ₂	449.00		
	K-600	30-18 ± 3	2	0.1	59	75	B/C		3	Yes	Yes	P	E/R	Yes	2	No	11 ¹ / ₂	349.00		
	K-520	30-17 ± 3	2	0.08	58	74	B/C		3	Yes	No	P	E/R	No	2	No	9 ¹ / ₂	299.00		
	K-420	40-16 ± 3	2	0.08	58	74	B/C		3	Yes	No	P	T	Yes	0	No	8 ¹ / ₄	249.00		
	K-320	30-16 ± 3	2	0.08	58	74	B/C		3	Yes	No	P	T	No	2	No	9 ¹ / ₂	219.00		
	K-220	40-16 ± 3	2	0.08	58	74	B/C		3	No	No	P	T	No	0	No	8 ¹ / ₄	179.00		

A MASTERPIECE OF HIGH FIDELITY



Of the many elements inherently necessary for the production of a lasting, true work of art, perhaps attention to design fundamentals is the most crucial. Time must be devoted and painstaking attention to detail must be asserted on every level for an authentic masterpiece to result. It is that commitment to precision that makes Harman Kardon's CD491 stand apart from other cassette decks.

An audiophile demands nothing less than the fine quality inherent in the CD491 — Harman Kardon's most advanced cassette deck and one of the few in the world that can equal the range of human hearing. With a frequency response of 20Hz to 24kHz ($\pm 3\text{dB}$) with any tape formulation, the CD491 is a classic of technological excellence. Incorporated in the CD491 is Dolby HX Professional,* a headroom expansion system that extends frequency response at high record levels while significantly reducing distortion. Added to this is a signal-to-noise ratio of 75dB. The dramatic result of this combination is the ability to accurately record more dynamic audio signals than was previously possible. This makes the CD491 a truly enduring technological triumph as more demanding forms of software, such as digital audio and hi-fi VCRs, emerge. Three heads improve performance and offer the convenience of monitoring while recording. A Sendust record head withstands high record levels without overload and a ferrite playback head assures high frequency response. Both heads are precisely aligned in one housing. The CD491 is such a unique expression of artistry that one shouldn't compare it to any other cassette deck, but rather to the source being recorded.

This strong commitment to achieving the ultimate in audio listening pleasure is reflected in the many fine products Harman Kardon makes.

Harman Kardon... Dedicated to mastering the fine art of high fidelity.

SPECIFICATIONS: Frequency Response, -20dB (IFH std) All tape Formulations (No Ferrichrome position): 20Hz-24kHz $\pm 3\text{dB}$; Metal: 20Hz-26kHz $\pm 3\text{dB}$.
 Large Signal Response (0dB, with Dolby* on, Metal Tape): 20Hz-20kHz $\pm 3\text{dB}$. Wow-and-Flutter (NAB, WRMS): 0.025%. Signal-to-Noise Ratio (Cr02) Dolby C* on: 75dB. Total Harmonic Distortion, 1kHz, metal tape, Dolby* level: 0.9%.

*Registered Trademark of Dolby Laboratories, Inc.

harman/kardon

240 Crossways Park West, Woodbury, NY 11797; In Canada, Gould Marketing, Montreal. For more information call toll-free 1-(800) 633-2252 ext. 250.

© HK 1984.

OPEN-REEL TAPE DECKS



TEAC X-200R



FOSTEX B-16



UHER SG 562

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 Indicators, Number and Type	EE Tape Capable?	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
			Speeds	Letter Code																
<p>SPEED CODE A—7½, 3¾ B—7½, 3¾, 1⅞ C—7½, 3¾, 1⅞, 15/16 D—15, 7½ E—15, 7½, 3¾</p>																				
AKAI	GX 747dbx	A	10½	6 4	2 3	3	Direct	25-33 ±3	0.03	†	410	Yes		2 VU Mtrs.	Yes	17.3 x 19.4 x 10.1	51	1400.00	†128 dB with dbx Type I NR. Sound on Sound.	
	GX 4000D	A	7	3 4	2 1	1	Belt	30-24 ±3	0.08	60	775	Yes		2 VU Mtrs.	No	17.3 x 12.4 x 9.1	29	399.00		
FOSTEX	20	D	7	3 2	3 3	3	Belt	30-22	0.06	70	300	No				13½ x 14 x 6¾	29	995.00	Microprocessor-controlled; center track for time code interlock.	
	A-4	D	7	3 4	4 3	3	Belt	40-22 ±3	0.06	63	300	No	4 VU Mtrs.			13½ x 14 x 6¾	29	1450.00		
OTARI	MX5050B-II	E	10½	4 2	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	2295.00		
	MX5050BQ-2	D	10½	4 4	4 3	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	2995.00		
REVOX	B77 MKII	†	10½	3 2/4	2 3	3	Direct	30-22 +2,-3	0.06	67	775	Yes	22k, 110k	2 Mtrs. & 2 Peak LEDs	No	16½ x 17¾ x 8¼	37½	1799.00	†Any two adjacent speeds from 15/16 to 15 ips. †22k, 110k, balanced opt.; balanced line in/out; self-sync.	
	PR99 MKII	A/D	10½	3 2	2 3	3	Direct	30-22 +2,-3	0.06	67	775	Yes	†	2 Mtrs. & 2 Peak LEDs	No	17¾ x 19 x 8	40½	2250.00		
TANDBERG	TD-20A-SE	A/D	10½	3 2/4	2/4 4	4	Belt	20-30 ±2	0.03	80	450	Yes	800	2 Peak Mtrs.	No	17¼ x 17½ x 6	49	1395.00	Actlinear II record, Dyneq equalization.	
TEAC	X 300	A	7	3 4	2 3	3	Belt	30-34	0.04	65	450	Yes	10k	2 VU Mtrs.	Yes	18 x 12½ x 9	33	620.00	Record mute. As above. †95 dB with dbx NR; dual capstan, variable speed, manual cue. As above. ††100 dB with dbx NR; dual capstan, d.c. servo, spooling mode, variable speed, bias fine tuning, auto locator, Dupliscync, remote control. As above but without spooling mode.	
	X 300 R	A	7	3 4	2 3	3	Belt	30-34	0.04	65	450	Yes	10k	2 VU Mtrs.	Yes	18 x 12½ x 9	33	690.00		
	X 7 MK II	A	7	3 4	2 3	3	Belt	30-34	0.03	†	436	Yes	10k	2 VU Mtrs.	Yes	16¼ x 18¼ x 10¾	39¾	790.00		
	X 700 R	A	7	6 4	2 3	3	Belt	30-34	0.03	†	436	Yes	10k	2 VU Mtrs.	Yes	16¼ x 18¼ x 10¾	39¾	950.00		
	X 2000	A	10½	3 4	2 3	3	Belt	25-33	0.03	††	436	Yes	10k	2 VU Mtrs.	Yes	19 x 16 x 10½	45¼	1400.00		
	X 2000 R	A	10½	6 4	2 3	3	Belt	25-33	0.03	††	436	Yes	10k	2 VU Mtrs.	Yes	19 x 16 x 10½	45¼	1600.00		
TECHNICS	RS-1500US	E	10½	4 2/4	2/2 3	3	Direct	30-30 ±3	0.018	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. 4 track, 2 channel record/play; 2 track, 2 channel play. 2 channel, 2 track record/play; 4 track, 2 channel play. Bidirectional; 4 track, 2 channel record/play.	
	RS-1506US	E	10½	4 2/4	2/2 3	3	Direct	30-30 ±3	0.018	66	775	Yes	4.7k	2 VU Mtrs.		19¾ x 17½ x 10½	57¼	1600.00		
	RS-1520	E	10½	4 2/4	2/2 3	3	Direct	40-22 ±2	0.035	68	2190	Yes	4.7k	2 VU Mtrs.		19¾ x 18 x 10½	61¾	2500.00		
	RS-1700	E	10½	6 2/4	2/2 3	3	Direct	30-30 ±3	0.018	66	775	Yes	4.7k	2 VU Mtrs.		19¾ x 17½ x 10½	58½	2100.00		
UHER	4000	C	5	3 2	1 1	1	Belt	20-25 ±2	0.2	64	775	Yes	200	1 VU Mtr.	Yes	11 x 3½ x 9	8	1399.00	24 hours record time.	
	4200	C	5	3 2	2 1	1	Belt	20-25 ±2	0.2	64	775	Yes	200B	2 VU Mtrs.	Yes	11 x 3½ x 9	8	1499.00		
	4400	C	5	3 4	2 1	1	Belt	20-25 ±2	0.2	62	775	Yes	200B	2 VU Mtrs.	Yes	11 x 3½ x 9	8	1499.00		
	5000	C	5¾	2 2	1 1	1	Idler	40-16 ±3	0.2	60	900	Yes	220	1 Peak Mtr.	Yes	13 x 6 x 13	18	1249.00		
	6000	†	5	3 2	1 4	1	Belt	20-22 ±3	0.2	62	775	Yes	220	1 VU Mtr.	Yes	11 x 3½ x 9	8	1749.00		
	SG 562	C	7	4 4	2 1	1	Idler	20-24 ±3	0.1	66	750	Yes	200	2 VU Mtrs.	Yes	18 x 6 x 12	20	1550.00		
	SG 631	B	10½	4 4	2 4	†	†	20-22 ±3	0.1	67		Yes	200	2 VU Mtrs.	Yes	20 x 4½ x 16	29	1650.00		
	1200	A	5	3 †	1 1	1	Belt	40-16	0.15	62	600	Yes	200	1 VU Mtr.	Yes	11 x 3½ x 9	8	4500.00		

THE DIFFERENCE BETWEEN STEREO AND



STEREO-OHHH!

You've got to hear it to believe it! TDK Extra High Grade Hi-Fi video cassettes deliver the most dramatic High Fidelity stereo performance yet.

Designed to meet the critical demands of today's sophisticated VHS and Beta Hi-Fi VCRs, TDK Hi-Fi video cassettes will open your eyes and ears to a whole new dimension of enjoyment.

Achieving a BET* value of 35m²/g, TDK Hi-Fi delivers exceptional luminance and chrominance signal-to-noise improvements of +4.5dB and +5.5dB, respectively, and a 1dB improvement in audio sensitivity.

The result is the purest, most dynamic

stereo sound attainable on any Hi-Fi VCR. Plus cleaner, more natural colors and crisper, sharper images.

Additionally, TDK's exclusive H-DD binder system facilitates optimum particle dispersion and delivers the lowest dropout rate in its class. This is particularly beneficial to precise reproduction of digitally encoded music sources.

And to assure the smoothest running performance of any video cassette designed for Hi-Fi stereo VCRs, TDK Hi-Fi is encased in our Super Precision cassette shell mechanism.

Reach new levels of performance with TDK Hi-Fi video cassettes today. Ohhh what a difference they'll make.

 **TDK**
WHERE GREAT ENTERTAINMENT BEGINS.

*BET value: The measure indicates the fineness of the magnetic particles contained on a tape expressed in units of square meters per gram (m²/g). The higher the BET value, the finer and more numerous the particles—and the greater the tape's video and audio performance capability.

© 1985 TDK Electronics Corp.

Enter No. 71 on Reader Service Card



Dazzling Performance



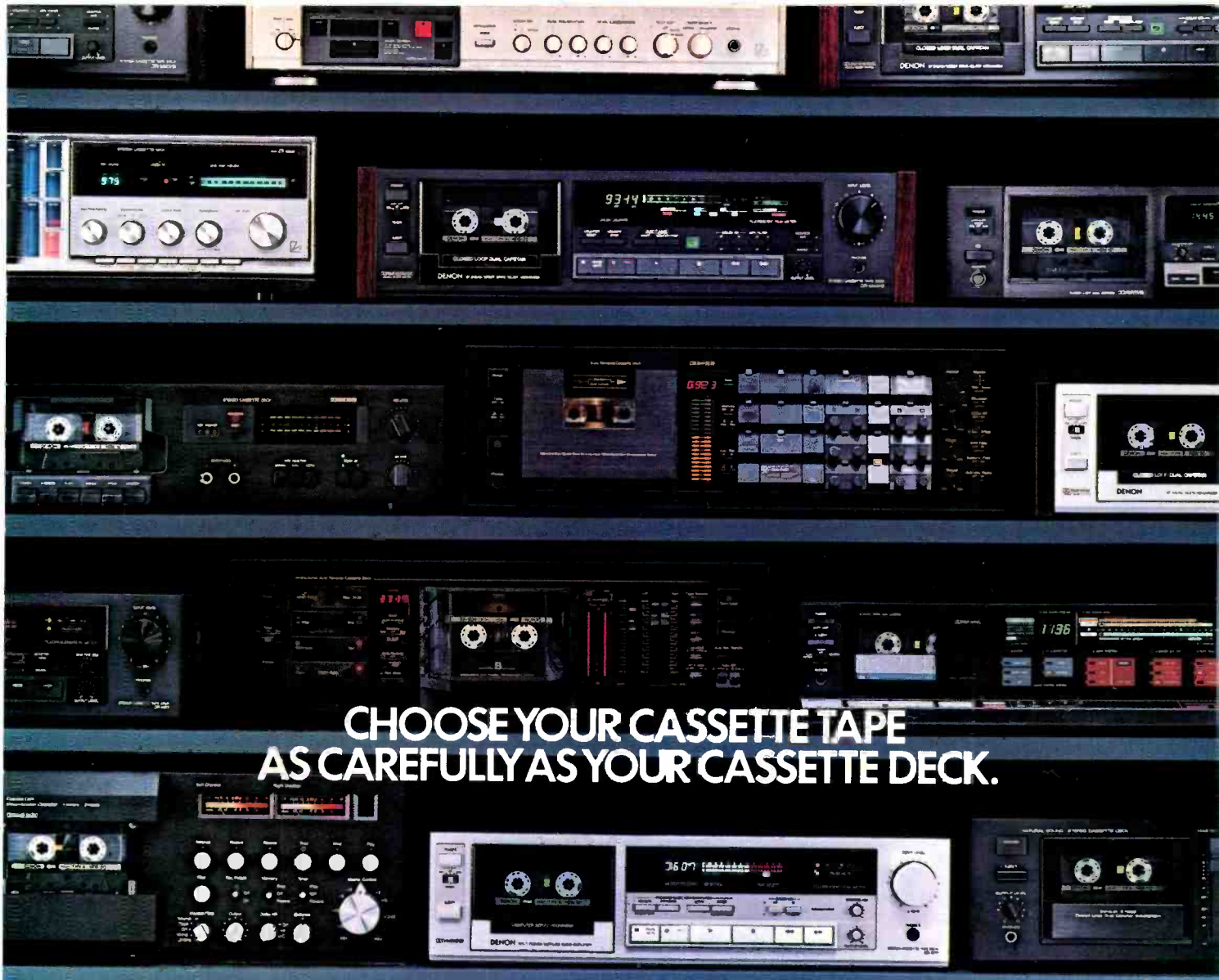
TDK
 TDK LEADS THE WAY.

BLANK TAPE

CASSETTE TAPE TYPE CODE I — Normal Ferric II — Chrome Chrome Equivalent III — Ferrichrome IV — Metal Particle		CASSETTES										OPEN-REEL			
MANUFACTURER	Brand	Tape Type—See Code	Cassettes										Notes		
			C-30	C-45 or C-46	C-60	C-90	C-120	1200 Feet	1800 Feet	2400 Feet	3600 Feet				
ADAMS MAGNETIC	Studio EC	I	1.59	1.69	1.79	1.99									
	Studio SCF	I	2.59		2.79	2.99									
	Superchrome II Spokenword	II I	1.59		3.99 1.79	4.19 1.99									Instant start.
AML	LH 46	I		2.40											
	LH 60	I			2.60										
	LH 90	I				2.90									
	CH 46	II		2.90											
	CH 60 CH 90	II II			3.00	3.60									
BASF	LH Extra I	I			1.59	1.89									
	LH Maxima I	I			2.19	2.79									
	ChromDioxid II	II			2.89	3.59									
	ChromDioxid Maxima II	II			3.59	4.79									
	Metal IV	IV					7.99								
	Chrome EE Ferro LH Ferro Super LH									19.69 9.19 11.79					7-inch reel, back-coated, for EE-capable decks. 7-inch reel. As above.
CERTRON	High Density	I	1.29	1.39	1.59	2.09	2.49								
	High Energy	I			1.99	2.59	2.99								
	Ferex I	I			3.00	3.99									
	Ferex II	II			3.00	3.99									
DENON	DX1	I			2.00	2.50									
	DX3	I			2.75	3.75									
	DX4	I			3.50	4.50									
	HD6	II			3.00	4.00									
	HD7	II			3.50	4.50									
	HD8	II			4.50	6.00									
	HDM	IV			6.00	7.50									Cobalt/gamma-ferric/metal-particle hybrid.
DIRECT-TO-TAPE RECORDING	Direct I	I			2.95†	3.50††									
	Direct II	II			3.75†	4.50††									
	Agfa PEM 369 Agfa PEM 468 Ampex 642 API	I					3.70	9.00	10.70	15.50†	17.90†	9.50†			†C-68; ††C-96. †C-68; ††C-99. †Pancake (reel also available). †As above. †As above.
FUJI	DR	I		2.35	2.75	3.80	5.30								
	FR-I	I		3.95	4.35	5.95									
	FR-II	II		3.95	4.35	5.95									
	FR Metal	IV		5.75	6.35	8.60									
	GT-I	I		4.45	4.95	6.95									
	GT-II	II		4.95	5.45	7.45									
JVC	F1	I			2.95	3.95									
	DA-3	I			4.75	6.95									
	DA-7	II			5.25	7.45									
	ME-90II	IV				16.95									
KONICA	Metal	IV			5.49	6.79									
	GM II	II			2.99	3.59									
	GM I	II			2.99	3.59									
	ML	I			1.89	2.29	3.29								
LDRAN	ESQ 90	II				4.99									
	ESQ 60	II													
	ESQ 46	II		3.99	4.49										
	LH 9000	II				3.99									
	LH 6000	II			3.49										
	LH 4600	II		2.99											
	LN 9000	I			2.79	2.99									
	LN 6000 LN 4600	I I		2.49											
MAXELL	UR	I		1.59	1.69	1.99	2.99								
	UDS-I	I		2.29	2.49	2.99									
	UDS-II	II		2.29	2.49	2.99									
	XLI	I			2.99	3.79									
	XLII	II		2.69	2.99	3.79									
	XLII-S	I			3.69	4.99									
	XLII-S	II			3.69	4.99									
	MX	IV		4.39	5.39	6.99									
	UD50-60						8.68								
	UD50-120														
	UD35-90								8.98		27.38†				†2500 feet.
	UD35-180														
	UD25-120										11.48†		27.98		
	UD18-180												12.48		
	XLII35-90									16.48			44.98		For EE-capable decks. As above. Back-coated. As above. As above. As above.
	XLII35-180							10.58							
	XLII50-60B														
	XLII50-120B														
	XLII35-90B									12.48		31.98†			
	XLII35-180B												32.98		

BLANK TAPE

CASSETTE TAPE TYPE CODE I — Normal Ferric II — Chrome/Chrome Equivalent III — Ferrichrome IV — Metal Particle	MANUFACTURER	Brand	CASSETTES										OPEN-REEL		Notes		
			Tape Type — See Code										1200 Feet	1800 Feet		2400 Feet	3600 Feet
			C-30	C-45 or C-45	C-60	C-90	C-120										
MEMOREX	CDX II HBX II HB II MRX I dB Series	II II II I I	2.09	2.29	3.19 2.79 2.49 1.79	4.99 3.99 3.49 3.29 2.29	4.29								Type II metal particle.		
NAKAMICHI	ZX SXII SX EXII	IV II II I			6.50 5.85 4.00 3.70	9.00 8.00 5.85 5.40											
PANASONIC	Panasonic Panasonic Panasonic	I I II			3.95†	5.45† 9.95†									†2-pack.		
PDMAGNETICS	Tri-Oxide Ferro 500 Crolyn High Grade 500 Crolyn	I II II			2.39 2.69 3.99	3.49 3.99 5.99											
RAKS	HD HDI HDI I	I I II		1.89 2.69 3.59	2.59 3.59 4.89	3.49 4.89 6.79											
REALISTIC	Supertape Supertape HiBias Supertape Gold LowNoise Concertape Concertape Supertape Realistic Concertape	IV II I I I I I I I	1.99†	2.59 1.59	3.99 3.69 2.79 1.99 2.59† .88	6.99 4.39 3.79 2.79 3.59† 1.25	4.99 3.49 4.99†		5.79 3.99	6.49 5.49 2.49	11.49 6.49	7.99		†3-pack. 900 feet, \$3.99. 225 feet, \$1.49; 900 feet, \$2.99.			
SONY	HF HF-S UCX UCX-S Metal-ES	I I I II IV		2.05	2.25 3.10 4.15 5.00	3.15 4.25 5.75 7.00 11.50	4.05										
SWIRE MAGNETICS	Laser XL Laser UHD-I Laser UHD-II			1.39	1.49 1.99 1.99	1.89 2.59 2.59	2.49										
TDK	MA-R MA HX-S SA SA-X AD AD-X D SA/EE GX	IV IV II II I I I I I I	1.70	1.80	7.00 5.20 5.20 2.80 3.90 2.40 3.00 2.20	9.40 7.00 7.00 3.70 5.50 3.30 4.30 2.20	3.20		8.60	12.50 23.40	10.10	32.80	27.30	Type II metal particle. Dual layer. For EE-capable decks; 7½-inch plastic or 10-inch metal reels.			
TEAC	CDC CRC HDX MDX Sound 52 Studio 52	I II II IV I IV		5.00† 6.50†	5.75 5.95 3.95 4.75	6.00 6.50 5.00 6.30								Miniature open-reel type. As above. †C-52; as above. As above.			
3M/SCOTCH	XSM IV XSII XSI CX BX	IV II I I I		2.99 1.89	7.99 4.79 4.49 3.29 2.49	10.29 5.99 5.79 4.79 3.39	4.79										
TRIAD	F-X90 EM-X90 MG-X90	I II IV				3.39 3.99 4.99								Head-cleaning leader. As above. As above.			



**CHOOSE YOUR CASSETTE TAPE
AS CAREFULLY AS YOUR CASSETTE DECK.**



If you own a deck like one of these, you were obviously concerned with low wow and flutter, extended frequency response, smooth tape transport and wide dynamic range. When it comes to choosing cassette *tape*, why behave any differently?

Denon's new High Density HD8 formulation is the finest high-bias tape you can buy. Its "High Technorom" dispersion and binding plus its metal hybrid formulation guarantee digital level performance on the widest range of cassette decks (including yours). You can keep an eye on things through Denon's new giant window. And enjoy your music knowing HD8 is guaranteed for a lifetime.

So how good is your cassette deck? With Denon HD8 it's better than you think.

DENON

Digital tape from the inventors of digital recording.

Enter No. 25 on Reader Service Card

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Characteristics: S = S, M = M, S = 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 Switched Low or Proximity Filter = S	Price, \$	Notes
AKG ACOUSTICS	C535EB	Card.	Electret	Zinc Alloy	Vocal	200B	20-20	61	XLR		10	F	295.00	Built-in attenuator.	
	C567E	Omni	Electret	Zinc Alloy		200	20-20	64	XLR	9	3½	W	235.00	Lavalier; with tie-tac and tie-bar.	
	C568EB	Super Card.	Electret	Zinc Alloy	ENG	200	20-20	62	XLR		6	WF	295.00	Short shotgun.	
	D12E	Card.	Dynamic	Zinc Alloy/Steel	Bass Drum	290	30-15	73	XLR		17			295.00	
	D70M	Card.	Dynamic	Plastic	Record	600	50-18	77		15	Phone			40.00	
	D80	Card.	Dynamic	Brass	Record	210	60-15	76	XLR	15	Phone	7¼	S	90.00	
	D109	Omni	Dynamic	Brass		240	70-12	79		30	None	5¼		99.00	Lavalier.
	D125E	Card.	Dynamic	Zinc Alloy	Instr.	210	100-18	74	XLR			8		110.00	
	D130E	Omni	Dynamic	Zinc Alloy	ENG	220	50-13	75	XLR			9		105.00	
	CK9		Condenser	Zinc Alloy	Studio	†	20-20	57	†			12	W	277.00	†For use with C451EB preamp (see specs below); long shotgun. Modular preamp.
	C460B		Condenser	Zinc Alloy	Studio	500	20-20		XLR			4½	F	330.00	
	C451EB		Condenser	Zinc Alloy	Studio	200	20-20		XLR			3	F	275.00	As above.
	CK61	Card.	Condenser	Zinc Alloy	Studio	†	20-20	62	†			1		145.00	
	CK62	Omni	Condenser	Zinc Alloy	Studio	†	20-20	62	†			1		145.00	
	C34	Multiple x2	Condenser	Zinc Alloy	Drch.	200	20-20	67	12-Pin	60	XLR	10	W	1649.00	Remote pattern control.
	C422	Multiple x2	Condenser	Zinc Alloy	Drch.	200	20-20	65	12-Pin	60	XLR	15	W	2500.00	As above.
	The Tube	Multiple	Condenser	Zinc Alloy	Studio	200	20-20		12-Pin	60	XLR	24	W	1700.00	As above.
	C414EB-P48	Multiple	Condenser	Zinc Alloy	Studio	200	20-20	61	XLR			10	WF	795.00	Four patterns; attenuator and pattern switches. Modular system.
	C460B-ULS	Card.	Condenser	Zinc Alloy	Studio	500	20-20	40	XLR			5½	F	482.00	
	C451EB-Combo	Card.	Condenser	Zinc Alloy	Studio	200	20-20	40	XLR			4	F	427.00	As above.
	C451E-Combo	Card.	Condenser	Zinc Alloy	Studio	200	20-20	40	XLR			3½		380.00	As above.
	D190E	Card.	Dynamic	Zinc Alloy	General	280	30-15	73	XLR			6½	S	115.00	
	D202E	Card.	Dynamic	Zinc Alloy/Plastic	Strings	300	20-20	76	XLR			12	F	350.00	Two-way system.
	D222EB	Card.	Dynamic	Zinc Alloy/Plastic	Podium	320	20-16	77	XLR			9	F	290.00	As above.
	D224E	Card.	Dynamic	Zinc Alloy	Acous. Instr.	260	20-20	78	XLR			10	F	500.00	As above.
	D310	Card.	Dynamic	Zinc Alloy	Vocal	270	80-18	78	XLR			9		135.00	
	D320B	Hyper Card.	Dynamic	Zinc Alloy	Vocal	290	80-18	77	XLR			12	F	185.00	
	D321	Hyper Card.	Dynamic	Zinc Alloy	Vocal	300	40-20	77	XLR			11½		170.00	
	D330BT	Hyper Card.	Dynamic	Zinc Alloy	Vocat	370	50-20	78	XLR			12	F	210.00	
	D1200	Card.	Dynamic	Zinc Alloy	General	200	25-17	73	XLR			8½	F	140.00	
	CK1	Card.	Condenser	Zinc Alloy	Studio	††	20-20	60	††			1		127.00	††For use with C460B preamp (see specs above.)
	CK1S	Card.	Condenser	Zinc Alloy	Studio	††	20-20	60	††			1		127.00	
CK1X	Card.	Condenser	Zinc Alloy	Studio	††	20-20	62	LEMD	10	††	1		175.00		
CK22	Omni	Condenser	Zinc Alloy	Studio	††	20-20	62	††			1½		127.00		
CK2X	Omni	Condenser	Zinc Alloy	Studio	††	20-20	62	LEMD	10	††	1		175.00		
CK3	Hyper Card.	Condenser	Zinc Alloy	Studio	††	20-20	61	††			1		127.00		
CK3X	Hyper Card.	Condenser	Zinc Alloy	Studio	††	20-20	61	LEMD	10	††	1		175.00		
CK5	Card.	Condenser	Zinc Alloy	Studio	††	20-20	60	††			4		237.00		
CK8		Condenser	Zinc Alloy	Studio	††	20-20	54	††			2½		227.00	Short shotgun.	
AMR	ERO-10	Omni	Electret Condenser	Steel	Instr.	250B	40-20	52	Swcft. QG3M	25	Male XLR	5		199.50	
	ERC-12	Card.	Electret Condenser	Steel	General	250B	30-20	57	Swcft. QG3M	25	Male XLR	5		199.50	
AUOID-TECHNICA	AT9000	Omni	Electret	Alum.	Vocal	1.5k	60-10	63†	Attached	10	Mini	1.65	S	14.95	†0 dB = 1 mV per 10 dynes/cm².
	AT9100	Uni	Dynamic	Plastic	Vocal	600	60-15	63†	Attached	10	Mini	6.7	S	24.95	
	AT9200	Uni	Electret	Plastic	Music	1.5k	60-17	48†	Attached	10	Mini	7.1	S	34.95	
	AT9250	Uni	Dynamic	Plastic	Vocal	600	60-16	60†	Attached	13	Mini	7	S	29.95	
	AT9300	Uni/Omni	Electret	Alum.	Video	1k	40-10	61†	Attached	6	Mini	2.75	WS	79.95	
	AT9400	Uni x2	Electret	Plastic	Music	1.5k	60-17	53†	Attached	10	Mini	7.1	S	49.95	
	AT9500	Omni	Electret	Alum.	Vocal	2k	50-16	53†	Attached	10	Mini	0.18	S	29.95	
	AT9650	Uni	Dynamic	Plastic	Vocal	250	60-17	58†	A3M	16.3	Mini	8	S	44.95	
	AT9800	Uni	Dynamic	Alum.	Music	250	50-18	58†	A3M	16	Mini	10	SF	99.95	
	AT9900	Uni	Electret	Alum.	Music	600	4-20	56†	A3M	16	Mini	6.5	SF	129.95	

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels Sleeve = 2, Quad = 4 M = M-S	Operating Principle	Case Material	Most Common Use	Actual Impedance Balanced = Ω	Operating Range - 1 kHz, Ohms	Open Circuit Sensitivity 1 kHz - dB, re: 1 Volt/1 μ bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On/Off Switch = S, Switched Low or Priority Filter = F	Price, \$	Notes	
AUDIX	UD-50	Card.	Dynamic	Zinc	Vocal	500B	80-15	80	A3F	0	None	10	WS	85.00		
	UD-50D	Card.	Dynamic	Zinc	Vocal	500B/50k	80-15	80-62	A3F	0	None	10.3	WS	95.00		
	UD-100	Card.	Dynamic	Zinc	Vocal	600B	50-16	76	A3F	0	None	11.7	WS	129.00		
	UD-200	Card.	Dynamic	Zinc	Stage	200B	50-18	76	A3F	0	None	11	W	179.00		
	UD-260	Card.	Dynamic	Zinc	Stage	200B	50-18	76	A3F	0	None	11.7	WS	179.00		
	UD-300	Hyper Card.	Dynamic	Brass	Stage	200B	40-20	72	A3F	0	None	9.5	WS	259.00		
OM-1	"Genesis" Card.	Dynamic	Dynamic	Brass	Stage	200B	40-20	72	A3F	0	None	9.5		279.00		
	Series One	Card.	Dynamic	Brass	Vocal	200B	50-16	76	None	0	None			1495.00	Diversity wireless.	
BEYERDYNAMIC	M200	Card.	Dynamic	Alum.	Vocal	600B	50-15	†	XLR			4.9	††	100.00	†2.3 mV/Pa; ††with on/off switch, \$10.00 additional.	
	M300	Card.	Dynamic	Alum.	Vocal	250B	50-15	†	XLR			8.6	††	125.00	†1.2 mV/Pa.	
	M400	Super Card.	Dynamic	Alum.	Vocal	200B	40-16	†	XLR			9.2	††	160.00	†2 mV/Pa.	
	M500	Hyper Card.	Ribbon	Alum.	Vocal	200B	40-18	†	XLR			8.9	††	240.00	†1.2 mV/Pa.	
	M600	Hyper Card.	Dynamic	Alum.	Vocal	250B	40-16	†	XLR			8.8	††	270.00	†1.4 mV/Pa; three-position bass filter.	
	M69	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	†	XLR			11.4		165.00	†2.3 mV/Pa.	
	M69S	Hyper Card.	Dynamic	Brass	Instr.	200B	50-16	†	XLR			11.4	F	200.00	†2.3 mV/Pa.	
	M88	Hyper Card.	Dynamic	Brass	Instr.	200B	30-20	†	XLR			11.4		320.00	†2.3 mV/Pa.	
	M201	Hyper Card.	Dynamic	Brass	Instr.	200B	40-18	†	XLR			7.9		190.00	†1.3 mV/Pa.	
	M260	Hyper Card.	Ribbon	Brass	Vocal	200B	50-18	†	XLR			10.7	††		†1.2 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	2.7		230.00	†0.7 mV/Pa; lavalier.	
	M130	Figure 8	Dynamic	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		75.00	†1 mV/Pa.	
	MPC50	Hemi.	Electret Condenser	Wood		200B	20-20	33	XLR			17.9	S	530.00		
	MCE5-11	Omni	Electret Condenser	Brass	Brdcst.	200B	20-20	†	XLR	10		0.2	S	275.00	†14 mV/Pa; lavalier, other versions available.	
	MC711	Omni	Condenser	Brass	Studio	200B	40-20	†	XLR			4.4	F	210.00	†8 mV/Pa; 12-V power opt.	
	MC712	Card.	Condenser	Brass	Studio	200B	40-20	†	XLR			5.3	F	250.00	†8 mV/Pa; built-in suspension and pop filter; power as above.	
	MC713	Omni	Condenser	Brass	Studio	200B	40-20	†	XLR			4.6	F	260.00	†10 mV/Pa; power as above.	
	MC714	Card.	Condenser	Brass	Studio	200B	40-20	†	XLR			5.4	F	300.00	†10 mV/Pa; power as above.	
MC716	Card./Lobe	Condenser	Brass	Brdcst.	200B	40-20	†	XLR			6.9	F	400.00	†10 mV/Pa; power as above.		
MC717	Lobe	Condenser	Brass	Brdcst.	200B	40-20	†	XLR			12.4	F	500.00	†10 mV/Pa; power as above.		
MC718	Figure 8	Condenser	Brass	Studio	200B	40-20	†	XLR			8.1	F	460.00	†10 mV/Pa; power as above; long shotgun.		
MC734	Card.	Condenser	Brass	Vocal	150B	20-18	†	XLR				F	830.00	†5 mV/Pa; three-position bass switch; 12-dB attenuator.		
MC736		Condenser	Brass	Brdcst.	150B	40-20	†	XLR			8.6		725.00	†30 mV/Pa; short shotgun; bass roll-off and 10-dB attenuator.		
MC737		Condenser	Brass	Brdcst.	150B	40-20	†	XLR			15.7		825.00	†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	†	XLR	6	†††	2.9		60.00	†2.5 mV/Pa.		
M160	Hyper Card.	Double Ribbon	Brass	Record	200B	50-18	†	A3F			5.5		360.00	†1.2 mV/Pa.		
CROWN INTERNATIONAL	PZM-30GP	Hemi.	Electret Condenser	Alum.	Piano/General	150B	20-15	70	Swcft. A3M			6½	W	359.00	All models are Pressure Zone Mikes.	
	PZM-31S	Hemi.	Electret Condenser	Alum.	Orch.	150B	20-15	72	Swcft. A3M			6½	W	359.00		
	PZM-6LP	Hemi.	Electret Condenser	Alum.	Conf.	150B	20-15	70	Swcft. A3M	15	Swcft. A3M	5	W	359.00		
	PZM-6S	Hemi.	Electret Condenser	Alum.	Orch.	150B	20-15	72	Swcft. A3M	15	Swcft. A3M	5	W	359.00		
	PZM-20RMG	Hemi.	Electret Condenser	Alum.	Conf.	150B	20-15	70	Swcft. A3M			6½		299.00		
	PZM-2.5	Hemi.	Electret Condenser	Alum.	†	150B	20-12	64	Swcft. A3M			61		369.00	†Stage floor, lectern.	
	PZM-3LVR	Hemi.	Electret Condenser	Plastic		150B	20-15	70		10	Swcft. TA4F	½		329.00	Redundant lavalier.	
	PZM-3LV	Hemi.	Electret Condenser	Plastic		150B	20-15	70		15	Swcft. TA4F	½		239.00	Lavalier.	
	PZM-12SP	Hemi.	Electret Condenser	Nylon	General	150B	20-15	70	Swcft. A3M			2	W	259.00		
	PZM-180	Hemi.	Electret Condenser	Nylon	General	150B	50-18	70	Swcft. A3M			2	W	160.00		
Sound Grabber	Hemi.	Electret Condenser	Nylon	Conf.	1.6k	50-15	55		10	Mini	2	W	99.00			
PCC-160	Half Super Card.	Electret Condenser	Steel	†	150B	50-18	53	Swcft. TA3M	15	Swcft. A3M	11½	WF	249.00	Boundary mike.		
ELECTRO-VOICE	RE20	Card.	Dynamic	Steel	MUSIC/Voice	50B/150B/250B	40-18	57†	A3M	15	None	26	WF	515.00	†0 dB = 1 mW per 10 dynes/cm ² ; Variable-D. Integral shock mount; Variable-D.	
	RE18	Super Card.	Dynamic	Steel	MUSIC/Voice	150B	80-15	57†	A3M	15	None	8	W	291.00	Variable-D. Integral shock mount; Variable-D.	
	RE16	Super Card.	Dynamic	Steel	Voice	150B	80-15	56†	A3M	15	None	8	W	280.00	As above.	
	RE15	Super Card.	Dynamic	Steel	Voice	150B	80-15	56†	A3M	15	None	6	W	267.00	As above.	
	RE11	Super Card.	Dynamic	Steel	Voice	150B	90-13	56†	A3M	15	None	6	W	190.00	As above.	
RE10	Super Card.	Dynamic	Steel	Voice	150B	90-13	56†	A3M	15	None	6	W	177.85	As above.		
DS35	Card.	Dynamic	Steel	Voice/Music	150B	60-17	60†	A3M	15	None	9.2	W	166.50	Integral shock mount.		

(Continued)

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Comments Series = X, Quad = Q, M.S. = M.S.	Operating Principle	Case Material	Most Common Use	Actual Impedance, 1 kHz, Ohms, Balanced = B	Operating Range, Hz to kHz	Open-Circuit Sensitivity 1 kHz, - dB, re: 1 Volt/1 μ bar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment End of Cable	Weight, Ounces	Wind Screen = W, On Off Switch = S, Shielded Low or Proximity Filter = F	Price, \$	Notes
ELECTRO-VOICE (Continued)	RE34	Card.	Condenser	††	ENG/ Voice	2B/200B	40-15	54†	A3M	15	None	11.8	WS	400.00	††Various; limiter.
	CS15P	Card.	Condenser	Steel	Voice/ Music	150B	40-18	45†	A3M	15	None	8	W	276.00	
	CD15P	Dmni	Condenser	Steel	Voice/ Music	150B	20-18	49†	A3M	15	None	7.5	W	297.00	
	RE50	Dmni	Dynamic	Alum.	Voice/ Music	150B	80-13	55†	A3M	15	None	9.5	W	156.00	Integral shock mount.
	RE55	Dmni	Dynamic	Steel	Voice/ Music	150B	40-20	57†	A3M	15	None	8.5	W	259.00	
	DD54	Dmni	Dynamic	Steel	Voice/ Music	150B	50-18	58†	A3M	15	None	6.5	W	155.00	
	DD56	Dmni	Dynamic	Steel & Alum.	Voice/ Music	150B	80-18	61†	A3M	15	None	6.5	W	130.00	As above.
	DD56L	Omni	Dynamic	Steel & Alum.	Voice/ Music	150B	80-18	61†	A3M	15	None	5.5	W	147.00	As above.
	635A	Omni	Dynamic	Steel	Voice	150B	80-13	55†	A3M	15	None	6	W	103.00	
	DL42	Hyper Card.	Dynamic	Steel & Alum.	Voice	150B	50-12	50†	A3M	1	A3M	27	W	589.50	Shotgun; supplied shock mount.
	CD94	Omni	Condenser	Alum. Brass & Alum.	Voice/ Music	150B	80-15	45†	TA3F	15	A3M	0.7	WSF	242.00	Lavalier.
	CD90	Omni	Condenser	Alum. Brass & Alum.	Voice/ Music	150B	40-15	57†	Threaded	6	None	0.7	W	145.00	Lavalier; battery powered.
	CD90P	Dmni	Condenser	Alum. Brass & Alum.	Voice/ Music	150B	40-15	57†	Threaded	6	None	0.7	W	176.50	As above but phantom powered.
	PL77B	Card.	Condenser	Zinc & Alum.	Voice	150B	50-20	50†	A3M	0	None	12	WSF	193.00	Battery or phantom powered.
	PL80	Super Card.	Dynamic	Zinc & Alum.	Voice	150B	60-17	56†	A3M	0	None	12.3	W	185.50	
	PL78	Card.	Condenser	Zinc & Alum.	Voice	150B	50-18	49†	A3M	0	None	10.2	WS	172.00	As above.
	PL76B	Card.	Condenser	Zinc & Alum.	Voice	150B	50-20	55†	A3M	0	None	12	WS	164.00	Battery powered.
	PL95A	Card.	Dynamic	Steel	Voice	150B	60-17	60†	A3M	0	None	9.2	W	158.00	Internal shock mount.
	BK-1	Card.	Condenser	Steel Zinc & Alum.	Voice	150B	50-18	50†	A3M	0	None	12	WS	156.00	Battery or phantom powered.
	PL91A	Card.	Dynamic	Zinc	Voice	150B	60-15	59†	A3M	0	None	8	WS	114.50	
	PL88H	Card.	Dynamic	Zinc	Voice	25k, B	60-13	57†	A3M	0	None	10.4	WS	80.25	
	PL88L	Card.	Dynamic	Zinc	Voice	150B	60-13	58†	A3M	0	None	10.4	WS	80.25	
	PL20	Card.	Dynamic	Steel	Voice/ Music	50B/150B/ 1250B	45-18	57†	A3M	0	None	26	WF	495.00	Variable-D.
	PL10	Card.	Dynamic	Steel	Voice/ Music/ Vocal	150B	75-15	56†	A3F	0	None	11	W	310.55	As above.
	PL4	Dmni	Condenser	Brass & Alum.	Voice/ Music/ Vocal	150B	80-15	45†	TA3F	8	A3M	0.8	WS	254.40	Lavalier.
	PL11	Super Card.	Dynamic	Steel	Voice	150B	90-13	56†	A3M	0	None	6	W	182.00	Variable-D.
	PL9	Dmni	Dynamic	Steel	Voice	150B	50-18	58†	A3M	0	None	6.5	W	147.00	
	PL6	Super Card.	Dynamic	Zinc	Voice	150B	90-13	56†	A3M	0	None	10.5	W	111.00	As above.
	PL5	Omni	Dynamic	Steel	Voice	150B	80-13	55†	A3M	0	None	6	W	100.50	
	644	Hyper Card.	Dynamic	Brass & Alum.	Voice/ Music	150B/Hi-Z	40-12	53†	MC4F	15	None	41	WS	275.00	Shotgun.
658L	Card.	Dynamic	Zinc	Voice	150B	80-13	61†	A3M	15	None	8.9	WS	66.50		
660	Super Card.	Dynamic	Zinc	Voice/ Music	150B/Hi-Z	90-13	56†	A3F	15	None	10.5	WS	108.00	Variable-D.	
681	Card.	Dynamic	Zinc	Vocal	150B/Hi-Z	60-14	60†	A3F	15	None	8	WS	138.50		
GC ELECTRONICS	30-2373	Card.	Dynamic	Alum.	Vocal	30k	50-17	58	2-Pin	16½	Phone	11	WS	39.95	Lavalier.
	30-2374	Uni	Dynamic	Alum.	Vocal	500/50k	80-15	72	4-Pin	20	Phone	12	WSF	27.95	
	30-2376	Uni	Dynamic	Alum.	P.A.	500	100-13	85	2-Pin	15	Phone	14	WSF	37.95	
	30-2372	Uni	Dynamic	Alum.	Vocal/ Instr.	200	60-15	75	3-Pin	20	Phone	14	WSF	67.00	
	30-2378	Uni	Electret	Alum.	Vocal	600	30-16	68	Attached	20	Phone	9	WS	30.00	
	30-2382	Uni x2	Electret	Alum.	Vocal	600	50-16	68	Attached	10	(2)Phones	15	WS	40.00	
	30-2398	Dmni	Electret	Alum.	Vocal	600	50-16	65	Attached	20	Phone	20	WS	23.00	
30-2388	Dmni	Electret	Alum.	Vocal	250/50k	100-10	78	4-Pin	15	Phone	8	WS	38.00		
30-2384	Uni	Electret	Plastic	Vocal/ Instr.	1k	50-16	63	Attached	13	Phone	3	W	21.00	Lapel style.	
JVC	M-201	Card. x2	Condenser	Alum.		600	40-18		(2) Phones	6			WS	59.95	
LIRPA LABS	CSM	S-M	Vocal	Rubber	S&M		USA		5-Way Binding Post	0.01	Hose	62		675.00	Cavalier.
MARANTZ	EC-1	Omni	Electret			2k	60-13	52		10	Mini	3.5	W	18.00	
	EC-3	Card	Electret			1.5k	50-15	52		10	Mini	8.8	W	28.00	
	EC-3S	Card.	Electret			1.5k	50-15	52		6	Mini	8.8	WS	32.00	
	EC-5	Card.	Electret			2.2k	40-15	52		10	Mini	4.1	W	42.00	
	EC-7	Card.	Electret			250B	40-16	52		6		10.3	WSF	64.00	
	EC-9P	Card.	Electret			250B	40-17	56	XLR	10		13.8	WSF	110.00	
	EC-12B	Dmni	Electret			250B	100-15	52		10	Mini	2.3	W	54.00	
	EC-15P	Dmni	Electret			250B	70-16	52		15	XLR	1		100.00	Lavalier.
	EC-33S	Card. x2	Electret			1k	50-15	46		10	(2) Minis	6.2	W	66.00	
	MILAB	P-14C	Card.	Dynamic	Alum.	Vocal	200B	100-14	2†	XLR			5½	W	95.00
MP-30		PZM Hemi.	Condenser	Brass	Drch./ Conf.	200B	20-20	4†		15	XLR	2		215.00	
CL-4AD		Omni	Condenser	Brass	Vocal	200B	30-20	10†		15	XLR	1¼	W	249.00	Lavalier, 48-V phantom power.
(Continued)	CL-4BD	Omni	Condenser	Brass	Vocal	200B	30-20	10†		15	XLR	1¼	W	275.00	As above but battery power.

LISTEN UP



If digital audio has raised your expectations, it's time to put Dahlquist DQM loudspeakers at the top of your list.

DQM's are high performance monitors – that means that they remain clear, confident, and in control across the full range of digital dynamics. The natural energy of music stands revealed and with it a whole new excitement and satisfaction. That's why DQM's may well be the most significant upgrade you can make.

So, if your system isn't up to digital, listen up to Dahlquist.

DAHLQUIST DQM

HIGH PERFORMANCE LOUDSPEAKERS • DISCOVER THE ENERGY

601 Old Willets Path, Hauppauge, NY 11788 (516) 234-5757

In Canada: Evolution Audio, Ontario

Enter No. 20 on Reader Service Card

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels: S=Step, x2= Dual=2x.	Operating Principle	Case Material	Most Common Use	Actual Impedance, Ohms Balanced=8	Operating Range, 1 kHz, Ohms:	Open Circuit Sensitivity, 1 kHz, -dB re: 1 Volt/1 µbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment	Weight, Ounces w/switch Low or Priority Filter = F	Price, \$	Notes	
MILAB (Continued)	DC-20	Omni	Condenser	Brass	P. A./Vocal	200B	40-20	10†	Attached	15	XLR	2	W	285.00	Transformerless, line-level output. As above.
	DC-21	Card.	Condenser	Brass	P. A./Vocal	200B	40-20	10†	Attached	15	XLR	2	W	285.00	
	VM-40	Omni	Condenser	Brass	Music	200B	30-20	8†	XLR		4 1/4	WF	348.00		
	VM-41	Card.	Condenser	Brass	Music	200B	30-20	8†	XLR		4 1/4	WF	348.00		
	BM-73	Card.	Condenser	Brass	Vocal	200B	30-20	5†	XLR		11 1/2	WF	375.00		
	DC-96B	Card.	Condenser	Brass	Music	200B	20-20	8†	XLR		7	W	620.00		
	LC-25	Card.	Condenser	Brass	Music	300B	20-20	8†	XLR		11.2	W	810.00		
	DC-63	Variable Card. x2	Condenser	Brass	Music	200B	20-20	5†	XLR		11.4	WF	950.00		
XY-82	Variable	Condenser	Alum.	Music	(2) 200B	20-20	20†	A5M	20	9.5	W	1450.00			
VIP-50	Variable	Condenser	Alum.	Music	300B	20-20	8†	XLR		15	WF	1540.00			
NADY SYSTEMS	49 LT/R		Electret Condenser	Plas. & Alum.	Vocal	200B	50-10	190	Phone			2.5	WS	249.95	Lavalier. †\$850.00 to \$3100.00; as above. †\$900.00 to \$3250.00.
	49 HT/R		Dynamic	Plas. & Alum.	Vocal	200B	50-10	150	Phone			8.5	WS	299.95	
	501/601/ 701 LT/R		Dynamic	Plas. & Alum.	Vocal	200B	25-20	Sel.	Phone & Swcft. A3F			2.6	WS	†	
	501/601/ 701 HT/R		Dynamic	Plas. & Alum.	Vocal	200B	25-20	Sel.	Phone & Swcft. A3F			8.5	WS	†	
NAKAMICHI	DM-1000	Card.	Dynamic	Alum.	General	250B	30-18	76		16 1/2	Phone		WSF	300.00	
	DM-500	Card. Card. or	Dynamic	Alum.	General	200B	50-15	73		16 1/2	Phone		W	100.00	
	CM-300	Omni	Electret Condenser	Alum.	General	200B	30-18	76		16 1/2	Phone		WSF	170.00	
	CM-100	Card.	Electret Condenser	Alum.	General	200B	30-18	76		16 1/2	Phone		WSF	110.00	
NEUMANN	KM 83	Omni	Condenser	Brass		200	40-20	7†	A3M	0	A3F	3	W	349.00	†mV/Pa (1 Pa = 94 dB SPL). Transformerless.
	KM 84	Card.	Condenser	Brass		200	40-20	10†	A3M	0	A3F	3	W	349.00	
	KM 85	Card.	Condenser	Brass		200	40-20	9†	A3M	0	A3F	3	W	349.00	
	U 89	Sel.	Condenser	Brass		150	40-18	8†	A3M	25	A3F	14	WF	950.00	
	TLM 170	Sel.	Condenser	Brass		150	40-18	8†	A3M	25	A3F	22	WF	1000.00	
	USM 69fet	Sel. x2	Condenser	Brass		150	40-16	10†	A3M	33	A3F	16	WF	2100.00	
PEAVEY ELECTRONICS	CD 20	Card.	Dynamic	Zinc Alloy	Vocal/Drum	250B	50-16	76	Swcft. QG3M	25	†	8		129.00	†Male XLR or phone.
	CD 30	Card.	Dynamic	Zinc Alloy	Vocal/Instr.	250B	80-19	77	Swcft. QG3M	25	†	8		139.00	
	HD 40	Hyper Card.	Dynamic	Zinc Alloy	Vocal/Instr.	250B	80-19	77	Swcft. QG3M	25	†	8		149.00	
	EC-10	Card.	Electret Condenser	Zinc Alloy	Vocal/Instr.	250B	40-20	57	Swcft. QG3M	25	Male XLR	8		160.00	
	EC-11	Card.	Electret Condenser	Zinc Alloy	Vocal/Instr.	250B	30-20	57	Swcft. QG3M	25	Male XLR	8		160.00	
	EC-15	Omni	Electret Condenser	Zinc Alloy	Vocal/Instr.	250B	40-20	52	Swcft. QG3M	25	Male XLR	8		155.00	
PIONEER ELECTRONICS	DM-51		Dynamic		Vocal	600	80-12	75	Cannon	16.4	Phone	8.6	S	129.95	
	DM-61		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	
REALISTIC	Highball	Card.	Dynamic	Alum.	Vocal	Hi/Lo	80-15		XLR	16	Phone		WS	49.95	Tie clip. As above; with phone adaptor.
	Super-Omni	Omni	Dynamic	Alum.	Vocal	600	40-17		XLR	16	Phone		W	39.95	
	Dual-Pattern	Card. x2	Condenser	Alum.	Music	600	30-15		XLR	16	Phone		W	29.95	
	Cardioid-Dyn	Card.	Dynamic	Alum.	Vocal	600	50-15			12	Phone		WS	29.95	
	Tight-Cardioid	Card.	Dynamic	Alum.	Vocal	600	80-12			6	Phone		WS	24.95	
	Dual Heads	Card. x2	Condenser	Plastic	Music	600	50-15			6.5	Mini		WS	19.95	
	Highball-2	Omni	Dynamic	Alum.	Vocal	600	50-13			6	Phone		WS	19.95	
	Highball-7	Card.	Dynamic	Plastic	Vocal	600	80-15			10	Phone		WS	14.95	
	P2M	Omni	Condenser	Alum.	Music	600	20-18			18	Phone		WS	39.95	
	Thin Omni	Omni	Condenser	Plastic	Vocal	700	30-18			5	Mini			12.95	
	Solar	Omni	Condenser	Plastic	Vocal	1k	50-15			5	Mini			29.95	
	Powered Thin Omni														
	Tie Clip Mini	Omni	Condenser	Alum.	Vocal	1k	50-15			3	Mini			12.95	
Tie Clip Omni	Omni	Condenser	Alum.	Vocal	800	30-18			6 1/2	Mini			19.95		
Slim	Omni	Condenser	Alum.	Vocal	600	20-13			9	Phone			17.95		
Electret															
MC-1000	Omni	Dynamic	Plastic	Vocal	10k	150-10			6	Phone			15.95		
RECOTON	DM100	Card.	Dynamic	Plastic	General	500				3	Mini		S	With mini adaptor. As above. As above.	
	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				5	Phone	2.5	S		
	MM330A	Card.	Dynamic	Alum.	Music/Vocal	500/50k	80-15	72		10	Phone		S		
	MM440A	Omni	Electret	Plastic	Music/Vocal	600/50k	80-18	65		10	Phone	3.4	S		
	MM600	Card.	Electret	Alum.	P.A. Music	200B	50-13	68		9	Phone		WS		
	MM620	Card.	Electret	Alum.	Music/Vocal	200B	30-16	68		18	Phone		WS		
	MM650A	Card. x2	Electret	Alum.	Music/Vocal	600	50-18	68		10	Phone		S		
MM760	Omni	Electret	Alum.	Voice		30-16	65		15	Phone					
MM770	Card. x2	Electret	Alum.	Voice	600	48-18	70		10	Mini	3	WS			

PYLE DRIVER® SPEAKERS... RECOMMENDED FOR CARS THAT ALREADY HAVE SUNROOFS

... Or car owners who
want maximum performance
from their car stereo system.

We may not rip your roof off — but we can promise you superbly clean, clear sound reproduction. Pyle Driver® car stereo speakers are handmade right here in the U.S.A. by craftsmen with over 30 years experience creating amazingly accurate sound reproduction.

We know you want to hear it all — every high, every low and everything in between — without distortion and without paying a premium price! Pyle Driver® car stereo speakers are recommended for everyone who wants a great value and the best sound for the money.

The source of great sound

**PYLE DRIVER®
SPEAKERS**

For the name of the Pyle Driver® dealer nearest you write:
Pyle Industries, Inc., 501 Center St., Huntington, IN 46750



Enter No. 57 on Reader Service Card

MICROPHONES

MANUFACTURER	Model	Directional Pattern Plus Channels	Operating Principle	Case Material	Most Common Use	Actual Impedance, Balanced = Ω	Operating Range, Hz to kHz	Open Circuit Sensitivity, 1 kHz, 0dB, re: 1 Volt, 1 μbar	Mike Connector Type	Cable Length, Feet	Connector Type on Equipment	Weight, Ounces	Wind Screen Switched Low or Proxy Filter = S or F	Price, \$	Notes
SCHOEPS	CMC 32SU	Omni	Condenser	Nickel/Brass	General	20B	20-20	†	XLR-3M	0		3/4	640.00	†1.2 mV/μbar.	
	CMC 34U	Card.	Condenser	Nickel/Brass	Spot	20B	40-20	†	XLR-3M	0		3/4	640.00	†1.0 mV/μbar.	
	CMC 341U	Super Card.	Condenser	Nickel/Brass	Film/TV	20B	40-20	†	XLR-3M	0		3/4	730.00	†1.3 mV/μbar.	
	CMC 38U	Figure 8	Condenser	Nickel/Brass	M-S	20B	50-16	†	XLR-3M	0		3/2	780.00	†1.0 mV/μbar.	
	CMH 341U	Super Card.	Condenser	Nickel/Brass	Vocal	20B	50-20	†	XLR-3M	0		8	835.00	†1.3 mV/μbar.	
	BLM 33U	Hemi. Card. x2	Condenser	Alum.	Stage	20B	20-18	†	XLR-3M	0		24	790.00	†2.0 mV/μbar.	
	MSTC 34	Condenser	Nickel/Brass	DRTF	20B	20-20	†	XLR-5M	0		8	1315.00	†1.3 mV/μbar.		
CMTS 301U	Multiple x2	Condenser	Nickel/Brass	Single Point	20B	40-20	†	XLR-5M	0		12 1/2	2125.00	†1.4 mV/μbar; four patterns.		
SENNHEISER	MD 402U	Super Card.	Dynamic	Steel	Far Field	200	80-12.5	†	XLR	5	XLR	5.5	80.00	†1.2 mV/Pa.	
	MD 421U	Card.	Dynamic	Plastic	High SPL	200	30-17	†	XLR			19	5F	332.00	†2 mV/Pa.
	MD 431U	Super Card.	Dynamic	Alum.	Vocal	250	40-16	†	XLR			8.9	S	355.00	†1.4 mV/Pa.
	MD 441U	Super Card.	Dynamic	Alum.	High SPL	200	30-20	†	XLR			16.1	10F	469.00	†1.8 mV/Pa.
	MD 441 U3	Super Card.	Dynamic	Alum.	Vocal	200	30-20	†	XLR			4.3	10F	404.00	†1.8 mV/Pa.
	MD 918 U	Card.	Dynamic	Alum.	Vocal	200	50-15	†	XLR	15	PT	3.6	F	139.00	†1.3 mV/Pa.
	MKH 40 P48	Card.	Condenser	Alum.	Digital Record	150	40-20	†	XLR			3.6	F	685.00	†25 mV/Pa.
	MKE 2-3	Omni	Electret	PVC	Record				XLR	10	Collar Barrel		W	265.00	Lavalier; with K3U power supply
	ME 20	Omni	Electret	Nickel	Record	120	50-15	†	XLR			6.1	3F	264.00	†3 mV/Pa; with supply above.
	ME 40	Super Card.	Electret	Nickel	Record	140	50-15	†	XLR			6.1	3F	302.00	†3 mV/Pa; with supply above.
ME 80		Electret	Nickel	Record	130	50-15	†	XLR			7.3	3F	373.00	†5 mV/Pa; shotgun; with supply above.	
MKE 40	Card.	Electret	PVC	Speech	110	50-20	†	XLR			5	3F	275.00	†1.5 mV/Pa; lavalier; with supply above.	
MKE 212	Boundary	Electret		Acous. Instr.	1000	20-20	†	XLR	10	Collar Barrel			571.00	†20 mV/Pa; with supply above.	
MD 409U	Card.	Dynamic	Steel	Vocal	200	50-15	†	XLR			6.4		249.00	†1.18 mV/Pa.	
SHURE	Prologue 8L	Card.	Dynamic	Die-Cast Alum.	Record	600	80-10	76.5	None	15	Mini	9.7	S	43.75	
	Prologue 16L	Card.	Electret	Alum.	Instr.	600B	50-15	69.5	A3M	0	None	4.7	S		
	SM57-CN	Card.	Condenser Dynamic	Die-Cast	Record Instr.	310B	40-15	75.5	A3M	25	A3F	10			
	SM58-CN	Card.	Dynamic	Die-Cast	Record Vocal	310B	50-15	75.5	A3M	25	A3F	10.5			
	SM94-LC	Card.	Condenser	Steel & Brass	Instr.	200B	40-16	69	A3M	0	None	8.5			
	SM96-LC	Card.	Condenser	Steel & Alum.	Vocal	200B	70-16	74	A3M	0	None	9.2			
	SM81-LC	Card.	Condenser	Steel	Studio	85B	20-20	65	A3M	0	None	8	WF		
	SM87-LC	Super Card.	Condenser	Alum.	Vocal	85B	50-18	74	A3M	0	None	6.3			
SIGNET	RK 101	Card.	Dynamic	Plastic	Music/Voice	600	50-14.5	70	Attached	16 1/2	Phone	8	WS	60.00	
	RK 201	Card.	Electret Condenser	Alum.	Music/Voice	600	45-17.5	64	Attached	16 1/2	Phone	6 1/2	WS	100.00	
SDNY	ECM-23FM	Card.	Electret	Alum.	Vocal	Lo	20-20	80	Cannon	15	Phone	6.7	WF	115.00	Tie-tac.
	ECM-150T	Omni	Electret	Alum.	Voice	Lo	50-15	75	Attached	15	Mini/Phone	0.2	W	69.95	
	ECM-220T	Card.	Electret	Alum.	Instr.	Lo	50-14	75	Attached	15	Mini/Phone	8.3	S	49.95	Variable echo.
	F-V200	Card.	Dynamic	Alum.	Vocal	Lo	70-15	80	Cannon	15	None	9	WF	150.00	
	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	Directivity selector.	
ECM-929LT	M-S x2	Electret	Alum.	Music	Lo	70-15	75	Attached	15	Mini/Phone	3.8	WSF	85.00		
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	Lavalier; 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	RP-V340	Card.	Dynamic	Alum.	Vocal/Music		100-10					9	W	26.00	With adaptor.
	RP-V370	Card.	Dynamic	Alum.	Music/General		40-12					12	W	40.00	As above.
	RP-3215E	Card. x2	Electret Condenser	Alum.	General Music		50-10						W	60.00	
	RP-3800E		Electret Condenser	Alum.	Room EQ									78.00	For use with SH-8055 EQ.
	RP-3545E	Card.	Electret Condenser	Alum.	Music		40-14					11	W	70.00	



BRIDGESTONE

ONLY SERIOUS DRIVERS NEED APPLY.

Only one kind of driver should be reading this ad. One who's serious about performance.

Because Bridgestone's low profile Potenza is one serious performance radial.

Potenza V- and H-rated radials, available in 50 series and up, are born from the same serious high-speed technology we've put into action on the racetracks of the world.

A straight-groove, water-channeling tread pattern and racing-like compound give Potenza a firm hold on the road. And a unique reinforced hard-rubber insert around the rim allows the sidewall to be flexible for even contact pressure during hard cornering and braking.

It adds up to serious performance. That's why you'll find our tires under some of the top performers on the road today.

Shown below—left to right—are the Potenza 137V original equipment tire, and the 50/55 series Potenza RE91 and 60/70 series 147V for replacement use.

Maybe it's time *you* got serious about your driving. If you already are, maybe it's time you got Potenzas.

See your Bridgestone retailer.

BRIDGESTONE

©1985 Bridgestone Tire Company of America, Inc., Torrance, CA



Soundcraftsmen

MADE IN U.S.A.

AMERICA'S PERFORMANCE-VALUE LEADER
IN STEREO COMPONENT SEPARATES...

Audio Consultants always specify separate Power Amplifiers, Preamplifiers and Tuners for no-compromise sound reproduction...

Soundcraftsmen builds, in the finest American Tradition, coordinated audio separates for a superbly matched stereo system, ...or, as individual components to upgrade your existing system.

See and hear a demonstration featuring these leading-edge Soundcraftsmen components at any of the Audio Specialist Dealers listed on the opposite page.

DIGITAL QUARTZ STEREO TUNER. \$299.*

AM-FM-FM Stereo Tuner with 8 AM, 8 FM Station Presets. Automatic or Manual Scanning, Digital Quartz P.L.L. Synthesizer with Quadrature Front End...

WORLD'S MOST ACCURATE 0.1dB REAL-TIME ANALYZERS AND EQUALIZERS\$189 to \$699.*

REVOLUTIONARY Differential/Comparator circuitry makes possible **0.1dB Readout Accuracy!** Automatic or Manual Octave Scanning for Fast, Accurate Analyzing and Equalizing. Precision Passive Coil Filters for Highest Gain. Lowest Distortion, Scan-Analyzer Models. With and Without Built-in Equalizers. No Calibrated Microphone necessary. Computone Charts and 12" LP Frequency Analysis Test Record included with EQ's...

WORLD'S MOST VERSATILE PREAMPLIFIERS\$399 to \$699.*

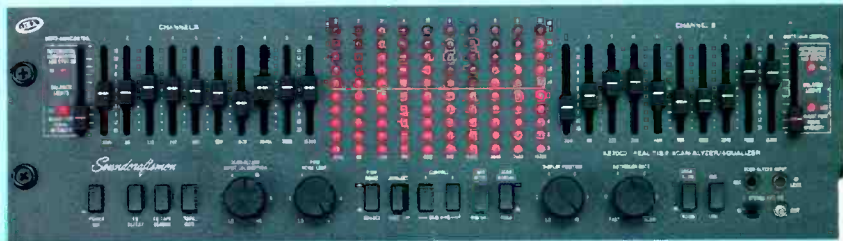
Unique Equalizer/Preamplifiers and Straight-Line Preamplifiers featuring -97dB Phono S/N, Adjustable Phono Capacitance and Impedance. Moving Coil Inputs, Phono Input Level Controls. Exclusive AutoBridge® circuit for Mono Operation of Stereo Amplifiers @ **TRIPLE POWER OUTPUT**, versatile Push-Button Patch bay with External Processor Loops, Digital and Video/Audio Inputs, Precision Passive Coil EQ Circuitry and **0.1 dB Readout** Differential/Comparator® Unity Gain Controls for Highest Gain, Lowest Distortion and No "Clipping" of Wide Dynamic-Range Material. Computone Charts and 12" LP Frequency Analysis Test Record included with Preamp-EQ's...

HIGH CURRENT CLASS "H" AND MOSFET AMPLIFIERS ..\$449 to \$1199.*

The most advanced Stereo and Professional Amplifiers featuring Class H Dual Signal-Tracking Power Supply. Auto-Buffer® for Continuous 2-Ohm Operation, No Current-Limiting, Auto Crowbar Output Protection, Power MOSFET circuitry for Highest Reliability, Calibrated LED meters, A-B Speaker Switching.

*Includes 19" Rackmount Front Panel except SE550, PCR800.

**Genuine Oak or Walnut Side Panels are Optional Extra.



For a 16-page FULL-COLOR BROCHURE, write to:
Soundcraftsmen, Dept. A, 2200 South Ritchey, Santa Ana,
CA 92705. Or call (714) 556-6191 and ask for Mr. Adams.
Or circle the number below on this magazine's Reader
Service card. We'll also send you details on our FREE
\$19.95 12" LP TEST RECORD offer.

FREE!



Soundcraftsmen

AMERICA'S PERFORMANCE-VALUE LEADER
IN STEREO COMPONENT SEPARATES...

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!

410 watts—MOSFET—
205 watts per channel **\$449.00**
@ 8 ohms, 20 Hz—20 KHz, less than 0.05% THD...

300watts 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.

All Soundcraftsmen amplifiers are Made in the U.S.A., and are High Current design!

Enter No. 30 on Reader Service Card

FOR A DEMONSTRATION, VISIT NEAREST DEALER LISTED BELOW

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!"

ALABAMA

Huntsville
SOUND DISTRIBUTORS

ARIZONA

Phoenix
ABSOLUTE AUDIO
Tucson
B&A ELECTRONICS
Yuma
WAREHOUSE STEREO

NO. CALIFORNIA

Concord
SOUND DISTINCTION
Goleta
HOUSE OF AUDIO
Palo Alto
WESTERN AUDIO
Sacramento
NEAL'S SPEAKERS
San Francisco
LISTENING POST
Santa Barbara
HOUSE OF AUDIO

SO. CALIFORNIA

Phone 714-556-6191, ask for
"Dealer Locator Operator."
(Insufficient space to list
all Dealers in this area)

COLORADO

Colorado Springs
THE SOUND SHOP
Denver, Arvada, Aurora
STEREO PLUS
Englewood
GOLD SOUND
Gunnison
WILDWOOD MUSIC

CONNECTICUT

Danbury
CARSTON STUDIOS
Stamford
COUNTY AUDIO

FLORIDA

Fort Lauderdale
SPEAKER WAREHOUSE
Fort Walton Beach
AUDIO INTERNATIONAL

Hialeah
Hollywood
SPEAKER WAREHOUSE
Merritt Island
AUDIO MART ELECTRONICS

Miami
AUDIO PLUS
LAS FABRICAS

Orlando
AUDIO MART ELECTRONICS
MARKETPLACE ELECT.

Tampa
SENSUOUS SOUND

GEORGIA

Atlanta
AUDIO UNLIMITED
STEREO DESIGNS
Augusta
THE STEREO SHOP
Columbus
WORLD-WIDE ELECTRONICS
Dalton
BROCK'S ENTERTAINMENT

HAWAII

Hilo
YAFUSD T.V. APPLIANCE
Honolulu
VIDEO LIFE
Lihue, Kauai
JACK WADA ELECTRONICS
Wailuku, Maui
ADRIAN'S ELECTRONICS

IDAHO

Idaho Falls
PHASE 4 STEREO

ILLINOIS

Chicago
MARTROY ELECTRONICS
Dekalb
AUDIO PLUS
Gurnee
OPUS EQUIPMENT
Peoria
ELECTRONICS DIVERSIFIED

INDIANA

Anderson
ANDERSON ELECTRONICS
Bloomington
HI FIDELITY SPECIALISTS
Indianapolis
STEREO IMAGE

New Haven
HJS SOUND
West Lafayette
VON'S ELECTRONICS

KANSAS

Overland Park
AUDIO ELECTRONICS
Salina
DEL'S TV
Wichita
AUDIO PLUS

KENTUCKY

Lexington
THE STEREO SHOPPE
Louisville
HI-FIDELITY, INC

LOUISIANA

Baton Rouge
NEW GENERATION
Lafayette
NEW GENERATION
Metairie
SOUND TREK
New Orleans
SOUTHERN RADIO SUPPLY
TULANE STEREO

MARYLAND

Baltimore
STANSBURY STEREO
Gaithersburg
AUDIO BUYS

MASSACHUSETTS

Boston
ENCORE AUDIO
Brookton
SCORPIO SOUND
Sunderland
SCIENTIFIC STEREO

MICHIGAN

Marquette
AMERICAN TV

MINNESOTA

Bloomington
MINNESOTA SOUND VALUE
Duluth
TEAM ELECTRONICS
Litchfield
QUALITY STEREO

MISSISSIPPI

Gulfport
TIPPI'S MUSIC
Jackson
HOOPER SOUND
Meridian
HOOPER SOUND

MISSOURI

Chesterfield/St. Louis
INSTANT REPLAY
Kansas City
SOUND DYNAMICS

NEBRASKA

Lincoln
LIGHT & SOUNDS FANTASTIC

NEVADA

Las Vegas
UNIVERSITY PRO AUDIO

NEW HAMPSHIRE

New London
NORTH STAR ELECTRONICS

NEW JERSEY, SO.

Woodbridge
SEASHORE STEREO

NEW YORK CITY,

Phone 201-947-9300, ask for
"Dealer Locator Operator."
(Insufficient space to list
all Dealers in this area)

NORTHERN N.J.

Phone 201-947-9300, ask for
"Dealer Locator Operator."
(Insufficient space to list
all Dealers in this area)

NEW YORK—UPSTATE

Albany
SOUNDS GREAT
Buffalo
PURCHASE RADIO
Newpaltz
NEWPALTZ AUDIO
Plattsburg
GREAT NORTHERN STEREO
Rochester
SOUNDS GREAT
Syracuse
SUPERIOR SOUND

NORTH CAROLINA

Greensboro
High Point
Winston-Salem
AUDIO-WIDE CONCEPTS
Hickory
MC LAUGHLIN'S TV
Raleigh
CREATIVE ACOUSTICS

NORTH DAKOTA

Fargo
WATTS-MORE

OHIO

Akron
OHIO SOUND
Boardman
ELECTRONICS LTD.
Canton
OHIO SOUND
Cleveland
B&B APPLIANCE
OHIO SOUND
Lima
HART AUDIO

Middleburg Hts.
B&B APPLIANCE
Warren
ELECTRONICS LTD.

OKLAHOMA

Oklahoma City
JOHNSON TV & SOUND

OREGON

Coos Bay
PENNINGTON'S AUDIO
Eugene
BRADFORD'S HIGH FIDELITY
Klamath Falls
HIGH COUNTRY RECORDS
Medford
SOUNDTRACK ELECTRONIC
Portland
HAWTHORNE STEREO

PENNSYLVANIA

Chambersburg
SUNRISE ELECTRONICS
Harrisburg
CUSTOM SOUND CO.
McKeesport
HI FI CENTER

Philadelphia
SOUND OF MARKET
SOUND SERVICE

Pittsburgh
AUDIO JUNCTION

Reading
Shillington
PHOENIX HI FI

Sharon
ELECTRONICS LTD.

Willow Grove
SOUND EX

Puerto Rico

Santurce
R. F. ELECTRONICS

SOUTH CAROLINA

Columbia
NORTON STEREO

Greenville
DON JONES STEREO

Newberry
THE ELECTRONIC SHOP

Spartanburg
DON JONES CUSTOM STEREO

TENNESSEE

Chattanooga
COLLEGE HI FI

Nashville
AUDIO SYSTEMS

TEXAS

Arlington
SOUND IDEA
Beaumont
BROCK AUDIO
Corpus Christi
SOUND VIBRATIONS
El Paso
SOUND ROOM
Fort Worth
SOUND IDEA

Houston
HOME ENTERTAINMENT

Hurst
SOUND IDEA

Midland
FOLGER'S ENTERTAINMENT

UTAH

Salt Lake City
INKLEY'S
St. George
ARROW AUDIO

VERMONT

Brattleboro
SCIENTIFIC STEREO

VIRGIN ISLANDS

St. Thomas, U.S. and
British Virgin Islands
ELECTRONICS UNLIMITED

VIRGINIA

Falls Church
AUDIO BUYS
Richmond
GARY'S

WASHINGTON

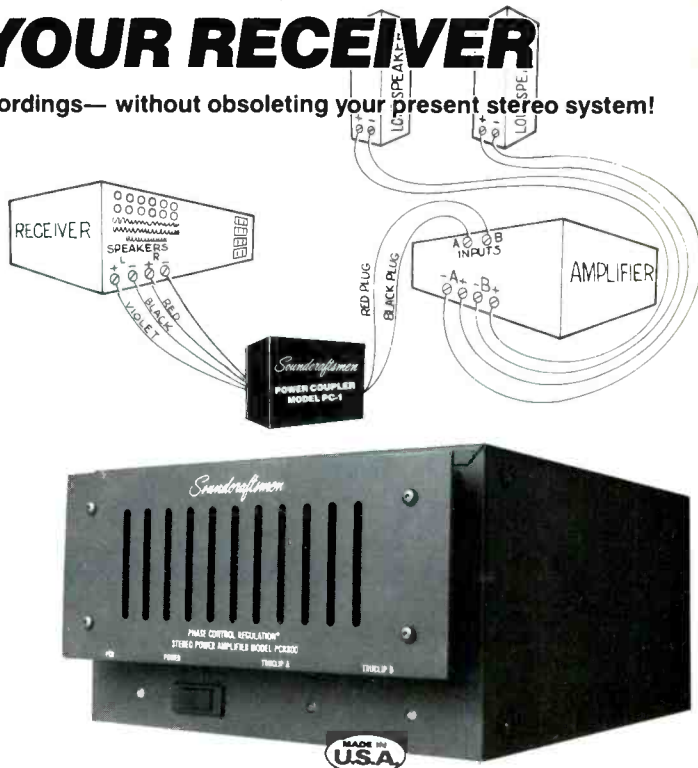
Bremerton
EVERGREEN AUDIO
Olympia
DESCO ELECTRONICS

WEST VIRGINIA

Morgantown
THE SOUND POST
Princeton
THE SOUND POST

WISCONSIN

Appleton
AMERICAN TV
Glendale
SOUNDSTAGE
Madison
AMERICAN TV
Oshkosh
AUDIO PLUS
Sheboygan
GENE'S CAMERA & SOUND
Waukesha
AMERICAN TV



HEADPHONES



AIWA HP-X10



KOSS PRO/4X



B & O FORM 1

MANUFACTURER	Model	Operating Principle	Frequency Range, Hz to KHz	Impedance, Ohms	Sensitivity dB SPL for 1 mW Input	Maximum Input, mV	THD at 95 dB SPL, %	Cord Length, Feet	Cord Style: Flat = F, Coiled = C	Plug Type: 3.5mm Mini = M, Dyn. Air Design = D	Individual Volume Controls?	Circumfer. C, Supra-Aural = S, Over-Ear = O, In-Ear = I	Headband: A. Folding = A, Adjustable = S	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes
AIWA	HP-X10	Dynamic	5-25	40	104	200mW	8.2	F	A	†	C	A	Plastic	3.5	65.00	†Adjustable bass.	
	HP-V10	Dynamic	15-22	15	104	40mW	4.3	F	A	No	D	A	Foam	0.4	29.00		
	HP-V2	Dynamic	11-22	32	100	40mW		F	M	Yes	D	N	Foam	0.2	22.00		
	HP-A55	Dynamic	15-24	32	100	100mW		F	A	Yes	D	A/F	Foam		35.00		
AKG	K45	Dynamic	30-18	200	94	6.3V	0.9	8	F	P	No	D	A	Plastic	4.5	45.00	
	K130	Dynamic	20-20	200	94	9V	0.7	9	F	P	No	S	A	Plastic	4.4	55.00	
	K135	Dynamic	25-18	150	107	8.9V	0.7	10	F	P	No	S	A	Plastic	5.6	65.00	
	K141	Dynamic	20-20	600	107	11V	0.5	10	F	P	No	S	A	Metal & Plastic	6.9	75.00	
	K145	ES/Dyn.	25-24	200	107	8.9V	0.5	10	F	P	No	S	A	Plastic	6	85.00	
	K240M	Dynamic	20-20	600	112	11V	0.3	8 3/8	F	P	No	C	A	Metal & Plastic	8.5	99.00	
K240DF	Dynamic	20-20	600	112	11V	0.3	8 3/8	F	P	No	C	A	Metal & Plastic	8.5	125.00		
	Dynamic	20-20	600	112	11V	0.3	8 3/8	F	P	No	C	A	Metal & Plastic	8.5	125.00		
K340	ES/Dyn.	15-25	400	104	10V	0.1	10	C	P	No	C	A	Metal & Plastic	13.5	195.00		
	ES/Dyn.	15-25	400	104	10V	0.1	10	C	P	No	C	A	Metal & Plastic	13.5	195.00		
AUDIOTECHNICA	Point 1	Dynamic	35-20	4-16	100	2V	0.6†	5	F	M/A	No	S	A	Foam	1.8	29.95	†At 100 dB.
	Point 2	Dynamic	35-20	4-16	105	2V	0.6†	5	F	M/A	No	S	A	Foam	1	34.95	
	Point 2F	Dynamic	35-20	4-16	105	2V	0.6†	5	F	M/A	No	S	F	Foam	1.1	39.95	
	Point 4	Dynamic	25-20	4-16	100	1.7V	0.4†	8.2	F	M/A	No	S	A	Foam	1.6	59.95	
	Point 6	Dynamic	20-20	4-16	100	1.7V	0.4†	8.2	F	M/A	No	S	A	Foam	1.6	89.95	
	ATH-V7	Dynamic	20-20	4-16	96	1.8V	0.3†	9	F/C	P	No	C	A	Vinyl	6.5	74.95	
ATH-20	Dynamic	25-20	4-16	98	1.8V	0.3†	8.2	F	M/A	No	S	A	Vinyl	3.3	54.95		
AZDEN	DSR-38	Dynamic	16-24	40	103	100	0.3	5	F	M/A	No	D	A	Plastic	2 1/4	99.95	†Detachable for in-ear use.
	DSR-12	Dynamic	20-22	200	105	100	0.5	8 1/4	F	P	No	O	A	Plastic	4 1/4	69.95	
	DSR-68	Dynamic	20-22	32	95	100	0.3	8 1/4	F	M	No	O	A	Plastic	1 1/2	59.95	
	DSR-69	Dynamic	40-20	32	92	100	0.5	3 1/2	F	M	No	O	A	Plastic	1 1/4	14.95	
	DSR-70	Dynamic	40-20	32	94	100	0.5	4	F	M	No	O	A	Plastic	1 1/2	19.95	
	DSR-64	Dynamic	30-20	32	100	50	0.7	3 1/2	F	M	No	O	A†	Plastic	1/4	24.95	
	DSR-30	Dynamic	30-20	32	96	100	0.5	7 1/4	F	M	No	O	F	Plastic	3/4	34.95	
	DSR-28	Dynamic	30-20	32	102	50	0.7	4	F	M/A	No	O	N	Plastic	1/4	29.95	
BANG & OLUFSEN	Form 1	Dynamic	20-20	35	94		1†	10	C	M/P/A	No	D	A	Foam	6	100.00	†Per DIN 45-500.
	Form 2	Dynamic	40-20	30	94		1†	10	C	M/P/A	No	D	A	Foam	2 1/2	100.00	
BEYERDYNAMIC	DT320	Dynamic	20-20	600	88	7.75V		6	F	M/P	No	S	A	Vinyl	3.8	45.00	††Has ear clip. †Other impedance available. For audiometric use. Coiled cord opt. As above. As above. As above.
	DT340TV	Dynamic	20-20	50	88	2.24V		23	F	M	Yes	S	A	Vinyl	3.8	60.00	
	DT220	Dynamic	20-20	400	102	6.4V		6	C	P	No	S	A	Vinyl	9.3	80.00	
	DT330MKII	Dynamic	15-18	40	85	2V		6	F	P	No	S	A	Vinyl	6.8	60.00	
	DT550	Dynamic	10-22	600	95	7.75V		6	C	P	No	S	A	Vinyl	7.1	90.00	
	DT660MKII	Dynamic	15-25	600	93	7.75V		6	C	P	No	S	A	Vinyl	8.9	120.00	
	DT660 Monitor	Dynamic	15-35	600	93	7.75V		6	C	P	No	S	A	Cloth	8.9	160.00	
	DT880	Dynamic	5-25	600	94	7.75V		6	C	P	No	S	A	Vinyl	7	130.00	
	DT880 Monitor	Dynamic	5-35	600	94	7.75V		6	C	P	No	S	A	Cloth	7	185.00	
	DT880 Studio	Dynamic	5-35	600	94	7.75V		6	C	P	No	S	A	Vinyl	7	165.00	
	DT301	Dynamic	30-12	600	97	12V		12	F	M	No	S	††	††	0.8	22.00	
	DT505	Dynamic	20-12	200†	115	7.75V		8	F	F	No	S	††	††	0.3	24.00	
	DT48A	Dynamic	16-20	5	112	1V		8	F	F	No	S	A	Rubber	14.3	242.95	
	DT48	Dynamic	16-20	20†	105	4.4V		8	F	P	No	S	A	Vinyl	14.3	215.00	
	DT96A	Dynamic	30-17	400†	94	12V		3	F	F	No	C	A	Vinyl	4.3	105.00	
DT100	Dynamic	30-20	400†	94	20V		3	F	P	No	C	A	Vinyl	12.5	120.00		
DT102	Dynamic	30-20	400†	94	20V		3	F	P	No	C	A	Vinyl	8.9	85.00		

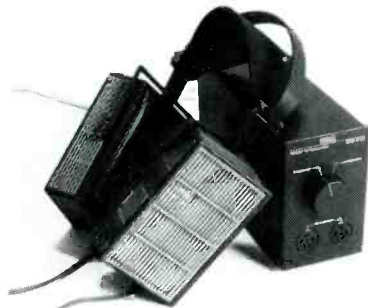
STAX[®] electrostatic earspeakers

Internationally acclaimed as superior acoustical transducers



SR-Lambda

Semi-Panoramic Imaging Electrostatic Earspeaker



SR-Sigma

Panoramic Imaging Electrostatic Earspeaker



SR-34

Cost vs. Performance Electret Earspeaker



SR-84

Lambda Junior Electret Earspeaker

STAX electrostatic earspeaker systems provides serious audiophiles unprecedented realism that even the most sophisticated loudspeaker systems cannot provide. In applications where transparency, accurate phasing, and natural tonal balance are required, the STAX earspeaker line surpasses any other acoustical transducer available today.

Enjoy the difference that STAX electrostatic earspeakers make

Audition the full line of STAX electrostatic earspeakers at these dealers:

- | | | | |
|--|---|---|---|
| <p>ALABAMA
Campbells Audio / Huntsville
Lawrence Stereo Components / Birmingham</p> <p>CALIFORNIA
Absolute Audio / Orange
Amatron / Los Angeles
Audio Today / Westminster
Audio Vision / Santa Barbara
Beverly Stereo / Los Angeles
Century Stereo / San Jose
Christopher Hansen, LTD / Los Angeles
Dimensions In Stereo / Torrance
Genesis Audio / El Toro
GNP / Pasadena
Havens & Hardesty / Huntington Beach
House of Music / San Francisco
Jonas Miller Sound / Santa Monica
Music by the Sea / Leucadia
Paris Audio / Los Angeles
Sound Center / Woodland Hills
Sounding Board / Berkely
Stereo Plus / San Francisco
Stereo Unlimited / San Diego
System Design Group / Redondo Beach, Woodland Hills
Western Audio / Palo Alto</p> | <p>CONNECTICUT
Kooper Products / Danbury</p> <p>FLORIDA
Audio by Caruso / Miami
Audio etc / Jacksonville
Audio Insight / Fort Lauderdale
Sound Component / Coral Gables, Ft. Lauderdale</p> <p>GEORGIA
Hi Fi Buys / Atlanta</p> <p>HAWAII
Sam Sung Enterprises / Honolulu</p> <p>ILLINOIS
Paul Heath Audio / Chicago
Stereo Studio / Schaumburg
The Media Room / Morton Grove
Victor's Stereo / Chicago</p> <p>MASSACHUSETTS
Audio Studio Lab / Brookline
Tweeter Etc. / Boston</p> <p>MARYLAND
The Gramophone / Lutherville</p> <p>MICHIGAN
The Court Street Listening Room / Saginaw</p> <p>MINNESOTA
Audio Perfection / South Minneapolis</p> | <p>NEW JERSEY
Atlantic Stereo / East Brunswick
CSA Audio / Upper Montclair
Franklin Lakes Stereo / Franklin Lakes
Professional Audio Consultants / Millburn
Stuart's Audio / Westfield, Englewood
Woodbridge Stereo / Woodbridge, West Long Branch</p> <p>NEW HAMPSHIRE
R. E. Sound / Nashua
Tweeter Etc.</p> <p>NEW YORK
Audio Breakthroughs / Manhasset, NYC
Audio Den / Lake Grove
Aurico Sound / New York
Ear Drum / Manuet
Ears Nova / Great Neck
Gala Sound / Rochester
Grand Central Radio / NYC
Harvey Electronics / White Plains, NYC
Innovative Audio / Brooklyn
Leonard Radio / Woodside, Paramus, NYC
Park Avenue Audio / NYC
Sound by Singer / NYC
Sound Stage Audio / Fresh Meadows, NYC
Stereo Exchange / NYC</p> | <p>NORTH CAROLINA
Audio Salon / Charlotte</p> <p>OHIO
Custom Stereo / Columbus
Hoffman's House of Stereo / Brookpark, Wickcliffe</p> <p>OKLAHOMA
Contemporary Sound / Okalhom'a City</p> <p>PENNSYLVANIA
Sassafras Audio / Montgomeryville, Jenkin Town, Whitehall, Feasterville, Bryn Mawr</p> <p>RHODE ISLAND
Tweeter Etc.</p> <p>SOUTH CAROLINA
Wise Audio / Greenville</p> <p>TEXAS
Dallas Audio Concepts / Dallas
Hilicrest Hi Fi, Inc. / Dallas</p> <p>VIRGINIA
High C Stereo / Leesburg</p> <p>WASHINGTON
Definitive Audio / Seattle</p> <p>WISCONSIN
Flanner & Halsos / Milwaukee
Happy Medium / Madison
Hi Fi Heaven / Green Bay</p> |
|--|---|---|---|

For a full brochure send \$3.00 to: STAX KOGYO, INC., 940 E. Dominguez St., Carson, CA 90746
Enter No. 65 on Reader Service Card

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, 1/4" Phone = P, Adaptor Inci. = A	Individual Volume Controls?	Circumaural = C, Supra-Aural = S, In-Ear = E, In-Ear = N, Headband = H, Foldable = F	Cover Material on Ear Cup	Weight, Ounces	Price, \$	Notes	
DENON	AH-D4 AH-D6	Dynamic Dynamic	15-22 15-22	32 32	96 98		8 8		A A	O O	A A		5 5	69.95 89.95			
GC ELECTRONICS	90-100 90-102 90-112 90-107 90-114 90-115 90-116	Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic	20-15 30-18 20-20 20-20 20-20 20-20 20-20	8 24 32 32 32 32 32	2V 3.5V 1.8V 1.8V 3V 1.2V 1.8V		10 10 10 5 1/2 4 1/2 3 1/2 3	C C C F F F F	P P P M/A M/A M M/A	No Yes No No No No No	C C O D S S D	A A A A A A A	Plastic Plastic Cloth Foam Foam Foam Foam	8 1 1/4 6 1 1/2 7/8 1/4 1	9.00 12.00 17.00 12.00 9.00 10.00 11.00		
JECKLIN	Float 1 Float 2 Float ES	Dynamic Dynamic ES	35-20 30-20 20-20	200 200 4/16		1 0.8 0.5	10 10 15	F F F	P P A	No No No	† † †	† † †		13 1/2 13 1/2 21	79.95 119.95 495.00	†Driver held away from ear; unit rests on top of head.	
JVC	H-M15 H-M6 H-610 H-510 H-410	Dynamic Dynamic Dynamic Dynamic Dynamic	18-22 20-20 20-20 20-20 20-20	63 32 32 8 32	106 102 106 106 97	100mW 100mW 100mW 100mW 100mW	9.8 9.8 9.8 9.8 9.8	F F F F F	M/P M/A P P P	No No No No No	O O O O O	A A A A A	Foam Foam	4 24	110.00 60.00 54.95 34.95 29.95		
KOSS	Porta Pro I KSP II KSP I KC 29 KC 24 KC 19 KC 10 Pro 4X Pro 4AAA K40LC K 6X HV/XLC HV/1A	Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic	15-25 20-20 20-17 18-20 20-17 20-17 40-12 10-40 10-22 10-22 10-22 15-35	60 35 35 100 35 35 35 100 100 100 100 140	97 97 95 92 92 92 96 102 102 104 104 95	0.2† 0.65† 0.75† 1.0† 0.75† 0.75† 1.25† 0.5† 0.75† 1.0† 1.0† 1.25† 0.75†	6 6 6 8 6.6 6.6 3.5 10 10 10 10 10	F F F F F F F C C C C C	M/A M/A M/A M/A M/A M/A P P P P P	No No No No Yes No No No Yes No No No	SO S S SO S S C C C C C	A/F A/F A/F A A A A A A A A A	Foam Foam Foam Foam Foam Foam Vinyl Vinyl Vinyl Vinyl Foam Foam	2.3 2.3 1.4 2.5 3.5 3.5 2.5 8.3 13 6.7 6.3 8.4 9.3	49.95 34.95 24.95 23.99 19.99 15.99 9.99 100.00 85.00 44.95 34.95 59.95 49.95	†At 100 dB.	
NAKAMICHI	SP-7	Dynamic	20-20	45		100	10	F	P	No	O	A	Plastic	11	70.00		
ONKYO	DP-L1X DP-L2X DP-G4 DP-S1X	Dynamic Dynamic Dynamic Dynamic	40-20 5-20 10-20 50-20	28 30 32 18	102 110 111 102	100 100 150 30	6 6 8 5	F F F F	M/A M/A M/A M/A	Yes No No S	S S C A†	F A A	Foam Foam Felt/ Foam Wire Mesh	1 1/2 1 1/2 5 1/4	34.95 39.95 49.95 29.95	Mono/stereo/TV switcher. †Inner-ear micro drivers.	
PANASONIC	EAH-S30	Dynamic	20-20	40	98	100	0.3	8	F	A	No	D	Alum.	1.4	24.95		
PARASOUND	LSH-1	Dynamic	50-18	32	96	1.2V	0.85	6	F	M/A	No	D	Foam	2	39.95		
PICKERING	DA-7 DA-349 DA-303 DA-203 DA-4 DA-101P DA-88 DA-66P 3+3	Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic	10-22 20-22 20-20 10-20 10-20 20-18 20-20 20-20 20-20	100 100 100 40 40 40 32 32 100	110 110 101 105 105 100 98 92 103	100mW 100mW 100mW 50mW 50mW 50mW 50mW 100mW 100mW	0.5† 0.5† 0.5† 0.5† 0.5† 0.5† 0.5† 0.5† 0.5†	7 10 7 6 7 5 4 5 10	F F F F F F F F F	P P M/P M/P M/P M/P M M/P F	No No No No No No No No Yes	O O D D O O O O O	A A A A A A A A A	Nylon Vinyl Vinyl Vinyl Foam Foam Foam Foam Vinyl	6 4.5 4.5 2.5 2 2 0.5 1.1 6	70.00 60.00 45.00 29.95 49.95 24.95 21.95 20.95 60.00	†At 110 dB †At 110 dB †At 101 dB †At 105 dB †At 100 dB †At 100 dB †At 100 dB †At 100 dB †At 100 dB
PIONEER ELECTRONICS	SE-L90 SE-L70 SE-L50 SE-L30 SE-L10 SE-205 SE-L22 SE-L44 SE-L66	Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic	10-22 10-22 10-22 12-22 12-22 20-20 16-22 16-22 16-22	40 40 40 40 50 10 30 30 30	103 103 103 103 101 103 110 110 110		10 10 10 8 8 8.2 6.6 6.6 6.6	F F F F F F F F F	M/A M/A M/A M/A M/A P M/A M/A M/A	No No No No No No No Yes Yes	S S S S S C D D D	A A A A A A A A A	Plastic Plastic Plastic Plastic Plastic Resin Resin Resin Resin	2.5 2.5 2.1 2.1 1.3 15 0.6 0.6 0.6	80.00 60.00 50.00 40.00 25.00 25.00 29.95 39.95 49.95		
PIONEER VIDEO	SE-V100	Dynamic	3-50	32	110		25	F	M/A	No	C	A	Plastic	5	75.00		
QUASAR	SV401YE		20-20	16	93	100	4	F	P	No	O	A	Foam	1 1/4	12.95		
REALISTIC	Pro-60 LV-10 Pro-30 Nova-65 Nova-40 Nova-16 Nova-10 Nova-45 Nova-52 Nova-51 Nova-35 Nova-34 Nova-36 Nova-33 Micro	Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic	15-30 20-20 20-20 20-20 30-18 50-15 20-20 50-20 50-20 50-20 40-20 20-20 50-20	90 4-16 8 8 4-8 4-16 4-16 32 32 32 32 32 32 32 32 32		0.5 0.5	10 10 10 10 10 6 1/2 6 1/2 6 1/2 6 1/2 5 4 4 4	C C C C C C C C C F F F F F F F	P P P P P P P P P M/A M M M M M M	No No No Yes No No No No No No No No No No No	A A A A A A A A A A F F F F N	Foam Foam Foam Foam Foam Foam Padded Padded Padded Plastic Foam Foam Foam Foam Foam Foam Foam	8 10 6.7 31.95 24.95 19.95 14.95 24.95 19.95 19.95 13.95 4.95 6.95 9.95 12.95				

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, 1/4" Phone = P, Adaptor = A	Individual Volume Controls?	Circumferential C. Supra-Aural = S, Dynamic = D, Over-Ear = O	Headband: None (Fits in Ear) = N, Adjustable = A, Folding = 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	F	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		7	F	A	No	O	A	Felt	2.2	30.00	
	ST-97	Dynamic	20-23	35	100	300mW		6	F	A	No	O	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		6	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	S	A	Foam	1	18.00		
SENNHEISER	MS 100	Dynamic	20-20	42	96	7.75V	1†	4,6	F	M/A	Opt.	SO	A	Foam	1.4	85.00	†At 94 dB.
	HD 40	Dynamic	22-18	600	90	7.75V	1.5†	10	F	P	SO	N	Foam	2.1	39.00		
	HD 44	Dynamic	40-15	17				3	F	P	SO	N	Foam	1.2	49.00		
	HD 410SL	Dynamic	20-18	600	94	7.75V	1†	10	F	P	Opt.	SO	A	Foam	2.9	49.00	
	HD 414SL	Dynamic	20-20	600	94	7.75V	1†	10	F	P	Opt.	SO	A	Foam	3.5	84.00	
	HD 420	Dynamic	18-20	600	94	7.75V	1†	10	F	P	Opt.	SO	A	Foam	4.5	99.00	
	HD 425	Dynamic	18-20	600	94	7.75V	1†	10	F	P	Opt.	CO	A	Vinyl & Foam	5.5	124.00	
	HD 430	Dynamic	16-20	600	94	7.75V	0.5†	10	F	P	Dpt.	CO	A	Vinyl & Foam	6.8	139.00	
	HD 222	Dynamic	20-20	600	94	11V	1†	10	F	P	Dpt.	C	A	Vinyl & Foam	8.8	99.00	
	HD 230	Dynamic	10-30	600	94	11V	0.1†	10	F	P	Opt.	C	A	Vinyl & Foam	9.2	169.00	
HD 40W	Dynamic	22-18	42	94	7.75V	1.5†	10	F	P		SO	A/F	Foam	2	39.00		
SIGNET	TK 22	Dynamic	20-20	4-16	96	5V	0.4†	11.5	F	P	No	S	A	Plastic	7.2	130.00	†At 110 dB.
	TK 21	Dynamic	20-20	4-16	96		0.5†	8.2	F	M/A	No	S	A	Plastic	5	100.00	
	TK 20	Dynamic	25-20	4-16	100	1.7V	0.5†	4.9	F	M/A	No	D	A/F	Plastic	2.2	65.00	
	TK 11	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-CD7	Dynamic	2-24	45	110	500mW		10	F	M/P	No	S	A	Foam	3	120.00	Oxygen-free copper wire.
	MDR-CD5	Dynamic	2-22	45	110	500mW		10	F	M/P	No	S	A	Foam	3	100.00	As above.
	MDR-M77	Dynamic	10-25	45	108	500mW		10	F	M/P	No	S	A	Cloth/ Foam	2½	84.95	As above.
	MDR-M55	Dynamic	16-22	45	106	500mW		10	F	M/P	No	S	A	Cloth/ Foam	2½	64.95	As above.
	MDR-S50	Dynamic	10-20	45	105	500mW		10	F	M/P	No	C	A	Foam	3½		
MDR-S30	Dynamic	16-20	45	105	500mW		10	F	M/P	No	C	A	Foam	3			
STANTON	Dynaphase 60A	Dynamic	10-20	100	110	0.25mW	0.25†	10	F	P	No		A	Vinyl	5.5	75.00	†At 110 dB.
	Stereowater 80	Dynamic	10-22	100	110	1mW	0.5†	10	F	P	No		A	Vinyl	5.9	70.00	†At 110 dB.
	Dynaphase 60A/600	Dynamic	10-20	600	110	0.25mW	0.25†	10	F	P	No		A	Vinyl	5.5	70.00	†At 110 dB.
	Stereowater 45	Dynamic	20-20	100	105	1mW	0.5†	7	F	P/A	No		A	Vinyl	3.3	45.00	†At 105 dB.
	Stereowater 40	Dynamic	10-20	40	105	0.05mW	0.5†	6	F	M/A	No		A	Vinyl	2.5	34.95	†At 105 dB.
	Dyna 25	Dynamic	10-20	50	100	1mW	0.25†	7	F	P	No		A	Vinyl	6	34.95	†At 100 dB.
	Microwater 16	Dynamic	10-22	32	100	1mW	0.5†	5	F	M	No	O	A	Foam	1	39.95	†At 100 dB.
	Microwater 15V	Dynamic	20-22	32	98	10mW	0.5†	4	F	M/P/A	Yes		F	Foam	1.6	34.95	†At 110 dB.
	Microwater 14	Dynamic	10-20	32	98	1mW	0.5†	5	F	M/P	No	O	F	Foam	1.4	29.95	†At 100 dB.
	Microwater VI	Dynamic	20-18	40	100	0.05mW	0.5†	5	F	M/P	No	O	F	Foam	2	24.95	†At 100 dB.
Microwater V	Dynamic	20-20	32	100	10mW	0.5†	4	F	M/P	No	O	A	Foam	2	24.95	†At 100 dB.	
Microwater 4	Dynamic	20-20	32	100	1mW	0.5†	5	F	M	No	O	A	Foam	1	19.95	†At 100 dB.	
STAX	SR-34	ES	25-25	8	95		0.02	7	F	A	No	CO	A	Vinyl	8	109.95	
	SR-84	ES	25-25	8	95		0.02	7	F	A	No	CO	A	Vinyl	7.5	159.95	
	SR-5/N	ES	25-25	8	97		0.05	7	F	A	No	CO	A	Vinyl	13.9	199.95	
	SR-X/Mk3	ES	25-25	8	97		0.05	7	F	A	No	CO	A	Vinyl	13.2	329.95	
	SR-Lambda	ES	8-35	8	102		0.05	7	F	A	No	CO	A	Vinyl	15.1	399.95	
	SR-Sigma	ES	20-35	8	94		0.05	7	F	A	No	CO	A	Vinyl	16.4	489.95	
	SR-Lambda Professional	ES	8-35	50k	102		0.005	7	F	A	Yes	CO	A	Vinyl	15.1	799.95	Class-A amp inc.
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-T5	Dynamic	25-20	32	98	150		4.5	F	M/A	No	O	A	Foam	1¾	30.00	
	EAH-T6	Dynamic	20-20	40	98	100		4.5	F	M/A	No	O	A	Foam	1¼	30.00	
	EAH-T10	Dynamic	15-20	32	100	300	0.2	6.6	F	M/A	No	O	A	Foam	2¾	50.00	
	EAH-05	Dynamic	20-20	32	98	100		4.5	F	M/A	No	O	F	Foam	1	50.00	
UNITECH	MH-102C	Dynamic	20-20	32				5		M		O	A		0.9	9.95	
	MH-109SP		20-20	32				5		P/A			A		0.9	11.95	
	MH-409SP	Dynamic	20-20	4-32	30			5		P			A		0.7	14.95	
	MH-209SP							6½					A			12.95	On/off control on curl cord.
YAMAHA	YH-100	Orthodyn.	20-20	150	98	3V	0.3	8	F	P	No	S	A	Plastic	13.7	95.00	
	YHD-1	Orthodyn.	20-20	125	100	1V	0.3	8	F	M/A	No	S	A/F	Plastic	5.9	70.00	
	YHD-2	Orthodyn.	20-20	125	97	1V	0.3	8	F	M/A	No	S	A/F	Plastic	5.6	50.00	
	YH-3	Orthodyn.	20-20	150	93	1V	0.3	8	F	P	No	S	A	Plastic	7.4	40.00	
	YHL-003	Dynamic	20-20	45	103	100	0.5	8	F	M/A	No	O	A/F	Plastic	3.7	50.00	
	YHL-006	Dynamic	20-20	45	103	100	0.5	8	F	M/A	No	O	A/F	Plastic	2.8	40.00	
	YHL-007	Dynamic	20-20	45	99	100	0.5	8	F	P/A	No	O	A	Plastic	2.5	30.00	

“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.”

Anthony Cordesman

stereophile

volume 8, no. 4

ADCOM[®] GFA-555.

HIGH POWER, HIGH CURRENT.



Enter No. 3 on Reader Service Card

The complete review:

A BEST-BUY BREAKTHROUGH OR THE START OF A NEW WAVE?

I am reluctant to call any given transistor power amp a "best buy" or breakthrough. From my talks with designers and other audiophiles, it is clear that the state of the art in power amplifiers is about to change. From where I stand, the Adcom GFA-555 is the first sample of this new wave. 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.

The GFA-555 does everything well, and most things exceptionally well. It provides superb, well-controlled bass with far better speaker load tolerance than most amps. Its midrange and treble are remarkably low in coloration. There is no hint of hardness, and none of the loss of inner detail common to transistor amplifiers.

"The Adcom's soundstage is sufficiently superior that even those who claim all power amplifiers sound alike might hear the difference."

With the exception of the Krells, I have never heard a more detailed, natural, and extended upper four octaves in a transistor amp. The Adcom may even be a legitimate rival to the Krell; it's brighter and more dynamic, and somewhat more open. And, like the Krell, it gives the impression, on really good material, that the amplifier simply isn't there, on really good material. Nor is the Adcom romantic or sweet, like New York Audio's new Moscodes. Rather, it offers natural upper octave detail that the latter miss. Other amplifiers have similar upper octave performance, but I unhesitatingly recommend the Adcom over the very stiff competition from Tandberg and Threshold.

The Adcoms' soundstage is sufficiently superior that even those who claim all power amplifiers sound alike might hear the difference. It comes very close to the better tube power amplifiers in providing detailed, stable, realistic imaging with natural depth. It is not an Audio Research D-250, but is extraordinarily holographic—I suspect almost embarrassingly so. This kind of soundstage has previously cost at least \$2000.

I am also highly impressed with this amplifier's dynamics. Once again, it is not going to survive a one-on-one with the Audio

Research D-250 or Conrad Johnson Premier Fives, but it rivals any transistor power amplifier in its power class that I have heard—including high-powered receivers or amps with trick power supplies—at any price. It provides these dynamics into virtually any load without bloat, restriction of sound, or change in timbre. For all the nonsense pub-

"...it rivals any transistor power amplifier in its power class that I have heard—including high-powered receivers or amps with trick power supplies—at any price."

lished by most manufacturers about driving complex loads, this amplifier actually delivers.

The Adcom does not lose sweetness and detail as its power goes up. I am normally leery of transistor amplifiers rated much above 100 watts; they too often blur detail and harmonic information, and this sonic price tag is far more costly than the added power is worth. This does not happen with the Adcom unless the distortion lights are blinking, and they only blink when the amp is delivering well over its rated 200 watts per channel (8 ohms) or 325 watts (4 ohms). By comparison, once-outstanding high power amplifiers like the Hafler DH-500 now sound annoyingly veiled.

With a minor dealer modification, you can even drive 1 ohm loads like the Scintilla. I can't measure whether the Adcom delivers its rated 800 watts per channel into 2 ohms, or 20 amps peak, but I can tell you that it does a superb job of driving this superb speaker. Anything in its price range (or even close) generally changes timbre and degenerates when driving the Scintilla at 1 ohm.

"For all the nonsense published by most manufacturers about driving complex loads, this amplifier actually delivers."

I'm going to have to say a few words about its technology before I give Adcom a swelled head. You'll be happy to note that the manufacturer claims for the GFA-555 a simple gain path, a 700 watt toroidal transformer, a well-regulated high current power supply, new ultra-stable bias circuitry, direct coupling, no current limiting, and no output inductor. More substantively, its harmonic shape mixes suitable yinyang while avoiding the curse of pyramidology. This, of course,

means that it weighs 34 pounds, has simple rack-mount black styling, pilot lights, warning lights (to indicate distortion levels above 1%), and measures exactly 7 $\frac{5}{16}$ " by 12 $\frac{1}{4}$ " by 19".

More pragmatically, the technical specifications are significant in that they represent reasonable bandwidth (4-150,000 Hz), damping (150-200), gain (27 dB), and noise (-106 dB). Of these, only the noise specification is outstanding. No attempt is made to beat distortion records: .09% THD at rated power into 8 ohms, and .25% into 4. I have heard so many power amplifiers with infinitely (well, an order of magnitude) better specifications sound so much worse; this may be the amplifier whose sound could convince *Stereo Review*, *High Fidelity*, etc. that their present measurements are virtually worthless.

I suspect that the Adcom is going to force many designers in the \$1000-1500 range to either make radical improvements in their products over the next six months, or look at the possibility of retiring from competition. This is a "must" amplifier to audition before you spring for anything close in

"I suspect that the Adcom is going to force many designers in the \$1000-1500 range to either make radical improvements in their products...or look at the possibility of retiring from competition."

price. If the Adcom is simply the first of a whole wave of good amplifiers, it will help revitalize the high end for the average audiophile, and force most manufacturers into more reasonable pricing. Now, Adcom, if you can only come up with a preamp as good! **AHC**

Made in the U.S.A. by

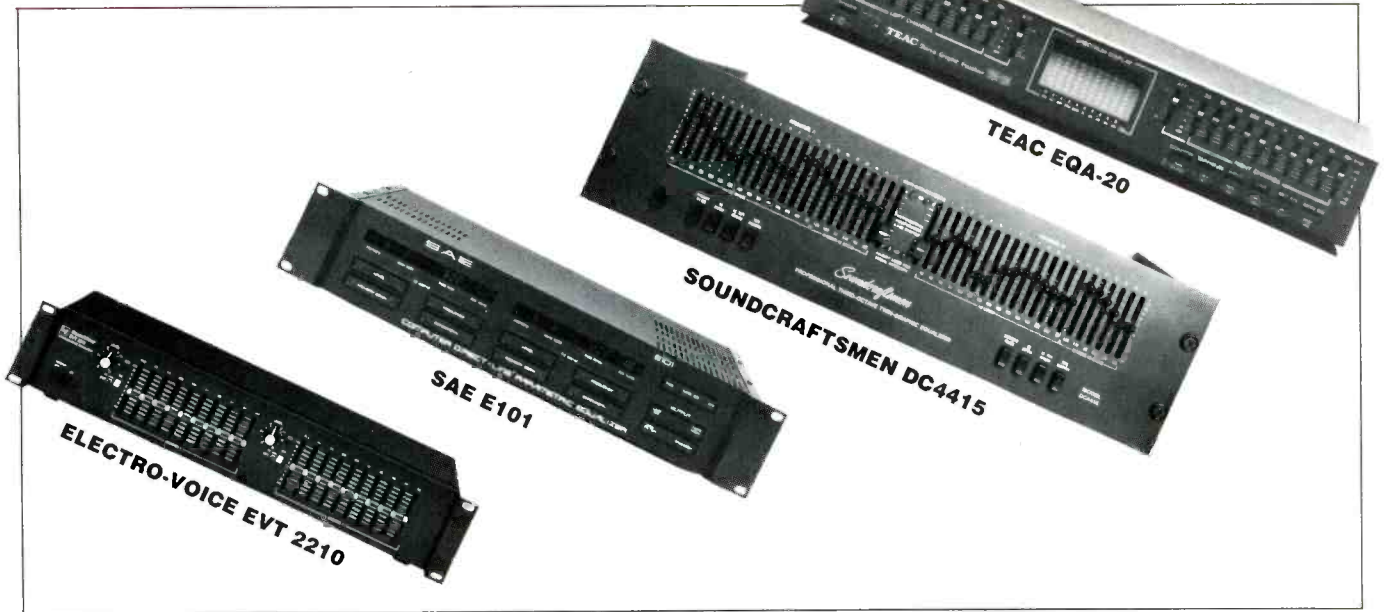
ADCOM®

11 Elkins Road, East Brunswick, NJ 08816 U.S.A.
Distributed in Canada by: PRO ACOUSTICS INC.
Pointe Claire, Quebec 49R4X5

Manufacturer's note: Approximate retail prices listed in order of mention in review:

Adcom GFA-555	\$ 600
Krell	2300-7500
N.Y. Audio Moscode	900-1600
Tandberg	1000-2000
Threshold	1490-3150
Audio Research D-250 (MK II)	6000
Conrad Johnson Premier 5 (pair)	6000
"high powered receivers"	?
"amps with trick power supplies"	?
Hafler DH-500	850

EQUALIZERS



MANUFACTURER	Model	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Tap EQ?	Unity Gain Control?	Rated Output, rms V	THD at Rated Output, %	S.N. - dB, at Rated Output, %	Variable Center Frequencies?	Boost/Cut Range, ±dB	Real-Time Analyzer?	Test Generator? Pink Noise - P, Warble Tone = W	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes		
ACCUPHASE	G-18	2	1/3					No	No	No	No	No				2400.00			
ADC	SS-425X	2	12	†	No	Yes	5	0.008	100	No	No	12	Yes	P	Yes	17 1/8 x 3 1/2 x 11 3/4	10 1/2	449.95	†1 octave above 250 Hz and 2/3 octave below; four programmable memories, two tape monitors, dubbing. Memories, monitors, and dubbing as above. Monitors and dubbing as above. As above. Two tape monitors, four preset EQs for recording, four preset EQs for playback. Two tape monitors, dubbing, spatial expander inc. As above but without expander. One tape monitor.
	SS-415X	2	12	1	Yes	Yes	5	0.008	100	No	No	12	No	No	No	17 1/8 x 3 1/2 x 11 3/4	9 1/4	429.95	
	SS-412X	2	10	1	Yes	Yes		0.008	100	No	No	15	Yes	P	Yes	17 1/8 x 3 1/2 x 11 3/4	9 1/4	379.95	
	SS-315X	2	10	1	Yes	Yes	7	0.008	100	No	No	15	Yes	P	Yes	17 1/8 x 3 1/2 x 8 3/4	9 1/4	349.95	
	SS-VIII	2	10	1	Yes	No		0.008	95	No	No	15	No	No	No	17 1/8 x 3 1/2 x 8 3/4	9 1/4	279.95	
	SS-117EX	2	10	1	Yes	No	7	0.008	100	No	No	15	No	No	No	17 1/8 x 3 1/2 x 8 3/4	9 1/4	229.95	
	SS-115X	2	10	1	Yes	No	7	0.009	100	No	No	15	No	No	No	17 1/8 x 3 1/2 x 8 3/4	9 1/4	229.95	
SS-112X	2	10	1	Yes	No		0.009	95	No	No	12	No	No	No	17 1/8 x 3 1/2 x 11 3/4	9 1/4	129.95		
AKAI	EA-A7	2	7	1 1/2	Yes	No		0.03	95	No	No	10	Yes	Yes	No	17.3 x 2.8 x 8.9	7.3	249.95	Computer controlled.
	EA-A2	2	9	1	Yes	No		0.03	95	No	No	10	No	No	No	17.3 x 2.8 x 8.9	6.2	149.95	
AUDIO CONTROL	Octave	2	10	1	Yes		7	0.008	118	No	No	12	No	No	Yes	17 x 2 1/2 x 6	6	149.00	Bass only. Video inputs. As above. Subsonic filter, rumble reducer, SPL display.
	Octave Plus	2	10	1	No		7	0.008	118	No	No	12	No	W	Yes	17 x 2 1/2 x 6	6	239.00	
	Richter Scale	2	5	1/2	No		7	0.008	118	No	No	12	No	W	Yes	17 x 2 1/2 x 6	6	259.00	
	Ten	2	10	1	Yes		7	0.005	120	No	No	15	No	No	Yes	17 x 3 1/4 x 7 1/4	9	229.00	
	Ten Plus C101	2	10	1	Yes		7	0.005	120	No	No	15	No	W	Yes	17 x 3 1/4 x 7 1/4	9	329.00	
		2	10	1	Yes		7	0.008	116	No	No	15	Yes	P	Yes	19 x 3 1/2 x 6 1/2	10	429.00	
AUDIOSOURCE	EQ-One/II	2	10	1	Yes	Yes	6.8	0.027	92	Yes	Yes	12	Yes	P	Yes	19 x 5 1/4 x 8 3/8	8.4	429.95	Dual output. Pushbutton control. Spectrum analyzer, A/V selector.
	EQ-Four	2	10	1	Yes	Yes	5.5	0.01	85	Yes	Yes	12	No	No	No	17 3/4 x 3 1/8 x 10	6	179.95	
	EQ-Five	2	5	1	Yes	Yes	5	0.05	80	Yes	Yes	12	No	No	No	10 1/4 x 3 1/2 x 7	3	99.95	
	EQ-Seven	2	10	1	Yes	Yes	6	0.03	90	Yes	Yes	12	No	No	No	16 1/2 x 3 x 8 3/8	6	249.95	
	EQ-Eight	2	10	1	Yes	Yes	6	0.03	80	Yes	Yes	12	No	No	No	16 1/2 x 2 3/8 x 7 1/8	5	179.95	
			2	10	1	Yes	Yes	6	0.03	80	Yes	Yes	12	No	No	No	16 1/2 x 2 3/8 x 7 1/8	5	
AZDEN	GX-50	2	10	1	Yes	Yes	6	0.005	90	No	No	12	Yes	P	Yes	17 1/4 x 5 1/2 x 3 3/4	8 1/2	350.00	Pushbutton control.
	GX-33	2	10	1	Yes	Yes	6	0.005	110	No	No	10	No	No	No	17 1/4 x 5 1/2 x 3 3/4	6	250.00	
	GX-30	2	10	1	Yes	Yes	6	0.005	110	No	No	10	No	No	No	17 1/4 x 5 1/2 x 3 3/4	6	200.00	
COUSTIC	HEQ7009A	2	10	1	Yes	No	8	0.01	90	No	No	12	No	No	No	16 1/2 x 9 1/8 x 2 3/8	9 1/4	179.95	10 x 10 LED, frequency spectrum display.
	HEQ7005A	2	10	1	Yes	Yes	8	0.01	90	No	No	12	No	No	No	16 1/2 x 9 1/8 x 2 3/8	9 1/4	149.95	
	HEQ7000A	2	10	1	Yes	No	8	0.01	90	No	No	12	No	No	No	16 1/2 x 9 1/8 x 2 3/8	9	129.95	
	HEQ5000A	2	5	2	Yes	No	8	0.01	90	No	No	12	No	No	No	13 x 5 1/2 x 2 3/8	8 1/4	89.95	
DB SYSTEMS	DB-5	2	6		Yes		3	.0008	96	Yes		15				8.5 x 3.2 x 7	2.8	380.00	DB-2 power supply or DBP-1 cable required; with oak cabinet and gold-plated jacks, \$465.00.

EQUALIZERS by Soundcraftsmen

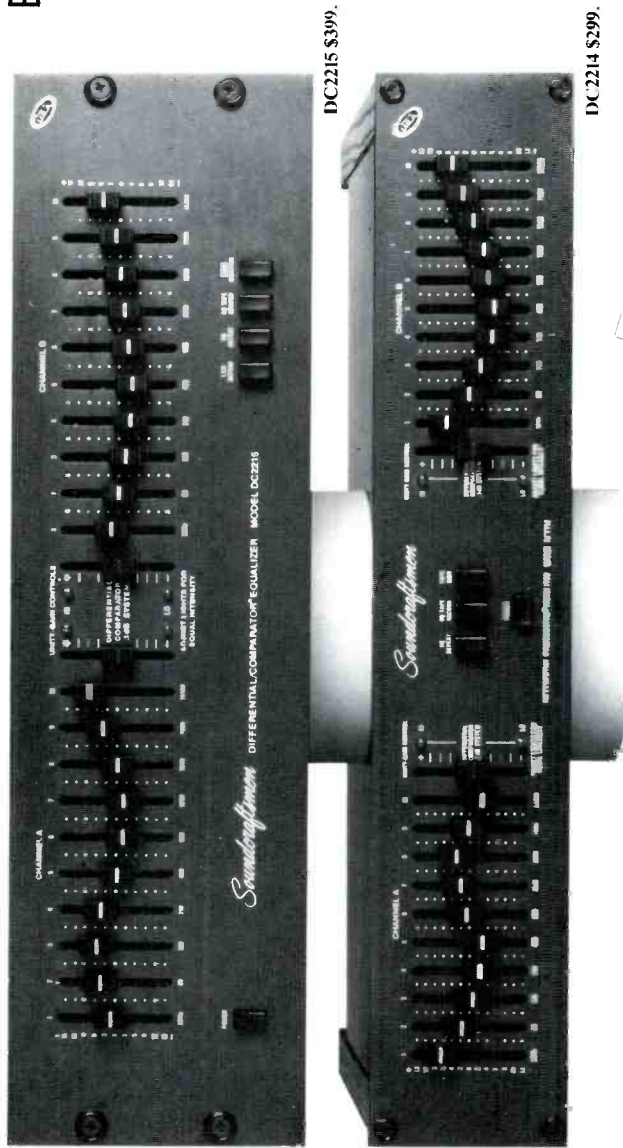
A SOUND-CRAFTSMEN FIRST! DIFFERENTIAL COMPARISON EQUALIZATION

The Soundcraftsmen DC2215 is the finest high-fidelity graphic equalizer available today. Fourteen years of designing and manufacturing equalizers have given us significant performance advantages over other manufacturers, with revolutionary technology like the **Differential/Comparator® 0.1dB True Unity Gain** circuitry, essential for reproduction of the new digital audio discs and wide-dynamic-range recordings without severe limitation of needed "headroom," and for ultra-low noise and distortion. Our Wire-Wound Coil Filter circuitry makes possible **15dB** boost or cut on each **individual** octave and an incredible Signal-to-Noise Ratio of **114dB!**

The DC2214 sets new high standards in its price range with many of the features of the DC2215. The Soundcraftsmen **Differential/Comparator® True Unity Gain** controls with LED displays are identical to the DC2215, assuring full headroom for digital audio discs and wide-dynamic-range recordings, with minimum distortion and an outstanding Signal-to-Noise Ratio of 106dB. Front panel switching for tape monitor and routing of the equalized signal to a tape recorder are provided on the low-profile 3 1/2" front panel. As with the DC2215, the front panel fits a standard 19" rack. Genuine Oak or Walnut side panels are available at slight extra cost.

The SE550 is Soundcraftsmen's lowest-priced equalizer. Even at its remarkably low price it offers nearly identical performance to the DC2214, with the exception of the unity gain circuitry which is designed for audible adjustment, rather than the visual LED indicators. It is supplied complete with black accessory case. Soundcraftsmen-quality equalization is now within easy reach of every audiophile. **SE550 \$189.**

- DC22215 and DC22214
- Differential/Comparator® True Unity Gain w/LED Display Tape and Line Equalization
- 19" Charcoal Brushed Aluminum Rack-Mount Panel
- Frequency Spectrum Analyzer Test Record
- Computone Charts
- Connecting Cables
- SE550
- Unity Gain Controls
- Tape and Line Equalization



EQUALIZATION EVALUATION KIT

*How accurate is your music system?
Here are the tools you need to actually measure and record
the true frequency response of YOUR music system - in YOUR room!
We've put together a totally unique performance evaluation kit
which can quickly demonstrate the need for an equalizer,
if such a need exists.
Fully narrated and easy to use with any stereo system
containing a receiver or amplifier with a balance control.*

FREE! 16-PAGE FULL-COLOR BROCHURE! \$19.95 EQ-EVALUATION KIT, includes 1-12" LP Frequency 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, **JUST WRITE TO US OR CIRCLE READER SERVICE CARD #** for **FREE SPECIAL OFFER DETAILS.**

2200 So. Richey, Santa Ana, California 92705, U.S.A. Telephone (714) 556-6190/J.S. Telex/PWX 910-595-2524 • International Telex 910-595-2524/Answer back Code SDCRF15MN SNA

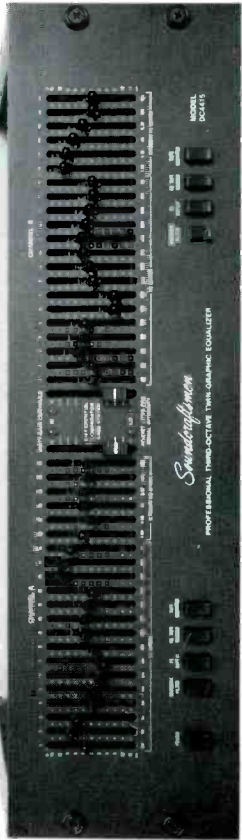
Enter No. 30 on Reader Service Card

EQUALIZERS

MANUFACTURER	Model	Number of Channels	Number of Bands per Channel	Bandwidth, Octaves	Switched Tap EQ?	Unity Gain Control?	Rated Output, rms V	THD at Rated Output, %	S/N, -dB at Rated Output	Variable Center Frequencies?	Variable Filter "Q"?	Boost/Cut Range, ±dB	Test Generator?	With Calibrated Mikes?	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes	
DBX	10/20	2	10	1	Yes	Auto	2	0.03	104	No	No	12	Yes	P	Yes	18 x 3 1/2 x 12 1/4	17 1/2	1200.00	Computerized automatic room/speaker EQ, SPL meter, 10 memories, averaging, infrasonic filter.
DENON	DE-70	2	12	1/3	Yes	Yes	1	0.003		No	No	12			17 1/2 x 12 x 5 1/2	13 1/4	425.00	Built-in dynamic processor.	
ELECTRO-VOICE	EVT 2210 EVT 2230	2 1	10 27	1 1/3	No No	2 Yes		0.05 0.05	90 94	No No	No No	15 12	No No	No No	19 x 3 1/2 x 7 19 x 3 1/2 x 7	13 12	455.00 521.00	Peak LEDs. As above; high pass, 18 dB/octave, low pass, 6 dB.	
FISHER	EQ-2838 EQ-2858 EQ-2768	2 2 2	10 9 10	1 1 1	Yes Yes Yes		5 5 5	1.0 1.0 1.0	90 90 90			12 12 10	Yes Yes Yes		17.3 x 3.3 x 10.4 17.3 x 3.3 x 10.4 17.3 x 3.3 x 10.4	6 1/2 7 8	179.95 249.95 299.95		
FOSTEX	3030	2	10	1	No	Yes	0.3	0.03	92	No	No				17 x 3 1/2 x 8 1/4	9.3	250.00	Normal and overload light.	
GROMMES PRECISION	G4EQ	1	28	1/3	No	Yes	1	0.01	80	No	No	12	No	No	19 x 3 1/2 x 6	12	556.70	High- and low-frequency cutoff filters.	
DAVID HAFER CO.	DH-160	2	10	1	Yes	Yes	3	0.004	108	No	No	12	No	No	Dpt. 17 x 9 x 3 1/2	12	375.00	Test record opt.; kit, \$275.00	
HARMAN/KARDON	EQ8	2	10	1	Yes	Yes	2	0.02	105	No	No	12	No	No	17 3/8 x 4 x 13 1/8	12	235.00		
HITACHI	HGE1100	2	10	1/3	Yes					No	No		No	No				150.00	
JRM	Remote Unit	2	6	1	Yes	Yes	7	0.01	105	No	No	8	No	No	9 x 5 x 1 1/2		350.00	JRM preamp or 3BPB crossover required; continuously variable loudness.	
JVC	SEA-M9B SEA-R7 SEA-66 SEA-33	2 2 2 2	12 12 10 10	1 1 1 1	Yes Yes Yes Yes	No No No No	2 2 2 2	0.003 0.001 0.005 0.005	118 118 115 115	No No No No	No No No No	12.6 12.6 12.6 12.6	Yes No P No	Yes No No No	17 1/8 x 5 7/8 x 14 7/8 17 1/8 x 5 1/4 x 13 17 1/8 x 3 x 11 17 1/8 x 2 3/8 x 10 1/2	22 12.1 7.7 6.6	1200.00 400.00 300.00 160.00		
KENWOOD	GE-1100 GE-74 GE-54 GE-34	2 2	12 7		Yes No	No Yes	9 4	0.003 0.03	105 94	No No	No No	12 10	Yes No	No No	17 3/8 x 6 1/2 x 13 3/4 16 5/8 x 3 3/4 x 10 3/4	13.6 8.4	415.00 220.00	Reverb amp inc. With reverb and synthesized stereo video.	
KLARK-TEKNIK	DN300 DN301 DN332 DN360	1 2 2 2	30 30 16 30	1/3 1/3 2/3 1/3	No No No No	Yes Yes Yes Yes	10 10 10 10	0.01 0.01 0.01 0.01	† † † †	No No No No	No No No No	12 -15 12 12	No No No No	No No No No	19 x 8 x 3 1/2 19 x 8 x 3 1/2 19 x 8 x 3 1/2 19 x 8 x 5 1/4	13 13 13 15	960.00 1000.00 1000.00 1575.00	†112 dB, unweighted.	
LIRPA LABS	Coll. 44	6	6	5/8	No	No	†	100	150	No	Yes	††	Yes	†††	0.44 Caliber	4 1/2	500.00	†6 rounds; ††windage adj.; †††fires blanks.	
L T SOUND	PEQ-2 PEQ-1	2 1	4 4	1.6-2 1.6-2	No No	Yes Yes	8 8	0.007 0.007	116 116	Yes Yes	Yes Yes	15 15	No No	No No	19 x 7 1/2 x 3 1/2 19 x 7 1/2 x 1 3/4	9 6	595.00 349.00	Parametric. As above; mono.	
MARANTZ	EQ130 EQ140	2 2	10 10	1 1	No Yes	Yes No	1 1	0.01 0.008	93 100	No No	No No	10 10	No No	No No	2 5/8 x 16 1/2 x 8 4 1/4 x 16 1/2 x 8 5/8	5 1/2 6	119.95 149.95		
McINTOSH	MQ104 MQ107	2 2	4 7	1/2 1/3	No Yes	No Yes	2.5 2.5	0.1 0.02	90 90	Yes Yes	Yes Yes	15 15	No No	No No	9 1/4 x 5 1/2 x 3 3/8 14 x 5 3/4 x 3 1/2	5 7	500.00 650.00		
MITSUBISHI	DA-6156	2	10				5	0.01				10			16 7/8 x 3 3/8 x 10	5 3/4	100.00		
NEI	DAX 2800 DAX EQ POD 2711 2712 1021 1022 342 341	1 1 1 1 1 2 2 2 1	28 28 27 27 10 10 4 4	1/3 1/3 1/3 1 1 Var. Var.	No No No No No No No No	No Yes No Yes No Yes Yes	No No No No No No No No	0.01 0.01 0.01 0.01 0.01 0.01 0.01 0.01	85 85 82 82 82 82 82 82	No No No No No No Yes Yes	No No No No No No Yes Yes	12 12 12 12 12 15 15 15	Yes No No No No No No No	P No No No No No No No	Yes No No No No No No No	19 x 13 x 5 1/4 19 x 13 x 1 3/4 19 x 9 1/2 x 3 1/2 19 x 9 1/2 x 3 1/2 19 x 9 1/2 x 3 1/2 19 x 9 1/2 x 3 1/2 19 x 9 1/2 x 3 1/2 19 x 6 1/2 x 1 3/4	18 5 12 12 11 11 10 11 8	2495.00 495.00 549.00 449.00 435.00 365.00 595.00 349.00	Auto EQ. Blank-panelled slave to above model.
NIKKO	EQ-30 EQ-25 EQ-500	1 2 2	30 12 6	1/3	No Yes Yes	Yes Yes No	8 8 8	0.004 0.004 0.01	110 110 100			20 20 No	No No No	No No No	19 x 9 x 3 1/2 19 x 9 x 3 1/2 17 1/8 x 3 3/4 x 12 7/8	12.1 9.2	399.95 300.00 169.95		
NUMARK	EQ2100 EQ2310 EQ2500D EQ2600 EQ2650 EQ3000	2 2 2 2 2 2	6 10 10 10 10 10	1/2 1/3 1/3 1/3 1/3 1/3	Yes Yes Yes Yes Yes Yes	No Yes Yes Yes Yes Yes	8 8 8 8 8 8	0.01 0.01 0.01 0.01 0.01 0.01	96 96 102 102 105 80	No No No No No No	No No No No No No	15 15 15 15 15 15	No No No No Yes No	No No No No Yes No	12 1/2 x 3 1/2 x 6 1/2 18 1/8 x 3 1/2 x 6 1/2 18 1/8 x 3 1/2 x 10 1/2 18 1/8 x 3 1/2 x 10 1/2 18 1/8 x 3 1/2 x 10 1/2 17 1/8 x 4 x 10 1/4	7.5 10.5 11 11 11 12.4	99.95 149.95 199.95 249.95 349.95 399.95	LED display. As above, 12 segments per channel. Wireless remote, 5 preset graphic memories.	
ONKYO	EQ-35 EQ-25B EQ-15B	2 2 2	12 10 7	1 1 1 1/3	Yes Yes No	Yes Yes No	5 5 5	0.01 0.01 0.01	100 100 100	No No No	No No No	† 12 12	No Yes No	W No No	17 1/8 x 14 5/8 x 3 3/8 17 1/8 x 10 1/8 x 2 7/8 17 1/8 x 10 1/8 x 3 3/8	10 7 1/4 6 3/4	269.95 194.95 120.00	†Switchable ±6/±12 dB gain, sweep spot-tone oscillator. EQ bypass.	

EQUALIZERS by Soundcraftsmen

Third-Octave Equalizer



The Soundcraftsmen DC4415 is a two-channel Graphic Equalizer designed especially for advanced applications in the field of music production. Each of its channels is completely independent of the other and can be used as two monophonic equalizers for Studio or Pro applications. The channels are divided in 1/3-Octave center frequencies from 40Hz through 1kHz. From 1kHz through 16kHz center frequencies are at 2/3-Octave intervals. All center frequencies correspond with Standard ISO Center Frequencies. This 1/3-2/3-Octave arrangement provides maximum flexibility in the critical low and mid frequency

cies while permitting reductions in both size and cost in the less critical higher frequencies.

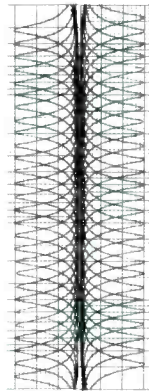
Soundcraftsmen's exclusive **0.1 dB Differential Comparator** Unity-Gain circuitry, combined with Dual Balancing LED's on the front panel, make balancing of input-to-output voltages fast and exceptionally accurate to within 0.1 dB, thus assuring maximum dynamic range, minimum noise and freedom from overload no matter what the desired EQ curve.

DC4415 Third-Octave Equalizer—\$599.00

SMOOTH-Q DESIGN CONCEPT

The DC4415 is unique in another important aspect. Unlike conventional 1/3-Octave Equalizers, it does not utilize an ultra-sharp filter "Q" design. The "Q" of the 1G3044 filter circuits is a fairly low 2.2, combined with 3 dB per octave slope, to provide especially smooth equalizing characteristics across the full frequency spectrum.

By avoiding the conventional extremely narrow bandwidth-filters, we eliminate the harsh sonic characteristics often associated with higher Q design, which create sharp dips, peaks, and excessive phase shift. The result is a sonically smooth EQ curve with superb musical characteristics.

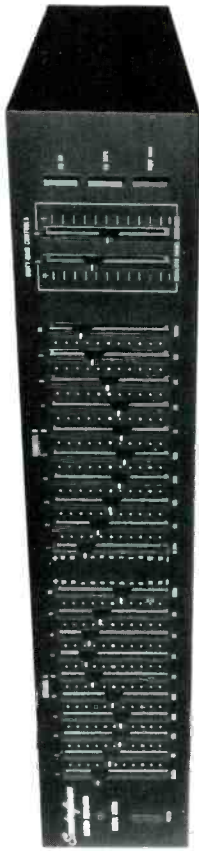


Conventional sharp Q designs provide extremely narrow bandwidth that can result in severe phase shift.

GUARANTEED SPECIFICATIONS

TOTAL HARMONIC DISTORTION: 0.1% @ 2V RMS
IM DISTORTION: 0.1% @ 2V RMS
SIGNAL-TO-NOISE: 114dB-10V RMS output-100dB-2V RMS output
INPUT CAPABILITY: Maximum 10V RMS-24dBm
OUTPUT CAPABILITY: 10V-22dBm
INPUT IMPEDANCE: 47K ohms
OUTPUT IMPEDANCE: 600 ohms-balanced—300 ohms-unbalanced
EQUALIZATION: 42 vertical slide potentiometers, 0- center detent
ZERO-GAIN: 2 vertical slide potentiometers

Stereo Graphic Equalizer



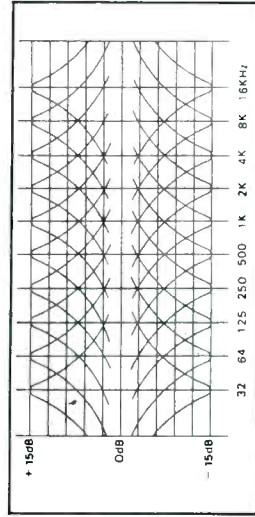
The SOUNDCRAFTSMEN SE550 Graphic Equalizer—\$189.00

Fifteen years of designing and manufacturing the finest Graphic Equalizers, for High Fidelity and Professional Sound applications, have culminated in our newest model, the SE550. With the SE550 it is possible to "NEUTRALIZE" virtually all negative room acoustic effects, freeing your stereo system to perform exactly as was intended by its designers. In its overall sonic capabilities the SE550 comes remarkably close to our own more expensive "industry standard" equalizers, making it an exceptional value at its low price!

The SE550 features 10 individual bands of frequency adjustment, covering the ENTIRE RANGE of human

hearing, for EACH channel. Tape Monitor, Tape Equalization and EQ Bypass controls are located conveniently on the front panel. There is even a handy A.C. outlet on the rear panel for your tape recorder. Most importantly, the performance is **pure Soundcraftsmen!**

As with all Soundcraftsmen Equalizers, the SE550 is supplied complete with 12" LP Frequency Spectrum Analyzer, Test Record, Comitone charts for instant EQ curve recall, connecting cables and accessory case. **EVERYTHING** you need to connect and use the SE550 is **INCLUDED** in its unexpectedly low price of **\$189.00.**



SE550 EQUALIZING CHARACTERISTICS

The linear filter action shown above contributes to the SE550's minimum phase shift and low distortion, unequaled in equalizers in its price range.

GUARANTEED SPECIFICATIONS

HARMONIC DISTORTION: Less than 0.1% @ 1V
IM DISTORTION: Less than 0.1% @ 1V
SIGNAL-TO-NOISE RATIO: 110dB
OCTAVE CONTROLS: ±22dB boost or cut—each octave (all other octaves set at maximum) ±15dB boost or cut—each octave (all other octaves set at zero)
GAIN-CUT CAPABILITY: +32dB/-38dB—all controls maximum
UNITY-GAIN CONTROLS: 18dB Range
FILTER TYPE: Discrete devices.
DIMENSIONS: 3 1/2" x 17" x 9" deep
WEIGHT: 9 lbs.

EQUALIZERS

MANUFACTURER	Model	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, %	Variable Center Frequencies?	Boost/Cut Range, -A Wld.	Real-Time Analyzer?	Test Generator? Pink Noise = P, Wobble Tone = W	With Calibrated Mike?	Dimensions, Inches	Weight, Lbs.	Price, \$	Notes
PANASONIC	SH-251	2	7	2 1/2	Yes	No	1	0.003	110	No	No	12	No	No	No	16 7/8 x 3 3/8 x 7 7/8	5.1	74.95	
PARASOUND	EQS-1	2	10	1	Yes	Yes	6	0.01	100	No	No	12	Yes	P	Yes	17 1/4 x 9 1/2 x 4	10	349.95	Subsonic filter, tape dubbing, peak hold, 90 and 16 Hz, cut only; tape dubbing. Graphic LEDs, peak level meters.
	EQ300	2	12	1	Yes	Yes	6	0.01	100	No	No	12	Yes	No	No	17 1/4 x 8 1/2 x 4 1/4	12	269.95	
	EQ250	2	10	1	Yes	Yes	6	0.01	100	No	No	12	No	No	No	17 1/4 x 3 x 9	11	239.95	
	EQ200	2	10	1	Yes	Yes	6	0.01	100	No	No	12	No	No	No	17 1/4 x 8 1/2 x 2 7/8	7	169.95	
	PVA-1	2	10	1	Yes	Yes	6	0.01	100	No	No	12	Yes	No	No	17 1/4 x 8 1/2 x 4 1/4	15	449.95	
PEAVEY ELECTRONICS	Stereo Graphic EQ27	2	10	1	No	Yes	1	0.05	†	No	No	12	No	No	No				†80 dB, unweighted.
		1	27	1/3	No	Yes	1	0.01	†	No	No	12	No	No	No				†90 dB, unweighted.
PERREAUX	TC 2	2	3				7.5	0.009	100			†				19 x 12 1/2 x 2	12	450.00	†±18 dB for bass and treble, ±10 dB for midrange; high/low filters, defeat switch, headphone jack.
PHOENIX SYSTEMS	P-94-SRA	2	2	1/6-2	No	No	8	0.01	116	Yes	Yes	16	No	No	No	11 x 3 1/2 x 5	5	179.00	Kit, Model P-94-SR, \$129.00.
PIONEER ELECTRONICS	SG-90BK	2	17	3/5	Yes	No	1	0.001	120	No	No	12	No	No	No	16 5/8 x 5 1/4 x 13 7/8	15.4	389.95	
	SG-50MBK	1	10	1	Yes	No	1	0.003	116	No	No	10	Yes	Yes	Yes	16 5/8 x 3 7/8 x 10 1/2	9.1	259.95	
	SG-60BK	2	12	1	Yes	Yes	1	0.003	120	No	No	12	No	No	No	16 5/8 x 5 1/4 x 13 7/8	13.4	249.95	
	GR-560BK	2	7	1	Yes	Yes	1	0.005	100	No	No	10	No	No	No	16 5/8 x 3 7/8 x 9 1/2	6.1	99.95	
REALISTIC	31-2010	2	12	3/4	Yes	Yes	10	0.02	95	No	No	12	No	No	No	16 1/4 x 7 1/8 x 2 5/8		119.95	
	31-2008	2	10	1	Yes	No	10	0.02	95	No	No	12	No	No	No	13 3/4 x 5 3/4 x 2 1/2		79.95	
	31-1989	2	7	1.2	Yes	Yes	10	0.02	90	No	No	12	No	No	No	10 1/4 x 6 x 4 1/2		59.95	
SAE	E101	2	2	Var.	Yes	Yes	2.5	0.02	100	Yes	Yes	16	No	No	No	19 x 3 1/2 x 12 1/2	20	650.00	Parametric EQ, 32 frequencies and 20 memories.
SANSUI	SE-88	2	14		Yes			0.008	100	Yes		10	Yes		Yes	17 x 4 3/8 x 12	9	399.00	Computer controlled; detachable remote. Computer controlled.
	SE-9	2	8		Yes			0.008	110	Yes		12	Yes	PW	Yes	19 x 5 7/8 x 13	15	699.00	
	SE-77	2	12		Yes			0.005	110	Yes		12	No		Yes	17 x 3 x 10	6	279.00	
	SE-500	2	10		Yes			0.01	80	Yes		12	No		Yes	17 x 3 3/8 x 8 5/8	5.1	120.00	
	SE-300	2	7		Yes			0.06	80	Yes		12	No		Yes	17 x 3 3/8 x 8 5/8	4.9	90.00	
SESCOM	PO-14	2	2		No	No	10	0.01	83	No	No	12	No	No	No	1 1/2 x 4 1/2 x 4 1/2	1	35.00	Requires PD-1 power supply. As above; shelving filter. Mono; parametric; supply as above.
	PO-15	2	2		No	No	10	0.01	83	Yes	No	12	No	No	No	1 1/2 x 4 1/2 x 4 1/2	1	40.00	
	PO-16	1	1		No	No	10	0.01	83	Yes	No	12	No	No	No	1 1/2 x 4 1/2 x 4 1/2	1	35.00	
	PO-40	1	5	1/2	No	No	5	0.01	80	No	No	12	No	No	No	1 1/2 x 4 1/2 x 4 1/2	1	45.00	
SHERWOOD	EQ-200	2	12	1	Yes	No	7	0.01	95	No	No	12	No	No	No	17 3/8 x 4 3/8 x 13 3/4	11	179.95	
SONTEC	RM-230A	2	3		No	No		0.002	90	Yes	Yes	12	No	No	No	1 3/4 x 6 1/2 x 19	8	1085.00	
SONY	SEQ-120	2	7	1/3	Yes	No	2.45	0.01	100	No	No	10	No	No	No	19 1/2 x 5 1/2 x 12 1/2	6 1/4	100.00	Memory.
	SEQ-210	2	9	1/3	Yes	No	2.45	0.01	100	No	No	10	No	No	No	17 x 3 3/4 x 11	6 3/4	200.00	
	SEQ-555ES	2	10	1/3	Yes	Yes	2.45	0.005	110	No	Yes	10	Yes	P	Yes	17 x 4 1/4 x 13	15	900.00	
SOUNDCRAFTSMEN	SE550	2	10	1	Yes	Yes	10	0.01	110	No	No	15	No	No	No	17 x 3 1/2 x 9	9	189.00	With test record. As above; differential-comparator balancing LEDs. As above. As above. Differential-comparator analyzer circuit.
	OC2214	2	10	1	Yes	Yes	10	0.01	106	No	No	12	No	No	No	19 x 3 1/2 x 8 3/4	18	299.00	
	OC2215	2	10	1	Yes	Yes	10	0.01	114	No	No	15	No	No	No	19 x 5 1/4 x 11 1/4	21	399.00	
	OC4415	2	21	1/3, 2/3	Yes	Yes	10	0.01	114	No	No	15	No	No	No	19 x 5 1/4 x 11 1/4	23	599.00	
	AE2000	2	10	1	Yes	Yes	10	0.01	114	No	No	15	Yes	P	Yes	19 x 5 1/4 x 11 1/4	23	699.00	
SYMMETRIC SOUND SYSTEMS	EQ-2	2	12	5/6	No	No	2	0.02	92	No		10	Opt. Yes	Opt. P	Opt. Yes	10 x 3 3/4 x 4 1/4	3	89.00	Kit. As above. Kit, \$200.00.
	AN-1/2	1	12	5/6												10 x 1 3/4 x 3 1/2	1	62.00	
	EQ-3	2	24	0.4	No	No	2	0.02	88	No		10	No	No	No	20 x 3 3/4 x 4 1/4	6	325.00	
TEAC	EQA 10 II	2	10		Yes	No	0.32	0.03	80	No	No	12	Yes	No	No	16.5 x 2 x 6.3	6.2	199.00	
	EQA 20	2	10		Yes	Yes	0.32	0.01	90	No	No	12	Yes	No	No	16.5 x 6.4 x 2.6		249.00	
TECHNICS	SH-8025	2	7	1	Yes	No	1	0.005	110	No	No	12	No	No	No	17 x 3 3/8 x 7 7/8	4.4	140.00	No sliders, "EQ Plus," 8 presets, auto EQ. †Switchable, 0.15/1 V.
	SH-8026K	2	7	1	Yes	No	1	0.005	110	No	No	12	No	No	No	17 x 3 3/8 x 7 7/8	4.4	150.00	
	SH-8045	2	12	1	Yes	No	1	0.005	110	No	No	12, 3	No	No	No	17 x 2 1/8 x 9 1/4	5.7	200.00	
	SH-8044	2	7	1	Yes	No	1	0.005	110	No	No	12	Yes	No	No	17 x 3 3/8 x 9 1/4	6.2	250.00	
	SH-8055	2	12	1	Yes	No	1	0.003	110	No	No	12	Yes	P	No	17 x 4 1/4 x 10 3/8	9.5	340.00	
	SH-8066	2	12	1	Yes	No	1	0.003	107	No	No	12	Yes	P	Yes	17 x 4 3/4 x 10 3/4	8.4	450.00	
	SH-8065	2		1/3	Yes	No	†	.0025	110	No	No	12, 3	No	No	No	17 x 6 x 13	14.6	500.00	
VECTOR RESEARCH	VQ-110	2	10	1	Yes	No	1	0.009	108	No	No	12	No	No	No	17 x 4 x 11 1/2	10	110.00	
	VQ-130	2	10	1	Yes	No	1	0.009	108	No	No	12	Yes	Yes	Yes	17 x 4 1/2 x 11 1/2	12	270.00	
YAMAHA	GE-60	2	10	1	Yes	Yes	2	0.005	110	No	No	15	Yes	P	Yes	17 1/8 x 10 3/4 x 4 3/8	9 3/4	370.00	
	GE-40	2	10	1	Yes	Yes	2	0.005	110	No	No	15	No	No	No	17 1/8 x 10 3/4 x 4 3/8	8 1/8	210.00	
	GE-3	2	10	1	Yes	Yes	2	0.005	110	No	No	10	No	No	No	17 1/8 x 9 x 3 3/8	6 1/8	150.00	



BEYOND CONVENTIONAL CD PERFORMANCE

Onkyo's Integra DX-200 Compact Disc Player sets a new standard of CD performance, both in sonic fidelity and user convenience.

When comparing CD players, the digital-to-analog (D/A) conversion method is the key factor, for although the sound on the disc itself is digital, the CD player must convert it to analog for output to the amplifier. If this is not accomplished perfectly, the chief benefit of digital—far greater dynamic range with a total absence of noise—will not be realized. That's why Onkyo utilizes a 16 bit D/A converter system that exactly matches the 16 bit digital code used in the recording process, along with specialized double oversampling and digital filtering techniques.

Four separate power supplies eliminate interaction between stages, and exclusive Delta Power and Super Servo circuitries maintain noise & distortion free reproduction. A precision 3-beam laser pickup assures precise tracking with fast track access.

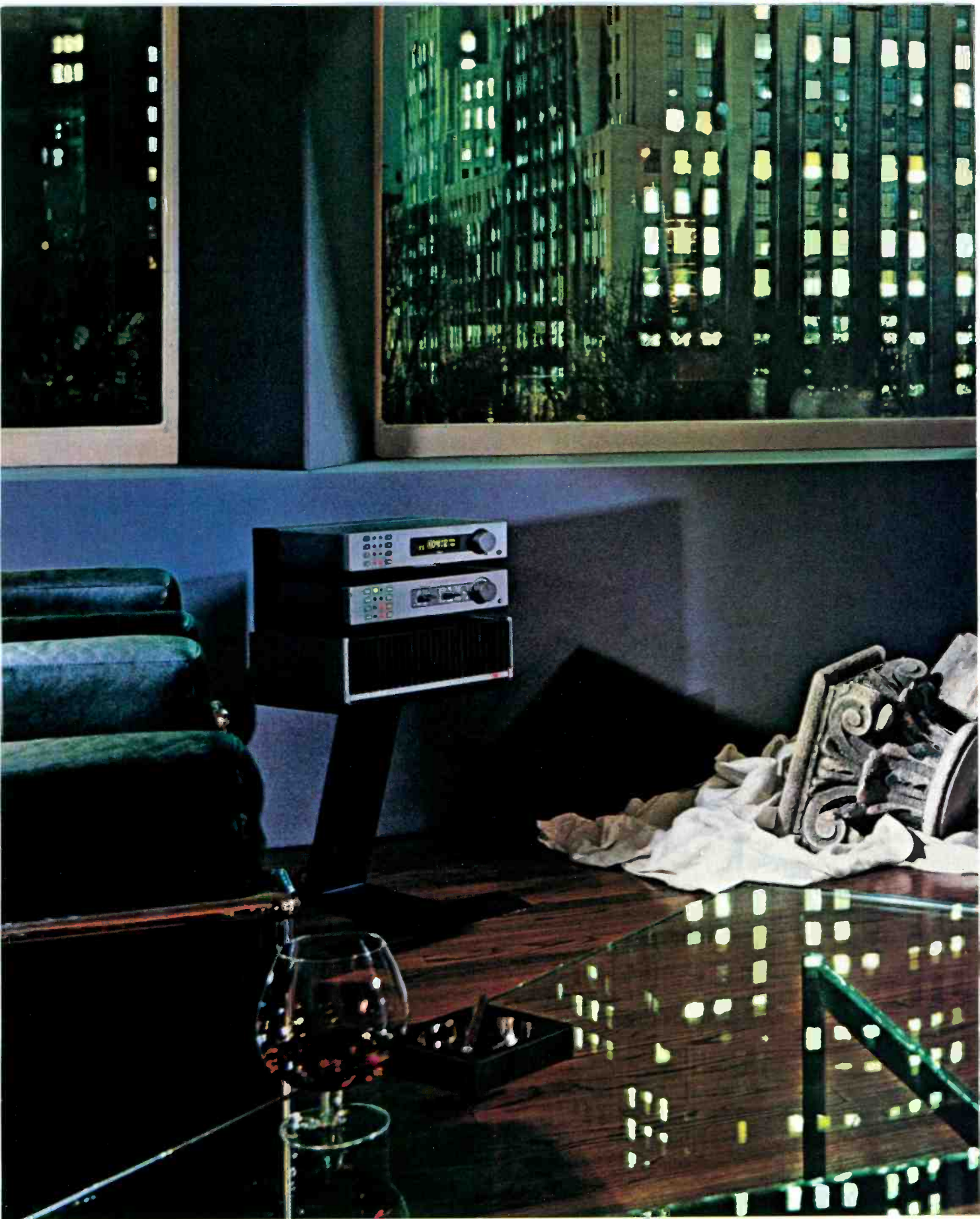
A full complement of convenience features includes 16 track random memory, with complete digital display for track, index, elapsed/remaining time, and memory contents, all of which can be controlled by the DX-200's wireless remote unit.

The Integra DX-200 goes beyond conventional CD performance to let you realize the promise of digital as it was meant to be heard. Discover the audible difference today.

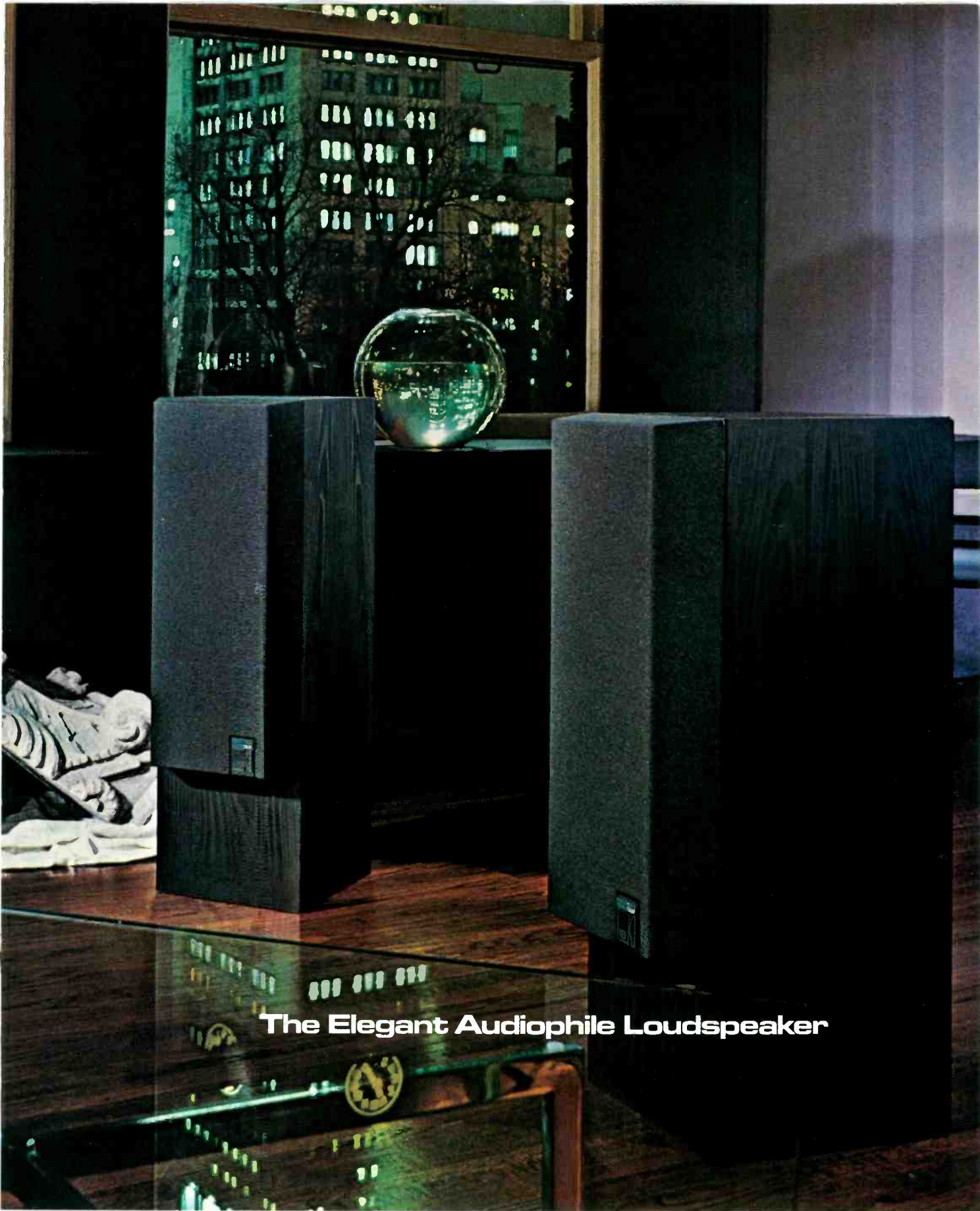
Artistry In Sound

ONKYO

200 Williams Drive, Ramsey, NJ 07446



To end the age old dichotomy between sound and style, Great Britain's master loudspeaker builder, KEF, has produced the Reference Series 104/2. Capable of satisfying the design conscious and the sonically critical alike, the 104/2 is predicted to emerge as one of the most significant loudspeakers of the decade. (Previous KEF Reference Series models, including one introduced almost a decade ago, remain to this day at the top of their respective categories.)



The Elegant Audiophile Loudspeaker

Tongue-twisting, but ear-pleasing technologies such as Coupled Cavity Bass Enclosures and Conjugate Load Matching (write for full technical explanations) make the 104/2's perform beautifully even with moderately powered amplification – almost regardless of where they are placed within the room.

The KEF Reference Series 104/2. Finally, a loudspeaker to be seen and heard.



KEF America, Inc., 14120-K Sullyfield Circle, Chantilly, VA 22021 1-703-631-8810

Enter No. 34 on Reader Service Card

SIGNAL PROCESSORS

MANUFACTURER	Model	NR Type	Function: Closed Loop = C, Open Loop = O, Transient = T	Application: Tape Rec. = R, Phono = 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, ± 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.
ADVANCED AUDIO SYSTEMS	ONR-911	ONR	C	U	No	14 @ 7.8k	RP	0.05	40-20 ± 0.5	239.50	
ANT TELE-COMMUNICATIONS	telcom c4 M232	Compander		RPV	No	30 @ 20-20k	RP	0.2	30-20 ± 0.5	2435.00	Two-channel playback, for use with 1-inch VTRs and ATRs; auto-switch from record to playback.
AUDIO CONTROL	Video Soundtracker	ONR	O	U	No	14 @ 7k	P	0.05	20-15.75 ± 1	159.00	Five-band EQ, input level matching, stereo synthesis.
BURWEN	DNF 1201A	Burwen	O	U		30 @ 5k	P	0.2	10-20	350.00	Sensitivity control, three bandwidth choices.
MITCHELL A. COTTER	NFB-3RE	Special EQ	O	U	No†	16	R	0.01	20-35 ± 1	1200.00	†Needs LA-3RE; encoder only; 0-dB line gain.
	LA-3RE	Special EQ	O	U	No†	16	P	0.01	10-35 ± 0.5	1200.00	†Needs NFB-3RE; decoder only; 16-dB line gain.
OBX	224X	dbx Type II	C	U	Yes	40 @ 30-20k	RP	0.15	30-20 +0.5,-2	249.00	Level-match controls and display; decodes dbx-encoded records.
	150	dbx Type I	C	U	Yes	40 @ 20-20k	RP	0.15	20-20 +0.5,-1	249.00	For tape decks; at 15 ips, 20 Hz to 20 kHz, ± 1 dB; not compatible with dbx Type II; level-match controls.
	PPA-1	dbx Type II	C	R	No	30 @ 50-15k	P	0.3	50-15 ± 1.5	49.00	Adaptor for headphone cassette decks; dbx B for decoding other NR-system tapes.
	1BX III	dbx Expander	O	U	No	20 @ 20-20k	RP	0.15	20-20 ± 0.5	249.00	One-band (full-band) dynamic range expander; impact restoration circuit.
	3BX III	dbx Expander	O	U	No	20 @ 20-20k	RP	0.15	20-20 ± 0.5	599.00	As above but three bands.
	4BX	dbx Expander	O	U	No	20 @ 20-20k	RP	0.15	20-20 ± 0.5	799.00	As above; wireless remote with volume and muting controls.
	SX10/SX20/SX30	†	O	U	No	Varies	RP	0.3	Variable	††	†Model SX10, dynamics enhancer; SX20, impact restoration; SX30, bass enhancer; ††\$149.00 for three pieces.
FOSTEX	3040	Dolby C	C	R	No	20	RP	0.01	20-20	450.00	Four-channel record/play.
L T SOUND	NR-2	2:1 Compander	C	R	Yes	30 @ 1k	RP	0.1	20-20 ± 0.5	275.00	Compatible with dbx Type I system; 2-channel.
	NR-4	2:1 Compander	C	R	Yes	30 @ 1k	RP	0.1	20-20 ± 0.5	475.00	As above but 4-channel.
	NR-8	2:1 Compander	C	R	Yes	30 @ 1k	RP	0.1	20-20 ± 0.5	795.00	As above but 8-channel.
NUMARK ELECTRONICS	NR-400	Endec	C	R	Yes		RP		10-30	249.95	
PACKBURN ELECTRONICS	123	Transient, Dynamic	OT	U	No	Varies	RP	0.05	Sel.	1950.00	Mono, for playing old records; has three NR processors.
	323	Transient, Dynamic	OT	U	No	Varies	RP	0.05	Sel.	2450.00	Mono/stereo; has three NR processors.
PHOENIX SYSTEMS	P-522-NRA	2:1 Compander	C	R	Yes	30 @ 1k	RP	0.1	20-20 ± 1	139.00	Kit, Model P-522-NR, \$79.00.
RG DYNAMICS	SS-1	Expander	O	U	No	20	RP	0.04	20-20 ± 0.5	650.00	
SAE	5000A	Impulse Noise Reduction	T	RP				0.1	20-20 ± 1	199.00	
SYMMETRIC SOUND SYSTEMS	ASRU	Filter, Expander	O	U		18	P	0.2	20-20 ± 1	190.00	Kit, \$120.00.
	LFF-1	Low Frequency	O	U		20 @ 20	P	0.02	20-20 ± 1	85.00	Kit, \$50.00.



BOOM BOXES NEED SOPHISTICATED TAPE, TOO.

When boom boxes were only built for boom, ordinary tape was good enough. Not anymore.

Boom boxes are now built with graphic equalizers and automatic programming. Dolby™ has become virtually standard. Some are even capable of high-speed dubbing. Ordinary tape can set one of these boom boxes back four or five years. Sophisticated equipment requires sophisticated tape.

People who spend thousands of dollars on audio equipment know this. They use Maxell religiously. It's built to standards 60% higher than the industry calls for. It's tough enough to stand up to heavy use. Fact is, Maxell sounds as good after 500 plays as it does brand new.

And it's sensitive enough to reveal the subtle differences that features like Dolby and equalizers can make. On a \$1000 living room system. Or a \$100 portable one.

So get Maxell.

And get more than boom out of your boom box.



**THE TAPE FOR
SOPHISTICATED EQUIPMENT.**

Dolby is the trademark of Dolby Laboratories Licensing Corporation. © 1985 Maxell Corporation of America, 60 Oxford Drive, Moonachie, N.J. 07074

Enter No. 38 on Reader Service Card

THE MORE SOPHISTICATED YOUR VIDEO EQUIPMENT IS, THE MORE LIKELY IT IS TO DESTROY YOUR VIDEO TAPE.

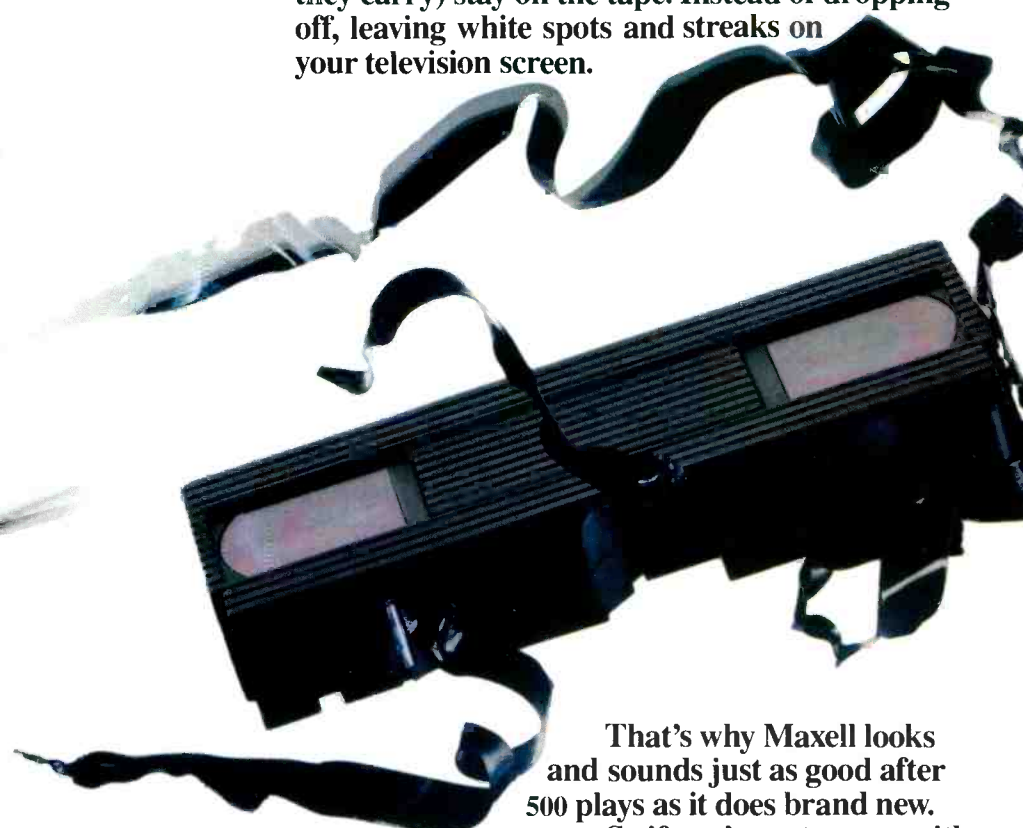
Sophisticated features like fast forward, freeze frame and high-speed scanning put extraordinary wear and tear on your tape. From the very first play.

Within a year or two, the deterioration becomes visible. It never stops. Your child's third birthday party may be invisible by the time he's six.

Sophisticated VCRs require Maxell Video Tape.

Maxell is pre-stretched. So all those fast starts and faster stops can't stretch it out of shape. Or worse, break it.

Maxell's magnetic particles are molecularly bonded to the tape. Not glued like ordinary tapes. The particles (and the audio and video information they carry) stay on the tape. Instead of dropping off, leaving white spots and streaks on your television screen.



That's why Maxell looks
and sounds just as good after
500 plays as it does brand new.

So if you've got a VCR with
lots of sophisticated features, don't take chances.

A video tape is replaceable. What's on it
may not be.



THE TAPE FOR
SOPHISTICATED EQUIPMENT.

HI-FI VCRs



MAGNAVOX VR8592SL



AIWA AV-70



TEAC MV-800

MANUFACTURER	Model	Frequency Response, Hz to kHz, ±dB	Audio S/N Ratio, dB, re: 0 dB	THD, %	Separation, dB, at 1 kHz	Simulcast Recording?	Dynamic Range, dB	Wow & Flutter, Wtd. Peak, %	Dolby Noise Reduction on Standard Tracks?	Stereo Broadcast TV (M/TSAP Capability, Built into Tune = B, Decoder Jack = J)	Programmability, Number of Days/Number of Events	Total Number of Channels (Broadcast Plus Cable)	Audio Dubbing?	Phone Jack?	Volume Control on Phone Jack?	Forme*	Number of Tape Speeds, Record/Play	Price, \$
AIWA	AV-70	20-20	80		Yes	80	0.005	No	J	14/8	120	Yes	Yes		Beta	2/2	750.00	
AKAI	VS 603	20-20	80	0.3	68	Yes	80	0.005	No	No	28/8	139	Yes	Yes	No	VHS	2/3	895.00
CANON	VR-40A VCR/ VT-50A Tuner (Dockable)	20-20			Yes	80	0.005	No	No	14/8	139	Yes	Yes	No	VHS	3/3	VCR, 1030.00; Tuner, 575.00 899.00	
	VR-HF600	20-20			Yes	80	0.005	No	J	14/4	107	No	Yes	Yes	VHS	3/3		
DENON	VA-1000	20-20 ±3		60	Yes	80	0.005 wrms			14/4	133				VHS	3/3	999.95	
FISHER	FVH-840				Yes	80		Yes	B	14/9	140	Yes	Yes	Yes	VHS	3/3	899.95	
GENERAL ELECTRIC	1VCR6018X					80		dbx	B	21/8	169	Yes	Yes		VHS	3/3	1079.95	
	1CVP5030 (Portable)					80		dbx		14/8	139	Yes	No		VHS	3/3	1174.95	
	1VCR6013X					80		dbx		14/4	107	Yes	Yes		VHS	3/3	709.95	
	1VCR6014X					80		dbx		14/4	107	Yes	Yes		VHS	3/3	814.95	
HARMAN/KARDON	VCD-1000	20-20 ±3	0.05	60	Yes	80	0.005	No	B	14/4	105	No	Yes	Yes	VHS	3/3	850.00	
HITACHI	VT-86A	20-20 +1,-3	70	0.5	60	Yes	80	0.005	No	J	14/4	107	No	Yes	Yes	VHS	3/3	999.00
	VT-87A	20-20 +1,-3	70	0.5	60	Yes	80	0.005	No	J	365/8	107	Yes	Yes	Yes	VHS	3/3	1295.00
	VT-98A	20-20 +1,-3	70	0.5	60	Yes	80	0.005	No	B	365/8	133	Yes	Yes	No	VHS	3/3	1450.00
INSTANT REPLAY	618 Image Translator	20-20			Yes	80		Yes	B	21/8	183	Yes			VHS	3†	1795.00; †Plus PAL & SECAM	
	630 Image Translator	20-20			Yes	80		Yes	B	21/8	183	Yes			VHS	3†		
JVC	HR-D555U	20-20		60	Yes	80	0.005		B	14/8	105	Yes	Yes	Yes	VHS	2/3	1199.00	
	HR-D565U				Yes	80			No	14/8	181	Yes	Yes	Yes	VHS	2/3		
	HR-D566U				Yes	80			B	14/8	181	Yes	Yes	Yes	VHS	2/3		
	HR-D725U	20-20		60	Yes	80	0.005	Yes	No	14/8	139	Yes	Yes	Yes	VHS	2/3		
	HR-S200U				Yes	80			B	14/8	181	Yes			VHS	2/3		
KENWOOD	KV-917HF	20-20 ±6	0.8		Yes	80	0.008	Yes	B	14/8	178	Yes			VHS	2/3	1000.00	
KODAK	MVS-5380 (Dockable)	20-15			No	80			B	21/8	169	Yes	Yes		8mm	2/2		
LIRPA LABS	VR-The World	20/20	3:1	0.5M					Var.	Z	10k/1	3	†	MCI	V-Cord	3/2	18.98; †No subtitles	
MAGNAVOX	VR8540SL	20-20	80	0.5	40	Yes	80	0.005	No	J	14/4	107	Yes	Yes	Yes	VHS	3/3	849.00
	VR8590SL (Portable)	20-20	80	0.5	40	No	80	0.005	No	†			Yes	Yes	No	VHS	3/3	849.00; †No tuner
	VR8592SL	20-20	80	0.5	40	Yes	80	0.005	No	No	14/8	139	Yes	Yes	No	VHS	3/3	1399.00
	VR8560SL	20-20	80	0.5	40	Yes	80	0.005	No	B	21/8	169	Yes	Yes	Yes	VHS	3/3	1199.00
MARANTZ	VR 450	20-20	80	0.25	60	Yes		0.005	Yes	B	21/4	105			VHS	3/3	749.95	
	VR 550	20-20	80	0.25	60	Yes		0.005	Yes	B	21/8	140	Yes		VHS	3/3	949.95	
MITSUBISHI	HS400	20-20	80	0.3	60	Yes	78	0.005	No	B	14/4	105	Yes	Yes	Yes	VHS	3/3	700.00
	HS410	20-20	80	0.3	60	Yes	78	0.005	No	B	14/8	105	Yes	Yes	Yes	VHS	3/3	800.00
	HS430	20-20	80	0.3	60	Yes	78	0.005	Yes	B	14/8	139	Yes	Yes	Yes	VHS	3/3	1100.00

HI-FI VCRs

MANUFACTURER	Model	Frequency Response, Hz to KHz, \pm dB	Audio S/N Ratio, dB, re: 0 dB	THD, %	Separation, dB, at 1 KHz	Simulcast Recording?	Dynamic Range, dB	Wow & Flutter, Wtd Peak, %	Dolby Noise Reduction on Standard Tracks?	Signal Broadcast/TV (MS, SAP) Capability: Built into Tuner & Baseband Jack = J	Programmability: Number of Days/Number of Events	Total Number of Channels (Broadcast Plus Cable)	Audio Dubbing?	Phone Jack?	Volume Control on Phone Jack?	Format	Number of Tape Speeds, Record/Play	Price, \$
NEC	VC-N70	20-20 \pm 3	80	0.3	60	Yes	80		J	21/8	134	Yes	Yes	Yes	Beta	2/2	999.00	
	VC-N65	20-20 \pm 3	80	0.3	60	Yes	80		J	7/3	105	Yes	Yes	Yes	Super Beta	3/3	750.00	
	N-961	20-20 \pm 3	80	0.3	60	Yes	80	Yes	B	21/8	140	Yes	Yes	No	Beta VHS	3/3		
PANASONIC	PV-1442	20-20 \pm 3	80	0.02	60	Yes	80	0.005	No	B	14/4	99	Yes	Yes	Yes	VHS	3/3	750.00
	PV-1545	20-20 \pm 3	80	0.02	60	Yes	80	0.005	No	B	14/4	99	Yes	Yes	Yes	VHS	3/3	875.00
	PV-1740	20-20 \pm 3	80	0.02	60	Yes	80	0.005	No	B	21/8	169	Yes	Yes	Yes	VHS	3/3	1300.00
	PV-9600A (Portable)	20-20 \pm 3	80	0.02	60	Yes	80	0.005	No	B	14/8	139	Yes	Yes	No	VHS	3/3	1350.00
PENTAX	PV-T100A	20-20				No	80	0.005 wrms	No	J	14/4	107	No	Yes	Yes	VHS	3/3	
	PV-R2200A	20-20				Yes	80	0.005 wrms	No	B	365/8	133	Yes	Yes	No	VHS	3/3	
PIONEER ELECTRONICS	VH-600	20-20	80		60	Yes	80	0.005	No	J	14/4	107	Yes	Yes	Yes	VHS	3/3	999.95
PIONEER VIDEO	VX-90	20-20				Yes	80	0.005	No	B	21/8	181	Yes	Yes	Yes	Super Beta	2/3	1500.00
	VX-50	20-20				Yes	80	0.005	No	B	7/6	118	Yes	Yes	No	Super Beta	2/3	800.00
	VH-600	20-20	80		60	Yes	80	0.005	No	J	14/4	107	Yes	Yes	Yes	VHS	3/3	
QUASAR	VHS346XE	20-20			60	Yes	80	0.005	Yes	No	14/4	107	Yes	No		VHS	3/3	829.95
	VHS355YE	20-20			60	Yes	80	0.005	No	J	14/4	107	Yes	No		VHS	3/3	
	VHS655YE	20-20			60	Yes	80	0.005	No	J	14/4	107	Yes	No		VHS	3/3	
	VHS846XE	20-20			60	Yes	80	0.005	Yes	B	14/8	139	Yes	Yes		VHS	3/3	999.95
	VHS857YE	20-20			60	Yes	80	0.005	No	B	21/8	169	Yes	No		VHS	3/3	1299.95
	VP5747 (Portable)	20-20			60	Yes	80	0.005	No	No	14/8	139	Yes	No		VHS	3/3	1495.00
RCA	VLT600HF	20-20 \pm 3	73		60	Yes	80	0.005	No	J	14/5	107	No	Yes	Yes	VHS	3/3	
	VLT625HF	20-20 \pm 3	73		60	Yes	80	0.005	No	J	14/5	107	No	Yes	Yes	VHS	3/3	
	VLT650HF	20-20	73		60	Yes	80	0.005	No	J	365/9	107	Yes	Yes	Yes	VHS	3/3	
	VLP950HF (Dockable)	20-20 \pm 3	73		60	Yes	80	0.005	No	J	365/9	107	Yes	Yes	No	VHS	3/3	
	VLP970HF (Dockable)	20-20	73		60	Yes	80	0.005	No	B	365/9	133	Yes	Yes	No	VHS	3/3	
	Dimensia VLT700HF	20-20	73		60	Yes	80	0.005	Alt.	J	365/8	133	Yes	Yes	Yes	VHS	3/3	
	Dimensia MVR97HF	20-20	73		60	Yes	80	0.005	No	B	365/9	133	Yes	Yes	No	VHS	3/3	
REALISTIC	40								Yes	B	14/3	105	Yes	Yes		VHS	3/3	699.95
	22								No	B	14/8	105	Yes	No		Beta	2/2	499.95
SANSUI	SV-R9900HF	20-20			60	Yes	80	0.005	Yes	No	14/8	139	Yes	Yes	No	VHS	3/3	1299.00
	SV-R9700HF	20-20			60	Yes	80	0.005	No	B	14/8	178	Yes	Yes	No	VHS	3/3	999.00
SANYO	VCR 7200	20-20	65	0.04	62	Yes	80	0.02	No	No	14/8	105	No	No	No	Beta Super Beta	2/2	599.95
	VCR 7250	20-20	65	0.04	62	Yes	80	0.02	No	No	14/8	105	No	No	No	Beta Super Beta	2/2	679.95
	VCR 7500	20-20	65	0.04	62	Yes	80	0.02	No	B	14/8	105	Yes	Yes	Yes	Beta	2/2	749.95
SEARS ROEBUCK	5342	15-20 \pm 3	82	0.5	57	Yes	82	0.005	No	J	14/4	107	No	No		VHS	3/3	850.00
SHARP	VC-5F5U	20-20 \pm 3		0.3	60	Yes	80	0.005	No	J	14/3	108	No	Yes	Yes	VHS	3/3	999.95
	VC-5F7U	20-20 \pm 3		0.3	60	Yes	80	0.005	Yes	J	14/5	108	No	Yes	Yes	VHS	3/3	
	VC-489U	20-20 \pm 3		0.3	60	Yes	80	0.005	Yes	No	14/8	142	Yes	Yes	Yes	VHS	3/3	1399.95
SONY	SL-HF900	20-20 +1,-3		0.3	60	Yes	80	0.005	No	B	21/8	181	Yes	Yes	Yes	Super Beta	3/3	1495.00
	SL-HF600	20-20 +1,-3		0.3	60	Yes	80	0.005	No	B	7/6	181	No	No		Super Beta	3/3	1000.00
	SL-HF400	20-20 +1,-3		0.3	60	Yes	80	0.005	No	B	7/6	118	No	No		Super Beta	3/3	800.00
	SL-HF300	20-20 +1,-3		0.3	60	Yes	80	0.005	No	J	7/6	107	No	Yes	Yes	Super Beta	2/3	700.00
	EV-5700U Video 8	20-20 +1,-3	88			Yes	88	0.005	No	B	21/8	181	Yes	Yes	Yes	8mm	2/2	1395.00
SYLVANIA	VC2976GY	20-20	80	0.5	40	Yes	80	0.005	No	J	14/4	107	Yes	Yes	Yes	VHS	3/3	849.95
	VC4546SL	20-20	80	0.5	40	Yes	80	0.005	No	No	14/8	139	Yes	Yes	No	VHS	3/3	1399.95
	VC3645GY	20-20	80	0.5	40	Yes	80	0.005	No	B	21/8	169	Yes	Yes	Yes	VHS	3/3	1199.95
TEAC	MV 800	20-20	80			Yes	80	0.005	No	B	14/8	178	Yes	Yes	Yes	VHS	2/3	1400.00
	MV 1000	20-20	80			Yes	80	0.005	Yes	No	14/8	139	Yes	Yes	Yes	VHS	2/3	1400.00
VECTOR RESEARCH	V-4000	20-20 \pm 2		0.05	60	Yes	80	0.005	Yes	B	21/4	105	Yes	Yes	Yes	VHS	3/3	599.00
	V-5000	20-20 \pm 2		0.05	60	Yes	80	0.005	Yes	B	21/8	140	Yes	Yes	Yes	VHS	3/3	799.00
YAMAHA	YV-1000	20-20 +0,-3	80	0.015	80	Yes	80		No	B	14/7	181	Yes	Yes	Yes	VHS	3/3	1000.00
ZENITH	VR3100	20-20		0.8	60	Yes	80	0.008	No	No	14/8	178	Yes	Yes	Yes	VHS	3/3	699.95
	VR3200	20-20		0.8	60	Yes	80	0.008	No	B	14/8	178	Yes	Yes	Yes	VHS	3/3	799.95

CROSSOVERS

MANUFACTURER	Model	Type: Active=A, Passive=P, Combined Active & Passive=C	Into How Many Bands	Crossover Slope(s), dB Per Octave	Does Unit Divide Spectrum?	Independent High and Low-Pass Frequency Selection?	Frequency Adjustment: Switchable=S, Continuously Variable=V, Plug-in Modules=P	Crossover Frequency(s), Hz	Subwoofer Outputs: Stereo=S, Mono=M	Level Controls: High-Pass=H, Midrange=M, Low-Pass=L (00: Total Number of Controls)	S/N Ratio, dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes	
ACCUPHASE	F-15	A	2	12/18	Yes	P†		70-12.5k		HML	100	0.01		50k	100	1250.00	†Additional cost.	
ACE AUDIO	5000	A	3	18	Yes			†		MB	L	90	0.002	1.0	50k	100	161.00	†100 Hz standard, other frequency (from 40 to 200 Hz) available; kit, \$120.00.
	5000-6	A	2	†	Yes			††		MB	L	90	0.002	1.0	50k	100	161.00	16-dB slope on satellites, 18 dB on woofer; †† crossover frequency as above.
	6500-DSB	A	2	12	Yes	P		40-199		SM	H/L	90	0.002	1.0	100k	100	156.00	Stereo.
	6000	A	2	12	Yes	P		200-18k		H/L	90	0.002	1.0	100k	100	156.00		
	6000-6	A	1	6	Yes	P		40-18k		S/M	H/L	90	0.002	1.0	50k	100	175.00	18 dB/octave subsonic filter.
	6000-6-SF	A	1	6	Yes	P		40-18k		S/M	H/L	90	0.002	1.0	50k	100	200.00	
	6000-SF	A	2	12	Yes	P		200-18k		H/L	90	0.002	1.0	100k	100	181.00		
5000-SF	A	3	18	Yes			†		MB	L	90	0.002	1.0	50k	100	186.00	As above.	
6500-SF	A	2	12	Yes	P		40-199		SM	H/L	90	0.002	1.0	100k	100	181.00	†100 Hz standard, other frequency (from 40 to 200 Hz) available; as above.	
ACOUSTIC ELECTRONICS	C-100	A	2	24	No			100		M	L	90		0.75	47k	50	295.00	Low pass; phase inversion; phase-shift (continuous) test tone.
	C-100M	A	2	6	No			100		M	L	90		0.75	47k	50	195.00	Mono; low-pass; phase inversion.
ATC	3 Way	A	3	24	Yes	P				HML						1695.00	Adjustable phase, gain, L-R reverse, and mute.	
AUDIO CONCEPTS	Shadow MK IV	C	2	18.6	Opt.	P		Opt.		SM	L						349.00	Kit, \$249.00.
	Shadow Limited ED	A	2	18.6	No			Opt.		SM	L						449.00	Kit, \$289.00; amplitude and phase correct.
AUDIO CONTROL	Phase Coupled Activator	A	2	18	No	P		20-20k, Sel.		S	HL	120	0.005	1.0	100k	150	259.00	Proprietary Sound Restoration circuits.
AUDIO RESEARCH	EC21	C		6/18	Yes	†				M	L	90	0.01	0.75	50k	500	795.00	†Internally adjustable; tube.
BGW SYSTEMS	20	A	3†	18	Yes	SP		10-300, 100-19k		M	5	91	0.02	0.1	15k	22	829.00	†Also operates as 4-way mono unit; balanced line; 10-Hz filter.
	Xover 1	A	2	18	No	S		100-8k		M	No	100	0.02	1.0	15k	150	99.00	Accessory p.c. board for power amps; requires ±16 to ±100 V.
BOZAK	N-106	A		6	Yes	P		400				95	0.04	0.75	50k	10k	229.00	
BROOKE SIREN SYSTEMS	FDS320	A	2	†	Yes	P		15-20k		HL	90	0.01		10k	50	850.00	†Choice of 6, 12, 18, or 24 dB/octave; stereo.	
	FDS340	A	4	†	Yes	P		15-20k		4	90	0.01		10k	50	895.00	Mono.	
CASCADE AUDIO SYSTEMS	CX-24	A	2	6/24	Yes	S		50, 100		SB	HL	93	0.005	0.45	150k	510	300.00	Noninverting.
	LP-12	A	1	12	No			†		S	L	90	0.0075	0.5	150k	510	150.00	†100 Hz standard, other frequency available; low-pass only; optional summing network, Model SUM-21, \$45.00.
DB SYSTEMS	DB-3-12	A	2†	12†	Yes			Opt.		S†	HML	95	0.0008	1	90k	1.4k	†	†Options: 3 sections, 6 dB/octave slope, mono and bridged mono subwoofer outputs; Model DB-3-18, 18 dB/octave slope, same options; Model DB-3-24, 24 dB/octave slope, same options but 2 sections only; all models require DB-2A power supply or DBP-1 cable; prices for each, \$310.00 to \$1150.00. With DB-2A power supply.
	DBR-3XL	A	2	18	No	S		50, 70, 100, 150		SM	HL	86	0.0008	1	90k	1.4k	680.00	
DNL SOUND	2X12	P	2	12				†									19.95	†3.5 kHz standard, other frequency available; mono unit.
	3X612	P	3	6/12				900, 5k									29.95	Mono unit.
	312XL	P	3	12/12				900, 5k									36.95	As above.
	SB12	P	2	12				†									29.95	†Choice of 100, 125, or 150 Hz; as above.
DUNTECH	Thor	A	2	6	No			110		SMB	L						195.00	Minimum phase; for use with Thor subwoofer.
ESSENCE	LL-2	P	2	6	Yes	P		Opt.		S	HL						385.00	
FOCAL	EC 1000	A	3	24	Yes	S		95/130/390-2.5k/3.9k-5.5k		S	No						Kit, 200.00	Stereo.
	F600	P	3	24	Yes			350, 4.1k									Kit, 80.00	
	F95	P	2	12/6	Yes			95		S	No						Kit, 45.00	
GSI	X-1-2	P	2	12	Yes	P		20-20k		SM	HL	88		1	100k	20k	250.00	Kit or assembled.
	X-1-3	P	3	12	Yes	P		20-20k		SM	HML	88		1	100k	20k	325.00	As above.

CROSSOVERS

MANUFACTURER	Model	Type: Active - A, Passive - P, Combined Active & Passive - C	How Many Bands Does It Divide Spectrum?	Crossover Slope(s), dB per Octave	Independent High and Low-Pass Frequency Selection?	Frequency Adjustment Continuously Variable - Y	Crossover Frequency(s), Hz	Subwoofer Outputs: Stereo - S, Mono - M, Inverted for Mono Bridging - B	Level Controls: High-Pass - H, Midrange - M, Low-Pass - L (Or Total Number of Controls)	S/N Ratio, dB	Distortion, %	Nominal Input Level, V	Input Impedance, Ohms	Output Impedance, Ohms	Price, \$	Notes
JANIS	Interphase 1a 60-18	A	2	18	No		100	M	L	98	0.01	0.6	200k	100	675.00	Integral 100-watt bass amp.
		C	2	6/18	No		63	M	L	98	0.01	0.6	200k	100	395.00	As above but 60 watts.
JRM	3PBP	A	4	18	Yes	P	15-2k, 15-20k, 150-50k	SMB	4†	105	0.01	Sel.	100k	51	750.00	†1.5 dB/step attenuators; infrasonic and ultrasonic filters.
KRELL	KRX	A	3	6/12	Yes	P			HML	100	0.001	1	100k	100k	1400.00	
MARK LEVINSON	LNC-2	A	3	Opt.	Yes	P	50-18k	S/M	HL	100	0.01	1	10k	200	2785.00	
L T SOUND	ECU-2	A	3	12	No	V	70-11k	SM	HML	94	0.007	0.75	47k	47	295.00	
MONOLITHIC	SX ABX	C	2	6/18	Yes	SP	60-2k	SMB	L	100	0.005	1	100k	160	299.00	
		A	2	6, 18/36	Yes	S	60-120	SMB	L	100	0.005	1	100k	160	399.00	
NAIM AUDIO	NAX03-6	A	3	18	No	P	375, 3k								595.00	
NEI	321	A	†	18	Yes	V	100-1.6k, 1k-16k	S	HL	90	0.01		33k	††	375.00	†Usable as stereo 2-way or mono 3-way; †† balanced, 600 ohms; unbalanced, 300 ohms.
NESTROVIC LABS	NL12	A	3	12/18	No		200, 1k, 7k	S	HML	90	0.01	1	50k	100	660.00	
NUMARK	EC2800	A	3	6/12	Yes	S	70-800, 1.2k-10k		HL	100	0.005		40, 100k	25k	399.95	
PEAVEY ELECTRONICS	V4X	A	4	18	Yes	V	20-400, 200-4k, 1k-20k	M	4	100	0.05	3	20k	150	399.00	Subsonic and ultrasonic filters; balanced inputs and outputs.
RH LABS	ABX-4 PAS-3	A	2	†	Yes	S	60, 80, 100, 120	SMB	L	90	0.01	1	50k	100	389.00	†High-pass, 6 dB/octave; low-pass, 18 dB in stereo and 18 or 36 dB in mono; unit can be bypassed for full-range use.
		P	2	6	Yes	P	Sel.	SM						100.00	For use with SB-3 and SB-4 subwoofers.	
SIDEREAL AKUSTIC	Sidereal/Jordan Kit #1 Sidereal/Jordan Kit #2	P	2	12/18	No		150	M							Kit, 279.00	Mono.
		P	2	12/18	No	P	150	M							Kit, 139.00	As above.
SNELL ACOUSTICS	Type II Type III	A	2	6	Yes	P	Var.		HL						475.00	Optimum phase response; for Snell Type A-II speakers.
		A	2												525.00	For Snell Type A-III speakers.
STRELIOFF	EX 1	C	4	6/12	Yes	P	Sel.	S	4	97	0.01	1.0	50k	75	2000.00	Factory order only.
THRESHOLD	PCX one	C	2	†	Yes	V	75-1.5k	B	HL	90	0.02		47k	470	1290.00	†Low-pass, 24 dB/octave; high-pass, selectable, 6/12/18/24 dB; phase coherent.
ULTRAPHONICS	U2CX U3CX	P	2	12/18			3k			90					150.00	
		P	3	12/12, 12/18			700, 4k								Pair 200.00	Pair
VANDERSTEEN AUDIO	WX-4 WXA-4	C	2	6	Yes		80	S	L	90	0.001	1	100k	100	400.00	For use with Model 4 loudspeaker.
		C	2	6	Yes		80	S	L	90	0.001	1	100k	100	1500.00	As above; 200-watt integral amp.
VENETTA RESEARCH	TPC-1	A	2	6/12	No	V	60-300	S	L	100	0.01	1	24k	100	450.00	
VMPS	2 (TPC-1) The Passive Crossover	A	2	6/12	Yes	V	60-300	S	L	100	0.01		24k		449.00	
		P	2	6/12	No		100	M	H				8	4 or 8	40.00	For use with VMPS subwoofer.
WESTLAKE AUDIO	MRX-2 HR-1X HR-7X	A	2	24	No	P	75-10k	No	HL	113	0.003	0.775	10k	500	2050.00	Stereo.
		A	4	24	No		250, 1k, 4k	No	4	110	0.003	0.775	10k	100	4050.00	As above.
		A	4	24	No		400, 1.6k, 7.5k	No	4	110	0.003	0.775	10k	100	3850.00	As above.

"The large Tiptoes, placed under loudspeakers, offer a truly dramatic improvement in sound quality, not merely a subtle difference."

Audio Magazine

"The use of Tiptoes will increase the clarity, inner resolution and detail, and dynamic range of almost any audiophile system."

Sensible Sound



The perfect platforms for your high quality components from

*The
Mod Squad
Inc.*

Enter No. 45 on Reader Service Card

Specialists in the Art of Musical Reproduction

CUSTOMERS SAY:

"The LS3/5A kit is simply everything you say it is! The improvements are immediately obvious. Congratulations on this notable achievement: taking a fine product and making it an order of magnitude better!"

"People at The Mod Squad really know what they are doing. It sounded like I had just spent \$2500 instead of \$290."

"Thank you once again for directing me into the next dimension of true musical reproduction! All the improvements that you suggested have made a tremendous difference in my system."

"I didn't want to spend \$15 for your Tiptoes' Cartridge Coupler, but the improvement it made in my system was worth \$200."

"I feel the heartiest congratulations are in order. It is rare to find any group, in any field, which is so clearly ahead of the competition."

"Your modifications to the QUAD 405s and 63s have provided me with the most musically pleasing system I have experienced to date. The amps are marvelous!"

AUDIO REVIEWERS SAY:

"To sum up, I can strongly recommend trying Tiptoes under speakers placed on a rug."

"... we strongly recommend this modification. It will restore the Linn Ittok to that selected inner circle of world-class tonearms."

"The binding post modification sounds small, but it isn't. As for the input capacitor bypass, buy The Mod Squad QUAD 63 kit."

"Placement of Tiptoes underneath my turntable produced a dramatic improvement convincing me to sell the 'springy' style base I had been using."

"I installed The Mod Squad power supply for the Oracle Delphi and bingo! Improved focus, dynamics, imagery, more extended top and bottom."

"Linn Sondek owners sit up and take note that Tiptoes will dramatically improve your system's front-to-back depth and tighten the bass response."

"The Mod Squad QUAD 405s are so good I may order a pair." [He did!]

The Mod Squad, founded on the principles of real value—improvement gained per dollar spent—and customer satisfaction, offers a unique portfolio of products and services. Call today (619/436-7666) and ask what we can do for your system, or send \$2 (refundable with order) for a complete catalog to The Mod Squad, Department D, 542 Coast Highway 101, Leucadia, CA 92024.

MANUFACTURING

Tiptoes, Line Drive System Control Center, Tiptoes' Cartridge Coupler, Compact Disc Damper, Triplanar Tonearm, Phoenix Preamp, Phoenix Cables, Regulated Power Supplies, Tonearm Termination Boxes, Gyrodek Power Supply

MODIFYING

Mission, Meridian and Magnavox Compact Disc Players, QUAD 405 Amplifiers and 63 Speakers, Ittok, Premier MMT, Mission 774, SME III and Zeta Tonearms, Rogers LS3/5A and Studio I Speakers, and custom modifications for selected components

*The
Mod Squad
Inc.*

542 Coast Highway 101, Leucadia, CA 92024 • (619) 436-7666

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, inches	Midrange Diameter, inches	Midrange Type	Tweeter Diameter, inches	Tweeter Type	Separate Low Control? W = Woofer, M = Midrange, T = Tweeter, S = Super-tweeter	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, \$
AAL	D3500	Vented	8			2 1/2	Piezo Horn		60-20 ± 3	94.5	5	3k	8/4	19 x 11 x 8	Wal. Vinyl	Brown Knit	38 Pair	169.95
	D4500	Vented	10	5	Cone	2 1/2	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
	D5500	Vented	12	5	Cone	2 1/2, 3	Piezo Horn, Cone		43-22 ± 3	96.5	5	1.7k.6k, 15k	8/4	27 x 16 x 10	Wal. Vinyl	Brown Knit	40	349.95
	D9500	Vented	12	(2)5	Cones	2 1/2, 3	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
ACCULAB	550	Pas. Rad., Vented	(2)12	3 3/8	Cone	2 1/2, 2 3/4			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
	450	Ac. Sus.	12	3 3/8	Cone	2 1/2, 2 3/4			32-25	92.5	5	1.5k, 7.5k, 10k	8/	15 x 11 x 32	Wal. Vinyl	Black Knit	45	249.00
	350A	Ac. Sus.	12	3 3/8	Cone	2 1/2			36-18.5	92	5	1.5k, 10k	8/5	14 x 11 x 26	Wal. Vinyl	Black Knit	39	199.00
	330	Ac. Sus.	10	3 3/8	Cone	2 3/4			40-18.5	91	5	2k, 10k	8/5	13 x 11 x 22	Wal. Vinyl	Black Knit	28	149.00
	230	Ac. Sus.	8	3 3/8	Cone	2 3/4			50-18.5	90	5	2.5k, 10k	8/5	11 x 7 x 21	Wal. Vinyl	Black Knit	20	119.00
ACDUSTAT	One	ES Sat. & Subwoof.	10				ES	T	30-18 ± 3	75	150	4/3	Three Pieces	Teak	Beige	180 Sys.	1249.00	
	One + One	ES					ES	T	30-20 ± 2	70		4/3	93 x 11 x 4	Teak	Beige	144 Pair	1549.00	
	Three	ES					ES	T	30-20 ± 2	70		4/3	72 x 28 x 4	Teak	Beige	196 Pair	1999.00	
	Two + Two	ES					ES	T	28-20 ± 2	50		4/3	93 x 20 x 4	Teak	Beige	200 Pair	2399.00	
	Six	ES					ES	T	26-20 ± 2			6/3	93 x 28 x 4	Teak	Beige	340 Pair	4149.00	
	Eight	ES					ES	T	24-20 ± 2			6/3	93 x 36 x 4	Teak	Beige	440 Pair	5199.00	
ACDUSTICAL PHYSICS LABS	Free Field I	Trans. Line Servo	15	8	Cone	3/4	Ribbon	W.M. T	25-30 ± 2	91	200	120.2k Elect.	8/6	20 x 48 x 48	Black		250	14,800.00
	Free Field II	Trans. Line Servo	30	8	Cone	3/4	Ribbon	W.M. T	20-30 ± 2	91	350	100.2k Elect.	8/6	24 x 48 x 60	Black		400	19,800.00
ACDUSTIC ELECTRONICS	AQ200	Servo Subwoof.	12						25-150 ± 1.5		250 Inc.			17 Dia. x 21	Dpt., Knit		40	995.00
ACDUSTIC INTERFACE	Angstrom	Ac. Sus.	6 1/2			1	Dome		78-20 ± 2.5	90	15	5k	8/6	13 x 7 x 6	Black Enam.	Black Cloth	10	110.00
	Tremor	Vented Subwoof.	2(12)					M.T	29-200 ± 2.5	95	15	100	8/6	62 x 26 x 16	Diled Wal.	Black Cloth	150	1090.00
	Shadow	Ac. Sus.	8			1	Dome		69-20 ± 2.5	91	15	5k	8/6	25 x 9 x 9	Black Cloth	Black Cloth	18	145.00
	Intimate	Ac. Sus.	10			1	Dome	T	49-20 ± 2.5	93	15	5k	8/6	19 x 12 x 12	Diled Wal.	Black Cloth	29	245.00
	Transcendant	Vented	12	1 1/4	Dome	1 1/4	Dome	M.T	38-20 ± 2.5	94	15	1.9k	8/6	24 x 16 x 14	Diled Wal.	Black Cloth	51	390.00
	Professional Series II	Vented	12	2	Dome	1	Dome	M.T	29-20 ± 2.5	95	15	800.6.6k	8/6	36 x 16 x 19	Diled Wal.	Black Cloth	80	890.00
	Studio Reference	Vented	12	4x15	Horn	2x5 1/2	Horn	M.T	22-20 ± 2.5	98	15	880.5k	8/6	48 x 16 x 19	Diled Wal.	Black Cloth	102	1290.00
	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	Diled Wal.	None	175	2500.00
Sound Prism	Triamped, Vented	24x52	13x22	Horn	3x7 1/4	Horn	M.T	10-20 ± 1	105	100, 300, 800, Inc.	550.5k	8/6	72 x 27 x 36	Diled Wal.	None	1000 Pair	25,000.00	
ACDUSTIC RESEARCH/AR	AR8BX	Ac. Sus.	6		Cone	1	Dome		62-25	87	10	4k	8/5.6	15 x 10 x 7	Vinyl Ven.	Black	14.5	200.00
	AR18BX	Ac. Sus.	8		Cone	1	Dome		52-25	87	10	3k	8/6.2	17 x 11 x 8	Vinyl Ven.	Black	17.5	260.00
	AR28BX	Ac. Sus.	8		Cone	1	Dome		42-22	89	10	1.8k	8/5	27 x 13 x 10	Vinyl Ven.	Black	35	400.00
	AR38BX	Ac. Sus.	8	4	Cone	3/4	Dome		52-32	88	10	650, 3.5k	6/4.5	22 x 13 x 7	Vinyl Ven.	Black	27.5	440.00
	AR48BX	Ac. Sus.	10	4	Cone	3/4	Dome		45-32	88	15	400, 3.5k	6/4.5	27 x 13 x 10	Vinyl Ven.	Black	38.3	570.00
	AR58BX	Ac. Sus.	12	4	Cone	3/4	Dome		39-32	90	15	600, 4.5k	4/3.6	30 x 14 x 10	Vinyl Ven.	Black	48.2	720.00
	AR98LSi	Ac. Sus.	12	1 1/2, 8	Dome, Cone	3/4	Dome		39-32	87	15	200, 1.1k, 7.5k	4/2.8	30 x 16 x 10	Diled Wal.	Black	63	1190.00
	AR9LSi	Ac. Sus.	12, 10	1 1/2, 8	Dome, Cone	3/4	Dome		28-32	87	15	200, 1.1k, 7.5k	4/2.8	51 x 19 x 15	Diled Wal.	Black	120	1950.00
ACDUSTIC RESEARCH/CDNDISSSEUR	19	Ac. Sus.	6			1	Dome		62-22	87	10	3.5k	8/5.8	16 x 10 x 7	Vinyl Ven.	Black	14 1/2	250.00
	20	Ac. Sus.	8			1	Dome		52-22	87	10	3k	8/5.8	18 x 11 x 8	Vinyl Ven.	Black	19	320.00
	30	Ac. Sus.	10			1	Dome		46-22	88	10	1.8k	8/6.3	29 x 14 x 9	Vinyl Ven.	Black	34 1/2	460.00
	Subwoofer	Subwoof.	(2)10							87	15	150 Max.	4/3.6	30 x 18 x 16	Vinyl Ven. Diled Wal.		70	500.00
ACDUSTIC RESEARCH/RESEARCH SERIES	MGC-1 Magic Speaker	Ac. Sus.	(2)8	6, (2)4, 1 1/2	Cones, Dome	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 Pair/ 7100.00 Pair

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches			Separate Level Controls W = Woofer, M = Midrange, T = Tweeter, ST = Super Tweeter	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, \$
ADS	L200-B	Ac. Sus.	4			1		Dome			85-20 ± 3	88	10	2.5k	4/3	7 x 4 x 5	Opt., Alum.	Black Steel	9 Pair	259.00		
	L300	Ac. Sus.	5 1/4			1		Dome			65-20 ± 3	89	10	2.5k	4/3.2	9 x 6 x 7	Opt.	Black Steel	16 Pair	349.00		
	L400	Ac. Sus.	7			1		Dome			60-20 ± 3	90	10	2k	4/3.2	12 x 8 x 8	Opt.	Black Steel	22 Pair	399.00		
	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	319.00		
	L570 Series 2	Ac. Sus.	8			1		Dome			46-20 ± 3	88	15	1.8k	8/5	20 x 12 x 11	Opt.	Black Steel	50 Pair	439.00		
	L780 Series 2	Ac. Sus.	8 1/4	1 1/2	Dome	3/4	Dome	T			42-27 ± 3	88	15	650.5k	8/5	21 x 12 x 11	Opt.	Black Steel	64 Pair	639.00		
	L880 Series 2	Ac. Sus.	10	2	Dome	3/4	Dome	T			40-27 ± 3	89	15	550.5k	8/4.5	23 x 13 x 12	Opt.	Black Steel	82 Pair	799.00		
	L980 Series 2	Ac. Sus.	12	2	Dome	3/4	Dome	T			25-27 ± 3	90	15	400.5k	8/5	27 x 15 x 13	Opt.	Black Steel	112 Pair	1099.00		
	L1090 Series 2	Ac. Sus.	(2)7 1/2	2	Dome	3/4	Dome	T			44-27 ± 3	89	15	550.5k	8/5	37 x 10 x 11	Opt.	Black Steel	110 Pair	1039.00		
	L1290 Series 2	Ac. Sus.	(2)8 1/4	2	Dome	3/4	Dome	T			40-27 ± 3	90	15	500.5k	8/5	42 x 11 x 12	Opt.	Black Steel	146 Pair	1299.00		
	L1590 Series 2	Ac. Sus.	(2)10	2	Dome	3/4	Dome	T			28-27 ± 3	90	15	350.5k	8/5	47 x 12 x 14	Opt.	Opt., Black	206 Pair	2749.00		
ADVANCED ELECTRO-DYNAMIC SYSTEMS	Merlin	Pas. Rad.	9			2 Dia. x6		Cyl.			30-20 ± 4	89	40	1.5k	8/4	12 x 15 x 28	Cloth	Opt., Knit	45 Pair	1400.00		
	Prospect	Ported	8			2 Dia. x6		Cyl.			35-20 ± 4	89	40	1.5k	8/5	10 x 11 x 43	Cloth	Opt., Knit	42 Pair	995.00		
ADVENT	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 Pair	198.00		
	Prodigy	Sealed	8			3/4		Dome			48-22 ± 3	87	10		8/6	22 x 13 x 9	Pecan	Black Knit	44 Pair	299.00		
	6003	Sealed	10	2 1/2	Dome	1		Dome			40-22 ± 2.5	88.5	10	750.4.5k	8/5	32 x 22 x 8	Wal.	Black Knit	110 Pair	760.00		
AKAI	SW-A90	Pas. Rad.	10	4	Flat Diaph.	1		Flat Diaph.	T		30-40		10		8/	30 x 13 x 12	Wal. Vinyl	Black Knit	34.6	449.95		
	SW-A70	Bass Ref.	12	1 1/2	Dome	1/2		Dome	T		30-35	90	10		8/	27 x 15 x 12	Wal. Vinyl	Black Knit	33.1	399.95		
	SR-LA301	Ac. Sus.	12	4	Cone	3		Cone			36-20	90	10		8/	15 x 27 x 13	Wal. Vinyl	Black Knit	33.1	269.95		
	SR-LA201	Ac. Sus.	10	4	Cone	3		Cone			40-20	90	10		8/	13 x 26 x 11	Wal. Vinyl	Black Knit	25.4	199.95		
	SR-LA101	Ac. Sus.	8	4	Cone	3		Cone			45-20	90	10		8/	12 x 24 x 10	Wal. Vinyl	Black Knit	22.1	179.95		
	SW-M40	Inf. Baf.	7			1 1/2		Cone			50-25	88	10		8/	8 x 15 x 8	Black	Metal	39 Pair	179.95		
	SW-M30	Bass Ref.	5			2		Cone			50-25	88	10		8/	8 x 15 x 7	Black	Black Metal	29 Pair	149.95		
	ALLISON ACOUSTICS	One	Ac. Sus.	(2)10	(2)3 1/2	Cones	(2)1		Cones	M, T		87	30	350,3.75k	8/6.5	40 x 19 x 11	Oiled Wal.	Black Plas.	67	650.00		
Two		Ac. Sus.	(2)8	(2)3 1/2	Cones	(2)1		Cones	M, T		87	30	350,3.75k	8/6.5	36 x 16 x 9	Oiled Wal.	Black Plas.	57	550.00			
Three		Ac. Sus.	10	3 1/2	Cone	1		Cone	M, T		87	30	350,3.75k	4/3.5	40 x 15 x 10	Oiled Wal.	Black Plas.	45	435.00			
Four		Ac. Sus.	8			(2)1		Cones	T		87	30	2k	8/6.5	11 x 19 x 10	Oiled Wal.	Black Plas.	24	300.00			
Five		Ac. Sus.	8			1		Cone			87	15	2k	4/3.5	11 x 18 x 10	Oiled Wal.	Black Plas.	21	215.00			
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	Wal. Vinyl	Black Plas.	16 1/2	130.00			
120	Ac. Sus.	8			1		Cone			87	15	2k	4/3.5	22 x 14 x 8	Wal. Vinyl	Black Plas.	21 1/4	160.00				
ALTA	Altamate	Ported	6 1/2			1		Dome			45-22 ± 3	89	20	3.2k	8/5	22 x 9 Dia.	Opt.	Opt.	14	399.00		
	7	Ported	8			1		Dome			35-22 ± 2	91	20	2.7k	4/3	44 x 12 x 9	Opt.	Opt.	24	695.00		
	6	Ported	8	4 1/2	Cone	3/4		Dome			35-26 ± 2	90	30	250,4.7k	4/3	48 x 12 x 9	Opt.	Opt.	27	945.00		
	5	Ported	2(8)	(2)4 1/2	Cones	3/4		Dome			28-26 ± 2	91	50	250,4.7k	4/3	91 x 14 x 9	Opt.	Opt.	53	1395.00		
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		
	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		
	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		
	BM	Ac. Sus.	(2)10			(2)		Ribbons			34-125	92	10	125	8/4	21 x 30 x 16	Koa	Brown Knit	65	339.95		
	Trident	Ac. Sus. 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 Sys.	599.95		

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Low Cutoff? W=Woof, M=Midrange, T=Tweeter, S=Superwoofer	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, \$
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	Opt.	290 Pair	3500.00 Pair	
	Apogee	Ribbon Dipole	12x80	2x80	Ribbon	1/2x80	Ribbon	T	30-20	Bi-Amp 100/100	400,3.5k	4	35 x 80 x 4	Suede Paint	Opt.	600 Pair	6600.00 Pair	
	Ouetta	Ribbon Dipole	12x47	8x47	Ribbon			T	30-20	80	600	4/3	25 x 57 x 3	Suede Paint	Opt.	225 Pair	2300.00 Pair	
ATC	SCM50	Bass Ref.	9	3	Dome	1 1/2	Dome		30-20 ±2	84	50	400.5k	8/	28 x 12 x 13	Opt.		90	2695.00 Pair
	SCM100	Bass Ref.	12	3	Dome	1 1/2	Dome		28-20 ±1.5	87		350.5k	8/	33 x 16 x 17	Opt.		115	3295.00 Pair
AUDIO CONCEPTS	Quartz J	Trans. Line	6 1/2			1	Dome		52-20 ±3	87	30	2k	8/5	38 x 12 x 13	Opt.	Black	55	Kit, 479.00
	Quartz	Trans. Line	6 1/2	2		1	Dome		52-20 ±3	87	30	900.4k	8/5	38 x 12 x 13	Opt.	Black	60	Pair Kit, 679.00
	JCRS Subwoofer	Compound	2(12)						20-500 ±3	91	30		4/3	21 x 34 x 20	Oiled Oak	Black	120	Pair Kit, 879.00
	Gold 3.0	Ribbon		1x30	Ribbon				200-30	86	30		2/2	30 x 5 x 2	Black Nxtl. Opt.		20	Pair Kit, 1000.00
	MOD C	Sealed	8			1	Dome		50-20 ±3	89	20	2.2k	8/6	19 x 12 x 11	Opt.	Brown	26	Pair Kit, 200.00
	MOD G	Aperiodic	10	5	Cone	1	Dome		42-20 ±3	91	20	700.4k	8/6	29 x 14 x 13	Opt.	Black	45	Pair Kit, 329.00
	Vanguard	Aperiodic	9			1	Dome		44-20 ±3	90	25	2k	8/5	29 x 14 x 13	Opt.	Black	46	Pair Kit, 399.00
	DII	Aperiodic	12	3	Dome	1	Dome		38-20 ±3	91	25	800.5k	8/6	36 x 17 x 17	Opt.	Black	75	Pair Kit, 699.00
Compact Monitor	Aperiodic	6 1/2			1	Dome		58-20 ±3	87	30	2k	8/6	16 x 10 x 8	Opt.	Brown	23	Pair Kit, 279.00	
AUDIOKONSULT	Respons		(2)12	5	Cone	1	Dome		20-20	84	50	250.2.7k	7/5	64 x 32 x 25	Opt.	Black Foam	220	3990.00 Pair
AUDIO-PRO	A4-14	Biamped	(2)4	4 1/2	Cone	1	Dome	W,M	30-20 +0,-3			300.2.5k		20 x 12 x 11	Opt.	Black Foam	37	1795.00 Pair w/ Stands
	A2-25	Inf. Baf.	8			1	Dome		52-20 +0,-3	15	2k	6/4.5	20 x 11 x 11	Opt.	Black Foam	20	Pair 450.00	
	B2-40	Powered Bass Ref. Subwoof.	(2)5 1/2					W	30-200 +0,-3	Inc.	50-200		21 x 15 x 15	Opt.	Black Foam	41	Pair 695.00	
	B2-50	Powered Bass Ref. Subwoof.	(2)5 1/2					W	20-200 +0,-3	Inc.	40-200		21 x 18 x 18	Opt.	Black Knit	74	995.00	
	B2-100	Powered Bass Ref. Subwoof.	(2)8 1/4					W	20-200 +0,-3	Inc.	40-200		36 x 20 x 17	Opt.	Black Knit	150	1495.00	
	B4-200	Powered Bass Ref. Subwoof.	(4)8 1/4					W	20-200 +0,-3	Inc.	40-200		44 x 22 x 22	Opt.	Black Knit	190	2795.00	
AUDIOSOURCE	LS-One	Inf. Baf.	4			1	Dome		100-20	83	15	2.5k	8/	8 x 5 x 5	Wal. Ven. Oak Ven. Plas. Oak Ven.	Black Knit	3 1/2	99.95
	LS-Seven	Inf. Baf.	6 1/2			1	Dome		70-20	87	10	2k	8/	14 x 9 x 7	Black Knit	7	129.95	
	LS-Eight LS-Nine	Inf. Baf. Inf. Baf.	3 8			1	Cone		150-20 65-20	86 88	1 10	3.5k	8/ 8/	6 x 4 x 4 18 x 11 x 8	Foam Black Knit	1 3/4 13 1/2	24.95 149.95	
AUDIRE	Image I	Ribbon							30-20 ±3	92	100	None	2/2	72 x 33 x 3	Oiled Wal. Oiled Wal.	Black Knit Black Knit	100 60	11,250.00 Pair 4500.00 Pair
	Image II	Ribbon							40-20 ±3	86	100	None	8/8	60 x 27 x 3				
AURATONE	T5	Inf. Baf.	5 1/4			1	Dome		90-20 ±3.5	87	10	2.7k	8/6.5	11 x 7 x 7	Wal. Vinyl Wal. Vinyl	Black Knit Black Knit	20 Pair 36	250.00 Pair 325.00 Pair
	T6	Ducted Port	6 1/2			1	Dome		60-20 ±3	88	20	2.7k	8/6.5	15 x 10 x 10	Wal. Vinyl Wal. Vinyl	Black Knit Black Knit	66 Pair 66	595.00 Pair 595.00 Pair
	T66	Ducted Port	(2)6 1/2			1 1/4	Dome		55-18 ±2.5	90	30	2.2k	8/6.5	12 x 18 x 13	Wal. Vinyl Wal. Vinyl	Black Knit Black Knit	70 Pair 70	695.00 Pair 695.00 Pair
	QC66	Ducted Port	(2)6 1/2	1 1/4		3/4	Dome		50-20 ±2	90	30	2.2k, 2.7k	8/6.5	14 x 17 x 13	Wal. Vinyl Wal. Vinyl	Black Knit Black Knit	70 Pair 70	795.00 Pair 795.00 Pair
	RC66	Ducted Port	(2)6 1/2			1 1/4	Dome		55-18 ±2.5	90	30	2.2k	8/6.5	25 x 15 x 15	Black Vinyl Opt. Vinyl	Black Saran Black Foam	70 Set 10 3/4	95.00 Set 95.00 Pair
	5C	Inf. Baf.	5							89	3		8/7	7 x 7 x 7	Opt. Vinyl	Black Foam	10	135.00
	5RC	Inf. Baf.	5							89	3		8/7	11 x 7 x 7	Black Vinyl	Black Plas.	15	150.00
	R5C3	Inf. Baf.	(3)5							89	3		8/7	5 x 17 x 9	Black Vinyl	Black Cloth	12	165.00
	R5T	Ducted Port	5			3/4	Dome		70-20 ±3	89	10	2k	6/5	5 x 17 x 9	Black Vinyl	Black Cloth	12	165.00
	R6T	Ducted Port	6 1/2			1	Dome		60-20 ±3	88	20	2.7k	8/6	9 x 17 x 9	Black Vinyl	Black Cloth	19	180.00

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 W. Jumper, Hz to kHz, T = Tweeter, S = Super-tweeter	Anechoic Frequency Response, 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															
AURATONE (Continued)	M5T	Ducted Port	5			1	Dome			70-25 ± 2.5	89	10	2k	6.5	9 x 9 x 9	Black Vinyl	Black Cloth	22 Pair	285.00 Pair	
	TV5T	Ducted Port	5			3/4	Dome			70-20 ± 3	89	10	2k	6.5	10 x 7 x 9	Black Vinyl	Black Cloth	22 Pair	270.00 Pair	
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	320.00 Pair	
BANG & OLUFSEN	RL60	Ac. Sus. ABR	(2)5			1	Dome	No		45-20 + 4-.8	93	10	2.5k	8/	21 x 16 x 7	Gray Plas. Rswd.	Black	19.6	225.00	
	MC120.2	Bass Ref.	8	3	Dome	1	Dome	No		42-22	92	20	150,900, 3k	8/	10 x 22 x 10	Black	Black	32	449.00	
	S-80.2	Ac. Sus.	8	4	Dome	1	Dome	No		50-22	92	20	700, 2.5k	8/	10 x 21 x 10	Rswd.	Black	24	299.00	
	S-45	Ac. Sus.	8			1	Dome	No		55-20	91	15	2k	8/	10 x 20 x 8	Black	Black	17.5	164.00	
	CX100	Ac. Sus.	(2)4			1	Dome	No		50-20	89	20	2.5k	6/	4 x 12 x 8	Alum. Opt., Black Alum.	Black	13.5	149.00	
CX50	Ac. Sus.	4			1	Dome	No		80-20	89	10	2.5k	6/	4 x 8 x 8	Black Alum.	Black	8	99.00		
BECKER-SWAN	Pyramid	Pas. Rad.	(2)6			1	Horn			50-25	92	10		4/4	17 x 10 x 10	Opt., Fbgl.	Black Metal	15	299.00 Pair	
B.E.S.	SM 80	Puls. Diaph.	630 Sq. In.				Puls. Diaph.			60-19 ± 3	88	5	1.5k	8/5.5	24 x 15 x 4	Oiled Oak	Brown Knit	21	165.00	
	SM 100	Puls. Diaph.	850 Sq. In.				Puls. Diaph.			42-19 ± 3	88	5	800	8/5.5	26 x 19 x 4	Oiled Oak	Brown Knit	26	230.00	
	SM 255 MK II	Puls. Diaph.	960 Sq. In.		Puls. Diaph.		Piezo	M, T		35-22 ± 3	91	10	800, 10k	8/5.5	30 x 20 x 6	Oiled Oak	Brown Knit	38	350.00	
	SM 275	Puls. Diaph.	1122 Sq. In.	270 Sq. In.	Puls. Diaph.		Piezo	M, T		32-22 ± 3	93	10	500, 10k	8/5.5	40 x 20 x 6	Oiled Oak	Brown Knit	58	475.00	
	SM 280	Puls. Diaph.	1344 Sq. In.	450 Sq. In.	Puls. Diaph.		Piezo	M, T		32-22 ± 3	93	10	500, 5k, 10k	8/5.5	44 x 21 x 6	Oiled Oak	Brown Knit	62	550.00	
	SM 300	Puls. Diaph.	1750 Sq. In.	450 Sq. In.	Puls. Diaph.		Piezo	M, T		30-22 ± 3	93	25	500, 5k, 10k	8/5.5	54 x 22 x 7	Oiled Oak	Black Knit	79	750.00	
	SM 90	Puls. Diaph.	850 Sq. In.							42-19 ± 3	88	5	800	8/5.5	28 x 19 x 4	Alum.	Brown Knit	20	300.00	
BGR	BGR-10	Ac. Sus.	6 1/2			1	Dome			50-20	89	15	2.8k	8/6	12 x 8 x 7	Wal. Vinyl	Black Knit	12	220.00 Pair	
	BGR-20	Ac. Sus.	8			1 1/4	Cone			48-17	89	15	3k	8/6	18 x 11 x 9	Wal. Vinyl	Black Knit	13 1/2	125.00 Pair	
	BGR-25	Ac. Sus.	8			1	Dome			45-20	90	15	2.5k	8/6	18 x 11 x 9	Wal. Vinyl	Black Knit	14	250.00 Pair	
	BGR-30	Ac. Sus.	10			1	Dome			42-20	90	15	2.1k	8/6	25 x 14 x 11	Wal. Vinyl	Black Knit	33	370.00 Pair	
	BGR-55	Bass Ref.	12	5	Cone	1	Dome			40-20	90	15	800, 4.2k	8/6	25 x 14 x 12	Hick. Vinyl	Black Knit	37	510.00 Pair	
	BGR-60	Bass Ref.	10	4 1/2	Cone	1	Dome			38-22 ± 3	91	15	700, 3k	8/6	29 x 13 x 11	Wal. Vinyl	Black Knit	37	600.00 Pair	
	BGR-70	Bass Ref.	13	5 1/2	Cone	1	Dome			33-22 ± 3	91	20	600, 3k	8/6	32 x 15 x 14	Vinyl Opt.	Black Knit	52	800.00 Pair	
	BGR-80	Bass Ref.	12	3	Dome	1	Dome			33-20 ± 3	90	25	600, 3k	8/5	32 x 16 x 12	Opt., Lam.	Black Knit	55	1100.00 Pair	
BML ELECTRONICS	Tracer 1 Monitor 1002							No		38-18 ± 3	89	10		8/5	23 x 12 x 11	Rswd. Vinyl	Black Cloth		400.00 Pair	
		Trans. Line						No		42-20 ± 3	90	10		8/5	31 x 21 x 6	Opt.	Black Cloth		749.00 Pair	
BOSE	Roommate System	Powered	4 1/2												6 x 9 x 5	Black	Black	10 Pair	229.00 Sys.	
	Video Roommate System	Powered	4 1/2												6 x 9 x 5	Gray	Silv.	10 Pair	279.00 Sys.	
	101 Music Monitor 201-II	Ported	4 1/2								89	10		8/	6 x 9 x 5	Opt.	Opt.	4 1/2	105.00	
		Ported	6			3	Cone					5	1.5k, 2.5k	8/	15 x 8 x 9	Rswd.	Brown Knit	10	127.00	
	301-II	Ported	8			(2)3	Cones					10	1.5k, 2.5k	8/	10 x 17 x 10	Wal.	Brown Knit	19	211.00	
	501-IV	Ported	10			(2)3	Cones					20	1.5k, 2.5k	8/	16 x 14 x 25	Teak Wal.	Opt. Brown Cloth	20	375.00	
	601-II	Ported	(2)8			(4)3	Cones					20	1.5k, 2.5k	8/	30 x 14 x 13	Wal.	Brown Cloth	23 1/2	513.00	
	901-V	Ac. Matrix	(9)4 1/2									10		8/	21 x 13 x 13	Wal.	Black Cloth	17 1/2	1485.00 Pair w/EQ	
10.2	Ported	(2)8			(2)3	Cones					88	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	1.2k, 2.8k		16 x 9 x 33	Teak Vinyl	Brown Knit	41	949.00 Pair		
BOSTON ACOUSTICS	A40	Ac. Sus.	6 1/2			3/4	Dome			65-20 ± 3	89	5	3.5k	8/5	13 x 8 x 8	Opt.	Opt.	9	80.00	
	A60	Ac. Sus.	8			1	Dome			52-20 ± 3	90	10	3k	8/5	18 x 11 x 8	Opt.	Opt.	16	110.00	
	A70	Ac. Sus.	8			1	Dome			40-25 ± 3	90	15	2k	6/4	24 x 14 x 8	Wal. Vinyl	Black Cloth	26	140.00	
	A100	Ac. Sus.	10			1	Dome			38-25 ± 3	90	15	2k	8/5	32 x 16 x 8	Wal. Vinyl	Black Cloth	44	195.00	
	A150	Ac. Sus.	10	4 1/2	Cone	1	Dome			38-25 ± 3	90	15	650, 3k	8/5	32 x 16 x 8	Opt.	Opt., Cloth	47	295.00	
	A400	Ac. Sus.	(2)8	6 1/2	Cone	1	Dome			35-25 ± 3	90	15	300, 3k	4/4	41 x 21 x 7	Opt.	Opt., Cloth	85	450.00	
JOHN BOWERS LTD.	Active 1	Active, Ported	6	6	Cone	1	Dome	M, T		45-18 ± 2					34 x 16 x 10	Opt.	Opt., Knit	66	2097.50	

ADVENT® INTRODUCES LEGACY!

BUILT ON A SOLID FOUNDATION.

Here's the new edition of the famous "larger" Advent® speaker that sold more than a million units—literally revolutionized the stereo business. Built in the heritage of legendary Advent technology, this new, super-power speaker is floor-standing with a 10" woofer and 1" ferrofluid-filled, soft-domed tweeter. It is digital-ready, and provides the kind of dynamic-range, separation and frequency-response appropriate for compact disc, audiophile records, dbx, and Dolby® C recordings. The steep-sloped crossover network contributes to



Legacy's incredible 500-watt peak power capability, and improvements in linearity.

All this remarkable performance in handsome cabinetry finished off with oiled, solid pecan wood on the top and along the base of the speaker. Real wood, becoming an Advent trademark.

See the new Legacy, and see the other great speakers in Advent's complete line: Baby Advent, Prodigy, and 6003. Advent has what you want in size, in performance, in excellence.

ADVENT®

The New Generation in Sound



The Advent Line



BABY ADVENT PRODIGY LEGACY 6003



© 1985—International Jensen

Advent® is a registered trademark of International Jensen, Incorporated Dolby® is a registered trademark of Dolby Laboratories, Incorporated

Enter No. 5 on Reader Service Card

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches		Separate Line Controls w. Woofer M = Midrange, T = Tweeter, S = Superwoofer	Anechoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr.	Crossover Frequencies, Hz	Impedance, Ohms, Nominal/Minimum	Dimensions Inches (T= Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
BOZAK	DMS-2500	Ported	8			1	Dome				35-21 ±2.5	90	10	4k	8/6	22 x 10 x 8	Wood Vinyl	Black Knit	30	379.00 Pair	
	DMS-3000	Ported	8	2	Cone	1	Dome				35-21 ±2.5	90	10	1k,4k	8/6	24 x 10 x 8	Wood Vinyl	Black Knit	32	519.00 Pair	
	DMS-3500	Ported	8	4	Cone	1	Dome				35-21 ±3	92	10	800,4k	8/6	37 x 10 x 8	Wood Vinyl	Black Knit	40	639.00 Pair	
	DMS-4500	Inf. Baf.	12	6	Cone	1	Dome				32-21 ±3	94	10	400,4k	8/6	28 x 15 x 11	Wood Vinyl	Black Knit	65	739.00 Pair	
	DMS-5500	Inf. Baf.	12	6	Cone	1	Dome				28-21	95	10	400,4k	8/6	41 x 15 x 12	Wood Vinyl	Black Knit	70	839.00 Pair	
	MSS-1000	Sat. & Subwoof.	12	6	Cone	1	Dome				20-20 ±3	86	30	80,2k	8/5	Three Pieces	Wood Vinyl	Black Knit	78 Sys.	949.00 Sys.	
BSC	Compusound 150	Inf. Baf.	(2)8	5¼	Cone	1	Dome	W,M, T	15-20 ±2	90	Inc.	195,2.2k			Three Pieces	Oiled Oak	Opt., Knit	300 Sys.	3600.00 Sys.		
	Compusound 100	Inf. Baf.	(4)5¼			1	Dome	W,T	30-20 ±2	92	100	2k	8/6	Three Pieces	Oiled Oak	Opt., Knit	130 Sys.	1295.00 Sys.			
	Compusound SW100	Inf. Baf. Subwoof.	2(10)					W	15-100 ±3	92	Inc.	100		24 x 11 x 16	Oiled Oak	Opt., Knit	90 Sys.	995.00 Pair w/ Amps			
BSM	Series 3 MK III	Bass Ref.	8	3	Cone	2	Cone		48-20	92	15	2k,6k	8/4	24 x 11 x 8	Hick.			16	178.00 Pair		
	Series 4 MK III	Bass Ref.	10	3	Cone	2	Cone		40-20	92	15	2k,6k	8/4	24 x 14 x 10	Hick.			18½	198.00 Pair		
	Series 7 MK III	Bass Ref.	12	4	Cone	2	Cone		30-20	94	15	2k,6k	8/4	25 x 17 x 12	Hick.			28½	238.00 Pair		
BTM	EST 290	Compr.	8	2	Cone	1	Cone		44-20	90	15	700,4k	8/4	21 x 12 x 8	Oiled Wal.	Black Knit		22	338.00 Pair		
	EST 300	Compr.	10	2	Cone	1	Cone		40-20	95	20	700,4k	8/4	25 x 14 x 8	Oiled Wal.	Black Knit		27	398.00 Pair		
	EST 310	Compr.	12	2	Cone	1	Dome		38-20	110	35	700,4k	8/4	38 x 17 x 10	Oiled Wal.	Black Knit		46	598.00 Pair		
	EST 320	Compr.	(2)10	2(2)	Cones	2	Cone		35-22	120	35	700,4k	8/4	44 x 21 x 10	Oiled Wal.	Black Knit		64	998.00 Pair		
B & W	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	109.00		
	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	169.00		
	OM 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	269.00		
	DM 330	Ac. Sus.	(2)8			1	Dome		48-20 ±3	91	10	3k	8/6.4	34 x 12 x 13	Opt.	Opt., Knit		37½	349.00		
	VM 1	Bass Ref.	8			1	Dome		70-20 ±3	90	5	3k	8/6.4	19 x 10 x 10	Opt.	Opt., Knit		19	169.00		
	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	269.00		
	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	435.00		
	DM 1400	Ac. Sus.	(2)6			1	Dome		80-20 ±2	86	30	500,3k	8/6.4	21 x 10 x 12	Opt., Wood	Opt., Knit		42	575.00		
	DM 2000	Pas. Rad.	8			1	Dome		50-20 ±2	87	50	3k	8/6.4	32 x 12 x 16	Opt., Wood	Opt., Knit		55	925.00		
	DM 3000	Pas. Rad.	(2)8			1	Dome		50-20 ±2	89	80	500,3k	8/6.4	39 x 12 x 16	Opt., Wood	Opt., Knit		77	1155.00		
	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	450.00		
	802F.SP	Ac. Sus.	(2)6½	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	1975.00		
	801F	Ac. Sus.	10½	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	1475.00		
	808	Bass Ref. & Trans. Line	(2)10½	(2)4	Cones	1½	Dome	M,T	30-20 ±2	91	100	400,3k	8/6.4	44 x 26 x 21	Opt., Wood	Opt., Knit		180	4750.00		
LM1	Ac. Sus.	4			¾	Dome		95-25 ±4	81	20	3k or 4.5k	8/6.4	9 x 6 x 8	Opt.	Opt., Wire		12	299.00			
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	5000.00 Pair		
	Galion 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	2400.00 Pair		
	Clipper	Ac. Sus.	11.8	2	Dome	1	Dome		55-20 ±3	94	10	700,5k	8/	29 x 14 x 13	Wal.	Black Knit		48.5	1600.00 Pair		
	Sloop	Ac. Sus.	11.8	4.7	Cone	1	Dome		60-20 ±3	94	10	900,6.5k	8/	25 x 14 x 13	Wal.	Black Knit		44	1100.00 Pair		
	Brick II	Ac. Sus.	8.2			1	Dome		70-20 ±4	93.5	10	6.5k	8/	25 x 12 x 10	Wal.	Black Knit		28.7	700.00 Pair		
	Caravelle	Ac. Sus.	8	2	Dome	1	Dome		60-20 ±3	93	10	700,5k	8/	26 x 12 x 11	Wal.	Black Knit		39.6	1100.00 Pair		
	Corvette	Ac. Sus. Biamp	6	2	Dome	1	Dome		65-20 ±3	92	10	700,5k	8/	19 x 10 x 10	Wal.	Black Knit		22	950.00 Pair		
	Galiote	Ac. Sus. Biamp	6			1	Dome		70-20 ±3	93.5	10	4k	8/	11 x 8 x 8	Wal.	Black Knit		13.2	750.00 Pair		
	CADAWAS ACOUSTICS	TC-1	Auto Damping	8,10	5¼	Cone	1.2	Dome, Cone	M, T		87	25	250,3.5k, 8k	8/6.5	24 x 15 x 11	Oiled Wal.	Brown Cloth		44	1195.00 Pair	
Mobile Monitor Dne		Auto Damping	(2)5¼			1	Dome	T		87	15	2.5k	8/	14 x 8 x 8	Oiled Wal.	Brown Cloth		15	595.00 Pair		
TC-2		Auto Damping Subwoof.	8,10					W	20-125	87	25	125	8/	24 x 15 x 11	Oiled Wal.	Brown Cloth		40	650.00 Pair		

Soundsational



American Acoustics D-Series Digital Loudspeakers

Soundsational, Sensational Speakers

Soundsational High Fidelity

Feel the sound of live music. Clean, clear, electrifying sound at ALL listening levels.

Sensational Looks

D-Series speakers look great with any room decor. Brass grille trim and walnut woodgrain finish matches popular lines of audio, video and computer furniture.

Soundsational Digital Audio Reproduction

From a soft whisper to the roar of a 747 jet, D-series speakers handle the wide dynamic range of today's compact disc players.

Sensational 10-Year Limited Warranty

You expect quality audio products from American Acoustics, a company with a heritage extending over 100 years. An outstanding 10-year limited warranty backs up this superior product quality.

American Acoustics

One Mitek Plaza Winslow, IL 61089 Phone: (815) 367-3811

Enter No. 43 on Reader Service Card

D-Series speakers available at CMC locations in St. Louis, Kansas City, Houston, Memphis, Atlanta, Dallas, Indianapolis. In Chicago area, at Alan's Creative Stereo.

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)		Grille Color and Material		Weight, Lbs.	Price, \$
			Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Woofer	Midrange	Tweeter	Nominal	Minimum	Finish	Material				
CAMBER LOUDSPEAKERS	1.5	Ported	6 1/2			3/4	Dome		60-20 ± 2	88	20	2.5k	8/6	18 x 10 x 11	Opt., Vinyl	Black Knit	19	299.00	Pair						
	2.5	Ported	6 1/2			1	Dome		50-20 ± 2	89	25	2.5k	8/6	24 x 10 x 11	Opt., Vinyl	Black Knit	23	399.00	Pair						
	3.5	Ported	8			1	Dome		43-20 ± 2	90	25	2.5k	8/6	23 x 10 x 13	Opt., Vinyl	Black Knit	30	550.00	Pair						
	4.5	Ported	8			1	Dome		40-20 ± 2	89	35	2.8k	8/6	22 x 10 x 11	Opt., Vinyl	Black Knit	40	1100.00	Pair						
	Studio Pro	Ported	(2)8	8	Cone	1	Dome		35-20 ± 2	90	35	200,2.5k	8/6	41 x 11 x 15	Opt., Vinyl	Black Knit	85	2200.00	Pair						
CANTON	Fonum 30	Inf. Baf.	7	1 1/4	Dome	3/4	Dome		36-30	87	30	900,4.5k	8/2	13 x 9 x 8	Opt., Vinyl	Opt., Steel	10 1/2	349.00	Pair						
	Fonum 60	Inf. Baf.	8	1 1/4	Dome	3/4	Dome		28-30	88	40	900,4.5k	8/2	15 x 10 x 9	Opt., Vinyl	Opt., Steel	12	429.00	Pair						
	Fonum 90	Inf. Baf.	9	1 1/4	Dome	3/4	Dome		25-30	88	50	900,4.5k	8/2	17 x 12 x 10	Opt., Vinyl	Opt., Steel	17	499.00	Pair						
	Karat 100	Ac. Sus.	8	1 1/4	Dome	3/4	Dome		36-30	90	30	900,3.6k	8/3	9 x 14 x 9	Opt., Vinyl	Opt., Steel	14	500.00	Pair						
	Karat 200	Ac. Sus.	9	1 1/4	Dome	3/4	Dome		28-30	90	45	900,3.6k	8/3	11 x 17 x 10	Opt., Vinyl	Opt., Steel	20	650.00	Pair						
	Karat 300	Ac. Sus.	10	1 1/2	Dome	1	Dome		25-30	91	55	850,4.2k	8/3	12 x 20 x 12	Opt., Vinyl	Opt., Steel	31	800.00	Pair						
	CT 800	Ac. Sus.	10	4 1/2	Cone	1	Dome		22-30	93	50	450,3k	4/2	14 x 23 x 13	Opt., Vinyl	Opt., Steel	39	1000.00	Pair						
	CT 1000	Ac. Sus.	12	4 1/2	Cone	1	Dome		20-30	93	60	450,3.1k	4/2	26 x 38 x 13	Opt., Vinyl	Opt., Steel	44	1350.00	Pair						
	CT 2000	Vented	12	4 1/2	Cone	1	Dome		18-30	95	100	450,3k	4/2	14 x 39 x 13	Opt., Vinyl	Opt., Steel	76	2000.00	Pair						
	Ergo P	Ac. Sus.	(2)10	4 1/2	Cone	1	Dome		20-30	94	95	450,3.1k	4/2	12 x 39 x 12	Opt., Vinyl	Opt., Steel	57	2000.00	Pair						
	Ergo A	Triamped Ac. Sus.	(2)10	4 1/2	Cone	1	Dome		20-30			138,2.2k		12 x 39 x 12	Opt., Vinyl	Opt., Steel	73	3500.00	Pair						
	Plus A	Biamped Subwoof.	(2)12					W	16-130			90/110/130		31 x 21 x 17	Opt., Vinyl	Opt., Steel	138	2500.00	Pair						
	Plus B	Biamped Subwoof.	12					W	20-130			120		13 x 15 x 14	Opt., Vinyl	Opt., Steel	44	1100.00	Pair						
	Plus C	Subwoof. Sat.	12	4 1/2	Cone	1	Dome		22-120			120	4/2	14 x 14 x 14	Opt., Vinyl	Opt., Steel	26	400.00	Pair						
	Plus S	Sat.							45-30	87		2.2k	4/2	4 x 8 x 4	Opt., Vinyl	Opt., Steel	5	250.00	Pair						
G1 260	Ac. Sus. Sat.	6			3/4	Dome		42-30	87	25	1.7k	4/2	7 x 11 x 5	Opt., Vinyl	Opt., Steel	7	350.00	Pair							
G1 300 F	Ac. Sus. Sat.	6			3/4	Dome		48-30	87	25	1.7k	4/2		Opt., Vinyl	Opt., Steel	8	375.00	Pair							
HC 100	Ac. Sus. Sat.	4 1/2			3/4	Dome		48-30	87	15	1.7k	4/2	5 x 8 x 6	Opt., Vinyl	Opt., Steel	4	250.00	Pair							
CASCADE AUDIO SYSTEMS	SPS-211A	Inf. Baf.	4 1/2			1	Dome		88-19 ± 4.5	85	20	3.3k	4/3	10 x 7 x 5	Opt., Vinyl	Black Knit	17 1/2	270.00	Pair						
	SPS-214	Ac. Sus.	5 1/4			1	Dome		72-20 ± 4.5	82	25	3.5k	8/5	12 x 8 x 7	Opt., Vinyl	Black Knit	23	430.00	Pair						
	SPS-222	Ac. Sus.	8			1	Dome		58-20 ± 4.5	86	20	3.15k	8/5	16 x 10 x 13	Opt., Vinyl	Black Knit	21 1/2	590.00	Pair						
	SPS-317	Aperiodic	(2)6 1/2			1	Dome		45-20 ± 4.5	86	25	1k,3.5k	4/2.7	30 x 8 x 8	Opt., Vinyl	Black Knit	26 1/2	750.00	Pair						
	SPS-325WF	Inf. Baf.	10	4 1/4	Cone	1	Dome		38-20 ± 4.5	90	25	1k,4.2k	8/4.5	25 x 14 x 12	Opt., Vinyl	Black Knit	45	910.00	Pair						
	SPS-321	Trans. Line	8	5 1/4	Cone	1	Dome		33-20 ± 3	88	30	210,4k	8/4.7	38 x 11 x 15	Opt., Vinyl	Black Knit	71 1/2	1360.00	Pair						
	SWM-124	Aperiodic Subwoof.	9 1/2						23-180	87	30		8/6.8	18 x 18 x 19	Opt., Vinyl	Black Knit	38	320.00	Pair						
	SWM-131	Trans. Line Subwoof.	12						18-150	89	35	100	8/7	38 x 14 x 12	Opt., Vinyl	Black Knit	78	480.00	Pair						
	SWM-130D	Trans. Line Subwoof.	12						20-125	89	30	100	4/3.4	38 x 14 x 12	Opt., Vinyl	Black Knit	80	530.00	Pair						
CASTLE ACOUSTICS	Clyde	Bass Ref.	5			1 1/4	Cone	No	65-22	89	10		7/6.2	15 x 9 x 9	Opt., Vinyl	Black Foam	19 1/2	295.00	Pair						
	Tyne	Bass Ref.	6			1 1/4	Cone	No	55-22	89	10		7.5/6.8	18 x 10 x 9	Opt., Vinyl	Black Foam	28	375.00	Pair						
	Avon	Bass Ref.	8			1 1/4	Cone	No	50-22	89	10		7.5/6.8	20 x 12 x 11	Opt., Vinyl	Black Foam	43	525.00	Pair						
	Lincoln	Bass Ref.	8			1 1/4	Cone	No	55-22	88	10		8/6.5	18 x 9 x 11	Opt., Vinyl	Black Foam	33	495.00	Pair						
	Pembroke	Bass Ref.	8			1 1/4	Cone	No	48-22	88	10		8/7.5	22 x 11 x 10	Opt., Vinyl	Black Foam	51	625.00	Pair						
	Trent	Bass Ref.	5			1 1/4	Cone	No	70-22	89	10		7/6.2	13 x 7 x 8	Opt., Vinyl	Black Foam	16 1/2	250.00	Pair						
CELESTION	SL6	Ac. Sus.	6			1 1/4	Dome		60-20 ± 1	82	60	2.3k	8/6	15 x 8 x 10	Opt., Vinyl	Brown Cloth	17	800.00	Pair						
	SL600	Ac. Sus.	6			1 1/4	Dome		60-20 ± 0.5	82	60	2.3k	8/6	15 x 8 x 10	Opt., Vinyl	Brown Cloth	11	1250.00	Pair						
	DL4	Bass Ref.	6 1/2			1	Dome		70-20 ± 6	89	10	2.5k	8/6	15 x 8 x 9	Opt., Vinyl	Brown Cloth		300.00	Pair						
	DL6	Bass Ref.	8			1	Dome		50-20 ± 6	89	10	2.5k	8/6	18 x 10 x 10	Opt., Vinyl	Brown Cloth		400.00	Pair						
	DL8	Ac. Sus.	8			1 1/4	Dome		39-20 ± 6	89	10	2.5k	8/6	20 x 11 x 11	Opt., Vinyl	Brown Cloth		500.00	Pair						
	DL10	Bass Ref.	10	6 1/2	Cone	1 1/4	Dome		35-20 ± 6	90	10	530,3.8k	8/6	29 x 14 x 12	Opt., Vinyl	Brown Cloth	42	850.00	Pair						
(Continued)	Dilton 100, II	Ac. Sus.	6 1/2			1	Dome		78-20 ± 6	87	10	2.3k	8/6	13 x 8 x 8	Opt., Vinyl	Brown Cloth	10	260.00	Pair						

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type				Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Controls: W = Woofer, M = Midrange, T = Tweeter, S = Super-tweeter		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, \$
		Ac. Sus.	8	5	Cone	1	Dome	65-20	88	20	2.3k	8/6	18 x 10 x 8	Wal. Vinyl	Brown Cloth	15	400.00											
CELESTION (Continued)	Ditton 110, II	Ac. Sus.	8																									
	Ditton 250, II	Ac. Sus.	8	5	Cone	1	Dome																					
CERWIN-VEGA	D-1	Ported	8			1	Horn																					
	D-2	Ported	10			1	Horn																					
	D-3	Ported	10	6	Cone	1	Horn	T																				
	D-5	Ported	12	6	Cone	1	Horn	T																				
	D-7	Ported	12	(2)6	Cones	1	Horn	M,T																				
	D-9	Ported	15	(2)6	Cones	1	Horn	M,T																				
	2000-10	Ported	10	(2)6	Cones	1	Dome	M,T																				
	2000-12	Ported	12	(4)6	Cones	1	Dome	M,T																				
	2000-15	Ported	15	(6)6	Cones	1	Dome	M,T																				
	240SE	Ported	10			1	Dhorm																					
	250SE/X	Ported	10	6	Cone	1	Dhorm	T																				
	300SE/X	Ported	12	6½	Cone	1	Dhorm	M,T																				
	380SE X	Ported	15	(2)6½	Cones	1	Dhorm	M,T																				
CHAPMAN	T-4	Air Sus.	8			1	Dome																					
	T-7	Air Sus.	10	5	Cone	1	Dome																					
CLEMENTS AUDID SYSTEMS	Little "D"	Compr. Line	5¼			5	Ribbon																					
	JR-B Bookshelf	Compr. Line	6½			7	Ribbon																					
	RT-7 Tower	Compr. Line	8			7	Ribbon																					
	RT-21 Tower	Compr. Line	8			21L	Ribbon																					
CSI	MDM-4	Ported	(2)6½			3½	Cone																					
	MDM-TA2	Time Align	6½			¾	Dome	T																				
	MDM-TA3	Time Align	(2)6½	3½	Cone	¾	Dome	M,T																				
	BE-32	ELF	(2)8																									
DAHLQUIST	DQM-9	Tuned Port	11	5	Cone	1	Dome																					
	DQM-9 Compact	Tuned Port	9	5	Cone	1	Dome																					
	DQM-7 Compact	Tuned Port	9			1	Dome																					
	DQM-5	Tuned Port	9			1	Dome																					
	DQM-3	Ac. Sus.	8			1	Dome																					
	DQ-20	Inf. Baf. Phased Array	10	6½	Cone	¾	Dome	No																				
	DQ-10	Inf. Baf. Phased Array	10	5½	Cone, Dome	¾, ¼	Dome, Piezo	T, ST																				
	DQ-1W	Inf. Baf. Subwoof.	13																									
DALI	2	Ac. Sus.	6½			1	Dome																					
	3	Ac. Sus.	8			1	Dome																					
	4	Ac. Sus.	(2)8			1	Dome																					
	6	Ac. Sus.	10	8	Cone	1½	Dome																					
	8	Bass Ref.	(2)8	4½	Cone	1¾, ¾	Domes																					
	HE 1255	Bass Ref.	12	5	Cone		Horn																					
	HE 1266	Bass Ref.	12	8	Cone		Horn																					
	HE 1288	Bass Ref.	12	(2)8	Cones		Horn																					

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate tweeters? N=No, Y=Yes	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, \$	
			Woofer	Midrange	Midrange Type	Tweeter	Tweeter Type												
DAYTON WRIGHT	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	499.00 Pair	
	SM-2	Gas Sus.	7	1	Dome	5/8	Dome	M,T		89	40	4.3k,11k	5/4	22 x 11 x 14	Black Knit	Black Knit	28	749.00 Pair	
	XAM-4	Gas Sus.	10	6	Cone	5/8,1	Domes	T		90	40	100,4.3k,11k	5/4	48 x 11 x 16	Black Knit	Black Knit	82	1249.00 Pair	
	ICBM-1	Gas Sus. Subwoof.	(2)10							20-100 ±3	90	30	100	5/4	48 x 11 x 26	Black Knit	Black Knit	95	1249.00 Pair
	X6-10 System H	Gas Sus. Subwoof. ES & Gas Sus. Subwoof.	10	5x18	ES	1/2x2	EMT	T		20-20 ±4	86	100	38.3.5k	5/4		Dpt., Wood	Opt.	310 Sys.	4800.00 Sys.
	X6-10 System C	Gas Sus. Subwoof. ES & Gas Sus. Subwoof.	(2)10	5x18	ES	1/2x2	EMT	T		16-20 ±4	86	100	38.3.5k	5/4		Opt., Wood	Opt.	360 Sys.	5500.00 Sys.
dB PLUS	25B	Passive Elect. Ported	5 1/4			1 3/4	Dome		50-20 ±3	87	10	4.5k	4/4	12 x 7 x 7	Black Wood Wal.	Black	10	179.00 Pair	
	50MKII	Ported	8			1	Dome		45-22 ±3	90	15	2.2k	6.4	24 x 12 x 10	Black Vinyl Wal.	Black	28	339.00 Pair	
	100MKII	Ported	10			1	Dome		40-22 ±3	91	15	2k	6.4	25 x 14 x 10	Black Vinyl Wal.	Black	37	450.00 Pair	
	500	Ported	10	4 1/2	Cone	1	Dome		35-22 ±3	91	15	2k,6k	6.4	27 x 27 x 10	Black Vinyl Wal.	Black	43	569.00 Pair	
DBX	Soundfield One	Ac. Sus.	(4)10	(4)4	Cones	(6)1/2	Domes	No	20-20 ±3	90	40	450.3.15k	4/2.5	42 x 15 x 15	Opt.	Brown Knit	160 Pair	2600.00 Pair w/ Contrl.	
	Soundfield Ten	Ac. Sus.	(2)10	(2)4	Cones	(4)1/2	Domes	No	30-20 ±3	90	40	450.3.15k	4/2.5	34 x 15 x 15	Dpt.	Brown Knit	110 Pair	1250.00 Pair w/ Contrl.	
DCM	Time Window 3	Trans. Line	8	6 1/2	Cone	(2)3/4	Domes	M,T	24-20	90	15		8/4	39 x 16 x 12	Dak	Brown Cloth	90 Pair	1399.00 Pair	
	Time Window 1A	Trans. Line	(2)6 1/2			(2)3/4	Domes		30-20	91	10	2.8k	8/4	36 x 15 x 12	Oak	Brown Cloth	64 Pair	879.00 Pair	
	Time Frame TFS00	Trans. Line	6 1/2			3/4	Dome		34-20	90	10	2.5k	8/5	41 x 17 x 7	Dak	Brown Cloth	88 Pair	499.00 Pair	
	QED 1A	Trans. Line	8			3/4	Dome		32-20	90	10	2.5k	8/4	36 x 12 x 9	Dak	Brown Cloth	74 Pair	659.00 Pair	
	Image-Master	Trans. Line	6 1/2	6 1/2	Cone	3/4	Dome	T	38-20	93	5	2.5k	8/5	24 x 13 x 15	Wal. Vinyl Wal.	Brown Cloth	72 Pair	499.00 Pair	
	Macrophone	Trans. Line	6 1/2			3/4	Dome	T	40-20	89	10	2.5k	8/5	13 x 9 x 12	Wal. Vinyl Wal.	Brown Cloth	37 Pair	399.00 Pair	
DELMO	SS-100T	Bass Ref.	(2)10	6	Cone	4	Dome	T	60-20	90	30	1.4k,4.2k	8/	16 x 46 x 12	Wal. Vinyl Wal.	Black Knit	62	590.00 Pair	
	SS-100	Bass Ref.	12	6	Cone	4	Dome	T	65-20	88	30	1.4k,4.2k	8/	18 x 33 x 13	Wal. Vinyl Wal.	Black Knit	54	499.99 Pair	
	SS-70	Bass Ref.	12			(2)3	Cones	T	75-16	93	30	1.5k	8/	16 x 30 x 12	Wal. Vinyl Wal.	Black Knit	44	380.00 Pair	
	SS-50	Bass Ref.	10			3	Cone		75-18	92	20	3.7k	8/	15 x 23 x 11	Wal. Vinyl Wal.	Black Knit	27	240.00 Pair	
	SS-25	Closed Box	8			3	Cone		70-17	87	15		8/	11 x 19 x 10	Wal. Vinyl Wal.	Black Knit	15	154.00 Pair	
DENNESEN	DEi	Hybrid ES	10	5	Cone	(3)3 Sq. in.	ES		30-30 ±2	87	25	120.3.5k	8.6	Six Pieces	Diled Wal.	Black Foam	75 Sys.	2850.00 Sys.	
DESIGN ACOUSTICS	PS-5	Ac. Sus.	5 1/2			1	Dome	T	70-22	90	15	2.4k	8/5.8	11 x 7 x 5	Wal.	Brown Cloth	9	350.00 Pair	
	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.	6 1/2			3/4	Dome		50-20	88	10	3k	8/5.7	8 x 12 x 11	Wal. Vinyl Wal.	Brown Cloth	24	239.90 Pair	
	PS-6V		6 1/2			3/4	Dome		50-20	88	10	3k	8/5.7	8 x 12 x 11	Wal. Vinyl Wal.	Brown Cloth	24	259.95 Pair	
	PS-8a		8	4	Cone	3/4	Dome	T	55-21	90	15	200,2.4k		9 x 11 x 14	Wal. Vinyl Wal.	Brown Cloth	34	379.90 Pair	
	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 Wal.	Brown Cloth	25	499.00 Pair	
	PS-30	Ac. Sus. Sat. & Subwoof.	12	5	Cone	1	Dome	T	40-22	90	15	140,2.4k	8/4.3	Three Pieces	Wal.	Brown Cloth	68	695.00 Pair	
	OS-1	Ac. Sus. Sat. & Subwoof. Omni	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)2 1/4	Cones	(2)3/4	Domes		47-20 ±5	87	25	175.3.3k	5.4.6	Three Pieces	Dpt.	Opt.	29 Sys.	550.00 Sys.	
	DLS-2	Sat. & Subwoof.	(2)6 1/2	(2)2 1/4	Cones	(2)3/4	Domes		34-20 ±5	87	20	175.3.3k	4.8.4	Four Pieces	Opt.	Black	40 Sys.	850.00 Sys.	
DNL SOUND	12	Ported	12	3	Dome	1	Dome		38-22 ±3	91	25	650,5k	8/	15 x 12 x 31	Oak	Brown Knit	52	600.00 Pair	
	10	Inf. Baf.	10	3	Dome	3/4	Dome		42-24 ±3	88	20	300,5k	8/	15 x 12 x 25	Oak	Brown Knit	37	450.00 Pair	
	8	Pas. Rad.	8			1	Dome		44-22 ±3	90	20	2.5k	8/	11 x 10 x 19	Oak	Brown Knit	27	350.00 Pair	
	6	Ported	6 1/2			1	Dome		58-22 ±3	88	15	2.5k	8/	8 x 7 x 12	Dak	Brown Knit	14	200.00 Pair	
	Sat.	Ported Sat.	6 1/2	2	Dome	3/4	Dome		125-24 ±3	90	15	1k,5k	8/	11 x 7 x 19	Oak	Brown Knit	22	350.00 Pair	
	Sub.	Ported Subwoof.	(2)12						30-125	93	25	125	8/	36 x 16 x 18	Dak	Brown Knit	85	350.00 Pair	

AR

At AR, we design our loudspeakers for the way people hear. Our continuous research into loudspeaker design, auditory perception and room acoustics, is focused toward one goal; natural, believable sonic accuracy and refinement. Every detail of every AR loudspeaker reflects our precisely integrated system design, from Acoustic Suspension to Controlled Radiation. Stop by your local stereo components dealer, and listen to the new AR loudspeakers. Hear for yourself the sound of perfect harmony.

***Optimum Performance.
The sound of
perfect harmony.***



 TELEDYNE ACOUSTIC RESEARCH

Enter No. 1 on Reader Service Card

AmericanReproduction.com

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches				Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Controls? W=Woof, M=Midrange, T=Tweeter, ST=Subwoofer	Amplitude 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, \$
			Cone	1 1/2	1 1/2	1 1/2	Dome	T	24-110 ±1.5	91									Inc.	110		
DUNTECH	Thor	Ac. Sus. Active Subwoof. Closed Box	12		Cone				W	24-110 ±1.5	91	Inc.	110	4	31 x 17 x 13	Dilled Dak	Black Foam	82	950.00			
	PCL-3	Closed Box	6 1/2		Cone	1 1/2	Dome			55-20 ±1.5	83	50	6k	8/6.5	24 x 17 x 4	Dilled Dak	Black Knit	16	850.00			
	PCL-5	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	Dilled Dak	Black Foam	35	1675.00			
	PCL-15	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	Dilled Dak	Black Knit	30	575.00			
	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	Dilled Dak Opt., Wood	Black Knit	275	10,000.00			
DYNAMIC ACOUSTICS	2200	Inf. Baf. Sat. Subwoof.		5 1/4	Cone	1	Dome	T		60-20 ±3	88	10	2.6k	8/7	8 x 14 x 6	Dpt., Lacq. Dpt.	Black Knit None	15	320.00			
	2602		(2)8							35-150 ±3	89	20	150	8/5.8	17 x 17 x 17	Dpt., Lacq. Dpt.		48	320.00			
DYNAMIC ELECTRO ACOUSTICS	Ovation	Ported	8			1	Dome			34-20 ±3	86	30	2.7k	8/7	11 x 11 x 36	Dpt., Lam.	Opt., Knit	90	990.00			
EGO SYSTEMS	PS-5	Ported	5 1/4			3/4	Dome			50-20	90	10	5k	6/	11 x 7 x 7	Wal. Vinyl	Black Knit	10	198.00			
	SE-6	Ported	6 1/2			1	Dome			50-21	93	10	3k	6/	14 x 9 x 8	Wal. Vinyl	Black Knit	14	278.00			
	PS-9	Ported	10			3/4	Dome			40-20	95	10	6k	6/	22 x 13 x 10	Wal. Vinyl	Black Knit	25	349.00			
	SE-10	Ported	10	5	Cone	1	Dome			36-21	96	10	700,6.5k	6/	22 x 13 x 13	Wal. Vinyl	Black Knit	36	590.00			
	SE-12.3	Ported	12	5	Cone	1	Dome	M,T		30-21	97	10	700,5k-Bk	6/	26 x 15 x 13	Wal. Vinyl	Black Knit	48	790.00			
	Speaker Enhancer	Add-On Tweeter				1	Dome	T				5	3.5k		13 x 9 x 9	Dpt.	Black Knit	6	179.00			
ELECTRO-COMPANIE	Prisma	Ported	8	5	Cone	3/4	Dome	M,T		20-20 ±1.5	89	25	600.4k	6/4.5	42 x 15 x 15	Dpt., Lacq.	Black Screen	45	1700.00			
ELECTRO-VDICE	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	249.00			
	Sentry 100EL Monitor	Self-Powered B4 Vented	8			1 1/2	Dome	T		45-18 ±3		Inc.	2k	30k/10k	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	Vented Pas. Rad.	8			1 1/2	Dome			56-18 ±3	92		1.5k	8/5	11 x 21 x 10	Sim. Wal.	Brown Knit	23	210.00			
	Interface 2 Series II	Vented Pas. Rad.	8			1 1/2	Dome			47-18 ±3	92		1.5k	8/5	14 x 24 x 11	Sim. Wal.	Brown Knit	25	273.00			
	Interface 3 Series II	Vented Pas. Rad.	8			1 1/2	Dome			40-18 ±3	92		1.5k	8/5	15 x 25 x 13	Sim. Wal.	Brown Knit	33	315.00			
ENERGY	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			
	22 Reference	Bass Ref.	7			1 1/2	Dome			28-45 ±3	86	20	1.5k	8/4	25 x 11 x 12	Dpt.	Black	34	1100.00			
	22 Reference Connoisseur	Bass Ref.	7			1 1/2	Dome			25-45 ±2	86	20	1.5k	8/4	35 x 11 x 14	Dpt., Ven.	Dpt.	80	1300.00			
ENTEC	SW-1	Sealed Subwoof.	(3)10					W		15-100 ±3		250 Inc.	100	10k	17 x 12 x 36	Dpt.	Black Foam	100	4495.00			
	SW-2	Sealed Subwoof.	(3)10					W		12-100 ±3		300 Inc.	100	10k	25 x 12 x 36	Dpt.	Black Foam	140	6495.00			
	SW-5	Sealed Subwoof.	10					W		18-100		120 Inc.	100	10k	17 x 12 x 36	Black	Black Foam	60	2695.00			
EPI	T/E 70	Inf. Baf.	6			1	Dome			55-20 ±3	88	15	1.8k	8/	16 x 11 x 18	Wood Vinyl	Brown Cloth	18	92.00			
	T/E 100	Inf. Baf.	8			1	Dome			40-20 ±3	88	15	1.8k	8/	20 x 12 x 9	Wood Vinyl	Brown Cloth	23	125.00			
	T/E 100 Plus	Inf. Baf.	8			1	Dome			38-20 ±3	88	15	1.8k	8/	22 x 14 x 9	Wood Vinyl	Brown Cloth	27	140.00			
	T/E 120	Inf. Baf.	10			1	Dome			38-20 ±3	88	15	1.6k	8/	25 x 15 x 11	Wood Vinyl	Brown Cloth	34	180.00			
	T/E 320	Inf. Baf.	10	4	Cone	1	Dome			42-20 ±3	87	20	700,3k	4/	29 x 17 x 11	Wood Vinyl	Brown Cloth	52	250.00			
	T/E 360	Pas. Rad.	10	4	Cone	1	Dome			32-20 ±3	87	20	700,3k	4/	38 x 17 x 11	Wood Vinyl	Brown Cloth	60	350.00			
	Stat 450	Inf. Baf.	10			4 1/2 x 14 3/4	ES	T		44-20 ±3	90	20	1k	4/	38 x 18 x 11	Wood Vinyl	Brown Cloth	50	350.00			

ACOUSTIC RESEARCH

CONNOISSEUR LOUDSPEAKERS

MODEL 30

MODEL 20 WITH OPTIONAL STAND

MODEL 19



THE BEAUTY OF ACCURATE SOUND.

Acoustic Research, Connoisseur Series loudspeakers, look as good as they sound and sound as good as they look. Their beauty extends to every facet of system design. Each acoustic element is precisely combined to ensure accurate reproduction for a refined listening experience. Unwanted sound wave reflections are reduced by rounded cabinet edges and recessed drive units which enhance the loudspeaker appearance as well. A uniquely designed stand (optional) places the system at the optimum listening height. A high quality Crossover Network, long-throw woofers and domed tweeters enable optimum dispersion, smooth frequency response and large signal performance. The new Acoustic Research, Connoisseur Series is available at select audio retailers. Stop by to see and hear for yourself, the beauty of accurate sound.

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches		Tweeter Diameter, Inches		SPL Level Control, W/Woof.		Ancholic Frequency Response, Hz to kHz, ±dB		SPL, 1 Watt/ Meter, dB		Recommended Min. Amp. Pwr., Watts		Impedance Ohms, Nominal/Minimum		Dimensions, Inches (To Nearest Inch)		Finish		Grille Color and Material		Weight, Lbs.		Price, \$	
			(3)6½	(2)2	Cones			Leaf		30-43 ±2	89	40	300.5.5k	4/3	16 x 16 x 48	Opt., Wood	Brown Knit	170	1795.00										
EPIK AUDIO	LSM	Aperiodic	(3)6½	(2)2	Cones		Leaf	30-43 ±2	89	40	300.5.5k	4/3	16 x 16 x 48	Opt., Wood	Brown Knit	170	1795.00												
	Tower Monitor	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	3150.00												
	Tower LSM	Aperiodic	(4)6½	(2)4	Cones	(4)	Leaf	100-43 ±3	92	40	250.5.5k Elect.	4/2	12 x 32 x 72	Opt., Wood	Brown Knit	425	3995.00												
	210	Trans. Line Subwoof.	10					22-100 ±5	90	60		8/6	16 x 17 x 53	Opt., Wood	Brown Knit	190	1195.00												
ESB	7/06	Ac. Sus.	12	8.2	Domes	1	Dome	(2)M, T	35-20 ±3	89	50	500.2k, 5k	8/6	55 x 19 x 12	Oiled Wal.	Black	106	3300.00											
	7/07	Ac. Sus.	12	8.1½	Domes	1	Dome	No	40-20 ±3	88	50	550.2.2k, 6k	8/6	47 x 17 x 12	Oiled Wal.	Black	90	2200.00											
	7/08	Ac. Sus.	10	2	Dome	1	Dome	No	45-20 ±3	87	40	650.6k	8/6	37 x 15 x 11	Oiled Wal.	Black	55	1400.00											
	7/09	Ac. Sus.	10	1½	Dome	1	Dome	No	50-20 ±3	87	40	800.6k	8/6	13 x 21 x 13	Oiled Wal.	Black	40	880.00											
	7/01	Ac. Sus.	8	1½	Dome	1	Dome	No	50-20 ±3	87	40	800.6k	8/6	11 x 17 x 11	Oiled Wal.	Black	33	700.00											
	ESM/ENERGY	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 7	Trans. Line	(2)6			1	Dome		30-21 ±3	91	50	2k	8/6	38 x 15 x 25	Opt.	Opt.	100	2850.00											
	Amethyst 7MS	Trans. Line	(2)6	2	Cone	1.0.7	Domes		30-23 ±3	91	50	300.2k, 6k	8/6	51 x 15 x 25	Opt.	Opt.	130	4750.00											
	Amethyst 9	Trans. Line	8	(2)6	Cones	1.0.7	Domes		26-23 ±3	91	60	80.2k, 6k	8/6	43 x 15 x 25	Opt.	Opt.	180	5450.00											
	Amethyst 10A	Trans. Line	8	(2)6, 2	Cones	1.0.7	Domes		26-23 ±3	91	60	80.300, 2k, 6k	8/6	51 x 15 x 25	Opt.	Opt.	200	6850.00											
	Topaz 3	Trans. Line	6			2.5	Cone		32-19 ±3	90	20	2k	8/6	10 x 14 x 33	Oiled Wal.	Opt.	60	750.00											
	Topaz 4	Trans. Line	6			1	Dome		32-21 ±3	90	30	2k	8/6	10 x 14 x 39	Oiled Wal.	Opt.	70	1200.00											
	Topaz 5	Trans. Line	6			1.0.7	Domes		32-23 ±3	90	30	2k, 6k	8/6	10 x 14 x 44	Oiled Wal.	Opt.	80	1650.00											
	Topaz 6	Trans. Line	6	6	Cone	1.0.7	Domes		28-23 ±3	90	40	80.2k, 6k	8/6	Four Pieces	Oiled Wal.	Opt.	140	2500.00											
	Topaz Subwoofer	Trans. Line Subwoof.	6						28-200 ±2	90	40		8/6	10 x 14 x 33	Opt.	Opt.	60	1000.00											
	ESS LABORATORY	HD 1200	Ported	12	2x6	Horn	1½x5	Piezo Horn	M, T	34-23	96	10	1.5k, 8k	8/3	14 x 12 x 25	Wal. Vinyl	Black Knit	42½	498.00										
HD 1000		Ported	10	2x6	Horn	1½x5	Piezo Horn	M, T	40-23	96	10	1.5k, 8k	8/3	12 x 12 x 22	Wal. Vinyl	Black Knit	35½	398.00											
HD 1020		Ported	10			1½x5	Piezo Horn	T	45-23	96	10	3k	6/3	12 x 12 x 33	Wal. Vinyl	Black Knit	33½	298.00											
AMT1D		Pas. Rad.	12			21.5 Sq. In.	Heil AMT	M, ST	35-23 ±3	91	35	800	6/3	16 x 16 x 35	Wal. Vinyl	Black Knit	85	1270.00											
AMTII		Pas. Rad.	10			21.5 Sq. In.	Heil AMT	M, ST	38-23 ±3	91	30	900	6/3	15 x 15 x 34	Oiled Wal.	Black Knit	65	950.00											
AMT Bkshell		Pas. Rad.	12			21.5 Sq. In.	Heil AMT	M, ST	40-23 ±3	91	35	800	6/3	13 x 14 x 25	Oiled Wal.	Black Knit		1100.00											
PS 6D		Pas. Rad.	10			10.4 Sq. In.	Heil AMT	M, ST	40-22 ±3	93	15	1.8k	6/3	14 x 14 x 24	Oiled Wal.	Black Knit	49	678.00											
Mini Monitor 620		Pas. Rad.	5¼			1.5	Dome		60-20 ±5	87	10	2.5k	8/3	8 x 7 x 12	Oiled Wal.	Black Knit	17	152.00											
EUPHONIC AUDIO		EA-1	Vented	10	(2)5	Cones	1	Dome		32-20 ±2	91	20	180.2.2k	8/6	14 x 17 x 42	Opt.	Black Foam	85	1800.00										
		Nymph II	Vented	6½			1	Dome		40-18 ±3	89	20	2k	6/4	22 x 10 x 15	Opt., Wood	Brown Foam	31	900.00										
	EA-2	Vented	8			1	Dome		38-20 ±3	92	20	225.2.5k	8/4	32 x 13 x 12	Opt., Wood	Brown Knit	44	750.00											
	EA-3	Vented	8			1	Dome		50-20 ±3	90	20	2.2k	8/6	24 x 10 x 12	Opt., Wood	Brown Knit	28	550.00											
FANFARE ACOUSTICS	Tempo 2	Ac. Sus.	6½	6½	Cone	1	Dome		35-21 +0.2	90	20	400.3.5k	6/4	12 x 11 x 24	Cloth	Black Knit	35	499.00											
FISHER	DS-816	Bass Ref.	10	4	Cone	3	Cone		50-20	91	6	1.5k, 6k	8/	12 x 25 x 11	Hick.	Black Knit	18½	99.95											
	DS-827	Bass Ref.	12	4	Cone	3	Cone		40-20	92	10	1.5k, 6k		14 x 29 x 13	Hick.	Black Knit	29	149.95											
	STV-015	Bass Ref.	8	5	Cone	3	Cone		50-20	90	10	1.5k, 6k		11 x 19 x 13	Hick.	Black Knit	24	149.95											
	ST-82B	Bass Ref.	15	4	Cone	3	Cone		40-20	92	10	1.5k, 6k		17 x 29 x 13	Hick.	Black Knit	35	199.95											
	ST-832	Bass Ref.	15	4	Cone	3	Cone		38-20	93	10	1.5k, 6k		18 x 32 x 15	Hick.	Black Knit	45	249.95											
	ST-845	Bass Ref.	15	6	Dome	4	Horn		38-20	93	10	1.5k, 6k		18 x 32 x 15	Hick.	Black Knit	45	299.95											
FMS	FM-2	Aperiodic	6½	1½	Dome	¾	Dome		40-40	87	25	2.2k, 14k	7.5.5	21 x 11 x 9	Opt.	Black Mesh	38	2450.00											

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate level Crossover W. Woofer, M=Midrange, T=Tweeter, ST=Super-tweeter	Angular Frequency Response, Hz to Hz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms, Nominal/Minimum	Dimensions, Inches (1/16 Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
FOCAL	250 DB	Bass Ref.	5			1	Dome		60-20 ±3	88	30	300,3.5k	8/4.1	10 x 10 x 15	Oiled Wal.	Black Knit	38 Pair	360.00 Pair; Kit, 260.00
	280 DB	Bass Ref.	7			1.2	Dome		55-20 ±3	90	25	300,3.7k	8/4	10 x 10 x 15	Oiled Wal.	Black Knit	38 Pair	450.00 Pair; Kit, 300.00
	The Egg	Bass Ref.	7			1.2	Dome		55-20 ±3	90	25	250,3.2k	8/4	12 x 10 x 16	Opt., Plstr.		45 Pair	600.00 Pair; Kit, 485.00
	300 DB	Bass Ref.	8			1.2	Dome		41-20 +0,-3	91	35	300,3.5k	8/4	11 x 13 x 33	Oiled Wal.	Black Knit	90 Pair	650.00 Pair; Kit, 450.00
	400 TL	Trans. Line	8	5	Cone	1.2	Dome		35-20 ±3	91	50	450,5k	8/4.5	13 x 15 x 45	Oak	Brown Knit	138 Pair	900.00 Pair; Kit, 650.00
	600	Vented	10	6.5	Cone	1.2	Dome		50-20 +0,-3	95	50	350,4.1k	8/6	Four Pieces	Wal. & Opt., Plstr.	Black	296 Sys.	1200.00 Sys.; Kit, 900.00 Sys.
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	Beta	Press. Rel.	6½			2½	Cone/Oome		60-20 ±3	87	20	2k	8/6	8 x 8 x 14	Opt., Vinyl	Black Knit	30 Pair	300.00 Pair
	Q/3	Line Tun.	8			1	Oome	T	45-18 ±3	89	20	2k	8/6	11 x 9 x 20	Opt., Vinyl	Black Knit	40 Pair	400.00 Pair
	A/3	Line Tun.	8			1	Oome	T	40-18 ±3	90	20	2k	8/6	13 x 10 x 23	Oiled Wal.	Black Knit	35 Pair	600.00 Pair
	The Subwoofer	Line Tun.	10						32-90 ±3	89	20	90	8/6	15 x 12 x 24	Opt., Vinyl	Black Knit	55	325.00
	Studio IV	Line Tun.	8			¾	Oome		26-22 ±3	90	20	2.7k	8/6	12 x 18 x 39	Oiled Wal.	Black Foam	80	1150.00 Pair
	G/2A	Line Tun.	10	6½	Cone	¾	Oome		21-22 ±3	91	20	100,2.7k	B/6	16 x 18 x 44	Oiled Wal.	Black Foam	100	1950.00 Pair
	C/3	Press. Rel. Sat.	6½			¾	Oome		60-22 ±3	91	20	2.7k	8/6	10 x 9 x 13	Oiled Wal.	Black Foam	20 Pair	400.00 Pair
	D/3	Trans. Line Subwoof.	10						23-100 ±3	91	20	100	8/6	24 x 13 x 31			45 Pair	700.00 Pair
	SM-3	Trans. Line Subwoof.	12						20-100 ±3	92	20	100	8/6	29 x 15 x 38			50 Pair	800.00 Pair
FULTON AUDIO	Tempo	Oval Window	8	5	Cone	(2)2¼	Cones		35-42 ±2	94	10	65,1.4k,9k	8/7	12 x 10 x 19	Wal. Vinyl	Black Knit	45	595.00 Pair
	Rhapsody	Oval Window	(2)8	5	Cone	(2)2¼	Cones		25-42 ±2	94	10	55,122, 1.4k,9k, 16k	8/7	12 x 12 x 37	Oak Vinyl	Brown Knit	75	1495.00 Pair
	Crescendo	Oval Window	(3)8	5	Cone	(2)2¼	Cones		20-42 ±1.5	92	15	50,90, 1.4k,9k	8/6	12 x 12 x 48	Wal. Lacq.	Black Knit	125	2900.00 Pair
	Symphony	Oval Window	(5)8	(2)5	Cones	(2)2¼	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
	Premiere	Oval Window	15, (2)10	(2)8, (2)5	Cones	(2)2¼, 1½	Cones, Leaf	(2)W, (2)M, T, ST	14-100 ±1.25	88	40	40,68,122, 1.4k,9k, 17k	8/5	25 x 24 x 60	Wal. Lam.	Black Knit	355	12,500.00 Pair
GABRIEL AUDIO	Gabriel	Sat. & Subwoof.	18	6½	Cone	½x2	Leaf	No	30-80 ±2	92	20	200,4k	8/6	Three Pieces	Koa	Black Knit	140 Sys.	1750.00 Sys. w/ Stands
	SW18	Subwoof.	18					No	30-200 ±2	92	20	200	8/6	24 x 32 x 19	Koa	Black Knit	90	800.00
GALE	GS402A	Sealed Box	(2)8	4	Cone	1	Dome		20-20 ±4	88	40	750,5k	8/4	24 x 17 x 15	Chrm./Black Wal. Lacq.	Black	55	1600.00 Pair
	GS402	Sealed Box	(2)8	4	Cone	1	Dome		20-20 ±4	88	40	750,5k	8/4	24 x 17 x 15	Wal. Lacq.	Black	50	1250.00 Pair

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Speaker Level Controls W = Woofer, M = Midrange, T = Tweeter, ST = Super-tweeter	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, \$
G.C. VIDEO	Sat-1	Inf. Baf. Sat.		5½	Cone	¾	Dome		180-28 +1,-3	92	25		8/4	7 x 10 x 5	Oak	Brown Knit	7	239.00	
	Sat-2	Inf. Baf. Sat.		5½	Cone	¾	Dome		90-28 +1,-3	92	25		8/4	8 x 12 x 6	Oak	Brown Knit	12	319.00	
	Wool-1	Subwoof.							38-180 +1,-3	92	50		8/4	17 x 27 x 14	Dak	Brown Knit	65	330.00	
	Sys-1	Sat. & Subwoof.							38-28 +1,-3	92	50	180	8/4	Three Pieces	Dak	Brown Knit	79	569.00	
	Sys-2	Sat. & Subwoof.							38-28 +1,-3	92	50	160	8/4	Three Pieces	Dak	Brown Knit	89	649.00	
GENESIS PHYSICS	G 44	Pas. Rad.	8			¾	Dome		25-22	88	30	1.1k	6/4.5	18 x 33 x 9	Dpt.	Beige Knit	48	700.00	
	G 33	Pas. Rad.	8			1	Dome		30-20	90	20	1.5k	8/6	29 x 16 x 8	Teak Vinyl	Beige Knit	31	500.00	
	G 22	Pas. Rad.	6½			1	Dome		40-20	88	20	1.8k	8/6	14 x 24 x 7	Teak Vinyl	Beige Knit	28	370.00	
	G 11	Vented	8			1	Dome		50-20	90	20	1.5k	8/6	12 x 19 x 7	Teak Vinyl	Beige Knit	16	278.00	
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	Dpt., 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	Dpt., 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	Dpt., 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	Dpt., 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	Dpt., Wood	Black Knit	15	349.00	
GDETZ SYSTEMS	GMS Mark I	Vented	(2)10	5¼	Cone	¾	Dome	No	30-25	95	25	500, 4.2k	8/	47 x 22 x 12	Teak	Black Knit	180	2995.00	
	GMS Mark II	Vented	(2)8	5¼	Cone	¾	Dome	No	32-25	94	25	500,4.2k	7/	43 x 21 x 11	Teak	Black Knit	140	2595.00	
	GMS Mark III	Vented	(2)8	5¼	Cone	¾	Dome	No	32-25	94	25	600,4.2k	7/	41 x 19 x 10	Teak	Black Knit	120	1995.00	
GOLDMUND	Dialogue	Ported	(2)7	7	Cone	1¼	Dome		20-18	96		6.3	14 x 14 x 46	Opt., Lacq.	Black	150	3500.00		
GOLD RIBBON CONCEPTS	The Gold 3.0	Sat.				32L	Ribbon		200-30 ±3	84	30	200	2/2	32 x 6 x 1	Gray Nxtl. Dak	None	30	1200.00	
	The Gold 3.0.30	Trans. Line	(4)7			32L	Ribbon		45-30 ±3	84	60	300	4/2	64 x 6 x 20	Dak		150	2750.00	
	The Gold 3.0.60	Trans. Line				32L	Ribbon		45-30 ±3	84	60	300	4/2	71 x 6 x 20	Dak		186	3850.00	
	The Gold Woofer	Trans. Line Subwoof.	14						15-100 ±2	86		35,70,140	4/1.6	24 x 28 x 33	Dak	Black Knit	78		
GOLD SOUND	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	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	Dpt.	Brown Knit	18	Pair Kit, 149.00	
	Kit #3	Bass Ref.	10	5¼	Cone	1	Dome	No	42-20 ±3	92	5	250,3k	8/4	25 x 14 x 11	Dpt.	Brown Knit	29	Pair Kit, 198.00	
	Kit #4	Bass Ref.	12	5¼	Cone	1	Dome	No	36-20 ±3	93	5	250,3k	8/4	25 x 14 x 11	Dpt.	Brown Knit	29	Pair Kit, 249.00	
	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	Dpt.	Brown Knit	35	Pair Kit, 399.00	
	Kit #6LA	Bass Ref.	(2)10	6½	Cone	1¼, 4x5	Dome, Ribbons	No	38-40	94	5	200,2k, 8k	8/4	37 x 14 x 11	Opt.	Brown Knit	40	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	37 x 14 x 11	Opt.	Brown Knit	45	Pair Kit, 549.00	
	Kit #7LA	Bass Ref.	(2)12	7	Cone	1¼, 4x3	Dome, Leaf	M, T	36-50 ±3	95	5	200,2k, 8k	8/4	37 x 14 x 11	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	36 x 24 x 18	Opt.	Brown Knit	124	Pair Kit, 848.00	
	Kit #11 Pro	Bass Ref.	15	7	Cone	5x5	Horn	M, T	45-21 ±3	97	5	200,6k	8/4	30 x 21 x 18	Opt.	Brown Knit	109	Pair Kit, 848.00	
	Kit #12 Pro	Bass Ref.	(2)15	7	Cone	5x5	Horn	M, T	45-21 ±3	97	5	200,5k	8/4	45 x 21 x 19	Opt.	Brown Knit	132	Pair Kit, 1169.00	
	Kit #14A	Bass Ref.	15	8	Cone	5x5, 4x9	Horns	W, M, T	28-21	93	5	200,1.5k, 6k	8/4	44 x 18 x 17	Opt.	Brown Knit	228	Pair Kit, 1492.00	
	Kit #14A Pro	Bass Ref.	15	8	Cone	5x5, 4x9	Horns	W, M, T	45-21 ±3	97	5	200,1.5k, 6k	8/4	44 x 18 x 17	Opt.	Brown Knit	228	Pair Kit, 1492.00	
	Kit #14	Bass Ref.	18	8	Cone	5x5, 4x9	Horns	W, M, T	25-21 ±3	95	5	200,1.5k, 6k	8/4	46 x 29 x 19	Opt.	Brown Knit	392	Pair Kit, 1812.00	

(Continued)

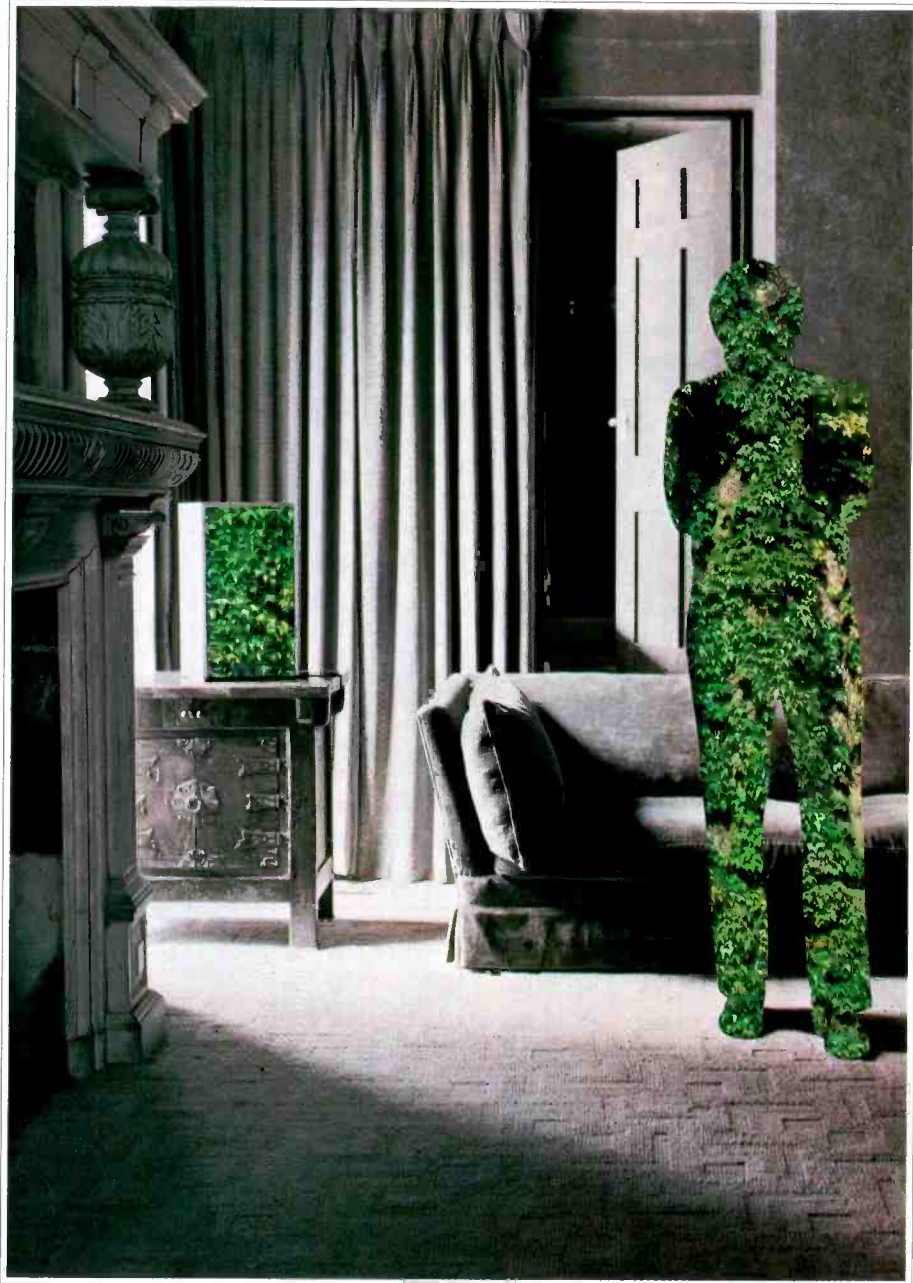
LOUDSPEAKERS

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate Level Crossover W = Woofer, M = Midrange, T = Tweeter, ST = Super-tweeter	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, \$
INFINITY (Continued)	Infinitesimal III	Sealed Box Pas. Rad.	4 1/2			1/2x2	EMIT	T		65-32 ± 2	86	15	3.5k	6/4	12 x 7 x 6	Black Metal Wal.	Black Metal Wal.	12 1/2	199.00
	Efficiency Standard 82	Pas. Rad.	8,10			1	Dome	T		60-22 ± 3	92	15	3k	8/6	27 x 14 x 6	Wal. Vinyl	Brown Cloth	30	175.00
	Efficiency Standard 83	Pas. Rad.	8,10	1 1/2	Dome	1	Dome	T		50-22 ± 2.5	92	15	600,3k	8/6	34 x 18 x 6	Wal. Vinyl	Brown Cloth	42	259.00
	Efficiency Standard 103	Pas. Rad.	10,12	1 1/2	Dome	1	Dome	T		45-22 ± 2	92	15	600,3k	8/6	38 x 18 x 6	Wal. Vinyl	Brown Cloth	47	309.00
INNOVATIVE TECHNIQUES	ITC 1	Seventh Order	5 1/4	1 1/2	Dome	1	Dome	M,T		50-18 ± 3	86	50	1.2k,7.5k	8/7	7 x 12 x 8	Opt.	Opt.	39 Pair	885.00 Pair w/EQ
	ITC 2	Second Order	8			1	Dome	T		45-16 ± 2	89	30	1.3k	8/	10 x 10 x 32	Opt.	Opt.	39	670.00 Pair
	The Ceiling Speaker	Second Order	7			3/4	Dome			70-20 ± 3	91	10	6k	8/	13 x 19 x 7	None	Mesh	22	350.00 Pair
INTERAUDI/O/BOSE	SA 200	Ported	6			3	Cone				90	10	1.9k	8/	14 x 9 x 7	Wal. Vinyl	Brown Knit	20 1/2	278.00 Pair
	SA 300	Ported	8			3	Cone				90	15	1.1k	8/	18 x 11 x 9	Wal. Vinyl	Brown Knit	31	338.00 Pair
	SA 500	Ported	10			3	Cone				90	15	1.3k	8/	22 x 13 x 11	Wal. Vinyl	Brown Knit	45	538.00 Pair
	SA 1000	Ported	6,10			3	Cone				90	15		8/	28 x 16 x 11	Wal. Vinyl	Brown Knit	85	858.00 Pair
JAMD	C50	Bass Ref.	4			2	Cone			70-20 ± 3	89	2.9	2.6k	4/		Black		5	50.00
	C70	Bass Ref.	6 1/2			1	Dome			45-20 ± 3	90	3.3	1.85k	8/		Black		8 1/2	80.00
	C90	Bass Ref.	8	3 1/4	Cone	1	Dome			40-20 ± 3	91.6	2.9	1.2k,4k	8/		Black		10	100.00
	SL80	Bass Ref.	6 1/2			1	Dome			40-20 ± 3	92	2.8	2.5k	8/	18 x 9 x 8	Rswd. Vinyl	Brown Knit	9 1/2	200.00 Pair
	SL100	Bass Ref.	6 1/2	5	Cone	1	Dome			35-20 ± 3	92	2.4	1.5k,4k	8/	21 x 11 x 9	Rswd. Vinyl	Brown Knit	15 1/2	260.00 Pair
	SL140	Bass Ref.	8	5	Cone	1	Dome			30-20 ± 3	93	2.2	1.4k,4k	8/	24 x 12 x 9	Rswd. Vinyl	Brown Knit	18	340.00 Pair
	SL150	Bass Ref.	6 1/2			1	Dome	T		32-20 ± 3	91	2.9	3.8k	8/	33 x 11 x 9	Rswd. Vinyl	Brown Knit	28 1/2	500.00 Pair
	P166	Bass Ref.	8 1/4		Dome Horn	1	Dome Horn			30-20 ± 3	94	1.5	2.5k	8/	17 x 11 x 10	Black	None	20	320.00 Pair
	P266	Bass Ref.	8 1/4	1	Dome Horn	1	Dome Horn			25-20 ± 3	95	1.2	1.4k,4.8k	8/	24 x 13 x 11	Black	Black Knit	33	520.00 Pair
	P366	Bass Ref.	9 3/4	1	Dome Horn	1	Dome Horn	M,T		22-20 ± 3	96	1	1.25k,5k	8/	27 x 15 x 12	Black	Black Knit	49	740.00 Pair
	P566	Bass Ref.	12	2	Dome Horn	(5)1	Dome Horn	M,T		22-20 ± 3	97	0.8	1.2k,3.5k	8/	30 x 18 x 14	Black	Black Knit	75	1200.00 Pair
	CBR70	Ported	5	3	Cone	1	Dome			40-20 ± 3	92	3.5	1.2k,4.6k	8/		Wal.	Black Foam	15 1/2	200.00
	CBR90	Ported	6 1/2	4	Cone	1	Dome	M		35-20 ± 3	93	3.5	960,5k	8/		Wal.	Black Foam	24	270.00
	CBR120	Ported	8	4	Cone	1	Dome	M		28-20 ± 3	93	2.5	820,4.9k	8/		Wal.	Black Foam	40	400.00
CBR200	Ported	10	5	Cone	1	Dome	M,T		25-24 ± 3	94	2	540,3.8k	8/		Wal.	Black Foam	53	600.00	
JANIS	W1	Slot Loaded Subwoof.	15							30-100 ± 1	87	60	100	8/7	18 x 22 x 22	Diled Wal.	Wood	100	750.00
	System 3	Slot Loaded Subwoof.	12							30-100 ± 1	85	60	100	8/7	18 x 18 x 18	Diled Wal.	Wood	67	500.00
JBL	L20T	Ducted Port	6 1/2			1	Dome				87	10	3k	8/	15 x 9 x 8	Diled Wal.	Opt. Knit	36	195.00
	L60T	Ducted Port	8			1	Dome				88	10	2.5k	8/	31 x 12 x 10	Diled Wal.	Opt. Knit	38	265.00
	L80T	Ducted Port	10	5	Cone	1	Dome				90	10	800,4.5k	8/	34 x 14 x 12	Diled Wal.	Opt. Knit	53	395.00
	L100T	Ducted Port	12	5	Cone	1	Dome				91	10	800,4.5k	8/	37 x 16 x 13	Diled Wal.	Opt. Knit	70	525.00
	350A	Pas. Rad.	10	5	Cone	1	Dome				91	10	1.1k,3.4k	8/	38 x 19 x 13	Dak Vinyl	Brown Knit	65	320.00
	B460	Subwoof.	18								94	200	Ext.	8/	25 x 38 x 24	Wal.	Brown Knit	125	1500.00
	B380	Subwoof.	15								90	200	Ext.	8/	21 x 27 x 17	Teak	Brown Knit	70	595.00
	LT-1	Ducted Port	5 1/4			1	Dome				87	10	4k	8/6	10 x 6 x 5	Black Alum. Wal.	Black Metal	27	395.00 Pair
	4312	Ducted Port	12	5	Cone	1.4	Cone	M,T			90	10	1.5k,6k	8/	23 x 14 x 12	Wal.	Black	45	545.00
	18Ti	Ducted Port	6 1/2			1	Dome				88	10	3k	8/	15 x 9 x 8	Teak	Brown Knit	35	268.00
	120Ti	Ducted Port	12	5	Cone	1	Dome	M,T			89	10	900,4k	8/	24 x 14 x 11	Teak	Brown Knit	56	558.00
	240Ti	Ducted Port	14	5	Cone	1	Dome	M,T			89	10	900,4k	8/	37 x 18 x 12	Teak	Brown Knit	85	838.00
	250Ti	Ducted Port	15	8.5	Cones	1	Dome	M,T, ST			90	10	400,1.4k, 5.2k, 3.6k	8/	52 x 22 x 14	Teak	Brown Knit	150	1698.00
	J216A	Ducted Port	6 1/2			1	Dome				89	10	3.6k	8/	15 x 10 x 9	Dak Vinyl	Brown Knit	39	100.00
J220A	Ducted Port	8			1	Dome				90	10	2.5k	8/	22 x 13 x 9	Dak Vinyl	Brown Knit	70	150.00	

(Continued)

B&W DIGITAL MONITORS



LISTEN AND YOU'LL SEE



AS USED BY DIGITAL RECORDING STUDIOS WORLDWIDE. AND SOON, WE HOPE, BY YOU

Enter No. 14 on Reader Service Card

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, \$
			8	5	Cone	1	Dome	91	10	1.1k, 3.4k	8/	23 x 13 x 9		Dak Vinyl	Brown Knit	72 Pair	190.00					
			10	5	Cone	1	Dome			91	10	1.1k, 3.4k	8/	26 x 16 x 9	Dak Vinyl	Brown Knit	42	230.00				
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			
J. P. W. LOUSPEAKERS	AP3	Inf. Baf.	8			3/4	Dome			55-20 ±3	89	10	3.2k	8/6.2	21 x 10 x 12	Opt.	Opt., Knit	53 Pair	429.50			
	AP2	Inf. Baf.	8			3/4	Dome			60-20 ±3	89	10	3.2k	8/6.2	17 x 10 x 10	Opt.	Opt., Knit	42 Pair	299.50			
	P1	Inf. Baf.	8			3/4	Dome			65-20 ±3	90	10	3.3k	8/6.2	17 x 10 x 10	Opt.	Opt., Knit	34 Pair	249.50			
JRM	Transparency Subwoofer 1A	B4 Vented Subwoof. QB3	18					W	26-250 ±3	91	200	150	8/5	24 x 26 x 37	Opt.	Opt.	150	450.00				
	Transparency Subwoofer 1B	Vented Subwoof. QB3	18					W	25-250 ±3	94	400	150	8/5	19 x 26 x 48	Opt.	Opt.	180	725.00				
	Transparency Subwoofer 1A	Vented Subwoof. QB3	(2)12					W	25-450 ±3	88	300	150	Sel.	24 x 26 x 37	Opt.	Opt.	150	450.00				
	Transparency Subwoofer 1B	Vented Subwoof. QB3	(2)15					W	26-300 ±3	94	300	150	Sel.	20 x 25 x 48	Opt.	Opt.	200	550.00				
	Transparency Satellite Tower	Triamped Inf. Baf. Sat.	(12)5	3x26	Horn	1 7/8	Horn	W, M, T	80-20 ±3	98	200 (2) 40	150, 800, 7k	Sel.	8 x 15 x 50	Opt.	Opt.		1550.00				
JSE	.6	Tuned Port	8			1	Dome	No	40-18 ±3	90	10	2.3k	8/6	11 x 13 x 23	Opt.	Opt., Knit	35	580.00				
	1	Sealed	8	6	Cone	1	Dome	No	35-20 ±2	89	20	2k	8/6	15 x 13 x 29	Opt.	Opt., Knit	55	919.00				
	1.8	Sealed	(2)10, 8	6	Cone	1	Dome	No	30-20 ±2	90	30	150, 2k	8/6	16 x 16 x 38	Opt.	Opt., Knit	85	1595.00				
	2	Sealed	(2)10, 12	6	Cone	1	Dome	No	25-30 ±3	90	50	150, 1k, 4k	8/6	17 x 18 x 45	Opt.	Opt., Knit	120	2195.00				
JVC	SX-A5	Pas. Rad.	8	1 1/4 (2)3	Dome, Cones	1	Dome	M		89	40	50, 1.2k, 4k, 6.5k	6/	15 x 32 x 10		Brown Knit	38.6	250.00				
	SK-S66	Bass Ref.	12	5	Cone	2 3/8	Cone			92	40		8/	15 x 31 x 13		Black Knit	41.9	180.00				
	SK-S44	Bass Ref.	12	5	Cone	2 3/8	Cone			92	30			15 x 26 x 13		Black Knit	33.8	150.00				
	SK-S22	Bass Ref.	10	2 3/8	Cone	2	Cone			91	30			14 x 24 x 10		Black Knit	22.3	220.00				
	SK-S11	Bass Ref.	8	2 3/4	Cone	2	Cone			90	20			13 x 22 x 8		Black Knit	16.6	180.00				
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		525.00			
	Midi	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		650.00			
	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		850.00			
KEF	KM1	Active	(4)12	(2)4 3/8	Cones	2				38-23 ±2	120	20 Inc.		22k	30 x 52 x 26	Opt., Wood	Black Knit	308	19,000.00			
	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	2800.00			
	104/2	Conjugate Load	8	(2)4 1/2		1	Dome			55-20 ±2	92	25		4/4	35 x 11 x 16	Opt., Wood	Black Knit	70 1/2	1600.00			
	103.2	Inf. Baf.	8			1	Dome			60-20 ±2	86	20	2.5k	8/8	20 x 10 x 10	Opt., Wood	Black Knit	19	900.00			
	101	Closed Box	5			1	Dome			90-30 ±2	81	20	2.5k	8/8	14 x 7 x 8	Opt., Wood	Black Knit	12 1/2	590.00			
	C80	Conjugate Load	8	6 1/2	Cone	1	Dome			38-22 ±3	89	20		4/4	33 x 10 x 12	Opt., Wood	Black Knit	43 1/2	1050.00			
	C60	Conjugate Load	8			1	Dome			55-20 ±3	89	20		4/4	18 x 10 x 12	Opt., Wood	Black Knit	26	690.00			
	C40	Closed Box	8	8	Cone	1	Dome			58-20 ±3	91	10		8/8	26 x 10 x 10	Opt.	Black Knit	21	500.00			
	C30	Closed Box	8			1	Dome			60-20 ±3	90	10		8/8	20 x 10 x 8	Opt.	Black Knit	16	350.00			
	C20	Closed Box	8			1	Dome			58-20 ±3	90	10		8/8	13 x 10 x 8	Opt.	Black Knit	12	290.00			
	C10	Closed Box	6 1/2			1	Dome			70-20 ±3	88	10		8/8	26 x 10 x 10	Opt.	Black Knit	8	220.00			
KENWOOD	LS-P9000K	Pas. Rad.	10 1/2	4 1/2	Cone	5/8	Dome	M, T	20-45	91		1.5k, 5k, 10k	8/	18 x 45 x 13	Wal.	Black	56.1	410.00				
	LS-P5000K	Pas. Rad.	8 1/2	4	Cone	5/8	Dome	T	25-45	90		1k, 5k, 10k	8/	14 x 30 x 13	Wal.	Black	39.6	235.00				
	LSK-701W	Bass Ref.	12	4 3/8	Cone	2 3/8	Cone		40-20				8/	15 x 27 x 10	Wal.	Black	24.2	175.00				
	LSK-501W	Bass Ref.	10	4 3/8	Cone	2 3/8	Cone		45-20				8/	14 x 25 x 10	Wal.	Black	20.9	305.00				
	LSK-301W	Bass Ref.	8			2 3/8	Cone		50-20				8/	12 x 22 x 9	Wal.	Black	13.2	175.00				



S-X1130 Audio/Video/Stereo Receiver

Introducing one brilliant idea on top of another.

Unmatched FM Stereo/AM Stereo reception and video control makes them fantastic. X-Balanced circuitry makes them phenomenal. Sansui's 130 watt S-X1130 and 100 watt S-X1100 Quartz PLL Audio/Video receivers are so far advanced, they even have a special decoder that lets you receive broadcasts of all AM stereo systems. What's more, their unique X-Balanced circuitry cancels out external distortion and decisively eliminates IHM, for the purest all-around listening pleasure.

But the advantages don't stop there. Both receivers are complete Audio/Video control centers that are radically different—and significantly more versatile—than any others on the market. The S-X1130 delivers all the highly advanced audio and video performance of the S-X1100, with the added bonus of sharpness and fader controls for enhanced video art functions. And both units offer additional audio dexterity with "multidimension" for expanded stereo or simulated stereo, plus sound mixing capabilities.

For more brilliant, innovative ideas, check out our full line of superior receivers. You'll know why we're first, the second you hear us.

There's more worth hearing and seeing from Sansui. Write: Consumer Service Dept., Sansui Electronics Corp., Lyndhurst, NJ 07071; Carson, CA 90746; Sansui Electric Co., Ltd., Tokyo, Japan.



Putting More Pleasure in Sound.

Enter No. 60 on Reader Service Card

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 W./woofer, M.=Midrange, T.=Tweeter, S.=Superwoofer	Anchored 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, \$
KEVEK LOUDSPEAKER TECHNOLOGY	ES. 6	Bass Ref.	6½			¾	Dome		60-20 ±3	88	2.5k	8/4	20 x 13 x 8	Oak	Opt., Knit	18	590.00 Pair	
	ES. 8	Bass Ref.	8			¾	Dome		55-20 ±3	87	2.5k	8/4	32 x 18 x 10	Oak	Opt., Knit	31	900.00 Pair	
	ES. 10	Bass Ref.	10			¾	Dome		50-20 ±3	89	2.5k	8/4	40 x 20 x 11	Oak	Opt., Knit	43	1190.00 Pair	
	ES. 12	Bass Ref.	12	6½	Cone	¾	Dome		30-20 ±3	90	150,2.5k	8/4	50 x 22 x 11	Oak	Opt., Knit	55	1790.00 Pair	
KINDEL AUDIO	P-50Mkil	Sealed Box	6½			2	Cone	T	50-20 ±3	86	2.5k	8/8	8 x 8 x 14	Oak	Black	16	250.00 Pair	
	P-100Mkil	Sealed Box	6½	2	Cone	¾	Dome	M,T	50-22 ±3	86	1.5k,8k	8/8	9 x 9 x 18	Oak	Black	21	325.00 Pair	
	P-200Mkil	Sealed Box	(2)6½	2	Cone	¾	Dome	M,T	40-22 ±3	90	300,1.5k,8k	4/4	10 x 10 x 24	Oak	Black	29	550.00 Pair	
	PHOLS	Box Cons. Press.	(6)6½			(4)¾	Domes	T	35-20 ±3	94	2.5k	4/4	10 x 11 x 52	Oak	Black	60	1000.00 Pair	
	Phantom	Thiele/Phase	(2)5½	1½	Dome	½x2½	Ribbon	T	38-25 ±2	89	1.2k,7k	4/4	6 x 18 x 42	Oak	Black	57	1460.00 Pair	
KINETIC AUDIO	Titan	TATL (Tap. Ac. Trap. Line)	(2)12	6½	Cone	3,1,¾	Domes	(2)M, T,ST	12-22 ±1.5	90	60,90,350,3k,7k	6/3	18 x 22 x 60	Oiled Wal.	Black Knit	245	2998.00 Pair	
	Trapezium	TATL	12	6½	Cone	3,1,¾	Domes	(2)M, T,ST	12-22 ±1	89	90,350,3.5k,7k	8/5	16 x 20 x 60	Oiled Wal.	Black Knit	205	2598.00 Pair	
	Labyrinth	TATL	12	6½	Cone	3,1	Domes	(2)M, T	16-22 ±1.5	91	90,350,3.5k	8/5	16 x 18 x 48	Oiled Wal.	Black Knit	185	1998.00 Pair	
	Trapezoid	TATL	12	6½	Cone	1,¾	Domes	M,T,ST	18-22 ±1.5	92	90,2k,7k	8/6	16 x 14 x 40	Oiled Wal.	Black Knit	115	1198.00 Pair	
	I/M Impulse Monitor Stat	TATL	12	6½	Cone		Dome	M,T	18-22 ±1.5	93	90,2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	95	798.00 Pair	
	Stat S/W	TAL (Tap. Ac. Line)	6½			1	Dome	T	38-22 ±2	93	2k	8/6	9 x 9 x 15	Oiled Wal.	Black Knit	30	458.00 Pair	
	Trapezoid S/W	TATL Subwoof.	12						18-2 ±2	92	90,2k	8/6	15 x 14 x 26	Oiled Wal.	Black Knit	80	298.00 Pair	
		TATL Subwoof.	12						16-2 ±1.5	92	90,2k	8/6	16 x 14 x 40	Oiled Wal.	Black Knit	95	398.00 Pair	
KIRKSAETER	Monitor 80	Inf. Baf.	8			1	Dome		35-25	93	10	2.7k	8/4	11 x 7 x 18	Opt., Wood	Cloth	22	520.00 Pair
	Monitor 100	Inf. Baf.	8	2	Dome	1	Dome	M,T	28-25	92	10	600.5k	8/4	11 x 7 x 18	Opt., Wood	Cloth	26	680.00 Pair
	Monitor 130	Inf. Baf.	10	2	Dome	1	Dome	M,T	22-25	93	10	600.5k	8/4	12 x 10 x 20	Opt., Wood	Cloth	30	1000.00 Pair
	Monitor 200	Inf. Baf.	12	2	Dome	1	Dome	M,T	20-25	93	10	600.5k	8/4	14 x 11 x 23	Opt., Wood	Cloth	38	1299.00 Pair
	"Satellit"	Ported	4			1	Dome		60-25	88	20	2.8k		5 x 7 x 10	Opt., Wood	Cloth		480.00 Pair
	Subwoofer 500	Active Inf. Baf. Subwoof.	12					W	18-160		Inc.	80,120,160		15 x 15 x 15	Opt., Wood	Cloth	45	799.00 Pair
	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	1399.00 Pair
	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	1699.00 Pair
Monitor 200	Active Inf. Baf.	12	2	Dome	1	Dome	W,M,T	18-25		Inc.	600.5k		14 x 11 x 23	Opt., Wood	Cloth	43	1999.00 Pair	
KLEIN & HUMMEL	0 98	Triamped	8¼	1½	Dome	¾	Dome	W,M,T	50-16 ±2.5	97	Inc.	850.6k	4.7k	15 x 10 x 8	Brown Enam.	Brown Knit	26½	770.00
	862	Tuned Port	6½			1	Dome		50-20 ±6	90	10	2.5k	8/6	14 x 9 x 9	Black	Black Knit	13½	120.00
KLH	608b	Tuned Port	8			3	Cone		70-20 ±6	88	10	2.3k	8/	12 x 21 x 10	Wal. Vinyl	Black Knit	17	79.95
	610b	Tuned Port	10	5	Cone	3	Cone	T	60-20 ±6	89	10	1.8k,6k	8/	13 x 23 x 11	Wal. Vinyl	Black Knit	24	119.95
	612b	Tuned Port	12	5	Cone	3	Cone	M,T	55-20 ±6	92	10	1.8k,6k	8/	15 x 26 x 14	Wal. Vinyl	Black Knit	35	159.95
	620b	Tuned Port	(2)10	5	Cone	3	Cone	M,T	55-20 ±6	90	10	2.5k,5k	8/	13 x 36 x 13	Wal. Vinyl	Black Knit	42	209.95
									50-20 ±6									
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.	165	1400.00
	Belle Klipsch LaScala	Folded Horn	15	2	Horn	1	Horn		45-17 ±5	104	20	500,6k	8/4	36 x 30 x 19	Opt.	Opt.	133	1150.00
	Cornwall	Folded Horn	15	2	Horn	1	Horn		45-17 ±5	104	20	400,6k	8/4	36 x 24 x 25	Birch	None	130	750.00
	Forte	Bass Ref.	15	1½	Horn	1	Horn		38-17 ±5	98	20	600,6k	8/4	36 x 26 x 16	Opt.	Opt.	100	770.00
	Heresy	Pas. Rad.	12	1½	Horn	1	Horn		32-20 ±3	96	20	800,6k	4/4	35 x 12 x 17	Opt.	Opt.	65	550.00
	KG4	Inf. Baf.	12	1½	Horn	1	Horn		50-17 ±5	96	20	700,6k	8/4	21 x 16 x 13	Opt.	Opt.	50	415.00
	KG2	Pas. Rad.	(2)8			1	Horn		38-20 ±3	90.5	30	1.8k	4/4	28 x 11 x 16	Opt.	Opt.	45	260.00
		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	Kossfire 160	Ported	12	5	Cone	(2)2	Cones	M,T	30-20	92	10	400,5k	8/4	16 x 14 x 33	Wal. Vinyl	Brown Cloth	52	
	Kossfire 110	Ported	10	4½	Cone	(2)1¼	Cones	T	30-20	92	10	2.5k,8k	8/4	14 x 11 x 23	Wal. Vinyl	Brown Cloth	37	
	M-80	Ac. Sus.	(2)4½			1	Dome		50-30	88	10	2.5k	6/4	5 x 5 x 13	Wal. Vinyl Oiled Wal.	Brown Cloth	14	

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle	Enclosure or System Type				Tweeter Diameter, Inches	Tweeter Type	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, \$	
			Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Type												
								Separate Level Controls W/Woofr. W=Midrange, T=Tweeter, ST=Super-tweeter	Anchored Frequency Response, Hz to kHz, ±dB									
KYOCERA	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 Pair
	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 Pair
	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 Pair
	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 Pair
LAKESHORE IMPORTS	Kassel I	Ac. Sus.	(2)10½	(2)4	Cones	(2)1½	Domes	M,T	30-20 ±2	85	30	400,3k	8/6.6	40 x 26 x 20	Opt.	Opt.	350 Pair	11,000. Pair
	Hees V	Ac. Sus.	(3)8	(2)4	Cones	1½	Dome	M,T	34-20 ±2	85	20	400,3k	8/6.6	40 x 12 x 15	Opt.	Opt.	141 Pair	8900.00 Pair
	Grotzky III	Coherent Phase	(2)8	5	Cone	1	Dome	No	55-20 ±2	86	20	400,2.5k	8/6.6	40 x 14 x 15	Opt.	Opt.	50 Pair	3500.00 Pair
	The Lucinda	Closed Box	8	4½	Cone	1	Dome	No	47-20 ±2	86	15	400,2.5k	8/6.6	28 x 12 x 11	Opt.	Opt.	30 Pair	1800.00 Pair
	The Emily II	Closed Box	8			1	Dome	No	55-20 ±2	86	15	2.5k	8/6.6	20 x 12 x 11	Opt.	Opt.	28 Pair	1200.00 Pair
	Barnett VII	Closed Box	8			1	Dome	No	68-20 ±2	86	15	2.5k	8/6.6	15 x 11 x 11	Opt.	Opt.	22 Pair	900.00 Pair
LANCER ELECTRONICS	LE-50	Vented	6½			¾	Dome		49-19	87	10	3k	4/4	14 x 9 x 9	Oiled Wal.	Brown Knit	12	129.50
	LE-70	Ac. Sus.	10			1	Dome	T	39-20	90	15	2k	8/6	21 x 13 x 10	Oiled Wal.	Brown Knit	30	199.50
	LE-90	Vented	10	4½	Cone	1	Dome	M,T	28-20	90	25	800,4k	8/6	39 x 14 x 11	Oiled Oak	Brown Knit	48	279.50
	LE-100	Vented	12	4½	Cone	1	Dome	M,T	36-20	92	25	600,4k	8/6	26 x 15 x 12	Oiled Oak	Black Knit	45	349.50
	LE-200	Vented	10	3	Dome	1	Dome	M,T	27-20	90	25	700,4k	8/6	39 x 16 x 13	Oiled Wal.	Black Knit	57	479.50
	LX-2	Ac. Sus.	8			3	Piezo		50-22	90	10	3k	8/6	19 x 11 x 8	Oiled Oak	Black Knit	19	99.50
	LX-3	Ac. Sus.	12	5	Cone	3	Piezo		38-22	93	10	500,3k	8/6	25 x 14 x 12	Oiled Wal.	Brown Knit	34	149.50
LX-4	Ac. Sus.	12	5	Cone	3	Piezo	M,T	38-22	93	10	500,3k	8/6	24 x 15 x 13	Oiled Oak	Brown Knit		219.50	
LASER	R100 MK III	Bass Ref.	10	4½	Cone	1	Horn		38-20	96	15	1.25k,4.5k	8/4	27 x 15 x 12	Hick.		34	358.00 Pair
	R150 MK III	Bass Ref.	12	4½	Cone	1	Horn		28-20	99	15	1.25k,4.5k	8/4	27 x 17 x 12	Hick.		40½	388.00 Pair
	FXT-8 MK V	Pas. Rad.	8			1	Horn		40-20	90	15	3.5k	8/4	33 x 13 x 10	Hick.		27½	288.00 Pair
	FXT-10 MK V	Pas. Rad.	10			1	Horn		35-20	92	15	3k	8/4	33 x 14 x 10	Hick.		31	338.00 Pair
LINN PRODUCTS	DMS	Isobarik	(2)12x9	(2)5	Cones	(2)1	Domes		25-20 ±3	88	50	375,3k	4/3	17 x 15 x 30	Teak	Black Foam	105	2495.00 Pair
	Sara	Isobarik	(2)8			1	Dome		36-20 ±3	88	35	3k	4/3	17 x 14 x 10	Teak	Black Foam	33	995.00 Pair
	KAN	Inf. Baf.	5			1	Dome		70-20 ±3	89	15	3k	8/6	8 x 6 x 12	Teak	Black Cloth	11	425.00 Pair
	Index	Inf. Baf.	8			1	Dome		60-20 ±3	87	10	3k	8/6	17 x 11 x 8	Black	Black Cloth	18	325.00 Pair
LIRPA LABS	IPS-D	Inf. Pas. Sus. & Subtwtr.	36x3	2x4	Oak	12	Dove		1-87 ±46	60	350	100,125,150	16/1	16 Pieces	Oiled Cloth	Peach Satin	999 Sys.	999.00 Sys.
MAGNAT	MSP 100	Inf. Baf.	8	2	Dome	1	Dome		41-27 ±3	90	20	850,3.5k	4/4	20 x 12 x 10	Oiled Wal.	Black Cloth	32½	400.00
	MSP 200	Inf. Baf.	8	2	Dome	1	Dome		37-27 ±3	90	20	850,3.5k	4/4	36 x 12 x 11	Oiled Wal.	Black Cloth	50½	600.00
	MSP 300	Inf. Baf.	(2)8	2	Dome	1	Dome		32-27 ±3	90	20	850,3.5k	4/4	42 x 12 x 11	Oiled Wal.	Black Cloth	60	750.00
	Magnasphere Delta	Inf. Baf.	(6)5¼	2	Sphere	1	Sphere		32-27 ±3	89	20	200,800,3k	4/4	44 x 14 x 14	Oiled Wal. Gray Lacq.	Black Steel	57½	1100.00
MAGNEPAN	Magneplanar SMGa	Planar Mag.	370 Sq. In.			58 Sq. In.	Planar Mag.		50-18 ±4	90	40	2.4k	4/	19 x 48 x 2	Oak	Opt.	25	525.00 Pair
	Magneplanar MG-lb	Planar Mag.	428 Sq. In.			68 Sq. In.	Planar Mag.		45-18 ±3	85	60	1.5k	5/	22 x 60 x 2	Oak	Opt.	35	850.00 Pair
	Magneplanar MG-lb	Planar Mag.	500 Sq. In.			68 Sq. In.	Planar Mag.		40-18 ±3	84	60	800	5/	22 x 71 x 2	Oak	Opt.	46	1200.00 Pair
	Magneplanar MG-lb	Planar Mag.	620 Sq. In.	170 Sq. In.	Planar Mag.	15 Sq. In.	Planar Mag. Ribbon		37-40 ±4	85	100	400,3k	4/	24 x 71 x 2	Oak	Opt.	52	2250.00 Pair
	Magneplanar Tympani IVa	Planar Mag. & Ribbon	1254 Sq. In.	135 Sq. In.	Planar Mag.	15 Sq. In.	Ribbon		32-40 ±4	87	100	350,3k	4/	55 x 72 x 2	Oak	Opt.	106	3800.00 Pair
MAGNUS	A10	Vented	10			2¾x 4½	Horn		45-20	91	10	4k	4/	23 x 13 x 12	Wood Vinyl	Brown Cloth	26	159.95
	A11	Vented	10	6	Cone	2¾x 4½	Horn	M,T	40-20	92	10	500,4k	4/	23 x 13 x 12	Wood Vinyl	Brown Cloth	27	199.95
	A12	Vented	12	6	Cone	2¾x 4½	Horn	M,T	35-20	93	10	500,4k	4/	26 x 16 x 12	Wood Vinyl	Brown Cloth	35	249.95
	A24	Vented	(2)12	6	Cone	2¾x 4½	Horn	M,T	33-20	93	10	500,4k	4/	41 x 17 x 11	Wood Vinyl	Brown Cloth	54	349.95

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 W. Woofer, Hz to kHz, \pm dB	Anchored Frequency Response, 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, \$
MARANTZ	SP800	Ported	8	4	Cone	2	Cone	70-20	89		8	26 x 13 x 9	Vinyl	Black Knit	16.4	74.95	
	SP1000	Ported	10	4	Cone	3	Cone	40-20	89		8	27 x 13 x 11	Vinyl	Black Knit	25.4	119.95	
	SP1200	Ported	12	4	Cone	3	Cone	25-20	90		8	30 x 15 x 12	Vinyl	Black Knit	32.4	149.95	
MARIAH ACOUSTICS	LS 4 II	Ac. Sus.	8			1	Dome	45-20 \pm 3	91	20	2k	4	12 Dia. x 23	Oak	Opt. Knit	45 Pair	298.00 Pair
	LS 3 II	Bass Ref.	10			1	Dome	38-20 \pm 2.5	87	30	1.8k	8	14 Dia. x 36	Oak	Opt. Knit	42 Pair	498.00 Pair
	LS 2 II	Bass Ref.	(2)8			1	Dome	35-20 \pm 2.5	88	30	2.2k	8	14 Dia. x 38	Oak	Opt. Knit	48 Pair	748.00 Pair
MARTIN-LOGAN	The Monolith	ES and Subwoof.	12				ES	27-22 \pm 2	90	50	100	6	26 x 12 x 74	Lacq.	Opt.	165	4850.00 Pair
	The CLS	Dipole ES						50-22 \pm 2	87	50		6/3	2 x 56 x 26	Lacq.	None	65	2450.00 Pair
MASTERCRAFT AUDIO	Sound Panels SP-MK 1	Ac. Sus.	8			1	Dome	40-22 \pm 3	91	30	3.1k	8	12 x 6 x 26	Opt.	Black Knit	58 Pair	699.00 Pair
	Sound Panels SP-MK 2	Ac. Sus.	(2)8			1 1/4	Dome, Piezo	37-27 \pm 3	93	30	3k	4	30 x 15 x 8	Opt.	Black Knit	88 Pair	998.00 Pair
	Black Box	Ac. Sus.	8			1	Dome	45-22 \pm 3	91	30	3.1k	8	14 x 10 x 8	Dpt.	Black Knit	48 Pair	499.00 Pair
	Music Monitor—Large	Ac. Sus.	10			1	Dome	38-21 \pm 3	94	15	2.5k	8	15 x 26 x 11	Wal.	Black Knit	60 Pair	450.00 Pair
	Music Monitor—Small SW-1	Ac. Sus. Subwoof.	8			2	Cone	50-20 \pm 3	92	10	2.8k	8	14 x 10 x 8	Wal.	Brown Knit	34 Pair	199.00 Pair
			12					28-90 \pm 3	89	50	90	8	30 x 15 x 10	Opt., Lam.		42	449.00
MAVRICK AUDIO	MAM I	Powered Concrete Horn	60x60	(10) 4 1/2x17	ES		Helium Plasma	W.M	12-100 \pm 2	Inc.	50.1k		Fifteen Pieces w/Six Amps & Preamp	Rswd.	Opt.	5000 Sys.	100,000 Sys.
	MAM II	Powered ES Press. Rel.	(10) 4 1/2x17	9			Helium Plasma	W	35-100 \pm 2.5	Inc.	1k		Ten Pieces w/Four Amps	Rswd.	Opt.	600 Sys.	20,000 Sys.
	MAM III		9				Helium Plasma		26-100 \pm 3	Inc.	1k	8/7	Four Pieces w/Two Amps	Oak	Opt.	400 Sys.	10,000 Sys.
McINTOSH	XL1	Inf. Baf.	6			1	Dome		85		1k	8	13 x 8 x 7	Oiled Wal.	Black	15	525.00 Pair
	XL10	Pas. Rad., Inf. Baf.	10.8			1	Dome		89		90.1k	8	25 x 14 x 8	Oiled Wal.	Black	27 1/2	858.00 Pair
	XR14	Inf. Baf.	10	5.3 1/8	Cones	1	Dome		89		700.1.4k, 7k	8	30 x 15 x 10	Oiled Wal.	Black	52	1498.00 Pair
	XR17	Inf. Baf.	12	8	Cone	1.1 1/2	Domes		89		250.1.4k, 7k	8	18 x 11 x 38	Oiled Wal.	Black	75	1990.00 Pair
	XRT18	Inf. Baf.	12	6	Cone	(16)1	Domes		86		3.50.1.5k	8	Four Pieces	Oiled Wal.	Black	174 Sys.	4500.00 Sys.
	XR1051	Pas. Rad., Inf. Baf.	12, 10	5	Cone	1	Dome		82		55,450, 1.3k	8	47 x 16 x 11	Lacq. Wal.	Black	83	2398.00 Pair
	XL1W	Inf. Baf. Subwoof.	12								90	8	28 x 18 x 12	Oiled Wal.	Black	55	549.00
MERIDIAN	M-10	Triamped Pas. Rad. Biamped, Ported	(4)5	(2)5	Cones	2	Dome	33-20 +0,-3			190.2k	11k	40 x 16 x 18	Opt.	Black Knit	101	4995.00 Pair
	M-2	Biamped, Ported	(2)5			2	Dome	38-20 +0,-3			2k	11k	20 x 7 x 15	Opt.	Black Knit	39.6	1995.00 Pair
	M-3	Biamped, Ported	5			1 1/4	Dome	38-24 +0,-3			2k	11k	15 x 7 x 12	Dpt.	Black Knit	26.5	1350.00 Pair
MIRAGE ACOUSTICS	200	Ac. Sus.	6 1/2	3/4		3/4	Dome	60-20 \pm 3	89	10	5k	8/4	17 x 10 x 8	Wal. Vinyl	Brown	28 Pair	229.00 Pair
	350	Ac. Sus.	8			1	Dome	59-20 \pm 3	92	10	4k	4/4	18 x 12 x 9	Wal. Vinyl	Brown	48 Pair	299.00 Pair
	550	Ac. Sus.	10			1	Dome	49-20 \pm 3	90	15	4k	6/4	32 x 12 x 9	Wal. Vinyl	Brown	43	449.00 Pair
	650	Pas. Rad.	10			1	Dome	44-20 \pm 3	90	20	4k	8/4	32 x 12 x 9	Wal. Vinyl	Brown	44	549.00 Pair
	750	Ac. Sus.	10	5 1/4	Cone	3/4	Dome	39-20 \pm 3	91	25	300.5k	8/4	32 x 12 x 9	Wal. Vinyl	Brown	44	599.00 Pair
	Subwoofer	Ac. Sus. Subwoof.	(2)10					36-300 \pm 3	92	20	300	10.6	20 x 25 x 15	Wal. Vinyl	Brown	67 1/2	449.00
MISSION ELECTRONICS	70	Inf. Baf.	(2)7			(2)3/4	Domes	60-20 \pm 3	89	20	2.2k	8	14 x 18 x 8	Opt.	Black Knit	17 1/2 Pair	199.00 Pair
	700.2	Bass Ref.	(2)8 3/8			(2)3/4	Domes	55-20 \pm 3	91	20	2.1k	8	18 x 10 x 10	Dpt.	Black Knit	14 Pair	299.00 Pair
	737R	Bass Ref.	(2)8 1/2			(2)3/4	Domes	40-20 \pm 3	90	30	2.4k	8	21 x 10 x 11	Opt.	Black Knit	43 Pair	599.00 Pair
	770F	Bass Ref.	(2)8 3/4			(2)1	Domes	35-20 \pm 3	92	30	2k	8	11 x 24 x 12	Opt.	Black Knit	55 Pair	799.00 Pair
	780A	Inf. Baf.	(2)8 3/4			(2)1	Domes	30-20 \pm 3	94	50	1.8k	4	11 x 28 x 12	Dpt.	Black Knit	77 Pair	1400.00 Pair
	707	Bass Ref.	(2)8 1/4			(2)3/4	Domes	50-20 \pm 3	92	20	2.2k	8	10 x 19 x 11	Dpt.	Black Knit	35 Pair	449.00 Pair

VALUE

Introducing Karat — a new generation of bookshelf speakers from Canton.

With Karat, Canton leads the way into the digital era of sound reproduction. The result is sound so natural and free of coloration you must hear them to appreciate the acoustic achievement this series represents.

Like the entire Canton product line, from our mini-speakers to our floor-standing speakers, the Karat bookshelf series offers value. Value in sound reproduction is first and foremost: that's why every element in the Karat series is designed, engineered and manufactured at the Canton factory in Germany.

Value in terms of detailing goes into every Canton speaker as well. That's why we offer our speakers in a variety of fine finishes, like walnut and oak veneers, rich black, bronze and white lacquers and now a premium finish, gloss mahogany. For at Canton, we believe speakers should look as good as they sound.

Visit your local Canton dealer today and learn the value of a sound investment: Canton's Karat series — products of German quality and craftsmanship.

Canton North America, Inc.
254 First Avenue North
Minneapolis, MN 55401



CANTON
Die reine Musik

Enter No. 15 on Reader Service Card

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Low Cutoff? W=woofer, M=midrange, T=tweeter.	Amphoic Frequency Response, Hz to kHz, ±dB	SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms, Normal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
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	645.00		
	S2B	Ac. Sus. Sat.	6½	Cone	1	Dome	M, T	65-22 ±3	93	10	2k	4/4	13 x 9 x 8	Opt., Wood	Black Knit	15	495.00		
	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	395.00		
	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	430.00		
	SX7	Ac. Sus. Sat.	4	Cone	¾	Dome		100-20 ±3	87	5	2k	4/4	8 x 5 x 5	Black Metal	Perf. Metal	6	195.00		
	V1B	Ac. Sus. Subwoof.	12				W	20-125 ±3		Inc.	50-125	600	18 x 19 x 17	Opt., Wood	Black Knit	50	750.00		
	V2B	Ac. Sus. Subwoof.	12				W	24-125 ±3		Inc.	50-125	600	18 x 19 x 17	Opt., Wood	Black Knit	43	600.00		
	V3B	Ac. Sus. Subwoof.	12				W	24-125 ±3		Inc.	50-125	600	18 x 18 x 15	Opt., Wood	Black Knit	38	500.00		
	VX4	Ac. Sus. Subwoof.	12				W	30-125 ±3		Inc.	50-125	600	19 x 18 x 14	Opt.	Black Knit	38	365.00		
	VX7	Ac. Sus. Subwoof.	8				W	40-180 ±3		Inc.	90-180	600	12 x 10 x 10	Black Vinyl	Black Knit	21	300.00		
	SV-200	Ac. Sus.	12	6½	Cone	1	Dome	W, M, T	24-22 ±3	93	10	125,2k	4/4	41 x 16 x 16	Opt., Wood	Black Knit	55	1650.00	
MONDIAL	1	Sat.			3L	Ribbon		3k-50k	87	20	Adj.	8/5	6 x 6 x 6	Opt.		4½	150.00		
	5	Subwoof.	6,9					30-3	90	50		8/6	12 x 16 x 37	Opt.	Black Metal	67	595.00		
	9	Bipolar	69x5	Ribbon				400-18	87	50		8/6	24 x 14 x 74	Opt., Wood	Black Cloth	65	1500.00		
	8		9	6	Cone	23L	Ribbon					8/6	24 x 14 x 50	Opt., Wood	Black Foam	96	1695.00		
MORDAUNT-SHORT	MS-10	Bass Ref.	4½		½	Dome		90-20 ±3	87	5		8/7	11 x 8 x 7	Black Cloth	Black Cloth	8	150.00		
	MS-20	Inf. Baf.	8		½	Dome		80-20 ±3	86	10	3.5k	8/6	17 x 10 x 8	Black Cloth	Black Cloth	13	198.00		
	MS-30	Bass Ref.	8		1	Dome		60-20 ±3	89	10	3.5k	8/6	20 x 10 x 11	Sim. Wal.	Brown Cloth	20	250.00		
	MS-40	Bass Ref.	8		¾	Dome		70-15 ±3	87	15	3.5k	8/6	21 x 10 x 9	Sim. Wal.	Brown Cloth	21	325.00		
	MS-100	Inf. Baf.	6½		½	Dome			87	25	4.5k	8/7	13 x 9 x 9	Opt., Wood	Brown Cloth	12	250.00		
	MS-300	Inf. Baf.	(2)6½		½	Dome			89	25	4.5k	8/7	22 x 9 x 10	Opt., Wood	Brown Cloth	22	498.00		
MOREL ACOUSTICS	MLP-201	Ac. Sus.	9		1.1	Dome		48-20 ±3	90	10	1.5k	8/6.3	10 x 16 x 10	Wal.	Black Cloth	16	248.00		
	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	395.00		
	MLP-307	Vented	(2)9		1.1	Dome		33-25 ±3	91	15	300,1.8k	8/6.3	14 x 24 x 13	Opt.	Black Cloth	32	600.00		
	MLP-403 II	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	600.00		
	CR-7	Ac. Sus.	6		1.1	Dome		70-25 ±3	90	15	1.6k	6/4	7 x 11 x 7	Black	Black Metal	10	395.00		
MTX	CD8	Vented	8		1	Dome		40-20 ±3	94.2	5	3k	8/4	19 x 11 x 8	Wal. Vinyl	Black Knit	34	149.95		
	CD10	Vented	10		1	Dome		36-20 ±3	94.5	5	3k	8/4	24 x 15 x 11	Wal. Vinyl	Black Knit	32	199.95		
	CD12	Vented	12	5	Cone	1	Dome	37-20 ±3	95.5	5	1.7k,6k	8/4	27 x 16 x 10	Wal. Vinyl	Black Knit	38	299.95		
	CD15	Vented	15	5	Cone	1	Dome	30-20 ±3	98.5	5	1.7k,6k	8/4	32 x 19 x 15	Wal. Vinyl	Black Knit	53	449.95		
MUSIC & SOUND	MAS 925 III	Pas. Rad.	8		(2)¾	Domes	No	30-22 ±3	91	20	3.3k,11k	8/5	12 x 12 x 24	Oak Ven.	Brown Cloth	38	699.00		
NAD	20	Ac. Sus.	8		1	Dome		35-25 ±3	88	10	2.5k	4,3,2	9 x 10 x 31	Black Vinyl	Black Knit	24	398.00		
	30	Ac. Sus.	12	4	Cone	1	Dome	28-25 ±3	85	20		4,3	12 x 13 x 40	Black Vinyl	Black Knit	37	598.00		
NEC	RS-100	Trans. Line	(2)8	1¾	Dome	1	Dome	28-18.5 ±3	90	25	2k,8.5k	4/	14 x 16 x 42	Oak	Brown Knit	103	1500.00		
NELSON-REEO	5-02	Inf. Baf.	5¼		¾	Dome		60-20 ±3	84	30	3.3k	8/6	12 x 8 x 6	Opt., Wood	Opt., Knit	12	520.00		
	6-02/B	Ported	6½		¾	Dome		40-20 ±3	84	30	3.3k	8/6	19 x 12 x 10	Opt., Wood	Opt., Knit	25	620.00		
	TW1201	Subwoof.	12					32-120 ±3	84	30	120	8/6	18 x 18 x 18	Opt., Wood	Opt., Knit	40	520.00		
	TW1202	Inf. Baf. Subwoof.	12					32-120 ±3	84	30	120		25 x 15 x 12	Opt., Wood	Opt., Knit	40	820.00		
	8-04 'Pro'	Slot Loaded	(2)8	3	Dome	¾	Dome	32-20 ±3	90	30	300,6k	4/3	39 x 15 x 12	Opt., Wood	Opt., Knit	75	2880.00		
	8-03 'Reference'	Slot Loaded	8	4	Cone	¾	Dome	32-20 ±3	90	30	300,5.5k	4/3	38 x 15 x 12	Opt., Wood	Opt., Knit	55	1850.00		
	8-02 'Standard' 1204	Ported	8	4	Cone	¾	Dome	32-20 ±3	90	30	300,5.5k	4/3	36 x 15 x 12	Opt., Wood	Opt., Knit	52	997.00		
(Continued)		Inf. Baf. Subwoof.	(4)12					16-65 ±3	90	50	65 Ext.	8/6	39 x 18 x 18	Opt., Wood	Opt., Knit	80	1200.00; 1650.00 w/Xover		

“... the **McIntosh**[®] has the best sound yet of any
COMPACT DISC PLAYER...”

McIntosh has earned world renown for its technological contributions for improved sound. When you buy a McIntosh you buy not only HIGH TECHNOLOGY that leads to superior sound reproduction, you buy technological integrity proven by time. The McIntosh Compact Disc Player is the newest evidence of McIntosh technological integrity.

For more information on the McIntosh MCD 7000 Compact Disc Player and other industry-leading McIntosh products write:

McINTOSH LABORATORY INC.
P.O. Box 96 EAST SIDE STATION, A105
BINGHAMTON, NY 13904-0096



COMPACT
disc
DIGITAL AUDIO

Handcrafted with pride in the United States by dedicated, highly trained craftspeople.

Enter No. 40 on Reader Service Card

AmericanRadioHistory.com

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Separate or Coaxial? W=Woof, M=Midrange, T=Tweeter, ST=Super Tweeter	Max. SPL, Hz to kHz, ±dB	Min. SPL, 1 Watt/1 Meter, dB	Recommended Min. Amp. Pwr., Watts	Crossover Frequencies, Hz	Impedance, Ohms: Normal/Minimum	Dimensions, Inches (To Nearest Inch)	Finish	Grille Color and Material	Weight, Lbs.	Price, \$
NELSON-REED (Continued)	8-04/1204	Slot Loaded & Inf. Baf. Subwoof.	(2)8, (8)12	3	Dome	¾	Dome		16-20 ±3	90	50	30,65,6k	4/3	Four Pieces Plus Xover	Opt., Wood	Opt., Knit	320 Sys.	5700.00 Sys.
	5-02/1202	Inf. Baf. Sat. & Subwoof.	5½, (2)12			¾	Dome		32-20 ±3	84	30	120,3.3k	8/6	Four Pieces	Opt., Wood	Opt., Knit	105 Sys.	1340.00 Sys.
	5-02/1201	Inf. Baf. Sat. & Subwoof.	5½, 12			¾	Dome		32-20 ±3	84	30	120,3.3k	8/6	Three Pieces	Opt., Wood	Opt., Knit	65 Sys.	1040.00 Sys.
NESTROVIC LABS	Type 5AS	Nestorovic Sat.	8,10	4	Dome/ Cone	4½	Planar	M, T	28-40 +1,-3	91	50	1k,7k	8/5	36 x 15 x 15	Opt., Wood	Black Cloth	75	2300.00 Pair
	Type 4A	Sat.	8	4	Dome/ Cone	4½	Planar		60-40 +1,-3	92	50	200,1k, 7k	8/6	22 x 12 x 12	Opt., Wood	Black Cloth	40	2400.00 Pair
	Type 8	Nestorovic Subwoof.	(2)12						18-250 +1,-3	92	75	250 Max.	8/5	22 x 26 x 26	Opt., Wood	Black Cloth	125	1450.00
	System 12A	Sat. & Nestorovic Subwoof.	(2)8, (4)12	(2)4	Dome/ Cones	(2)4½	Planars		18-40 +1,-3	92	50	200,1k, 7k	8/5	Four Pieces	Opt., Wood	Black Cloth	330 Sys.	5300.00 Sys.
	System 16A	Sat. & Nestorovic Subwoof.	(4)8, (4)12	(4)4	Dome/ Cones	(4)4½	Planars		18-40 +1,-3	92	50	200,1k, 7k	8/5	Six Pieces	Opt., Wood	Black Cloth	410 Sys.	7700.00 Sys.
NEW YORK ACOUSTICS	Nova	Push-Pull	(2)5		Ribbon		Leaf		50-60 ±3	87	40	800,12k	4/4	12 x 10 x 44	Opt., Wood	Black Knit	38	1500.00 Pair
	10.3	Bass Ref.	10	4	Cone	¾	Dome		32-22 ±3	89	30	125,2.7k	8/6	17 x 12 x 33	Opt., Wood	Black Knit	45	1100.00 Pair
	8.2	Bass Ref.	8			¾	Dome		40-22 ±3	90	20	2.7k	8/6	12 x 10 x 31	Opt., Wood	Black Knit	30	650.00 Pair
	6.2	Bass Ref.	6½			¾	Dome		45-22 ±3	89	20	2.7k	8/6	12 x 10 x 19	Opt., Wood	Black Knit	20	500.00 Pair
	SW-10	Bass Ref. Subwoof.	10						-3 dB@ 30 Hz	90	40	100	8/6	17 x 12 x 21	Opt., Wood	Black Knit	32	450.00 Pair
	SW-13	Bass Ref. Subwoof.	13						-3 dB@ 25 Hz	93	50		8/6	17 x 22 x 25	Opt., Wood	Black Knit	80	550.00
	NIKKO	DRM-4000	Inf. Baf.	12	5	Cone	(3)5	Domes			86	10		8/8	15 x 10 x 38	Wood Grain	Black	48 Pair
DRM-3000		Inf. Baf.	12	5	Cone	3	Cone			92	5		8/8	15 x 10 x 38	Wood Grain	Black	43 Pair	200.00 Pair
NOBIS	DM-3t	Vented	(2)6			1	Dome		33-20 ±4	91	50	100,3.2k	4.3.2	9 x 11 x 47	Oiled Oak	Brown Knit	51	900.00 Pair
	DM-4	Vented	6			¾	Dome		33-25 ±3	90	40	3k	4.3.2	11 x 10 x 17	Opt., Wood	Brown Knit	30	500.00 Pair
NONSPEAKER	NCM	Press. Rel.	9			1	Dome		45-22 ±3	89	25	1.8k	8/7	10 x 8 x 16	Oak	Black Knit	25	499.95 Pair
	NDS	Press. Rel. Sat.	6		Cone	1	Dome		60-22 ±3	90	25	1.8k	8/7	9 x 13 x 19	Oak	Opt.	35	799.95 Pair
	NDM	Press. Rel.	9			1	Dome		28-22 ±3	91	25	1.8k	8/7	12 x 17 x 26	Oak	Opt.	50	999.95 Pair
	NRC	Press. Rel.	9			3x4	Ribbon		26-35 ±3	91	25	1.8k	8/7	12 x 17 x 35	Oak	Opt.	60	1399.95 Pair
	NRW	Press. Rel. Sat. & Subwoof.	9			(2) 3x4	Ribbons		26-35 ±2.5	92	25	1.8k	8/4	Four Pieces	Oak	Opt.	150 Sys.	1899.95 Sys.
	NPM	Press. Rel.	(4)9			(4)1	Domes		20-22 ±3	96	25	1.8k	8/7	14 x 17 x 81	Black		200	3499.95 Pair
	NPW	Powered Subwoof.	(2)9					W	22-100 ±2	96	170 Inc. 25	100		12 x 17 x 52	Oak	Opt.	80	999.95
	NRS	Press. Rel. Sat. Line	6		Cone	3x4	Ribbon		55-35 ±2	92	25	1.8k	8/4	9 x 13 x 19	Oak	Opt.	35	1299.95 Pair
	NLS	Line	(4)6		Cones	(9) 3x4	Ribbons		45-35 ±2	95	25	1.8k	8/7	12 x 14 x 65	Oak	Opt.	100	5500.00 Pair
	NORTH AMERICAN SOUND	AVM II	Trans. Line	8			1	Dome		42-20 ±3	90	15	3.5k	8/6	20 x 13 x 12	Oiled Wal.	Black Knit	80 Pair
Monitor III		Trans. Line	8			1	Dome		35-20 ±3	90	15	3.5k	8/6	36 x 13 x 12	Oiled Wal.	Black Knit	105 Pair	795.00 Pair
Squire		Line Bass Ref.	12	6x15	Horn	2x5½	Horn		40-20 ±3	92	25	500,6k	8/4	46 x 15 x 16	Oiled Wal.	Black Knit	225 Pair	1990.00 Pair
Studio Monitor		Bass Ref.	15	6x15	Horn	2x5½	Horn		36-20 ±3	94	25	500,6k	8/6	54 x 15 x 20	Oiled Wal.	Black Knit	330 Pair	2790.00 Pair
NOVAK	2	Ported	6½			¾	Dome		45-24 ±3	91.5	5		4/	21 x 11 x 10	Opt., Wood	Black Lam.	22	300.00 Pair
	2B	Ported	6½			¾	Dome		45-24 ±3	91.5	5		4/	21 x 11 x 10	Opt., Wood	Black Lam.	22	330.00 Pair
NUMARK	MS-100A	Inf. Baf.	4			1	Dome		60-25 ±3	83	5	3k	8/6	7 x 5 x 5	Alum.	Black Metal	4.3	149.95 Pair
	MS-100B	Inf. Baf.	4			1	Dome		60-25 ±3	83	5	3k	8/6	7 x 5 x 5	Alum.	Black Metal	4.8	169.95 Pair
	2.0	Inf. Baf.	6½			1½	Dome		41-22 ±3	91	10	2.5k	8/8	15 x 11 x 11	Oiled Wal.	Black Knit		499.95 Pair
	3.0	Inf. Baf.	10	6½	Cone	1½	Dome		37-22 ±3	92	10	500,4.5k	8/8	29 x 16 x 15	Oiled Wal.	Black Knit		899.95 Pair

We get you back to what it's all about



Music.

In 1967 we started making loudspeakers in a garage with nothing to guide us but a knowledge of physics and a passion for music. Our first product was an instant classic, a loudspeaker called the Servostatic I, which was considered by many to be the ultimate audio transducer of its time.

Since then we've always had an ultimate loudspeaker in our product line, and we've used these dream systems to showcase

a host of new speaker technologies we've developed. We immodestly dubbed these systems Reference Standards — as indeed they must be since many aspects of their designs have been widely copied in the industry.

No company in audio can claim a greater commitment to significant research, developing practical and accurate polypropylene woofers, midranges, tweeters and state-of-the-art EMIT and EMIM planar drivers.

And we've used the results of that research to improve sound reproduction in a multitude of applications and at virtually every price point — from under \$40 a pair for our A32 auto speakers up to about \$35,000 for our finest system, the Infinity Reference Standard. Today we're in the home, the automobile and now in video.

But our research doesn't stop at the laboratory. We still listen to music, and we still get excited by it.



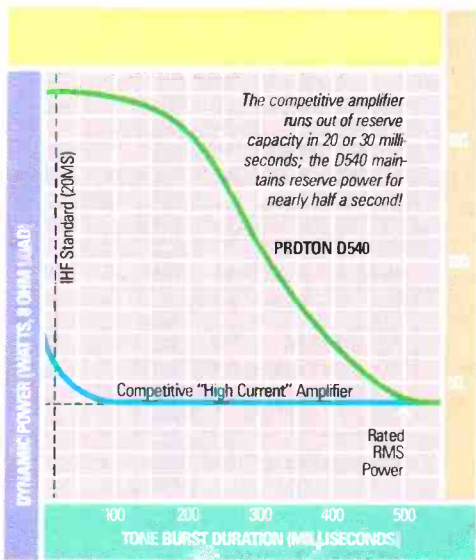
Infinity Systems, Inc. • 9409 Owensmouth Avenue • Chatsworth, CA 91311 • (818) 709-9400

Enter No. 32 on Reader Service Card

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches	Midrange Diameter, Inches	Midrange Type	Tweeter Diameter, Inches	Tweeter Type	Speaker Low Cutoffs: W = Woofer, M = Midrange, T = Tweeter, S = Super-tweeter		Analogous 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, \$
								W	M										
DHM ACOUSTICS	Walsh 4	Vented	10				Dome	W,T	32-17 ± 4	87	50		8/6		Dpt.	Brown Knit	126 Pair	1895.00 Pair	
	Walsh 3	Vented	8				Dome	W,T	39-16 ± 4	87	35		8/6		Opt.	Brown Knit	96 Pair	1395.00 Pair	
	Walsh 2	Vented	8				Dome	W,T	45-16 ± 4	87	30		4/4		Opt.	Black Knit	58 Pair	995.00 Pair	
	Walsh 1	Vented	8				Dome		48-18 ± 4	87	20		8/6		Wal.	Black Knit	48 Pair	595.00 Pair	
	C3	Vented	10		(2)1. 1/2		Domes, Cone	T,ST	37-21 ± 4	15	2.5k,7k		4/4	26 x 15 x 12	Dpt.	Black Knit	Black Knit	750.00 Pair	
	L2	Vented	8		2		Cone	T,ST	42-20 ± 4	8	2.5k,7k		8/4		Diled Wal.	Black Knit	520.00 Pair		
	E2	Vented	8		2		Cone	T	48-17 ± 4	7	2.5k		8/4	22 x 12 x 7	Oiled Wal.	Black Knit	300.00 Pair		
OMNI SOUND	TCM I	Vented	6 1/2			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 Pair	
	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 Pair	
	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 Pair	
ONKYO	HS-15	Ported	6 1/4	2 3/4	Cone	2	Cone		55-20	89	10	1.5k,10k	8/	8 x 13 x 10	Black	Black Mesh	10	220.00 Pair	
DRPHEUS	8	Pas. Rad.	8			1	Dome		30-20 ± 3	86	25	60.2k	8/4	45 x 16 x 9	Diled Wal.	Black Knit	61	1200.00 Pair	
PAISLEY RESEARCH	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	15	215.00 Pair	
	Reference One	Ported	8			3/4	Dome		40-20 ± 3	89	20	2.2k	6/4	19 x 10 x 9	Hick. Vinyl	Black	20	260.00 Pair	
	Reference Two	Ported	8			1	Dome		35-20 ± 3	88	20	2.2k	6/4	24 x 11 x 12	Hick. Vinyl	Black	31	350.00 Pair	
PARASOUND	Perfect Image	Vented	8			1	Dome		25-22	92	30	2k	8/6	39 x 19 x 12	Dpt. Wood Rswd.	Dpt.	62	800.00 Pair	
	CMs550	Vented	6			1	Dome		44-22	90	30	2k	8/6	22 x 12 x 9	Black	Black	26	440.00 Pair	
	CMs440	Vented	4			1	Dome		60-20	89	30	2.4k	6/4	14 x 6 x 5	Rswd.	Black	14	360.00 Pair	
	CSs810	Vented	8			2	Cone		50-20	88	25	2.2k	6/4	16 x 11 x 9	Birch	Black	12	169.00 Pair	
	AWs280	Vented	5			2	Cone		55-20	88	20	2.4k	6/4	15 x 10 x 8	Black	Black	12	230.00 Pair	
	CMs330	Sealed	4			1	Dome		60-22	89	30	2.6k	6/4	9 x 5 x 4	Black	Black	7	200.00 Pair	
PENTAGRAM	P-108A	Pas. Rad.	10, 15	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 Pair	
	P-8A	Pas. Rad.	8, 12	3	Dome	2	Leaf Ribbon	No	33-20 ± 2	90	25	675.5k	7.2/5	17 x 18 x 24	Oiled Wal.	Black Cloth	42	1150.00 Pair	
	P-6	Ported	6 1/2			1	Dome	No	45-20 ± 2.5	91	15	4k	8/6	18 x 15 x 8	Oiled Wal.	Black Cloth	22	495.00 Pair	
	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 Pair	
	Wall Pocket 2	Trans. Line 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 Pair	
PHASE DIAMETRICS	5	Bass Ref.	8	2	Dome	1, (2) 3/4	Domes		25-20 ± 2	88	20	1k, 4.5k	8/6	39 x 12 x 12	Opt.	Opt.	50	1295.00 Pair	
	3R	Bass Ref.	8	2	Dome	1	Dome		25-20 ± 2.5	87	20	1.2k, 4.5k	8/6	36 x 12 x 12	Opt.	Black Cloth	47	995.00 Pair	
	2	Bass Ref.	8			1 1/8	Dome		45-18 ± 1.5	87	20	1.5k	8/6	14 x 12 x 9	Opt.	Opt.	22	650.00 Pair	
PHASE TECHNOLOGY	PC 30	Ac. Sus. Subwoof.	8						35-150 ± 3	89	15	150	4/3.5	11 x 12 x 13	Opt.		25	200.00	
	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 Pair	300.00	
	PC 50	Ac. Sus. Subwoof.	10						30-150 ± 3	87	25	150	8/6	13 x 14 x 15	Opt.		33	275.00	
	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 Pair	400.00	
	PC 65	Ac. Sus.	8			1	Dome		45-20 ± 3	89	15	1.2k	4/4	12 x 21 x 11	Opt.	Brown Knit	29	500.00	
	PC 70 Mark II	Ac. Sus.	10	5 1/4	Solid Piston	1	Dome		35-20 ± 3	90	25	250,2k	8/6	15 x 26 x 11	Opt.	Brown Knit	50	800.00	
	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	1100.00	
	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	675.00	
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 Sys.	500.00 Sys.		

PROTON INTRODUCES DYNAMIC POWER ON DEMAND.



Music is a demanding master. Nowhere does it ask more of amplifiers than in the reproduction of musical peaks. It's in this area of dynamic range that conventional amplifiers fail. They simply run out of energy before the sound does. Now, with the increased dynamics of digital audio discs and hi-fi video sound, there's more than ever to hear...or miss.

DPD lets you hear it all. Dynamic Power on Demand* is a radical new design that uses two different types of circuits to supply power. The first is ideal for most of the signals that music produces. The second

circuit stores power, and automatically takes over when the loudest musical passages require the big reserves; and, it provides power as long as the musical peak lasts. That's what only DPD can do — deliver its reserve capacity up to 20 times longer than other amps!

The result is performance that's fanatically faithful to your favorite Benatar or Beethoven.

With more realism and dynamics than you've ever heard before. But even DPD is just the beginning of our remarkable D540 integrated amp. Add to that a unique dual action volume control, phono circuitry for either moving magnet or moving coil cartridges, complete record-playback flexibility, and the ability to bridge to mono. This is the Proton D540 with DPD.

The demands of music have never been better fulfilled.

Proton Corporation • 737 West Artesia Blvd. • Compton, CA 90220 • (213) 638-5151

Enter No. 56 on Reader Service Card

* Patent Pending



P R O T O N

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 W = Woofer, M = Midrange, T = Tweeter	Anchored 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																
PIONEER ELECTRONICS	DSS-9	Bass Ref.	12	4 3/4	Cone			Ribbon			30-50	91	650,4k	6/	15 x 27 x 14	Vinyl	Black Cloth	57.5	900.00		
	DSS-7	Bass Ref.	12	2 1/2	Cone			Ribbon			30-50	91	850,4.5k	8/	15 x 26 x 14	Vinyl	Black Cloth	49.1	600.00		
	DSS-5	Bass Ref.	10	2 1/2	Cone	3/4		Dome			38-30	91	1.2k,5k	8/	13 x 22 x 11	Vinyl	Black Cloth	31.2	400.00		
	CS-705	Bass Ref.	15 3/4	4 3/4	Cone			Ribbon Horn			20-40	98	1.5k,5k,8k	8/	30 x 18 x 10	Vinyl	Black Cloth	44.1	600.00		
	CS-605	Bass Ref.	12	4 3/4	Cone			Ribbon Horn			25-40	96	2k,5k,8k	8/	25 x 16 x 11	Vinyl	Black Cloth	35.3	500.00		
	CS-405	Bass Ref.	12	4	Cone			Ribbon			40-40	93	3k,10k	8/	25 x 15 x 10	Vinyl	Black Cloth	24.3	300.00		
	S-T5	Ac. Sus.	6 1/2			1		Dome			45-20	89	2k	6.3/	10 x 7 x 7		Black Metal	9.9	280.00		
	DSS-E10	Bass Ref.	12	4 3/4	Cone			Ribbon			30-50	91	650,4k	6/	15 x 27 x 14	Wood	Black Cloth	57.5	1000.00		
	DSS-E6	Bass Ref.	8	2 1/2	Cone			Ribbon			40-50	90	1k,5k	6/	11 x 19 x 10	Vinyl	Black Cloth	23.2	400.00		
PIONEER VIDEO	CS-V900D	Ported	12	4 3/4	Cone			Ribbon	M.T		30-50	91	650,4k	6/	15 x 14 x 27	Oiled Wal.	Black Knit	65	600.00		
PLASMA-TRONICS	Hill Type I	Plasma Inf. Baf.	14	6 1/2	Cone			Plasma	T		18-100 ± 3	107	100	130,700	8.3	58 x 25 x 20	Opt.	Black Cloth	580	10,000.00	
POLK AUDIO	SDA-SRS	Pas. Rad.	15	(8)6 1/2	Cones	(4)1		Domes			14-26	95	10	50,2k	4/	21 x 13 x 64	Opt.	Black Cloth	175	2590.00	
	SDA-1	Pas. Rad.	12	(4)6 1/2	Cones	(2)1		Domes			15-26	91	10	50,100, 2.5k	4/	16 x 12 x 44	Dpt.	Black Cloth	85	1750.00	
	SDA-2	Pas. Rad.	12	(3)6 1/2	Cones	(2)1		Domes			16-26	91	10	50,2.5k	4/	16 x 12 x 40	Dpt.	Black Cloth	80	1250.00	
	SDA-CRS	Pas. Rad.	12	(2)6 1/2	Cones	(2)1		Domes			31-26	91	10	100,3k	6/	20 x 10 x 13	Dpt.	Black Cloth	38	790.00	
	RTA 12C	Pas. Rad.	12	(2)6 1/2	Cones	1		Dome			17-26	94	10	50,2k	4/	16 x 12 x 39	Dpt.	Black Cloth	75	960.00	
	Monitor 10B	Pas. Rad.	10	(2)6 1/2	Cones	1		Dome			22-26	92	10	60,3k	6/	16 x 12 x 28	Dpt.	Black Cloth	50	660.00	
	Monitor 7C	Pas. Rad.	10	6 1/2	Cone	1		Dome			24-26	91	10	60,3k	4/	14 x 9 x 24	Dpt.	Black Cloth	36	500.00	
	Monitor 5B	Pas. Rad.	8	6 1/2	Cone	1		Dome			29-26	91	10	60,3k	4/	11 x 9 x 22	Dpt.	Black Cloth	29	380.00	
	Monitor 5jr	Ported		6 1/2	Cone	1		Dome			30-26	92	10	3k	4/	9 x 9 x 17	Dpt.	Black Cloth	45	260.00	
	Monitor 4a	Ported		6 1/2	Cone	1		Dome			31-25	92	10	4.5k	4/	9 x 7 x 15	Dpt.	Black Cloth	32	170.00	
	VS-25	Pas. Rad.	6 1/2	6 1/2	Cone	1		Dome			26-25	93	3	100,3k	6/	9 x 11 x 21	Black	Black Cloth	25	400.00	
	VS-19	Ported		6 1/2	Cone	1		Dome			28-25	93	3	3k	6/	9 x 11 x 17	Black	Black Cloth	22	300.00	
	VS-12	Ported		6 1/2	Cone	1		Dome			30-25	93	3	3k	6/	9 x 11 x 14	Black	Black Cloth	19	200.00	
	PRECISION FIDELITY	Premier	Ac. Sus.	8	6 1/2	Cone	1		Dome	No		42-19 ± 3		20	165,3k	4/	28 x 13 x 11	Opt.	Black Cloth	43	499.00
Elite		Ac. Sus.	10	6 1/2	Cone	3/8,1		Ribbon, Dome	No		25-24 ± 3		20	165,3k, 16k	4/	36 x 15 x 12	Opt.	Black Cloth	58	699.00	
PRES SPEAKERS	Mini	Bass Ref.	6 1/2			1		Dome			50-20	91		8/5	16 x 10 x 7	Oak	Black Knit	20	465.00		
	IBEX	Bass Ref.	8	2	Dome	1		Dome			45-20	91		8/5.5	20 x 11 x 9	Oak	Black Knit	25	700.00		
	Oual	Bass Ref.	10,6 1/2	1 1/4	Dome	7x3 3/4		Horn			35-20	94		6.4	26 x 15 x 13	Oak	Black Knit	33	990.00		
	Corner I	Ac. Sus.	15,6 1/2	1 1/4	Dome	7x3 3/4		Horn			25-20	94		6.4.2	30 x 19 x 11	Oak	Black Knit	37	1450.00		
PROAC	EBS	Ported	10	3	Dome	3/4		Dome			25-20	86	100	450,5k	8/	33 x 12 x 13	Opt., Wood	Dpt.	90	3300.00	
	Studio 3	Ported	10	3	Dome	3/4		Dome			35-20	85	100	500,5k	8/	27 x 12 x 13	Opt., Wood	Opt.	70	2700.00	
	Studio 2	Ported	8			3/4		Dome			45-20	86	50	3k	8/	25 x 11 x 12	Opt., Wood	Dpt.	50	1200.00	
	EBT	Ported	(2)4			3/4		Dome			60-20	85	25	5k	8/	15 x 6 x 9	Opt., Wood	Dpt.	20	760.00	
	Tablette	Ported	4			3/4		Dome			70-20	84	25	5k	8/	10 x 6 x 9	Opt., Wood	Dpt.	15	560.00	
	PYLE INDUSTRIES	HS100A	Sealed	4			1		Dome	No		50-20 ± 5	90	5	4k	4/2	5 x 7 x 5	Black	Black Metal	8	230.95
HS150P		Sealed	4			1		Dome	No		50-20 ± 5	90	5	4k	4/2	5 x 8 x 7	Black	Black Metal	8	225.95	
T100		Inf. Baf., Pas. Rad.	6 1/2,8			1		Dome	No		35-20 ± 5	91	10	4.5k	4/2	13 x 18 x 7	Black	Black Knit	19 1/2	349.95	
T200		Inf. Baf., Pas. Rad.	(2)6 1/2, 10			(2)1		Domes	No		35-20 ± 5	92	10	4.5k	4/2	11 x 28 x 12	Black	Black Knit	39	289.95	
T300		Inf. Baf., Pas. Rad.	(2)6 1/2, 10			(2)1		Domes	No		35-20 ± 5	93	10	4.5k	4/2	13 x 41 x 7	Black	Black Knit	41	299.95	
QED		L234	Bass Ref.	5			1 1/2		Cone	No		75-20 ± 3	90		8/	12 x 8 x 7	Opt.		19	329.00	

Engineering expertise never comes easy. It's acquired over time through dedication, and it's Mitsubishi's undaunted benchmark for quality.

We apply that expertise to every product we develop. We apply our signature only when a product satisfies the strictest design and performance criteria.

Through advanced manufacturing techniques and rigid testing, every car audio product we produce stands for unprecedented quality, reliability and performance. The Diamond Collection™ is a car audio triumph. It's a select group of products that offer the optimum in critical car audio listening.

It's no accident that unequalled manufacturing expertise and sophisticated engineering prowess have been combined. It's a matter of breeding and that's a matter of Mitsubishi.

**PERFORMANCE
IS A MATTER
OF BREEDING.**

**ENGINEERING
IS A MATTER
OF MITSUBISHI.**

 **MITSUBISHI®**



Mitsubishi Electric Sales America, Inc., 799 N. Bierman Circle, Mt. Prospect, IL 60056.
© 1985 Mitsubishi Electric Sales America, Inc.

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches			Midrange Diameter, Inches			Tweeter Diameter, Inches		Sensitivity Level, dB/1W/1m ± Midrange, ± Tweeter, ST = Super-tweeter	Mechanical 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	Midrange Type	Tweeter	Tweeter Type														
SANSUI (Continued)	XL-100	Pas. Rad.	10½	4	Cone	2	Planar	M.T	25-35	91			8/	15 x 27 x 13	Wal.	Black Knit	28.7	299.00			
	PM-C200	Pas. Rad.	15	4¾	Cone	2	Planar	M.T	25-40	94			8/	17 x 29 x 12	Wal.	Brown Knit	52.9	499.00			
	PM-C100 MkII	Pas. Rad.	12	4¾	Cone	1	Planar	M.T	30-40	93			8/	15 x 26 x 12	Wal.	Brown Knit	40.1	399.00			
	PM-C70 MkII	Inf. Baf.	10	4	Cone	5/8	Cone	T	35-35	91			6/		Wal.	Brown Knit	28.2	299.00			
	PM-C50	Inf. Baf.	8			½	Cone	T	40-22	91			8/		Wal.	Black Knit	12.8	299.00			
	S-1117	Inf. Baf., Pas. Rad.	(2)12	4	Cone	¾	Dome	T	28-22	92			8/	15 x 41 x 13	Wal.	Black Knit	45.5	450.00			
	S-917	Pas. Rad.	12	4	Cone	¾	Dome	T	30-32	92			8/	15 x 27 x 13	Wal.	Black Knit	32.5	225.00			
	S-717	Pas. Rad.	10	4	Cone	2	Cone		30-22	91			8/	13 x 25 x 12	Wal.	Black Knit	23	290.00			
	S-517	Pas. Rad.	8	4	Cone	2	Cone		35-22	90			8/	12 x 24 x 10	Wal.	Black Knit	17.5	180.00 Pair			
SAWAFUJI	SFI Digital Reference SFI	Bipolar	(16) 6½x6½	(4) 6½x6½	Dyna-pleat	(4) 2x¾	Ribbons		35-20 ±3	84	100	200.2k. 4.5k	10.6	35 x 56 x 2	Oiled Wal.	Black Knit	121	4000.00 Pair			
	Digital 20 SFI	Bipolar	(8) 6½x6½	(2) 6½x6½	Dyna-pleat	(2) 2x¾	Ribbons		45-20 ±3	84	40	350.5.5k	10/8	30 x 40 x 2	Oiled Teak	Black Knit	50	1800.00 Pair			
	Digital 15 SFI	Bipolar	(6) 6½x6½	6½x6½	Dyna-pleat	2x¾	Ribbon		50-20 ±3	84	40	400.4.5k	6/4.5	36 x 21 x 7	Oiled Wal.	Black Knit	44	1200.00 Pair			
	Digital 5 SFI	Bipolar	(4) 6½x6½	6½x6½	Dyna-pleat	2x¾	Ribbon		55-20 ±3	84	40	400.4.5k	6/4.5	30 x 30 x 2	Oiled Wal.	Black Knit	35	800.00 Pair			
	Dynawave Monitor	Ac. Sus.	6½	6½x6½	Dyna-pleat	1x2½	Ribbon		48-18 ±3	84	20	300.5k	6/4.5	18 x 10 x 8	Opt.	Opt.. Knit	20	350.00 Pair			
	Dynawave Tower I	Ac. Sus.	8	6½x6½	Dyna-pleat	1x2½	Ribbon		38-18 ±3	84	20	400.4.7k	6/4.5	10 x 10 x 30	Opt.	Opt.. Knit	42	500.00 Pair			
Dynawave Tower II	Ac. Sus.	10	(2) 6½x6½	Dyna-pleat	1x2½	Ribbon		34-18 ±3	84	20	300.1.2k. 6k	8/7	12 x 12 x 38	Opt.	Opt.. Knit	57½	600.00 Pair				
S.C.D.	K.C.-1	Bass Ref.	6½			¾	Dome	No	60-19 ±4	89	10	4k	8.5	10 x 12 x 18	Wood Vinyl	Black Knit	60	175.00 Pair			
	G.C. Rock Monitor	Sealed	(2)8	3	Dome	(2)2	Ribbons	No	50-24 ±3	91	10	800.4k	9.6	11 x 10 x 36	Black Vinyl	Black Knit	90	799.00 Pair			
	J.C. Classical Monitor	Sealed	12	3	Dome	(2)2	Ribbons	No	38-24 ±3	91	10	800.4k	8/4	Four Pieces	Black Matte	Vinyl None	225 Sys.	1495.00 Sys.			
H. H. SCOTT	206V	Ac. Sus.	6½			1¾	Cone		65-20 ±4	90	5	3.5k	8/	9 x 13 x 7	Black Vinyl	Black Knit	8½	220.00 Pair			
	Boston Audiophile Series One	Ac. Sus.	6½			1	Dome		55-20 ±4	89.5	10	2.2k	4/	15 x 9 x 8	Oak Vinyl	Black		280.00 Pair			
	Boston Audiophile Series Two	Ac. Sus.	8			1	Dome				12		4/		Oak Vinyl	Black		400.00 Pair			
	Boston Audiophile Series Three	Ac. Sus.	12	4½		1	Dome		38-20 ±4	91.5	15	3.5k, 7.5k	4/	34 x 16 x 11	Wal. Ven.	Black		720.00 Pair			
	Boston Audiophile Series Four	Ac. Sus.	15	4½			Dome	W.M. T	36-20 ±4	90	20	700, 3.5k	4/	36 x 19 x 13	Wal. Ven.	Black		1600.00 Pair			
SHAHINIAN ACOUSTICS	Obetisk	Trans. Line.	8	(2)1¾	Domes	(4)¾	Domes		28-22 +0.3	90	30	1.8k, 9k	5/4	14 x 12 x 27	Opt., Wood	Opt.. Knit	51	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	42	950.00 Pair			
	Stant	Pas. Rad.	8			1	Dome		35-18 +0.3	88	25	3.5k	6/6	10 x 13 x 24	Oiled Oak	Brown Knit	26	650.00 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	Subwoof.	(2)8						28-500 +0.3	88		Ext.	7.3.5	20 x 14 x 30	Opt., Wood	Brown Knit	80	750.00 Pair			
Contra-Bombarde	Slot Loaded Subwoof.	(2)8						16-200 +0.3	89	50	Ext.	8/4	28 x 19 x 35	Oiled Wal.	Wood	188	1600.00				
SHERWOOD	S-718	Ac. Sus.	10	4	Cone	3	Cone		30-20		5		8/	29 x 15 x 11	Hick.	Black Knit	30	149.95			
	S-724	Ac. Sus.	12	4	Cone	3	Cone		25-20		5		8/	30 x 15 x 13	Hick.	Black Knit	42	199.95			
	S-728	Ac. Sus., Pas. Rad.	(2)12	4	Cone	3	Cone		20-20		5		8/	43 x 15 x 13	Hick.	Black Knit	60	249.95			
SIDEREAL AKUSTIC	Four	Sealed	8	2	Cone	½x2	Ribbon	No	37-22 +0.3	86	50	400.4k	8.6	40 x 12 x 11	Opt., Wood	Opt.. Knit	60	1760.00 Pair			
	CEL	Vented	(2)8			1	Dome	No	48-22 +0.3	96	200	4k	4.3	21 x 15 x 20	Wood Gray	Black	40	925.00			
SNELL ACOUSTICS	Type K	Inf. Baf.	8			¾	Dome		70-20 ±2.5	90	10	2.3k	8/8	18 x 11 x 9	Opt.	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			1, ¾	Domes		39-22 ±1.75	93	15	2.3k, 10k	8/5	33 x 14 x 11	Opt.	Opt., Cloth	48	975.00 Pair			
	Type C	Bass Ref.	10	4½	Cone	(2)¾	Domes		36-20 ±1.25	90	80	375, 3.5k, 15k	4/4	44 x 15 x 13	Opt.	Opt., Cloth	80	1800.00 Pair			
	Type A-III	Inf. Baf.	12	4½	Cone	1, ¾	Domes		35-20 ±1.25	87	80	275, 2.7k, 10k	4/4	47 x 24 x 13	Opt.	Opt., Cloth	130	3890.00 Pair			

Precision without complication.

At the very pinnacle of Aiwa's technological breakthroughs resides a new standard of performance. A new level of precision. A new achievement in human engineering. It is the Aiwa AD-F990B.

The AD-F990B's ability to meet the dynamic and textural demands of the best of both digital and analog source materials is unprecedented. The ease with which the AD-F990B makes this outstanding performance available is unbelievable.

At the touch of a single button, the AD-F990B's unique D.A.T.A. system automatically analyzes the tape you have selected. Reference signals are automatically recorded and then instantly compared to the original. Once the analysis is complete, in just 16 seconds, the Aiwa AD-F990B adjusts bias, equalization and sensitivity to optimum levels.

Through the use of Dolby HX Pro, the AD-F990B then dynamically adjusts bias levels in response to the music you record. It even adjusts the bias levels separately for each channel.

To make perfect performances even more effortless the AD-F990B also offers an auto-noise reduction detector, auto-recording level control, auto-demagnetizing system and auto-intro-play facility. The Aiwa AD-F990B. Perfection has never been so easy to achieve.

AIWA
SIMPLY ADVANCED

If you can't tell whether it's a Stradivarius or a Guarneri, it isn't an Aiwa.



The Aiwa AD-F990B. Simply the best cassette deck we make.

Dolby is a trademark of Dolby Laboratories. Aiwa America Inc., 35 Oxford Drive, Moonachie, New Jersey 07074 In Canada, Shiro (Canada) Ltd.

Enter No. 6 on Reader Service Card

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, Inches		Midrange Diameter, Inches		Tweeter Diameter, Inches		Separate Level Controls? W=Woof., M=Midrange, T=Tweeter, S=Superwoofer		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, \$	
SONAB	DA-50	Bass Ref.	6½			1	Dome				28-20	89	25	2.5k	8.7	15 x 18 x 13	Opt.	Metal	33½			720.00		Pair						
	DA-51	Bass Ref.	7			1	Dome				32-20	88	25	2.5k	8.7	17 x 12 x 11	Opt., Wood	Foam	28½			900.00		Pair						
	DA-52	Bass Ref.	7			1	Dome				27-20	89	25	2.5k	8.7	16 x 21 x 15	Opt., Wood	Metal	43½			1500.00		Pair						
SONY	SS-U570	Bass Ref.	10	2¾	Cone	2	Cone				45-20	91			8/	14 x 9 x 28	Maple Vinyl	Brown Knit	21			110.00								
	SS-U670	Bass Ref.	10	4	Cone	2	Cone				40-20	91			8/	14 x 11 x 28	Wal. Vinyl	Brown Knit	24			125.00								
	SS-U770	Bass Ref.	12	4	Cone	2	Cone				45-20	92			8/	15 x 11 x 30	Wal. Vinyl	Brown Knit	26			140.00								
	SS-U870	Bass Ref.	12	4	Cone	2	Cone				40-20	93			8/	15 x 11 x 30	Wal. Vinyl	Brown Knit	27			160.00								
	SA-W30	Active Subwoof.	12							Inc.	20-140			60,90,140	8/	19 x 20 x 16	Gray Lam.	Gray Knit	41											
	APM-33W	Bass Ref.	Flat			1	Flat				39-20 +4,-8	91		2.2k	6/	13 x 13 x 21	Oiled Wal.	Brown Knit	32			400.00								
	APM-55W	Bass Ref.	Flat		Flat		Flat				31-30 +4,-8	91			6/	15 x 13 x 27	Oiled Wal.	Brown Knit	61			800.00								
	APM-707	Pas. Rad.	Flat				Flat				40-20	90			6/	13 x 10 x 25	Wal. Vinyl	Brown Knit	29			200.00								
SOTA	Mini-monitor	Tuned Port	4			1¼	Dome				60-20 +0,-3	84	25		8/	12 x 10 x 6	Opt.	Opt.	18			725.00		Pair						
SOUNO ASSOCIATES	Enigma	Dipole Subwoof.	36x36					W			28-100 ±3	88	50	100	6/6	46 x 36 x 7	Opt., Wood	Brown Knit	80			2895.00 w/Cntrl. & Amp.; 2295.00 w/Cntrl.; Amp opt., 600.00								
SOUND DYNAMICS	100 CM	Bass Ref.	6			1	Horn				38-23 ±3	96	5	2k	8/4	17 x 9 x 10	Wal. Vinyl	Black	20			300.00		Pair w/ Stands						
	500 CM	Bass Ref.	10			1	Horn				34-23 ±3	98.5	10	2k	8/4	23 x 12 x 12	Wal. Vinyl	Black	38			400.00		Pair w/ Stands						
	700 CM	Bass Ref.	12			1	Horn				32-23 ±3	101	15	1.9k	8/4	28 x 14 x 12	Wal. Vinyl	Black	45			600.00		Pair w/ Stands						
	1500 CM	Bass Ref.	15			1	Horn				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						
SOUNO-LAB	A-1	Dipole ES	33x72					T			30-22 ±2	88	100		6/4	81 x 35 x 10	Opt., Wood	Opt.	185			8750.00		Pair						
	A-3	Dipole ES	28x66					T			32-22 ±2	88	100		6/4	73 x 31 x 9	Opt., Wood	Opt.	145			5750.00		Pair						
	A-6	Dipole ES	34x70		4x70	ES		T			30-22 ±2	88	100	250	6/4	76 x 40 x 3	Opt., Wood	Opt.	175			6500.00		Pair						
	A-4	Dipole ES	17x64		4x64	ES		T			33-22 ±2	88	100	250	6/4	70 x 28 x 3	Opt., Wood	Opt.	105			3850.00		Pair						
	A-2X	Dipole ES	17x51		4x51	ES		T			34-22 ±2	88	100	250	6/4	57 x 28 x 3	Opt., Wood	Opt.	88			2950.00		Pair						
	Dynastat	Inf. Baf.	9		4x51	ES		T			35-22 ±2	88	50	250	8/6	72 x 12 x 3	Opt., Wood	Opt.	65			1795.00		Pair						
	SPANOW 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	DAS 2	Tuned Port	5¼			¾	Dome				50-21 ±3	90	5	2.5k	4/	13 x 7 x 8	Opt., Oak	Black Knit	13			99.00								
	DAS 3	Tuned Port	6½			¾	Dome				42-21 ±3	91	10	2.5k	4/	21 x 8 x 10	Opt., Oak	Black Knit	23			149.00								
	DAS 4	Tuned Port	8			¾	Dome				36-21 ±3	92	20	2.5k	4/	28 x 10 x 12	Opt., Oak	Black Knit	39			199.00								
	OAS 5	Tuned Port	8	6½	Cone	1	Dome				34-21 ±3	93	20	180,2.5k	4/	31 x 11 x 13	Opt., Oak	Black Knit	47			299.00								
	OAS 6	Tuned Port	10	8	Cone	1	Dome				30-21 ±3	94	20	180,2.5k	4/	35 x 12 x 14	Opt., Oak	Black Knit	62			399.00								
	OAS 7	Tuned Port	10,12	6½	Cone	1	Dome				25-21 ±3	94	20	180,350, 3k	4/	38 x 14 x 16	Opt., Oak	Black Knit	86			499.00								
	OAS 8	Tuned Port	10,12	6,3	Cone, Dome	1	Dome				23-21 ±3	94	20	150,350, 1.5k,5k	4/	46 x 16 x 13	Opt., Oak	Black Knit	105			899.00								
	OAS-SW	Tuned Port Subwoof.	10								30-160 ±3	92	20	150	8/8	18 x 18 x 18	Opt., Oak	Black Knit	62			329.00								
	DVS-1	Tuned Port	(2)10	(2)4	Cones	¾	Dome	M.T			30-21 ±3	92	5	150,3k	8/	24 x 25 x 23	Opt., Oak	Black Knit	85			600.00								
	DVS-2	Tuned Port	10	4	Cone	¾	Dome				33-21 ±3	92		150,3k		24 x 8 x 20	Opt., Oak	Black Knit	40			299.00								

MAXELL TAKES COMPACT DISC QUALITY OUT OF THE LIVING ROOM.



Ah, the comforts of home. They're tough to leave behind. Especially when it comes to things like your compact disc player.

But even though you might not be able to take the player with you, you can take most of the brilliant sound quality. If you record your compact discs on Maxell XL-S cassettes.

By producing smaller, more uniform magnetic particles, we can pack more of those particles on the tape surface. Which makes it possible to record more information on a given area of tape.

As a result, AC bias noise is greatly reduced. And maximum output levels are significantly increased. In fact, the dynamic range of XL-S is expanded so much, it can capture many of the sound nuances compact discs are known for.

So record your compact discs on Maxell XL-S.

Then you can enjoy their sound quality wherever you feel at home.



**THE TAPE FOR
SOPHISTICATED EQUIPMENT.**

© 1985 Maxell Corporation of America, 60 Oxford Drive, Moonachie, N.J. 07074

Enter No. 39 on Reader Service Card

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: W = Woofer, M = Midrange, T = Tweeter, ST = Super Tweeter	Attachment 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, \$
SPECTRUM LOUDSPEAKERS	108A	Bass Ref.	8		1½				48-20 ±3	92	10	2.3k	8/8.5	14 x 11 x 9	Opt., Vinyl	Black Foil	36 Pair	195.00 Pair
	108AW	Bass Ref.	8		1½				48-20 ±3	92	10	2.3k	8/8.5	14 x 11 x 9	Opt., Vinyl Varn. Wal.	Black Foil Black Foil	36 Pair	275.00 Pair
	208A	Bass Ref.	8		1½				38-20 ±3	91	10	2.3k	8/8.5	25 x 14 x 10	Opt., Vinyl	Black Foil Black Foil	40	295.00 Pair
	208AW	Bass Ref.	8		1½				38-20 ±3	91	10	2.3k	8/8.5	25 x 14 x 10	Opt., Vinyl Varn. Wal.	Black Foil Black Foil	40	395.00 Pair
	Aurora 3A	Bass Ref.	8	2	Dome	¾	Dome		33-30 ±1.5	90	20	600.6k	4/3.6	32 x 11 x 15	Opt., Vinyl Varn. Wal.	Black Foil Black Foil	56	895.00 Pair
SPENDOR	Prelude	Bass Ref.	8		1	Dome			50-20 ±3	90	20	3k	8/7	20 x 10 x 11	Opt.	Black Cloth	28	425.00 Pair
	LS3/5A	Inf. Baf.	4½		1	Dome			80-20 ±3	83	25	3k	15/8	12 x 7 x 7	Opt., Wood	Black Cloth	12	398.00 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	598.00 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	750.00 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	850.00 Pair
	SA-3	Bass Ref.	12		1½	Dome			38-20 ±2	90	40	2k	8/7	34 x 15 x 18	Opt., Wood	Black Cloth	85	1500.00 Pair
SPICA	TC-50	Sealed	6½		1	Dome			56-15 ±3	83	25	2.7k	4/	13 x 16 x 12	Opt., Wood	Black Cloth	21	450.00 Pair
	Servo	Servo Subwoof.	8				W		-3 dB @ 25 Hz	Inc.	88			18 x 15 x 16	Opt., Wood	Black Cloth	47	595.00 Pair
STAX	ELS-F81	ES							50-20	76	100		8/4	18 x 40 x 12	Teak	Tan	45	3100.00 Pair
	ELS-F83	ES							40-20	79	50		4/2	18 x 80 x 13	Teak	Tan	80	6000.00 Pair
	ESTA-4U Extra	ES							80-20	78	25		8/6	12 x 13 x 4	Black Alum.	Black	12	1100.00 Pair
SUMO	Opus One	Inf. Baf.	6½		1	Dome	No	42-24 +0, -3	82	100	2.5k	4/4	12 x 36 x 14	Oak	Brown	30	699.00 Pair	
SYMDEX AUDIO SYSTEMS	Sigma	Ac. Sus.		6½	Cone	1	Dome	No	60-20	84		2.8k	8/	6 x 10 x 22	Opt.	Black Foil	25	795.00 Pair
	Omega	Ac. Sus. Subwoof.	10					No	40-100	84	100	8/	14 x 14 x 31	Opt.	Black Foil	60	1095.00 Pair	
	Epsilon	Ac. Sus.	10	6½	Cone	1	Dome	No	40-20	84	100, 2.8k	8/	13 x 13 x 46	Oak	Black Knit	85	1495.00 Pair	
SYNTHESIS	LM20	Tuned Port	6½		1	Dome			52-18 ±2	10	1.5k	8/	10 x 15 x 15	Oak	Brown Foil	18	600.00 Pair	
	LM200	Tuned Port	6½		1	Dome			44-20 ±2	10	1.25k	8/	10 x 10 x 34	Oak	Opt., Knit	35	850.00 Pair	
	LM250	Tuned Port	8		1	Dome			42-20 ±2	10	1.25k	8/	11 x 11 x 34	Oak	Opt., Knit	45	1285.00 Pair	
	LM300	Tuned Port	10	5	Cone	1	Dome		30-20 ±2	10	150, 2.5k	8/	17 x 17 x 44	Oak	Opt., Knit Brown Foil	70	1995.00 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.	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	Ducted Port	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
	Westminster	Horn	15		2	Coax Horn	M, T		18-20	96	10	1k	8/6	51 x 41 x 25	Oiled Wal.	Beige Knit	308	6000.00 Pair
TEAC	LS X 3	Inf. Baf.		¾	Cone		No		150-15			4/	3 x 4 x 4	Plas.	Black Metal	17.9	50.00 Pair	
	LS X 7	Inf. Baf.	4		1	Dome			150-15	40	2.5k	8/	5 x 7 x 5	Metal	Black Metal	5	150.00 Pair	
	6110	Pas. Rad.	10	4	Cone	2½	Cone	No	35-20	20	6k	6.3/	13 x 22 x 10	Ven.	Black Cloth	17.4	280.00 Pair	
	6112	Pas. Rad.	12	4	Cone	2½	Cone	No	35-20	40	6k	6.3/	15 x 26 x 13	Ven.	Black Cloth	26.8	340.00 Pair	

ESS

THE NUMBER ONE LINE OF HOME ENTERTAINMENT SPEAKERS GIVES OUR CUSTOMERS A CHOICE.

LOUDSPEAKER THAT ALSO FEATURES THE DISTINGUISHED "HEIL AIR-MOTION TRANSFORMER" MAXIMUM PERFORMANCE AND POWERFUL FOR THE HOME AND FOR THE ROAD.

ESS CONTINUES A 15 YEAR TRADITION OF EXCELLENCE WITH A SUPERB LINE OF LOUDSPEAKERS THAT ARE SONICALLY STUNNING AND VISUALLY EXCITING.

FOR MORE INFORMATION
(916)362-4102



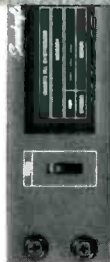
LABORATORY, INC.,
9613 OATES DRIVE, SACRAMENTO, CA. 95827



Sound as Clear as Light

Enter No. 28 on Reader Service Card

FM-
TWO-W/
PHASE



MODE

The new Soundcrafts advanced technology sophisticated Frequency Scanning Oscillator that locks onto signal and makes station precise and drift-free. A Microprocessor System, coupled with Scanning, provides incredible programming and station to the desired station, the "Memory" and push any station. Your favorite FM and AM be easily pre-set through the Super System for 16-station (8-ary) programming. Super Selector expands the frequency range to provide a frequency response. Performance Circuitry to

FM SECTION
FM SENSITIVITY: 9.8dB/usab
IHIF
QUIETING: 36dB for 50dB sft
50dB mono
SIGNAL TO NOISE: 75dB ster
THD: 0.08%
IF REJECTION: 90dB
IMAGE REJECTION: 86dB
CAPTURE RATIO: 1.0dB
STEREO SEPARATION: 50dB
FREQUENCY RESPONSE: +0
25/15 KHz

• SOL

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? W=Woof., M=Midrange, T=Tweeter, ST=Super-tweeter	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, \$
--------------	-------	--	-------------------------	---------------------------	---------------	--------------------------	--------------	---	---	-------------------------	-----------------------------------	---------------------------	---------------------------------	--------------------------------------	--------	---------------------------	--------------	-----------

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? W=Woof., M=Midrange, T=Tweeter, ST=Super-tweeter	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, \$
ULTRAPHONICS	Ultra Mini	Ac. Sus.	5¼		1	Dome			60-20 ±4	90	15	3k	8/	12 x 8 x 7	Wood Lam.	Black	24 Pair	450.00
	U26P	Vented	6½		1	Dome			40-22 ±3	90	15	3k	8/	16 x 10 x 10	Wood Lam.	Black	28 Pair	600.00
	U28P	Ac. Sus.	8		1	Dome			38-22 ±4	89	20	3k	8/	22 x 12 x 8	Wood Lam.	Black	32 Pair	600.00
	U28J	Ac. Sus.	8		1	Dome			50-20 ±5	88	20	2.5k	8/	18 x 10 x 6	Wal. Vinyl	Black	24 Pair	250.00
	Mesa I	Vented	8		1	Dome			40-22 ±3	92	20	3k	8/	24 x 11 x 12	Wood Lam.	Black	40 Pair	900.00
	U310P	Ac. Sus.	10	5	Cone	1	Dome		40-22 ±3	91	20	700,4k	8/	25 x 14 x 10	Wood Lam.	Black	70 Pair	950.00
	U310J	Ac. Sus.	10	5	Cone	1	Dome		40-20 ±3	89	20	700,4k	8/	29 x 13 x 10	Wal. Vinyl	Black	70 Pair	600.00
	U310N	Vented	10	5	Cone	1	Dome		32-22 ±5	90	15	700,3k	8/	29 x 13 x 10	Wood Lam.	Black	90 Pair	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 Pair	1300.00
	U410P	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 Pair	1000.00
	U412P	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 Pair	1200.00
	U313N	Vented	13	5	Cone	1	Dome		30-20 ±3	91	20	600,3k	8/	32 x 15 x 13	Wood Lam.	Black	130 Pair	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.	Opt.	160 Pair	3000.00
	Shelf Subwoofer	Vented Subwoofer	10						22-120	89	30	120	8/4	25 x 14 x 10	Wood Lam.	Black	40 Pair	600.00
	U312P	Vented Subwoofer	12	2	Dome	1	Dome		20-100	91	30	100	4/	30 x 20 x 12	Wood Lam.	Black	78	900.00
U415P	Vented	15	3	Dome	1, (2)3	Dome, Piezos		28-30 ±3	92	40	700,4k	8/	32 x 15 x 13	Wood Lam.	Black	130 Pair	1500.00	
								20-30 ±3	95	30	700,4k, 10k	8/	36 x 20 x 12	Wood Lam.	Black	180 Pair	2800.00	
VANDERSTEEN AUDIO	1B	Trans. Line	8		1	Dome	T	38-20 ±3	90	20	3k	8/6	12 x 10 x 36	Opt., Wood	Opt., Knit	50	650.00	
	2C	Pas. Rad.	8, 10	4½	Cone	1	Dome	M, T	29-21 ±3	88	40	500,5k	8/6	16 x 10 x 36	Opt., Wood	Opt., Knit	63	1125.00
	4	Inf. Baf.	8, (2)12	4½	Cone	1,¾	Domes	M, T	27-30 ±3	88	70	80,500, 5k, 13k	8/4	18 x 17 x 52	Oak	Opt., Knit	150	3250.00
	2W	Inf. Baf. Subwoof.	8, (3)8						27-80 ±3	Var.	200 Inc.	80		18 x 17 x 18	Opt., Wood	Opt., Knit	80	1200.00 w/Amp
VECTOR RESEARCH	VS-8	Ported	12	4	Cone		Piezo		91	25		6/4	16 x 11 x 26	Hick.			350.00	
	VS-9	Ported	(2)12	4	Cone		Piezo		92	30		4/3	15 x 10 x 41	Hick.			550.00	
VELODYNE ACOUSTICS	ULD-15	Servo Subwoof.	15				W	20-Xover ±3	95	350 Inc.	100 Std./Opt.	8/6	22 x 17 x 18	Opt.	None	63	1195.00 w/Amp	
	ULD-18	Servo Subwoof.	18				W	5-Xover ±3	97	350 Inc.	100 Std./Opt.	8/6	23 x 31 x 21	Dpt.	None	105	2000.00 w/Amp	
VIBE ACOUSTICS	M-1 Mini Monitor	Ac. Sus.	6½		1	Dome			70-20 ±3	87	15	3.5k	8/6	12 x 8 x 6	Oiled Wal.	Black Knit	15	350.00
	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
VMPS	QSO 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
	QSO 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
	QSO 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.	(2)12	5	Cone	2,1	Piezo, 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	Multiband Bass	(3)12	5	Cone	(2)2, 1	Domes, Piezo	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
	Super Tower/R Holosonic	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
	Super Tower IIa/R Holosonic	Multiband Bass	(2)15, (3)12	(4)5	Cones	(5)1	Domes, Ribbon	M, T, ST	17-50 +0,-3	99	20	80,400, 4k, 12k	8/6	76 x 22 x 17	Oiled Wal.	Black Cloth	300	1699.00
	Widerange Ribbon & Space Boxes	Multiband Bass	(2)15, (2)12, 8	69L	Ribbon	2L	Ribbon	M, T	19-50 +0,-3	94	20, 50	60, 80, 280, 15k	8/3	Five Pieces	Oiled Wal.	Black Cloth	700 Sys.	7500.00
	The Subwoofer	Pas. Rad. Subwoof.	15, 12						19-600 +0,-3	94	20	Var.	8/6	27 x 22 x 17	Oiled Wal.	Black Cloth	90	375.00
	The Larger Subwoofer	Pas. Rad. Subwoof.	(2)15, 12					17-300 +0,-3	96	20	Var.	4/4	39 x 22 x 17	Oiled Wal.	Black Cloth	120	549.00	

LOUDSPEAKERS

MANUFACTURER	Model	Design Principle, Enclosure or System Type	Woofer Diameter, inches	Midrange Diameter, inches	Midrange Type	Tweeter Diameter, inches	Tweeter Type	Separate Level Cones? W = Woofer, M = Midrange, T = Tweeter, ST = Superwoofer	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, \$
WATKINS ENGINEERING	WE-1	Dual Drive	(3)8	(2)5	Cones	1½	Dome	T	20-23 ± 3	89	50	40, 100, 1.5k	4/3	13 x 32 x 53	Oak	Brown Cloth	129	4200.00 Pair
WESTLAKE AUDIO	BBSM-4	Ported	(2)4			¾	Dome	No		89	100	1.5k	4/2	8 x 15 x 10	Opt.	Opt.	25	549.00 Pair
	BBSM-5	Ported	(2)5			1¼	Dome	No	65-20 ± 3	90	100	1.2k	4/2	11 x 18 x 10	Opt.	Opt.	35	649.00 Pair
	BBSM-6	Ported	(2)6	3½	Cone	1	Dome	No	70-18 ± 3	91	100	600,6k	4/2	11 x 22 x 13	Opt.	Opt.	43	895.00 Pair
	BBSM-10	Ported	(2)10	6½	Cone	1¼	Dome	No	60-15 ± 3	93	200	600,4.5k	4/2	16 x 30 x 22	Opt.	Opt.	90	1295.00 Pair
	BBSM-12	Ported	(2)12	6½	Cone	1¼	Dome	No	50-15 ± 3	94	200	500,4k	4/2	19 x 34 x 23	Opt.	Opt.	123	1495.00 Pair
	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 Pair
WHARFEOALE	Diamond	5th Order Bass Ref. Ac. Sus.	4			¾	Dome		50-20	86	15	5k	8/	7 x 9 x 8	Opt.	Black Knit	15 Pair	190.00 Pair
	506	Ac. Sus.	8			¾	Dome		40-40	88	15		8/	19 x 10 x 9	Opt.	Black Knit	36 Pair	230.00 Pair
	508	Ac. Sus.	8			¾	Dome		38-49	87	15		8/	21 x 11 x 9	Opt.	Black Knit	45 Pair	270.00 Pair
	708	Ac. Sus.	8			¾	Dome		40-40	87	15		8/	19 x 10 x 9	Opt.	Black Knit	34 Pair	630.00 Pair
	302	Ac. Sus.	6			¾	Dome		50-25	90	15		8/	15 x 9 x 7	Opt.	Opt., Knit	20 Pair	160.00 Pair
	304	Ac. Sus.	8			¾	Dome		45-25	92	15		8/	19 x 10 x 7	Opt.	Opt., Knit	29 Pair	240.00 Pair
	306	Ac. Sus.	8	4	Cone	¾	Dome		40-25	92	15		8/	21 x 11 x 7	Opt.	Opt., Knit	38 Pair	300.00 Pair
	308	Ac. Sus.	8	8	Cone	¾	Dome		40-25	94	15		8/	24 x 11 x 9	Opt.	Opt., Knit	44 Pair	380.00 Pair
	310	Bass Ref.	10	4	Cone	1	Horn		35-25	97	15		8/	26 x 13 x 11	Opt.	Opt., Knit	45 Pair	480.00 Pair
	312	Bass Ref.	12	4	Cone	1	Horn		35-25	97	15		8/	31 x 15 x 11	Opt.	Opt., Knit		580.00 Pair
WILSON AUDIO SPECIALTIES	WAMM Series III-A	Sat. & Subwoof.	18	(2)5, (2)8¼ x 11¼	Cones	(2)1, (9)5x5	Domes, ES	W, M, T, ST	17-30 + 0, -3	98	50	55, 400, 3k	4/3	Four Pieces	Opt.	Gray Foam	1650 Sys.	45,000.00 Sys.
WOLCOTT AUDIO	Omnisphere MOF	Ports	(4)6.5			1.1	Dome	T	30-18 ± 3	90	20	2k	8.5	21 x 21 x 50	Oiled Wal.	Brown Knit	100	2995.00 Pair
	Omnisphere MOH	Ports	(4)6.5			1.1	Dome	T	30-18 ± 3	90	20	2k	8.5	21 x 21 x 50	Gray Nxtl.	Black Knit	100	2495.00 Pair
XSTATIC SYSTEMS	ES-1	ES	34x78						40-26 ± 2		200 Inc.		10k	38 x 16 x 90	Opt.	Opt.	275	12,500.00 Pair
YAMAHA	NS-2000	Inf. Baf.	13	3½	Dome	1¼	Dome	M, T	28-20 ± 2	90	30	500,6k	6/5	18 x 30 x 16	Oiled Wal.	Brown Cloth	104	2900.00 Pair
	NS-1000X	Inf. Baf.	12	3½	Dome	1¼	Dome	M, T	39-20 ± 2	90	30	500,6k	6.5	17 x 27 x 13	Black Birch	Black Cloth	92½	2000.00 Pair
	NS-1000M	Inf. Baf.	12	3½	Dome	1½	Dome	M, T	40-20	90	20	500,6k	6/5	15 x 27 x 13	Black Birch	Black Cloth	68½	1300.00 Pair
	NS-500M	Inf. Baf.	12	3½	Dome	1¼	Dome	M, T	40-20	91	20	700,5k	6/5	15 x 27 x 13	Black Birch	Black Cloth	51¾	770.00 Pair
	NS-200M	Inf. Baf.	10	2¾	Dome	1¾	Dome	M, T	40-20	90	20	800,5k	6/5	13 x 22 x 13	Black Vinyl	Black Cloth	36¼	570.00 Pair
	NS-10M	Inf. Baf.	7			1¾	Dome		60-20	90	20	2k	6/	15 x 8 x 8	Black Birch	Black Cloth	13¼	310.00 Pair
	NS-W2	Subwoof.	10						40-200				6/	18 x 14 x 12	Black Vinyl	Black Cloth	26½	225.00 Pair
	NS-75T	Inf. Baf.	12	2¾	Dome	1¾	Dome	M, T	40-20 ± 3	90		600,5k	6/5	15 x 27 x 13	Black Vinyl	Black Cloth	47¼	770.00 Pair
	NS-55T	Inf. Baf.	10	2¾	Dome	1¾	Dome		40-20 ± 3	89		600,5k	6/5	14 x 25 x 12	Vinyl	Black Cloth	40¾	570.00 Pair
	NS-35T	Inf. Baf.	10			1¾	Dome		40-20 ± 3	90		1.5k	6/5	13 x 22 x 12	Vinyl	Black Cloth	29¾	390.00 Pair
	NS-25T	Inf. Baf.	8			1¾	Dome		50-20 ± 3	89		1.5k	6/5	11 x 19 x 10	Vinyl	Black Cloth	21½	270.00 Pair
	NS-10T	Inf. Baf.	6			1¾	Dome		50-20 ± 3				6/	9 x 16 x 9	Vinyl	Black Cloth	30 Pair	198.00 Pair

"Frighteningly close to perfect"



ADS



OPTIONAL RC1
REMOTE CONTROL UNIT

The Atelier CD3 Compact Disc player is the newest example of the ADS philosophy:

Never rush to market with a "me too" product.

Take the time and trouble to design an original.

We did.

We used 16-bit digital to analog converters for each channel and two-times oversampling to insure exceptional accuracy, low distortion, and outstanding signal-to-noise ratios.

We developed digital/analog filtering that not only eliminates sampling and conversion noise but allows less than 2 degrees of phase shift from 20-20kHz.

We designed an advanced error correction system with a unique variable correction window. This system focuses only on the data in error and eliminates unnecessary large-scale correction of the music signal.

The resulting sound of the CD3 is smooth and clear, free from the shrillness often associated with less advanced CD players. Frequency response, as *Digital Audio* described it, is "frighteningly close to perfect."

Of course, the CD3 shares the rational, uncluttered design of other Atelier components. Front panel controls are simple and logical. More complex functions, such as indexing, time and track display, toggling and 30 selection programming are hidden on a push-to-release pivoting panel.

An optional remote control unit, the RC1, is available for the CD3. It has the capability to control all future Atelier components.

The CD3 is now at your local ADS dealer. Listen to one, touch one, see how close to perfect a CD player can be.

For more information or the location of your nearest ADS dealer, call 800-824-7888 (in CA 800-852-7777) Operator 483. Or write to ADS, 560 Progress Way, Wilmington, MA 01887.

The new ADS CD3.



COMPANY ADDRESSES

Lists of manufacturer addresses, like the one below, are fraught with peril for the poor, unwary Junior, Sub-Assistant Deputy Editorial Intern ordinarily assigned to such Directory KP duty, since there is always some woodwork denizen popping out to rasp in anguished tones about the omission of some obscure brand of audio accessory. Frankly, we Editors—both senior and junior—are all tired at this point, so tired of the Directory that we'd rather that you asked the manufacturer about his equipment. If, however, his name and address is not listed below, assume he doesn't exist; after all, isn't *Audio's Annual* the best?—*E.P.*

<p>A</p> <p>AAL American Acoustics Labs One Mitek Plaza Winslow, Ill. 61089</p> <p>Acculab See RTR</p> <p>Accuphase See Madrigal Ltd.</p> <p>Ace Audio Co. 532 Fifth St. East Northport, N.Y. 11731</p> <p>Acoustat 3101 S.W. First Terrace Ft. Lauderdale, Fla. 33315</p> <p>Acoustical Physics Laboratories 3877 Foxford Dr. Doraville, Ga. 30340</p> <p>Acoustic Electronics P.O. Box 13 Highlands, N.J. 07732</p> <p>Acoustic Interface P.O. Box 6632 Santa Barbara, Cal. 93160</p> <p>Acoustic Research 330 Turnpike St. Canton, Mass. 02021</p> <p>Active Audio 765 Meigs St. Rochester, N.Y. 14620</p>	<p>Adams Magnetic Products 194 Passaic St. Hackensack, N.J. 07601</p> <p>ADC See dbx</p> <p>Adcom 11 Elkins Rd. East Brunswick, N.J. 08816</p> <p>ADS One Progress Way Wilmington, Mass. 01887</p> <p>Advanced Audio Systems 4010 Moorpark Ave. Suite 105 San Jose, Cal. 95117</p> <p>Advanced Electrodynamic Systems 860 North Cypress St. Orange, Cal. 92667</p> <p>Advent 4138 North United Pkwy. Schiller Park, Ill. 60176</p> <p>AGI Audio General Inc. 1631 Easton Rd. Willow Grove, Pa. 19090</p> <p>Aiwa 35 Oxford Dr. Moonachie, N.J. 07074</p> <p>Akai 800 West Artesia Blvd. Compton, Cal. 90224</p>	<p>AKG Acoustics 77 Selleck St. Stamford, Conn. 06902</p> <p>Allison 7 Tech Circle Natick, Mass. 01760</p> <p>Alphason See Music & Sound Imports</p> <p>Alphasonik 701 Heinz Ave. Berkeley, Cal. 94710</p> <p>Alta Ltd. 5950 Daley St. Goleta, Cal. 93117</p> <p>Amber Electronics 218 Ridge St. Charlottesville, Va. 22901</p> <p>AML Audio May's Ltd. 1539 Lincoln Ave. Pasadena, Cal. 91103</p> <p>AMR See Peavey Electronics</p> <p>Analog Excellence 12021 Wilshire Blvd., #131 Los Angeles, Cal. 90025</p> <p>Andante See Sumiko</p> <p>Anglo-American Audio P.O. Box 653 Buffalo, N.Y. 14240</p>	<p>ANT Telecommunications See Solway</p> <p>Apature Div., ACR Industries RFD #1 Route 2 Preston, Conn. 06360</p> <p>Apax Marketing 7066 Commerce Circle Unit C Pleasanton, Cal. 94566</p> <p>API Audio Products International 135 Torbay Rd. Markham, Ont Canada L3R 1G7</p> <p>Apogee Acoustics 35 York Industrial Park Randolph, Mass. 02368</p> <p>Apt Corp. 176 Walker St. Lowell, Mass. 01854</p> <p>Argent See Direct Sound</p> <p>Ariston Audio 591 Melita Cr. Toronto, Ont. Canada M6G 3Y7</p> <p>Assemblage P.O. Box 815 Branford, Conn. 06405</p>	<p>Astatic P.O. Box 120 Harbor & Jackson Sts. Conneaut, Ohio 44030</p> <p>ATC See Audio Ecstasy</p> <p>Audible Illusions See Apax Marketing</p> <p>Audio Concepts 1631 Caledonia St. LaCrosse, Wisc. 54602</p> <p>Audio Control P.O. Box 3199 Lynnwood, Wash. 98036</p> <p>Audio Ecstasy 847 South Goodman St. Rochester, N.Y. 14620</p> <p>Audio Interface P.O. Box 7369 Van Nuys, Cal. 91409</p> <p>Audiokonsult See Transparent Audio Marketing</p> <p>Audionics of Oregon P.O. Box 969 University Station Portland, Ore. 97207</p> <p>Audiophile Systems 6842 Hawthorn Park Dr. Indianapolis, Ind. 46220</p> <p>Audio Pro See Sonic Research</p>
--	---	--	--	---

COMPANY ADDRESSES

<p>AudioQuest 412 North Coast Hwy #B-360 Laguna Beach, Cal. 92651</p> <p>Audio Research 6801 Shingle Creek Pkwy Minneapolis, Minn. 55430</p> <p>AudioSource 1185 Chess Drive Suite G Foster City, Cal. 94404</p> <p>Audio-Technica 1221 Commerce Dr. Stow, Ohio 44224</p> <p>Audio Vois See Import Audio</p> <p>Audire 9576 El Tambor Ave Fountain Valley, Cal. 92708</p> <p>Audix 110 Ryan Industrial Court San Ramon, Cal. 94583</p> <p>Auratone P.O. Box 698 Coronado, Cal. 92118</p> <p>Auron Trading Co. 7330 Rampart 116 Houston, Tex. 77081</p> <p>Azden Corp. 147 New Hyde Park Rd. Franklin Square, N.Y. 11010</p>	<p>Benz-Micro See Active Audio</p> <p>David Berning Co. 11007 Candlelight La. Potomac, Md. 20854</p> <p>B.E.S. Bertagni Electroacoustic Systems 12755 Moore St. Cerritos, Cal. 90701</p> <p>Beyerdynamic 5-05 Burns Ave. Hicksville, N.Y. 11801</p> <p>BGR B. G. Roberts Audio 137 Route 22 East Greenbrook, N.J. 08812</p> <p>BGW Systems 13130 South Yukon Ave. Hawthorne, Cal. 90250</p> <p>B & K Components P.O. Box 331 Orchard Park, N.Y. 14127</p> <p>BML Electronics 5305 North Ravenswood Chicago, Ill. 60640</p> <p>Bose Corp. 100 The Mountain Rd. Framingham, Mass. 01701</p> <p>Boston Acoustics 247 Lynnfield St. Peabody, Mass. 01960</p> <p>John Bowers Ltd. See Anglo-American Audio</p> <p>Bozak 68 Holmes Rd. Newington, Conn. 06111</p> <p>British Fidelity (Musical Fidelity) See RCS Audio</p> <p>Broadcast Electronics 4100 North 24th St. Quincy, Ill. 62305</p> <p>Brooke Siren Systems See Klark-Teknik</p> <p>Bryston Manufacturing Ltd. 57 Westmore Dr. Rexdale, Ont. Canada M9V 3Y6</p> <p>Brystonvermont R.F.D. 4, Berlin Montpelier, Vt. 05602</p> <p>BSC Bennett Sound Corp. P.O. Box 565 Reseda, Cal. 91335</p> <p>BSM See Mitom</p> <p>BTM Manufacturing 1539 Lincoln Ave Pasadena, Cal. 91103</p>	<p>Burwen See Infinity</p> <p>B & W See Anglo-American Audio</p> <p>C Cabasse See Madrigal Ltd.</p> <p>Cadawas Acoustics 92 Oneida Ave. Staten Island, N.Y. 10301</p> <p>Camber Loudspeakers See Edon Acoustics</p> <p>Cambridge Audio See Michael Baskin Co.</p> <p>Camera Mart 456 West 55th St. New York, N.Y. 10019</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 245 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>Celestion P.O. Box 521 Holliston, Mass. 01746</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 16877 Hymus Blvd. Kirkland, Que. Canada H94 3L4</p> <p>Clearaudio See International Audio Technologies</p> <p>Clements Audio Systems 4354 Spring Valley Rd. Dallas, Tex. 75244</p> <p>conrad-johnson design 2800R Dorr Ave. Fairfax, Va. 22031</p>	<p>Continuum Electronics 1747 35th St. Sacramento, Cal. 95816</p> <p>Mitchell A. Cotter Sales 201 East Rosemary St. Chapel Hill, N.C. 27514</p> <p>Counterpoint Electronic Systems 10635 Roselle St. San Diego, Cal. 92121</p> <p>Coustic Div., Concept Enterprises 4260 Charter St. Vernon, Cal. 90058</p> <p>Creek Audio Systems See Music & Sound Imports</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>D Dahquist 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>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> <p>Definitive Audio 6516 North University Apt. 1023 Peoria, Ill. 61614</p> <p>Delay Labs 332 Tuttle Rd. San Antonio, Tex. 78209</p> <p>Delmo See Auron Trading Co.</p>	<p>Dennesen Electrostatics P.O. Box 51 Beverly, Mass. 01915</p> <p>Denon 27 Law Dr. Fairfield, N.J. 07006</p> <p>Design Acoustics See Audio-Technica</p> <p>Desktop Loudspeaker Systems P.O. Box 398 Simi Valley, Cal. 93062</p> <p>Digitrac P.O. Box 392 Plainview, N.Y. 11803</p> <p>Direct Sound 150 Fifth Ave Suite 516 New York, N.Y. 10011</p> <p>Direct-to-Tape Recording 14 Station Ave. Haddon Heights, N.J. 08035</p> <p>Discrete Technology 2911 Oceanside Rd. Oceanside, N.Y. 11572</p> <p>DNL Sound Co. 10 Bellam Blvd. San Rafael, Cal. 94901</p> <p>Dual See Ortofon</p> <p>Dunlop Systemdek 16 Edgewood Rd. Robbinsville, N.J. 08691</p> <p>Duntech Speakers See W & W Audio</p> <p>Dynamic Acoustics P.O. Box 646 San Ramon, Cal. 94583</p> <p>Dynamic Electro Acoustics 3419 Bailey Ave. Buffalo, N.Y. 14215</p> <p>Dynavector 2217 South Grand Ave. Santa Ana, Cal. 92705</p> <p>E Edon Acoustics Ltd. 21 Patterson St. Ogdensburg, N.Y. 13669</p> <p>Ego Systems 50 Werman Court Plainville, N.Y. 11803</p> <p>Eidolon Research 426 Packard Ann Arbor, Mich. 48104</p> <p>Elac See May Audio Marketing</p> <p>Electrocompaniet Route 202, Box 127 Hollis, Maine 04042</p>
---	---	---	--	--

COMPANY ADDRESSES

<p>Electron Kinetics 1055-C Empire Dr. Lake Havasu City, Ariz. 86403</p> <p>Electro-Voice 600 Cecil St. Buchanan, Mich. 49107</p> <p>Eminent Technology 508 Cactus St. Tallahassee, Fla. 32304</p> <p>Empire Scientific 55 Bloomingdale Rd. Hicksville, N.Y. 11801</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. Walnut Creek, Cal. 94596</p> <p>Epoch See Stanton</p> <p>ESB 692 Central Ave. Cedarhurst, N.Y. 11516</p> <p>ESM/Energy See API</p> <p>Esoteric Audio Research See Mavrick Audio</p> <p>Essence 1918 South 33rd Lincoln, Nebr. 68506</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 Hgwy., F-4 Montclair, Cal. 91763</p> <p>Fidelity Research See Giorgi.Com</p> <p>Fisher 21314 Lassen St. Chatsworth, Cal. 91311</p> <p>F.M.S. Favorite Music Systems 319 A. St. (Rear) Boston, Mass. 02210</p>	<p>Focal 1531 Lookout Dr. Agoura, Cal. 91301</p> <p>Fostex 15431 Blackburn Ave. Norwalk, Cal. 90650</p> <p>Frankmann Research P.O. Box 125 Greenville, Ohio 45331</p> <p>Fried Products 7616 City Line Ave. Philadelphia, Pa. 19151</p> <p>Fuji 350 Fifth Ave. New York, N.Y. 10118</p> <p>Fulton Audio P.O. Box 22537 Minneapolis, Minn. 55422</p> <p>G</p> <p>Gabriel Audio 920 Grayson Berkeley, Cal. 94710</p> <p>Gale See Techport</p> <p>GC Electronics 400 South Wyman St. Rockford, Ill. 61105</p> <p>G.C. Video See Georgi.Com</p> <p>General Electric One Wellner Dr. Portsmouth, Va. 23705</p> <p>Genesis Physics 225 Heritage Ave. Portsmouth, N.H. 03801</p> <p>Giorgi.Com P.O. Box 1079 Simi Valley, Cal. 93062</p> <p>GNP Loudspeakers 1244 East Colorado Blvd. Pasadena, Cal. 91106</p> <p>Goetz Systems 5848 Spalding Dr. Norcross, Ga. 30092</p> <p>Goldbug Labs See RMI</p> <p>Goldmund See International Audio Technologies</p> <p>Gold Ribbon Concepts 211 East 11th St. Coralville, Iowa 52241</p> <p>Gold Sound P.O. Box 141 Englewood, Colo. 80110</p> <p>Gotham Audio 741 Washington St. New York, N.Y. 10014</p> <p>Gott Labs 424 Clay Pitts Rd. East Northport, N.Y. 11731</p>	<p>Grace See Sumiko</p> <p>Grado Labs 4614 7th Ave. Brooklyn, N.Y. 11220</p> <p>Greg Acoustics P.O. Box 29105 Baltimore, Md. 21205</p> <p>Grommes See Precision Electronics</p> <p>GSJ 578 Nepperhan Ave. Yonkers, N.Y. 10701</p> <p>Reuben Guss Enterprises 215 West 92nd St. New York, N.Y. 10025</p> <p>H</p> <p>David Hafler Co. 5810 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 620 Island Rd. Ramsey, N.J. 07446</p> <p>Heco See Alphasonik</p> <p>Heybrook See D'Ascanio Audio</p> <p>HiFi Club P.O. Box 40112 Santa Barbara, Cal. 93103</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>Home Technology Systems 31742 Rancho Viejo Suite D San Juan Capistrano, Cal. 92675</p> <p>I</p> <p>IAI International Audio Imports 723 Bound Brook Rd. Dunellen, N.J. 08812</p> <p>ILP Manufacturing 3950 Chesswood Dr. Downsview, Ont. Canada M3J 2W6</p> <p>Image Laboratories Box 65 Hudson, Mass. 01749</p>	<p>Import Audio Ltd. 3149 Shenandoah St. St. Louis, Mo. 63104</p> <p>IMS/Nagatronics 115 Henry St. Freeport, N.Y. 11520</p> <p>Infinity Systems 9409 Owensmouth Ave. Chatsworth, Cal. 91311</p> <p>Innovative Techniques 703 Revere Dr. Herbertsville, N.J. 08724</p> <p>Instant Replay 2951 South Bayshore Dr. 8th Floor Miami, Fla. 33133</p> <p>Interaudio/Bose 100 The Mountain Rd. Framingham, Mass. 01701</p> <p>International Audio Technologies One World Trade Center Suite 1913 New York, N.Y. 10048</p> <p>Itone Audio 3412 Eric El Sobrante, Cal. 94803</p> <p>J</p> <p>Jamo Hi-Fi 425 Huehl Rd. Northbrook, Ill. 60062</p> <p>Janis See John Marovskis</p> <p>JBL See Harman America</p> <p>Jecklin See AudioQuest</p> <p>Jensen 4136 North United Pkwy. Schiller Park, Ill. 60176</p> <p>J.P.W. Loudspeakers See Power Electric</p> <p>JRM 3716 Broadway N.E. Knoxville, Tenn. 37917</p> <p>JSE 519 East Middle Turnpike Manchester, Conn. 06040</p> <p>JVC 41 Slater Dr. Elmwood Park, N.J. 07407</p> <p>K</p> <p>Kama-Ispeak Kibbutz Beit Kama D.N. Negev 85 325 Israel</p> <p>KEF 14120-K Sullyfield Cir. Chantilly, Va. 22021</p> <p>Kenwood 1315 E. Watsoncenter Rd. Carson, Cal. 90745</p>	<p>Kevek Loudspeaker Technology See RMI</p> <p>Kindel Audio 20451 Bayview Ave. Santa Ana, Cal. 92707</p> <p>Kinergetics 6029 Reseda Blvd. Tarzana, Cal. 91356</p> <p>Kinetic Audio P.O. Box 2147 Des Plaines, Ill. 60017</p> <p>Kirksaeter 4648 Evansdale Rd. Woodbridge, Va. 22193</p> <p>Kiseki See Sumiko</p> <p>Klark-Teknik 262a Eastern Pkwy. Farmingdale, N.Y. 11735</p> <p>Klein & Hummel See Gotham Audio</p> <p>KLH 7 Powder Horn Dr. Warren, N.J. 07060</p> <p>Klipsch P.O. Box 688 Hope, Ark. 71801</p> <p>Klyne Audio Arts 721 Howard Ave. Olympia, Wash. 98506</p> <p>Koetsu See Assemblage</p> <p>Konica 440 Sylvan Ave. Englewood Cliffs, N.J. 07632</p> <p>Koss Corp. 4129 North Port Washington Milwaukee, Wisc. 53212</p> <p>Krell Industries 20 Higgins Dr. Milford, Conn. 06460</p> <p>Kyocera 7 Powder Horn Dr. Warren, N.J. 07060</p> <p>L</p> <p>Lakeshore Imports 2216 Roosevelt Rd. Kenosha, Wisc. 53140</p> <p>Lancer Electronics P.O. Box 6894 Los Angeles, Cal. 90022</p> <p>Laser See Mitom</p> <p>Mark Levinson Audio Systems See Madrigal Ltd.</p> <p>Linn Products See Audiophile Systems</p>
--	---	--	--	--

COMPANY ADDRESSES

<p>Lirpa Labs Main & Elm Sts. New York, N.Y. 10101</p> <p>Logan Labs See Symdex</p> <p>Logic Limited See RCS Audio</p> <p>Loran Loranger Manufacturing 10-48 Clark St. Warren, Pa. 16365</p> <p>LSR&D 481 Buckingham Circle Marietta, Ga. 30066</p> <p>L T Sound P.O. Box 338 Stone Mountain, Ga. 30086</p> <p>Luxman Div., Alpine Electronics 19145 Gramercy Pl. Torrance, Cal. 90501</p> <p>M Madrigal Ltd. P.O. Box 781 Middletown, Conn. 06457</p> <p>Magnat See Boston Acoustics</p> <p>Magnavox See NAP</p> <p>Magnepan 1645 Ninth St. White Bear Lake, Minn. 55110</p> <p>Magnum/Dynalab 8 Strathearn Ave., Unit 9 Brampton, Ont. Canada L5T 4L9</p> <p>Magnus See EPI</p> <p>Maplenoil Electronic 1095 Bellbrook Ave. Xenia, Ohio 45385</p> <p>Marantz 20525 Nordhoff St. Chatsworth, Cal. 93111</p> <p>Mariah Acoustics Route 23, RD Box 381 Oneonta, N.Y. 13820</p> <p>John Marovskis Audio Systems 2889 Roebling Ave. Bronx, N.Y. 10461</p> <p>Martin-Logan P.O. Box 741 Lawrence, Kans. 66044</p> <p>Mastercraft Audio Box 2661 Huntington Sta., N.Y. 11746</p> <p>Mavrick Audio P.O. Box 691700 Los Angeles, Cal. 90069</p> <p>Maxell 60 Oxford Dr. Moonachie, N.J. 07074</p>	<p>May Audio Marketing 646 Boul. Guimond Longueuil, Que. Canada J4G 1P8</p> <p>McIntosh Laboratory 2 Chambers St. Binghamton, N.Y. 13903</p> <p>McLaren Audio See AudioQuest</p> <p>Meitner Audio See Assemblage</p> <p>Melos Audio See IAI</p> <p>Memorex Mentek Products P.O. Box 988 Santa Clara, Cal. 95052</p> <p>Meridian See Madrigal Ltd.</p> <p>Merrill Audio 2125 Central Ave. Memphis, Tenn. 38104</p> <p>J. A. Michell See RMI</p> <p>Micro Seiki See Analog Excellence</p> <p>Micro-Trak 620 Race St. Holyoke, Mass. 01040</p> <p>Milab See Camera Mart</p> <p>Mirage Acoustics See API</p> <p>Mission Electronics 5985 Atlantic Dr. Unit 6 Mississauga, Ont. Canada L4W 1S4</p> <p>Mitom International 1140 Eighth Line Oakville, Ont. Canada L6H 2R4</p> <p>Mitsubishi 5757 Plaza Dr. Cypress, Cal. 90630</p> <p>Miyabi See Assemblage</p> <p>M & K Miller & Kreisel 10391 Jefferson Blvd. Culver City, Cal. 90230</p> <p>Modern Audio Consultants <i>East</i> 112 Swanhill Court Baltimore, Md. 21208 <i>West</i> 2888 Bluff St., Suite 210 Boulder, Colo. 80303</p> <p>The Mod Squad 542 Coast Highway 101 Leucadia, Cal. 92024</p>	<p>Mondial See Canason Audio</p> <p>Monolithic Sound P.O. Box 448 Nipomo, Cal. 93444</p> <p>Monster Cable 101 Townsend St. San Francisco, Cal. 94107</p> <p>Mordaunt-Short See RCS Audio</p> <p>Morel Acoustics 414 Harvard St. Brookline, Mass. 02146</p> <p>Motif See conrad-johnson</p> <p>MRM Audio See Active Audio</p> <p>MTX One Mitek Plaza Winslow, Ill. 61089</p> <p>Music Hall 108 Station Rd. Great Neck, N.Y. 11023</p> <p>Music Reference 126 East Haley, Suite A15 Santa Barbara, Cal. 93101</p> <p>Music & Sound Imports 30 Snowflake Rd. Huntingdon Valley, Pa. 19006</p> <p>N NAD 675 Canton St. Norwood, Mass. 02062</p> <p>Nady Systems 1145 65th St. Oakland, Cal. 94608</p> <p>Naiad Products P.O. Box 1250 Falls Station Niagara Falls, N.Y. 14303</p> <p>NAIM Audio See Audiophile Systems</p> <p>Nakamichi U.S.A. Corp. 19701 South Vermont Ave. Torrance, Cal. 90502</p> <p>NAP Consumer Electronics P.O. Box 6950 Knoxville, Tenn. 37914</p> <p>NEC Home Electronics 1401 Estes Ave. Elk Grove Village, Ill. 60007</p> <p>NEI Neptune Electronics Inc. 934 N.E. 25th Ave. Portland, Ore. 97232</p> <p>Nelson-Reed 15810 Blossom Hill Rd. Los Gatos, Cal. 95030</p> <p>Nestorovic Labs 8307 N.E. 110th Place Kirkland, Wash. 98034</p>	<p>Neumann See Gotham Audio</p> <p>New York Acoustics 578 Nepperhan Ave. Yonkers, N.Y. 10701</p> <p>New York Audio Laboratories 250 Clearbrook Rd. Elmsford, N.Y. 10523</p> <p>Nikko Audio 5830 South Triangle Dr. Commerce, Cal. 90040</p> <p>Nobis Corp. 5412 West Burnham St. Milwaukee, Wisc. 53219</p> <p>Nonspeaker P.O. Box 691700 Los Angeles, Cal. 90069</p> <p>North American Sound 8700 Sovereign Row Dallas, Tex. 75247</p> <p>NOVA Electro-Acoustics P.O. Box 25488 Los Angeles, Cal. 90025</p> <p>Novak Loudspeaker Merrits Island Rd. Pine Island, N.Y. 10969</p> <p>Numark Electronics P.O. Box 493 Edison, N.J. 08837</p> <p>O Odyssey Engineering 789 Lincoln Centre Dr. Foster City, Cal. 94404</p> <p>Ohm Acoustics 241 Taaffe Place Brooklyn, N.Y. 11205</p> <p>Omni Sound 4833 Keller Springs Dallas, Tex. 75248</p> <p>Onkyo 200 Williams Dr. Ramsey, N.J. 07446</p> <p>Oracle 505 Boul. Industriel Sherbrooke, Que. Canada J1L 1X7</p> <p>Orpheus 87 South Sixth St. Locust Valley, N.Y. 11560</p> <p>Ortofon 122 Dupont St. Plainview, N.Y. 11803</p> <p>Otari Corp. 2 Davis Dr. Belmont, Cal. 94002</p> <p>P Packburn Electronics P.O. Box 335 DeWitt, N.Y. 13214</p> <p>Paisley Research See API</p>	<p>Panasonic One Panasonic Way Secaucus, N.J. 07094</p> <p>Panta See Smyth Sound Equip.</p> <p>Paoli P.O. Box 876 Paoli, Pa. 19301</p> <p>Parasound Products 680 Beach St., Suite 400 San Francisco, Cal. 94109</p> <p>PDMagnetics 600 Heron Dr. Pureland Industrial Complex Bridgeport, N.J. 08014</p> <p>Peavey Electronics P.O. Box 2898 Meridian, Miss. 39301</p> <p>Pentagram Loudspeaker 207-19 35th Ave. Bayside, N.Y. 11361</p> <p>Pentax 35 Inverness Dr. East Englewood, Colo. 80112</p> <p>Perfectionist Audio Ltd. P.O. Box 250 Pleasant Gap, Pa. 16823</p> <p>Perreaux See Techport</p> <p>Phase Diametrics See North American Sound</p> <p>Phase Technology Corp. 6400 Youngerman Circle Jacksonville, Fla. 32244</p> <p>Phoenix Systems Div., Soundware Corp. P.O. Box 338-B Stone Mountain, Ga. 30086</p> <p>Pickering Sunnyside Blvd. Plainview, N.Y. 11803</p> <p>Pink Triangle See IAI</p> <p>Pioneer Electronics P.O. Box 1720 Long Beach, Cal. 90801</p> <p>Pioneer Video 200 West Grand Ave. Montvale, N.J. 07645</p> <p>Plasmatronics 2460 Alamo, S.E., Suite 101 Albuquerque, N.M. 87106</p> <p>Polk Audio 1915 Annapolis Rd. Baltimore, Md. 21230</p> <p>Posthorn Recordings 142 West 26th St. New York, N.Y. 10001</p> <p>Power Electric Distributors 4632 Crossroads Park Dr. Liverpool, N.Y. 13088</p>
--	--	--	---	---

COMPANY ADDRESSES

<p>Precision Electronics 9101 King St. Franklin Park, Ill. 60131</p> <p>Precision Fidelity P.O. Box 02739 Portland, Ore. 97202</p> <p>Premier See Sumiko</p> <p>Pres Speakers 183 Main St. Northampton, Mass. 01060</p> <p>Princeton Design Group P.O. Box 398 Princeton Junction, N.J. 08550</p> <p>Proac See Modern Audio Consultants</p> <p>Pro-Acoustics Waterfront Plaza Newport, Vt. 05855</p> <p>Promethean Audio Products 130 East Winnick Las Vegas, Nev. 89109</p> <p>Proton 737 West Artesia Blvd. Compton, Cal. 90220</p> <p>PS Audio 4145 Santa Fe Rd. Building #2 San Luis Obispo, Cal. 93401</p> <p>PSE Professional Systems Eng. 7401 Lyndale Ave. South Minneapolis, Minn. 55423</p> <p>Pyle Industries 501 Center St. Huntington, Ind. 46750</p> <p>QED Audio Products See May Audio Marketing</p> <p>QLN Audio See HiFi Club</p> <p>QSC 1926 Placentia Ave. Costa Mesa, Cal. 92627</p> <p>Quad Electroacoustics 14120-K Sullyfield Cir. Chantilly, Va. 22021</p> <p>Quasar 9401 West Grand Ave. Franklin Park, Ill. 60131</p> <p>Quicksilver Audio 5841 Columbus Ave. Van Nuys, Cal. 91411</p> <p>Qysonic Research 1621 North Raymond Ave. Fullerton, Cal. 92631</p> <p>Radian Research See Becker Electronics</p>	<p>RATA See May Audio Marketing</p> <p>Rauna See Scandinavian Sounds</p> <p>Raks 12232 Industriplex Blvd. #27 Baton Rouge, La. 70809</p> <p>RCA 600 North Sherman Dr. Indianapolis, Ind. 46201</p> <p>RCS Audio International 1055 Thos. Jefferson St. N.W. Washington, D.C. 20007</p> <p>Realistic Radio Shack One Tandy Center Fort Worth, Tex. 76102</p> <p>Recoton 46-23 Crane St. Long Island City, N.Y. 11101</p> <p>Reference Audio Imports Route 1, Box 2650 Mt. Vernon, Maine 04352</p> <p>Rega See Import Audio</p> <p>Renaissance Acoustics 802 North Main St. Suite 240 Gainesville, Fla. 32608</p> <p>Revox 1425 Elm Hill Pike Nashville, Tenn. 37210</p> <p>RG Dynamics RGR 942 Pitner Evanston, Ill. 60202</p> <p>RH Labs 6844 S.W. 60th Ave. Portland, Ore. 97219</p> <p>RMI Reference Monitor Intl. 6074 Corte del Cedro Carlsbad, Cal. 92008</p> <p>Robertson Audio P.O. Box 8449 Van Nuys, Cal. 91409</p> <p>Rocelco 24 Viceroy Rd., Unit 1 Concord, Ont. Canada L4K 2L9</p> <p>Rogers See Naiad Products</p> <p>Rogersound Labs 8381 Canoga Ave. Canoga Park, Cal. 91304</p> <p>Rohrer Acoustic See Apax Marketing</p> <p>Rotel See Anglo-American Audio</p>	<p>Rowland Research 20 Mountview La., Unit C Colorado Springs, Colo. 80907</p> <p>Royd Loudspeaker See Import Audio</p> <p>RTR Speaker Co. 21212 Vanowen St. Canoga Park, Cal. 91303</p> <p>SAE Scientific Audio Electronics P.O. Box 60271 Terminal Annex Los Angeles, Cal. 90060</p> <p>SAEC See Analog Excellence</p> <p>Sansui 1250 Valley Brook Ave. Lyndhurst, N.J. 07071</p> <p>Sanyo 1200 West Artesia Blvd. Compton, Cal. 90220</p> <p>Sawafuji 23440 Hawthorne Blvd. Torrance, Cal. 90505</p> <p>Scandinavian Sounds P.O. Box 3656 San Clemente, Cal. 92672</p> <p>S.C.D. Something Completely Different 3016 N.E. Oregon St. Portland, Ore. 97232</p> <p>Schoeps See Posthorn Recordings</p> <p>H. H. Scott 20 Commerce Way Woburn, Mass. 01888</p> <p>Sears Roebuck Sears Tower Chicago, Ill. 60684</p> <p>S.E.E. Ltd. See Music Hall</p> <p>Sennheiser 48 West 38th St. New York, N.Y. 10018</p> <p>Sescom 1111 Las Vegas Blvd. North Las Vegas, Nev. 89101</p> <p>Shahinian Acoustics 24 Commercial Blvd. Medford, N.Y. 11763</p> <p>Sharp Electronics Consumer Electronics Div. 10 Sharp Plaza Paramus, N.J. 07652</p> <p>Sherwood 13845 Artesia Blvd. Cerritos, Cal. 90701</p> <p>Shinon 354A Yonge St. Toronto, Ont. Canada M5B 1S5</p>	<p>Shure 222 Hartrey Ave. Evanston, Ill. 60204</p> <p>Sidereal Akustik 1969 Outrigger Way Oceanside, Cal. 92054</p> <p>Signet 4701 Hudson Dr. Stow, Ohio 44224</p> <p>Silver Lake Research 3101 Third St. Boulder, Colo. 80302</p> <p>Sima Electronics 2335 Howard St. St. Hubert, Que. Canada J3Y 4Z3</p> <p>SME See Sumiko</p> <p>Smyth Sound Equipment 595 Parc Industriel Longueuil, Que. Canada J4H 3V7</p> <p>Snell Acoustics 143 Essex St. Haverhill, Mass. 01830</p> <p>Solway P.O. Box 7647 Hollywood, Fla. 33081</p> <p>Sonab See AudioSource</p> <p>Sondex See Reference Audio Imports</p> <p>Sonic Research 180 Sunny Valley Rd. New Milford, Conn. 06776</p> <p>Sonographe See conrad-johnson</p> <p>Sontec Electronics Audio Dr. Goldbond, Va. 24094</p> <p>Sonus See Sonic Research</p> <p>Sony Sony Dr. Park Ridge, N.J. 07656</p> <p>SOTA Industries P.O. Box 7075 Berkeley, Cal. 94707</p> <p>Sound Associates 11112 North Port Washington Suite A Mequon, Wisc. 53092</p> <p>Soundcraftsmen 2200 South Ritchey Santa Ana, Cal. 92705</p> <p>Sound Dynamics See API</p> <p>Sound-Lab 5226 South 300 West Suite 10 Salt Lake City, Utah 84107</p>	<p>Southern Engineering Products 429 York St. Canton, Mass. 02021</p> <p>Spandau Speaker Systems 4134 Manchester Ave. Stockton, Cal. 95207</p> <p>Speakerlab 735 North Northlake Way Seattle, Wash. 98103</p> <p>Spectral Audio 550 Weddell Dr. Suite 3 Sunnyvale, Cal. 94089</p> <p>Spectrascan 1110A Elktion Dr. Colorado Springs, Colo. 80907</p> <p>Spectrum Loudspeakers P.O. Box 774 Toledo, Ohio 43695</p> <p>Spendor See RCS Audio</p> <p>SPICA 1601 Paseo de Peralta Santa Fe, N.M. 87501</p> <p>Stanton Magnetics Terminal Dr. Plainview, N.Y. 11803</p> <p>Stax Kogyo 940 East Dominguez Carson, Cal. 90746</p> <p>Streets Electronic Systems P.O. Box 2797 Livermore, Cal. 94550</p> <p>Strelloff System Designs 5305 Tendilla Ave. Woodland Hills, Cal. 91364</p> <p>Studer Revox See Revox</p> <p>Sumiko P.O. Box 5046 Berkeley, Cal. 94705</p> <p>Sumo 21,300 Superior Chatsworth, Cal. 91311</p> <p>Superphon 1035 Conger, #3 Eugene, Ore. 97402</p> <p>Supex See Sumiko</p> <p>Swire Magnetics 301 East Alondra Blvd. Gardena, Cal. 90248</p> <p>Swiss Physics See International Audio Technologies</p> <p>Sylvania See NAP</p> <p>Symdex Audio Systems P.O. Box 8037 Boston, Mass. 02114</p>
---	--	--	---	---

COMPANY ADDRESSES

<p>Symmetric Sound Systems 856 Lynn Rose Court Santa Rosa, Cal. 95404</p> <p>Symphonic Electronic 1825 South Acacia Ave. Compton, Cal. 90220</p> <p>Synthesis 2817M Dorr Ave. Fairfax, Va. 22031</p> <p>Syrinx See Assemblage</p> <p>Systemdek See Dunlop Systemdek</p> <p>T Talisman See Sumiko</p> <p>Tandberg Labriola Court Armonk, N.Y. 10504</p> <p>Tannoy 97 Victoria St. North Kitchener, Ont Canada N2H 5C1</p> <p>TDK 12 Harbor Park Dr. Port Washington, N.Y. 11050</p> <p>TEAC 7733 Telegraph Rd Montebello, Cal. 90640</p>	<p>Technics One Panasonic Way Secaucus, N.J. 07094</p> <p>Techport Ltd. 875 Merrick Ave. Westbury, N.Y. 11590</p> <p>Thiel Audio Products 1042 Nandino Blvd. Lexington, Ky. 40511</p> <p>Thorens See Epicure Products</p> <p>3D Acoustics 652 Glenbrook Rd. Stamford, Conn. 06906</p> <p>3M/Scotch Magnetic A/V Products 3M Center St. Paul, Minn. 55144</p> <p>Threshold 1832 Tribute Rd., Suite E Sacramento, Cal. 95815</p> <p>Toshiba 82 Totowa Rd Wayne, N.J. 07470</p> <p>Transparent Audio Mktg. P.O. Box 117 Hollis, Maine 04042</p> <p>Triad 240 Crossways Park West Woodbury, N.Y. 11797</p>	<p>Triad Design 1629 East Delores Way Space C Carbondale, Colo. 81623</p> <p>U UHER 7067 Vineland Ave North Hollywood, Cal. 91605</p> <p>Ultralinear 9613 Oates Dr. Sacramento, Cal. 95827</p> <p>Ultrapronics 36 Sunderland Dr. Morristown, N.J. 07960</p> <p>ULTRX 1200 West Artesia Blvd. Compton, Cal. 90220</p> <p>Unitech 13327 Paxton Pacoima, Cal. 91331</p> <p>V Van den Hul See Transparent Audio Marketing</p> <p>Vandersteen Audio 116 West 4th St. Hanford, Cal. 93230</p> <p>Vector Research 20600 Nordhoff St. Chatsworth, Cal. 91311</p>	<p>Velodyne Acoustics 1500 Wyatt Dr. Suite 14 Santa Clara, Cal. 95054</p> <p>Vendetta Research 2985 College Ave. Berkeley, Cal. 94705</p> <p>VIBE Acoustics 107 Manchester Dr. Staten Island, N.Y. 10312</p> <p>VMPS See Itone Audio</p> <p>VPI Industries P.O. Box 159 Ozone Park, N.Y. 11417</p> <p>VSP Labs 670 Airport Blvd. Ann Arbor, Mich. 48104</p> <p>W C. J. Walker Ltd. See Music & Sound Imports</p> <p>Watkins Engineering 1019 East Center St Kingsport, Tenn. 37660</p> <p>Well Tempered Lab 3108 McKinley Way Costa Mesa, Cal. 92626</p> <p>Westlake Audio 2696 Lavery Court Unit 18 Newbury Park, Cal. 91320</p>	<p>Wharfedale 700 Billings St. Suite E Aurora, Cal. 80011</p> <p>Wilson Audio Specialties 2 Sinaloa Ct. Novato, Cal. 94947</p> <p>Wingate Audio 958 7th St., N.E. Hickory, N.C. 28601</p> <p>Wolcott Audio Research 2250 North Bigelow Ave. Simi Valley, Cal. 93065</p> <p>W & W Audio 4821 McAlpine Farm Rd Charlotte, N.C. 28226</p> <p>X Xstatic Systems 2057 15th St. San Francisco, Cal. 94114</p> <p>Y Yamaha 6600 Orangethorpe Ave. Buena Park, Cal. 90620</p> <p>Z Zenith 1000 Milwaukee Ave. Glenview, Ill. 60025</p> <p>Zeta See RMI</p>
--	--	---	--	--

Now — an
ADVANCED TUNER.



With Remote Power Supply

Kinergetics KBT-1
Broadcast Tuner

overcomes the largest
single barrier to good
sound by radio

the broadcasting
station itself.

See your Kinergetics Dealer
and hear the difference.

Enter No. 35 on Reader Service Card

UNITED STATES PATENT OFFICE
ASR **K** **KINERGETICS**
INCORPORATED
6029 Reseda Blvd. • Tarzana, CA 91356 • (818) 345-2851

Audio
SUBSCRIBER SERVICE

Place label here

MOVING?

Please give us 8 weeks advance
notice. Attach label with your old
address, and write in new address
below.

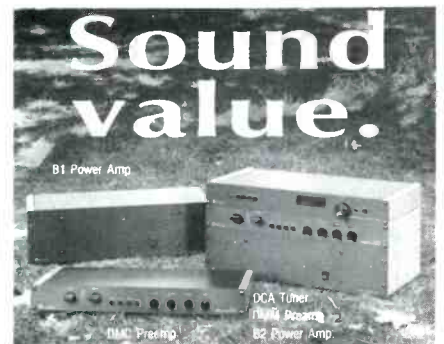
Name _____

Address _____

City _____

State _____ Zip _____

AUDIO
1255 Portland Place
P.O. Box 5318
Boulder, CO 80322



If you value sound as much as Dave Belles does, listen to his high-end audio separates and hear sonic fidelity! The Belles 1 Power Amplifier with its no-compromise, massive power supply, its precision-designed circuitry and its hand-matched transistors and film capacitors delivers the most demanding transient response continuously without fade or distortion. Only high quality materials and components are used and all manufacturing, including machining, circuit board assembly and testing, is done on premises. Dave Belles believes "You don't have to spend a small fortune to get performance that is realistic, natural and faithful."

Made in the USA.

Belles
Research
Corporation

A-1 Country Club Road, P.O. Box 307
East Rochester, New York 14445

Enter No. 80 on Reader Service Card

AUDIO YELLOW PAGES

A DIRECTORY OF HI-FI RETAILERS

In an attempt to make *Audio's* Annual Equipment Directory of even greater value to hi-fi buffs, we are including for the first time this year a listing of North American retail audio stores. The list is arranged by U.S. Postal Zip Code, thanks to the suggestion of Technical Editor Ivan Berger, who pointed out—brilliantly—that an alphabetical arrangement did not correspond to reader needs. That is, the reader needed to know the name and location of the store physically closest to him, not the name of the store or town nearest alphabetically. Ivan pointed out that the zip listing does tell the reader that.

Because this is our first attempt at publishing such a Dealer Yellow Pages, I think it is less complete and more inaccurate than we would wish. I should point out, too, that certain organizations have been left out, basically because they do a very good job of letting the public know where they are; Tandy's Radio Shacks come to mind in this regard. It's the little one-store independents I'm most concerned about overlooking, as they have relatively few means to let us know they are out there. Any help in bringing them to our attention will be appreciated. This is particularly true for retailers in Canada, where our data resources are much less effective than they are in the States.—E.P.

STATE ABBREVIATIONS

Alabama	AL	Oklahoma	OK
Alaska	AK	Oregon	OR
Arizona	AZ	Pennsylvania	PA
Arkansas	AR	Puerto Rico	PR
California	CA	Rhode Island	RI
Colorado	CO	South Carolina	SC
Connecticut	CT	South Dakota	SD
Delaware	DE	Tennessee	TN
District of Columbia	DC	Texas	TX
Florida	FL	Utah	UT
Georgia	GA	Vermont	VT
Hawaii	HI	Virginia	VA
Idaho	ID	Virgin Islands	VI
Illinois	IL	Washington	WA
Indiana	IN	West Virginia	WV
Iowa	IA	Wisconsin	WI
Kansas	KS	Wyoming	WY
Kentucky	KY		
Louisiana	LA		
Maine	ME		
Maryland	MD		
Massachusetts	MA		
Michigan	MI		
Minnesota	MN		
Mississippi	MS		
Missouri	MO		
Montana	MT		
Nebraska	NE		
Nevada	NV		
New Hampshire	NH		
New Jersey	NJ		
New Mexico	NM		
New York	NY		
North Carolina	NC		
North Dakota	ND		
Ohio	OH		

Virgin Islands 00801 Elect. Unlimited St. Thomas VI 00820 Mike's St. Croix VI	01930 Glass Sail Boat Gloucester MA 01960 Nantucket Sound Peabody MA 02026 Tweeter Dedham MA 02061 Eleco Electronics Norwell MA 02116 Encore Audio Boston MA 02135 Tweeter, Etc. Brighton MA 02138 Goodwin's Cambridge MA 02138 Sound Advice Cambridge MA 02138 Tweeter Cambridge MA 02139 Bedworks Cambridge MA 02139 Q Audio Cambridge MA 02146 Audio Studio Stereo Lab Brookline MA 02146 Custom Services Brookline MA 02154 W.C.R.B. Sound Systems Waltham MA 02154 Waltham Camera & Stereo Waltham MA 02159 Nantucket Sound Boston MA 02164 Stereo Shop Newton MA 02167 Tweeter Chestnut Hill MA 02173 Audio Vision Lexington MA 02178 Trolley Stereo Belmont MA 02180 Audio Visions Stoneham MA 02180 Auto Sound North Stoneham MA 02181 The Music Box Wellesley MA 02184 Nantucket Sound Braintree MA 02194 Cramer Video Needham MA 02215 New England Audio Boston MA	02339 Nantucket Sound Hanover MA 02401 Tweeter Boston MA 02401 Scorpio Sound Brockton MA 02401 Sound Trak Audio Brockton MA 02601 Nantucket Sound Hyannis MA 02601 Sound Dynamics Hyannis MA 02601 Tweeter Etc. Hyannis MA 02747 Sound II N. Dartmouth MA Rhode Island 02886 Providence Sounds Great Warwick RI 02886 Tweeter Etc. Warwick RI 02895 Sound Track Audio Systems Woonsocket RI 02903 Round Again Records Providence RI 02904 Eastern Discount North Providence RI 02906 Tweeter, Etc. Providence RI New Hampshire 03060 Tweeter, Etc. Nashua NH 03067 Campus Hi Fi Rochester NH 03079 Cuomo's Salem NH 03101 Tweeter Etc. Manchester NH 03101 Campus Hi Fi Manchester NH 03246 Audio Of New England Laconia NH 03257 North Star Electronics New London NH 03301 Audio Of New England Concord NH 03431 Melody Shop Keene NH 03743 Sugar River Sound Claremont NH	03755 Hanover Audio Hanover NH 03755 Camera Shop Hanover NH 03755 The Sound Room Hanover NH 03801 Soundsmith Portsmouth NH 03801 Tweeter, Etc. Newington NH Maine 04011 Electronic Deli Brunswick ME 04074 New England Music Scarborough ME 04101 New England Music Portland ME 04101 Records Plus Portland ME 04105 Hi Fi Exchange Falmouth ME 04106 Re-Sound So. Portland ME 04330 Hi Fi Exchange Augusta ME 04401 New England Music Bangor ME 04843 Harbor Audio Camden ME Vermont 05091 Vermont A/V Woodstock VT 05401 Audio Den South Burlington VT 05401 Great Northern Stereo Burlington VT 05401 Creative Sound So. Burlington VT 05452 Creative Sound Essex Junction VT 05602 Creative Sound Montpelier VT 05701 Vermont A/V Store Woodstock VT 05701 Sound Directions Rutland VT Connecticut 06001 Hi Fi Stereo House Avon CT 06029 Hear Here Audio Ellington CT	06033 Audio Services Glastonbury CT 06040 Barry Stereo Manchester CT 06040 Sound Advice Manchester CT 06065 Sound Advice Rocky Hill CT 06067 Sound Advice Rocky Hill CT 06070 Audio Den New Haven CT 06070 County Audio Stamford CT 06103 Franklin's Music World Hartford CT 06105 The Stereo Shop Hartford CT 06107 Lasalle Music Shop W. Hartford CT 06108 Electronic World East Hartford CT 06111 Hi Fi Stereo House Newington CT 06111 Sounds Great Newington CT 06320 Roberts New London CT 06320 Sound Of Music New London CT 06320 The Stereo Lab New London CT 06340 Roberts Groton CT 06360 Sound Advice Norwichtown CT 06430 Audiotronics Fairfield CT 06430 Sound Source Fairfield CT 06450 Sound Of Music Meriden CT 06477 Sounds Great Orange CT 06497 Westchester Stereo Stratford CT 06510 Tweeter, Etc. New Haven CT 06511 Audio Den New Haven CT
--	---	---	--	--

06511 CT

10025 NY

06511 Take 5 Audio New Haven CT	07054 Sight & Sound Parsippany NJ	07652 Route 46 Electronics Paramus NJ	08540 Absolute Sound Princeton NJ	10011 Audio Exchange New York NY
06516 Krasco Stereo West Haven CT	07060 Audio 22 No. Plainfield NJ	07652 Stereo Warehouse Paramus NJ	08638 House Of Hi Fi Trenton NJ	10011 Crazy Eddie New York NY
06804 Sounds Incredible Brookfield CT	07060 Stereo City North Plainfield NJ	07653 Stereo Warehouse Paramus NJ	08648 Hal's Stereo Sound Center Lawrenceville NJ	10012 Stereo Exchange New York NY
06810 East Coast Sound Danbury CT	07083 Crazy Eddie Union NJ	07701 Monmouth Stereo Shrewsbury NJ	08648 Stereo Discounters Lawrenceville NJ	10013 Canal Hi Fi New York NY
06810 Kooper Products Danbury CT	07083 Drucker Union NJ	07753 Sound Systems Service Neptune NJ	08753 Rand's Hifi Toms River NJ	10016 Park Avenue Audio New York NY
06820 Music Box Darien CT	07090 Stuart's Audio Westfield NJ	07755 H.S. Stereo Oakhurst NJ	08753 Sound Waves Toms River NJ	10016 Sound By Singer New York NY
06830 Franklin's Music World Greenwich CT	07095 Crazy Eddie Woodbridge NJ	07922 Audio Nexus Berkeley Hts. NJ	08805 Pranzatelli's Boundbrook NJ	10017 Aurico Sound New York NY
06850 Audiotronics Norwalk CT	07095 Woodbridge Stereo Woodbridge NJ	07924 Sight & Sound Bernardsville NJ	08816 Atlantic Stereo E. Brunswick NJ	10017 Grand Central Radio New York NY
06851 Crazy Eddie Norwalk CT	07102 Meg Radio Corp. Newark NJ	07930 Landes Audio Chester NJ	08816 Audio Masters E. Brunswick NJ	10017 Jems Sound New York NY
06870 Audiocom Old Greenwich CT	07417 Franklin Lakes Stereo Franklin Lakes NJ	07960 Druckers Morristown NJ	08816 Crazy Eddie E. Brunswick NJ	10017 Stereo Exchange New York NY
06880 Westchester Stereo Westport CT	07450 Sounding Board Ridgewood NJ	07967 Druckers Morristown NJ	08840 Druckers Metuchen NJ	10018 Bryce Audio New York NY
06894 Sounds Incredible Brookfield CT	07481 Conklin's Wyckoff NJ	08002 Soundwork Cherry Hill NJ	08863 Lights, Sound Audio Video Fords NJ	10018 Stereo Plaza, Inc. New York NY
06905 County Audio Stamford CT	07505 Consumer Discount Ctr. Paterson NJ	08012 Live Music Turnersville NJ	08869 A C Audio Raritan NJ	10018 Ultra Smith Systems New York NY
06905 Westchester Stereo Stamford CT	07506 The Speakerman Hawthorne NJ	08034 Record Shop Cherry Hill NJ	08901 Hi Fi Haven New Brunswick NJ	10019 Martin Audio Corp. New York NY
06907 The Music Box Stamford CT	07512 Crazy Eddie Totowa NJ	08034 Stereo Discounters Cherry Hill NJ	08976 Audtek Somerville NJ	10019 Rabson's New York NY
New Jersey	07512 Druckers Little Falls NJ	08043 Wall To Wall Sound Voorhees NJ	08987 Hi Fi Haven New Brunswick NJ	10021 American Audiophile New York NY
07001 Direct Audio Video Avenel NJ	07605 Component Marketers, Inc. Leonia NJ	08052 Bryn Mawr Stereo Maple Shade NJ	10001 Sonocraft New York NY	10021 Borger's New York NY
07006 Perdue Radio Co. West Caldwell NJ	07612 Leonard Radio Paramus NJ	08077 Shulman Record Cinnaminson NJ	10002 Eastside Stereo New York NY	10021 Harmony House New York NY
07006 Samm Sound West Caldwell NJ	07631 Audio Guild Englewood NJ	08096 Hi Fi Connection Deptford NJ	10002 Vicmarr Stereo New York NY	10021 Jems Sound New York NY
07042 Perdue Radio Montclair NJ	07644 Tape City Lodi NJ	08225 Sound Inc. Northfield NJ	10003 The Electronic Workshop New York NY	10021 Thalia Hi Fi New York NY
07043 C.S.A. Audio Upper Montclair NJ	07650 Alpha Base Palisades Park NJ	08225 Sound Waves Northfield NJ	10007 Audio Exchange New York NY	10022 Crazy Eddie New York NY
07044 Audio Connection Verona NJ	07652 Crazy Eddie Paramus NJ	08260 Seashore Stereo Wildwood NJ	10007 Classic Electronics New York NY	10022 New York Video New York NY
07048 Audio Advocate Short Hills NJ	07652 A&R Audio Video Paramus NJ	08360 Wall To Wall Sound Vineland NJ	10007 Leonard Radio New York NY	10023 Borger's New York NY
07050 Glen J's Int'l Sound, Inc. Orange NJ	07652 Leonard Radio Paramus NJ		10007 Metro Electronics New York NY	10023 Dale Enterprises New York NY
07050 Landes Audio Orange NJ	07652 Perfection Plus Paramus NJ			10025 Stratos Hi Fi New York NY

10028 NY

13309 NY

10028 Audio Salon New York NY	10601 Harvey Electronics White Plains NY	11229 Have Installations Brooklyn NY	11569 Lips Electronics Point Lookout NY	11801 Designation Hicksville NY
10028 Crazy Eddie New York NY	10601 Lyric Hi-Fi White Plains NY	11229 Warehouse City Brooklyn NY	11570 Audio Command Systems Rockville Centre NY	11802 Newmark & Lewis Hicksville NY
10028 Lyric Hi-Fi, Inc. New York NY	10601 Stereo Warehouse White Plains NY	11234 Stereo Warehouse Brooklyn NY	11570 Newmark & Lewis Rockville Centre NY	11960 Media Room Remsenburg NY
10036 U.S.A. Electronics New York NY	10601 Westchester Stereo White Plains NY	11235 Crazy Eddie Brooklyn NY	11579 Audio Marketing Consultants Seacliff NY	11968 Charos Custom Sound Southampton NY
10036 Harvey Elect. New York NY	10605 Audio Design White Plains NY	11357 Newmark & Lewis Whitestone NY	11580 Stereo/Video Warehouse Valley Stream NY	12205 Clark Music Albany NY
10036 Leonard Radio New York NY	10605 Audio Experts White Plains NY	11360 Sound Stage Audio Fresh Meadows NY	11581 American Audiophile Valley Stream NY	12205 Mom's Stereo Albany NY
10036 Wally's New York NY	10877 Audio Buys Gaithersbury NY	11365 Sound Stage Audio Flushing NY	11581 Stereo Warehouse Valley Stream NY	12205 Sounds Great Albany NY
10038 J&R Music World New York NY	10954 Eardrum Of NJ Nanuet NY	11374 Continental Sound Rego Park NY	11590 Audio Exchange Westbury NY	12207 Sounds Great Albany NY
10300 Newmark & Lewis Flushing NY	10977 Sounds Interesting Spring Valley NY	11377 Leonard Radio Woodside NY	11704 Audio Visions West Babylon NY	12303 H & M Marketing Schenectady NY
10306 Clone Audio Staten Island NY	11010 Master Sound Franklin Square NY	11416 Newmark & Lewis Ozone Park NY	11704 Newmark & Lewis West Babylon NY	12550 Randzims Newburgh NY
10458 Bronen Music Bronx NY	11024 Ears Nova High Fidelity Great Neck NY	11503 Audio Exchange Garden City NY	11706 Sandro's Electronics Bay Shore NY	12550 Seaman's Newburgh NY
10458 Crazy Eddie Bronx NY	11030 Audio Breakthroughs Manhasset NY	11514 Crazy Eddie Carle Place NY	11720 Newmark & Lewis Centereach NY	12550 The Music Box New Windsor NY
10467 Corner Distributors Bronx NY	11030 Newmark & Lewis Manhasset NY	11516 Mart Electronics Cedarhurst NY	11725 Newmark & Lewis Commack NY	12561 New Paltz Audio New Paltz NY
10530 Crazy Eddie Hartsdale NY	11040 Mike's Audio New Hyde Park NY	11520 Performance Audio Video, Ltd. Freeport NY	11725 Sound Approach Commack NY	12590 Sound Odyssey Wappinger Falls NY
10530 S & I Electronics Hartsdale NY	11040 Newmark & Lewis New Hyde Park NY	11520 Roger's Stereo Freeport NY	11725 Three Star Audio Commack NY	12801 Audio Genesis Glens Falls NY
10543 Mamaroneck G&E Mamaroneck NY	11201 Innovative Audio Brooklyn NY	11530 Audio Exchange Garden City NY	11733 Designation Setauket NY	12801 Northeast Broadcast Lab S. Glens Falls NY
10549 4-Wheel Sound Mt. Kisco NY	11201 Magna Electronics Brooklyn NY	11530 Stereo/Video Warehouse Garden City NY	11746 Audio Breakthroughs Huntington NY	12866 Audio Village Saratoga NY
10549 Sound Concept Mt. Kisco NY	11209 Newmark & Lewis Brooklyn NY	11542 Island Audio Glen Cove NY	11755 Audio Den Ltd. Lake Grove NY	12901 Great Northern Stereo Whse. Plattsburgh NY
10549 The Sound Mill Mt. Kisco NY	11210 Stereo Warehouse Brooklyn NY	11548 Audible Esthetics Greenvale NY	11758 Alternative Audio Massapequa NY	12901 Scotts Appliance Plattsburgh NY
10549 Westchester Stereo Mt. Kisco NY	11210 Stereo/Video Warehouse Brooklyn NY	11551 Adwell Audio Hempstead NY	11767 Crazy Eddie Nesconset NY	13201 Morris Electronics Syracuse NY
10550 County Hardware Mt. Vernon NY	11214 Newmark & Lewis Brooklyn NY	11552 Newmark & Lewis West Hempstead NY	11767 Sound Systems Nesconset NY	13224 Clark Music Syracuse NY
10583 Listening Room Scarsdale NY	11220 C.D. Deli Brooklyn NY	11554 Newmark & Lewis East Meadow NY	11772 Square Deal Patchogue NY	13224 Gordon Electronics Syracuse NY
10598 Audio Marketing Consultants Yorktown Hts. NY	11229 Crazy Eddie Brooklyn NY	11559 Newmark & Lewis Lawrence NY	11791 Crazy Eddie Syosset NY	13224 Sounds Great Syracuse NY
10600 Stereo/Video Warehouse White Plains NY			11791 Newmark & Lewis Syosset NY	13224 Superior Sound Syracuse NY
10601 Designed Sound White Plains NY				13309 Adirondack Music Boonville NY

13492 Adirondack Music Whitesboro NY	14606 Sounds Great Rochester NY	14626 Sound Chamber Rochester NY	15212 The Appliance Store Pittsburgh PA	16001 The Appliance Store Butler PA
13601 The Happy Ear Watertown NY	14607 Gala Sound Rochester NY	14648 Electronics, Ltd. Hermitage PA	15213 Better Sound Concepts Pittsburgh PA	16127 The Appliance Store Grove City PA
13669 Sperlings Ogdensburg NY	14608 Maynard's Rochester NY	14701 Studio One Jamestown NY	15215 The Appliance Store Pittsburgh PA	16148 Custom Sound Hermitage PA
13676 Northern Music Potsdam NY	14609 Village Multitrack Rochester NY	14706 Sound Track Allegheny NY	15216 Audio Junction Pittsburgh PA	16506 The Appliance Store Erie PA
13808 Boynton Studios Morris NY	14615 Stereo To Go Rochester NY	14803 Sound Track Alfred Station NY	15222 Opus One Pittsburgh PA	16508 House Of Records Erie PA
13850 Gordon Electronics Vestal NY	14618 J.B. Sound Systems Rochester NY	14830 Chemung Elect. Corning NY	15223 Ro-Cel Electronics Pittsburgh PA	16509 The Appliance Store Erie PA
13850 Hart Electronics Vestal NY	14618 Sound Chamber Rochester NY	14843 Hornell Electronics Hornell NY	15232 The Listening Post Pittsburgh PA	16512 Studio One Erie PA
13856 Rowell Audio Walton NY	14618 The Sound Concept Rochester NY	14850 Chemung Elect. Ithaca NY	15235 The Appliance Store Pittsburgh PA	16512 Warren Radio Erie PA
13905 JSG Audio Binghamton NY	14620 Rowe's Rochester NY	14850 Hi-Way Hi Fi Ithaca NY	15236 The Appliance Store Pittsburgh PA	16602 Sound Concepts Altoona PA
14020 Unicorn Audio Batavia NY	14621 University Electronics Rochester NY	14850 Stellar Stereo Ithaca NY	15237 The Appliance Store Pittsburgh PA	16801 Hi Fidelity House State College PA
14020 Vinyl Jungle Batavia NY	14622 Craig Audio Laboratory Rochester NY	14901 Chemung Elect. Elmira NY	15237 The Appliance Store Pittsburgh PA	16830 Mack Audio Clearfield PA
14063 Studio One Fredonia NY	14623 Stereo To Go Rochester NY	Pennsylvania	15238 The Appliance Store Pittsburgh PA	17011 Bryn Mawr Stereo Camp Hill PA
14127 Stereo Chamber Orchard Park NY	14626 J.B. Sound Systems Rochester NY	15044 Listening Post Gibsonia PA	15241 Evergreen Studios Pittsburgh PA	17042 Marty's Music Lebanon PA
14150 Sounds Great Amherst NY	STATE ABBREVIATIONS	15044 The Appliance Store Gibsonia PA	15301 The Appliance Store Washington PA	17109 The Stereo Post Harrisburg PA
14150 Stereo Plus Tonawanda NY	Alabama AL	15061 The Appliance Store Monaca PA	15301 Stereo Outlet Washington PA	17109 Stereo Discounters Harrisburg PA
14203 Purchase Radio Buffalo NY	Alaska AK	15065 Butch's Sound Shack Natrona Heights PA	15317 The Appliance Store McMurray PA	17110 The Stereo Post Camp Hill PA
14209 Record Theatre Buffalo NY	Arizona AZ	15065 Good Housekeeping Appl. & Audio Natrona Heights PA	15370 Abbies Audio Waynesburg PA	17111 Hi Fi House Harrisburg PA
14216 Delaware A-V Buffalo NY	Arkansas AR	15065 Stereo Land Natrona Heights PA	15601 Pat's Stereo Greensburg PA	17201 Sunrise Electronics Chambersburg PA
14217 Stereo Emporium Buffalo NY	California CA	15066 Audio Mart New Brighton PA	15601 The Appliance Store Greensburg PA	17402 Audio Clinic York PA
14221 Stereo Plus Williamsville NY	Colorado CO	15068 The Appliance Store Lower Burrell PA	15650 Latrobe Music Latrobe PA	17404 Stereo Discounters York PA
14224 Stereo Plus W. Seneca NY	Connecticut CT	15102 The Appliance Store Bethel Park PA	15902 Better Sound Johnstown PA	17522 Stereo Barn Ephrata PA
14225 The Speaker Shop Buffalo NY	Delaware DE	15110 The Appliance Store Duquesne PA	15963 Pro Audio Windber PA	17601 Stereo Discounters Lancaster PA
14226 Clark Music Amherst NY	Delaware District of Columbia DC	15132 Hi Fi Center McKeesport PA		17601 The Stereo Post Lancaster PA
14226 RBI Electronics Amherst NY	Florida FL	15206 The Appliance Store Pittsburgh PA		17602 Glick's Audio Lancaster PA
14559 Jerry's Record Tree & Audio Spencerport NY	Georgia GA			
	Hawaii HI			
	Idaho ID			
	Illinois IL			
	Indiana IN			
	Iowa IA			
	Kansas KS			
	Kentucky KY			
	Louisiana LA			
	Maine ME			
	Maryland MD			
	Massachusetts MA			
	Michigan MI			
	Minnesota MN			
	Mississippi MS			

17603 GN'T Stereo Lancaster PA	19008 Wall To Wall Sound Broomall PA	19148 Wall To Wall Sound Philadelphia PA	20014 Audio Associates Bethesda MD	21093 Ken El Inc. Timonium MD
17701 The A.V.E. Williamsport PA	19010 Bryn Mawr Stereo Bryn Mawr PA	19152 Sound Service Philadelphia PA	20014 Paragon Of Sound Bethesda MD	21093 Stereo Discounters Timonium MD
17837 Stereo House Lewisburg PA	19010 Goodman Radio Bryn Mawr PA	19341 E.U.I. Exton PA	20014 Professional Products Bethesda MD	21201 Park Radio Baltimore MD
17870 Stereo Shop Selinsgrove PA	19010 Sassafras Audio Bryn Mawr PA	19355 Bryn Mawr Stereo Frazer PA	20036 Myer-EMCO Washington DC	21201 Soundscape Baltimore MD
18018 Audio Associates Bethlehem PA	19010 Stereo Discounters Bryn Mawr PA	19355 LPB, Inc. Frazer PA	20041 Haystack Washington DC	21202 Atlantic Video Center Baltimore MD
18018 Canlen Audio Bethlehem PA	19030 Audiolab Stereo Center Fairless Hills PA	19406 Wall To Wall Sound King Of Prussia PA	20706 Excalibur Lanham MD	21206 Stansbury Stereo Baltimore MD
18052 Bryn Mawr Stereo Whitehall PA	19046 Bryn Mawr Stereo Jenkintown PA	19454 Stereo Discounters North Wales PA	20740 Audio Krafters College Park MD	21218 Custom Audio Baltimore MD
18052 Sassafras Audio Whitehall PA	19046 Sassafras Jenkintown PA	19454 Wall To Wall Sound North Wales PA	20740 Audio Krafters Rockville MD	21222 Stansbury Stereo Baltimore MD
18052 Sassafras Allentown PA	19047 Sassafras Feasterville PA	19605 Stereo Discounters Reading PA	20740 Contemporary Sound College Park MD	21222 Stereo Discounters Baltimore MD
18052 Wall To Wall Sound Whitehall PA	19047 Stereo Discounters Feasterville PA	19607 Phoenix Hi Fi Shillington PA	20760 Audio Buys Gaithersburg MD	21227 Stereo Discounters Baltimore MD
18201 Jannen Systems Hazelton PA	19064 Sound Works Springfield PA	19611 D.S. Audio W. Reading PA	20783 Audio Associates Langley Park MD	21228 Stereo Discounters Baltimore MD
18447 Hart Electronics Blakeley PA	19064 Stereo Discounters Springfield PA	Delaware	20810 Audio Associates Laurel MD	21234 Discerning Ear Baltimore MD
18508 Stereo Discounters Dickson City PA	19090 Soundex Electronics Willow Grove PA	19710 Wall To Wall Sound Wilmington DE	20814 Audio Associates Bethesda MD	21236 Stansbury Stereo Baltimore MD
18508 Stereo House Scranton PA	19103 Danby Radio Philadelphia PA	19711 Sound Studio Newark DE	20814 Professional Products Bethesda MD	21401 Spaceways Sound Annapolis MD
18519 Shehadi Brothers Throop PA	19103 Nathan Munchnik Philadelphia PA	19803 High Fidelity House Wilmington DE	20817 Paragon Of Sound Bethesda MD	21402 Midshipmen Store Annapolis MD
18704 Hart Electronics Kingston PA	19106 Chestnut Hill Audio Philadelphia PA	19803 Sound Studio Dover DE	20852 Electroteck/ Audiokrafters Rockville MD	21701 Golden Ear Audio Frederick MD
18704 Summit Audio Kingston PA	19107 Radio 437 Philadelphia PA	19803 Sound Studio Wilmington DE	20852 Myer EMCO Rockville MD	21740 Hunt Audio Hagerstown MD
18936 Bryn Mawr Stereo Montgomeryville PA	19107 Sound Of Market St., Inc. Philadelphia PA	19808 Stereo Discounters Wilmington DE	20854 Smolian Snd. Studio Potomac MD	21784 Listenting Room Sykesville MD
18936 Sassafras Audio Montgomeryville PA	19114 Community Audio Philadelphia PA	19808 Wall To Wall Sound Wilmington DE	20854 Veneman Music Rockville MD	21801 Sound Studio Salisbury MD
18951 Bryn Mawr Stereo Quakertown PA	19120 Radio 437 Inc. Philadelphia PA	19810 Stereo Discounters Wilmington DE	20902 Washington Music Center Wheaton MD	21801 Stereo Discounters Salisbury MD
18966 Redwood Village Southampton PA	19123 Stereo Discounters Philadelphia PA	19901 Sound Studio Dover DE	20910 Techniarts Silver Spring MD	Virginia
19001 High Fidelity House Abington PA	19128 Stereo Discounters Philadelphia PA	Maryland & D.C.	21061 Stereo Discounters Glen Burnie MD	22031 Audio Associates Fairfax VA
19001 Stereo Discounters Abington PA	19134 Wall To Wall Sound Philadelphia PA	20007 Audio Intl. Washington DC	21093 Gramophone Ltd. Lutherville MD	22041 Audio Buys Falls Church VA
19001 Wall To Wall Sound Abington PA		20007 Audio Krafters Washington DC		22044 Myer-EMCO Of Virginia Falls Church VA
19008 Hi Fidelity House Broomall PA				

22075 High C Stereo Leesburg VA	23502 Audio Connection Norfolk VA	26505 Stereo Center Morgantown WV	28203 Stereo Showcase Charlotte NC	29302 Stereo Shop Spartansburg SC
22150 Audio Associates Springfield VA	23505 The Sound Shop Norfolk VA	26505 The Sound Post Morgantown WV	28205 Audio Salon Charlotte NC	29401 British American Sound Charleston SC
22152 Future-Tech Springfield VA	23601 Sound Approach Newport News VA	North Carolina	28205 Sound Systems Charlotte NC	29403 Read Brothers Charleston SC
22201 Audio Associates Arlington VA	23666 Sound Shop Hampton VA	27105 Audio Video Concepts Winston-Salem NC	28212 Stereo Video Charlotte NC	29411 Concepts In Stereo Charleston SC
22314 Excalibur Audio Alexandria VA	23666 The Stereo Shop Hampton VA	27106 Audio Video Concepts Winston-Salem NC	28301 Quality Sound Fayetteville NC	29440 Music Peddler Georgetown SC
22801 Ace Music Harrisonburg VA	24014 Audio Center Roanoke VA	27106 Stereo Sound Winstoh-Salem NC	28303 Sound Systems Fayetteville NC	29501 Finklea's Audio Florence SC
22901 Heart To Heart Charlottesville VA	24014 Audiotronics Roanoke VA	27215 American Multimedia Burlington NC	28303 Tart's Fayetteville NC	29577 Sounds Great Myrtle Beach SC
22903 Sound Machine Charlottesville VA	24014 Holdren's Roanoke VA	27215 Stereo Village Burlington NC	28401 Atlantic Audio Wilmington NC	29605 Mitchell Stereo Greenville SC
22906 Harvey's Warehouse Charlottesville VA	24017 Audiotronics Roanoke VA	27260 Audio Video Concepts High Point NC	28403 Southeastern Electronics Wilmington NC	29607 Don Jones Custom Stereo Greenville SC
22906 Stereo Types Charlottesville VA	24104 The Audio Center Roanoke VA	27262 Sound Source High Point NC	28540 Onslow Audio Jacksonville NC	29607 Music Machine Greenville SC
23223 Audio Art Richmond VA	24112 Stereo Village Martinsville VA	27403 Stereo Sound Greensboro NC	28541 Southeastern Electronics Jacksonville NC	29607 Zehrtrronics Greenville SC
23225 Audiotronics Richmond VA	24201 Audition Hi Fi Bristol VA	27408 Sound Systems Greensboro NC	28557 Anderson Audio Morehead City NC	29609 Mitchell's Audio Center Greenville SC
23228 Audio Exchange Richmond VA	24201 Sound Concepts Bristol VA	27510 Stereo Sound Carrboro NC	28557 Rainbow Audio Morehead City NC	29609 The Music Machine Greenville SC
23230 Audio Exchange Richmond VA	24641 Sound Factory Richland VA	27514 Woofer & Tweeter Chapel Hill NC	28560 Anderson Audio New Bern NC	29610 Custom Recording & Sound Greenville SC
23230 Gary's Stereo Richmond VA	West Virginia	27514 Stereo Sound Chapel Hill NC	28560 Stereo Village New Bern NC	29621 Lee For Music Anderson SC
23235 Audio Associates Richmond VA	24740 The Sound Post Princeton WV	27603 Stereo Sound Raleigh NC	28607 Highland Audio Boone NC	29621 Brookshire's Anderson SC
23235 Audio Exchange Richmond VA	25304 Hi Fidelity Center Charleston WV	27605 Soundhaus Raleigh NC	28607 Holton's Boone NC	29621 Music Center Anderson SC
23314 Excalibur Audio Alexandria VA	25304 Mack & Dave's Charleston WV	27607 Audio Advice Raleigh NC	28613 Audio Haus/GP Sales Conover NC	29621 Music Machine Anderson SC
23451 Audible Image Virginia Beach VA	25504 Pied Piper Barboursville WV	27608 Audio Buys Raleigh NC	28613 Tri City Electronics Conover NC	29622 The Music Machine Anderson SC
23452 Audio Connection Virginia Beach VA	25701 Mack & Dave's Huntington WV	27611 Southeastern Electronics Raleigh NC	28801 Sound One Asheville NC	29646 Stereo Shop Greenwood SC
23452 Sound Shop Virginia Beach VA	25701 Pied Piper Huntington WV	27701 Woofer & Tweeter Durham NC	South Carolina	Georgia
23455 Sound World Virginia Beach VA	25880 Pied Piper Mt. Hope WV	27705 Soundhaus Durham NC	29169 Upstairs Audio W. Columbia SC	30032 Audio Unlimited Decatur GA
23462 Digital Sound Virginia Beach VA	26003 Electroloft Wheeling WV	27705 Soundhaus Durham NC	29204 Audio Alternative Columbus SC	30034 Stereo Village Tucker GA
23464 Digital Sound Virginia Beach VA	26003 James M. Black Wheeling WV	27834 Stereo Village Greenville NC	29204 Norton Stereo Columbia SC	30050 CMC Stereo Center Forest Park GA
23501 The Stereo Shop Norfolk VA	26003 Nick's Music Wheeling WV	28037 Taylor House Denver NC	29204 Music Machine Columbia SC	
23502 Audio Associates Springfield VA	26003 Wheeling Sound Wheeling WV	28134 Southern Coastal Marketing Pineville NC	29210 Music Machine Columbia SC	
	26505 Sound Investments Morgantown WV			

30062 Hi Fi Buys Marietta GA	30330 MH Systems Atlanta GA	Florida	32601 Stereo To Go Gainesville FL	33014 Brandsmart Miami FL
30067 Concertmaster Recording Marietta GA	30339 American Replacement Atlanta GA	32014 Audio Video Analysts Daytona Beach FL	32601 Tech Elec. Gainesville FL	33020 Audio Encounter Hollywood FL
30075 Chris Jones Roswell GA	30339 CMC Stereo Center Atlanta GA	32014 Burdines Daytona Beach FL	32671 Pro Audio General Store Ocala FL	33020 Burdines Hollywood FL
30077 Roscom, Inc. Roswell GA	30339 Stereo Design Atlanta GA	32017 Hart's Stereo Daytona Beach FL	32701 Audio Spectrum Altamonte Springs FL	33021 Sound Advice Hollywood FL
30080 Back Door Stereo Smyrna GA	30340 CMC Stereo Center Doraville GA	32073 Audio Tech Orange Park FL	32701 Burdines Altamonte Springs FL	33021 Speaker Warehouse Hollywood FL
30080 CMC Stereo Center Marietta GA	30340 Melton's Hi Fi Doraville GA	32207 Walder Electronic Jacksonville FL	32701 Electronic Creations Altamonte Springs FL	33040 Photosonics Key West FL
30083 Hi Fi Buys Atlanta GA	30342 CMC Stereo Center Atlanta GA	32210 Hoyt Hi-Fidelity Jacksonville FL	32707 Crazy Davey's Casselberry FL	33064 Burdines Pompano Beach FL
30084 CMC Stereo Center Tucker GA	30342 CMC Stereo Center Stone Mountain GA	32210 Walder Electronic Jacksonville FL	32725 Audio Marketing Enterprise FL	33101 Burdines Miami FL
30084 Stereo Designs Tucker GA	30342 Fat Julian's Atlanta GA	32211 House Of Stereo Jacksonville FL	32763 Ultimate Sound Orange City FL	33126 Audio Etc. Jacksonville FL
30084 Stereo Village Tucker GA	30622 Custom Sound Bogart GA	32216 Audio Etc. Jacksonville FL	32780 Sound Gallery Titusville FL	33134 Electronic Equipment Co. Miami FL
30240 Audio City La Grange GA	30904 Custom Sound Augusta GA	32216 Audio Tech Jacksonville FL	32789 Absolute Sound Winter Park FL	33134 Sound Components Coral Gables FL
30247 The Stereo Shop Lilburn GA	30907 Stereo Shop Martinez GA	32216 Behrens Audio Jacksonville FL	32789 Audio Garage Winter Park FL	33134 Sound Performance Coral Gables FL
30260 Hi Fi Buys Athens GA	30909 Stereo City Augusta GA	32216 House Of Stereo Jacksonville FL	32789 Audio Garage Orlando FL	33139 Burdines Miami Beach FL
30260 CMC Stereo Center Morrow GA	31093 C&L Electronics Warner Robins GA	32241 Island Audio Jacksonville FL	32803 Audio Mart Orlando FL	33142 Sympathetic Ear Miami FL
30260 Stereo Village Morrow GA	31204 Georgia Music Macon GA	32301 Stereo Sales Tallahassee FL	32803 Burdines Orlando FL	33143 Sounds Great Center Miami FL
30305 Hi Fi Buys Atlanta GA	31206 Georgia Music Macon GA	32301 Stereo Store Tallahassee FL	32803 Lawres Elect. Orlando FL	33146 Sound Advice Coral Gables FL
30305 High Fidelity Atlanta GA	31406 Southland Sound Savannah GA	32303 Sound Center Tallahassee FL	32819 Market Place Electronics Orlando FL	33146 Sound Components Coral Gables FL
30305 Stereo Village Atlanta GA	31520 Sound Advice Brunswick GA	32304 Audio Labs Tallahassee FL	32901 Audio Trend Melbourne FL	33147 Burdines Miami FL
30307 Master Audio Atlanta GA	31601 Sandy Campbell Music Valdosta GA	32401 World Wide Stereo Panama City FL	32901 Burdines Melbourne FL	33156 Audio Plus Miami FL
30308 Melton's Hi Fi Atlanta GA	31701 Knight's Albany GA	32405 Sound Station Panama City FL	32901 Tape Deck Music Center Melbourne FL	33156 Burdines Miami FL
30311 CMC Stereo Center Atlanta GA	31705 Custom Sound Albany GA	32405 World Wide Stereo Panama City FL	32935 The Truck Stop Melbourne FL	33157 Sounds Great Stereo Miami FL
30324 Back Door Stereo Atlanta GA	31904 West Coast Hi Fi Columbus GA	32503 All Pro Sound Pensacola FL	32937 Conn A/V Satellite Beach FL	33158 Sound Advice Miami FL
30328 CMC Stereo Center Sandy Springs GA	31906 Sound City Columbus GA	32504 Fidler Hi Fi Pensacola FL	32937 Marc's Elect. Indian Harbour Beach FL	33160 Sound Advice North Miami FL
30328 Hi Fi Buys Atlanta GA	31909 World Wide Electronics Columbus GA	32505 Sight & Sound Pensacola FL	32960 Select A/V Vero Beach FL	33162 Burdines North Miami FL
		32548 Audio International Ft. Walton Beach FL	33012 Continental Hialeah FL	

33168 Mr. Hank Miami FL	33480 Salon Of Music Palm Beach FL	33710 Burdines St. Petersburg FL	36606 Fidler Hi Fi Mobile AL	38117 Modern Music Memphis TN
33172 Burdines West Dade FL	33494 Fox Audio Stuart FL	33710 Stereo Town St. Petersburg FL	36609 Sound Advice Mobile AL	38117 Opus 2 Associates Memphis TN
33176 Audio By Caruso Miami FL	33505 Vern's Bradenton FL	33733 Cooper Radio St. Petersburg FL	36830 Accurate Audio Auburn AL	38122 CMC Stereo Center Memphis TN
33176 Stereo By Design Miami FL	33507 Kuban's Bradenton FL	33801 TV & Stereo Town Lakeland FL	Tennessee	38128 CMC Stereo Center Memphis TN
33179 Elexco Miami FL	33507 Stereo Town Bradenton FL	33803 Sound Factory Lakeland FL	37115 Hi Fi Buys South Madison TN	38177 Modern Music Audio Memphis TN
33181 Harris Audio Systems N. Miami FL	33516 Burdines Clearwater FL	33901 Stereo World Ft. Meyers FL	37122 American Electronics Mt. Juliet TN	38301 H & W Electronics Jackson TN
33189 Burdines Miami FL	33516 Jersey Jim S. Clearwater FL	Alabama	37130 Audio Masters Murfreesboro TN	Mississippi
33304 Burdines Ft. Lauderdale FL	33516 Stereo Rama Clearwater FL	35205 Stereo Components Birmingham AL	37203 Audio Architects Nashville TN	38801 Hooper Electronics Tupelo MS
33308 Audio Insight Ft. Lauderdale FL	33541 Stereo Town Largo FL	35210 Stereo Warehouse Birmingham AL	37203 Audio Systems Nashville TN	39204 Hooper Sound Jackson MS
33308 Sound Advice Ft. Lauderdale FL	33546 Image Acoustics Clearwater FL	35216 Stereo Whse. Birmingham AL	37203 Nicholson's Nashville TN	39211 Players Audio Video Jackson MS
33308 Sound Components Ft. Lauderdale FL	33575 Pyramid Audio Clearwater FL	35233 Likis Audio Birmingham AL	37205 Wilson Audio Nashville TN	39211 Walters Audio Jackson MS
33313 Sound Advice Sunrise FL	33577 Kuban's Sarasota FL	35401 Curry High Fidelity Systems Tuscaloosa AL	37210 Consolidated Media Systems Nashville TN	39301 Hooper Sound Meridian MS
33315 Lauderdale Electronics Ft. Lauderdale FL	33579 Burdines Sarasota FL	35405 Gayfer's Tuscaloosa AL	37211 Hi Fi Buys Nashville TN	39501 Sound Advice Gulfport MS
33324 Burdines Plantation FL	33583 Audio Gallery Sarasota FL	35630 Ingram Audio Florence AL	37411 Capital Audio Visuals Chattanooga TN	39501 Sound Advice Gulfport MS
33334 Joyful Noise Sound Ft. Lauderdale FL	33590 TV & Stereo Town Holiday FL	35801 Campbell's Audio Video Huntsville AL	37421 College Hi Fi Chattanooga TN	39759 Ideal Acoustics Starkville MS
33401 Burdines W. Palm Beach FL	33601 Tech Electronics Gainesville FL	35804 Stereo Warehouse Huntsville AL	37601 Sound Concepts Johnson City TN	Kentucky
33405 Sound Shack W. Palm Beach FL	33604 Stereo Town Tampa FL	35805 Sound Distributors Huntsville AL	37601 The Sound Room Johnson City TN	40205 Sound Gallery Louisville KY
33405 F&R Electronic W. Palm Beach FL	33607 Tampa Bay Center Tampa FL	36106 The Record Shop Montgomery AL	37664 Audition Hi-Fi Kingsport TN	40207 Hi Fidelity Louisville KY
33409 Electronic Connection W. Palm Beach FL	33609 Maurice Stereo Tampa FL	36117 American Audio Montgomery AL	37664 Mr. Toad's Kingsport TN	40207 Hi-Fi Buys Louisville KY
33409 Sound Shack W. Palm Beach FL	33609 Sound Advice Tampa FL	36117 Custom Sound Montgomery AL	37862 Sound Concepts Sevierville TN	40216 Hi Fi Buys Louisville KY
33432 Sound Plus Wood Boca Raton FL	33609 Stereo Town Tampa FL	36274 Audio City Roanoke AL	37919 Electronics Knoxville TN	40219 World Wide Stereo Louisville KY
33450 Sound Shack Fort Pierce FL	33612 Sound Advice Tampa FL	36301 Circle City Electronics Dothan AL	37919 Hi Fi House Knoxville TN	40324 Prime Time Georgetown KY
33452 Fox Audio Stuart FL	33614 Lyon's Tampa FL	36302 Sight & Sound Dothan AL	38104 Underground Sound Memphis TN	40414 Music City Louisville KY
33457 Cornucopia Jensen Beach FL	33617 Sensuous Sound Systems Tampa FL	36602 Audible Difference Mobile AL	38116 CMC Stereo Center Memphis TN	40502 Sound Audio Lexington KY
33460 Sound Shack Lakeworth FL	33618 Audio Visions Tampa FL		38117 CMC Stereo Center Memphis TN	40503 Ovation Audio Lexington KY

40503 KY

46714 IN

40503 Stereo Shoppe Lexington KY	43229 Stereo Lab Columbus OH	44434 Ohio Sound Highland Hgts. OH	45256 Hemsath Sound Cincinnati OH	46220 Hi Fi Buys Indianapolis IN
40509 Custom Electronics Lexington KY	43277 Custom Stereo Electronics Columbus OH	44484 Custom Sound Warren OH	45337 Geisler Laura OH	46220 Hifi Gallery Indianapolis IN
41042 Hemsath Sound Centers Florence KY	43402 Audio Craft West Bowling Green OH	44484 Electronics, Ltd. Warren OH	45414 Rex Dayton OH	46226 Walt Hilyard Indianapolis IN
41653 B & W Prestonburg KY	43512 Zeller's Defiance OH	44502 Custom Sound Youngstown OH	45414 Soundwaves Dayton OH	46227 CMC Stereo Center Indianapolis IN
42001 Long Run Audio Paducah KY	43607 Jamieson's Toledo OH	44505 Custom Sound Youngstown OH	45416 Rex Dayton OH	46250 CMC Stereo Center Indianapolis IN
42001 Risley Audio Paducah KY	43612 The Audio Center Toledo OH	44512 Audio Arts Youngstown OH	45419 Carlin Audio Dayton OH	46254 C & G Communications Indianapolis IN
42101 Discount Hi Fi Bowling Green KY	43623 Audio Craft Toledo OH	44512 Electronics, Ltd. Youngstown OH	45429 Rex Kettering OH	46254 CMC Stereo Center Indianapolis IN
42301 FM High Fidelity Owensboro KY	43623 Paragon Sound Toledo OH	44512 The Appliance Store Boardman OH	45431 Clarkson Audio Dayton OH	46254 Hi Fi Buys Indianapolis IN
42301 Stereo Stable Owensboro KY	43950 The Appliance Store St. Clairsville OH	44691 Far East Audio Wooster OH	45440 Soundwaves Dayton OH	46360 Sights And Sounds Michigan City IN
42701 Audio Connection Elizabethtown KY	44017 Sound Com Berea OH	44700 Ohio Sound Canton OH	45449 Roberds W. Carrollton OH	46383 Audio Junction Center Valparaiso IN
Ohio	44053 Grasso's Lorain OH	44708 Audio Corner Canton OH	45459 Rex Centerville OH	46409 MG Electronics Merrillville IN
43017 Audible Difference Dublin OH	44070 Harvey's Warehouse N. Olmsted OH	44718 Ohio Sound Canton OH	45531 Tom's Stereo Center Gallipolis OH	46526 McKibbins Sound Advice Goshen IN
43055 Threshold Audio Newark OH	44107 Play It Again Sam Lakewood OH	44870 Audio Force Sandusky OH	45750 The Sound Room Marietta OH	46544 Aardvark Audio Mishawaka IN
43201 Progressive Audio Columbus OH	44114 Eight Day Sound Cleveland OH	44870 Galaxy Hi Fi Sandusky OH	45801 Hart Audio Lima OH	46545 Fretter's Mishawaka IN
43201 Stereo Lab Columbus OH	44115 Audio Craft Cleveland OH	44902 Hammond Electronics Mansfield OH	45805 Classic Stereo Lima OH	46601 Audio Specialists South Bend IN
43201 Speaker Company Columbus OH	44124 Audio Craft Mayfield Hgts. OH	44906 Swallen's Mansfield OH	45840 Audio Craft Findlay OH	46615 All-Tronics South Bend IN
43213 Hammond Electronics Columbus OH	44130 B & B Audio Middleburg Hgts. OH	45042 Swallen's Middletown OH	Indiana	46635 Hi Fi Buys South Bend IN
43214 Digital Sights & Sounds Columbus OH	44130 Reddish Stereo Parma Heights OH	45208 Home Entertainment Systems Cincinnati OH	46012 Top In Sound Anderson IN	46714 Eley Bluffton IN
43214 Palmer Electronics Columbus OH	44132 B & B Audio Cleveland OH	45211 Hemsath Sound Cincinnati OH	46013 Disc-O-Tech Anderson IN	
43227 Custom Stereo Columbus OH	44142 Hoffman's Brookpark OH	45212 Stereo Lab Norwood OH	46018 Anderson Electronics Anderson IN	
43228 Hammond Electronics Columbus OH	44143 Ohio Sound Highland Hgts. OH	45227 Swallen's Cincinnati OH	46032 Soundpro Carmel IN	
43229 Hammond Electronics Columbus OH	44145 Audio Craft West Lake OH	45229 Andrews Audio Cincinnati OH	46142 Hi Fi Buys Greenwood IN	
43229 Miah Inc. Columbus OH	44310 Ohio Sound Akron OH	45238 Swallen's Cincinnati OH	46205 Sound Decision Indianapolis IN	
43229 Northland Audio Columbus OH	44313 Audio Craft Akron OH	45242 Third Millenium Cincinnati OH	46219 CMC Stereo Center Indianapolis IN	
	44313 Golden Gramophone Akron OH	45246 Stereo Lab Springdale OH	46220 Audio Workshop Indianapolis IN	
		45246 Swallen's Cincinnati OH	46220 CMC Stereo Center Indianapolis IN	

STATE ABBREVIATIONS	
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR

46750 Lehman Electronic Wizard Huntington IN	Michigan 48011 Almas Hi Fi Birmingham MI	48104 Fretter Ann Arbor MI	48640 Arthurs Distributing Midland MI	49504 Steketees Audio Grand Rapids MI
46774 HJS Sound Equipment New Haven IN	48011 Gramophone Co. Birmingham MI	48104 Hi-Fi Buys Ann Arbor MI	48640 Hi-Fi Buys Midland MI	49505 Schaak Elec. Grand Rapids MI
46804 McCormick Co. Ft. Wayne IN	48012 Radio Tom Co. Birmingham MI	48106 Haney Stereo Ann Arbor MI	48706 Sound Saloon Bay City MI	49507 Audio Distributors Grand Rapids MI
46805 Classic Stereo Ft. Wayne IN	48018 Esoteric Audio Farmington Hills MI	48124 Fretter Dearborn MI	48823 Hi-Fi Buys E. Lansing MI	49508 Classic Stereo Grand Rapids MI
46805 Lehman Ft. Wayne IN	48024 B & K Audio Farmington MI	48126 Adray Dearborn MI	48823 Stereo Shoppe E. Lansing MI	49508 Fretter Appl. Grand Rapids MI
46825 Fretter's Ft. Wayne IN	48027 Absolute Sound Royal Oak MI	48126 Almas Hi Fi Dearborn MI	48840 Trykin Haslett MI	49508 Schaak Grand Rapids MI
46825 Lehman Electronic Wizard Ft. Wayne IN	48034 Fretter Southfield MI	48126 Schaak Dearborn MI	48858 Dart, Inc. Mt. Pleasant MI	49508 Sound Room Grand Rapids MI
46825 Musical Images Ft. Wayne IN	48043 Fretter Mt. Clemens MI	48126 KLA Labs Dearborn MI	48858 Dr. Goodear's Mt. Pleasant MI	49508 Stereo Showcase Grand Rapids MI
46901 Sound Expo Kokomo IN	48043 Haney Stereo Mt. Clemens MI	48150 Fretter Livonia MI	48858 New Audio Center Mt. Pleasant MI	49509 Classic Stereo Grand Rapids MI
46952 Classic Stereo Marion IN	48050 Schaak Novi MI	48187 Sound Solution Canton MI	48864 Schaak Okemos MI	49684 Kurtz Music Center Traverse City MI
47201 Music Box Columbus IN	48054 Fretter Pontiac MI	48195 Fretter Southgate MI	48910 Fretter Lansing MI	49801 Sound North Iron Mountain MI
47303 Hi Fi Buys Muncie IN	48060 Gould Port Huron MI	48205 Fretter Detroit MI	48910 Stereo Shoppe Lansing MI	49829 Team Escanaba MI
47401 Alan Audio Bloomington IN	48060 Wilton's Port Huron MI	48205 Haney Stereo Detroit MI	48917 Hi-Fi Buys Lansing MI	49855 American Of Marquette Marquette MI
47401 American Audio Bloomington IN	48063 Arnon Books Rochester MI	48224 Pecar Detroit MI	48917 Schaak Lansing MI	Iowa 50010 Stereo Sound Studios Ames IA
47401 Hi Fi Specialists Bloomington IN	48063 Sound Sales, Inc. Rochester MI	48235 Hi Way Hi Fi Detroit MI	49002 Schaak Portage MI	50010 World Radio Ames IA
47711 Ted Fink Audio Evansville IN	48071 Fretter Madison Heights MI	48235 Peerless Detroit MI	49002 Sound Room Portage MI	50158 John's Hi Fi Marshalltown IA
47712 Risley Audio Evansville IN	48072 Absolute Sound Royal Oak MI	48236 Pointe Grosse Pointe Woods MI	49009 Schaak Kalamazoo MI	50309 Triad Productions Des Moines IA
47714 Audiotrend Evansville IN	48072 Audio Dimensions Royal Oak MI	48236 Schaak Grosse Pointe Woods MI	49017 Schaak Battle Creek MI	50310 Stereo Town Des Moines IA
47715 Risley Evansville IN	48072 Schaak Royal Oak MI	48236 Sound Sales Grosse Pointe Woods MI	49081 Fretter Portage MI	50310 World Radio Des Moines IA
47802 Audio Connection Terre Haute IN	48075 Schaak Southfield MI	48329 Fretter Detroit MI	49201 Hi-Fi Buys Jackson MI	50312 Audio Labs Des Moines IA
47803 Hoosier Electronics Terre Haute IN	48076 Tex Morton Associates Southfield MI	48473 Audio House Swartz Creek MI	49423 Teerman's Holland MI	50312 Stereo Sound Studios Des Moines IA
47904 Pro Audio Lafayette IN	48077 Fretter Sterling Heights MI	48503 Stereo Center Flint MI	49423 Woodmark Sound Holland MI	50315 World Radio Des Moines IA
47905 Hi Fi Buys Lafayette IN	48078 Schaak Electronics Sterling Heights MI	48507 Fretter Flint MI	49440 Franklin Studios Muskegon MI	50322 Stereo Sound Studios Des Moines IA
47906 Good Vibes Sound West Lafayette IN	48084 Oakland Mall Troy MI	48519 Stereo T.V. Village Flint MI	49442 Lyon's Yacht Works Muskegon MI	50401 Sound World Mason City IA
47906 Vons Electronics Lafayette IN	48087 ABC Appliance Utica MI	48602 Court St. Listening Room Saginaw MI	49502 Steketee's Audio Grand Rapids MI	50404 The Audio Room Cedar Rapids IA
	48104 Absolute Sound Ann Arbor MI	48603 Fretter Saginaw MI	49503 Audio Advisor Grand Rapids MI	

50701 Audio Resolution Waterloo IA	52806 World Radio Davenport IA	53704 Team Madison WI	54901 Electronic Industries Oshkosh WI	55391 Audio By Design Wayzata MN
50701 Team Waterloo IA	52807 Audio Odyssey Davenport IA	53713 American TV Madison WI	54911 American TV Appleton WI	55403 Hi Fi Sound Electronics Minneapolis MN
50701 World Radio Waterloo IA	Wisconsin 53005 Schaak Elect. Brookfield WI	53719 Full Compass Systems Madison WI	54914 Sound World Appleton WI	55406 Schaak Minneapolis MN
51002 Sound & Service Alta IA	53012 Stereo Plus Cedarburg WI	53719 Specialized Sound Madison WI	54952 Audio Elite Menasha WI	55414 Schaak Minneapolis MN
51104 Audio Emporium Sioux City IA	53024 Sound Stage Grafton WI	54022 House Of Hi Fi River Falls WI	54952 Audio Video Exchange Menasha WI	55420 Minnesota Sound Bloomington MN
51106 Pflanz Electronics Sioux City IA	53081 Gene's Sound Sheboygan WI	54143 Sound Seller Marinette WI	Minnesota 55021 Custom Faribault MN	55423 Audio Perfection Minneapolis MN
51401 Sound & Service Carroll IA	53127 Schaak Elect. Milwaukee WI	54220 Ray's World Of Electronics Manitowoc WI	55105 Schaak St. Paul MN	55427 Audio King Golden Valley MN
51501 World Radio Council Bluffs IA	53129 Schaak Greendale WI	54220 Team Manitowoc WI	55105 Sound Experience St. Paul MN	55430 Audio King Brooklyn Center MN
52001 Great Sounds Audio Dubuque IA	53140 That's Entertainment Kenosha WI	54301 Hi Fi Heaven Green Bay WI	55109 Audio King Maplewood MN	55430 Schaak Brooklyn Center MN
52001 The Audio Room Dubuque IA	53186 American T.V. Waukesha WI	54301 Sound World Green Bay WI	55109 Schaak Maplewood MN	55431 Alpha Audio Minneapolis MN
52240 Audio Odyssey Iowa City IA	53186 Flanner's Waukesha WI	54302 A. B. Commun. Green Bay WI	55109 Sound Of Music Maplewood MN	55434 Schaak Blaine MN
52240 Iowa City Sound Iowa City IA	53209 General Electronics Glendale WI	54395 Fond Du Lac Hi Fi Fond Du Lac WI	55112 Novatronics New Brighton MN	55435 Audio Innovations, Inc. Edina MN
52240 Team Iowa City IA	53217 Sound Stage Glendale WI	54401 Team Wausau WI	55113 Audio King Roseville MN	55435 Audio King Edina MN
52240 World Radio Iowa City IA	53217 Port Of Sound Milwaukee WI	54494 Salon 1 Wisconsin Rapids WI	55113 Schaak Roseville MN	55435 Schaak Edina MN
52401 World Radio Cedar Rapids IA	53221 Schaak Elect. Greenfield WI	54501 Audio Broker Rhinelanders WI	55118 Schaak W. St. Paul MN	55805 Team Duluth MN
52402 Sound Concepts Cedar Rapids IA	53222 Schaak Elect. Wauwatosa WI	54501 Team Rhinelanders WI	55119 Schaak St. Paul MN	55805 Mel's Audio Duluth MN
52402 Stereo Shop Cedar Rapids IA	53223 Audio Emporium Milwaukee WI	54601 Mountain Electronics La Crosse WI	55120 Schaak Mendota Heights MN	55811 Schaak Duluth MN
52402 Team Cedar Rapids IA	53223 Schaak Milwaukee WI	54601 Sound World La Crosse WI	55124 Sound Productions Apple Valley MN	55811 Stereo One Duluth MN
52402 The Audio Room Cedar Rapids IA	53223 Sound Investments Milwaukee WI	54601 Schaak La Crosse WI	55337 Audio King Burnsville MN	55901 Schaak Rochester MN
52404 The Audio Room Cedar Rapids IA	53226 Flanner & Hafoos Milwaukee WI	54650 Sound World Onlaska WI	55337 Schaak Burnsville MN	55901 Sound World Rochester MN
52501 Meyers Ottumwa IA	53403 Audio Shop Racine WI	54701 EME Audio Systems Eau Claire WI	55343 Audio King Minnetonka MN	55912 Sound World Austin MN
52556 Hawkeye Elect. Fairfield IA	53404 Brandt's Racine WI	54701 Schaak Eau Claire WI	55343 Kochlea Eng. Minnetonka MN	55987 Amalgamated Audio Winona MN
52601 La Salle Electronics Burlington IA	53545 Team Jamesville WI	54701 Team Eau Claire WI	55343 Schaak Minnetonka MN	56001 Sound World Mankato MN
52722 House Of Stereo Bettendorf IA	53703 Happy Medium Madison WI	54721 EME Audio Menomonie WI	55355 Quality Stereo Litchfield MN	56258 Sound Avenue Marshall MN
52722 House Of Stereo Clinton IA	53704 Audio Analyst Madison WI	54880 Schaak Superior WI		56301 Schaak St. Cloud MN
52806 Team Davenport IA				56301 Sound Elect. St. Cloud MN

56301 Stereo One St. Cloud MN	58701 Midwest Audio Minot ND	60015 United Audio Center Deerfield IL	60181 Hi Fi Hutch, Inc. Villa Park IL	60506 Filip's Stereo Aurora IL
56308 Sound Shop Alexandria MN	58701 The Stereo Shop Minot ND	60025 Music In Motion Glenview IL	60181 Musicraft Villa Park IL	60515 Sound Warehouse Downers Grove IL
56401 Stereo One Brainerd MN	58801 Team Williston ND	60031 Opus Recording Gurnee IL	60187 Stereo Studio Carol Stream IL	60521 Audio Consultants Hinsdale IL
56484 Audio Renaissance Waller MN	Montana 59101 New Horizons Hi Fi Billings MT	60035 Columbia Audio Highland Park IL	60193 Stereo Studio Schaumburg IL	60521 Schaak Elect. Oakbrook IL
56501 Sound Shop Detroit Lakes MN	59102 Sound Room Billings MT	60048 Audio Consultants Libertyville IL	60195 Creative Stereo Schaumburg IL	60525 Pacific Stereo La Grange IL
56601 Stereo One Bemidji MN	59401 Rocky Mountain Hi Fi Great Falls MT	60053 Musicraft Morton Grove IL	60195 Studio Sonics Schaumburg IL	60540 Quintessence Audio Ltd. Naperville IL
56721 Maury's E. Grand Forks MN	59401 Sound Room Great Falls MT	60053 Roscor Morton Grove IL	60201 Audio Consultants Evanston IL	60540 Stereo Systems Naperville IL
South Dakota 57006 Stereo Town Brookings SD	59484 Echos Of Sound Sweetgrass MT	60053 The Media Room Morton Grove IL	60201 Pacific Stereo Evanston IL	60559 Sounds Deluxe Westmont IL
57101 Pro Audio-Video Sioux Falls SD	59601 The Stereo Shop Helena MT	60053 Victor's Stereo Morton Grove IL	60302 Musicraft Oak Park IL	60602 Brandt's Chicago IL
57102 Pro Audio Sioux Falls SD	59701 Ossello's Butte MT	60056 Hi Fi Hutch Mt. Prospect IL	60302 Pacific Stereo Oak Park IL	60604 Audio Option Chicago IL
57105 Sight-Sound Sioux Falls SD	59715 Sound Room Bozeman MT	60056 Simply Stereo Mt. Prospect IL	60409 Schaak Elect. Calumet City IL	60607 Pacific Stereo Chicago IL
57116 Sound World Sioux Falls SD	59715 The Thirsty Ear Bozeman MT	60060 Creative Stereo Vernon Hills IL	60411 Audio Enterprises Chicago Heights IL	60610 Hammacher & Schlemmer Chicago IL
57401 World Electronics Aberdeen SD	59801 Electronic Parts Missoula MT	60061 Schaak Vernon Hills IL	60419 Pacific Stereo Dolton IL	60610 Superior Audio Systems Chicago IL
57701 Team Rapid City SD	59801 Golden West Missoula MT	60061 United Audio Vernon Hills IL	60426 Bridgewater Custom Sound Harvey IL	60611 Musicraft Chicago IL
North Dakota 58102 Team Fargo ND	59801 Sound Room Missoula MT	60062 Creative Stereo Northbrook IL	60430 Musicraft Homewood IL	60611 Victor's Stereo Chicago IL
58103 Schaak Fargo ND	59801 Team Missoula MT	60067 Musicraft Palatine IL	60434 Stereo Systems Joliet IL	60614 Paul Heath Audio Chicago IL
58103 Stereo One Fargo ND	59901 The Logical Choice Kalispell MT	60085 Creative Stereo Waukegan IL	60435 Stereo Systems Joliet IL	60614 Promusica Chicago IL
58103 Watts-More Fargo ND	59901 Weber Musicroom Kalispell MT	60090 Columbia Audio Buffalo Grove IL	60443 Pacific Stereo Matteson IL	60614 Weatherly Team Peoria IL
58401 Music Corner Jamestown ND	Illinois 60004 Stereo Studio Arlington Hgts. IL	60104 Precision Audio Bellwood IL	60462 Schaak Elect. Orland Park IL	60627 Stereo Designs Riverdale IL
58501 Pacific Sound Bismark ND	60007 Ancha Electronics Elk Grove Village IL	60108 Schaak Elect. Bloomington IL	60465 Gil Custom House Palos Hills IL	60629 E-Z Teletronics Chicago IL
58601 The Music Hut E. Dickinson ND	60010 Electronic Cottage Barrington IL	60115 Appletree Stereo DeKalb IL	60473 Bridgewater Sound S. Holland IL	60635 Musicraft Oak Park IL
	60014 Hi Fi Hutch Crystal Lake IL	60115 Audio Plus DeKalb IL	60505 Filip's Stereo Aurora IL	60635 Schaak Chicago IL
	60014 Pro Musica Chicago IL	60143 Pacific Stereo Itasca IL	60505 Schaak Elect. Aurora IL	60641 Innovations Chicago IL
	60015 Audio Plus DeKalb IL	60148 Pacific Stereo Lombard IL	60505 Stereo Systems Aurora IL	60642 Musicraft Evergreen Park IL
		60148 Schaak Elect. Lombard IL		60643 The Golden Ea Chicago IL
		60172 Schaak Elect. Schaumburg IL		

STATE ABBREVIATIONS

Pennsylvania	PA
Puerto Rico	PR
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT

60648 Pacific Stereo Niles IL	61614 Team Peoria IL	Missouri	63144 Audio Magic Brentwood MO	66044 Lawrence Custom Radio Lawrence KS
60648 The Stereo Studio Niles IL	61713 Appletree Stereo Normal IL	63011 Audio Magic Ballwin MO	63144 Flip's Sound Ballwin MO	66044 Omni Electronics Lawrence KS
60648 United Audio Niles IL	61761 Appletree Stereo Normal IL	63011 CMC Stereo Center Ballwin MO	63301 CMC Stereo Center St. Charles MO	66044 Kief's Gramophone Shop Lawrence KS
60653 Pacific Stereo Oaklawn IL	61761 Glenn Poor's Normal IL	63011 Flip's Stereo Ballwin MO	63501 Wright's Sound Room Kirksville MO	66052 Kief's Gramophone Shop Manhattan KS
60657 Pacific Stereo Chicago IL	61801 Appletree Stereo Rockford IL	63026 Maritz Fenton MO	64055 CMC Stereo Center Independence MO	66102 CMC Stereo Center Kansas City KS
60657 Saturday Audio Exchange Chicago IL	61820 Appletree Stereo Champaign IL	63042 CMC Stereo Center Hazelwood MO	64055 World Radio Independence MO	66202 Accent Sound Mission KS
60657 United Audio Chicago IL	61820 Glenn Poor's Champaign IL	63074 CMC Stereo Center Bridgeton MO	64108 Sound Enterprises Kansas City MO	66203 All Systems Shawnee Mission KS
60659 United Audio Chicago IL	61820 Good Vibes Sound Champaign IL	63074 CMC Stereo Center St. Ann MO	64111 Sound Dynamics Kansas City MO	66204 World Radio Overland Park KS
60901 The Shoppe Kankakee IL	61821 Glenn Poor's Champaign IL	63104 Music Systems St. Louis MO	64114 Brands Mart Kansas City MO	66206 Audio Mart Leawood KS
61081 La Salle Sterling IL	61877 August Systems Sidney IL	63105 CMC Stereo Center Clayton MO	64118 CMC Stereo Center Kansas City MO	66207 Audio Elect. Overland Park KS
61103 Absolute Audio Rockford IL	62022 CMC Stereo Center East Alton IL	63117 Best Sound Co. St. Louis MO	64119 World Radio N. Kansas City MO	66212 Beatty Elect. Overland Park KS
61103 Columbia Audio/Video Rockford IL	62025 Meyer Audio Edwardsville IL	63119 Speaker Craft Webster Groves MO	64133 CMC Stereo Center Raytown MO	66212 CMC Stereo Center Overland Park KS
61107 Appletree Stereo Rockford IL	62040 CMC Stereo Center Granite City IL	63119 Speaker Store St. Louis MO	64506 St. Joseph Elect. St. Joseph MO	66214 CMC Stereo Center Overland Park KS
61201 La Salle Rock Island IL	62208 CMC Stereo Center Fairview Heights IL	63122 CMC Stereo Center Kirkwood MO	64801 Stereo Buff Joplin MO	66441 Audio Junction Junction City KS
61265 Audio Dimensions Moline IL	62223 Audio Musicale Belleville IL	63123 Sound Central St. Louis MO	65101 Stereo Buff Jefferson City MO	66502 Sound Shop Manhattan KS
61265 Team Moline IL	62233 CMC Stereo Center Belleville IL	63125 CMC Stereo Center St. Louis MO	65201 Johnston Audio Columbia MO	66502 Stereo Factory Manhattan KS
61265 World Radio Moline IL	62301 First In Video Music World Quincy IL	63126 CMC Stereo Center Crestwood MO	65201 Stereo Buff Columbia MO	66603 CMC Stereo Center Topeka KS
61301 La Salle La Salle IL	62526 Appletree Stereo Decatur IL	63126 Flip's Stereo Crestwood MO	65622 Audio Doctor Buffalo MO	66611 World Radio Topeka KS
61362 Audio Labs Spring Valley IL	62650 Audio World Jacksonville IL	63127 Audio Magic Sunset Hills MO	65775 Hubert's West Plains MO	67206 Audio Plus Wichita KS
61362 Cassidy Spring Valley IL	62704 Sundown One Springfield IL	63129 Sound Central St. Louis MO	65804 House Of Sound Springfield MO	67211 Custom Sound Wichita KS
61401 La Salle Galesburg IL	62704 Team Springfield IL	63136 CMC Stereo Center Ferguson MO	65804 The Stereo Buff Springfield MO	67218 Audio Visions Wichita KA
61401 Lindstrom's Galesburg IL	62821 Downen Carmi IL	63141 CMC Stereo Center St. Louis MO	65807 The Stereo Buff Springfield MO	67218 Custom Sounds Wichita KS
61455 La Salle Macomb IL	62901 Nalder Stereo Carbondale IL	63141 The Sound Room Creve Coeur MO	65808 Stereo Buff Springfield MO	67218 Sound Investment Wichita KS
61554 Milam Audio Pekin IL	62966 Sabin Audio Murphysboro IL	63141 Uncle Toot's Video Creve Coeur MO	Kansas	67401 Del's Salina KS
61614 Electronics Diversified Peoria IL			66002 Atchison Sound Atchison KS	67401 Electronics Salina KS

67501 Hayes Sound Hutchinson KS	68847 Midwest Audio Kearney NE	70458 The Music Center Slidell LA	71106 Mike Hilliard Audio Shreveport LA	73120 Team Oklahoma City OK
67601 Stereo Factory Hays KS	68901 Gambles Hastings NE	70503 Audio Systems Lafayette LA	71270 Sound Advice Ruston LA	73120 Youngblood Sound Oklahoma City OK
67601 U.S. Stereo Hays KS	69001 Reflections McCook NE	70503 David's Car Stereo Lafayette LA	Arkansas	73149 Team Oklahoma City OK
67901 Stereo Factory Liberal KS	69101 Team North Platte NE	70503 New Generation Lafayette LA	72143 Softmart Searcy AR	73501 The Hifi Shop Lawton OK
Nebraska	Louisiana	70506 Sound Electronics Lafayette LA	72204 Project One Little Rock AR	73521 Southwestern Music Altus OK
68005 World Radio Bellevue NE	70001 Sound Trek Audio Metairie LA	70560 Jody's Unlimited Sounds, Inc. New Iberia LA	72207 Custom Audio Little Rock AR	73701 Turntable, Inc. Enid OK
68008 World Radio Bellevue NE	70002 Alterman Audio Metairie LA	70560 Village Sound New Iberia LA	72207 Leisure Elect. Little Rock AR	74003 Copeland's Bartlesville OK
68114 Custom Electronics Omaha NE	70002 Campo Appl. Metairie LA	70570 Sound Electronics Opelousas LA	72209 Mack Electronics Little Rock AR	74003 Siegel's Sound Bartlesville OK
68114 Stereo West Omaha NE	70002 Stereo Village Metairie LA	70601 All Star Audio Lake Charles LA	72209 Walloch's Little Rock AR	74003 Sound Center Bartlesville OK
68114 Sound Environment Omaha NE	70053 Campo Appliance Gretna LA	70601 Sylvan Sound Lake Charles LA	72216 Custom Audio N. Little Rock AR	74017 Hill Radio Clairemore OK
68114 World Radio Omaha NE	70053 Sound Trek Audio Gretna LA	70737 Gonzales Music Center Gonzales LA	72701 Stereo One Fayetteville AR	74074 Audio Innovations Stillwater OK
68123 Audio Additives Omaha NE	70053 Stereo Village Gretna LA	70802 New Generation Baton Rouge LA	72701 White Dog Fayetteville AR	74074 Audio Sound Systems Stillwater OK
68124 Stereo West Omaha NE	70062 Dan Proudfoot Kenner LA	70806 Colley's Audio Baton Rouge LA	72901 Stereo One Ft. Smith AR	74074 Sound Advice Stillwater OK
68127 Custom Elect. Omaha NE	70068 Audio Innovations Laplace LA	70806 Kadair's, Inc. Baton Rouge LA	Oklahoma	74105 Light & Sound Tulsa OK
68134 Stereo West Omaha NE	70068 Music Center Laplace LA	70806 Stereo Village Baton Rouge LA	73034 Kuykendall & Fecht Edmond OK	74145 Imperial Sound Tulsa OK
68137 Stereo West Omaha NE	70115 Custom Audio New Orleans LA	70809 Bluebonnet Village Baton Rouge LA	73069 Gramophone Norman OK	74145 The Phonograph Tulsa OK
68144 World Radio Omaha NE	70118 Wilson Audio New Orleans LA	70811 Brookwood Village Baton Rouge LA	73069 Thomson Sound Norman OK	74145 World Wide Stereo Tulsa OK
68164 Stereo West Omaha NE	70119 Audio Hideout Opelousas LA	70815 Stereo Warehouse Baton Rouge LA	73107 Audio Dimension Oklahoma City OK	74146 Sound Advice Tulsa OK
68467 Midwest Audio York NE	70125 Campo Audio New Orleans LA	70816 The Music Center Baton Rouge LA	73108 Ford Audio Oklahoma City OK	74401 Sound World Muskogee OK
68506 Sound Environment Lincoln NE	70127 Sound Trek Audio New Orleans LA	71105 Audio Fidelity Shreveport LA	73110 Audio Midwest Midwest City OK	74801 Rave Electronics Shawnee OK
68508 World Radio Lincoln NE	70127 Stereo Village New Orleans LA	71105 Major Elect. Shreveport LA	73112 Audio Classics Oklahoma City OK	Texas
68510 Stereo West Lincoln NE	70301 Music Center Thibodaux LA	71105 Stereo & Record Center Shreveport LA	73112 Buttons Oklahoma City OK	75006 Video Land Carrollton TX
68516 Sound Environment Lincoln NE	70360 Larry's Houma LA	71105 Wright's Sound Gallery Shreveport LA	73116 Audio Associates Oklahoma City OK	75042 Tape Masters Garland TX
68601 Good Music Columbus NE	70360 Gonzales Music Center Houma LA	71105 Stereo & Record Center Shreveport LA	73116 David's Oklahoma City OK	75062 CMC Stereo Center Irving TX
68801 Gambles Grand Island NE	70401 Music Center Hammond LA	71105 Stereo & Record Center Shreveport LA	73118 Thomson Sound Oklahoma City OK	75074 Stereo Dallas Plano TX
68801 Team Grand Island NE	70458 Campo Appliance Slidell LA		73120 Contemporary Sounds Oklahoma City OK	75081 Pacific Stereo Richardson TX
			73120 Johnson Sound Oklahoma City OK	

75169 TX

78666 TX

75169 Ultra Electronics Lubbock TX	75601 Stereo & Record Center Longview TX	76710 North American Sound Waco TX	77069 Pacific Stereo Houston TX	77840 Homecraft Elect. College Station TX
75205 Arnold & Morgan Dallas TX	75703 Stereo & Record Center Tyler TX	76710 Padgitt's Waco TX	77070 Tobias Houston TX	77907 Dyer Electronics Victoria TX
75205 Hillcrest High Fidelity Dallas TX	75961 Audioworks Nacogdoches TX	76711 North American Sound Waco TX	77074 CMC Stereo Center Houston TX	78040 Cowl's Music Laredo TX
75206 Recorder Center Dallas TX	75961 Component Services Nacogdoches TX	76718 Padgitt's Waco TX	77074 Home Entertainment, Inc. Houston TX	78040 Metex Intl. Laredo TX
75209 Hillcrest High Fidelity Dallas TX	75961 Patton Appl. Nacogdoches TX	76902 Dyer Electronics San Angelo TX	77074 Pacific Stereo Houston TX	78041 Audio Systems Laredo TX
75214 Esoteric Audio Systems Dallas TX	75961 Spinet Music Nacogdoches TX	77003 Finger Furniture Houston TX	77075 CMC Stereo Center Houston TX	78201 Dyer Electronics San Antonio TX
75219 RMC Audio Dallas TX	76010 Sound Idea Arlington TX	77005 Home Entertainment, Inc. Houston TX	77075 Pacific Stereo Houston TX	78209 Concert Sound San Antonio TX
75225 CMC Stereo Center Dallas TX	76011 CMC Stereo Center Arlington TX	77005 Pacific Stereo Houston TX	77092 All Star Audio Houston TX	78215 Bill Case Sound San Antonio TX
75225 Melody Shops Dallas TX	76011 Pacific Stereo Arlington TX	77024 Audio Pro-Philes Houston TX	77092 CMC Stereo Center Houston TX	78216 Audio Source San Antonio TX
75234 Arnold & Morgan Music Co. Dallas TX	76011 Pacific Stereo Fort Worth TX	77024 CMC Stereo Center Houston TX	77093 Finger Furniture Houston TX	78216 Dyer Electronics San Antonio TX
75234 Earmark Addison TX	76012 World Wide Stereo Arlington TX	77024 Pacific Stereo Houston TX	77098 Audio Concepts/Houston Houston TX	78216 Stereo Intl. San Antonio TX
75237 Pacific Stereo Dallas TX	76053 Pacific Stereo Hurst TX	77036 All Star Audio Houston TX	77098 B & M Electronics, Inc. Houston TX	78217 Bjorn's Stereo San Antonio TX
75237 Stereo Dallas Dallas TX	76053 Sound Idea Hurst TX	77036 CMC Stereo Center Houston TX	77217 Dyer Electronics San Antonio TX	78229 San Antonio Audio Concepts San Antonio TX
75240 Arnold & Morgan Dallas TX	76107 Sound Idea Fort Worth TX	77036 Home Entertainment Houston TX	77302 Inner Ear Conroe TX	78240 San Antonio Audio Concepts San Antonio TX
75240 CMC Stereo Center Dallas TX	76109 Marvin Elect. Fort Worth TX	77037 CMC Stereo Center Houston TX	77338 Pacific Stereo Humble TX	78267 Dyer Electronics San Antonio TX
75240 Hour Photo Dallas TX	76116 CMC Stereo Center Fort Worth TX	77042 All Star Audio Houston TX	77503 Finger Furniture Pasadena TX	78411 Audio Distinctions Corpus Christi TX
75240 Mobile Sound Systems Dallas TX	76116 Power Base Electronics Fort Worth TX	77042 Home Entertainment Houston TX	77520 Custom Audio Baytown TX	78411 Audio Video Designs Corpus Christi TX
75240 Stereo Dallas Dallas TX	76308 Audio-Tech Wichita Falls TX	77057 CMC Stereo Center Houston TX	77546 Pacific Stereo Houston TX	78411 Dyer Electronics Corpus Christi TX
75248 Omni Sound Dallas TX	76308 Hamilton Bryan Wichita Falls TX	77060 Pacific Stereo Houston TX	77551 Island Audio Galveston TX	78411 Tape Town Audio Corpus Christi TX
75251 Pacific Stereo Dallas TX	76308 Sound Discount Center Wichita Falls TX	77063 All Star Audio Houston TX	77701 All Star Audio Beaumont TX	78501 El Centro Sound McAllen TX
75460 Bell Electronics Paris TX	76501 World Wide Stereo Temple TX	77063 Home Entertainment Houston TX	77702 Brock Audio Beaumont TX	78520 El Arca Brownsville TX
75501 Sound Towne Texarkana TX	76703 Padgitt's Waco TX	77063 Sheffield Audio Houston TX	77706 Beaumont Sound Beaumont TX	78520 Panorama Elect. Brownsville TX
75503 Audio Center Texarkana TX	76710 Dyer Electronics Waco TX	77064 Home Entertainment, Inc. Houston TX	77706 Brock Audio Beaumont TX	78550 Stereo City Harlingen TX
75601 Big Daddys House Of Music Longview TX			77802 All Star Audio Bryan TX	78577 El Centro Sound Pharr TX
			77840 Audio Video College Station TX	78666 Dyer Electronics San Marcos TX

78701 High Fidelity, Inc. Austin TX	79701 Folger's Midland TX	80222 Gramophone Shop Denver CO	80631 Soundtronix Greeley CO	82501 Soundroom Riverton WY
78704 Audio Concepts Austin TX	79760 Dyer Electronics Odessa TX	80222 Soundtrack Denver CO	80701 Montel Music Ft. Morgan CO	82601 Team Casper WY
78704 Dyer Electronics Austin TX	79762 Electronic Service Center Odessa TX	80228 U.S. Stereo Lakewood CO	80751 Select Systems Sterling CO	82604 Russell's Casper WY
78704 Heart Of Texas Music Austin TX	79762 Harold's Elect. Odessa TX	80231 U.S. Stereo Denver CO	80903 C & S Audio Colorado Springs CO	82609 Casper Sound Casper WY
78704 The Audio File Austin TX	79764 Electronic Service Center Odessa TX	80233 U.S. Stereo Thornton CO	80903 Sunshine Audio Colorado Springs CO	82609 Russell's Casper WY
78705 Audio Concepts Austin TX	79830 Custom Electronics Alpine TX	80234 Schaak Elect. Northglenn CO	80903 The Sound Shop Colorado Springs CO	82716 Murphy Sound Gillette WY
78705 Dyer Electronics Austin TX	79901 Century Sound El Paso TX	80301 Audio Source Boulder CO	80907 C & S Audio Colorado Springs CO	82801 Murphy Sound Sheridan WY
78722 Dyer Electronics Austin TX	79912 Music Systems El Paso TX	80301 Boulder Sound Gallery Boulder CO	80907 U.S. Stereo Colorado Springs CO	Idaho
78731 Audio Concepts Austin TX	79915 Soundquest El Paso TX	80301 Howe Audio Boulder CO	80909 Innovative Home Audio Colorado Springs CO	83201 Inkley's Pocatello ID
78746 Dyer Electronics Austin TX	Colorado	80301 Listen Up Audio Boulder CO	80909 Sunshine Audio Colorado Springs CO	83201 Phase Four Stereo Pocatello ID
78752 Austin Audio One Austin TX	80002 Soundtrack Arvada CO	80301 Listen Up Audio Boulder CO	80909 U.S. Stereo Colorado Springs CO	83201 Sound Wave Pocatello ID
78757 Audio Concepts Austin TX	80003 Stereo Plus Westminster CO	80301 Schaak Elect. Boulder CO	80914 Sounds Great Colorado Springs CO	83221 Inkley's Blackfoot ID
78757 High Fidelity, Inc. Austin TX	80004 U.S. Stereo Arvada CO	80301 The Audio Source Boulder CO	80915 Sounds Great Colorado Springs CO	83263 Inkley's Preston ID
78758 Audio Concepts Austin TX	80012 Stereo Plus, Inc. Aurora CO	80302 Boulder Sound Gallery Boulder CO	81003 Sunshine Audio Pueblo CO	83301 Audio Warehouse Twin Falls ID
79102 The Soundroom Amarillo TX	80014 Profound Sound Aurora CO	80302 Listen Up Boulder CO	81008 Soundtronix Pueblo CO	83301 Inkley's Twin Falls ID
79109 Dyer Electronics Amarillo TX	80033 Pearse/ Soundtrack Wheatridge CO	80302 Recycled Audio Boulder CO	81230 Wilwood Music Gunnison CO	83301 Sound Company Twin Falls ID
79109 Sound Systems Amarillo TX	80110 Gold Sound Englewood CO	80302 U.S. Stereo Boulder CO	81301 Durango Music Durango CO	83340 Infinite Audio Ketchum ID
79401 Dyer Electronics Lubbock TX	80120 U.S. Stereo Littleton CO	80303 Wavelength Stereo Boulder CO	81301 Gramophone Durango CO	83401 Inkley's Idaho Falls ID
79410 Dorian Systems Lubbock TX	80122 Schaak Elect. Littleton CO	80443 Players Frisco CO	81501 The Sound Co. Grand Junction CO	83401 Phase Four Stereo Idaho Falls ID
79410 Ultra Electronics Lubbock TX	80123 Schaak Littleton CO	80501 Odin Sound Stereo Longmont CO	81501 United Tapes Grand Junction CO	83440 Rexburg Music Rexburg ID
79411 Hi-Fidelity Of Lubbock Lubbock TX	80203 Stereo Plus Inc. Denver CO	80517 Estes Park Music Estes Park CO	81611 Main Street Music Aspen CO	83501 Steiner Elect. Lewiston ID
79413 Electric Ear Lubbock TX	80206 U.S. Stereo Denver CO	80521 Audio Junction Ft. Collins CO	81625 Images Craig CO	83705 Stereo Shoppe Boise ID
79413 Ultra Electronics Lubbock TX	80209 Listen Up Denver CO	80524 Audio Alternatives Ft. Collins CO	Wyoming	83814 Burt's Coeur D'Alene ID
79605 Dyer Electronics Abilene TX	80210 Audities 2001 Denver CO	80525 Audio Junction Ft. Collins CO	82001 Record Shop Cheyenne WY	83864 Electracraft Sandpoint ID
79606 North American Sound Abilene TX	80215 Profound Sound Lakewood CO	80525 U.S. Stereo Ft. Collins CO	82001 U.S. Stereo Cheyenne WY	Utah
79701 Audio Pro Midland TX			82009 Team Cheyenne WY	84010 Inkley's Bountiful UT
			82070 The Music West Laramie WY	84041 Inkley's Layton UT

84041 Trax Audio Layton UT	84601 Allen's Provo UT	85364 Warehouse Stereo Yuma AZ	Nevada	90048 Beverly Stereo Los Angeles CA
84057 Allen's Orem UT	84601 University Audio Provo UT	85711 Jerry's Tucson AZ	89102 The Upper Ear Las Vegas NV	90048 Command West Los Angeles CA
84067 Inkley's Roy UT	84770 Arrow Audio St. George UT	85711 Roh's Tucson AZ	89104 Miller Audio Las Vegas NV	90049 Seydor Audio Los Angeles CA
84070 Inkley's Sandy UT	84770 Inkley's St. George UT	85716 Audio Emporium Tucson AZ	89104 Sound Emporium Las Vegas NV	90064 Federated Los Angeles CA
84078 Vernal Ent. Ctr. Vernal UT	Arizona	85716 L A Stereo Tucson AZ	89502 Wild West Sound Reno NV	90069 Audio Center W. Hollywood CA
84105 Audio Design Salt Lake City UT	85012 Audio Specialists Phoenix AZ	85719 Audio Emporium Tucson AZ	California	90069 Audio One W. Hollywood CA
84106 Inkley's Salt Lake City UT	85012 Bill's Phoenix AZ	85719 Wilson Audio Tucson AZ	90006 I.T.C. Los Angeles CA	90069 Christopher Hansen Ltd Los Angeles CA
84107 Crisman Audiovision Murray UT	85012 Jerry's Phoenix AZ	86001 Bill's Flagstaff AZ	90006 Wbs Los Angeles CA	90069 Supervision Los Angeles CA
84107 Sound Track Salt Lake City UT	85014 Jerry's Phoenix AZ	86301 Bill's Prescott AZ	90014 Henry's Camera Los Angeles CA	90210 Sound Center Beverly Hills CA
84111 Audioworks Salt Lake City UT	85015 Bill's Phoenix AZ	New Mexico	90016 Fedco Los Angeles CA	90211 Contact Stereo Beverly Hills CA
84111 Broadway Music Salt Lake City UT	85015 Stereo Center Phoenix AZ	87104 West Coast Sound Albuquerque NM	90019 Royal Sound Los Angeles CA	90222 Federated City Of Commerce CA
84111 Inkley's Salt Lake City UT	85016 Audio Alternative Phoenix AZ	87108 Phototronics Albuquerque NM	90022 Federated City Of Commerce CA	90224 AI & Eds Compton CA
84115 Inkley's Salt Lake City UT	85016 Entertainment Systems Phoenix AZ	87109 West Coast Sound Systems Albuquerque NM	90024 Bel-Air Hi Fi Los Angeles CA	90230 Stereo Hi Fi Center Culver City CA
84115 Standard Audio Salt Lake City UT	85016 Sound Advice Phoenix AZ	87110 Hudson's Audio Center Albuquerque NM	90024 Sound Images Los Angeles CA	90241 Contact Stereo Beverly Hills CA
84119 Inkley's Salt Lake City UT	85016 Sound Concepts Phoenix AZ	87110 Sound Ideas Albuquerque NM	90025 AI & Eds W. Los Angeles CA	90241 Pacific Stereo Downey CA
84121 Inkley's Salt Lake City UT	85018 Federated Phoenix AZ	87112 Audio Visions Albuquerque NM	90025 Henry Radio Los Angeles CA	90248 Reference Audio Gardena CA
84321 Inkley's Logan, UT	85029 Absolute Sound Phoenix AZ	87112 Sound Ideas, Inc. Albuquerque NM	90029 Speaker Repair Hollywood CA	90262 Century Stereo Lynwood CA
84321 Lynn's Logan UT	85029 Phoenix Sound Engineering Phoenix AZ	87401 U.S. Stereo Farmington NM	90036 Ahead Stereo Los Angeles CA	90272 Palisades Stereo Pacific Palisades CA
84401 Inkley's Ogden UT	85032 Audio Express Phoenix AZ	87501 Candy Man High Fidelity Shop Sante Fe NM	90036 Brooks Los Angeles CA	90274 Audio Enthusiast Rancho Palos Verdes CA
84401 The Hi Fi Shop Ogden UT	85107 Bill's Phoenix AZ	87501 U.S. Stereo Sante Fe NM	90038 A-1 Audio Hollywood CA	90278 Systems Design Group Redondo CA
84403 Inkley's Ogden UT	85201 Hi Fi Sales Mesa AZ	87501 West Coast Sound Systems Santa Fe NM	90038 Ametron Hollywood CA	90300 AI & Eds Inglewood CA
84501 Inkley's Price UT	85201 Stereo Center Mesa AZ	88001 The Sound Room Las Cruces NM	90038 Audio Video Craft Los Angeles CA	90401 Optimal Enchantment Santa Monica CA
	85202 Federated Mesa AZ	88220 Beason's Inc. Carlsbad NM	90038 Federated Hollywood CA	90403 Pacific Stereo Santa Monica CA
	85257 Bill's Scottsdale AZ	88220 Pro Audio Carlsbad NM	90046 Custom Audio Video W. Hollywood CA	90403 Shelley's Santa Monica CA
	85281 Bill's Tempe AZ	88240 Crosby's Hobbs NM	90046 Westlake Audio Los Angeles CA	90404 Jonas Miller Sound Santa Monica CA
	85282 Audio Services Tempe AZ		90048 Audio Command Los Angeles CA	
	85282 Listening Post Tempe AZ			

STATE ABBREVIATIONS

Vermont	VT
Virginia	VA
Virgin Islands	VI
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY

90405 Safe And Sound Santa Monica CA	91316 Sound Factor Encino CA	91711 Omega High Fidelity Music Claremont CA	92110 Dow Stereo San Diego CA	92626 Fedco Costa Mesa CA
90501 Efficient Stereo Torrance CA	91324 Northridge Audio Northridge CA	91723 Whistle Stop Covina CA	92110 Federated San Diego CA	92626 Pacific Stereo Costa Mesa CA
90501 Speakerworks Torrance CA	91324 Sound Odyssey Northridge CA	91730 Federated Temple City CA	92110 Mad Jack's San Diego CA	92627 Atlantic Music Costa Mesa CA
90503 Dimensions In Stereo Torrance CA	91324 Sound Station Northridge CA	91744 Exceptional Audio La Puente CA	92110 Pacific Stereo San Diego CA	92627 Mesatronics Costa Mesa CA
90503 Pacific Stereo Torrance CA	91355 Rhoades Audio Valencia CA	91744 Federated La Puente CA	92110 Sound Company San Diego CA	92627 Perfection Audio Costa Mesa CA
90505 Installation Unlimited Torrance CA	91360 Creative Stereo Thousand Oaks CA	91754 Rubin Audio Monterey Park CA	92110 Stereo Unlimited San Diego CA	92627 Video Stop Costa Mesa CA
90505 Stereo Hi Fi Center Torrance CA	91362 Phantom Electronics Thousand Oaks CA	91761 Fedco Ontario CA	92110 Federated Santa Ana CA	92630 Genesis Audio El Toro CA
90507 Pacific Stereo Torrance CA	91364 Absolute Audio Woodland Hills CA	91763 Federated Montclair CA	92110 The Radioman San Diego CA	92630 Pacific Stereo El Toro CA
90602 Hi Fi Haven Whittier CA	91364 Sound Center Woodland Hills CA	91766 Pacific Stereo Pomona CA	92111 Pacific Stereo San Diego CA	92631 Pro Sound Systems Fullerton CA
90631 Pacific Stereo La Habra CA	91401 Sound Shack Van Nuys CA	91775 Audio Concepts San Gabriel CA	92115 Dow Stereo/Video San Diego CA	92649 Havens & Hardesty Huntington Beach CA
90640 Coastron Montebello CA	91403 Sherman Oaks Sound Sherman Oaks CA	91786 Suntronics Upland CA	92115 Mad Jack's San Diego CA	92651 Laguna Stereo Laguna Beach CA
90640 SML, Inc. Montebello CA	91405 Fedco Van Nuys CA	91789 Wired For Sound Walnut CA	92115 Sound Company San Diego CA	92660 Newport Audio Newport Beach CA
90701 Fedco Cerritos CA	91406 Audio Den Van Nuys CA	91801 Audio Specialists Alhambra CA	92115 Sound Pros San Diego CA	92663 Executive Sound Newport Beach CA
90701 Pacific Stereo Cerritos CA	91411 Sound Shack Van Nuys CA	92008 Dow Sound City Carlsbad CA	92123 Breier Sound San Diego CA	92666 Fidelity Sound Orange CA
90701 Federated Cerritos CA	91423 Systems Design Group Sherman Oaks CA	92008 Pacific Recorders Carlsbad CA	92123 Stereo Design San Diego CA	92667 Absolute Audio Orange CA
90807 Federated Long Beach CA	91436 Everything Audio Encino CA	92008 Pacific Stereo Carlsbad CA	92135 Long Ear Big Bear Lake CA	92667 Speaker Works Orange CA
90815 Pacific Stereo Long Beach CA	91502 Sound Center Burbank CA	92010 Western Audio Imports Palo Alto CA	92234 Video Stop Cathedral City CA	92675 Home Technology Systems San Juan Capistrano CA
91024 Mission Commun. Sierra Madre CA	91502 Studio Builders Burbank CA	92020 Audio Specialty El Cajon CA	92243 Warehouse Stereo El Centro CA	92683 Audio Today Westminster CA
91100 AI & Eds Pasadena CA	91505 Federated Burbank CA	92024 Music By The Sea Leucadia CA	92401 Pacific Stereo La Mesa CA	92683 Pacific Stereo Westminster CA
91107 Fedco Pasadena CA	91505 Audio Mart Burbank CA	92024 North County Stereo Xchange Encinitas CA	92408 Pacific Stereo San Bernardino CA	92683 Federated Westminster CA
91107 Pacific Stereo Pasadena CA	91505 Tri-Tronics Burbank CA	92037 Stereo Horizons La Jolla CA	92408 Video Mart San Bernardino CA	92692 Federated Mission Viejo CA
91204 Crystal Sonics Glendale CA	91601 Pacific Stereo N. Hollywood CA	92050 Fedco National City CA	92410 Fedco San Bernardino CA	92692 Videolaser Mission Viejo CA
91204 Pacific Stereo Glendale CA	91606 Sound Factor N. Hollywood CA	92056 Optimum Audio Oceanside CA	92503 Federated Riverside CA	92701 Federated Santa Ana CA
91204 Radio Lab Glendale CA	91702 AI & Eds Azusa CA	92075 Audio Specialties Solana Beach CA	92503 Pacific Stereo Riverside CA	92706 Absolute Audio Santa Ana CA
91303 Federated Canoga Park CA	91711 Audio Basics Claremont CA	92110 Communications San Diego CA	92506 Speakercraft Riverside CA	92706 Absolute Audio Orange CA
91304 Pacific Stereo Canoga Park CA			92621 Pacific Stereo Brea CA	92738 Federated Westminster CA

92801 CA

95628 CA

92801 Federated Anaheim CA	93534 Calif. Soundworks Lancaster CA	94114 Pacific Stereo San Francisco CA	94609 Pro Audio Electronics Oakland CA	95128 Century Stereo San Jose CA
92801 Henry Radio Anaheim CA	93726 Metro Stereo Fresno CA	94115 Listening Post San Francisco CA	94704 Db Audio Berkeley CA	95128 Garland Audio San Jose CA
92805 Audio Consultants Anaheim CA	93726 Musical Images Fresno CA	94118 Pacific Stereo San Francisco CA	94704 Franks Of Berkeley Berkeley CA	95128 New Age Elect. San Jose CA
92806 Nelson's Anaheim CA	93726 Pacific Stereo Fresno CA	94118 Wong's Hi Fi San Francisco CA	94704 Sounding Board Berkeley CA	95128 Nor-Cal Offshore San Jose CA
93002 Dexter's Ventura CA	93726 Supersound Fresno CA	94123 House Of Music San Francisco CA	94705 Honker's Sound Berkeley CA	95129 Meyer Stereo San Jose CA
93003 Creative Stereo Ventura CA	93726 Federated Fresno CA	94133 Pacific Stereo San Francisco CA	94705 Pacific Stereo Berkeley CA	95204 Pacific Stereo Stockton CA
93003 Pacific Stereo Ventura CA	93940 Middleton, Kemp & Sheperd Anaheim CA	94301 The Audible Difference Palo Alto CA	94709 Dale Sanford TV Berkeley CA	95207 Jack Hanna Audio Stockton CA
93030 Salem Engineering Oxnard CA	93940 Monterey Stereo Monterey CA	94306 Western Audio Imports Palo Alto CA	94804 Western Record Sales Richmond CA	95207 Federated Stockton CA
93101 Audio World Santa Barbara CA	93940 Pacific Stereo Monterey CA	94402 Pacific Stereo San Mateo CA	94901 Audio Delights San Rafael CA	95285 Paradyne Elect. Sacramento CA
93101 Creative Stereo Santa Barbara CA	93955 D & R Stereo Seaside CA	94403 Mateo Hi Fi San Mateo CA	94902 Catania Sound San Rafael CA	95350 House Of Sound Modesto CA
93110 Audio Vision Santa Barbara CA	94002 Peninsula Audio Belmont CA	94404 Digital Sonics Foster City CA	94904 Pacific Stereo Larkspur CA	95350 Federated Modesto CA
93111 Creative Stereo Santa Barbara CA	94010 Kustom Hi Fi Burlingame CA	94520 Sound Distinction Concord CA	94925 Fidelis Corte Madera CA	95356 Pacific Stereo Modesto CA
93113 House Of Audio Goleta CA	94014 Mathews Daly City CA	94523 Pacific Stereo Pleasant Hill CA	94941 World Of Sound Mill Valley CA	95401 Catania Sound Santa Rosa CA
93117 Record Player Goleta CA	94014 Serra Stereo Colma CA	94533 C & M Audio Fairfield CA	94965 Music By Design Sausalito CA	95401 Eber Electronic Santa Rosa CA
93117 Sound Experience Goleta CA	94015 Pacific Stereo Colma CA	94545 Pacific Stereo Hayward CA	95008 The Sound Goods Campbell CA	95401 Pacific Stereo Santa Rosa CA
93272 Shannon Sound Tipton CA	94040 Pacific Stereo Mountain View CA	94566 Pacific Stereo Dublin CA	95010 Pacific Stereo Capitola CA	95401 Video Experience Santa Rosa CA
93305 Casa Moore Stereo Bakersfield CA	94070 Hermary's Stereo San Carlos CA	94570 Futurevision Rheem Valley CA	95014 Elite Elect. Cupertino CA	95404 Shoreline Stereo Santa Rosa CA
93307 L-Tron Elec. Bakersfield CA	94070 Wong's Hi Fi San Carlos CA	94580 Stereo Connection San Lorenzo CA	95035 One More Stereo Store Milpitas CA	95437 Record Roost Fort Bragg CA
93309 Casa Moore Stereo Bakersfield CA	94086 Sunnyvale Elect. Sunnyvale CA	94590 Stereo Showcase Vallejo CA	95060 Stereo Solution Santa Cruz CA	95501 The Works Eureka CA
93401 Audio Ecstasy San Luis Obispo CA	94087 Video Service Center Sunnyvale CA	94596 High Fidelity Shoppe Walnut Creek CA	95060 Wizard Of Audio Santa Cruz CA	95521 Arcata Audio Arcata CA
93401 Christopher Hansen Ltd. Los Angeles CA	94100 Hi Fi Exchange Falmouth ME	94596 Pacific Stereo Walnut Creek CA	95062 Burdick's Santa Cruz CA	95608 Deetes Sound Room Carmichael CA
93401 Pacific Stereo San Luis Obispo CA	94101 Omega Elect. San Francisco CA	94596 Serra Stereo Walnut Creek CA	95070 Stereo Solution Santa Cruz CA	95608 Pinkerton Audio Carmichael CA
93454 Creative Stereo Santa Maria CA	94103 Stereo Store, Inc. San Francisco CA	94598 Video Service Center Walnut Creek CA	95117 Sunnyvale Electronic San Jose CA	95610 Pacific Stereo Citrus Heights CA
93454 Pacific Stereo Santa Maria CA	94109 World Of Sound San Francisco CA	94608 Pacific Stereo Emeryville CA	95122 Pacific Stereo San Jose CA	95616 Paradyne Davis CA
	94114 Eber Electronic San Francisco CA	94609 Leo's Pro Audio Oakland CA	95123 Pacific Stereo San Jose CA	95628 Pinkerton Audio Fair Oaks CA

95670 CA

98926 WA

95670 Video Service Center
Rancho Cordova CA

95731 El Dorado Audio
S. Lake Tahoe CA

95816 Keith Yates Audio
Sacramento CA

95821 Stereo Showcase
Sacramento CA

95825 Neal's Speakers & Stereo
Sacramento CA

95825 Pacific Stereo
Sacramento CA

95825 Turntables Unlimited
Sacramento CA

95825 World Elect.
Sacramento CA

95926 Sounds By Dave
Chico CA

95926 The Golden Ear
Chico CA

95945 Alta Buena Stereo
Grass Valley CA

Hawaii

96705 The Music Shop
Kauai HI

96720 Hilo Audio
Hilo HI

96720 Yafuso
Hilo HI

96766 Jack Wada Electronics
Lihue HI

96793 Adrian's
Wailuku HI

96814 Audio Visual Co.
Honolulu HI

96814 Audissey
Honolulu HI

96814 Mid Pacific Stereo
Honolulu HI

96814 Video Life Hawaii
Honolulu HI

96816 Campus Audio
Honolulu HI

96817 Sounds
Honolulu HI

96819 Hugh Okuda
Honolulu HI

96822 Audio Ref. Sys.
Honolulu HI

96826 Harry's Audio
Honolulu HI

96826 Island Sound
Honolulu HI

Oregon

97005 Chelsea Audio
Beaverton OR

97005 Stereo Superstores
Beaverton OR

97030 Fred's Sound Of Music
Gresham OR

97103 Thiel's Music
Astoria OR

97138 Thiel's Music
Seaside OR

97201 Apple Pie Audio
Portland OR

97205 Chelsea Audio
Portland OR

97209 Chelsea Audio
Portland OR

97209 Great American Stereo
Portland OR

97211 Rogers Marine
Portland OR

97213 Audio Alternative
Portland OR

97214 Fred's Sound Of Music
Portland OR

97214 Hawthorne Stereo
Portland OR

97214 Wassons Electric
Portland OR

97216 Stereo Superstores
Portland OR

97217 Stereo Superstores
Portland OR

97222 Brownell Sound & Hi Fi
Milwaukie OR

97223 High Technology Video
Tigard OR

97225 Fred's Sound Of Music
Portland OR

97225 Hawthorne Stereo
Portland OR

97225 Audio Alternative
Portland OR

97229 Corner Audio Store
Portland OR

97232 Stereo Superstores
Portland OR

97301 Futech
Salem OR

97301 Hear No Evil
Salem OR

97302 Stereo Dungeon
Salem OR

97330 Good Guys Stereo
Corvallis OR

97401 Bradford's
Eugene OR

97401 Good Guys Stereo
Eugene OR

97401 Stereo Loft
Eugene OR

97401 University Hi Fi
Eugene OR

97420 Pennington's Audio
Coos Bay OR

97420 Stereo To Go
Coos Bay OR

97470 Scotts Stereo
Roseburg OR

97501 Larson's
Medford OR

97501 Sound Track
Medford OR

97520 Everything Electronics
Ashland OR

97526 Sheckells Stereo
Grants Pass OR

97526 The Music Shop
Grants Pass OR

97601 High Country Records & Tapes
Klamath Falls OR

97601 Sound Chamber
Klamath Falls OR

97850 La Grande Stereo
La Grande OR

Washington

98003 Audio Northwest
Federal Way WA

98003 Tape Town
Federal Way WA

98004 Pacific Stereo
Bellevue WA

98004 Tape Town
Bellevue WA

98007 Magnolia Hi-Fi
Bellevue WA

98031 Pacific Stereo
Kent WA

98036 Magnolia Hi-Fi
Lynnwood WA

98036 Pacific Stereo
Lynnwood WA

98055 Tape Town
Renton WA

98103 Master Mariner
Seattle WA

98105 Audio Connection
Seattle WA

98105 Definitive Audio
Seattle WA

98105 Optimum Sound
Seattle WA

98105 Pacific Stereo
Seattle WA

98109 Magnolia Hi-Fi
Seattle WA

98115 Atomic Loudspeakers
Seattle WA

98115 Definitive Audio
Seattle WA

98115 Magnolia Hi-Fi
Seattle WA

98122 Audio Environ.
Seattle WA

98133 Tape Town
N. Seattle WA

98166 Tape Town
Seattle WA

98188 Magnolia Hi-Fi
Seattle WA

98188 Pacific Stereo
Tukwila WA

98188 The Stereo Shoppe
Tukwila WA

98225 QC Stereo
Bellingham WA

98225 Sound Advice
Bellingham WA

98225 Tape Town
Bellingham WA

98271 Q.C. Stereo
Oak Harbor WA

98273 Dimensional Sound
Mt. Vernon WA

98273 Q.C. Stereo
Mt. Vernon WA

98273 Sound Advice
Mt. Vernon WA

98273 Tape Town
Mt. Vernon WA

98310 Bremerton Stereo
Bremerton WA

98310 Evergreen Audio
Bremerton WA

98405 Paulson's
Tacoma WA

98409 Magnolia Hi Fi
Tacoma WA

98409 Pacific Stereo
Tacoma WA

98409 Tape Town
Tacoma WA

98499 Lakewood Villa Stereo
Tacoma WA

98499 Paulson's
Tacoma WA

98499 Stereo Shoppe
Tacoma WA

98502 Desco Electronics
Olympia WA

98502 Tape Town
Olympia WA

98502 Stereo Shoppe
Olympia WA

98502 Yenny's Music
Olympia WA

98503 Paulson's
Lacey WA

98503 Tape Town
Lacey WA

98801 Audiophile Mike's
Wenatchee WA

98816 Music Store
Chelan WA

98901 Bemis Soundtronics
Yakima WA

98901 Stereo First By Bemis
Yakima WA

98901 Tape Town
Yakima WA

98902 Stereocraft
Yakima WA

98926 Stereocraft
Ellensburg WA

98944 Pro Audio Sunnyside WA	Newfoundland West End Electronics St. Johns NFLD	Saro's Ltd. Napean ONT	The Bay Calgary ALB	Vancouver Sight & Sound Richmond BC
99163 Optimum Sound Pullman WA	Audio East Gander NFLD	Saro's Ltd. Kingston ONT	K & W Audio Calgary ALB	D.T.C. Agency Aldergrove BC
99201 Hoffman Music Spokane WA	Nova Scotia Sounding Board New Glasgow NS	Select Audio & Video Niagara Falls ONT	Joy Of Sound Calgary ALB	N.W. Territory Home Electronics Ltd. Yellowknife NWT
99201 Huppins Hi Fi Spokane WA	Glubes Sourd Studio Dartmouth NS	Hi Fi 2000 Mississauga ONT	Harold's Stereo Edmonton ALB	
99204 Hal's Stereo Spokane WA	New Brunswick Medjucks Ltd. Dieppe, Moncton NB	Hi Fi 2000 Brampton ONT	Harold's Stereo Edmonton ALB	
99205 Sound Mart Spokane WA	Medjucks & Budovitch Fredericton NB	Globe Discount Hamilton ONT	British Columbia Stereo Warehouse Kamloops BC	STATE ABBREVIATIONS
99210 Hoffman Stereo Spokane WA	Quebec Selectronics Ltd. Charlesbourg QU	Fairview Electronics Scarborough ONT	J A Stereo Sound Prince George BC	Alabama AL
99336 Tape Town Kennewick WA	Audiolight Quebec City QU	Classic Audio Scarborough ONT	Sight & Sound Prince George BC	Alaska AK
99352 Quicksilver Audio Richland WA	L'Optiön Electronique Ste-Foy QU	14 Banigan Drive Toronto ONT	Vancouver Sight & Sound Kamloops BC	Arizona AZ
99352 Tin Ear Richland WA	Sept-Iles Audio Sept-Iles QU	Great Metro. Sound Toronto ONT	Vancouver Sight & Sound Chilliwack BC	Arkansas AR
99362 Stereocraft Walla Walla WA	L'Absoluson Inc. Rimouski QU	Bay Bloor Radio Toronto ONT	Towews Musical-Stereo Abbotsford BC	California CA
Alaska	Techno-Son Inc. St. David, Levis QU	Fairview Electronics Rexdale ONT	Vancouver Sight & Sound Coquitlam BC	Colorado CO
99501 Great Alaska Snd. Anchorage AK	Domaine Du Son Trois Rivieres QU	Wesseling Advanced Cambridge ONT	Vancouver Sight & Sound New Westminster BC	Connecticut CT
99501 Shimek's Audio Anchorage AK	St. Gelais Electronique Chicoutimi QU	Wesseling Advanced Kitchener ONT	Vancouver Sight & Sound Surrey BC	Delaware DE
99503 Magnum Elect. Anchorage AK	Studio 1006 Montreal QU	Great West Audio London ONT	Vancouver Sight & Sound Vancouver BC	District of Columbia DC
99503 Pyramid Audio Anchorage AK	Radio Lorenz Montreal QU	Chisholm TV Ltd. Goderich ONT	Sentex Audio Ltd. Delta BC	Florida FL
99503 Shimek's & Co., Anchorage AK	Audiocentre J.B. Montreal QU	Great West Audio Chatham ONT	Vancouver Sight & Sound Tsawwassen BC	Georgia GA
99615 Ardinger's Kodiak AK	Audiocentre J.B. Laval QU	St. Clair Stereo Sarnia ONT	Vancouver Sight & Sound Vancouver BC	Hawaii HI
99669 C.G. Electronics Soldatna AK	Audiocentre J.B. La Salle QU	Stereoland Windsor ONT	Vancouver Sight & Sound Vancouver BC	Idaho ID
99689 Electronics Unlimited Yakutat AK	Videotech Inc. Sherbrooke QU	Moore's Stereo Sault Ste. Marie ONT	Sound Plus Vancouver BC	Illinois IL
99701 Hoitt's Fairbanks AK	Audio Passion Inc. Drummondville QU	Cosmo Vox Thunder Bay ONT	Vancouver Sight & Sound Vancouver BC	Indiana IN
99701 Team Fairbanks AK	Videotech Inc. Drummondville QU	Manitoba Advance Audio Winnipeg MAN	Vancouver Sight & Sound Vancouver BC	Iowa IA
99801 Alaska A/V Juneau AK	Beaudry Sport Inc. Joliette QU	Saskatchewan Mr. Stereo Yorkton SAS	3531 Catalina Vancouver BC	Kansas KS
99801 Hy Teck Juneau AK	Ontario Saro's Ltd. Ottawa ONT	Advance Audio Video Regina SAS	Vancouver Sight & Sound North Vancouver BC	Kentucky KY
99802 Alaska Music Supply Juneau AK	Le Centre Du Son Ottawa ONT	Custom Stereo Systems Saskatoon SAS	Sound Hounds Victoria BC	Louisiana LA
99824 Alaska A/V Douglas AK	Saro's Ltd. Ottawa ONT	Alberta Penny Lane Calgary ALB	Vancouver Sight & Sound Victoria BC	Maine ME
99835 Stereo North Stika AK				Maryland MD

**STATE
ABBREVIATIONS**

Alabama	AL
Alaska	AK
Arizona	AZ
Arkansas	AR
California	CA
Colorado	CO
Connecticut	CT
Delaware	DE
District of Columbia	DC
Florida	FL
Georgia	GA
Hawaii	HI
Idaho	ID
Illinois	IL
Indiana	IN
Iowa	IA
Kansas	KS
Kentucky	KY
Louisiana	LA
Maine	ME
Maryland	MD
Massachusetts	MA
Michigan	MI
Minnesota	MN
Mississippi	MS
Missouri	MO
Montana	MT
Nebraska	NE
Nevada	NV
New Hampshire	NH
New Jersey	NJ
New Mexico	NM
New York	NY
North Carolina	NC
North Dakota	ND
Ohio	OH
Oklahoma	OK
Oregon	OR
Pennsylvania	PA
Puerto Rico	PR
Rhode Island	RI
South Carolina	SC
South Dakota	SD
Tennessee	TN
Texas	TX
Utah	UT
Vermont	VT
Virginia	VA
Virgin Islands	VI
Washington	WA
West Virginia	WV
Wisconsin	WI
Wyoming	WY

GHOSTWRITER

Ives: Symphony No. 3 and Orchestral Set No. 2. Concertgebouw Orchestra, Michael Tilson Thomas. **CBS MK 37823.**

Strange sounds emerge from this new recording of the Ives Third Symphony. Ghost instruments trail along in foreign keys and disembodied tempos, hovering mysteriously around the music we are accustomed to hearing. The piece is much more complicated than it may have seemed previously.

Everything about this CD is enjoyable, from Ives' imaginative music to the warmly expressive performances by Michael Tilson Thomas and the Concertgebouw Orchestra. To top it off, the spacious, relaxed sonic quality that producer David Mottley recorded with the Calrec Soundfield mike is both detailed and bathed in natural ambience.

The strings of the Concertgebouw provide an especially rich, dark coloring, and the brass match that quality with sonorous, organ-like tones. The woodwinds complement the sound with delicate piquancy. Listen to the opening of the third movement for the liquid legato of the strings, contrasting with the gently separated wind chords.

This is the first recording of the symphony's new Critical Edition, which calls for double rather than single winds, adds tympani, and restores Ives' "shadow" parts. What had seemed a mild-mannered folk symphony constructed from American hymn tunes has turned into the core of a far more subtle and complex multi-level work. This dichotomy between two distinct worlds of thought expresses the Transcendentalist spirit missing from earlier editions.

The ghost instruments are most noticeable in the ethereal violin solos at the ends of the first and second movements. Now, those fading church bells at the end of the last movement take on



a much greater significance because they are part of the shadow music, too.

Usually, the ghost music is subliminally inaudible, but occasionally it affects the primary level. Listen carefully about two minutes into the first movement. The harmony seems to drift out of tune because "wrong notes," buried deep in the background, are casting shadows on the main stream of the music, making it sound not quite as safely consonant as it "should" be. Near the movement's end the ghost parts shimmer around the "real" music, suggesting but not confirming their presence, until the shadow violin materializes briefly. Regrettably, the program notes in the booklet mention the new edition but don't describe the substantial changes it represents.

The final movement of the "Orchestral Set No. 2" is based on a national tragedy, the sinking of the *Lusitania* by a German submarine. In Ives' profoundly emotional music we hear the same stunned state of consciousness and roller-coaster emotions that all of us have experienced after national tragedies, such as the assassination of John F. Kennedy or, more recently, the TWA hostage crisis.

This is really the score for a music video, with Ives himself walking through the scenes and reporting his impressions. In the middle, he transforms the hymn tune "In the Sweet Bye and Bye" into a terrifying dirge, wildly careening between hope and despair.

Fragments of other melodies filter in and out of Ives' complex web of thoughts. This is not easy or "pleasant" music to hear, because it is concerned with other emotions, but it can leave you in tears.

Steve Birchall

Smetana: String Quartets Nos. 1 and 2. Smetana Quartet. **Denon 33C37-7339.**

An interesting recording from both musical and technical viewpoints.

As you might expect, the Smetana Quartet is more than familiar with the music of Smetana. In fact, it's in the blood of these Czech musicians, as

Illustration: Rick Tulka

evidenced by their splendid performances of the tuneful string quartets here. The Smetana Quartet players have been together for more than 30 years, and their rapport and superb musicianship are very apparent. When the Smetana Quartet was first organized the second violin was played by Vaclav Neumann, who later became the well-known and highly regarded conductor of the Czech Philharmonic.

This CD is derived from one of the very earliest digital recordings, made by Denon in February 1976 in the Supraphon studios in Prague. As such, it probably was recorded on Denon's early 13-bit digital recorder. In spite of this it is still a good, clean recording, although the strings are fairly bright. Recorded rather close-up, it has been furnished with sufficient reverb to smooth out its sonic contours. Although error correction and concealment were fairly primitive in a digital recorder of that vintage, very few drop-outs are evident. Denon is certainly to be commended for these pioneering forays into digital. *Bert Whyte*

Verdi: Overtures. The Vienna Philharmonic Orchestra, Giuseppe Sinopoli. **Philips 411 469-2.**

Opera lovers are naturally quite familiar with the overtures to many of their favorite operas. In the nature of things, some operatic overtures stand on their own as interesting musical works. In fact, some overtures prove to be better music than the operas they precede.

It must be noted that the orchestras of the great opera houses—the Metropolitan, Covent Garden, La Scala Milan—are reasonably good ensembles. However, they certainly are not in the same league as the likes of the "big five" (Chicago, Cleveland, New York Philharmonic, Boston, and Philadelphia orchestras), to say nothing of the Concertgebouw Orchestra or Berlin Philharmonic. The great exception is Vienna, where the Vienna Philharmonic also plays at the Staatsoper. Thus, when an opera lover can listen to this CD and hear his favorite overtures performed by a great symphony orchestra with opera experience, he is made painfully aware of the shortcomings of other "house" orchestras.



Smetana Quartet

Conductor Giuseppe Sinopoli is the new star in the Philips recording firmament, said to lead outstanding performances of operas, and, surprisingly, to be a gifted Mahler interpreter. In fact, Philips has already begun to record him in some Mahler works.

On this CD, Sinopoli impresses with his mastery of popular overtures from Verdi's "Aida," "La Traviata," "The Masked Ball" and "I Vespri Siciliani," as well as the less well-known overtures from the composer's "Attila," "Luisa Miller" and "Nabucco."

The Vienna Philharmonic plays these pieces with their vaunted string sound and dashes off the more athletic works with great panache. The warmth of the ambience suggests they were recorded in the Sofiensaal in Vienna, with a super-clean, brilliant sound, very wide in dynamics. *Bert Whyte*

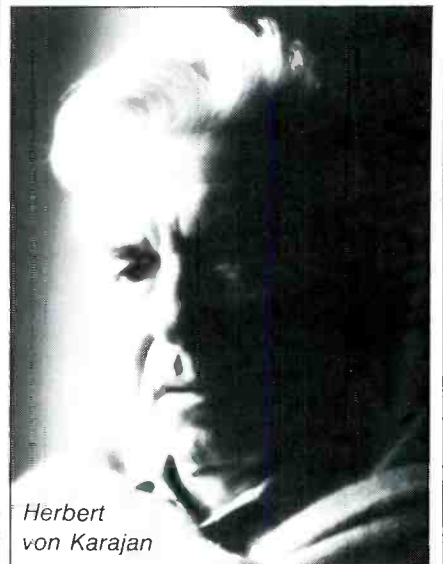
Bizet: L'Arlésienne Suites 1 & 2, Carmen Suite. Berliner Philharmoniker, Herbert von Karajan. **Deutsche Grammophon 415 106-2.**

If you get a bang out of Bizet, you'll like the generous helping of his music in this fine CD recording of the ingratiating "L'Arlésienne Suites 1 & 2" and an abbreviated "Carmen Suite."

As always, von Karajan demands and gets stellar playing from his super-

lative Berlin Philharmonic Orchestra. The ensemble precision in the string section is a testament to his iron discipline and musicianship. Occasionally, this kind of perfection can get a little too glossy and the performance a bit too literal. However, when von Karajan is in his element, he is masterful.

His readings of these pieces are not lacking in atmosphere and he emphasizes very wide dynamics. The engineers give him a typical DG recording—dotting every "i" and crossing ev-



Herbert von Karajan



HIFIDELIVISION®

Naiad Hifidelivision is a self contained
video stereo system that provides the best
possible way to obtain state of the art video
sound.
Start with a TV and converter or VCR, and
Hifidelivision will turn ordinary TV sound into
a spectacular event.
Add whatever you wish: TV
monitor/tuner, beta/VHS and converter or VCR, and
Hifidelivision is future ready™.
See it and hear it at your nearest Naiad
Hifidelivision dealer.

Naiad
Box 1840
Berkeley, CA 94704
Phone (415) 841-5200
Fax (415) 841-5200

Shadowfax's percussionist is probably best served here. His punctuations literally draw your eyes and ears to points along the stereo spectrum.

ery "t"—but all is very clean and open. Although recorded fairly close-up, the high strings are blessedly not wiry, but they are bright. A warm ambience helps to provide a reasonably natural perspective. *Bert Whyte*

Mozart: Concertos Nos. 19 and 23.
The English Chamber Orchestra; Murray Perahia, piano.
CBS Masterworks MK 39064.

On this CD, the fleet-fingered piano virtuoso Murray Perahia continues his series of Mozart piano concerto recordings, providing us with eloquent, graceful performances of the 19th and 23rd. His playing is quite expressive, with excellent articulation.

Bob Auger, a highly regarded British recording engineer, has provided a sumptuous, high-definition recording in the warm ambience of St. John's, Smith Square, in London. The piano sound is just slightly forward of the orchestral accompaniment, a nice balance that affords good projection. The piano has an almost liquid smoothness, yet transient attack is crisp and overall clarity is very good. Auger achieves a recording of considerable depth, with a broad stereo sound stage. The high strings are clean and sweet, with no wiry edge.

Perahia conducts the English Chamber Orchestra from the piano, and he gets excellent playing from this highly accomplished group. *Bert Whyte*

The Dreams of Children: Shadowfax
Windham Hill WD-1038.

Sound: B+ Performance: B

The Dreams of Children is Shadowfax's third and most incisive recording since the group reformed a few years ago. Named after Gandalf's horse in *The Lord of the Rings*, they continue to create a fantasy-filled fusion, delicately balanced and teeming with exotic ethnic references. They're essentially a composer's band, with complex, richly textured arrangements that exploit the interplay among acoustic, electric, and digitally synthesized instruments.

One of the highlights of this CD is the contrast and confluence between David Lewis' Yamaha DX-7 digital synthesizer and the acoustic percussion of drummer Stuart Nevitt and guest percussionists Michael Spiro and Adam Rudolph. Sprightly, circular polyrhythms emerge on "Word from the Village" and "Kindred Spirits," with log drums and DX-7 percussion forging a future-primitive landscape.

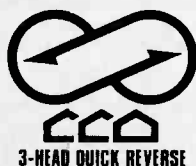
Stuart Nevitt is probably best served by this CD recording. The depth and punch of his drums drive heroic pieces like "The Big Song" and provide an earthy palette of colors to the stone-flute melody of "Another Country." His punctuations literally draw your eyes and ears to different points along the stereo spectrum.

Chuck Greenberg, one of the main composers, switches among acoustic

Shadowfax



AKAI WILL AUTOMATICALLY REVERSE YOUR OPINION ON RECORDING ACCURACY.

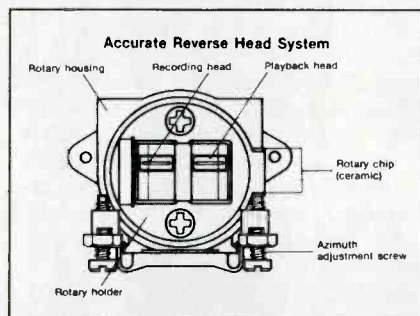


3-HEAD QUICK REVERSE

If, as an audiophile, you're of the opinion you can't enjoy the brilliance of sound accuracy in a 3-head system, combined with the long play convenience of a quick reverse deck—we're out to change your opinion.

Case in point: AKAI's Accurate Quick Reverse System.

How quick is quick? Less than a half-second. But the reverse story doesn't end there. To eliminate wear and misalignment, AKAI has introduced the diamond-like ceramic head stopper. A beryllium-alloyed diecast two-inch head housing, with double nut locked stainless steel azimuth screws. For added depend-



ability, *all* moving parts are bonded with a tough Teflon™ casting for permanent lubrication. What does all that mean to you? Simply this: AKAI's total auto reverse design has the distinction and durability, to perform over 200,000 rotations.

Now consider AKAI's Computer Recording Level Processing.

Chances are, the way you've set recording levels in the past has been based on experience, coupled

with critical listening. But that's history. Today, AKAI has successfully developed the ultimate computer system for obtaining a *perfect* setting. Every time. And here's how that perfection works:



First, the tape is analyzed to determine optimum bias and equalization. Commonly referred to as "quick auto timing"

Next, the tape MOL (maximum outlet level) is derived by spectrum analysis at 400 Hz and 8,000 Hz. Note: this step is critical because it



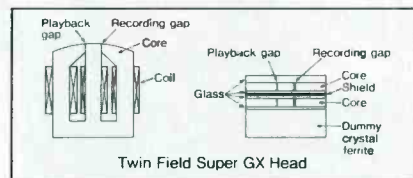
assures maximum tape saturation without audible distortion.

Then the energy content of the music source is sampled for ten seconds.

Finally, when all the data is obtained, the computer sets the recording levels. *And all are mathematically perfect.*

Which brings us to AKAI's Super GX Head.

Nowhere in the industry will you find its equal. With its single crystal ferrite, encased in mirror-polished glass, the Super GX head is so unique in its hardness, it's second only to a diamond. Sonically, it's second to none. With a playback output level as much as 7.8 db better than Sendust heads at 10kHz, it's easy to hear why.



And if all that isn't enough, consider this: the Super GX head is so resistant to wear, it's *guaranteed* for 17½ years of continuous play.

The case is closed: Closed Loop Double Capstan.

By isolating the tape as it travels over the heads with two pairs of capstans and pinch rollers, tape tension and speed are stabilized, significantly reducing wow and flutter, level fluctuations and modulation noise. Result: unparalleled accuracy and highest of fidelity.

It's evident that AKAI's engineering excellence and technology has altered and influenced industry standards on recording accuracy. Which should automatically be reason enough to reverse your opinion. And, see your AKAI dealer.



For information on specific models and pricing, write to Akai America, Ltd., P.O. Box 6010, Department A, Compton, CA 90224-6010.

Enter No. 8 on Reader Service Card

AmericanRadioHistory.com

Studio technology and brilliant engineering enhance Michael Hedges' complex style and take *Aerial Boundaries* beyond true-to-life fidelity.



Michael Hedges

saxophones, stone flutes, and the Lyricon, a synthesized wind instrument. His "The Dreams of Children" is a delicate tune of affirmation. The Lyricon is played in the flute range, but with a glissando that slides through the sce-

nic swirls of violinist Jamii Szmazdzinski and synthesist Lewis.

Although cultural interplay is the seasoning of their music, Shadowfax's ethnic forms can be cloying in the long run. Guitarist G. E. Stinson comes perilously close to cliché on his "Word from the Village" and the crunching Middle-Eastern bends of "Above the Wailing Wall." On the other hand, his sustained solo work on "The Big Song" makes that cut soar.

The music of Shadowfax is like a hand-embroidered Persian rug, full of colorful designs and details that are beautifully captured in the digital format. It would have been nice if Windham Hill could have lowered the noise floor of the analog recordings, but the CD is still the preferable format for *The Dreams of Children*.
John Diliberto

Aerial Boundaries: Michael Hedges
Windham Hill WD-1032.

Sound: B+ Performance: A-

Capturing solo acoustic guitar is as simple and pure a recording project as you can find: A guitarist, a couple of microphones direct into a two-track machine, and you're done. However, producers William Ackerman and Steven Miller add new life to that time-worn formula on Michael Hedges' atmospheric *Aerial Boundaries*. If you're looking for a pure, real-life acoustic guitar disc, then this isn't the record for you. Studio technology and brilliant engineering enhance Hedges' complex style of finger-picking guitar and take *Aerial Boundaries* beyond true-to-life fidelity.

Hedges has the intricate, circular style of rhythm and melody that acoustic guitarists like Ackerman and Leo Kottke have perfected. On the title track, his mesmerizing cycles are broken up with bursts of plucked harmonics. The studio delay that's used, probably a Lexicon, creates a subtle counter-rhythm, and his bass slaps and slides are rich enough to be an acoustic bass.

Hedges isn't a storytelling guitarist like John Fahey or Alex DeGrassi. His pieces are more like emotional medita-

tions, filling "Rickover's Dream" and "Ragamuffin" with unexpected punctuations and jolts. The dynamic range he traverses is wide, as he shifts from subtle picking to harsh slashes at a moment's notice.

This isn't to say that Hedges is going to take the top of your head off. His dramatic effects are contained within the inviting, contemplative framework of his songs. After all, how shocking can you be when you have an acoustic bass playing the lead melody of "After the Gold Rush"? The warm tone and subtle note-shaping of bassist Mike Manning are captured with every nuance intact on this cover of the Neil Young chestnut.

The faintly exaggerated stereo separation and reverberation form a wide spatial field for Hedges to travel through, but that's not enough for this adventurous player. "Spare Change," recorded at the Peabody Electronic Music Studios in Baltimore, has Hedges waving at himself going backwards in an ethereal tone poem.

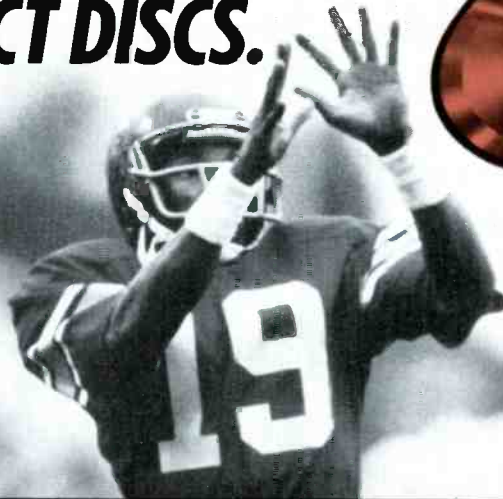
The audio unity of this CD is surprising considering it was done in three different formats and five different studios. The two-track direct-to-digital recordings are crisp and warm and the two-track analog pieces would have been considered audiophile quality in an earlier day. Only "Ménage à Trois," a lament for multi-tracked flute and bass, suffers marginally from tape noise. *Aerial Boundaries* is a thoughtful statement by Michael Hedges and the recording only enhances a powerful performance.
John Diliberto

Without Rhyme or Reason: Scott Jarrett
GRP D-9518.

Sound: B Performance: D-

The question that should be asked is, why? Why issue a Compact Disc of a 5-year-old record that justifiably sank without a trace, whose only raison d'être is that the artist has an internationally famous brother? *Without Rhyme or Reason* is Scott Jarrett's debut from 1980 and his only recording to date. And yes, he is the younger brother of the impetuously brilliant jazz pianist Keith Jarrett, who makes an appearance on two tracks. But make no mistake, despite Keith's appearance

THIS MONTH'S BIG EVENTS ON CBS COMPACT DISCS.



OCTOBER



6



8

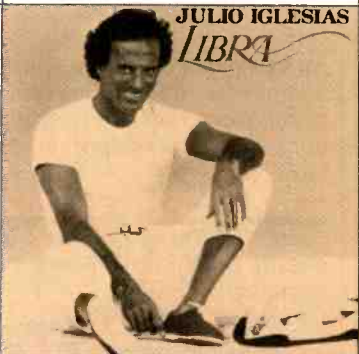
12

Prokofiev
Orchestre National de France
Lorin Maazel



MOZART
DIVERTIMENTO, K. 563
GIDON KREMER
KIM KASHKASHIAN
YO-YO MA

15



21 JUST RELEASED!

PALL YOUNG "No Parlez"
THE STANLEY CLARKE BAND "Find Out"
"WEIRD AL" YANKOVIC "Dare To Be
Stupid"
LOGGINS & MESSINA "The Best of
Friends"
ELVIS COSTELLO AND THE
ATTRAXIONS "Goodbye Cruel World"
Plus 31 legendary Bruno Walter recordings
including
MOZART Sym. Nos. 40 & 41;
MAHLER Sym. No. 1 "The Titan"; and
BRAHMS-Sym. No. 1.

22

Enjoy today's revolution in sound with CBS Compact Discs. Our rapidly-growing catalog features hundreds of titles by superstar artists in all categories of music. Ask for a free copy wherever Compact Discs are sold.



"CBS" is a trademark of CBS Inc. © 1985 CBS Inc.

WATTS THE DIFFERENCE.

Clear, clean sound begins with clean equipment. Europeans have known that for over 30 years. And they've made the products of Cecil E. Watts their choice.

Imported from England, the Watts Manual Parastat II is now improving American sound systems with impressive results. The Parastat II actually "washes" dust, impurities and pollution from records without harmful fluid build-up.

Watts... the difference will impress you.



Distributed in the U.S. by AKG Acoustics, Inc.
77 Selleck Street, Stamford, CT 06902
© 1985 AKG Acoustics, Inc.

Though it's well recorded, Scott Jarrett's CD, at a scant 35 minutes, runs short in quantity as well as in quality.



along with jazz veterans like Toots Thielemans, Marcus Miller, Eddie Gomez and Ralph MacDonald, this is not jazz. That's not the problem. The problem is that it's completely vacuous.

Scott Jarrett is a refugee from the commercial jingle factories and he sounds like it. He has a pleasant but inflexibly thin soprano voice and a nice touch on acoustic guitar, but he writes soft-rock songs that fall somewhere between mellow MacDonald's commercials and a Holiday Inn lounge act. There's a lot of light funk grooves, but the tepid arrangements give them the dynamic punch of flat Coke.

Again I ask, why? With a backlog at the CD plants, why resurrect a record that tried so desperately to just fade away? Simply, GRP Records had the foresight to record this digitally, and now they can try to recoup their losses in a high-demand market.

To be sure, it's a well-recorded product, with clean, crisp (albeit faceless) arrangements and a nice contrast between Jarrett's plaintive guitar and the reverberance of producer Dave Grusin's electric keyboards. But at a scant 35 minutes it shortchanges the CD buyer in quantity and quality. It should be telling that Jarrett never recorded a follow-up.

John Diliberto

Falla: The Three-Cornered Hat. L'Orchestre de la Suisse Romande, Ernest Ansermet.

London 414 039-2/10.

The music on this CD is a prime example of the treasures buried in the vaults of the major record companies. There are countless thousands of

Try Audio's Classifieds

The marketplace for Hi-Fi gear!

SONEX looks as good as it sounds.

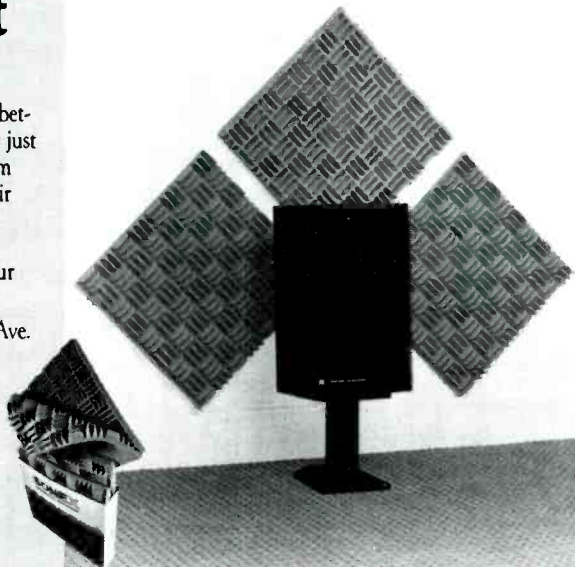
SONEX traps sound four times better than rich, thick carpeting, so just a few squares can tune your room like recording engineers tune their studios. It's easy to hang, and it looks good. Write for our color brochure, or try a box today. Four 24" squares per box.

Send \$48 to: 3800 Washington Ave. No., Minneapolis, MN 55412.

For easy, factory-direct orders, call toll-free 1-800-662-0032. (In MN call (612) 521-3555)



illbruck



Enter No. 31 on Reader Service Card

IS YOUR HARDWARE



READY?

Cincinnati
Pops
Orchestra

DORSEY: Ascent
R. STRAUSS: Introduction to
Also Sprach Zarathustra
(starts at 3:51) [5:39]
GOLDSMITH: *Star Trek* Main Theme [3:52]
COURAGE: *The Menagerie* Suite [7:35]
PHILLIPS: *Fantasia Galactica*
Introduction [3:27]

WILLIAMS: *Star Wars* Love Theme [4:43]

CD-80106

COMPACT
disc
DIGITAL AUDIO

© 1984 Telarc Corporation, Columbia
Chicago, U.S.A. Mastered
and pressed by Telarc
Records, with permission
from Telarc Records.
All rights reserved.
Printed in U.S.A.

TELARC RECORDS

WILLIAMS: *Star Wars* Theme Round & End Title [7:41]
GOLDSMITH: *Alien* Closing Title [2:58]
J. STRAUSS, JR.: On the Beautiful
Blue Danube [8:25]
KHATCHATURIAN: *Gayne* Ballet
Adagio [4:58]
R. STRAUSS: Introduction to
Also Sprach Zarathustra
-- Reprise [5:54]

**BASS THAT'S CLEAN.
POWERFUL.
PHYSICAL.**



Announcing the Velodyne™ ULD-15™ Subwoofer System: a technological breakthrough in bass reproduction!

There's an exciting new product awaiting audition at your Velodyne dealer. Its called the Velodyne ULD-15 Subwoofer System and it represents the most significant advance in loudspeaker technology in well over a decade. Even if you are happy with the bass in your current speakers, you owe it to yourself to hear the ULD-15 and what it can do to improve your system's capabilities.

In addition to its 15 inch cone, 22lb. magnet structure and 3/4" travel, the ULD-15 contains our proprietary High Gain Servo™ technology. An independent sensor attached to the cone reports cone motion information to a comparator circuit within the 350 watt Power Servo Controller (included), which instantaneously adjusts the output signal to correct for any erroneous cone motion. The result is deep, powerful, and perfectly accurate bass never before possible in any conventional loudspeaker. And since the ULD-15 comes complete with its own amplifier, the bass load from your satellite amp and speakers is removed.

The ULD-15 merits your attention. Call 1-800-VELODYNE for the Velodyne dealer nearest you. Don't miss the opportunity to hear for yourself the bass technology of the future.

Velodyne

2565 Scott Blvd.
Santa Clara, CA 95050
(800) 835-6396 (408) 748-1077

Klaus Tennstedt elicits an exuberant performance of the "Lieutenant Kijé" score. It sounds broadly dynamic and as clean as virgin snow on the steppes!

splendid analog tape recordings, the majority of which can be quite successfully transferred to CD, with sonic qualities superior to the original issue on vinyl. This recording of Falla's tuneful *Three-Cornered Hat* ballet proves that even pre-Dolby tapes can be sonically and musically rewarding. Played at good room-filling levels, residual tape hiss is most pleasingly low.

Working in 1961 in Victoria Hall, Geneva, the London/Decca engineers provided a clean, wide-range, highly dynamic recording. In terms of internal balances, detail, and an acoustic perspective that affords a wonderful sense of depth, it conveys a feeling of realism as good as that provided by many current recordings.

Ernest Ansermet was an acknowledged master with this kind of music and he always managed to get his Orchestre de la Suisse Romande to play at the top of their form.

I think the clarity and cleanness and sheer musicality of this 1961 recording will amaze you. *Bert Whyte*

Kodaly: Háry János; Prokofiev: Lieutenant Kijé. The London Philharmonic Orchestra, Klaus Tennstedt. EMI CDC 747109 2.

The "Háry János Suite" and "Lieutenant Kijé Suite" have been a logical coupling on a number of recordings over the years. Both works are colorfully orchestrated and have long been used as sonic display pieces.

All the stranger, then, that out of what apparently was the same recording session, the "Háry János" is merely a good-sounding recording with a rather pedestrian performance, while the "Lieutenant Kijé" is a supercharged, high-definition recording and a brilliant reading. Klaus Tennstedt elicits an exuberant, earthy performance of this delightful score from the London Philharmonic Orchestra. His is a tongue-in-cheek approach that deftly burlesques the pomposity of the Soviet officialdom which created the fictitious Lieutenant Kijé. After the "Wedding Scene," Tennstedt traverses the "Troika"—the sleigh ride—at such a breathtaking tempo that the good Lieutenant and his bride must surely be dashing for their dacha replete with blazing fire, caviar blini and a bottle of Stolichnaya!



Klaus Tennstedt

The playing is first rate, the sound well balanced, broadly dynamic and as clean as virgin snow on the steppes! EMI doesn't yet have a very substantial CD catalog, but one hopes they will soon add more recordings of this splendid quality. *Bert Whyte*

Jazz at the Pawnshop: Arne Domnerus, Bengt Hallberg, Georg Reidel, Egil Johansen, Lars Erstrand. Proprius-AudioSource CDP 778/9, two-disc set.

The LP version of this recording has been a demonstration favorite of audiophiles for many years. Now it is available as a two-disc set on CD, and in a direct comparison with the LPs, I can assure you the transfer is a complete success. There is a small amount of tape hiss, of course, but at least on Compact Discs the sound gains in clarity from the absence of surface and impulse noise.

Recorded with simple mike techniques, it is very atmospheric, with the crowd noises and applause adding a touch of realism from the nightclub locale. The recording is relatively close-up, has great presence, and is notable for its clean sound. There are sharp transient attacks on piano, percussion and vibraphone, and a fine natural sound from alto sax and clarinet. This jazz group plays very well indeed, with solid, freewheeling traversals of such standards as "Limehouse Blues," "Lady Be Good," "How High the Moon" and similar fare. How nice to have this famous recording on CD. *Bert Whyte*

IS YOUR HARDWARE READY?



TITLE	CD NUMBER
HOLST/HANDEL/BACH • Fennell/Cleveland Symphonic Winds	CD-80038
STRAVINSKY: Firebird Suite • BORODIN: Polovtsian Dances • Shaw/Atlanta	CD-80039
Malcolm Frager plays CHOPIN • Bösendorfer Imperial Grand	CD-80040
TCHAIKOVSKY: 1812 Overture/Capriccio Italien • Kunzel/Cincinnati	CD-80041
MOUSSORGSKY-RAVEL: Pictures at an Exhibition/Night • Maazel/Cleveland	CD-80042
TCHAIKOVSKY: Symphony No. 4 in f, Op. 36 • Maazel/Cleveland	CD-80047
BIZET: Carmen Suite/GRIEG: Peer Gynt Suites • Slatkin/Saint Louis	CD-80048
BACH: Organ Works • Murray/The Great Organ at Methuen	CD-80049
SAINT-SAËNS: Symphony No. 3 "Organ" • Murray/Ormandy/Philadelphia	CD-80051
RAVEL: Bolero/Daphnis & Chloé • Slatkin/Saint Louis	CD-80052
STRAVINSKY: The Rite of Spring • Maazel/Cleveland	CD-80054
RIMSKY-KORSAKOV: Capriccio Espagnol/OEBUSSY: Ibéria • Mata/Dallas	CD-80055
ORFF: Carmina Burana • Shaw/Atlanta Symphony & Chorus/Soloists	CD-80056
GERSHWIN: Rhapsody In Blue/An American In Paris • List/Kunzel/Cincinnati	CD-80058
VAUGHAN WILLIAMS: Tallis Fantasia/BARBER: Adagio • Slatkin/Saint Louis	CD-80059
BEETHOVEN: Symphony No. 5 in c, Op. 67/Egmont Overture • Ozawa/Boston	CD-80060
BEETHOVEN: The Five Piano Concertos • Serkin/Ozawa/Boston (3 CD)	CD-80061-5
BEETHOVEN: Piano Concerto No. 3/"Choral" Fantasy • Serkin/Ozawa/Boston	CD-80063
BEETHOVEN: Piano Concertos No. 2 & 4 • Serkin/Ozawa/Boston	CD-80064
BEETHOVEN: Piano Concerto No. 5 "Emperor" • Serkin/Ozawa/Boston	CD-80065
SHOSTAKOVICH: Symphony No. 5, Op. 47 • Maazel/Cleveland	CD-80067
TCHAIKOVSKY: Romeo & Juliet/Nutcracker Suite • Maazel/Cleveland	CD-80068
VIVALDI: Four Seasons • Silverstein/Ozawa/Boston	CD-80070
DEBUSSY: La Mer/Afternoon of a Faun • Slatkin/Saint Louis	CD-80071
Marche Slav and Other Russian Favorites • Slatkin/Saint Louis	CD-80072
SCHUMANN: Fantasia/LISZT: Rhapsodie Espagnole • Nina Leichuk, Piano	CD-80075
BERLIOZ: Symphonie fantastique, Op. 14 • Maazel/Cleveland	CD-80076
COPLAND: Fanfare/Rodeo/Appalachian Spring • Lane/Atlanta	CD-80078
BEETHOVEN: Wellington's Victory/LISZT: Huns • Kunzel/Cincinnati	CD-80079
PACHELBEL: Canon/TCHAIKOVSKY: Serenade in C • Slatkin/Saint Louis	CD-80080
MAHLER: Symphony No. 2 • Battle/Forrester/Slatkin/Saint Louis (2 CD)	CD-80081/2
Music of WAGNER • Marriner/Minnesota	CD-80083
BERLIOZ: Nuits d'été • Ameling/Shaw/Atlanta	CD-80084
RESPIGHI: Pines of Rome/The Birds/Fountains of Rome • Lane/Atlanta	CD-80085
Many Moods of Christmas • Shaw/Atlanta Symphony Orchestra & Chorus	CD-80087
BACH in Los Angeles (Toccatà & Fugue in d) • Murray/First Congregational Church	CD-80088
PROKOFIEV: Romeo and Juliet Suites • Levi/Cleveland	CD-80089
BEETHOVEN: Symphony No. 3 in Eb "Eroica" • Dohnányi/Cleveland	CD-80090
SCHUBERT: "Unfinished"/BEETHOVEN: Symphony No. 8 • Dohnányi/Cleveland	CD-80091
BRAHMS: Ein Deutsches Requiem • Augér/Stiwell/Shaw/Atlanta/Chorus	CD-80092
HANDEL: Messiah • Shaw/Atlanta/Chamber Chorus/Soloists (2 CD)	CD-80093-2
Star Tracks: Star Wars, Superman, Star Trek & more • Kunzel/Cincinnati	CD-80094
SIBELIUS: Symphony No. 2/Finlandia • Levi/Cleveland	CD-80095
JONGEN: Symphonie Concertante • Murray/de Waart/San Francisco	CD-80096
BACH/WIDOR/DUPRÉ/FRANCK: Premiere Recital • Murray/Ruffatti Organ	CD-80097
Ein Straussfest: Music of the Strauss family • Kunzel/Cincinnati	CD-80098
Stars & Stripes: Fanfares, Marches & more • Fennell/Cleveland Winds	CD-80099
Telarc Compact Disc Sampler, Vol. 1	CD-80101
Telarc Compact Disc Sampler, Vol. II	CD-80102
HANDEL: Messiah — Excerpts • Shaw/Atlanta/Chamber Chorus/Soloists	CD-80103
Encores à la française/POULENC: Organ Concerto • Murray/Shaw/Atlanta	CD-80104
STRAVINSKY: Symphony of Psalms/POULENC: Gloria • Shaw/Atlanta	CD-80105
Time Warp: Intro to Also Sprach Zarathustra and more • Kunzel/Cincinnati	CD-80106
TCHAIKOVSKY: Symphony No. 5 • Previn/Royal Philharmonic	CD-80107
MOZART: Eine kleine Nachtmusik/Serenade • Mackerras/Prague Chamber	CD-80108
BERLIOZ: Requiem/BOÏTO: Prologue to Mefistofele • Aler/Cheek/Shaw/Atlanta (2 CD)	CD-80109-2
SCHUBERT: Symphony No. 9, "The Great" • Dohnányi/Cleveland	CD-80110
RACHMANINOFF: Symphony No. 2 • Previn/Royal Philharmonic	CD-80113
MOZART/BEETHOVEN: Piano & Wind Quintets • Previn/Vienna Winds	CD-80114
Orchestral Spectaculars • Kunzel/Cincinnati	CD-80115
California Project (Surfin' Music) • Papa Doo Run Run	CD-70501



ROCK/POP RECORDINGS

MICHAEL TEARSON
JON & SALLY TIVEN

BABY BOOTY



Photograph: Neil Selkirk

Little Creatures: Talking Heads
Sire 25305-1, \$8.98.

Sound: B Performance: A

What a bright, sunny album!

Talking Heads' first studio album in over two years is yet another shift in gears from the perennial left fielders. Ever challenging, ever changing, the group has reverted to something along the lines of their first album, *Talking Heads '77*, made when they were a simple four-piece band playing unconventional songs by leader/mouthpiece David Byrne. After evolving into a poly-rhythmic caravan of a troupe, The Heads have stripped down the concept this time. They still use outside players here and there for effect and flavoring—Eric Weissberg on steel guitar on two songs, Lenny Pickett and Jimmy Macdonell on saxophone and accordion on another, extra percussion and voices on several—but it is

essentially a four-piece-band album full of spirited playing.

Byrne's songs here are bouncy and full of fun. They are an upbeat, optimistic collection, too. The recently born child of bassist Tina Weymouth and drummer Chris Frantz seems to have figured in at least a couple of songs, the humorous "Stay Up Late," about the effect of a brand-new baby on one's lifestyle, and "Creatures of Love," which tells of a kid discovering what sex is really all about in the grand scheme of life. This last is the closest Talking Heads is ever likely to come to recording a genuine country song, what with Weissberg's weepy steel part and Byrne's outrageous deadpan delivery. If there is any justice left, "Road to Nowhere," with a glorious choir singing at the song's open and close, ought to give the band a big hit. It is a song calculated to leave you smiling widely.

Production is uncommonly direct for a Talking Heads album, with vocals right up front and totally understandable. The mix is excellent with every sound radiant and clear for a warm, generous effect.

Little Creatures is a really delightful album which keeps giving you more the more you listen to it, as David Byrne's witty songs and the group's super performance merge with sweet, satisfying production. With all the right ingredients how can you go wrong?

Michael Tearson

Lone Justice
Geffen GHS 24060, \$8.98.

Sound: C- Performance: B+

Lone Justice, out of Los Angeles, features young Maria McKee singing her tail off. Her sassy voice is the spark for the band's country rock music.

Their best songs are the straight-ahead rock 'n' rollers like "Sweet, Sweet Baby (I'm Falling)," the Stax-Voltish "Wait 'til We Get Home," "east of Eden" with that big Bo Diddley beat, and a terrific new Tom Petty song, "Ways to Be Wicked." "Don't Toss Us Away," a country weeper written by Maria's brother Bryan McLean, who used to be in Love long ago, is a swell number, too. They only run into real song trouble when they get into hokey country territory, on "Working Late" and the Bruce Springsteenish number, "After the Flood."

Jimmy Iovine, himself formerly a producer for Springsteen and Petty, among others, has captured fine performances from this young band, but the album's sound is thin and trebly with more of a light country mix than a thumping rock one. This is especially apparent on the drum sound, which de-emphasizes the bottom in favor of the ride at the high. One odd result is that the album sounds stronger and punchier on a small system.

The band's youthful exuberance is what really carries *Lone Justice*. On their recent tour, opening for U2 in large halls, Lone Justice exposed this youth. They don't have the big presence needed for those places yet, and I don't think they quite yet have it on the record, either. What they do have in abundance is some fine songwriting chops and lots of performance poten-

tial to realize if they are not pushed too quickly. And, of course, they have Maria McKee's strong, charismatic singing out in front.

I look for Lone Justice to be around for quite a while. *Michael Tearson*

Fables of the Reconstruction: R.E.M. I.R.S./MCA IRS-5592.

Sound: B Performance: B-

Any band that likes to play cutesy with its album title (the record jacket says *Fables of the Reconstruction/Reconstruction of the Fables*) is in my mind immediately suspect for not letting the music do the talkin'. And when you're confronted by a lyricless inner sleeve garnished with 400 different typefaces spread in pick-up-sticks fashion, garbled as a gremlin milkshake—well! R.E.M. does like to dish out the obscure.

That's not so bad in itself, as anyone from The Stones to the avant-garde cult-faves The Residents can tell you. But R.E.M., riding on the good critical vibes of last year's *Reckoning*, seems to be taking on a British art-rock pose as infuriating as the music is pretty. *Fables* producer Joe Boyd, who brings his pedigree from the Fairport Convention/Brit folk-rock stables, has fashioned here a thick, blocky



Lone Justice

yet stinging sound that reeks of earnestness. Occasionally it just reeks.

He's pushed Michael Stipe's trademark-garbled lead vocals mostly toward the back of this instrumental construction site, turning Stipe almost into an inner voice, a conscience. Or did Boyd do it just to hide him? Stipe's vocals, after all, may have their moments, but they don't exactly swing from tenor to basso profundo. *Guitarist*

Peter Buck, bassist Mike Mills and drummer Bill Berry, along with some studio help, do little to add wiring and plumbing—*Fables* is all 1960s major chords, Seals & Crofts harmonies, a lot of dark bass lines, and one song, "Life and How to Live It," that sounds remarkably like the early R.E.M. favorite, "Radio Free Europe."

Pleasant enough but hardly inspiring, *Fables'* gimmicky obscurity is enough to get you running back to Dada. *Frank Lovece*

Flaunt the Imperfection: China Crisis Warner Bros. 25296-1, \$8.98.

Sound: B Performance: B

The second China Crisis album is something quite different from the first. With a new producer in Walter Becker of Steely Dan fame, they have made over their sound. Now the group sports breezy, loping melodies with stripped-down, elliptical lyrics. If the concept sounds vaguely familiar, think about the sound of Steely Dan from *Katy Lied* to *Aja* and the hip coolness those records had, and you might have some idea of what China Crisis is about these days.



R.E.M.

Critic's Choice

"The MG-III is a remarkable speaker at any price; at \$2,200* it will be a runaway best seller."

INTERNATIONAL AUDIO REVIEW (U.S.A.)
HOTLINE #31, 1984

"With me, it's now a question of trying to live without them, rather than with them. In other words, I'm 'hooked'."

HI-FI ANSWERS (U.K.)
JULY, 1985

"Here we have a remarkable, true audiophile speaker."

HI-FI NEWS AND RECORD REVIEW (U.K.)
JUNE, 1984

"One of the best sounds at the Riviera (Consumer Electronics Show)."

AUDIO MAGAZINE
MAY, 1985

"Especially with full orchestral music, the MG-III really shows its full potential."

STEREOPLAY (GERMANY)
AUGUST, 1984

"This speaker will be a classic."

HIGH FIDELITY (DENMARK)
JULY-AUGUST, 1984

The Absolute Sound Magazine.

SEE REVIEW IN VOL. 9, NO. 35
AUTUMN, 1984

Magneplanar[®] MG-III

* PLUS FREIGHT

III MAGNEPAN
1645 9th Street
White Bear Lake, MN 55110

Enter No. 37 on Reader Service Card

China Crisis, under new producer Walter Becker, now sports breezy, loping melodies with the hip coolness of Steely Dan.

The Hooters



Becker has given them sound that is quite dry, very clean and transparent. His challenge as producer here has been to do the Dan sound (a costly affair, with loads of ace studio musicians), but to do it within the confines of the group as much as possible. Indeed, Becker is listed with the group's members for his synthesizer and percussion contribution; not counting the horn players, the only outside musicians are Nick Magnus on assorted keyboards and Tim Renwick on guitars, including leads. The musicianship is at an appropriately high level here to match the cleverness invested in the album's songs.

In Steely Dan's continuing absence from record-making, nobody has really been able to fill their position with smart, adult lyrics set to sophisticated, jazzy rock music. With the deliciously titled *Flaunt the Imperfection*, China Crisis has made an excellent stab at it.

Michael Tearson

Nervous Night: The Hooters Columbia BFC 39912.

Sound: B— Performance: A—

You've already heard at least one Hooters song whether you know it or not. Rob Hyman, one of two lead Hooters, cowrote the instant standard "Time After Time" with Cyndi Lauper. (The fact that Miles Davis recently covered the song is a sign of how good a ballad it is.) Further, Hyman and fellow lead Hooter Eric Bazilian played key roles on, and arranged, Lauper's breakthrough album *She's So Unusual*, working with their longtime friend and associate, producer Rick Chertoff, who has also produced *Nervous Night*.

The Hooters' own album is a delightful confection of excellent songwriting and bouncy, effervescent performances. Highlights include the anthemic "All You Zombies" and a string of top-notch pop songs like "Hanging on a Heartbeat," "And We Danced," "Day by Day" and "South Ferry Road." In addition, "Blood from a Stone" is a terrific little topical song about how hard it is for the little guy. "Where Do the Children Go?" is another lovely ballad, featuring guest vocals by Scandal's Patti Smyth. The surprise of the album is the band's spirited cover of Love's "She Comes in Colors." *Ner-*

vous Night is one of those all too rare rock albums without a really bad track. Incidentally, the song "Nervous Night" appears not on the album but on the flip side of the single release of "All You Zombies."

Producer Chertoff, and the engineers John Agnello and William Wittman (more of the *She's So Unusual* team), have done a fine job of channeling the slightly off-kilter rhythms of The Hooters into a very accessible sound. The group's ensemble playing is excellent. They don't get too flashy here, instead relying wisely on the strength and intelligence of their songs, the group's strongest suit. My one real complaint here is that David Uosikkinen's drums don't convey the power they do in live performance. The drum mix is heavy on the cymbals and the shakers and assorted percussion effects at the expense of the bass drum. Bassist Andy King gives solid support throughout, while guitarist John Lilley is a consummate team player who makes the best of the precious little spotlight he is allowed here.

I think you're going to be hearing a lot of Hooters music on the radio. Their songs are catchier than the flu and they have an earnestly winning way about them. With so many of the right ingredients in place (except for the graphics, which are really boring), it would have been hard for The Hooters to turn out a bad album. As things happened, *Nervous Night* is a very, very fine one. It should survive the tests of time and repeated listening very well.

Michael Tearson

What with at-home banking, instantaneous computer communication and backyard satellite dishes, it's nice to see something innovative coming into our homes through the good ol' U.S. mail. Ironically, that's the only thing traditional about *Fast Folk*, a 10-times-yearly vinyl-record "magazine" you subscribe to as you would to, well, *Audio*.

Technically, a purist might argue, the actual magazine is the 20-page booklet included with each LP, containing folk-music articles, performer profiles, reviews, and—perhaps most important—the lyrics to each song. *Fast Folk* cofounder Jack Hardy tends to warily hold purists, however, at the same distance as early 20th-century workers held the Socialist movement—necessary, but slightly alien. Folk music he broadly defines as a genre where "the song is more important than the singer," and though the even-dozen songs in each issue can be lumped as "folk," they're not traditional in the sense of being traceable back to frontier campfires. *Fast Folk's* writers occasionally wrestle with the question of "traditional" versus "composed" folk songs, but they do it like physicists trying to define the universe—this great big ball, only it's *not* a ball but a linear plane that acts like a ball which is infinite, kind of. Get the idea?

In this context, listening to the songs becomes like gazing at the heavens. *Fast Folk* does give you your occasional stars, among them Dave Van Ronk, Steve Forbert and Suzanne Vega (who recently signed with A&M Records as part of what many are calling a "folk revival"). But mostly, each issue of *Fast Folk* is the equivalent of a coffeehouse best-of night, featuring struggling professionals young and old, along with music-loving day-jobbers who have one or two great songs inside of them. The analogy sometimes becomes literal, most of the songs are taped live at folk festivals and at clubs like The Speakeasy, which, tucked behind a Greenwich Village falafel joint, serves as a northeastern hub for the '80s folk scene. (It's also not far from *Fast Folk* headquarters: 178 West Houston St., Suite 9, New York, N.Y. 10014; 212-989-7088.)

In a commercial sense, it might be true that this scene is a revival. As the



Fast Folk literati see it, though, there's no need for CPR—in one editorial, Hardy declares, "... there is no revival as folk music has never fully died out. Musicians can help create 'scenes'; the press can pick up on these scenes and help create 'fads,' and the [music] industry swoops in for the payoff." Indeed, the lyrical concerns of Bruce Springsteen or The Waterboys' Mike Scott might be considered the spoils of such swoops. Nonetheless, *Fast Folk's* stalwart crew insists the magazine's commercial success is secondary to providing a creative forum; this may sound suspiciously love-and-peace, but it's clear that all concerned sweetly enjoy what they're doing. Besides, the magazine is a non-profit corporation.

That took some time and doing. *Fast Folk* was born more than three years ago as *The Co-op* (changing to its current name with the January 1984 issue), yet its non-profit status has only lately gotten an official okay. Not that the magazine/record has ever made any dough to speak of at a subscription rate of \$50 for 10 issues. *Fast Folk's* low run (about 5,000) doesn't make for cost-effective pressing and packaging, and that eats up most of their revenue (the performers, no matter how relatively stellar, are all unpaid). The reproduction quality subsequently suffers a bit from corner-cutting, but no more so than that of several major record companies.

Hardy says he'd like to start getting the performers some grocery money at least, but the musicians themselves (of which he is one, with several albums on his own Great Divide label) don't mind contributing. Naturally, the pick-

ings vary in quality, but many of the performers are astonishingly good even without the benefit of studio tech. (Most are recorded on an eight-track TEAC deck with minimal fussing.)

A sampling of the songsmiths found in five issues going back to September 1983 include the comically delightful Christine Lavin, whose tunes delineate unrequited love affairs with Prince Charles and advise other women what to do if they have too many boyfriends; Tom McGhee, a Brooklyn truck driver with a voice out of a Kerouac memory; Italian folk-songstress Germana Pucci; local heroes Rod MacDonald and David Massengill; itinerant old-timer Baby Gramps, and native-Appalachian dulcimer player Jean Ritchie.

The accompanying print magazine's articles are, to be charitable, more exuberant than they are journalistic. They read easily and earnestly, though, without musical jargon, and if most of the humor pieces (except for Lavin's) seem in-jokey, factual articles are clear and, by necessity, concise. The black-and-white art direction is surprisingly slick; cover illustrations range from primitivism to haunting photos. Advertising is limited, and actually pretty informative—there aren't too many places like this where you can find, without undue digging, folk-festival dates and places.

The debate over traditional folk versus composed folk doesn't look as if it'll find resolution in *Fast Folk's* pages and grooves, but whatever you call this music that takes in jump-blues, bluegrass, grassroots and other permutations, take it from the pig—th-that's all, *Fast Folk*.
Frank Lovece

CLASSICAL RECORDINGS

EDWARD TATNALL CANBY

SUITE HARMONY

Bach: The Unaccompanied Cello Suites. Vol. I, Nos. 1 and 2; Vol. II, Nos. 3 and 4; Vol. III, Nos. 5 and 6; Yo-Yo Ma.
CBS IM 39345, 39508, 39509, digital.
(Also available as a three-record boxed set, CBS 13M 37867.

Many listeners (including the Editor) have enthused over this long series of works for a single cello, six whole suites, but the well-known general listener should know what he or she is getting into.

For some ears the "decoding" of this music, which is sketched out, with much implied but not actually played, is simplicity itself. That happens to apply to myself, out of long experience; the same goes for the similar suites—called sonatas and partitas—for solo violin and those for solo flute. If you know the composer's orchestral suites—or, even better, the keyboard French suites and English suites—you will be far along on the track towards these works. All these suites share a stylized set of dances, derived from the real dance in earlier times, in a certain order: Prelude, allemand, cou-

rante, and so on, ending with a gigue, out of the Irish jig. They are more or less dense with meaning according to the medium; the orchestral suites sound the biggest and most impressive (and are the sort of Baroque everybody loves) but the others often have the more significant content.

All these suites, except the solo works, are "complete" in all the notes. Not so the works for cello, violin and flute. Same sort of music—but coded, abbreviated, sketched in.

So—six sides of Yo-Yo Ma? That is the question, though you may now buy any one of the discs separately. I find Yo-Yo Ma a fluent, conscientious Bach cellist, showing very clearly the Romantic background that is still imparted to virtually all players today (though they may break away in later life) by their teachers and theirs before them. But he is also definitely aware of the great advance in Bach knowledge of recent years. His trills are right, his dotted figures are correctly short, he plays most of the dances in a fairly lively tempo corresponding to the same music in the other formats. Best of all, he eschews one Romantic tradi-

tion—playing out of tune! It once was allowed, even from the top virtuosos. It is rare today. And thus Bach's harmonies, mostly implied and incomplete in these works, are hearable also in tune.

Two mild debits. One is an occasional overdose of rubato, the somewhat soulful slowing-down and uneven phrasing of the Romantic period, absolutely *not* appropriate for Bach and especially not for dance-derived music. Yo-Yo Ma does not indulge in a quarter of that used by Pablo Casals, who learned his music at the turn of the century and had a chronological right to play that way. Yo-Yo has merely picked this up from his cello mentors of the older generation.

The other is simply the sound of his cello as miked by CBS: Rich, throaty, with an old-fashioned, heavy-sounding bass. That is the way all cellos sounded on records in the early days of electrical recording; it is now clear that a more distant pickup with a lighter, crisper bass makes the instrument a lot more listenable. I wish CBS had been able to engineer *that* sound—it would have helped in the listening and comprehension.

Lovely surfaces but there are occasional vague background noises, not bothersome—maybe passing buses or cars somewhere?

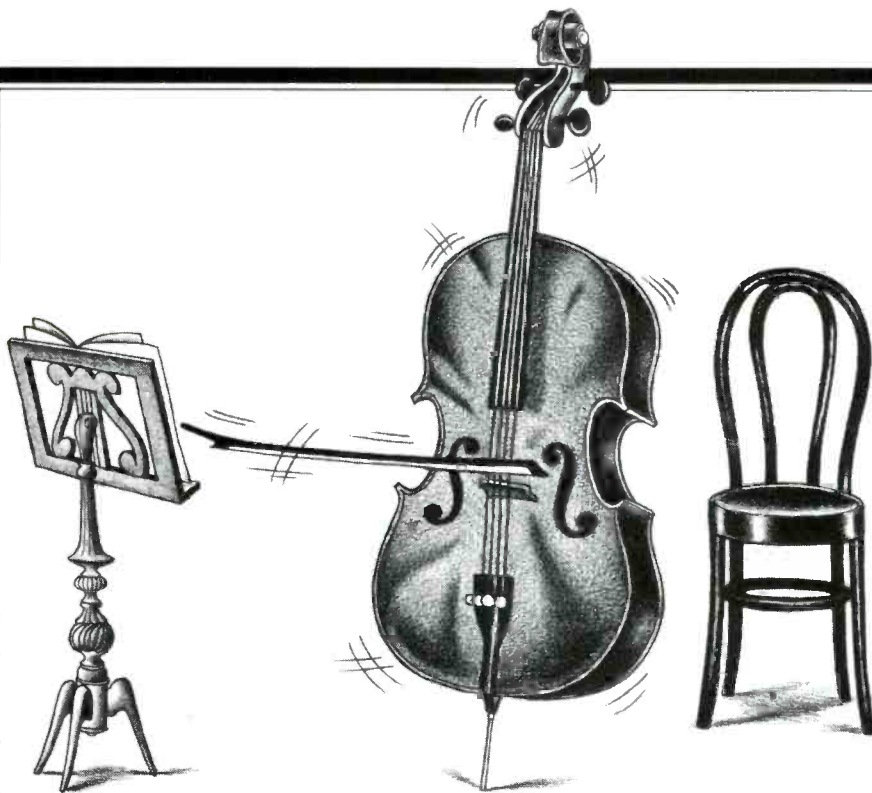
Wendy Carlos: Digital Moonscapes
CBS M 39340, digital.

There is no doubt of the truth in this record's subtitle, *An Evolutionary Synthesizer Tour de Force*. I put the record on my table without even glancing at the fancy annotations and was very quickly aware of the new subtlety and expressiveness of these synthesized sounds, mostly suggesting acoustic orchestral equivalents. Definitely ahead of anything I had heretofore sampled. Digital processing makes this possible, where analog synthesizing always left something in the way of oversimplification of waveforms.

Yet I was immediately bothered by the content. Two things: First, this music is entirely put together in standard, fixed, tempered "keyboard" pitch, straight out of acoustic music. Why? (Carlos wants it that way.) Second, the musical idiom itself is strictly old-fashioned in the manner of film music but



Illustrations: Rick Tulka



perhaps more conservative than most. Curious, for music to go with such an advanced audio technology.

Carlos as a composer is an updated Ferde Grofé with a similar talent—an expert melder of existing musical mannerisms out of many an earlier first-line composer, and at the same time a superb technician with the performing medium at hand. In Grofé, the medium was the existing “classical” orchestra, strictly live. With Carlos it is state-of-the-art digital synthesizing.

In both cases, if you do not know the “source” composers of an earlier time—Debussy, Ravel, Sibelius, Rachmaninoff, Strauss, Holst (“The Planets,” of course), even a bit of “modern music” such as early Stravinsky and later Prokofiev or Hindemith (harmonies in fourths)—then you will find Grofé and Carlos both pleasing and fascinating. Fine musical technicians, if unoriginal.

But if you are familiar with even a fair amount of this past classical fare, you may understand how far down the scale of artistic value and concentration these later dilutions have gone. For legitimate reasons of listening and circumstance, of course.

In the first work, “Cosmological Impressions,” the idiom is entirely old-

fashioned consonance, plain old harmony, out of a hymn book. Even to a passacaglia set of variations on a bass theme that could have come out of Henry Purcell in the 17th century, or Bach in the 18th, or Brahms in the 19th. Beside these, the Carlos passacaglia is pleasantly innocuous.

The second and much larger work, “Moonscapes,” suddenly changes harmonic idiom—no mean feat in itself—into mildly dissonant harmonies, sometimes even polytonal (seeming to be in two keys at once), derived from the generalized sounds of the early part of this century. No, it is not harsh at all, Carlos being essentially a gentle composer, and it is expertly managed and endlessly fluent. (Most film composers are of the endlessly fluent type, for better or worse.) This music kept my interest, but barely. It is really easier as background.

So much for music. I go so far because most comment will be upon the digital techniques and the “cosmological” significance. This last, the cosmology, I can myself dismiss at a glance. Okay, moons and moons, each characterized in a pleasant and unimportant manner, the whole—in the graphics—blown up to impressive proportions by CBS. I like my cosmos straight

and I enjoyed the photographs of the moons, from Luna to Iapetus.

Yes, the digital significance is great! Carlos has been an important and knowledgeable force in moving synthesized sound away from the oversimplifications of waveform and scope that we know so well, into—via digital—a new subtlety that is astonishing. Yes, one can now create strings, horns, woodwinds, any old sounds, not to mention unnamed ones, that have the pulsing, living quality of “real” or acoustic sound. Just listen here. And be sure to read Carlos’ excellent introduction with details of what she and others have done.

Now if only a really big *musical* mind would take over—we might have new synthesized music as big as Bach that *all* of us, classical, pop, whatever, could enjoy and respect and understand. It’ll happen. It’s getting close.

Tchaikovsky: Symphony No. 6, “Pathétique.” The Chicago Symphony Orchestra, James Levine. **RCA ARC1 5355**, digital, \$12.98.

Here is a fine LP, and yet this symphony, almost a century old, was simply *made* for CD. Not merely because of the vast dynamic range, the sudden and violent sonic explosions, the very length of the work (not really comfortable on a single LP’s two sides), but, more than all this, because of the *relative* dynamics, beginning, as have so many late-Romantic works, with a barely audible pianissimo, a solo bassoon with a faint grumbling accompaniment in the lower bass, which grows inevitably to full fortissimo!

Set *level*, one must say today. On LP, that opening level is bound to mix in with some surface noise, as perhaps the original living music mixed with audience rustlings and the featureless “pink noise” of a large concert space. On CD there is a dangerous silence—beware! And yet, for the home environment, at least, this silence is optimum, as it is for numerous very soft passages that come later, reflecting the opening—the quiet descent of a single clarinet down towards the depths to a near sonic zero, followed by a tremendous, full-orchestra chord, *wham!* At least there are no coughs in the recorded versions, whether on LP or CD!

You will sense whiffs of Italian opera in this "Pathétique." Indeed, the flamboyant, triumphant third movement could come right out of "Aida."

The combo of the Chicago Symphony Orchestra and James Levine is always interesting. The Chicago, one of the most precise ensembles in the world, as it is constituted today, has a long history of technical exactitude, stemming back to the rigorous conducting of Fritz Reiner. Levine, though,

is far more relaxed and "Romantic" than such as Reiner, yet fully able to build his own powerful musical effects, however different from the big old conductors of the past. Not surprisingly, you will sense whiffs of Italian opera in Levine—he is at his very best in a flamboyant, triumphant march such as the

third movement of the "Pathétique," which could come straight out of "Aida" in this recording. The more emotional movements are not belabored and extra-heavy, as they once were, with dire pauses, elephant-like tempi, or dripping strings that practically wept out loud. Levine/Chicago moves the famed emotional music (the proper meaning of *pathétique*) with a certain leanness and at a speed that sometimes is too fast, both for the acoustic surround and for the musicians' fingers and lips. Even the Chicago Symphony's.

Yet for all his bounce and speed, Levine never misses the points of climax, nor the long build-up of intensity, nor, again, the dropping down ever so quietly to nothing, a virtual dead stop, not ever to be rushed. That is why he is a great Romantic conductor of the younger school.

The sound here is on the distant side as we hear it and needs lots of volume. At low levels, as background, it will not impress; turn it up and it comes alive. For the music—perfect. It is *not* background music! I found myself, once I had determined the range of levels, turning things up to maximum for the louder parts, even though this made the very quiet moments in this recording somewhat noisy.

Tchaikovsky: Symphony No. 5. The Royal Philharmonic Orchestra, André Previn.

Telarc DG-10107, digital, \$12.98.

This LP went on my turntable right after the Tchaikovsky *Symphony No. 6*, with the Chicago Symphony/James Levine. I deliberately left the volume where it had been optimum for that recording. True, No. 5 does not begin as far down in volume as No. 6 with its solo bassoon. But it is far from a loud opening, even so.

Immediately I was aware that this was going to be *much* too loud, as volume increased. It seems to be cut at a much higher level. So I turned it down considerably, matching the louder passages that followed to those on the RCA record.

Strange. First, Telarc states unconditionally that there was no compression anywhere in its audio stream to LP. Yet it is the RCA Sixth that seems to have

The Profits of Pleasure.



I've got high expectations when it comes to speaker design and performance. That's the reason I chose a DALI speaker system for my home. After auditioning a lot of highly-regarded, well-known speakers, I happened to hear some DALI speakers at a friend's house. After a thorough demonstration I decided DALI is simply the best speaker available for the money.

My new DALI speakers are a continuous source of pleasure. DALI combines advanced acoustic design and elegant natural wood styling in systems capable of expressing the finest audio sources, including CD's. No other speaker provides such a high level of performance at such a sensible price.

But please don't ask me how much I spent on my DALI speakers. Ask how much I made.

For complete information on DALI speakers and our unique marketing program, call TOLL FREE 1-800-251-DALI (in California 805-252-7203) or complete this coupon and mail it today!

DALI

DANISH AMERICAN LIMITED, INC.
P.O. BOX 55386
VALENCIA, CA 91355

Name _____

Address _____

City _____ State _____

Zip _____ Phone (____) _____



André Previn does a good, more or less standard job on Tchaikovsky's Fifth, not uniquely inspired but serviceable and accurate.

the more extended dynamic range. It really sounds uncompressed. One possible answer: *Different performance*. Sometimes the simplest answer is the best! Some conductors do more whipping-up than others, some are more mike-conscious, after long experience, preferring not to invite overload or retakes. Wrong or right? It depends.

Second, this Telarc recording *seems* much louder, as one sets volume, than the RCA. But I did not fail to note that on my VU meters, independent of loud-speaker volume and reading more or less standard preamp input levels, the two recordings were not *that* different in level. Curious! The RCA album, seemingly (as one hears it) cut at a lower level, perhaps to allow for longer playing time, adds up on side one to 25:23, as noted on the jacket. However, Telarc's seemingly louder cut runs, by its timing, 30:16, which is very long for any LP. I draw no conclusions.

However, it is not hard to make a rough comparative judgment. No question that Telarc's miking and resonant hall sound produce a wider, more immediate orchestral presence, excellent for general-purpose listening with impact, from background music all the way to car stereo. The RCA sound, less immediate, drier, without as much instant impact (in all sorts of reproduction), responds very gracefully to high volume on good home equipment.

Moreover, one can say the same about performance. André Previn and the British orchestra do a good, rounded, more or less standard job on the Fifth, not superb nor uniquely inspired but serviceable, accurate and trustworthy, for all sorts of listening. Levine's Tchaikovsky takes more getting used to; it is more original, more "different" from normal or routine, but also I think more rewarding, in the long run, if a bit uneven. Little things, moments, remain in the memory from that performance: The descending pizzicato

(plucked) string scales in the bass at the end of the opening movement, not metronomic but *absolutely* exact, as one man. The upward shriek of violins at one point, both precise and enthusiastic, the superb drum-roll climax of the great march movement, carried splendidly right through to the end.

These things make themselves felt slowly, perhaps not on first hearing. But they last.

The range and clarity of the Direct Metal Mastering and subsequent pressing are certainly persuasive and must have much to do with the differences in impact.

The PRO MCD all CD players are not created equal...

The New PRO MCD, a descendent of the Meridian MCD which has set new standards for musicality in CD reproduction, has been developed with the help of major recording studios — designed to be a sonic reference in the production of new compact discs. The MCD Pro recovers more of the musical details recorded on a CD than many critics have considered possible. The Meridian dealer can tell you the technical reasons why the MCD Pro is capable of such resolution, but your own ears will tell you how much better it sounds.

BOOTHROYD STUART
MERIDIAN



Exclusive U.S. Distributor **MADRIGAL, LTD.**, P.O. Box 781, Middletown, CT 06457 ITT TLX 4942158

CLASSIFIED ADVERTISING RATES

BUSINESS ADS—\$1.60 per word. MINIMUM charge PER AD, PER INSERTION \$40. All centered or spaced lines \$14.

NON BUSINESS ADS—\$1.10 per word, MINIMUM charge PER AD, PER INSERTION \$25. All centered or spaced lines at \$11.

ALL LINE ADS—First line set in bold face type at no extra charge. Additional words set in bold face at \$1.90 extra per word. One point ruled box is \$14.

CLASSIFIED LINE ADS ARE PAYABLE IN ADVANCE BY CHECK OR MONEY ORDER ONLY. (Sorry, we cannot accept credit cards or bill for line advertising.) ALL LINE ORDERS should be mailed to:

AUDIO/CBS Magazines
P.O. Box 9125
Dept. 346V
Stamford, CT 06925

ORDERS WILL NOT BE PROCESSED WITHOUT ACCOMPANYING CHECK OR MONEY ORDER FOR FULL AMOUNT.

CLOSING DATE—First of month two months preceding the cover date. If the first of the month falls on a weekend or holiday, the closing date is the last business day preceding the first. ADS RECEIVED AFTER THE CLOSING DATE WILL BE HELD FOR THE NEXT ISSUE UNLESS OTHERWISE STATED.

FREQUENCY DISCOUNTS—3 times less 5%, 6 times less 15%, 12 times less 20%. These discounts apply to line ads only. Ads submitted for a three-time frequency are unchangeable. Frequency discounts not fulfilled will be short-rated accordingly. Agency discounts do not apply to line advertising.

BLIND ADS—Audio box numbers may be used at \$8 extra for handling and postage.

GENERAL INFORMATION—Ad copy must be type-written or printed legibly. The publisher in his sole discretion reserves the right to reject any ad copy he deems inappropriate. **ALL ADVERTISERS MUST SUPPLY:** Complete name, Company name, Full street address (P.O. Box numbers are insufficient) and telephone number. Classified LINE ADS are not acknowledged and do not carry Reader Service Card Numbers. **AGENCY DISCOUNTS** do not apply to line advertising. **FREQUENCY DISCOUNTS** not fulfilled will be short rated accordingly. Only those advertisers who have prepaid for their entire contract time will be **RATE PROTECTED** for the duration of that contract, in the event of a rate increase.

CLASSIFIED DISPLAY RATES

1 col x 1 inch	\$295
1 col x 2 inches	\$465
1 col x 3 inches	\$666
2 cols. x 1 inch	\$530
2 cols. x 2 inches	\$895

One column width is 2 1/8". Two columns wide is 4 1/4". For larger display ad rates and 6, 12, 18 and 24 times frequency rates call (212) 719-6338.

DISPLAY ADVERTISERS should make space reservation on or before the closing date. Ad material (film or velox) may follow by the tenth. **DISPLAY ADVERTISERS MUST SUPPLY COMPLETE FILM NEGATIVE READY FOR PRINTING OR VELOX. PRODUCTION CHARGES WILL BE ASSESSED ON ANY AD REQUIRING ADDITIONAL PREPARATION.**

ALL DISPLAY CORRESPONDENCE should be sent to:

Laura J. Lo Vecchio, AUDIO MAGAZINE,
1515 Broadway, New York, NY 10036

FOR ADDITIONAL INFORMATION:

CLASSIFIED LINE ADS:

Mary Jane Adams—(212) 719-6345

CLASSIFIED DISPLAY ADS:

Laura J. Lo Vecchio—(212) 719-6338

AUDIO NEXUS

brings you

Sonic Sorcery for Audiophiles
TALISMAN & ALCHEMIST
CARTRIDGES FROM SUMIKO

Come hear the magic
201-464-8238
Berkeley Heights, New Jersey

FOR SALE

AMERICA'S LARGEST dealers in **HIGH END USED** stereo. We **BUY** by **PHONE. STEREO EXCHANGE** 687A Broadway, between 3rd and 4th St. (opposite Tower Records) NYC 10012. (212) 505-1111 and (800) 833-0071.

ACOUSTAT AND PS AUDIO—SUPERB!

Free shipping! Fast service! Also Sota, Thorens, Talisman, Audire, Haller, Klipsch, Adcom, Quad, SAE, Compact Digital Players. **READ BROTHERS STEREO**, 593 King Street, Charleston, South Carolina 29403. (803) 723-7276.

ADCOM GFA-555 IS AVAILABLE through Presto Audio, (408) 374-0292.

Epi
made in u.s.a.

CLEAN RECORDS . . .
CLEAN SOUND



THE BEST THERE IS!

The HW-17 Pro Record Cleaner is a true "State of the Art" device.

- Self contained fluid pump
- Stainless Steel catch basin
- Self adjusting velvet coated pickup nozzle

Quiet operation!

V.P.I. Ind. Inc.
P.O. Box 159
Ozone Park, N.Y. 11417
718-845-0103

Audiophile's Corner

A Phono Cartridge is Like a Violin

No two sound exactly alike. We recommend the Alpha 1 moving coil cartridge by Monster Cable for its purity in sound and consistency in manufacturing. What it extracts from the record grooves is nothing short of phenomenal. Audition it at:

ELITE ELECTRONICS
20149-A Stevens Creek Blvd, Cupertino, CA 95624

FOR SALE

ALL MUSIC-LINK™ AUDIO PRODUCTS OFFER YOU truly innovative solutions to the sound-degrading and pleasure-robbing problem areas of your music playback system. MUSIC-LINK™ audio components and accessories replace those weak links in your audio component chain to give you back layers of music information you knew existed, but were unable to retrieve at any price. So, if you love music, you will be very pleasantly surprised by the improvements MUSIC-LINK™ can make in your music system, and in your listening enjoyment. MUSIC-LINK™ audio products are available from: **ABBIE'S AUDIO**, 2927 West Liberty Avenue, Pittsburgh, Pennsylvania 15216. (412) 561-6155.

CHICAGO SPEAKER STANDS WILL
OUT PERFORM ANY SPEAKER
STAND ON THE MARKET
GUARANTEED.

RIGID • SPIKED • STABLE



YES, YOU CAN UPGRADE
SPEAKER STANDS!

Chicago Speaker Stands
THE AUDIOPHILES CHOICE

1-800-882-2256

FOR SALE

ABSOLUTELY THE FINEST!

Always striving for the best, serious audiophiles throughout the U.S. trust our well-informed staff to guide them through the maze of high-end audio. Our commitment to excellence in **SERVICE, ADVICE, and QUALITY COMPONENTS** is your assurance of satisfaction.

- | | | |
|----------------|--------------------|--------------|
| CONRAD-JOHNSON | PERREAUX | PS AUDIO |
| TANDBERG | HAFLER | DENON |
| VSP LABS | INFINITY | KLIPSCH |
| REVOX | OHM ACOUSTICS | ADCOM |
| ADS | DCM | SPICA |
| AUDIO PRO | HARMAN/KARDON | STAX |
| DBX SOUNDFIELD | HEYBROOK | THORENS |
| DENNESSEN | DYNAVECTOR | GRADO |
| MONSTER ALPHA | NITTY GRITTY | STRAIGHTWIRE |
| VPI | AKG | SONY |
| CD PLAYERS | ... AND MUCH MORE! | TECHNICS PRO |

Please call or write us for information. Friendly, expert consultation. Competitive pricing. Fast, prepaid shipping. VISA/MC.

REFERENCE AUDIO SYSTEMS

18214 Dalton Avenue
Gardena, CA 90248
(213) 398-4205; (213) 391-2679

ALPHASON, COUNTERPOINT, DAYTON-WRIGHT, EMINENT TECHNOLOGY, Kindel, Krell, Martin-Logan, McLaren, Merrill, MFA-Luminescence, Quicksilver, Shinn, Sota, Spica, Syrinx, VPI, Audio By A.J. Conti, 38-B Gowling Rd., Hudson, NH 03051. (603) 883-4504.

ALTERNATIVE AUDIO: HOME OF FINE AUDIO VALUES. JSE/Infinite Slope, MCM Systems, 3D Acoustics, PSE, Electron Kinetics Eagles, MFA Magus, Precision Fidelity, B&K, Superphon, VPI, Alphason, Discrete Technology, Kimber, Randall, Promethean, Grado, Distech CD Players, Tweek, Triptos and more. Auditions by appointment, Massapequa, L.I., NY. (516) 541-7025.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009, JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000, WEST (818) 840-0878.

ASC 6002 REEL-TO-REEL, WITH R/C, \$1200; Electrocompaniet Amplifier 2a, \$1000; Kindel Phantasy 100's, \$200; Phantasy 50's, \$170; Monster Cable Alpha 1, \$200; All new with warranty cards. Call (313) 553 7491 after 6:00.

DALLAS

- | | |
|-------------------|----------------------|
| AR | Nitty Gritty |
| Acoustat | Onkyo |
| Audible Illusions | PS Audio |
| Audio Source | ProAc |
| Audioquest | Randall Research |
| Belles | Reference Recordings |
| CJ Walker | Robertson |
| Conrad-Johnson | Sheffield |
| Electrocompaniet | SOTA |
| Grace | Sonographe |
| Grado | Souther |
| Harmann-Kardon | Spica |
| Kimber Cable | Sumiko Products |
| Live Wire | Talisman |
| Magnepan | Thiel |
| MAS | Threshold |
| Monster Cable | VPI |

Omni Sound
4833 Keller Springs Rd.
Dallas, Texas 75248
(214) 931-6664

In Boston listen to



at
Audio-Vision/1060 Mass. Ave., Arlington, MA
(617) 863-5221

FOR SALE

ARIZONA'S FINEST AUDIO SYSTEMS

No component-of-the-month recommendations here, only time-proven audio products from industry leaders. Arizona's exclusive dealer for Linn-Naim systems, Vandersteen, Audio Research, and quality budget systems from Rotel, Systemdek, Rogers, Dual, Spondor and more. Musically satisfying systems from \$600-\$20,000. THE LISTENING POST, (602) 967-1250, Tempe. Since 1979.

AT LAST, PERREAUX, VSP, BELLES, TOGETHER!!!

Mid-Fi prices, Hi-End quality! Matched JSE INFINITE SLOPE speakers, THORENS, AIWA digital, decks, TONMEISTER—exclusive Metropolitan DC showroom. (301) 229-1664.

AUDIO NEXUS: STEREO COMPONENTS THAT HONOR MUSIC.

Alphason, Argent, Audioquest, BEL, B&K, CJWalker, Counterpoint, Dayton Wright, Eminent Technology, Fried, Goldribbon, Grace, Kiseki, Meridian, Monster/Alpha, Nitty Gritty, Nova, Premier, PS Audio, Rauna, Robertson, Rotel, Rowland Research, SOTA, Spectrum, Stax, Systemdek, Talisman, Vendetta, VSP. Experience the finest at New Jersey's highest Mecca. (201) 464-8238, (201) 730-2409.

Quality Tapes

BELOW WHOLESALE PRICES

TDK		MAXELL		VIDEO	
D 60	85	UR 60 New	.99	TDK T-120	4.75
D 90	99	UR 90 New	1.09	TDK T-120 EHG	6.29
AD 60	1.39	UD-5 60	1.39	MAXELL T-120	4.69
AD 90	1.59	UD-5 90	1.69	MAX T-120 HGX	6.49
SA 60	1.39	XL II 60	1.59	MAX T-120 GOLD	7.99
SA 90	1.65	XL II 90	1.69	SONY T120	4.59
ADX 60	2.09	XL II 60	2.19	SONY T120 UHG	5.95
ADX 90	2.29	XL II 90	2.29	SONY L750	4.59
SAX 60	2.19	MX 60	3.39	SONY L750 UHG	5.95
SAX 90	2.39	MX 90	3.89	SCOTCH T120	4.99
HXS 60	3.39	UD 35-90	4.89	SCOTCH T120 HG	6.99
HXS 90	3.89	XL 135-90B	6.39		
MA 60	3.49				
MA 90	3.99				
MAR 60	4.69	SONY			
MAR 90	5.75	HF 60	.75	FR METAL 90	3.39
		HF 90	.95	FR II 90	1.79
		HF 120	1.59		
		HF 5 90	1.69		
		UCXS 60	1.69		
		UCXS 90	1.89		

CALL NOW: 718-434-3417 OR ORDER BY MAIL
SHIPPING COST IS ONLY \$4.50 FOR ANY ORDER IN USA.
INSTITUTIONAL ORDERS WELCOME. NO EXTRA CHARGE FOR VISA/MC.

QUALITY TAPES

864 East 7th Street, Dept. A 10, Brooklyn, NY 11230

FOR SALE

AUDIO CLASSICS OFFERS THE BEST trades towards: Goldmund, Conrad-Johnson, Bering, Classé, Merrill, Koetsu, NYAL Moscode, Futterman OTL, Audio Pro, Pink Triangle, Quicksilver, MCM, GSI, Kinergetics, Souther, JSE, MERLIN, Alphason, Watkins, Odyssey, MFA, Precision Fidelity, Jadis, WAMM, Shinn, Superphon, Tiptoes, Onyx Audio, Fosgate, Straight Wire, SPENDOR, MODULUS, Lead Balloon, RAM tubes, Kindel, Fidelity Research, STAX, Promethean, Discrete Technology, Well Tempered arm, Lazarus, Sonus, Definitive Audio, MIT cables, and more. Ask for used, demo list. AUDIO CLASSICS INC., Oklahoma City, Okla. Call: (405) 842-3033.

**Fulfilling the Promise of Digital,
Monster Cable Introduces**

INTERLINK® CD

Super High Resolution Compact Disc Interconnect Cable. Conventional cables run out of breath when trying to cope with today's sound. The incredible sonic capabilities of the compact disc player pushes all your components to their limit... including your connecting cables. The incredible resolution, awesome dynamic range, and powerful bottom end available from your compact disc player, are not fully reproduced when you use ordinary interconnect cables.

Almost Perfect. The sound of today's compact discs are impressive, but contrary to what the manufacturers say, they're not perfect. As audiophiles have recently discovered, digital has a few shortcomings caused by the relatively low sampling rate and phase shift effects from steep analog filtering. The music can become harsh and edgy, 2-dimensional, and uncomfortable to listen to for long periods of time.

Why a Special Cable for Compact Disc? Interlink CD is specially designed to compensate for the transient and phase distortions of the digital process as well as minimizing some of the "harshness" found in some CD program material. Using our revolutionary "Bandwidth Balanced" technology, we can control high frequency phase shift to produce a more enjoyable, thoroughly musical sound: bass is tighter, transients are quicker, and there's a greater 3-dimensional depth to the music.

If you listen to compact discs, let them sound their Monsterous best with Interlink CD. Please write for our free brochure.

MONSTER CABLE®

Monster Cable Products, Inc.
101 Townsend Street
San Francisco, CA 94107
415-777-1355



MOREL INTEGRA



MOREL'S "INTEGRA" AUTO FIDELITY loudspeakers provide the perfect solution to high-quality sound reproduction in the car. Morel's system differs from conventional coaxial systems which use two separate drivers that have to be mounted mechanically together. The "Integra" concept is based on a two-way coaxial system consisting of two magnets - one for the dome tweeter and one for the woofer - integrated on a single axis. Similar in their high power-handling and excellent sound to the Morel driver units for home loudspeakers, the Morel Integra auto fidelity loudspeakers are durable and rugged enough for use in any type of vehicle.

INTEGRA - 1 MkII

Integrated 2-way 6" / Dome Tweeter (Adapted for bi-amp)

Power Handling Capacity	100 Watts RMS
Frequency Response	45-25000 Hz
Woofer Type	6" Dia., 3" Aluminum voice coil
Tweeter Type	Soft dome, Aluminum voice coil
Ferrofluid Cooling/Damping	Yes
Impedance	4 ohms
Sensitivity 1W/1M	91 db
Magnetic Structure Weight	2.3 lbs./1.05 Kgs
Dimensions	160mm/6 1/4" Dia., 67mm/2 1/2" Depth
Mounting Depth	53mm/2 1/8"
Net Weight	2.85 lbs./1.3 Kgs
Front Grill	Integral metal grill

INTEGRA - 2 MkII

Integrated 2-way 8" / Dome Tweeter (Adapted for bi-amp)

Power Handling Capacity	120 Watts RMS
Frequency Response	35-25000 Hz
Woofer Type	8" Dia., 3" Aluminum voice coil
Tweeter Type	Soft dome, Aluminum voice coil
Ferrofluid Cooling/Damping	Yes
Impedance	4 ohms
Sensitivity 1W/1M	92 db
Magnetic Structure Weight	2.3 lbs./1.05 Kgs
Dimensions	220mm/8 1/4" Dia., 75mm/3" Depth
Mounting Depth	57mm/2 1/4"
Net Weight	3.3 lbs./1.5 Kgs
Front Grill	Integral metal grill

Please write for details:



Morel Acoustics USA

414 Harvard Street, Brookline, MA 02146
tel. (617) 277-6663 telex 650-2499475

Morel (U.K.) Ltd.

11 Foxtail Road, Ransomes Indus. Estate
Ipswich IP3 9RT, England
tel. (0473) 719212 telex 987601 Morel G

Morel Acoustics Ltd.

Industrial Area B, P.O. Box 140, Ness Ziona
70 451 Israel Telex 361951

FOR SALE

ATTENTION DYNA, HAFLER, CROWN OWNERS
Frank Van Alstine and Associates engineer complete new Transcendence power mos-fet amplifier and precision fet preamp designs to interface with your existing chassis. Original circuits, and their problems, are discarded. Obtain superior performance without buying expensive new hardware. Learn why "underground" magazines claim our rebuilt Dyna 150 is a best buy, our MOS-FET 120B sounds like 150 watts, our FM-5 circuits sound best, and our preamps play music. Call or write for free catalogue and sample Audio Basics monthly newsletter. We ship worldwide. Jensens Stereo Shop, 2202 River Hills Drive, Burnsville, Minnesota 55337 (612) 890-3517.

AUDIO CONNECTION in Northern New Jersey

TURNTABLES: Goldmund, Heybrook, Merrill, VPI, Systemdek
TONEARMS: ET, Grado, Lurne, MMT, Well Tempered
CARTRIDGES: AudioQuest, Decca, Grado, Promethean (stylus retipping for all cartridges)
ELECTRONICS: (TUBE) Audible Illusions, Melos, MFA Systems, Quicksilver
(SOLID STATE) Electrocompaniet, FM Acoustics, Jordan, Leach, Magnum, British Fidelity
CD PLAYERS: Melos Audio, Harman Kardon
SPEAKERS: Kindel, Princeton Acoustics, Rauna, Spondor, Vandersteen
ACCESSORIES: Goldmund, LiveWire, Last, Kinergetics, Kimber, NG, Peterson, Sims Vibration Dynamics, Sonex, Tiptoes, Turomat, Tweek. VPI
1-201-239-1799

615 Bloomfield Ave., Verona NJ 07044

AUDIO CONNECTION also has for sale: occasional close-outs, some used equipment and display pieces. Single speaker demonstration; record cleaning; audiophile discs.
HOURS: Mon, Tues, Fri 12 to 7, Thurs 12 to 9, Sat 11 to 6. Closed: Sun, Weds. **PLEASE, CALL FOR AN APPOINTMENT!**

A brief word to our readers: We are aware of the confusion which many of you are experiencing, i.e. the choice of components, their interface, suitability etc. We also feel pained at seeing this industry being swept along by an endless string and variety of superlatives in advertising. In response to this dilemma we offer you what many of our valued clients have discovered: that honesty, knowledge, and integrity are the safest path to long-lasting musical enjoyment.

FOR SALE

AUDIO ELITE IN WISCONSIN!!!

DENON, CONRAD-JOHNSON, HAFLER, BELLES, VANDERSTEEN, ACOUSTAT, SOTA, PS AUDIO, BOSTON ACOUSTICS, MIRAGE, PROTON, JBL and any others you desire. 414-725-4431. Menasha, WISCONSIN.

AUDIO ENCOUNTERS IN SOUTH FLORIDA

Now stocks the complete line of Straightwire interconnects and speaker cables. A proven product. Place your order today. (305-921-5751) 523 South 21st Ave., Hollywood, Florida 33020

AUDIO ENCOUNTERS IN SOUTH FLORIDA

TURNTABLES: Dual 505-2, Thorens, Systemdek, AR, JA Michell, Heybrook, Pink Triangle, VPI
TONEARMS: Profile, Grace 707MK3, Eminent Technology, Alphason, Zeta
CARTRIDGES: Astatic, Adcom, VGL, Dynavector, Shinon, Argent, Audio Quest, Goldbug
ELECTRONICS: Adcom, Amber, Audible Illusions, Belles Research, B&K Components, Carver, Electron Kinetics, Melos, Moscode-Nyal, Rotel, Tandberg, VSP Labs
LOUDSPEAKERS: Allison, AR Connoisseur Series, Heybrook, Morel, Ohm, Warfdale, West Sound Labs, JSE Infinite Slope
ACCESSORIES: Straightwire, VPI Record Cleaning Machine, Isolation Bases, Bricks, Last, Tweek, Tiptoes, Sheffield, Sideral Capacitors, Gold Aero Tubes, Electronic Specialist AC Line Filters, Heybrook Stands, Audio Quest Mats, Record Brushes
305-921-5751

523 South 21st Ave., Hollywood, Florida 33020

Please contact us for a free price list of our used and demonstration components. We offer generous trade in allowances towards new components. We ship anywhere.

BEST TRADES OFFERED. Acoustat, AR, APT-Holman, Bering, B&K, Classe, Discrete Technology, Duntech, Futerman, Clements, Goetz, Hafler, JSE, Kindel, Magnavox CD, Lazarus, MFA, GSI, Moscode, Mordaunt Short, McLaren, M&K, MCM Systems, Micro-Seiki, PS, Quicksilver, Rauna, Revox, Robertson, Snell, SOTA, Spondor, Spica, Stax, Symdex, Superpon, Tannoy, VPI, Watkins, Nitty Gritty, Gyrodec, VSP, Kiskiki, Koetsu, Pro-AC, Klyne, Alphason, Rock, Alpha, Shinon, Cambridge, Celestion, Mod Squad, Heybrook, all cartridges, tonearms, and more to come. Visit the Ozarks AUDIO DOCTOR, 1518 Commercial, Box 390, Buffalo, Missouri 65622. 417-345-7245 VISA-MC.

MOSCODE ITTM



(chassis not shown)



Outboard Power
Transformer

IT IS A HIGH GAIN MOSCODE TUBE PHONO PREAMP that plugs into the AUX input of your transistor preamp or transistor receiver. **IT** replaces the transistor phono stage of your unit. You can plug a moving coil cartridge directly into **IT** because it has enough gain so that you don't need a moving coil step up device. Have you wondered what the sound of those expensive tube preamps are like?—especially our \$4000 NCP-II HIGH GAIN CASCODE. Have you ever experienced the liquidity and NATURAL HARMONICS that are only possible with tube circuitry? Are you not yet prepared to go into massive consumer debt to find out if in fact tubes are superior audio devices?

Tremble not. **IT** is the answer. Before you go out and buy a new piece of audio gear, plug **IT** in and listen to the transformation that occurs in your entire sound system. **IT** costs only \$169. Why such an absurdly low price for a HIGH GAIN MOSCODE TUBE PREAMP? Our intent is musically diabolical—we are sure that you will run out and buy one of our MOSCODE TUBE AMPLIFIERS or who knows, you might even sell your house to buy the JULIUS FUTTERMAN OTL® -1 AMPLIFIERS which we consider a bargain at \$12,000. Don't take our word—just listen to **IT**. **IT** will make your musical soul very happy. For more information about our products and a complete dealer listing send for our FREE 30 page brochure. **NEW YORK AUDIO LABORATORIES**, 33 N. Riverside Ave., Croton-on-Hudson, N.Y. 10520, 914-271-5145.

FOR SALE

AUDIO ONE

Since 1974, our commitment has been to musical accuracy and you, the audiophile and music lover. No commercial or political interests influence which components we offer you. This spirit of pure idealism, truly unique in retail audio, has become our hallmark. The following recommendations are the highlights of our tenth anniversary collection:

This year we are pleased to bring you a system under \$5000, with significantly greater levels of sonic accuracy & musicality than any \$10,000 combination of components available as recently as last year! Each of the individual components represent a remarkable achievement in performance—lying on the positive edge of the law of diminishing return:

- MERRILL CLAMPING TURNTABLE
- EMINENT TECHNOLOGY 2
- OR WELL TEMPERED ARM
- PROMETHEAN GREEN PICK UP
- SUPERPHON DUAL MONO PREAMP
- SPECTRASCAN 101B AMP
- RANDALL RESEARCH INTERCONNECTS
- & 64 TBC SPEAKER CABLES
- NONSPEAKER NRC

For those audiophiles fortunate enough to have greater budgets, we offer these substitutions:

- PROMETHEAN POSI-PIVOT PICKUP
- MONSTER ALPHA 2+ PICKUP
- MUSIC REFERENCE RMS PREAMP
- MAVRICK SPATIAL PREAMP
- MODIFIED EAR 509 MONO AMPS
- MAVRICK AUDIO HELIUM SPEAKERS

Further, our ten years of expertise in the interfacing & assembly of "edge of the art" systems is essential for you to receive maximum value and realism from your purchase. An analogy: in a field of fine BMW, Porsche & Ferrari dealers, we stand alone as the only "formula race car" outlet in audio. When you're ready for the maximum performance per dollar obtainable, there is no alternative to audio one.

AUDIO ONE

Tradeup exchange: liberal policies insure that you will be sonically satisfied with your new components. We will travel worldwide to finetune and maximize the sonic potential of your system. Custom modifications: our specialty, including components previously modified by others! Exclusive component evaluation program audiophile recordings & cd's

free shipping & insurance in the US.
MC/VISA phone orders accepted.

AUDIO ONE

on Sunset Boulevard in LA

213/855-0500

San Diego area 619/480-4804

Listen to the Music!



High Gain-Low Noise-Great Sound

GK-1

A Vacuum tube preamp priced under \$1200
Call or write for information.

MELOS

723 Bound Brook Rd. Dunellen NJ 08812
(201) 929-2713

SOUTHER *Tribeam* 12 and 16



"THE LEADER IN LINEAR PHONO TRACKING"
**The World's Most Esoteric Arm
Awaits Your Audition.**

SOUTHER ENGINEERING CORPORATION
429 YORK STREET, CANTON, MA 02021
Dealer inquiries invited 617-828-5050

FOR SALE

AUDIO RESEARCH SP3B, ARISTON W/GRACE 707 ARM-\$199, CANTON CT1000 walnut-\$750/pr, CT8000-mahogany-\$849/pr, DCM TIME WINDOWS-\$590/pr, DAHLQUIST DQ10-\$375/pr, LEVINSON ML-6A-\$5500/pr, MCINTOSH 2205-\$1,000, MCINTOSH C32-\$1,000, ROBERTSON FORTY-TEN-\$499, SONY TA F555ES-\$450, SONY CDP 210ES-\$400, TANDBERG TD20A quarter track, 3 3/4, 7 1/2ips-\$698, TANDBERG TD20A-SE, half track, 7 1/2, 15ips-\$898, TANDBERG TCD3004 CASSETTE DECK-\$998. CALL TERRY: (402) 391-3842.

BRITISH EQUIPMENT DIRECT FROM THE U.K. Most quality makes of equipment available at advantageous prices. For price list and price quotes write to AUDIO T, Dept B, PO Box 152, Enfield, Middx. EN2 0PL, U.K., or call (01) 366-5015.

In New England...



Known by the company we keep.

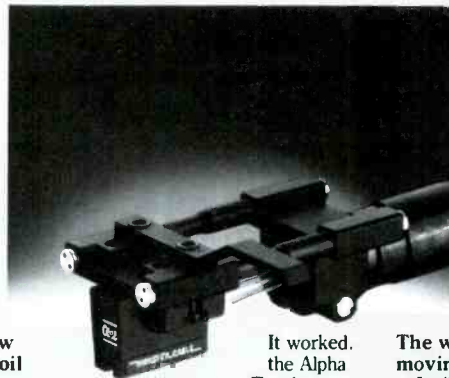
MAJOR AUDIO	Grado	Souther
Acoustat	Signature	Spica
ADS	LAST	Stax
Alpha	Livewire	Sumiko
Audio	Magnepan	Tandberg
Interface	Martin-Logan	Threshold
Audio Pro	Mission	Vandersteen
Audioquest	Mod Squad	VPI
Boston	Monster Cable	Win Labs
Acoustics	MIT	Yamaha
Bryston	NAD	Yamaha
Carver	Nakamichi	Audiophile
Counterpoint	Niles	VIDEO
CWD	Oracle	NAD
Denon	Proac	NEC
Dynavector	Robertson	Pioneer
Eminent	Signet	Proton
Technology	Snell	Sony
Grace	SOTA	

Modern Demo Facility. Specialty Records, Accessories and CDs. In-store Service, Custom Cabinetry. No Mail Orders Please



105 Whitney Ave., New Haven, CT (203) 777-1750
Mon., Tue., Wed., Fri., 10-6, Thurs., 10-8, Sat., 10-5,
MC/VISA/AMEX/TAKE 5 Charge

One of the World's Finest Moving Coil Cartridges, just Happens to be a Monster.



Introducing the New Alpha 2™ moving coil cartridge from Monster Cable®

We borrowed a little knowledge about electromagnetic field behavior from our cable designs and combined it with the incredible tracking, ultra low distortion "Micro Ridge" stylus. Then we attached it to an extremely hard, rigid, yet very quick, hollow-tube sapphire cantilever. Finally, we tuned the suspension and samarium cobalt magnetic assembly with sophisticated new measuring techniques and countless hours of late night listening.

It worked. the Alpha Two is a cartridge transducer

that surpasses our greatest expectations, reproducing recordings like no other cartridge has ever done before.

Listening to your records all over again.

You'll be hearing things on your favorite recordings that you've never heard before. A natural instrument presentation, with extreme clarity and focus, placed across a soundstage with exacting precision... yet never harsh, bright or fatiguing.

The world's "other" fine moving coil cartridge.

Its little brother, the Alpha One, has established itself as the leader in a new generation of moving coil designs. It employs many of the same features as the Alpha 2... at a more modest cost. Audition both of these fine cartridges at your Monster Cable Alpha Dealer.

They'll turn your sound system into a Monster.

alpha2.

MONSTER CABLE®

*The Alpha Two has been awarded International Audio Review's esteemed Class 1a rating, the only cartridge to have ever received that honor.

Monster Cable® Products, Inc.
101 Townsend, San Francisco, CA 94107
415/777-1355 Telex: 470584 MCSYUI

Eliminate Your "Patchcord Headaches"

If you have more components than places to hook them up, we have a switching system for you. For complete information on switch boxes for your tape decks, signal processors, and speakers, WRITE OR CALL TODAY.



niles audio

Dept. A, P.O. Box 160818
Miami, Florida 33116 (305) 238-4373

FOR SALE

BEAT THE PRICE FIXERS WITH low discount prices and full U.S.A. manufacturers warranty's on: Nakamichi, Revox, Carver, Bang & Olufsen, ADS, Kyocera, HK, Crown, Hafler, B&W, NAD, Tandberg, Polk, Island Audio, Inc., 1122 Riverside Drive, Holly Hill, FL 32017. (904) 253-3456.

HIGH END EQUIPMENT

All American, Japanese, French, English, German audiophile products like: Accuphase, AKG, Alphason, Braun, Burmester, Canton, Cabasse, Denon, Dynavector, EMT, Elac, Esoteric, Goldmund, Harman, Hiraga, JVC, Kenwood, Krell, Koetsu, Linn, Luxman, Mission, Meridian, Magnat, McIntosh, Nakamichi, Oracle, Perreux, Quad, Revox, SAEC, Spectral Stax, SME, Sennheiser, Thorens, many others at lowest export prices. 110V/220V, 50Hz/60Hz available. Ask for latest price list and shipping details. Hi-Fi. Systems, Herzogsfreudenweg 16, 5300 Bonn, West Germany. Tel. 0228-253111. Tlx. 886646 hfss d.

FOR SALE

APPALLING? ISN'T IT?

How many esoteric audio products look and feel as if they were made by orangutans with screwdrivers. If you are fed up with sacrificing reliability, aesthetics and quality of construction to obtain purer sound, don't despair!

There are many high-end audio components built by small yet solid professional companies which not only express the utmost in musicality but also reflect the high level of design integrity, craftsmanship and quality control. At Sound By Singer we select and blend only such components into systems designed to extract the most music from your audio dollars.

ACQUSTAT • ADCOM • AKROYD • APOGEE • AUDIO-QUEST • AUDIO NOTE • AUDIO INTERFACE • AUDIO VOIS • B&K • BERNING • BEVERIDGE • COUNTERPOINT • CWD • DYNAVECTOR • FUSELIER • GRACE • GRADO • KISEIKI • KLOSS • KOETSU • KRELL • LINN SONDEK • LIVEWIRE • MC LAREN • MONSTER CABLE • NAIM AUDIO • NITTY GRITTY • NOVAK • NYAL (MOSCODE) • PRECISION FIDELITY • PROAC • PROTON • RANDALL RESEARCH • RAUNA • REGA • ROBERTSON • SNELL ACOUSTICS • STAX • SYMDEX • SYRINX • TALISMAN

SOUND BY SINGER

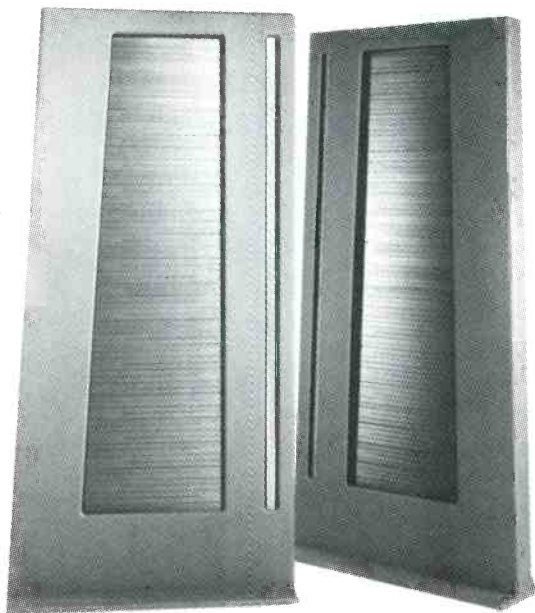
165 E. 33RD STREET
New York, NY 10016
(212) 683-0925
WE SHIP ANYWHERE

CALL TOLL FREE 1-800-826-0520 FOR: Hafler, Dahlquist, Denon, dbx, 3D, Proton, Tandberg, Moscode, Belles, Oracle, M&K, Grado, Nitty-Gritty, Audioquest, Duntech, Monster, CWD, B&W, DCM, Thorens, VSP, Stax, Grace, Astatic, Pro-Ac, Dynavector, Talisman, Snell, Tiptoes. The Sound Seller, 1706 Main St., Marinette, WI 54143. (715) 735-9002.

Randall Research Cable Systems ... the indispensable component

17925-A SKY PARK CIRCLE • IRVINE, CA 92714 • (714) 261-9141 • TELEX 382175

APOGEE ACOUSTICS, INC.



DESIGNERS & MANUFACTURERS OF THE WORLD'S FIRST FULL RANGE RIBBON SPEAKER SYSTEM BRING YOU OUR THIRD GENERATION SPEAKER:

"DUETTA"

EXPERIENCE RIBBON TECHNOLOGY WITH ITS ABILITY TO REPRODUCE MUSICAL CLARITY AND SOUNDSTAGE OVER THE ENTIRE AUDIO SPECTRUM.

CONTACT YOUR HIGH END DEALER OR WRITE:

APOGEE ACOUSTICS, INC.
35 YORK AVE., RANDOLPH, MA. 02368, TELEX 928121 APOGEE RAND

The Best Price on Sound Advice



At SOUND STAGE you can talk to a knowledgeable and courteous salesperson who will advise you on the best CD Player for your system. From our large selection, you can compare performance specifications, programming options and prices.

DENON DCD-1000

CD Players of Sound Stage.

Denon, ADS, dbx, Carver, NAD, Sony, Luxman, Alpine, Technics



A moderately-priced CD Player that adds on quickly and will upgrade the sound of your system. It features: 9 selection random memory, audible forward/reverse, index selection and more.

- 30-day best price protection
- free 3-year warranty with all parts and labor
- free delivery

PLEASE, NO MAIL ORDER

NEC	ALPINE	ENERGY	TALISMAN	THE UNGO BOX
ADS	SIGNET	LUXMAN	AUDIO-PRO	AUDIOCONTROL
DCM	HAFLER	ALISON	CJ WALKER	BEYER DYNAMIC
STAX	GRACE	PROTON	NITTY GRITTY	DBX SOUNDFIELD
KLOSS	FOSTEX	DUNTECH	JENSEN VIDEO	BANG & OLUFSEN
AMBER	DENON	CLIFFORD	3D ACOUSTICS	SURROUND SOUND

Call for store hours
(718) 961-9888.

173 Broadway
NYC, NY 10007
(NW corner of
B'way & Cortlandt.
Enter on Cortlandt.
One flight up.)
Or

184-10 Horace Harding Expwy
Fresh Meadow, NY 11365 (Exit 25 L.I.E.)



FOR SALE

AUDIO BY CARUSO, MIAMI'S HIGH end dealer, carries the full line of COUNTERPOINT. For the finest in tube electronics, call (305) 253-4433.

A.J. CONTI BRINGS COUNTERPOINT to New England. Tube amps and preamps of such superior quality must be heard. Audio by A.J. Conti, N.H. (603) 883-4504.

BEVERIDGE 2 SW LOUDSPEAKERS, oiled Walnut finish, retail \$7500, sell for \$3500. Vandersteen Model 2C's, w/stands, \$850. Goldbug Cartridge, as reviewed in T.A.S., retail \$1000, best. McIntosh 40's, classic tube mono amps, best offer. Rega Planar 3 w/Grace tonearm, best offer. M/C, Visa, Amex. (619) 453-5072, 9a-6p PST.

BUY-SELL quality USED MID to HIGH END STEREO components. Instant quotes by phone. RE BUY HI FI, 3561 Homestead Rd., Santa Clara, CA. (408) 985-0344.

CASH for all types of **USED STEREO EQUIPMENT**. We by **BUY** by **PHONE. STEREO TRADING OUTLET**, 320 Old York Rd., Jenkintown, Pa 19046. 215-886-1650.

C.F. AUDIO HAS MICRO SEIKI turntables, SAEC & SOUTHER tonearms and cartridges, GRADO SIGNATURE, ENTRE' and HIGHPHONIC cartridges and accessories, ORSONIC & NAMIKI accessories, COUNTERPOINT, NYAL MOSCODE, SUPERPHON, CLEMENTS & MCM SYSTEMS speakers, HITACHI LINEAR CRYSTAL speaker wire & interconnect cable, NEW FIDELITY RESEARCH LC tonearm cables & headshell wires. Visa, MC. We Ship Immediately. C.F. AUDIO, 415 W. Imperial Hwy, P.O. Box 2305, La Habra Ca 90631. Phones (213) 691-0967 or (714) 871-5670.

CROSBY MOD. 3120, 35 watt intergrated, will easily compete with any electronics under \$1000! The sound is high resolution, yet warm almost tube like. Free Lit. \$370. 2701 N. Rojo, Hobbs, NM 88240. (505) 392-4781.



High-tech audio, video & car stereo at
Audic Vision/1060 Mass. Ave., Arlington, MA (617) 863-5221

FOR SALE

CONRAD-JOHNSON PREM. 3 and two **QUICKSILVER** mono's with gold covers, 30 month warranty remaining, \$2950. Meridian CD 6 months old, \$500. 404-426-8809.

CROWN SS822 RECORDER, CASE MINT \$695. Wanted: Lowther, Brociner speakers, Sansui G22000, G33000 receivers. C. Hawthorne, 2047 Luna Ave., San Leandro, Calif. 94578. 415-351-2047.

COUNTERPOINT'S AWARD WINNING SA-5.1 PREAMPLIFIER now is available for your audition in a wonderful listening environment. AUDIO PERFECTION, Minneapolis, (612) 866-0083.

CROWN STEREO HIFI components and **GREG ACOUSTIC** Speakers will full manufacturers warranty. Call (301) 945-3865 or write for price—L & S Audio/Video, 3218 Presstman St., Baltimore, Md. 21216.

DIAMOND NEEDLES and **STEREO CARTRIDGES** at **DISCOUNT PRICES** for SHURE, PICKERING, STANTON, ASTATIC, GRADO, AUDIO TECHNICA, ORTOFON, TIPTOES, SONUS, DYNAVECTOR and LAST, send S.A.S.E free catalog **LYLE CARTRIDGES**, Dept. A., Box 158, Valley Stream, NY 11582. For fast COD service Toll Free 800-221-0906. N.Y. State (516) 599-1112. 9AM - 8PM except Sunday. VISA/MC

NEW!

THE MOD SQUAD INTRODUCES

TIPTOES' CARTRIDGE COUPLER optimizes mechanical interface between cartridge and headshell

TAPPED TIPTOES replaces the feet on your Oracle, SOTA or VPI Turntable

LINE DRIVE a passive system control center for your CD Player, tuner, tape deck and video sound.

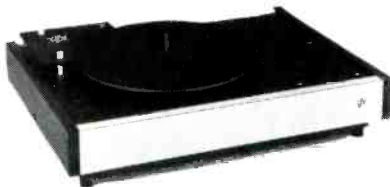
Available at Tiptoes' Dealers everywhere. Or direct from The Mod Squad. For a complete catalog, send \$2 postage/handling (refundable with order) to

The Mod Squad

Department A, 542 Coast Hwy 101
 Leucadia, CA 92024

VPI
 made in u.s.a.

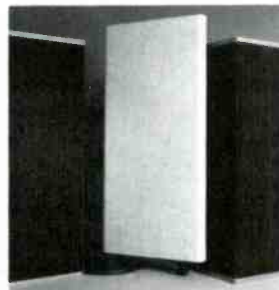
INTRODUCING THE HW-19 MK II



- 1— Lead lined acrylic platter
- 2— Tiptoes between suspension and chassis
- 3— Reflex type screw on clamp
- 4— Tungsten carbide bearing
- 5— The explosive dynamic range of digital with the resolution and musicality of analog

V.P.I. Ind. Inc.

P.O. Box 159, Ozone Park, N.Y. 11417
 (718) 845-0103



The Acoustic Imager dramatically increases imaging and clarity when placed between two speakers.

Test Drive The Amazing Acoustic Imager!

The Amazing Acoustic Imager increases clarity, definition and actually "projects" the center image out from between your two speakers. Just as if the singer were standing in your listening room.

Interaction between the left and right speaker "erases" inner detail, smooth, sharp

transients and removes important phase information that allows you to clearly hear "depth" and the ambiance of the original performance.

The results are amazing!

By placing the Acoustic Imager between your speakers, one speaker

does not "hear" the other, decoupling them from each other.

Hear for yourself.

Test Drive our special remote control version at your participating dealer.

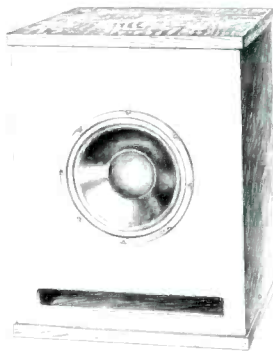
Ladies and Gentlemen... Start your Imagers!

Send for our no charge brochure or call us for your nearest Monster Cable Soundex dealer.

Monster Cable® Products, Inc.
 101 Townsend, San Francisco, CA 94107
 415 777-1355 Telex: 470584 MCSYUI

MONSTER CABLE®

LOWEST SUBWOOFER DISTORTION



The Original VMPS Subwoofer. \$279 ea kit, \$375 ea assem in Oak or Walnut

A good subwoofer can greatly enhance the quality of any hifi system: first, by extending bass response into the first octave (16-32Hz); next, by reducing intermodulation and doppler distortion in the main speakers by relegating long wavelengths to a speaker optimized just for them; and finally, by eliminating the high THD typical of full-range systems below 100Hz (often in the **tens** of percent).

Since each audio system has its own requirements for physical size, bass extension, and output level, VMPS now introduces **two new** Subwoofers to join its famous original model, praised by the **International Audio Review** as offering the "best controlled, most powerful lowbass we've ever heard" (IAR **Hotline 31**). The **Larger VMPS Subwoofer** features our newly developed 15" polypropylene cone active driver, plus additional 12" polycarbonate active and 15" down-firing, slot-loaded passive elements. This 8 ft³, 130lb system boasts unsurpassed lowbass distortion (max 0.4% 20Hz-300Hz/1W drive), bandwidth (-3dB 17Hz and 300 Hz), and high output levels (128dB SPL at 1m for max 5% THD). Unlike other ultrahigh quality woofers, this one is also affordable (\$429ea kit, \$549ea assem). The **Smaller VMPS Subwoofer**, a dual 12", 2.5 ft³ system brings low distortion (max 1.5% THD 28Hz-600Hz/1W drive) and wide bandwidth (-3dB 28Hz and 600Hz) to an extremely compact enclosure which fits unobtrusively into the smallest available space; it too is priced most attractively (\$199ea kit, \$299ea assem). All three woofers may be operated either with our 100Hz quasi-second-order **Passive Crossover** (\$30ea kit, \$40ea assem) or John Curl's all-out **Electronic Crossover** (Model TPC-1, \$449ea).

Write us for brochures and test reports on all our systems starting at \$164ea. Floor-standing models include the **Mini Tower II** (\$329ea kit, \$439ea assem), the 7-driver **Tower II** (\$439ea kit, \$599ea assem), the 9-driver, dual 15" **Super Tower R** (\$699ea kit, \$969ea assem), and the 76", 300lb **Super Tower IIa/R** (\$1099ea black kit, \$1299ea oak or walnut kit, \$1499-1699ea assem). Kits supplied with fully assembled cabinets and all prices include **free shipping** in USA.

VMPS AUDIO PRODUCTS

div Itone Audio
3412 Eric St. El Sobrante, CA 94083 (415)222-4276

Hear VMPS at: The Listening Studio, Boston, Audio Perfection, Minneapolis Mn, Special Systems Stereo, Madison Wj, Audio Video Systems, Elk Grove Village Il, Strictly Speakers, W Palm Beach, Fl, Efficient Stereo, Torrance Ca, The Long Ear, Big Bear Lake Ca, Sounds Unique, San Jose Ca, Itone Audio, El Sobrante Ca, Praise Audio, Powder Springs Geo, Missoula Trumpet Sales, Missoula Mt, Walker Audio, San Angelo Tx, Eclectic Audio, Livermore Ca, Mountaineer Telephone, Beckley W Va

**ATTENTION ADVERTISERS!
SEE CLASSIFIED RATE BOX
ON FIRST PAGE OF CLASSIFIEDS
FOR NEW RATES
EFFECTIVE OCTOBER 1985
ISSUES.**

FOR SALE

AUDIOPHILE START UP SYSTEM

(\$800)

Turntable: Dual 505 MK II
Integrated Amplifier: Naim Nait
Speakers: Wharfedale Diamonds
SOUND BY SINGER

165 E. 33rd Street
New York, NY 10016
(212) 683-0925

DISCOVER HITACHI LINEAR CRYSTAL—OXYGEN free copper interconnect cables, gold plated terminals, shipped postpaid: 1/2 meter \$25, 1 meter \$35, 1 1/2 meter \$42, 2 meter \$47. 20% Discount 2 more dealers invited. PMD Audio, 9908 Daines Drive, Temple City, CA 91780. (818) 286-9122, evenings/weekends.

DRAMATICALLY IMPROVE YOUR "NEW" AR TURNTABLE. We guarantee the following products to improve your AR's transparency, detail and smoothness or we will refund the purchase price.

- 1). AudioQuest Sorbothene Mat \$35
- 2). Predrilled Aluminum Armboards
MMT, Linn, or AR arms \$30
- 3). Hum-shielding for AR Platters:
Platter shield \$39

The Audio Advisor, Inc. Box 6202 Grand Rapids, MI 49506. (616) 451-3868. Shipping \$3/item.

DYNACO KITS & PARTS.—World's largest inventory... over 4,000 part numbers stocked! Stamp gets latest listing. SCC, Lock Box 551 (AOM2), Dublin, OH 43017.

ELECTRACRAFT FEATURES: ADS, Aiwa, AR, Audioquest, B&O, Dahlquist, DCM, Grado, Hafler, Mitsubishi, Monster, NAD, PS Audio, Revox, RH Labs, Signet, SOTA, Spica, Sumiko, Tandberg. ELECTRACRAFT, 212 North First Ave, Sandpoint, ID 83864. (208) 263-9516.

ELECTRONIC CROSSOVERS: 6, 12, 18dB/octave. Kits from \$116. Transient-Perfect Crossover, \$175. Subsonic Filters, Bandpass Filters from \$25. Free Folder w/reviews. ACE AUDIO CO., 532-5th Street, East Northport, NY 11731-2399. (516) 757-8990.

FOR SALE

ELECTRON TUBE SALES 6DJ8 6AN8A 6CA7 6L6GC 6550A EL34 KT77 KT88 EF86 Same day shipping from stock Industrial Tube Distributors since 1947. 4000 Types in stock. A R S Electronics, 7110 DeCelis Place, Van Nuys, Ca. 91406, (818) 997-6200

EMINENT TECHNOLOGY TONEARM \$365 AIR pump \$90. (616) 456-6060.

EXCEPTIONAL AUDIO REPRODUCTION SYSTEMS REGA, HEYBROOK, LOGIC, THORENS, AR, DUAL turntables; ZETA, REGA, PREMIER, LOGIC, GRACE tonearms; ADCOM, ARCAM, AUDIRE, CREEK, KENWOOD BASIC, KYOCERA, ROTEL, SHERWOOD, VSP LABS electronics; FRIED, HEYBROOK, MORDAUNT-SHORT, MAS, REGA, WATKINS loudspeakers; TALISMAN, SUPLEX, GRADO & SIGNATURE, PROMETHEAN, REGA, PREMIER, ARCAM cartridges; AUDIOQUEST, DECCA, NITTY GRITTY, THE PIG, LIVEWIRE and other accessories. EARS, P. O. BOX 658-U, W. COVINA, CA 91790. 818/961-6158 EVENINGS, WEEKENDS. MC/VISA. MANY MONTHLY SPECIALS! (SEND STAMP)

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

HEAR ALL OF YOUR MUSIC! CAMPBELL'S AUDIO carries COUNTERPOINT! The SA-7 Preamp and the SA-12 Amp make gorgeous music together for under \$1600. (205) 539-9806.

GENE RUBIN AUDIO—LOS ANGELES: LINN, NAIM, REGA, THORENS, AR, HAFLER, CREEK, ROTEL, CONRAD-JOHNSON, WHARFEDALE, CELESTION, STAX, SPENDOR, AKROYD, B&W, PRECISION FIDELITY & MORE. PRE-PAID SHIPPING (818) 571-1299 (PAC TIME.)

GOODWIN'S MUSIC SYSTEMS

In New England, Goodwin's is recognized as the leader in high performance audio. Along with the finest in components, we can provide the most sophisticated custom installation tailored to your individual needs. We offer:

Mark Levinson, Spectral, Magneplanar, Apogee, Soundlab, Quad, Entec, Goldmund, Linn, Tandberg, Nakamichi, Bryston, Hafler, Adcom, Celestion SL, Eminent Technology, Nitty Gritty, Walker, AR, Ariston, Thorens, Infinity, H-K, Proton, B & W, Camber, Essence, Janis, Velodyne, Koetsu, Van den Hul, AudioQuest, Monster, Favorite, Stax, Astatic & Grace.

Goodwin's Music Systems, 16 Eliot St., Harvard Square, Cambridge, MA 02138 Tel. 617-492-1140

LIVE WIRE™



The new 4th generation of cable from AudioQuest is now available. Speaker cable from \$5.50 per foot to \$6.00 per foot. Interconnecting cable from \$45 per 3 foot pair to \$95 per 3 foot pair.

Distributed by **audioquest**

412 N. Coast Hwy., #B-360, Laguna Beach, CA 92651 • (714) 497-1214

FOR SALE

BEST SOUND PER DOLLAR SYSTEM

(UNDER \$2100)

Turntable: Linn Sondek Lp-12
 Tonearms/Cartridges: Linn Lux +/-Basik
 Integrated Amp: Naim Nait
 Tuner: Adcom GFT-2
 Speakers: Linn Kans

SOUND BY SINGER

165 E. 33rd Street
 New York, NY 10016
 (212) 683-0925

HAFLER IN THE SOUTH!

In stock, the superb Hafler pre-amps, amplifiers, tuner and equalizer. Immediate FREE shipping. Also Acoustat, Adcom, Audire, Dynavector, Fried, Klipsch, Mirage, Monster Cable, PS, SAE, Sota, Superphon, Talisman, Thorens, CD players. READ BROTHERS STEREO, 593 King Street, Charleston, South Carolina 29403. (803) 723-7276.

JORDAN AMPLIFICATION—if sonics are your priority instead of brute power and weight, don't pass up these gems (pre- and power amp) from one of the most honest designers of this decade. 201-239-1799.

J.S. AUDIO OFFERS AN EXTENSIVE product selection of HOME AUDIO, CAR STEREO, esoterics and the new DIGITAL DISC PLAYERS AT EXTREMELY COMPETITIVE PRICES. We provide six years of audio sales experience, candid honest advice and full warantee on all products we sell. For pricing and stock information call: 301-890-3232 or write to: J.S. AUDIO, One Childress Court, Silver Springs, MD 20707. We honor Visa/MC and COD. Monday—Friday 11AM-7PM, Saturday 11AM-4PM.

HAFLER DH500 & 110 PREAMP—\$475 / PS Audio head-amp with high current supply \$135 / Shure V15TYPE 5MR \$75 ... used 2 hrs. 717-737-9737.

HAFLER—HIGH QUALITY, LOW COST

WE stock all of the following components: DH-100K \$175, DH-100A \$225, DH-110K \$360, DH-110A \$440, DH-120K \$260, DH-120A \$320, DH-160K \$275, DH-160A \$375, DH-220K \$400, DH-220KE \$410, DH-220A \$500, DH-220AE \$510, DH-330K \$385, DH-330A \$460, DH-500K \$675, DH-500KE \$695, DH-500A \$850, DH-500AE \$870. Accessories too! Three year warranty on assembled units. Free shipping to ALL zip codes (PR and APO/FPO too). WORLDWIDE EXPORTING. Visa and MasterCard honored. OXFORD AUDIO CONSULTANTS, INC., Box 145, Oxford, OH 45056-0145, 513-523-3333, TLX427791.

A SINGER'S DREAM!

REMOVES VOCAL FROM MOST STEREO DISCS

Our VOCAL ELIMINATOR can remove most or virtually all of a solo vocalist from a standard stereo record and leave most of the background untouched! Not an equalizer! We can prove it works on the phone. Write or call for brochure and demo record.

YOU SHOULD SEE US

For:

- Time Delay/Ambience
- Studio Echo/Reverb
- Tape Noise Reduction
- Parametric Equalization
- Electronic Crossovers
- Compressor/Expanders
- Mic Preamp/Mixers



We manufacture a full line of high quality audio and recording equipment. You will probably have to pay twice as much elsewhere to obtain comparable quality. Only Direct Sales make our prices and quality possible. Write or call for a 24 page brochure and demo record.

Write to: **LT Sound**, Dept. AU, P.O. Box 338,
 Stone Mountain, GA 30086, Phone (404) 493-1258
TOLL FREE: 1-800-241-3005 — Ext. 13

Are You Vacuum-Ready™?

SOTA Is And a Whole Lot More!

Analogue is not only alive, but growing with leaps and bounds. Come and hear how SOTA's new offerings resolve the major unknowns in your system.

• **SOTA Acrylic Supermat™**: For most quality turntables, this sensational new mat system brings SOTA's latest technology to your system. Acrylic coupled to vinyl transfers energy, then damped fully by Intermat™ below. This single product may revitalize your record collection. Top with our new Reflex Clamp to complete systems' approach.

• **SOTA Vacuum Supermat™**: For STARS or vacuum Sapphires, this new mat combines the best of acrylic with the best of vacuum hold-down. In terms of minimizing distortion and maximizing impact, the Vacuum Supermat will change your idea of what an analogue player can do: improved dynamics, soundstage, imaging.

• **SOTA Vacuum Conversion™**: For Sapphire owners only, the most refined and successful vacuum-clamping system yet devised. Eliminates most warps and couples vinyl to mat with low-level, continuous vacuum. Easy exchange of platter (45 min) plus pump, controller, tubing.

• **SOTA Electronic Flywheel™**: Massive A/C Line Conditioner for SOTA tables only. Isolates and regulates motor/drive from all outside interference to improve pitch control.

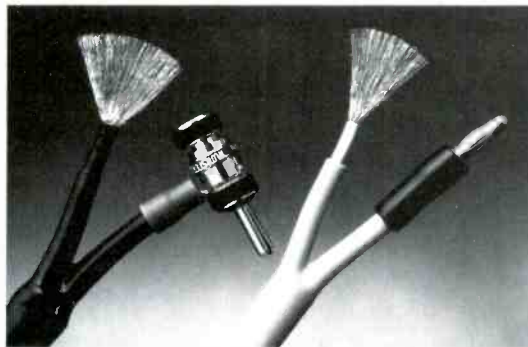
• **SOTA Musicables™**: World-class Interconnects, tone arm cable, and speaker wire. The finest application of silver/Litz technology ever made. Available in any length.

• **SOTA II Head Amp**: Our new MC step-up combines the best of "tube" sound with noise-free reliability of solid-state topology. Wide impedance choice, A/C supply.

SOTA
industries

P.O. Box 7075, Berkeley, CA 94707

Monster Cable Introduces 2 New Options to Ordinary "Zip Cord"



The Powerline Series with its special winding, precisely controls the audio signal for more accurate music reproduction.

The Powerline® 2 and Powerline® 3 speaker cables.

Together they represent the state-of-the-art in speaker wire technology.

Considered by audiophiles and critics as the finest speaker cables ever built, the Powerline Series® utilizes sophisticated winding techniques to control the distortion producing "electromagnetic fields" generated by audio signals as they travel through wire.

The result?

Improvements in music repro-

duction that you would never have thought possible by simply changing speaker cables.

- More accurate reproduction of instruments, and voices that sound "live."
- Wider and deeper soundstage.
- Precise placement of all the instruments between the speakers.
- A 3-dimensional image that reproduces all the "depth" and "ambience" of the original recording.

In fact, the Powerline Series

speaker cables provide sonic improvements in music reproduction that can be compared with those of the world's finest audio components... but at only a fraction of the cost.

So whether your choice is digital or analog, rock or the classics, choose a cable that won't run out of steam with today's music. Add Powerline 2 or Powerline 3 to your sound system.

You'll discover why we call it...

POWERLINE®

Powerline-2 is our finest speaker cable. Powerline-3 provides similar performance at a lower price.

Monster Cable® Products, Inc.
 101 Townsend, San Francisco, CA 94107
 415 777-1355 Telex: 470584 MCSYU1

MONSTER CABLE®
 Please write for our free brochure.

AudioVisions

Featuring State Of The Art Technology.
Combined With Truly Old-Fashioned Hospitality.

electronics

BRYSTON • DENON • KLYNE • N.A.D.

loudspeakers

DESIGN ACOUSTICS • ENERGY • I.T.C.
M & K • ? ? ? ? ? ? • MARIAH • THIEL

turntables, cartridges, tape decks

ACCUPHASE • ALPHASON • AUDIOQUEST • DENON
DYNAVECTOR • GRACE • GRADO • KOETSU • ORACLE
SHINON • SONOGRAPHIE • SOTA
SUMIKO • SYRINX • THORENS

• • MERIDIAN C.D. • •

SELECTED VIDEO: COMING SOON!

THE NEW THIEL CS2: INCREDIBLE!

In today's market, a great many loudspeakers are available. (TOO MANY! You've seen them, row upon row of uninspired boxes.) A fair number of them provide acceptable performance, and may even excel in ONE or TWO areas, such as frequency range, or dynamic range, or tonal balance. Only a very few, very special speakers achieve accurate, thrilling reproduction of ALL musical characteristics. Some people claim that selecting a speaker is "A MATTER OF TASTE." We reply as follows: Which tastes better, a fresh, firm vine-ripened tomato, or catsup?

Thiel Audio began its pioneering work in PHASE COHERENT technology in 1977. Now, eight years later, several other manufacturers are beginning to claim that their crossover networks also are phase coherent. WHICH DO YOU PREFER, AN IMITATION OR THE REAL THING? In Thiel speakers, the entire system is phase coherent. The Thiel crossover design adjusts with amazing precision for the phase response characteristics of each of the drivers themselves, and those characteristics are measured with the drivers installed in the speaker cabinet (this is crucial since the characteristics of any driver are greatly affected by the cabinet design).

The CS2 is not only an astounding technical achievement, it is also a work of art, and (great news!) it is AFFORDABLE and less demanding of associated equipment than its big brother, the Thiel CS3. Though computer assistance was used extensively in designing the CS2, it never was a substitute for long term, controlled listening tests. Anyone can listen, but only certain very special persons will go on to say to themselves, after THOUSANDS of hours of work, "I must make it still better." In Lexington, Kentucky, two persons are working that way. They are physicist James Thiel and cabinetmaker Tom Thiel; for eight years now they have been working together, without compromise, reaching for perfection.

CS = Coherent Source = A Thiel Trademark

IN PERSON

• JAMES THIEL •

SUNDAY, SEPTEMBER 29

SEMINAR ENTITLED: THE RIGHT STUFF

Refreshments, buffet will be served. Limited seating, admission (free of charge) BY TICKET ONLY. To obtain tickets, call or visit AudioVisions before September 24. Ask about the "AudioVisions Courtesy Card" and other nice offers on September 29.

The AudioVisions CS2 Systems

To recreate the excitement of live music, a loudspeaker, no matter how excellent, needs a great deal of help and cooperation from all the other components of an audio system. Indeed, the better the speaker, the more crucial the matching of other components becomes. As with the design of a great speaker, the design of a great audio system involves many, many hours of controlled listening experiments performed by special individuals who will never accept anything less than the best that can possibly be achieved. Of course sonic performance should not be the only criterion. Questions of reliability, long term compatibility, and overall value are all very important. Even seemingly minor details such as the choice of speaker cable can make a real difference. Thus, at AudioVisions you will not find any supermarket selection of products, model after model after model in a senseless hodgepodge. What you will find, at AudioVisions, is MUSIC!

Our systems truly are complete, in every way. They all include our choice of premium interconnect and speaker cables, and special extended warranty coverage. Our CS2 systems also include delivery and set-up in the metro New York area.

The electronics of even our \$2,970 CS2 system are all fine "separates" (preamp, power amp, tuner); we are more than satisfied with our turntable, arm, cartridge combination. Starting at \$3,875 our CS2 systems feature the great BRYSTON electronics. Over three years ago, AudioVisions led the way with recommendations of Thiel and Bryston combinations, and now those combinations are being copied, and talked about (and enjoyed!) by many hundreds of persons all across the country.

1067 MONTAUK HIGHWAY, WEST BABYLON
NEW YORK 11704 (516) 661-3355

FOR SALE

ELEVEN ALIVE SYSTEM

(ABOUT \$11,500)

Turntable: Linn Sondek Lp-12
Tonearm: Syrinx PU-3
Cartridge: Koetsu Black
Tuner: Adcom GFT-1A
Preamp: Krell PAM 3
Amp: Krell KSA-100
Speakers: Apogee Scintilla's

SOUND BY SINGER

165 E. 33rd Street
New York, NY 10016
(212) 683-0925

KANSAS CITY AREA AUDIOPHILES: The Music Room is your source for: Alphason, Acoustat, AR, Counterpoint, Creek, Goetz, Heybrook, Kimber, Robertson, Talisman, Walker, Etc. Trades welcome, Visa/MC. Hours are by appointment, evenings and weekends. Call today (913) 631-2887.

ATTENTION ADVERTISERS!
SEE CLASSIFIED RATE BOX
ON FIRST PAGE OF CLASSIFIEDS FOR NEW RATES
EFFECTIVE OCTOBER 1985
ISSUES.

vpi
made in u.s.a.

CLEAN RECORDS . . .
CLEAN SOUND!



The newly refined HW-16 Record Cleaner will wash and dry your records so well; the sound of Analog Recording will amaze you! The HW-16 is the most important addition you can make to your music system.

V.P.I. Ind. Inc.
P.O. Box 159, Ozone Park, N.Y. 11417
718-845-0103

FOR SALE

KRELL KMA-100 (\$3950), SCINTILLA (\$2995), Brevier Type-8 tonearm (\$1150), Custom Entec subwoofer (\$4800). All new and mint. (216) 444-8138 weekdays; (216) 752-1100 after 6PM and on weekends.

LINN & NAIM—NEW SPEAKER, CARTRIDGE & MORE
We hope to have these NEW products soon. Linn: Index Speaker \$295/pr., K-9 mm cartridge, Preamp, Poweramp, Naim: Tuner. Hear all of the Linn Naim components in our SINGLE SPEAKER DEMONSTRATION ROOM. Free shipping to ALL zip codes. WORLDWIDE EXPORTING. Visa and MasterCard. OXFORD AUDIO CONSULTANTS, INC., Box 145, Oxford, OH 45056-0145, 513-523-3333, TLX427791.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E.V., A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

LOW PRICES-HIGH END EQUIPMENT!!!

DENON, CONRAD-JOHNSON, HAFNER BELLES, VANDERSTEEN, ACOUSTAT, SOTA, PS AUDIO, BOSTON ACOUSTICS, MIRAGE, PROTON, JBL and others you desire. AUDIO ELITE, 414-725-4431. Menasha, WISCONSIN.

MARANTZ; MAC; J.B.L.; E.V.; PATRICIAN; A.R.C.; C.J.; Beveridge; Levinson; and other esoteric and collectable tube equipment traded. I will pay more for older tubed pieces than anyone around now. For sale: Bozak B4000A symphonics \$595. Beveridge models 2 and 2SW b/o. Daniel Queen \$995 pr.. E.V. Patrician 700 and Stereon 200 b/o. Audio Pro B250 \$595. J.B.L. Metragon b/o over \$995. Revox A700 \$1100 or b/o. Levinson ML1 \$975. Marantz 150 tuner \$385. Futterman H3 \$795. Thorens TD124 \$125. Win Labs SPG10 w/cart. \$395. Dynavector U22 preamp and DV8250 amp b/o. Mission 77B preamp \$350. JBL SG520 preamp \$375. Others. N.Y. Sound Investments. Noon till 3PM. (718) 377-7282.

MARK LEVINSON ML6-A PREAMP, perfect \$3495. Bryston 3B amp, \$495. Bryston 1B preamp, \$450. Michaelson - Austin M-100 monoblock 100w tube amps, current retail \$2200/pair, sell for \$795/pair. Audio by A.J. Conti, (603) 883-4504.

LUMINESCENCE PREAMPLIFIER, musically majestic and surely in a class by itself. Audio Connection in NJ, 201-239-1799.

MUSIC BY THE SEA PRESENTS the COUNTERPOINT SA-4 OCL Amp. Electronics of this calibre must be heard by all serious listeners (619) 436-7666.

IMPACT AND DEFINITION

Bass impact and definition called "astounding"!
"astonishing"!
Reproduction of "remarkable realism"!
"Obvious best-buy status!"

—Stereophile—
P.O. Box 1948
Santa Fe, NM
Vol 9 No 5 1/83

The SPECTRUM 208A, affordable, high-resolution sound.

For information or dealer inquiries, write

spectrum

P.O. BOX 2774, TOLEDO, OHIO 43606



FOR SALE

MAVRICK II

The no compromise preamplifier all discrete circuitry. Totally wired with Randall teflon ofhc copper cable and featuring the legendary Richard Knapp designed Spatial T-tet amplifying valve. Ad space won't allow proper explanation of the sonic superiority of this 2nd generation device—a phone call will!

AUDIO ONE

San Diego area 619/480-4804
on Sunset in LA 213/855-0500

MCINTOSH AUDIO EQUIPMENT—ALL TYPES—TUBE & TRANSISTOR—ELECTRONICS & SPEAKERS—BOUGHT—SOLD—TRADED. S.D.R. P.O. BOX 176, WALTON, NY 13856, 607-865-7200.

MCINTOSH, MARANTZ, AUDIO RESEARCH. Buy-Trade-Sell, Maury Corb. 713-728-4343, 11122 Atwell, Houston, Texas 77096.

MCINTOSH MC-75's \$775-875, MC-60's \$650, MC-2105 \$500, MC-225 \$300, MC-240 \$450, MI-75 \$500, MR-71 w/cabinet \$350, MR-67 w/cabinet \$200, 1900 w/cabinet \$550, MX-110's w/cabinet \$360-460, C26 \$300. R.C.A. 77DX ribbon microphones \$500 each, BK-11A ribbons \$200 each, 9289-B tube poweramps 200 watts \$600. Boothroyd-Stuart Meridian system \$600. Dyna PAT-5 factory sealed kit \$150. Crown CX-844 w/counter, tracsyns. DBX-155, rack \$2,000, D-75 \$225. Braun TG-1000 \$400. Tandberg TR-1020 \$200. Deltalabs DL-5, DL-4, ADM-512 demos 70% off. Onkyo TX35 sealed \$185, TX-25 \$140. Pioneer SD-1100 \$600. Marantz 7T preamp \$165. KLH 1 absolutely pristine w/original cartons \$1,000. Hitachi DA-1000CD \$400. Sony Ferrichrome elcaset tape \$11, mint Sony EL-7 \$299. Teac AL-700 elcaset machines factory sealed originally \$1,100 now \$299, RX-10DBX for elcaset factory sealed \$225, 234 Syncaset new \$625, demo \$575, MB-20 meter bridge \$100. ARXA turntable \$70. Mitsubishi demos: LT-30 \$325, DA-M30 meter \$140, DA-F30 \$225, DA-R8 \$150, mini system: MT-O4, MA-O4, MF-O4, MP-O4 \$600. Advent 500 SoundSpace delay \$375. Lux L-110 integrated \$550. Sansui QSD-1 \$425. EV 7445 quad encoder \$475. Lafayette SO-W mint \$100. Revox B-790 turntable \$400, G36MK3 \$350. Laser video player VP1000 \$250, new video discs 40-60% off. 10.5" 1/2" wide reels \$3.50. DBX 224 \$225, 400 \$200. Ortofon STM-72 transformer \$25. 600 prerecorded r/r \$7, 1/2 track \$18. 5,000 original service manuals. Want collections pre-recorded r/r. Pioneer TAU-11, JT-2044T, McIntosh, Marantz (tube) units, Quad r/r tapes, Sony, Teac, Dolby units, oddball pieces, accessories. Looking for high quality units to sell on consignment. Everything money back guaranty. Shipping worldwide. Martin Gasman, 779 Worcester Street Wellesley, Mass. 02181 phone: 617-CEL-TICS, 617-235-8427.

RECORD CLEANING PERFECTED

Cheap record brushes, static guns, and ointments leave damaging garbage in your record grooves! Nitty Gritty leaves only a purified record and will save your precious record collection. In the long run it will save you \$ as well.

Six affordable models to choose from, starting at \$239

NITTY GRITTY



RECORD CLEANING SYSTEMS

**4650 ARROW HWY #F4
MONTCLAIR, CA 91763
714/625-5525**

FOR SALE

MCINTOSH MCINTOSH MCINTOSH MCINTOSH I pay retail for your used McIntosh. Call or write for quotes **AUDIO RESOURCE #1** Metairie Ct. Met, La. 70001 504-833-6942.

MCINTOSH MC60'S, M3SCOPE, C26, C28, 2505, 2105, MC225, MC240, MC275, over 40 pieces in stock. **ONE YEAR TRADE-UP POLICY, NO MINIMUM!** Call or write for quotes **AUDIO RESOURCE: #1** Metairie Ct., Metairie, La. 70001. 504-833-6942.

MCINTOSH SOLID STATE COMPONENTS. Bought, Sold, and Traded. Also wanted Mac 3500 or MI 350 for personal use. 313-229-5191! Aft. 7PM EST.

MCINTOSH TUNERS—MR-80—\$1800, MR-78—\$750. Call Don at: (907) 344-0676 after 5PM AST.

MOSCODE 300 AMPLIFIER, \$700, new Dynaco PAS-3X preamp with 1% resistors and polypropylene capacitors. \$175, Ohm Walsh 2 speakers, all mint. 319-396-0341, evenings.

Chicago Speaker Stands

Specially engineered spiked speaker stands for

- SPICA
- ROGERS
- SPENDOR
- RAUNA
- PRO-AC
- SL-6
- QUAD
- EUPHONIC
- SNELL
- MCM
- LCM
- JSE

and others

To find out how Chicago Speaker Stands will improve your audio system call toll-free 1-800-882-2256 in IL 312-745-5500

ACTIVE ELECTRONIC CROSSOVERS

NEW DESIGN! MODEL 120 NOW AVAILABLE

Made to order in bi-amp, tri-amp, and quad-amp configurations with optional level controls, subsonic filters, or summers. Filters, regulated power supplies, equalizers, also available.

Free catalog and price sheet

DeCoursey Eng. Lab.
11828 Jefferson Bl. Culver City, CA 90230
PHONE (213) 397-9668

*Sumiko presents The **SME** Series V Tone Arm*

THE PROBLEM—Part 2 of a series

Fidelity in music reproduction begins with the record. And it is this record working in concert with three other components, the turntable, tonearm, and cartridge, that forms a critically interdependent electro-mechanical system.

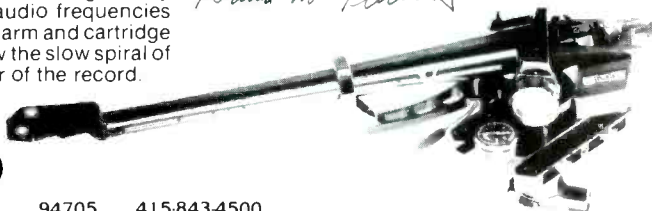
Fidelity is the measure of this partnership's degree of success.

While the turntable supplies the mechanical energy to this interdependent system and the cartridge converts this mechanical energy to an electrical signal, the tonearm must remain a completely passive intermediary. The tonearm's sole purpose is to hold the cartridge body absolutely motionless at all audio frequencies and at the same time allow the arm and cartridge to freely and effortlessly follow the slow spiral of the grooves toward the center of the record.

To say that the tonearm must hold the cartridge body absolutely motionless at all audio frequencies is, of course, an ideal; reality is always less than this ideal and that's where engineering and manufacturing come into play.

With the proper choice of materials and design execution, the gap between the ideal and the real is vanishingly small. This series will describe the ways in which the SME Series V tonearm has met this challenge.

David W. G. Little



P. O. Box 5046 Berkeley, CA 94705 415-843-4500

MMT Owners, Rejoice!



Ever wanted an easy way of precisely adjusting VTA on your Premier MMT tonearm? The device pictured above allows you to raise and lower the arm post without hassle—even while the record is playing—and with no compromise in mounting rigidity. Retro-fits all Premier MMT arms and all tonearms with a 16mm arm post.

Ask for the Premier VTA-16. Now available at your Premier dealer.

PREMIER By SUMIKO

Authorized Linn/Naim Dealers

ALABAMA

Audition, Homewood*
Campbell Audio Video,
Huntsville

ARIZONA

Listening Post, Tempe

ARKANSAS

Sound Investments,
Harrison

CALIFORNIA

Audio Basics, Claremont
Classic Audio, Carlsbad
Musical Images, Fresno*
Havens & Hardesty,
Huntington Beach
Christopher Hansen, Los
Angeles*
Gene Rubin Audio,
Monterey Park
Audible Difference, Palo
Alto*

Keith Yates Audio,
Sacramento*

Stereo Design, San Diego*

House of Music, San
Francisco*

Access to Music, San
Francisco

Systems Design Group,
Sherman Oaks

COLORADO

Audio Alternative, Fort
Collins

CONN.

Carston Stereo, Danbury*

FLORIDA

Sound Components, Coral
Gables*
Sound Components, Ft.
Lauderdale*
Sound Source, Marathon
Audio Gallery, Sarasota
Audio Visions, Tampa

HAWAII

Audio Design Ltd.,
Honolulu*
Audio Shoppe, Honolulu*

ILLINOIS

Media Room, Chicago
Pro Musica, Chicago
Victor's Stereo, Chicago*
Sound Choice, Lisle
Absolute Audio Systems,
Rockford

INDIANA

Audiotrend, Evansville
Hi-Fi Buys, Indianapolis*
Hi-Fi Gallery, Indianapolis
Classic Stereo, South
Bend*

KENTUCKY

Hi-Fi Buys, Louisville*

MARYLAND

Listening Room,
Sykesville*

MASS.

Natural Sound,
Framingham*
Matrix Audio Video, West
Hatfield

Unless otherwise indicated, dealers listed sell both Linn Products and Naim Audio. Dealers marked with an asterisk sell Linn Products only.

MICHIGAN

Absolute Sound, Ann Arbor
Rich Mansfield Audio,
Grand Rapids
Sound Room, Grand
Rapids*

Dr. Goodear's Audio, Mt.
Pleasant

Absolute Sound, Royal Oak

MINNESOTA

Audio Perfection,
Minneapolis
Exclusive Sound, St.
Cloud*

MISSOURI

Music Systems, St. Louis

NEBRASKA

Sound Environment,
Lincoln
Sound Environment,
Omaha

NEW JERSEY

Professional Audio
Consultants, Milburn
CSA Audio Design, Upper
Montclair

NEW YORK

Ears Nova, Great Neck
Innovative Audio, Brooklyn
Sound by Singer, New York

N. CAROLINA

Audio Salon, Charlotte
Stereo Sound, Chapel Hill
Stereo Sound, Greensboro
Stereo Sound, Raleigh
Stereo Sound, Winston-
Salem

OHIO

Hoffman's Stereo,
Cleveland*
Custom Stereo, Columbus
Stereo Showcase, Dayton
Oxford Audio, Oxford

OKLAHOMA

Audio Dimensions,
Oklahoma City

PENN.

Abbie's Audio, Dormont, PA
Chestnut Hill Audio, Phil.*
Sound Service Company,
Phil.

PUERTO RICO

Precision Audio, Rio
Piedras

S. CAROLINA

British American Sound,
Charleston*
John Brookshire Entrmt.
Sys., Anderson

TEXAS

High Bias, Austin
Audio Distinctions, Corpus
Christi
Audio Concepts, Dallas
Audio Concepts, Houston
Concert Sound, San
Antonio

VIRGINIA

High-C Stereo, Leesburg*

WASHINGTON

Definitive Audio, Seattle*

FOR SALE

MERRILL

This is the table of choice—it has the ability to capture the subtlest nuances while never being disembodied and always musical. Genuinely what the Linn professed to be but fell short of. Even without the unique clamping system—it is superior ... with the clamp & weight; it stands alone. You'll love the price—phone us for details.

AUDIO ONE

San Diego area
on Sunset in LA

619/480-4804
213/855-0500

MICRO-ACOUSTICS' TOP-RATED CARTRIDGES, brand new: 830csa \$125; 3002 \$50; 309 \$25; S-1 \$35; S-2 \$25. (401) 421-7430.

MORE WITH FOUR SYSTEM

(UNDER \$4300)

Turntable: Linn Sondek Lp-12
Tonearm: Linn Basik LV-X-Plus
Cartridge: Talisman 1A
Tuner: Adcom GFT1-A
Preamp: Counterpoint SA-7
Amplifier: Robertson 4010
Speakers: Fuselier 5

SOUND BY SINGER

165 E. 33rd Street
New York, NY 10016
(212) 683-0925

MOUNT YOUR TONEARM ON A SOTA TURNTABLE and smile, smile, smile. Expert setups and installations. Audio Nexus, NJ. (201) 464-8238, (201) 730-2409.

MUSICAL CONCEPTS REDEFINES THE WORD BARGAIN! The Absolute Sound and Audiogram magazines rate our modifications highly. In fact, Audiogram listed our MC-1 circuit replacement (Hafler DH-101), the finest solid state preamp, while our M-110SN came in second.

New products: M-100 kit (Hafler DH-100), M-120 (Hafler DH-120). Work continues on the classic Dyna equipment, tube and solid state. Call about our money back guarantee on SuperConnect II interconnect, you can't go wrong. Brochure/review packet available. Dealer inquiries invited. Musical Concepts, 1060 Fifth Plaza, Florissant, MO 63031, 314-831-1822.

FOR SALE

McIntosh & Other High End Used Audio Equipment Bought—Sold—Traded Call or Write for Your Free Catalogue Audio Classics

Box 176, Walton, New York 13856
607/865 7200

MUSIC-LINKSM MEANS TRULY EXCEPTIONAL speaker cables, audio interconnecting cables, pickup arm leadout cables, turntable mats, record clamps, record and stylus cleaning fluids, record brushes, damping tiles, video and audio-grade AC line filters, and pickup arm rewiring modifications. Available from: AUDIO CORRECTIONS, P.O. Box 843, St. Charles, Missouri 63302.

OXFORD AUDIO CONSULTANTS, INC.

For over ten years, we have been serving the audio cognoscenti, from our pastoral setting here in Oxford, Ohio, with excellent services, superb products and succinct, expert advice. We supply customers not only in Ohio, Kentucky and Indiana but throughout the United States, Puerto Rico and in countries all over the world. OAC specializes in accurate high quality audio components. Our product lines include Acoustat, Creek, Dennesen, Hafler, Janis, Linn, Naim, Revolver, Sendor, Sumiko, Vandersteen, and Walker. Auditions are given by appointment in our **SINGLE SPEAKER DEMONSTRATION ROOM**. Most orders are shipped by the next business day. Free shipping to ALL U.S. zip codes. Our extensive export facility ships worldwide. OXFORD AUDIO CONSULTANTS, INC., Box 145, Oxford, OH 45056-0145, 513-523-3333, TLX427791.

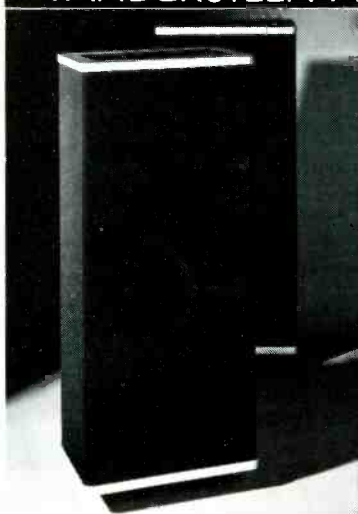
PERREAUX 1150B AMP, TANBERG 3002A preamp, Fried G2'A speakers; Sansui AVG 99X Integ. Amp, NAD 2200 Amp. 215-567-4626, eves.

PRECISION-FIDELITY C8A PRE-AMP. MINT. \$425. 313-335-9526.

RAY LUMLEY M-100 MONO TUBE amplifiers. Exclusively in Canada: Blume Imports, 300 Antibes Dr., Suite 2017, Willowdale, Ontario—(416) 665-4196. Dealer inquires welcome or direct: \$4500 pair Canadian, shipping pre-paid.

ROBERTSON: DELIGHT YOUR EARS! ASTONISHING AMPLIFIERS, peerless preamplifiers, sensuous sound, magnificent music. Audio Nexus, NJ, (201) 464-8238, (201) 730-2409.

VANDERSTEEN AUDIO DIMENSIONAL PURITY



Vandersteen Audio was founded in 1977 with the commitment to offer always the finest in music reproduction for the dollar. Toward this goal there will always be a high degree of pride, love, and personal satisfaction involved in each piece before it leaves our facilities. Your Vandersteen dealer shares in this commitment, and has been carefully selected for his ability to deal with the complex task of assembling a musically satisfying system. Although sometimes hard to find, he is well worth seeking out.

Write or call for a brochure and the name of your nearest dealer.

VANDERSTEEN AUDIO
116 WEST FOURTH STREET
HANFORD, CALIFORNIA 93230 USA
(209) 582-0324

MODEL 2C

audiophile systems LTD.

6842 Hawthorn Park Drive
Indianapolis, Indiana 46220

FOR SALE

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

SIDEREALKAP

NOT JUST ANOTHER GENERIC CAPACITOR WITH A WONDERFUL NAME, THE SIDEREALKAP WAS DESIGNED FROM ITS INCEPTION TO BE THE FINEST SOUNDING CAPACITOR AVAILABLE FOR AUDIO TODAY.

FIND OUT WHAT THE MUSIC LOVER'S CAPACITOR DOESN'T SOUND LIKE. CALL (619) 722-7707, OR WRITE TO: SIDEREAL AKUSTIC, 1969 OUTRIGGER WAY, OCEANSIDE, CA 92054.

FREE LITERATURE AND PRICE INFORMATION UPON REQUEST.

SOUNDLAB RENAISSANCE R-1 ELECTROSTATIC LOUDSPEAKERS: Mint condition. \$1500 or best offer (\$3300 new). (201) 464-8238, (201) 730-2409.

SOUND SERVICE CO.

We proudly represent:

Accuphase	Goldring	Proton Video
Acoustic Research	Grace	PS Audio
Adcom	Grado	Rega Planar
Akroyd	Heybrook	Revolver
Argent	Infinite Slope	RH Labs
Ariston	Kimber Kable	Robertson
Astatic	Kinergetics	Rogers
Audioquest	Koetsu	Scott
Beyer	Linn Isobarik	Sennheiser
Bryston	Linn Sondek	Shinon
Burwen	Livewire	Soundcraftsmen
Celestion	Micro Seiki	Spectrum
Creek Audio	NAD	Spica
Dynavector	Nagatron	Stax
Electrocompaniet	Naim Audio	Talisman
ESB-USA	Nitty Gritty	Thiel
Fuselier	Pioneer Laserdisc	Wharfedale

Sound Service Company

8010 Bustleton Ave. Philadelphia, PA. 19152
(215) 725-1177-78 Bank Cards Accepted

FOR SALE

MUSICAL IMAGES OF KENTUCKY

Rotel, B&K, Sumo, PS Audio, Crown, Lazarus, Magus, Melos, Moscode, Music Reference, Quicksilver, Berning, Mordaunt, Spondor, MCM, Kindel, Goetz, Sound Lab, A-R, Rock, Micro Seiki, VPI, Audioquest, Grado, Shinon, Alpha, Koetsu, SAEC, Alphason, E.T., Distech, Music Link, others. Newsletter, 11027 Buckeye Trace, Goshen, KY., 40026 (502) 228-3200.

PS AUDIO, CONRAD-JOHNSON, BEL, NOVA, VPI, VSP Labs, Souther, Zeta, Superphon, Adcom, Gyrodec, MCM, ProAc, JSE, Dayton Wright, Straightwire and more. Presto Audio, 3125 Williamsburg Dr., San Jose, CA 95117. (408) 374-0292. Write for specials.

START WITH SEPARATES SYSTEM 1

(UNDER \$2700)

Turntable: Rega Planar 3
Cartridge: Adcom XC/LT II
Preamp: Adcom GFP-1A
Tuner: Adcom GFT1-A
Amplifier: Adcom GFA-2
Speakers: Snell Type E II

SOUND BY SINGER

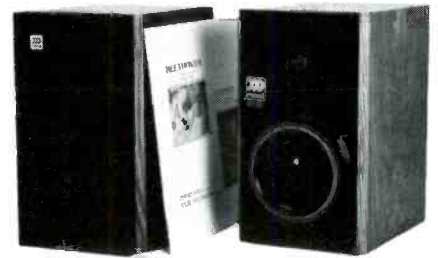
165 E. 33rd Street
New York, NY 10016
(212) 683-0925

SUPERPHON IS SUPER AT RM High-Fidelity, LI, NY. We offer attractive price packages, free delivery, great auditioning programs and prompt, courteous service. 516/379-2056.

AMERICA'S LARGEST dealers in **HIGH END USED** stereo. We **BUY** by **PHONE. STEREO EXCHANGE 687A** Broadway, between 3rd and 4th St. (opposite Tower Records) NYC 10012. (212) 505-1111 and (800) 833-0071.

THE BEST EQUIPMENT, EXPERT ADVICE AND OUTSTANDING PRICES. ELECTROCOMPANIE, SOTA, VANDERSTEEN, SUMIKO, KOETSU, PETERSON, SYRINX, SME MUCH MORE! CALL FOR NEWSLETTER: GALEN CAROL AUDIO, 512-494-3551.

The Small Yet Surprising Morel MLP-202 II



THESE ARE THE REMARKABLE small loudspeakers whose smooth response and open, dimensional sound are at least on a par with the finest units of many times the 202's size and price.

Morel has designed and built speakers and driver units in Israel for over eight years. Now, with the U.S. introduction of the model MLP-202 II, Morel is prepared to offer the demanding audiophile the highest possible quality at an extremely reasonable cost. (\$198. each)

Morel's drivers, manufactured to the strictest tolerances in our own factory, incorporate several notable technological advancements. Utilizing hexagonal voice-coil wire, unique magnet structures having no stray magnetic fields, and special adhesives and coatings, the Morel drivers are exceptional in rise time and coherence.

Also, the oversize (3") voice coil in our woofer and the ferrofluid tweeter will allow Morels to handle the wide dynamic range of your digital recordings with plenty of room to spare.

Please write for details.



Morel Acoustics USA

414 Harvard Street, Brookline, MA 02146
tel. (617) 277-6663 telex 650-2499475

Morel (U.K.) Ltd.

11 Foxtail Road, Ransomes Indus. Estate
Ipswich IP3 9RT, England
tel. (0473) 719212 telex 987601 Morel G

Morel Acoustics Ltd.

Industrial Area B, P.O. Box 140, Ness Ziona
70 451 Israel Telex 361951

MOVING, LEGENDARY SOUND.

Chestnut Hill Audio is moving around the corner to expanded facilities. Our legends go with us: Accuphase, Acoustic Electronics, Amber, Apature, Apogee, Audio Pro, Audioguest, B&K, Berning, Cabasse, CWD, Counterpoint, DB, Distech, Duntech, Entec, Euphonic, Fourier, Grace, Hafler, ITC, Janis, Koetsu, Kyocera, LAST, Linn Sondek, Live Wire, Logic, Levinson, Meridian, Miyabi, Michell, Mordaunt Short, Music Reference, NAD, Nitty Gritty, NAIM, NYAL, Oracle, Origin, Pyramid, P.S. Audio, Quad, Rauna, RGR, Signet, Sony, Souther, Spectral, Spondor, Symdex, Talisman, Tandberg, Thorens, 3-D Acoustics, VPI, VSP Labs, Vandersteen, Zeta
149 North Third Street, Philadelphia PA 19106 (215) 923-3035

CHESTNUT HILL AUDIO LTD.

ELECTROCOMPANIE

Affordable and reliable amplification designed to reveal every musical subtlety and the full range of dynamic impact found on the best source material.

Call or write for more information.

Electrocompaniet, Inc.

Rt. 202, Box 127 • Hollis, ME 04042 • (207) 929-4553

THE KOETSU TRADITION

Since the introduction of the first Rosewood in the late 1970's, *Koetsu* cartridges have been synonymous with realism in the reproduction of fine recordings...capturing the hearts of music lovers worldwide with their portrayal of wide dynamics, natural harmonic balances and lifelike soundstage.

Largely hand-crafted from the most elegant (and the most appropriate) materials both nature and current technology have to offer, *Koetsu* cartridges are the result of a unique blend of science and art. Science, because of the never-ending search for state-of-the-art quality. Art, because only the human ear can be the judge of what is truly faithful to the original music....

Koetsu

Distributed by
ASSEMBLAGE

P.O.B. 815, Branford, CT 06405 (203) 488-8099 Meitner Audio Miyabi Syrnix

A JANIS BASS SYSTEM

FOR MANY YEARS A
REFERENCE STANDARD FOR SUBWOOFER PERFORMANCE
ITS THE CHOICE WHEN ONLY THE BEST WILL DO



ASK FOR OUR COMPLETE LITERATURE THE JANIS BASS SYSTEM

JOHN MAROVSKIS AUDIO SYSTEMS, INC.
2889 Roebling Avenue Bronx, New York 10461 (212) 892-7419

omni personal sound stand

- An Ideal Audio/Video Organizing Accessory and Gift Item
- Can Accommodate One Standard Size And One Lightweight Set Of Headphones With Cord Storage In Back
- Quality Construction—Solid Walnut Base With Smoked Acrylic Body
- Slanted Center Shelf For Personal Stereos/TVs Or Hand-Held Remote Controls

Please send _____ unit(s) at \$29.95 each (includes shipping and handling/Continental U.S.). Illinois residents add \$1.88 per unit sales tax.

NAME _____
ADDRESS _____
CITY _____ STATE _____ ZIP _____
Check/Money Order (No Cash or C.O.D.)
VISA MASTERCARD Exp. Date _____
Card No. _____
Signature _____

About 4-6 Weeks Delivery



omni peripherals inc.

P.O. Box 579
North Chicago, IL 60064
312/949-5298 (9-7 E.S.T.)

—Dealer & Rep Inquiries Invited—

FOR SALE

SUPERIOR AUDIO BRINGS CHICAGO SUPERIOR sound with the COUNTERPOINT SA-12 HYBRID AMPLIFIER. For your listening pleasure, call (312) 280-1045.

THE SOUND ENVIRONMENT provides careful system set-up, balance, and integration; requirements for accurate musical sound. We feature single-speaker demonstration rooms, essential for proper comparison and assessment. We represent British Fidelity, Creek, Eagle, Electrocompaniet, Levinson, Linn, Magnepan, Meridian, Misson, Mourdant-Short, Naim, Rega, Vandersteen, and other fine suppliers. Our staff will work with you to maximize your system's performance. Appointments are recommended for your visit, and we suggest you send for our free newsletter. If you seek honest musical value, we would like to meet you. **THE SOUND ENVIRONMENT**, 120 REGENCY PARKWAY, OMAHA, NE 68114, (402) 391-3842.

THE SOURCE TURNTABLE FROM SCOTLAND. Its about time we had the definitive analogue turntable. Sole importer: Active Audio, 765 Meigs St., Rochester, NY 14620. 1-716-473-0769, 1-716-271-4848.

TIPTOES, WITH DEEP MACHINE THREADING replace the feet on Oracle, SOTA, Goldmund, etc. turntables; also with woodscrew studs for speakers; custom versions. Michael Percy, Box 526, Inverness, Ca. 94937; 415-669-7181.

TRADE-INS WELCOME FREE SHIPPING

Acoustat, conrad johnson, Nakamichi, Carver, harman/kardon, Grado Signature, AR turntable, Clements ribbon speakers, VSP amplifiers, VPI turntable, NEC video and lots more! Now in stock—Superphon Revelation preamp! Demo special conrad johnson PV-4 preamp \$389. **THRESHOLD AUDIO**, 409 So. 22nd St. Heath, Ohio 43056. 614-522-3520.

—TUBE-O-PHILES—

A \$300 ST-70 that **BEATS** Quicksilvers? A Mark-3 that **SMOKES** MV-75's? Our 5tp preamp dances rings around a minuet. Our X-1 crossover beats the Vendetta. Performance **NOT** promises. Facts **NOT** Fluff. Catalog \$1 GSI, 578 Nepperhan Avenue Yonkers, N.Y., 10701, 914-969-2777.

TUBE SPECIALS—Mullard (Germany) EL34/6CA7, \$19.95 matched pair; Mullard (Britain): 6L6GC, \$19.95/MP; 12AX7 12AT7/12AU7, \$4.95 ea; Tungstgram (Hungary): 12AX7, \$2.99. Stamp gets list. \$15.00 minimum \$2.00 shipping. SCC, Lock Box 551 (AMO1), Dublin, OH 43017.

UHER, Sennheiser, Sony, AKG, (Shure), Electro-Voice, Audio Technica, Beyer-Dynamic, etc. Portable Recorders, Microphones, Mixers Carpenter (GHP), P.O. Box 1321, Meadville, Pa. 16335-0821

WELL TEMPERED ARM—Audio Connection, NJ a giant leap forward in analog playback; may be auditioned on various decks. 201-239-1799.

YOU'VE READ ABOUT THEM. Why not hear them? Nelson-Reed, Dayton-Wright, Spendor, Mordaunt-Short, other fine products, available in Champaign, IL. Evenings, 217-356-4354.

2-MCINTOSH 60 TUBE AMPLIFIERS \$650. C-26 \$295. MR67 \$290. 2105 \$580. M.A. Wright, Box 9201, Metairie, LA 70055

GREENFIELD EQUIPMENT ESOTERIC AUDIO SYSTEMS

ACOUSTAT • ACCUPHASE • ADCOM • ARISTON • AUDIO INTERFACE • BEVERFACE • BERNING • COUNTERPOINT • DECCA • DISTECH • DYNAVECTOR • EAR • ELECTROCOMPANIE • ELECTRON KINETICS • ENTEC • GRACE • GRADO • HAFLE • ITC • JSE • KISEKI • KIMBER KABLE • KOETSU • MICRO SEIKI • MIT • MONSTER PRODUCTS • ORSONIC • PRECISION FIDELITY • PROFILE • REGA • SIDEREAL ACOUSTIC • SHINON • SOUTHER • SPICA • STAX • SUPERPHON • SUPEX • TRIAD • VPI • VAN DEN HUL

Auditions by appointment • Shipping and export facilities

7805 Greenfield Street • River Forest, Illinois 60305

312/771-4660

7/85

FOR SALE

69% CHOSE RECORDS OVER COMPACT DISCS played on the Oracle Alexandria with Grado Signature 8 compared to high quality disc player! The Alexandria can be factory calibrated for any tonearm, \$750 armless. **PLUS** Soundcraftsmen sale. Demo DX4000 preamps \$299. 15% off all Soundcraftsmen equalizers. Authorized for Akai CD, Audioquest, CJ Walker, Creek, Grado, MAS, Monster Cable, Moscode, Nitty Gritty, Oracle, Soundcraftsmen, Spica, Triptoes, Wharfedale and more. Free Shipping US, Canada & Mexico. **SCIENTIFIC STEREO; TWO LOCATIONS.** 11 Garage Rd. Sunderland, MA, 413-665-3980, & 128 Main St. Brattleboro, Vt. 802-257-5855.

LOUDSPEAKERS

AAA CUSTOM MADE POLYACOUSTIC foam rubber speaker grilles—any size, thickness, color, design, or quantity. Send stamp for information to Custom Sound, Algonac, MI 48001.

ABSOLUTELY FINEST QUALITY: JPW LOUDSPEAKERS of Great Britain is seeking quality hi-fi dealers and representatives. Our P1 loudspeaker was voted top budget speaker last year by British Audio Dealers Association! Contact Power Distributors, 4632 Cross Roads Park Drive, Liverpool, NY 13088. 315-451-5721.

ACCURATE & AFFORDABLE. OVER 30 PROVEN DESIGNS for audiophiles, speaker kits for home, car, subwoofer & pro. JBL, AUDAX, SEAS, HAFLE, polypropylene drivers & crossovers, \$2.00 Gold Sound, Box 141A, Englewood, CO 80151.

ALTEC-LANSING—SPEAKER COMPONENTS, cabinets and systems, including Voice of the Theatre, for super home systems. Custom boxes, quality re-coning. Rick Marder, A-H Co., (201) 561-8123.

AMERICA'S LARGEST dealers in HIGH END USED stereo. We **BUY** by **PHONE. STEREO EXCHANGE 687A** Broadway, between 3rd and 4th St. (opposite Tower Records) NYC 10012. (212) 505-1111 and (800) 833-0071.

A&S INTRODUCES SCAN-SPEAK, Danish crafted speaker components, to America! We also offer the widest selection of high-end speaker kits, drivers and auto systems from Audax, Dynaudio, Focal, SEAS, Becker, Morel, MB, Jordan, Philips, Dalesford/Cambridge and others. Free catalog. A&S SPEAKERS, Box 7462A, Denver, CO 80207. (303) 399-8609.

ATTENTION ADVERTISERS! SEE CLASSIFIED RATE BOX ON FIRST PAGE OF CLASSIFIEDS FOR NEW RATES EFFECTIVE OCTOBER 1985 ISSUES.

Hearing is Believing!



At \$550/pair our **EA-3** will provide the audiophile on a budget with years of total enjoyment.

Call or write for information:

EUPHONIC AUDIO

RR1 BOX 266 NEW EGYPT NJ 08533
(201) 929-2613

Now in Greenwich: the Total End in High End Audio.

Visit our Demonstration Studio, fully equipped with the latest high-technology, Hi-Fi audio equipment from such dedicated manufacturers as ...

Apogee • Belles • Duntech • Esoteric Wire • Gale Jordan Amplification • Krell • Kyoocera • J.A. Mitchell • Perreux Pioneer Video • Princeton Acoustics • Proton Video Southern • Straight Wire • Sumiko • Symdex • Thomson Video Triad • VPI • Well Tempered Arm • Zeta

... a relaxed place. Where you can hear what can be done with today's newest equipment. Where you can compare...unimpaired. Where you can discuss your needs with the experienced, knowledgeable Aud-Vid people who can turn personal preferences into reality. Phone...or just stop in...Mondays through Saturdays.

AUD-VID 79 E. Putnam Av. (Rte. US 1)
Greenwich, CT 06830
(203) 869-0666
YOUR COMPLETE AUDIO ENTERTAINMENT CENTER

LOUDSPEAKERS

AT LAST, HI-FI SPEAKERS FOR PROFESSIONALS!!! JSE INFINITE SLOPE! Matched PERREAUX, VSP, BELLES (new: Tuner!), THORENS, AIWA digital, decks. TONMEISTER—exclusive Metropolitan DC showroom. (301) 229-1664.

ATTENTION AUDIOPHILES: JSE INFINITE SLOPE Loudspeakers are available from us. Inquire about our 7 Day—**NO RISK** auditioning program. Authorized David Hafler dealers and Thorens turntable dealers. We pay shipping. Sound Unlimited, 178 Main St., Bristol, Conn. 06010. Est 1959. (203) 584-0131.

Definitive Stereo— Southern Style!

- Apogee
- Audionics
- Audio Research
- Bang & Olufsen
- Cello
- Duntech
- Entec
- Goldmund
- Janis
- KEF
- Linn
- McIntosh
- Magneplanar
- Mark Levinson
- Meridian
- N.A.D.
- Nakamichi
- Nitty Gritty
- Phase Technology
- Polk Audio
- Quad
- Rega
- Signet
- Spectral
- Stax
- Yamaha

- Factory Authorized Service
- Consultation, Design and Installation
- Quality Stereo and Video Cabinetry
- On-Location Master Recording Service

audition

2829 18th Street South
Birmingham, Alabama 35209
(205) 870-3554

Tues., Thurs.: 10-8; Wed., Fri., Sat.: 10-6

ORIGINAL MASTER RECORDING™ COMPACT DISCS

Hear The Difference!

All Compact Discs do not sound alike. Original Master Recording Compact Discs can make a dramatic difference in the way your Compact Disc sound system. Each is exclusively mastered from the recording artist's original master tape for absolute sonic accuracy. Mobile Fidelity Sound Lab's exclusive "Analog-To-Digital" transference technology permits you to experience your favorite recordings the way they were meant to be heard.



EXCLUSIVE SELECTIONS

NEW THIS MONTH: "Live At The Fillmore West" by ARETHA FRANKLIN; "Sittin' In" by LOGGINS & MESSINA; "Live At The Lighthouse" by THE MODERN JAZZ QUARTET; "Someday My Prince Will Come" by MILES DAVIS.



For the name of a store near you, call Toll-Free (800) 493-5759 (In California, call (707) 778-0134)

COMPACT PRICES ON COMPACT DISC!

JVC XL-V500B CD Player:
15 Track Programmable,
Direct Access Selection,
Wireless Remote, Head-
phone Level Control.....
CALL!

**TECHNICS SL-P2
CD Player:** 15 Program
Memory, Wireless
Remote Control, Music
Scan, Headphone Level
Control..... **\$229**

ADC CD-100X CD Player:
16 Program Memory,
3-Beam Laser, Analog
Filtering..... **\$169**

These prices include
cash discount

1-800-225-8656
ORDERS ONLY 9:30-6 M-F

AIWA • AKAI • AMBICO • COMMODORE •
CODE-A-PHONE • DISCWASHER • HITACHI •
JENSEN • JVC • MARANTZ • NUMARK • CANON •
PANASONIC • JBL • QUASAR • SHERWOOD •
RCA • SANYO • RECOTON • THORENS •
VIDICRAFT • ZENITH • SONY • TEAC •
TECHNICS • TOSHIBA • SHARP

**WORLD
WIDE ELECTRONICS
DISTRIBUTORS**

5 Commonwealth Ave., Woburn, MA 01801
MAIL ORDER: For rapid service, send certified check
or money order. All prices reflect cash discount. No
cash discount on MC/VISA! Personal checks require
approx. 14 days for clearing. Add \$7 shipping & handling
for orders under \$100; 7% for orders over \$100. NO
C.O.D. MASS residents add 5% sales tax.
Mass. Orders (617) 933-1440

entte nous

... the new reference among esoteric preamps

Please write for details:
P.O. Box 39501 / San Antonio, TX 78218
512-231-2030

A Cascode FET preamp
by DELAY LABS INC.

LOUDSPEAKERS

BETTER THAN ELECTROSTATICS?

Find out about our new ribbon speakers and sophisticated dynamic systems. New catalog has details plus kits, parts, electronics and much more. \$1 (bill) to: New York Acoustics, 578 Nepperhan Avenue, Yonkers, NY 10701. (914) 476-4900.

BLOWN SPEAKER(S)? SAVE \$\$ BY RECONING. Guaranteed work. For information, pricing send \$2 (applied to reconing). TFH AUDIO, 1705 W. Fayette St., Syracuse, NY 13204. (315) 468-4031.

FOR SALE: HILL PLASMATRONICS. Sound Lab Al's, Futterman OTL 3's. Best offers, must sell immediately. 406-745-4648.

B&W 801F SPEAKERS. Walnut finish/with hoods. Excellent condition, \$2000. 513-729-4532, after 6 P.M.

LOUDSPEAKERS

AUDIO ONE

proudly announces appointment as the world's first dealer for the most significant advancement of transducer technology in many years, the

NONSPEAKER™

a unique and stunningly attractive component, that in the parameters of frequency response, cohesiveness, timbre musicality, clarity, openness and dynamic range typically and by considerable margin, outperforms existing speaker systems costing two and even three times its price! This is a seemingly outlandish claim—however, after auditioning NONSPEAKERS you'll find it difficult to listen and enjoy almost ANY existing speaker system ... regardless of price!

NONSPEAKERS are wired totally with Randall

Research teflon cable, have edge of the art crossover and capacitor technology, trick cabinetry and unique proprietary driver systems that are digital ready. Several configurations of NONSPEAKERS are available with prices ranging from \$499 to \$5999 the pair. Under no circumstances should you consider a speaker purchase until you have had an audition of NONSPEAKERS. Phone us for details.

AUDIO ONE

San Diego area 619/480-4804
on Sunset Boulevard in LA 213/855-0500

CROSBY MOD. TC-50, THE MOST tweaked speaker available today, and it's done right. It's resolution, focus makes almost everything sound veiled. For some the best at any price. Free Lit. \$995 pr. 2701 N. Rojo, Hobbs, NM 88240. (505) 392-4781.

DAYTON WRIGHT'S LCM-1 LOUDSPEAKER CHALLENGES any minimonitor ... and wins! Audio Nexus, NJ, (201) 464-8238, (201) 730-2409.

ELECTRO-VOICE AUTHORIZED DEALER—Speaker components for high performance use, complete systems for home, musicians, DJ's and PA. CD35i and Interface, Altec-Lansing, professional reel-to-reel recorders. Free price list/flyer. Low Prices. Rick Marder, (201) 561-8123.

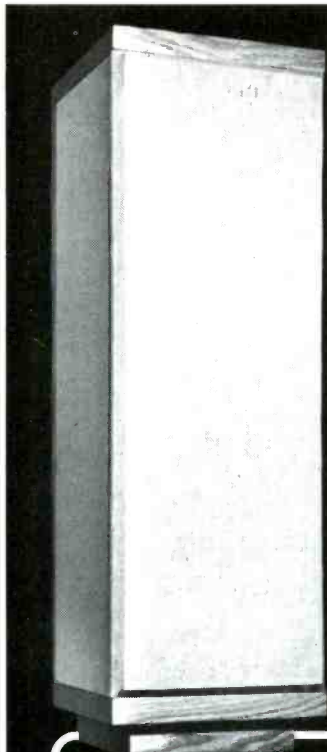
FRIED SPEAKERS & KITS

State-of-the-art sound. Try our prices! Free shipping. Also Sota, Haller, SAE, Audire, Thorens, Adcom, Dynavector, CD players. READ BROTHERS STEREO, 593 King Street, Charleston, South Carolina 29403. (803) 723-7276.

GUSS 3-D SPEAKER SYSTEMS

From \$2700. Audio perfectionists who are unhappy with their \$3000 to over-\$30,000 speakers "top-rated" by the "experts" are welcome to a spine-tingling demonstration. (212) 580-7401.

IMF STUDIO SPEAKERS. Pair. Best offer. (215) 644-3116. Eves.



Synthesis was founded by William Conrad and Lewis Johnson to design and produce loudspeakers capable of creating the illusion of live music in home listening environments. Achieving this goal requires a speaker that is tonally correct, images precisely, reproduces fine detail cleanly, and is capable of reproducing the wide dynamic contrasts of live music.

Advanced computer measurement and design techniques, together with extensive auditioning of design alternatives, have resulted in speakers that attain unusual accuracy in the reproduction of music—truly a fusion of art and technology.

synthesis

Synthesis, 2817M Dorr Avenue, Fairfax, Virginia 22031

LOUDSPEAKERS

RENAISSANCE ACOUSTICS Inc.

A rebirth in the crafting of fine loudspeakers
802 N. Main St. • Suite 240 • Gainesville, FL 32608

INFINITY REFERENCE STANDARD

Excellent condition, best offer, will deliver and setup in (408) (415) area, else shipping FOB Sunnyvale, CA. (1500 LBS). (408) 749-8522 anytime.

J.B.L. USED SPEAKERS, COMPONENTS, LITERATURE, and blueprints. Bought, Sold, and Traded. 313-229-5191. Aft. 7 PM EST.

JSE INFINITE SLOPE LOUDSPEAKERS. Combine the Infinite Slope crossover and patented phase shift bass loading for unexcelled imaging, detail and tight dynamic bass response. Alternative Audio, Massapequa, L.I., NY, (516) 541-7025.

JSE INFINITE SLOPE LOUDSPEAKERS Hear your music at last! Now, unique and technologically advanced crossovers deliver unparalleled clarity, smoothness, dynamics. Call AUDIO NEXUS, NJ, (201) 464-8238, (201) 730-2409 for copies of Sensible Sound's rave reviews.

KINDEL AUDIO LOUDSPEAKERS

From the legendary Phantom to the new Mk II P-series Kindel Audio offers exceptional engineering and performance. The fact that Kindel speakers are good values is a reflection of the intelligence and effort put into these designs. For full information contact: Kindel Audio, 20451 Bayview, Santa Ana, CA. 92707.

PRINCETON ACOUSTICS MODULAR LOUDSPEAKERS: clean, smooth, extended with very low distortion. Audio Connection in NJ. 201-239-1799.

LOUDSPEAKERS

MARKEL PERFORMANCE SPEAKERS. We carry raw drivers, kits, car speakers, and pro-sound speakers. We also stock Performance Sound Points. For free catalog write: Markel Performance Speakers, 18602 Kewanee Ave., Cleveland, Ohio 44119.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

POLYPROPYLENE CAPACITORS FROM MADISOUND BREATHTAKING SONIC IMPROVEMENT AT AFFORDABLE PRICES. 1 MFD: \$1.85 ★ 2 MFD: \$2.05 ★ 3 MFD: \$2.15 ★ 4 MFD: \$2.50 ★ 5 MFD: \$2.75 ★ 6 MFD: \$3.05 ★ 7 MFD: \$3.25 ★ 8 MFD: \$3.50 ★ 10 MFD: \$4.20 ★ 12 MFD: \$4.30 ★ 15 MFD: \$5.30 ★ 20 MFD: \$6.80 ★ 25 MFD: \$7.55 ★ 30 MFD: \$8.90 ★ 35 MFD: \$10 ★ 40 MFD: \$11.10 ★ 50 MFD: \$13.25 ★ 60 MFD: \$15.50 ★ 70 MFD: \$17.60 ★ 80 MFD: \$19.75. 250 working volts; add 10% for shipping costs. **MADISOUND SPEAKER COMPONENTS,** 8982 Table Bluff Road, Box 4283, Madisound, Wisconsin 53711. (608) 767-2673.

LOUDSPEAKER COMPONENTS-KITS. Audax, Dynaudio, Eclipse, Focal, Peerless, Morel, Vifa, and more! 1uf-80uf polypropylene capacitors. Catalog 50c. Meniscus, 3275W Gladiola, Wyoming, Michigan 49509.

THE SWEDISH CONNECTION FROM RM includes Free delivery and Free Opus Recordings with a purchase of any outstanding Rauna Loudspeaker system. Tyrs with VMPS Subwoofers—An affordable, flexible and beautiful sonic knockout. We offer great auditioning programs and prompt courteous service. RM High-Fidelity, LI, NY. 516/379-2056.

ULTRA HIGH-END SPEAKER SYSTEMS using the best drivers from Europe; Dynaudio, Vifa, Siare, Auday, M.B. ... Low prices on kits or fully assembled systems for Home—Car—Truck. Save \$\$! For free info-pak write: DNL Sound Co., 10 Bellam Blvd., San Rafael, CA 94901.

LOUDSPEAKERS

SHADOW AUDIO COMPACT MONITOR

Shadow Audio proudly introduces the Compact Monitor, featuring the Optimized Transmission Line®. Wide dynamic range, phase coherent alignment and floor standing design for only \$499 per pair! Dealer Inquiries Invited! Shadow Audio, P.O. Box 55081, Omaha, NE 68155.

SPEAKER BUILDING HEADQUARTERS save 50-75%. Esoteric kits including compound subwoofers, ribbon systems. World class from Dynaudio, Strathern, IAR Wondercaps, Chateauroux polypropylene, and the awesome Gold Ribbon 3.0. Phase and amplitude correct active crossovers by Shadow. All the finest in stock at guaranteed lowest prices with excellent service! Catalog \$2. refundable. Audio Concepts, 1631 Caledonia St., La Crosse WI 54602 (608) 781-2110.

VANDERSTEEN—NEW POWERED SUBWOOFER

The Model 2W subwoofer is the perfect compliment to the renowned 2C. However, its universal design will allow its use in almost any system! IN STOCK at \$1200. Free shipping to ALL zip codes. WORLDWIDE EXPORTING. Visa and MasterCard. OXFORD AUDIO CONSULTANTS, INC., Box 145, Oxford, OH 45056-0145, 513-523-3333, TLX427791.

VINTAGE JBL AND ALTEC: C34 bass horn, 150-4C, 175DLH, N600, N7000, D208, D280, 601A duplex. Best offers. (202) 965-5320.

WHY SHOULD YOU SUBSCRIBE TO the absolute sound® ?

BECAUSE IN THE WORLD OF AUDIO,
ONLY THE HIGH END TELLS THE
MUSICAL TRUTH . . .

. . . AND ONLY THE ABSOLUTE SOUND
TELLS THE WHOLE TRUTH ABOUT THE
HIGH END

- ▶ *The objective truth about the compact disc and digital sound.*
- ▶ *The truth about the sound of the best (and worst) analogue recordings.*
- ▶ *The truth about the politics of the High End.*
- ▶ *The truth about the sound of hi-fi components (and each does have a sound).*
- ▶ *The truth about listening to music, and what to listen for at home.*

the absolute sound®

P. O. Box 3000, Dept. CC
Denville, N.J. 07834

To sample a single issue, send us your check for \$7.50; to subscribe (four issues/year), send \$22 (\$35 in US funds for readers outside North America). You can also call our business office at (516) 671-6342 and order *the absolute sound* with your Visa, Mastercard, or Am. Ex.

DIAL Q FOR AUDIO.

Worldwide
Export
Specialists
of New &
Used Audio
Components.



*No mail orders on JBL & Sony

Call Us For:

ACOUSTAT
A.R.
DBX
DESKTOP
DYNAVECTOR
EUPHONIC
FRIED
GRADO
HAFLER
HITACHI LC
INNOTEC ITC
JANIS
JBL Ti*
KRELL
MAGNAVOX
MONSTER
PIONEER LV
PLC (Pyramid)
PREMIER
PS AUDIO
SEQUERRA
SONEX
SONY*
SOTA
SOUTHER
STAX
SUMIKO
TECHNICS
THORENS



Fall 1985/1986 Catalog USED/NEW: \$3.00

MOGAMI[®]

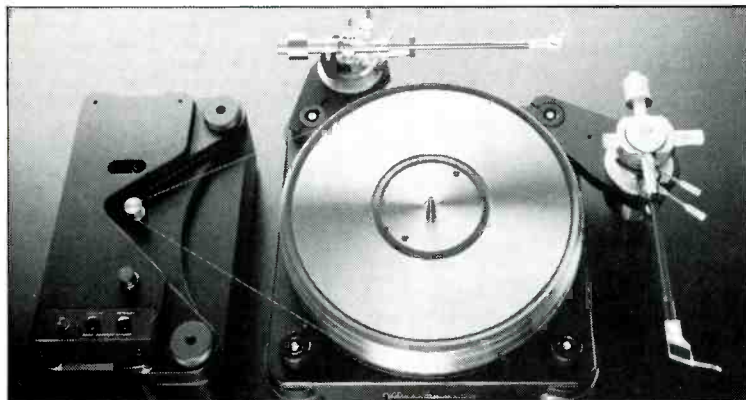
FANTASTIC LOW COST

Audio Cable

MOGAMI WIRE & CABLE

P.O. Box 2027, Culver City, CA 90230
(213) 390-6608**ATTENTION ADVERTISERS!
SEE CLASSIFIED RATE BOX
ON FIRST PAGE OF CLAS-
SIFIEDS FOR NEW RATES
EFFECTIVE OCTOBER 1985
ISSUES.****MICRO SEIKI TURNTABLES**

SIMPLY THE BEST BELT DRIVE TURNTABLE SYSTEMS AVAILABLE



AT LAST! MICRO SEIKI JAPAN INTRODUCES

ITS FULL LINE OF HIGH-END TURNTABLE SYSTEMS TO U.S. AUDIOPHILES

Illustrated: the Micro Seiki RX-1500VG, shown here mounted with two tonearms (four are possible). Platter: 20 lb bronze platter. Record hold down, light force vacuum system. Frame: massive 36 lb non-resonant metal alloy. Motor: outboard belt-drive DC servo. Inertia moment: 3,000 lb/cm². Total system weight: 100 lb. U.S. list \$1,495 (without tonearm).

Other versions also available: the 1500F VG, an air-bearing vacuum model where the bronze platter floats on a thin .03mm layer of air—U.S. list \$1,995. The RX-1500 Basic, an aluminum platter version with no air-bearing or vacuum functions—U.S. list \$795.

And introducing: The Ultimate Analog Turntable System: the SZ-1T/SZ-1M. Specifications: 132 lb non-resonant zinc alloy frame. Platter: 48 lb air-bearing, vacuum, bronze platter. Motor: outboard 44 lb hysteresis synchronous air-bearing phono-motor. Inertia moment: 26 tons/cm²! Total system weight: 240 lb. U.S. list \$10,000.FOR COLOR BROCHURE AND DEALERS INQUIRIES, WRITE:
MICRO SEIKI USA, P.O. BOX 69A97, LOS ANGELES, CA 90069

Custom Designed Audio Systems by James Gala

Many audiophiles who desire high quality audio systems are misled by well-meaning but misinformed friends, salesmen, and magazines, whose understanding of acoustics is superficial or compromised in some other regard. As a result, many expensive "mistakes" are made.

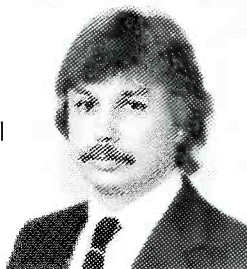
GALA SOUND, located in Rochester, N.Y. and established by pianist/acoustician James Gala, sells musically accurate and superbly crafted audio components.

Audiophiles, music lovers, and recording studios interested in achieving the highest level of sound reproduction now rely on GALA SOUND for state-of-the-art audio systems custom designed for their specific needs, listening environments and budgets. These systems are second to none.

If you're serious about sound, you can own the finest: a custom designed audio system from GALA SOUND.

Phone, (do not write) Jim Gala at (716) 461-3000.

KEF • B&W • QUAD • MAGNEPLANAR • THRESHOLD
MARK LEVINSON • McINTOSH • PERREAUX • BRYSTON • REVOX • BELLES

GALA SOUND**3122 Monroe Avenue, Rochester, New York 14618 • (716) 461-3000****TAPE RECORDERS**

AMERICA'S LARGEST dealers in HIGH END USED stereo. We BUY by PHONE. STEREO EXCHANGE 687A Broadway, between 3rd and 4th St. (opposite Tower Records) NYC 10012. (212) 505-1111 and (800) 833-0071.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

PARTS & ACCESSORIES

DB SYSTEMS GOLD PLATED AUDIOPHILE CONNECTORS INCLUDE: DBP-9AU(8) (EIGHT PACK) BANANA PLUGS—solderless setscrew \$16.50. DBP-9P(2) DOUBLE BANANA PLUG—stackable, red/black \$17.95. DBP-9J(2) DUAL BANANA JACK—5-Way binding posts \$17.95. DBP-13J(8) PHONO JACKS—1/4" mounting hole \$14.95. DBP-13JR(8) PHONO JACKS—3/8" hole \$21.95. DBP-13P(8) PHONO PLUGS—hydrocarbon cap \$9.95. DBP-13PM(8) PHONO PLUGS—gold plated cap, red/black \$21.95. DBP-13PX(2) PHONO PLUGS—compare to Tiffany \$14.95. DBP-14(8) SPADE LUGS—for 10/12 gauge \$5.95. DBP-15(2) "Y" ADAPTORS—cable assembly \$12.95. DB SYSTEMS, Rindge Center, New Hampshire, 03461, (603) 899-5121. Enclose \$1 for color photograph. Orders under \$45 add \$2.50 handling. Dealer inquiries invited.

LOW DCR AIR CORE INDUCTORS ARE OUR ONLY PRODUCT! Wide selection of coils wound with twelve and sixteen gauge wire! Custom orders welcome! Lowest prices! Rush C.O.D. orders accommodated! Free Information! Wilsonics, 2111-M 30th Street, Suite 1138, Boulder, Colorado 80301, (303) 530-1067 evenings

STEREO CLEANER. All purpose cleaner to keep stereos looking new. Safe for metals, plastics, wood—2 oz. trial bottle send \$1.50 postage and handling. ICOE, PO Box 263, Daisytown, PA, 15427.

STRAIGHT WIRE—THE MUSIC CONDUCTOR

LSI INTERCONNECT—Provides incomparable sonic neutrality and soundstage accuracy. FLEXCONNECT—The industry standard for value in high performance audio cables, starting at \$25 per meter pair. MUSIC RIBBON SPEAKER CABLE—Unprecedented versatility and sonic accuracy at a moderate price. TEFLON-12 SPEAKER CABLE—Rated competitive with the "Super Cables" at a fraction of their price. Write or call for literature, reviews, price list and dealer information. STRAIGHT WIRE, P.O. Box 78, Hollywood, Florida 33022. (305) 925-2470.

DIGITAL AUDIO SPEAKERS

All NEW digital-ready speaker KITS from Speakerlab

- high efficiency and power handling
- Inverse Axis Alignment
- polypropylene drivers
- 18 dB/octave filters
- EASY-TO-BUILD KITS with or without prebuilt enclosures
- great for video monitor use



HAVE THE BEST FOR LESS.
BUILD A LEGENDARY SPEAKERLAB KIT.

For a FREE catalog call 1-800-426-7736 or write:

speakerlab

Dept A510, 735 N. Northlake Way
Seattle, WA 98103

Include \$1.25 for fast 1st class mail.

PARTS & ACCESSORIES

TUBES & ACCESSORIES WITH ADVICE on tubes, mods., system design, new & used components. Amperex, EE, GE, Gold Lion, Mullard, Sylvania, Tungstram. Exclusive US rep. Siemens/Telefunken. Great prices. Consultant/supplier to manufacturers, dealers, clubs, individuals. Douglas Kent Smith Consulting, 1792 Perrysville Ave., Pittsburgh, PA 15212 (412) 322-1693.

CD PLAYERS

AUDIO DISCOUNTS OFFERS A LARGE selection of CD players at competitive prices. For more information Mon. thru Sat. please call 301-890-3232. J.S. Audio, One Childress Court, Silver Spring, MD 20707. We honor Visa & M/C.

COMPACT DIGITAL PLAYERS!

In stock! Fast, FREE shipping. Also: Mitsubishi, Klipsch, Acoustat, PS, Quad, Spica, more. (See our Halfer ad.) READ BROTHERS STEREO, 593 King Street, Charleston, South Carolina 29403. (803) 723-7276.

DISTECH CD PLAYERS, THE ULTIMATE in music reproduction. CD player can be used directly into amplifier, preamp not required. Available for audition, at Alternative Audio, Massapequa, L.I., NY, (516) 541-7025.

MOD SQUAD CD UPGRADE

Great enhancement of musicality results from our 4-part improvement package. We make them sound right! For complete details and our current catalog send \$2 (refundable with order) to The Mod Squad, Inc., Department 10, 542 Coast Highway 101, Leucadia, CA 92024.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009, JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

NAKAMICHI OMS-7 CD PLAYER. 2½ months old. Mint condition. 718-465-4717.

AUTO SOUND

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009, JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

KIMBER KABLE

HIGH PERFORMANCE
SPEAKER WIRE

ASK YOUR DEALER
OR CALL FOR
DIRECT SALE

KIMBER KABLE
2058 Harrison Blvd.
Ogden, Utah 84401
(801) 621-5530

The Chapman T7, a loudspeaker of true quality. No pseudo scientific jargon to tout the latest breakthrough in speaker design, no buzz words or catch-phrases to gloss over inadequacies.

Just plain honest quality that comes from old fashioned craftsmanship, painstaking assembly, uncompromising standards and an elegant design simplified and refined to the Nth degree.

Just look at it, heft it — quality, it's there! The sound is there, the image is there. Unspectacular, uncolored, just true honest sound; sound that's smooth, neutral and musical. Anyone with a good ear, an open mind and looking for the truth will discover the sound as coming from one of the finest speakers on the market today without regard to price. The Chapman T7, worth looking for — worth listening to.



P.O. Box 18123 • Seattle, WA 98118
(206) 526-8647



UNDERSTANDING TUBE ELECTRONICS

(How to get a FREE 30 page excerpt)

Would you consider me immodest if I claimed that UNDERSTANDING TUBE ELECTRONICS (hereafter referred to as UTE) is one of the most significant pieces of literature in the 20th century? Who would have thought the UTE would be more controversial than Joyce's Ulysses? How is it possible that a series of essays and articles about the relative virtues of tubes and transistors can inflame the imagination of the public? Did Sir Edmond Hillary's ascent of Mt. Everest excite you? Quite ho-hum compared to Julius Fetterman's adventures with tube circuitry! While Freud, Marx and Satre have wrestled with the existential question of aesthetics and perception it only takes UTE's 150 pages to convince you that those music lovers who listen to live music can easily recognize the vast differences between tube and transistor circuits. If you are skeptical and are reluctant to spend \$6.95 on UTE—Quiver not. We are offering you a FREE 30 page excerpt so that you can savor the essence of this exciting, whimsical, provocative, and stimulating book. After one taste we know you will order UTE. Even though you may own transistor gear do you have the courage to discover why tubes and transistor circuits sound so different?

SEND FOR YOUR FREE EXCERPT OF UNDERSTANDING TUBE ELECTRONICS—Of course if you have the RIGHT STUFF you will send for the complete book. It is a \$6.95 graduate degree in audio engineering. We accept VISA and MASTERCARD. Thank you, Harvey Rosenberg, President of NEW YORK AUDIO LABORATORIES, 33 N. Riverside Ave., Croton on Hudson, N.Y. 10520, (914) 271-5145.

WHAT MAKES THE NEW SYRINX LE-2 TONEARM SPECIAL?

- A cigar profile non-resonant arm tube.
- VTA, azimuth and alignment are fully adjustable.
- The collet-mounted detachable headshell is more rigid and more adjustable than a bayonet mount.
- The calibrated arm pillar for repeatable VTA settings.
- The graduated bias is linear across the record surface for improved tracking and transparency.
- The calibrated, locking counterweight couples over a wide bandwidth for better energy transfer.
- High quality, specially-purified internal wiring.
- A suggested retail of only \$400.

Distributed by
ASSEMBLAGE

P.O. Box 815, Branford, CT 06405 (203) 488-8099
Meitner Audio Miyabi Koetsu

Syrinx

Join us in A Moving Experience . . .

We invite you to visit our newly designed store offering one of the best listening environments in New England. Watch for Grand Opening Specials & Free Seminars this Fall.

We can custom design systems, and we carry specialty records & accessories. Send \$2 for Catalogue. MasterCard & VISA welcome. Thorens • Vandersteen • VPI Products • Wilson • etc.



1060 Massachusetts Ave.
Arlington, MA 02174 / 617-863-5221

Hours: Tues, Wed, Fri: 11-7
Thur: 11-8; Sat: 11-5

BLANK TAPE

TAPE WORLD 1-800-245-6000

TYPE	TDK	TDK	TDK	SONY	SONY	SONY	SONY	SONY	SONY
MA 90	170	170	170	170	170	170	170	170	170
MA 90	410	410	410	410	410	410	410	410	410
MA 90	412	412	412	412	412	412	412	412	412
MA 90	700	700	700	700	700	700	700	700	700
MA 90	170	170	170	170	170	170	170	170	170
MA 90	170	170	170	170	170	170	170	170	170
MA 90	170	170	170	170	170	170	170	170	170
MA 90	170	170	170	170	170	170	170	170	170
MA 90	170	170	170	170	170	170	170	170	170
MA 90	170	170	170	170	170	170	170	170	170

WE WILL BEAT ANY PRICE OF THE TOTAL ORDER INCLUDING ALL SHIPPING & HANDLING CHARGES BY 1%
1% SHIPPING ANY SIZE ORDER. C.O.D. ADD 1% IN SCHOOLS & GOVT. ON PD. GIVE US A TRY!
280 SPRING ST. BUTLER, PA 16007

M.F. 8:30-5:00
412 283 8621

COMPLETE LINE OF TDK AND MAXELL IN STOCK

AMPEX PROFESSIONAL SERIES AUDIO TAPE SALE. High quality open reel 1800' or 2400' or 7" reels, used once. Case of 40, \$45.00. 10 1/2 X 3600" and Cassettes. MC/Visa. Valtech Electronics, Box 6A, Richboro, PA 18954 (215) 322-4866.

PRERECORDED TAPE

DIRECT-TO-TAPE RECORDINGS: REAL TIME DUPLICATED REELS (2/4 track, Dolby B/C, TypeX), CASSETTES, PCM DIGITAL CASSETTES, and BETA HI-FI AUDIO from MASTER TAPES. We also sell CD's. SEND \$1.00 for CATALOG and NEWSLETTER. Direct-to-Tape Recording, 14-R Station Avenue, Haddon Heights, NJ 08035.

COMPACT DISCS



Western Mass - CD & Components

Accoustic • AR • Boston Acoustics • BAW • Carver
Crestion • CWD • Dual • Fied • Heiler • International
Onkyo Integra • Onkyo PS • Revov • Shure • Sony
ES • Sota • Stanton • Thorens

Sound & Music

92 King St. Northampton, MA 01354-9547

At ACOUSTAT we choose our Dealers as carefully as we build our state of the art Electrostatic Loudspeakers and pure FET Electronics. Listed below are the world's finest Audio Dealers - Dealers who can actively demonstrate the benefits of owning Acoustat's legendary Speakers and Electronics.

ACOUSTAT

A Division of the David Hafler Company

- ALABAMA**
Campbell's Audio Video, Huntsville
- CALIFORNIA**
C&M's Stereo Unlimited, Fairfield
Db Audio, Berkeley
Digital Sonics, Foster City
Audio Centre, Northridge, W. Hollywood
GNP, Inc., Pasadena
Sound Goods, Campbell
Stereo - Plus, San Francisco
Stereo Solution, Santa Cruz
Stereo Unlimited, San Diego
Havens & Hardesty, Hunt. Bch
- COLORADO**
Boulder Sound Gallery, Boulder
Innovative Home Stereo, Col Spgs
- CONNECTICUT**
Stereo Lab, New London
Take Five Audio, New Haven
- FLORIDA**
Audio by Caruso, Miami
Audio, Etc., Jacksonville
Audio Insight, Ft. Lauderdale
Audio Visions, Tampa
Sound Gallery, Melbourne
- GEORGIA**
Hi-Fi Buys, Atlanta (5 locations)
Stereo Shop, Martinez
Audio Warehouse, Savannah
- IDAHO**
Infinite Audio/Video, Ketchum
Stereo Shop, Boise
- ILLINOIS**
Audio Musicale, Belleville
Columbia Audio/Video, Highland
Park Rockford, Buffalo Grove
Greenfield Equip., River Forest
Sundown One, Springfield
- INDIANA**
Alan Audio Inc., Bloomington
Audio Trend, Evansville
Buysys (Sound & Sight), Indianap
- KANSAS**
The Music Room, Roeland Park

- KENTUCKY**
Hi-Fi Buys, Louisville
- LOUISIANA**
Wilson Audio, New Orleans
Art Colley's, Baton Rouge
- MAINE**
New England Music, Scarborough
- MARYLAND**
The Listening Room, Upperco
- MASSACHUSETTS**
Sound & Music, Northampton
Q Audio, Cambridge
- MICHIGAN**
The Sound Room, Grand Rapids
Kalamazoo
- MINNESOTA**
Audio Perfection, Minneapolis
- MISSOURI**
Audio Doctor, Buffalo
- MONTANA**
The Logical Choice, Kalispell
The Stereo Shop, Helena
- NEBRASKA**
Sound Dimension, Lincoln
- NEVADA**
R.P. Miller Audio, Las Vegas
- NEW HAMPSHIRE**
Cuomo's, Salem
- NEW JERSEY**
Hi-Fi Haven, New Brunswick
CSA Audio Design, Upper Montclair
- NEW MEXICO**
The Candyman, Santa Fe
- NEW YORK**
Audio Den, Ltd., Lake Grove
Audio Ecstasy, Inc., Rochester
Eardrum Audio Video, Nanuet
Innovative Audio, Brooklyn Hgts
Lyric Hi-Fi, Inc., White Plains N.Y
Sound by Singer, New York
Unicorn Audio, Belavia
- NORTH CAROLINA**
Mr. Toads Stereo/Video, Asheville

- OHIO**
Audio Center, Toledo
Jamerson's Inc., Toledo
Golden Gramophone, Akron
Oxford Audio Consultants, Oxford
Progressive Audio, Columbus
S.O. Teric Audio, Cincinnati
Threshold Audio, Heath
- OKLAHOMA**
Youngblood Sound, Okla. City
- OREGON**
The Audio Alternative, Portland
- PENNSYLVANIA**
Better Sound Concepts, Pittsburgh
Opus One, Pittsburgh
Sassafraz Audio, Bryn Mawr; Feaster
ville, Jenkintown; Montgomeryville,
Whitehall
- SOUTH CAROLINA**
Read Brothers, Charleston
Upstairs Audio, West Columbia
Wise Audio, Greenville
- TENNESSEE**
Hi-Fi Buys (Sound & Sight), Nashville
Mr. Toads Stereo/Video, Johnson City
- TEXAS**
Dallas Audio Concepts, Dallas
Houston Audio Concepts, Houston
Omni Sound, Dallas
Sound Quest, El Paso
Ultra Electronics, Lubbock
- UTAH**
Discriminator Music, Salt Lake City
- VIRGINIA**
Digital Sound Inc., Virginia Beach
- WASHINGTON**
Audiophile Mike's, Wenatchee
Definitive Audio, Seattle
- WYOMING**
Caspar Sound Studio, Caspar
- CANADA**
Distributed by Korbon Trading LTD,
Mississauga Ontario

ACOUSTAT 3101 Southwest First Terrace Fort Lauderdale, Florida 33315
Phone 305 / 462-6700

(This list was accurate and up to date at the time of production, but is subject to change. For further information, please contact Acoustat.)

COMPACT DISCS

Ethel Enterprises

CD'S EXCLUSIVELY
Over 1100 Classical, Opera
& Jazz Titles in stock.

Detailed Catalog \$1

P.O. Box 3301, Dept. A
Falls Church, VA 22043

COMPACT DISCS—MOST TITLES \$11.99—\$13.99. 3,000 plus titles in stock. Free catalog plus monthly updates. Oz Records, 5246A Memorial Drive, Stone Mountain, GA 30083, (404) 292-5452.

LOWERING PRICES—\$9.95 year membership, purchase CD's for a year at wholesale cost. Prices start at \$6.95. Classical, Jazz, Popular, Imports, and Domestic selections. \$2 for catalog and further details. Tivoli Entertainment, 725 S. Gilbert, Iowa City, Iowa 52240. (319) 338-9158.

WE'RE MUSIC TO YOUR EARS

- Free Catalog of CD's
 - Same day shipping if you order before 12:00pm EDT
 - **10% DISCOUNT** per disc on orders of 10 or more.
 - \$2.50 for UPS Cont. U.S. shipments.
- Call Toll Free to order:
USA 1-800-232-3687
NYS 1-800-537-7303

P.O. Box 616, Clifton Park, NY 12065
518-664-2550



REFERENCE RECORDINGS

Watch this space for exciting news of CDs from RR! Despite industry-wide shortages, we have a promise of delivery of four titles in October, and two more by Christmas. In 1986, CD shortages should ease, and we will be able to accelerate our release program. Get on the RR Inner Circle hotline: Reference Recordings, Box 77225X, San Francisco CA 94107. (415-355-1892). Free catalog/reviews. Dealer inquires invited!

Electrified Discounters

203-937-0108

Lowest Possible Prices !!

MOST MAJOR AUDIO BRANDS!!

CD'S — HI-END AUDIO — CAR PRODUCT

COMPUTERS — (HARDWARE-SOFTWARE) — VIDEO

FULL WARRANTY — FAST DELIVERY

SEND FOR OUR CATALOGS!!



996 ORANGE AVE.
WEST HAVEN, CT. 06516



COMPACT DISCS



ALL DISC MUSIC, INC.

CT call
1-452-0203

COMPACT DISCS AND ACCESSORIES

Call for FREE catalog.
Requests welcome
24 hours a day.

Retailer prices available

1-800-ALL DISC

41 Monroe Turnpike, Trumbull, CT 06611

NORTHEASTERN COMPACT DISCS & CASSETTES.

Lowest Prices. Widest Selection. Order Today! CALL TOLL FREE 1-800-231-5811 (In Connecticut 1-452-1490). 7 days/week: 9 A.M.-11 P.M. EST. VISA/MC/COD accepted. Northeastern Compact Disks & Cassettes, 29 N. Hillside Ln. Monroe, CT 06468. See our ad in the front of this issue.

IMPORT, AUDIOPHILE, and USED compact discs. Wholesale prices on orders of ten pieces for labels like DGG (\$12), Philips (\$12), London (\$12) and many others. Free newsletter, or send \$2 for complete 4,000 title catalog. Supersound Records, P.O. Box 1039, Oak Park, IL 60130. Phone (312) 383-5810.

AUDIOPHILE RECORDS

BEATLES MFSL COLLECTION—Absolutely mint condition, never played; \$425 firm; Call Mike eves, wknds—804-877-8889.

I'VE GOT THE MUSIC IN ME—Thelma Houston, Sheffield Lab 5. Most successful direct-to-disc recording ever. Long out of print. High quality German pressing on teldec vinyl. Factory sealed. New. Impossible to re-press. Limited supply. \$59 each, from: Audio Int'l, 28615 Eagleton St., Agoura, CA 91301.

REFERENCE RECORDINGS

And now for something completely different: "REFLECTIONS." For those quiet moments when you're not in the mood for percussion smashes, symphonic crashes or big band bashes, think flute and piano. Soothing, peaceful music in the Windham Hill vein is played by Jim Walker, flute, and the composer of these original pieces, Mike Garson. "REFLECTIONS" is available on 45 rpm all-analogue LP (RR-18, \$16.98), and soon on CD and cassette. Also new, our second recording with the CHICAGO PRO MUSICA, Stravinsky's "L'Histoire du Soldat" suite and "Capriccio Espagnol" by Rimsky-Korsakov (arr. E. Blackwood). On 45 rpm all-analogue LP (RR-17, \$16.98), and soon on CD and cassette. Available at many fine audio and record stores, or directly from Reference Recordings, Box 77225X, San Francisco CA 94107, (415-355-1892). Free catalog/reviews; orders postpaid in U.S.; Visa/MC welcome. Dealer inquiries invited!

**For America's best brands
at America's lowest prices . . .**

CALL S.C.A. TOLL-FREE!

800-221-0974

(In N.Y. State Call (718) 253-8888)

Save hundreds on top-name brands like **Bose, A.R., Sansui, Shure, JVC, Technics** & more. Call us today. Orders accepted by phone using your Visa or Mastercard. All merchandise is brand new & fully warranted. Free catalog by request.

**STEREO
CORPORATION
OF AMERICA**

Dept. AM, 1629 Flatbush Avenue
Brooklyn, N.Y. 11210

Move Up To ALPHASON Elegance



Luxuriate in the elegance and pure neutrality of sound inherent in Alphason's internationally acclaimed tonearms priced to meet every budget.

Reviewers and audiophiles who have auditioned Alphason tonearms—the **HR-100S**, **HR-100S-MCS**, **XENON**, **DELTA** and the **OPAL** have enthusiastically commented upon Alphason's:

SUPERIOR SOUND QUALITY & TRANSIT RESPONSE resulting in unexcelled reproduction of fine detail, clarity and 3-dimensional spatiality around instruments.

Alphason's **HIGH RIGIDITY & LOW EFFECTIVE MASS** makes their tonearms ideal for a wide range of cartridges.

For a free report of what The Absolute Sound said about Alphason, please call or write:

IN U.S.A.
MUSIC & SOUND IMPORTS
30 Snowflake Rd. Huntingdon Valley, PA 19006
Tel (215) 357-7858

IN CANADA
MAY AUDIO MARKETING LTD.
646 Guimond Blvd., Longueuil, Quebec, Canada J4G 1P8
Tel (514) 651-5707

CSA Audio knows how to tune you in

- Acoustat • Acoustic Electronics • Acoustic Research •
- Audio Research • Boston Acoustics • Counterpoint • Dahlquist •
- DCM • Denon • Dayton-Wright • Duntech • ESB •
- Electron Kinetics • Hafler • Jensen Video • Koetsu • Klyne •
- Kyocera • Linn Sondek • Mission • Monster • Pioneer Video •
- Proac • PS Audio • Shionon • Sota • Tandberg • Thiel •

193 Bellevue Ave, Upper Montclair, NJ 201/744-0600

AUTHORIZED DEALER



Counterpoint



SA-5.1 PREAMPLIFIER

Unquestionably committed to performance.

Counterpoint's idea of excellence is not merely offering listening pleasure you can depend on. It's giving you more than you expect.

Handcrafted in California

Counterpoint Electronic Systems, Inc.
P.O. Box 12294 Dept. A, La Jolla, CA 92037 (619) 453-9090

TEST RECORDS

TEST RECORDS FROM CBS TECHNOLOGY CENTER

STR 100 PHONO CARTRIDGE TEST RECORD, includes sweep frequency with sync for recorder; spot frequency; separation; compliance; vertical- and lateral-tracking; tonearm resonance, and more. \$10.00 each.

STR 112 PHONO CARTRIDGE TEST RECORD, includes square wave, graduated-tracking, and IM bands. \$15.00 each.

STR 120 PHONO CARTRIDGE TEST RECORD, includes ultra-sonic test tones, high-level low-frequency glide tones, standard-level and silent bands, and can be used with a graphic level recorder. \$15.00 each.

STR 130 RIAA FREQUENCY RESPONSE TEST RECORD, provides accurate means of calibrating professional recording equipment. Can be used with a graphic level recorder or, without automatic equipment, with the spot frequency bands. \$15.00 each.

STR 140 PINK NOISE ACOUSTICAL TEST RECORD, is designed for acoustical testing of loudspeakers in ordinary rooms and whole systems, and for psychoacoustic tests. Includes spot frequency tones with voice announcements and glide-tones in 1/3 octave bands from 30 Hz to 15 kHz synced for a graphic recorder. \$15.00

SQT 1100 QUADRAPHONIC TEST RECORD, the standard test disc for SQ decoding adjustment, has test bands for pickup measurements, setup of decoders, channel identification and balance. \$15.00 each.

Payment must accompany order and be either a check or money order in U.S. funds. Allow four to six weeks for delivery.

STR 100 Stereo Frequency Record \$10.00

STR 112 Square Wave, Tracking and IM Disc \$15.00

STR 120 Wide-Range Cartridge Disc \$15.00

STR 130 RIAA Frequency Response Disc \$15.00

STR 140 Pink Noise Disc \$15.00

SQT 1100 Quadraphonic Test Disc \$15.00

AUDIO TEST RECORDS, P.O. Box 182101, Dept. 406, Cincinnati, OH 45218

BUSINESS OPPORTUNITIES

ELECTRONIC REPRESENTATIVES NEEDED!! UNLIMITED PROFIT POTENTIAL! LOWEST POSSIBLE PRICES!! OVER 100 BRANDS! AUDIO—VIDEO—CAR STEREO & COMPUTERS! —ELECTRONIC EXPERTS, 1000 ORANGE AVE., WEST HAVEN, CT 06516

SERVICES

AUDIO PULSE SERVICE. Factory trained technicians. Write us about Model One update kits. White Labs, 10528 Lower Azusa Rd., Suite 192A, El Monte, CA 91731. (818) 446-5346.

Harman Kardon
Tandberg
Boston Acoustics
Audio Control
Sherwood
Infinity
Denon
Revox
Kenwood Car
Ortofon
Hafler
Thorens

Get It Free!

ADS
AIWA
GRACE
B & O
SME
And More!

We Deliver
Free
Anywhere
in The U.S.

The SOUND Approach

6067 Jericho Tpke., Commack, NY 11725

Charge It ... CALL (516) 499-7680

THE INFINITE SLOPE MODEL 1

Just one of four extraordinary Infinite Slope speaker systems designed for those seeking something truly special.

Features:

- Infinite Slope Crossover (100 db/oct, pat. pend.).
- Phase Shift Bass Loading (Pat. #4403112).
- Specially constructed hand crafted cabinets.
- Metalized polypropylene capacitors and specially wound low saturation inductors.
- Limited lifetime warranty-transferable to each successive owner.

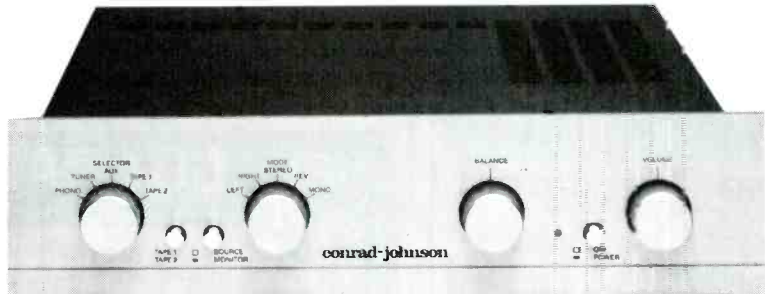
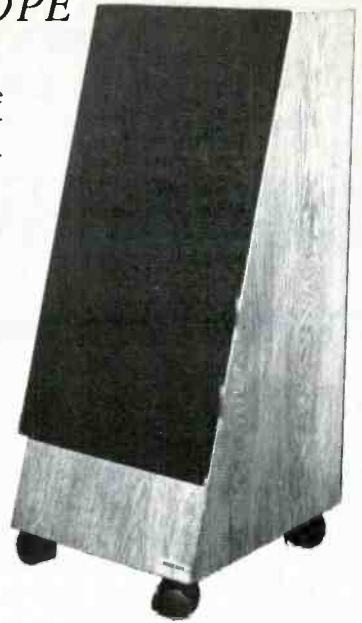
For literature, rave reviews and our dealer listings please phone or write us.



J S E CORPORATION

519 East Middle Turnpike
Manchester, Connecticut 06040
(203) 643-2160

Manufactured under license by Moeffer Acoustical Labs—patents granted and pending.



A live musical performance is an emotional experience. High fidelity components should enable the listener to recreate this experience. Conrad-Johnson vacuum-tube electronics and Sonographe turntables are musically accurate components of exceptional quality and uncommon value. They share a remarkable ability to accurately reproduce the impact of musical transients, the harmonic character of instruments and voices, and the ambience which together evoke emotional responses in the listener.

Conrad-Johnson audio components. Faithfully preserving the musical truths.

conrad-johnson design, inc.
1474 Pathfinder La., McLean, VA 22101

NAKAMICHI · KOETSU · ACCUPHASE · LUX · MICRO SEIKI · GRACE · EUREKA

ALL JAPANESE HIGH-END DISCOUNTED

America's Largest Selection

OVER 100 CARTRIDGES, 50 TONEARMS, 30 TURNTABLES, 100 ACCESSORIES, & MORE

52 PAGE CATALOG - \$3.00

JAPANESE STEREO

930 N. La Cienega Blvd., Los Angeles, CA 90069 · (213) 659-8550

SAEC · HIGHPHONIC · SONY ES · ESPRIT · ENTRÉ · STAX · DENON · ORSONIC

DYNAVECTOR · YAMAHA · EXCLUSIVE · KENWOOD

MAIL ORDER

ABARGAIN: TECHNICS 205CMK4 \$159 & 100CMK4 \$285 RIVAL BEST MC EVER MADE, TECHNICS STYLUS GUAGE \$49, EPA500 \$275, EPA250 \$269, EPAB500 \$170, A250 \$115; PRO LAMBDA \$519, SRM1/2 \$289, SIGMA \$199, LAMBDA \$162, SRX/3 \$129, SRD7 \$68, SRE15 \$25; GRACE F9E \$99, F9E RUBY \$155, F9E STYLUS \$58, RUBY STYLUS \$109, 707IIB \$109, 747 \$125; ACCUPHASE AC2 \$235, AC3 \$299; LINN ITTOK \$385; DENON ACV1 STYLUS CLNR \$38, 103D \$169, 103C \$99, DL303 \$199, DEMO 103D \$99; DYNAVECTOR 23RS(MR) \$149, 17DSuper(MR) \$299, 17DII \$159, 10X \$85, 20BII \$159; KOETSU BLACK \$450, FR64fx \$325, 64s \$550, FR1MK3F \$115; CD DISC \$7.95pp; ORSONIC AV101B \$22, AV1b \$21; HITACHI INTERCON 1.5' \$25, 3' \$30, 4.5' \$40, SSX101 SPKR CABLE \$3.5/FT, NAMIKI DIRECT FNDR \$45; ALL UNUSED, FULL MFG WARRANTY & DIRECT EXCHANGE STYLUS REPLCMET, BOX 6312, L.I.C., NY 11106, ALL DAY: (718) 784-2939 OR (305) 487-1048; DAY (212) 619-2888.

SERVICES

AUDIO PULSE SPECIALISTS. Repairs—Modifications—Updates—Sales. WALT'S AUDIO SERVICE, 111 East Rialto Ave., Rialto, Calif. 92376. (714) 875-0776.

ATTENTION ADVERTISERS! SEE CLASSIFIED RATE BOX ON FIRST PAGE OF CLASSIFIEDS FOR NEW RATES EFFECTIVE OCTOBER 1985 ISSUES.

PUBLICATIONS

THE SENSIBLE SOUND: If you are not a subscriber you are either paying too much for what you hear or are not hearing all that you paid for. TSS is the only regularly published audio equipment review publication in the world that: 1. doesn't accept manufacturer advertising (we report fact, not fantasy), 2. reviews top quality equipment that you can actually afford to purchase, 3. doesn't insult your intelligence by playing the "component of the month" game. Our 26th consecutively published quarterly issue is available now.

SUBSCRIBE TODAY: \$18 (1 yr) \$34 (2 yrs) \$50 (3 yrs)

you may begin a subscription with back issues
403 Darwin Dr., Snyder, NY 14226

MISCELLANEOUS

INVENTIONS, IDEAS, NEW PRODUCTS WANTED for presentation to industry and exhibition at national innovation exposition. Call free 1-800-528-6050. In Canada, 1-800-528-6060. X831.

SATELLITE TV—INSTALL YOURSELF AND SAVE. Do-it-yourself installation manual, your personalized computerized aiming coordinates. Discounts. Lee Beeder Cameras, 4670 Hollywood Blvd, #141, Hollywood, CA 90027. 213/666-9778.

AMERICAN, BRITISH, AND JAPANESE HIGH END: SHAMEFULLY LOW PRICES, Nakamichi, Mission, B&W, KEF, Revox, Sumo, NAD, Denon, Plus Over 100 Other Brands. Information SASE Required. VISA/MC, COD. Serious Buyers Only. East 1-202-723-7404, West 1-206-325-7601. AudioWorkShop, Box 18009, Seattle, WA 98118.

FREE BARGAIN NEWSLETTER—Savings to 65%! Famous brands, wholesale and below. Stamp gets latest electronics deals. Our 10th year. SCC, Lock Box 551 (AMO3), Dublin, OH 43017.

FREE catalog—LOWEST DISCOUNT PRICES on stereo/esoteric components for home and car. Sony, Bose, JVC, SAE, Crown, other high quality brands. Audio Unlimited, 1203 1/2 B Adams, LaGrande, OR 97850. 503-963-5731, 10-6 M-Th Pacific time.

MERRILL TURNTABLE: For more information, contact **UNDERGROUND SOUND**, 2125 Central Ave., Memphis, TN 38104 (901) 272-1275.



ODYSSEY RP1 - XG Mk II

Now with van den Hul D202 L C cables (Peterson Emerald optional) and even higher quality bearings

Revolutionary asymmetrical design avoids resonance problems inherent in symmetrical tonearms.

In gold plated brass and satin finish natural or black (Limited Edition) anodized aluminium. It exemplifies sound engineering, craftsmanship and art. \$950



Perfect Lock
Truly innovative, state-of-the-art speaker and amplifier connectors

Designed to minimise variation of contact pressure over time, it costs little but ensures a perfect contact between amp and speakers thus optimising the performance of your Hi-Fi system.

- A MUST FOR ALL AUDIOPHILES**
- **AUDITION AT:**
 - **CSA Audio** Upper Mont Clair, NJ
 - **Lyric** NYC & White Plains, NY
 - **Audio Ecstasy** Rochester, NY
 - **Hi Fi Exchange** Portland & Augusta, ME
 - **Better Sound Concept** Pittsburgh, PA
 - **Sound Components, Inc.** Coral Gables & Ft. Lauderdale, FL
 - **Audio Classics** Oklahoma City, OK
 - **Audio Design Ltd.** Honolulu, HI

U.S. Distr: Reference Audio Imports Route #1, Box 2650 Mt. Vernon, Maine 04352 (207) 293-2405

Canadian Distr: Esoteric Audio Dev., 3531 Catalina Cres., Vancouver, Richmond, B.C. U7B 1E3 (604) 273-3500

Trade Enquiry: Odyssey Engineering (U.S.A.) Ltd
P.O. Box 3007, Hillsdale Station, San Mateo CA 94404 0007

Prompt Insured Shipments

GUARANTEED SAVINGS

"Why Settle For Less When You Can Own The Best"

- Offering • Professional Advice • FREE Delivery & Set Up • Relaxed "NO RUSH" Showroom
- Trade-ins Accepted • Financing/Leasing

FEATURING

- ADS • Adcom • Advent • Alphason • Audioquest • Amber • AR
- Bose • Celestion SL6/SL600 & DL series • Denon • DCM Time Window & Time Frame • Dual • Energy • Grado • Harman/Kardon
- JBL • Kyocera • Monster Cable • Proton • Robertson • Rauna
- Signet • Soundcraftsmen • Sony • Systemdek • Tandberg
- Thorens • Tiptoes • Triad • VPI • VSP Labs • C. J. Walker
- Warfedale and other fine lines ...

Call or write Harold Minto, Proprietor

performance audio/video

365 S. Bayview Ave. (Corner Atlantic Ave.) • Freeport, Long Island, New York 11520

MC Tel. **(516) 378-4389** Retail Mailorder Export
VISA Just 35 min. from Manhattan by car or railroad
AMEX Showroom Hours: Mon.-Fri. 12 noon to 7 p.m. Sat. 11 a.m. to 6 p.m.

MAIL ORDER

AMERICA'S LARGEST dealers in **HIGH END USED** stereo. We **BUY** by **PHONE. STEREO EXCHANGE** 687A Broadway, between 3rd and 4th St. (opposite Tower Records) NYC 10012. (212) 505-1111 and (800) 833-0071.

AUDIO DISCOUNTS OFFERS THE FINEST lines of audio components (**ESOTERICS INCLUDED**) at **COMPETITIVE PRICES**. If you're in the market for speakers, receivers, cassette decks, to the best in separate components including amps, pre-amps, turntables, cartridges etc. or a new **CAR STEREO**, our knowledgeable sales staff will be glad to assist you. For more information Monday thru Saturday **PLEASE CALL** 301-593-8833 or write to **AUDIO DISCOUNTS**, 1026 McConeny Avenue, Silver Spring, MD 20901. We honor VISA-MC and COD for your convenience.

CAUTION! NAKAMICHI BUYERS!

Nakamichi goods not intended for sale in the United States are being sold by unauthorized dealers. **NAKAMICHI U.S.A. CANNOT BEAR ANY RESPONSIBILITY FOR SALES OR WARRANTY SERVICING OF UNITS NOT COVERED BY OUR APPLICABLE WARRANTY.** For the name of your nearest authorized Nakamichi dealer, call 1-800/421-2313. in Calif. 800-223-1521.

SONY PCM UNITS: PCMF1 \$1599; PCM501ES \$649. Catalog of over 50 PCM recordings (Beta VHS) \$1.00. Send check/money order: **DIRECT-TO-TAPE RECORDING COMPANY**, 14 Station, Haddon Heights, NJ 08035 609-547-6890.

MAIL ORDER

MERRILL AR MODIFICATIONS

Tonearm Replacement Subchassis Kit for old AR \$95—Subchassis for sonic improvement of AR-XE \$95. Following modifications are for all models: Platter Coating \$15. Replacement Spindle \$25. Spring Kit \$8. High Torque Motor \$45. Platter Balancing Service \$12. Foucault motor shield for AR-XE \$15. **UNDERGROUND SOUND**, 2125 Central Ave., Memphis, TN 38104 (901) 272-1275.

AMERICAN, BRITISH, AND JAPANESE HIGH END: SHAMEFULLY LOW PRICES. Mission, B&W, KEF, Quad, Nakamichi, NAD, Stax, Plus Over 100 Other Brands. Send SASE For Information. VISA/MC, COD. Serious Buyers Only. East 1-301/464-5428, West 1-206/325-7601. **AudioWorkShop**, Box 18009, Seattle, WA 98118.

NAKAMICHI, CARVER, REVOX, CROWN, BANG & OLUFSEN, TANDBERG, KYOCERA, N.A.D., THORENS, HARMAN-KARDON, B & W, E-V, A.D.S., DCM, KLIPSCH, AND OTHER QUALITY COMPONENTS. BEST PRICES-PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURER'S USA WARRANTY. AMERISOUND SALES, INC., P.O. BOX 24009; JACKSONVILLE, FLORIDA 32241. EAST: (904) 262-4000; WEST (818) 840-0878.

WHY PAY MORE FOR LESS?? NEW USA Warranted Nakamichi Home And Automobile Products. SHAMEFULLY Low PRICES. Serious Buyers Only. Information SASE Required. East 1-202-723-7404, West 1-206/325-7601. **AudioWorkShop**, Box 18009, Seattle, WA 98118.

AD INDEX

Firm (Reader Service No.)	Page
Acoustic Research (1, 2)	261, 263
Adcom (3)	232 & 233
ADS (4)	298
Advent (5)	255
Aiwa (6)	289
Akai (7, 8)	103-106, 331
AKG	334
AudioQuest (78)	190
Audiophile (9)	183
Audio Research (10)	143, 144
Audio Source (11)	199
Azden (12)	343
Belles (80)	305
Bridgestone	225
Brystonvermont (13)	153
B & W (14)	271
Camel	165
Canton (15)	277
Carver (16)	41-69
CBS (17)	333
Celestion (79)	180 & 181
Cerwin-Vega (18)	267
Columbia House (19)	201
Custom Woodwork	4
Dahlquist (20)	221
Dal	346
DCM (22)	193
Denon (23, 24, 25, 26)	3, 4, 209, 217
Discwasher (27)	178
ESS (28)	293
Harman/Kardon	177, 211
Hifidelivision (29)	330
Illbruck (31)	334
Infinity (32)	281
Jack Daniels	127
JBL	128
KEF (34)	240-241
Kinergetics (35)	305
Lucky Strike	123
Magnepan (37)	340
Maxell (38, 39)	243, 244, 291
McIntosh (40)	279
Memorex	140-141
Meridian (41)	347
Mission (42)	31-38
Mitek (43)	257
Mitsubishi	285
Mobile Fidelity (44)	203, 204
Mod Squad (45)	249, 250
Nakamichi	Cover II, Cover III
Nikko (46, 47)	1, 85-100
Nitty Gritty (48)	189
Northeastern (49)	149
Onkyo	79-82, 173-174, 207, 239
Ortofon (50, 51)	197
Pioneer (52)	109-120
Plateau (53)	188
Polk (54)	5-29
Proton (56)	283
Pyle (57)	223
Rogers (58)	83
Rotel (59)	161
Salem	185
Sansui (60)	273
Shure Brothers (61)	188
Sony (62, 63)	102, 131, 132
Soundcraftsmen (30)	154, 155, 157-158, 167, 226-227, 235, 237, 295
Stax (65)	229
Stillwater (66)	342
Studer Revox (67)	73-76
Tandberg (68, 69)	151, 163
TDK (70, 71)	125, 213-214
Technics (72)	Cover IV
Telarc (73)	335, 337
Terk (74)	169, 170
Toshiba (75, 76)	342, 343
Velodyne (77)	336
Winston	147
Yamaha	187

The function of a speaker stand can no longer be taken for granted.



In order to capture the increased fidelity afforded by today's digital and high quality analogue recordings, audiophiles realize that they must place great attention on proper speaker mounting. Improperly mounted speakers fail to project the advantages of new recording technology as increased dynamics are lost in carpets, furnishings and other environmental factors.

For more musical enjoyment from your audio-video system, elevate your speakers on Chicago Speaker Stands. Designs for the economy minded music lover as well as the discriminating audio purchaser. Seven Hi-Tech tubular steel models in heights from 8" to 30".

Encounter the advantages of speaker stand technology.

Chicago Speaker Stand

THE AUDIOPHILE'S CHOICE
4701 West Armitage Chicago, Illinois 60639 312.745.5500

D/A PROCESSORS,
CD PLAYERS

PREAMPLIFIERS

AMPLIFIERS

TUNERS

RECEIVERS

TURNTABLES

TONEARMS

PHONO
CARTRIDGES

TAPE DECKS

BLANK TAPE

MICROPHONES

HEADPHONES

EQUALIZERS

SIGNAL
PROCESSORS

HI-FI VCRs

CROSSOVERS

LOUDSPEAKERS

COLOR BARS

HOW THEY WORK

One of the problems in dealing with BIG Directories like this one is finding individual sections. Big chunks, like loudspeakers, are fairly easy, but little ones, like tuners, are hard to find. We thought up several ways to attack this difficulty; some of the methods considered weren't physically possible, others weren't even remotely cost-effective, and still others could not be mailed because of postal regulations.

Audio's Art Director, Cathy Cacchione, and our Production Director, David Rose, together worked out the basics of a color bar section-flag system for this issue. Additional thanks go to Patti Burns, our Production Manager, for helping carry it out.

So, how does the system work? The color bars along the side of this page are color-keyed to individual sections; use the color bar, and the section name next to it, and then just riffle the issue pages until you see that color. The location of the individual color bars, up or down along the side of the magazine, is fixed—the color at the top will always be at the top, the color in the middle will always be in the middle.

We think you'll find the color-bar system easy to use and effective. We believe it will be easier to use than flipping several times to find page numbers. But let us know what you think.—E.P.

This is Nakamichi

OMS-1000
Optical Memory System

Nakamichi Digital Sound A product of the recording experience

Almost anyone can make a CD player. Only *Nakamichi* could produce the OMS-1000—the first magneto-optical disc recorder! The OMS-1000 is a research tool that took nearly 5 years to develop.

Now *you* reap the benefits!

Introducing the OMS-7 and OMS-5—the first CD *players* with a *recording* heritage—the first CD players with Nakamichi Sound, that ineffable clarity and natural reproduction that must be heard to be believed.

Experience Nakamichi Digital Sound now—at your local Nakamichi dealer.


OMS-7

Remote control, 24-command memory, and direct access to any track and index number—advanced features for our most sophisticated CD player.



OMS-5

OMS-7 sound thanks to 4X-Oversampled Digital Filters, Dual D/A Converters, and our exclusive Direct-Coupled Linear-Phase Analog Signal Processor.

 Nakamichi

Nakamichi U.S.A. Corporation 19701 South Vermont Ave., Torrance, CA 90502 (213) 538-8150
In Canada: W. Carsen Co., Ltd., 25 Scarsdale Road, Don Mills, Ontario M3B 3G7

Making a compact disc player that's portable is one thing. Taking it beyond is Technics.

Introducing the Technics fully programmable portable compact disc player.

It's such a big achievement because it's such a small one. The new portable compact disc player from Technics is barely wider than the discs it plays.

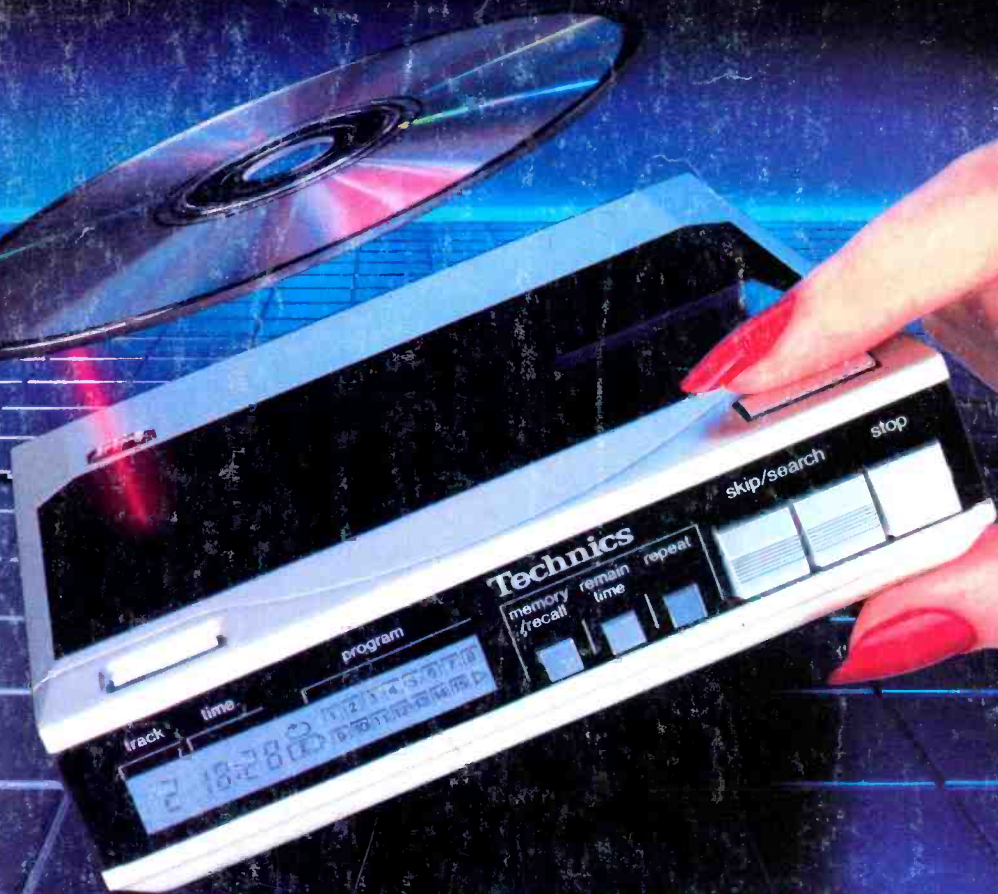
With its optional rechargeable battery pack, you can experience the musical perfection of the compact disc from your backyard to the back woods. To just about anywhere you want to go.

But portability is just one part of the Technics story.

Programmability is another. With the push of a button, you can tell the Technics portable compact disc player what songs to play. What order to play them in. And what songs to skip.

Our new programmable portable compact disc player. Technics takes it beyond the ordinary. So you can take it almost anywhere.

Technics
The science of sound



Headphones not included.

Enter No. 72 on Reader Service Card