

Stereo Review®

APRIL 1989 ● \$2.50

**HOME THEATER:
SURROUND SOUND
MEETS IDTV**

**BUYING GUIDE
TO HI-FI VCR'S**

**HOT NEW PRODUCTS
FROM CES**

**TESTED:
ONKYO CD PLAYER,
OHM SPEAKERS, HAFLER
POWER AMPLIFIER,
MORE**



430492 BCH 8900Y091 741J JAN90
#BCH8900Y091*
#259B*****5-DIGIT 40222
HR DAVID S BUCHANAN 04*VH
8900 YELLOW WOOD PL
MILLSVILLE KY 40222

06276

An earful of n

Looking at them, you'd never suspect that graphite, kapton, polypropylene and neodymium are all that musical.

But polypropylene, when it's injection-molded and reinforced with radially-aligned graphite fibers in our IMG woofer, becomes Stanley Clarke's battering ram bass.

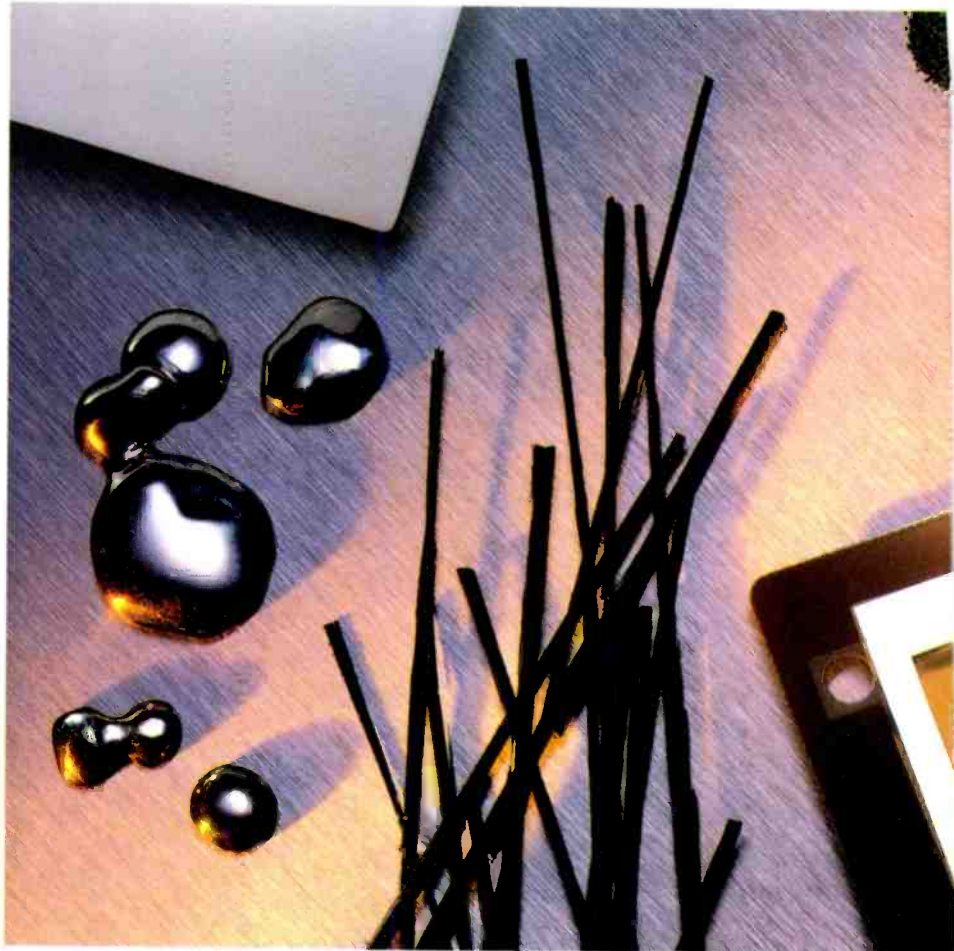
Graphite, in the form of thousands of tiny, hollow spheres in our Polyspherite™ dome midrange, sounds exactly like Kenny G's alto sax on fire.

And kapton, stretched into a micro-thin diaphragm and suspended between powerful neodymium magnets in our EMIT *k* tweeter, is the steam rising from Jeff Hamilton's cymbals.

All these disparate materials, in the hands of our speaker designers, are transformed into the most positive proof that the State of the Art has taken a significant step forward.

Introducing the new RS Series.

These six speakers embody everything we know about the physics of transforming exotic plastics and rare-earth metals into music.



Their drivers are unlike any you've seen or heard before. Drivers we had to invent because there were none this musically accurate before.

Their very cabinet profiles are shaped by our understanding of the behavior of soundwaves.

And their grilles display the mobius emblem that has adorned the most critically acclaimed speakers in the world.

For the audiophile in all of us.

Yet, for all its state-of-the-art engineering, exotic, space-age speaker materials, and extreme sonic accuracy, the RS Series wasn't created for the money-is-no-object audiophile.

Its price range of only \$85 to \$530 per speaker puts the RS Series well within the reach of most people who,

ew technology.

frankly, don't even care about our use of photo-etched aluminum voice coils and Monster Cable® internal wiring. Because it's only the music that really matters.

For all these reasons — musical, technical and economic — we invite you to bring a favorite record or CD to your Infinity dealer and hear it as you've never heard it. Through the new Infinity RS speakers.

We promise you all the passion and excitement you can handle.

Which, since you're as hooked on music as we are, is exactly what you deserve.



We get you back to what it's all about. Music.



©1989 Infinity Systems, Inc. 9409 Owensmouth Avenue, Chatsworth, CA 91311, (818) 709-9400 A Harman International Company. In Canada: H. Roy Gray, Ltd. 14 Latulow Blvd. Markham, Ontario Canada L3P1W7, (416) 294-4833

CIRCLE NO. 19 ON READER SERVICE CARD



Even as the prices of luxury cars go sky-high, Sony brings luxury car stereo down to earth. Introducing the CDX-R77, Sony's most affordable car compact disc player ever. At this price, your CDs at home needn't be home-bound any more. Now you can enjoy their rich, dynamic sound wherever you drive. Sony's stirring CD performance gives the automobile a new type of mobility. Upward mobility.

The CDX-R77 just had to be from Sony. After all, Sony invented the compact disc and we've been making car CD players longer than anyone. Which means we've had more time to refine our technology. More experience making our players rugged to withstand the tortures of the road. And more opportunity to build in valuable features like our SSIR AM/FM tuner, switchable amber or green illumination to match your dashboard, and the ability to handle the new, smaller CD-3s directly.

The CDX-R77 is so attractive, we even made the CDX-R79 — a slide-out version you can keep in your hands and out of the hands of others.



With Sony car CD players at prices like these, it's easier than ever to travel first class. So before you buy your next car stereo, audition the Sony CDX-R77 and CDX-R79. Your ears will convince you: anything less is just pedestrian.

SONY
THE LEADER IN DIGITAL AUDIO™

© 1989 Sony Corporation of America.
Sony and The Leader in Digital Audio are trademarks of Sony
CIRCLE NO. 106 ON READER SERVICE CARD



THANKS TO SONY,
THE PRICE OF LUXURY
TRANSPORTATION
JUST WENT DOWN.

Stereo Review



PAGE 74



PAGE 57



BULLETIN.....	5	TECHNICAL TALK.....	30
NEW PRODUCTS.....	13	CLASSICAL MUSIC.....	87
LETTERS.....	20	POPULAR MUSIC.....	95
AUDIO Q&A.....	26	RECORD MAKERS.....	110
SIGNALS.....	28	THE HIGH END.....	112

EQUIPMENT

HIRSCH-HOUCK LABS EQUIPMENT TEST REPORTS	37
Onkyo DX-7500 Compact Disc Player, page 37	
Ohm CAM 16 Speaker System, page 39	
Ortofon Model 540 Phono Cartridge, page 42	
Hafler XL-600 Power Amplifier, page 48	
SHOW STOPPERS	57
Outstanding new products from the Consumer Electronics Show	<i>by Rebecca Day</i>
THE BEST SEAT IN THE HOUSE	62
A home theater system with surround sound and improved-definition television	<i>by William Livingstone</i>
GET THE PICTURE!	69
A guide to high-technology TV	<i>by Glenn Kenny</i>
HI-FI VCR'S: A BUYING GUIDE	74
Features, specs, and prices of video recorders for audiophiles	

MUSIC

WHERE'S THE ROT?	23
A special report on CD longevity	<i>by Rebecca Day</i>
BEST RECORDINGS OF THE MONTH	81
Emmylou Harris, Schumann Symphonies Nos. 1 and 2, Lou Reed, and Rachmaninoff Piano Concerto No. 1	

Cover: The Philips improved-definition TV monitor/receiver and Shure's HTS subwoofer are components in the home theater system evaluated in the article beginning on page 62. Design by Sue Llewellyn, photo by Roberto Brosan.

STEREO REVIEW BUYER POLL, SEE PAGE 93
Please fill in if you bought equipment in the past thirty days.
READER SERVICE INFORMATION CARD, FACING PAGE 93
Circle the items you want to know about.

COPYRIGHT © 1989 BY DIAMANDIS COMMUNICATIONS INC. All rights reserved. Stereo Review, April 1989, Volume 54, Number 4. Stereo Review (ISSN 0039-1220) is published monthly by Diamandis Communications Inc. at 1515 Broadway, New York, NY 10036; telephone (212) 719-6000. Also publishers of Car Stereo Review, Stereo Buyers' Guide, Compact Disc Buyers' Guide, and Video Buyers' Guide. One-year subscription rate for the United States and its possessions, \$13.94; Canada, \$18.94; all other countries, \$21.94, cash orders only, payable in U.S. currency. Second-class postage paid at New York, NY 10001, and at additional mailing offices. Printed in the U.S.A. Authorized as second-class mail by the Post Office Department, Ottawa, Canada, and for payment of postage in cash. **POSTMASTER/SUBSCRIPTION SERVICE:** Please send change-of-address forms and all subscription correspondence to Stereo Review, P.O. Box 55627, Boulder, CO 80322-5627. Please allow at least eight weeks for the change of address to become effective. Include both your old and your new address, enclosing, if possible, an address label from a recent issue. If you have a subscription problem, write to the above address or call (800) 525-0643; in Colorado, call (303) 447-9330. **PERMISSIONS:** Material in this publication may not be reproduced in any form without permission. Requests for permission should be directed to: The Editor, Stereo Review, Diamandis Communications Inc., 1515 Broadway, New York, NY 10036. **EDITORIAL CONTRIBUTIONS** must be accompanied by return postage and will be handled with reasonable care, but the publisher assumes no responsibility for return or safety of unsolicited art, photos, or manuscripts.

WHEN YOU NEED TO GET IT OUT OF YOUR SYSTEM.



Every now and then you've got to put some distance between you and the rest of the world. And nothing helps you do that like your music and components from Sherwood.

Sherwood audio components combine the right balance of legendary engineering with advanced electronics for superior music reproduction.

And if the Sherwood name isn't enough of a guarantee, there's our **CERTIFIED PERFORMANCE**. You'll see it right on the carton. Not a recap of the specs, but the actual measurements of the unit inside.

No one else takes that extra step. So look for Sherwood components and create a system that's good for your system.

RV-1340R

 **Sherwood**
LIVE PERFORMANCE SOUND™

13845 Artesia Blvd. Cerritos, CA 90701
©1988 Inkel Corporation

CIRCLE NO. 103 ON READER SERVICE CARD

by Christie Barter
and Rebecca Day

TV'S GOLDEN ANNIVERSARY

The Electronic Industries Association is sponsoring an exhibit that begins this month at the Smithsonian Institution's National Museum of American History in Washington, commemorating the first fifty years of television broadcasting. The exhibit, entitled "American Television from the Fair to the Family, 1939-1989," will run until next April and will include artifacts, souvenirs, antique TV receivers, and video segments from the early days of television.

A COMPACT HI-FI CAMCORDER

JVC has introduced the first compact Super VHS camcorder to incorporate hi-fi stereo recording. Priced at approximately \$2,500, the GR-S707U is designed for professionally oriented consumers. Features include audio dubbing, time-lapse recording, an animation function, built-in self-timer, 8-lux low-light sensitivity, and a two-speed 8-to-1 macro-power zoom lens.

RELIEF AND RECORDS TO THE USSR

Mobile Fidelity Sound Lab of Petaluma, California, which has held an exclusive licensing agreement with the state-owned Russian recording company Melodiya for several years, is donating all profits from 1989 sales of Melodiya recordings to the Armenian Relief Society. . . . Columbia Records is reportedly the first Western pop label to ship recordings in bulk to the Soviet Union for retail distribution there. Included in the shipment of 20,000 albums were two of the record industry's all-time best sellers, Michael Jackson's *Thriller* and George Michael's *Faith*, as well as recordings by Bruce Springsteen, Cyndi Lauper, the Rolling Stones, the Bangles, Journey, and Billy Joel.

VICTIM OF THE YEN

Kyocera is no longer marketing audio products in the United

States, citing economic reasons. The company said financial pressures brought on by the stronger yen forced it to look for sources other than Japan for manufacturing, but it could not get the quality it needed to differentiate its products from others on the market. Servicing and warranties for Kyocera brand products will be handled by the parent company's U.S. headquarters in Somerset, New Jersey, and by a network of independent service centers.

CELEBRATIONS

Blue Note Records, the jazz label reactivated in 1985 and distributed now by Capitol, is currently observing its fiftieth anniversary with an artist roster that includes Stanley Jordan, Lou Rawls, Michel Petrucciani, and Dianne Reeves. Highlighting the year-long celebration will be a number of special compilations and a Blue Note 50th Anniversary Concert Tour.

The French classical label Harmonia Mundi is observing its thirtieth year with the release of a special boxed set of six CD's offered for the price of two.

The Stockholm Philharmonic is currently celebrating its seventy-fifth year and has produced, on the Bis label, a special package of eight CD's featuring its music directors and prominent guest conductors over the last three quarters of a century.

STEREO TV SPREADING

About 520 TV stations in the U.S. are equipped to broadcast in stereo, according to a survey done by the newsletter *Television Digest*. The survey found that 146 NBC affiliates are equipped for stereo, more than the ABC (64) and CBS (72) affiliates combined. The PBS network has 82 stereo-equipped affiliates, and there are 154 independent stations with stereo capability. The survey also found that an estimated 99 percent of U.S. homes are within range of at least one TV station broadcasting in stereo.

POP SUPPORTS POP

Pepsi-Cola has joined Philips, the Dutch electronics firm, in backing the 1989 World Music Video Awards scheduled for April 14. The two-hour telecast from London will be picked up from the satellite feed to the U.S. by Fox Broadcasting. . . . The title track from Madonna's new album, "Like a Prayer," released by Sire on March 15, was introduced earlier in the month as a two-minute prime-time-television Pepsi commercial. . . . The recent American Music Awards telecast on ABC (January 30) served to introduce George Michael's current Diet Coke commercial.



KEITH IN A CAN

In a move aimed at hard-core fans, Virgin Records has temporarily retitled the new Keith Richards album, "Talk Is Cheap," and repackaged it—in a tin can. Premium priced at \$24.98 list, as befits a collectors' item, "Keith in a Can" consists of an embossed metal container, designed by Timothy Eames, containing three 3-inch compact discs and a twelve-page booklet with art work and notes. The three CD-3's hold all eleven tracks of the original Rolling Stone's first solo effort, but the edition in this format is limited. Get it while you can!

TERRY ALLEN



SDA SRS 2.3
\$1099.95 ea.

The Polk Revolution Continues!

"Polk reinvents the loudspeaker"

High Fidelity Magazine

Nearly six years ago the audio world was stunned by Matthew Polk's introduction of revolutionary SDA technology. While other designers had been concentrating on small refinements to existing loudspeaker technology, Matthew Polk opened the door to new frontiers of exciting realism in sound.

True Stereo SDA technology maintains stereo separation all the way to your ears, something which no conventional speaker can achieve. Conventional speakers make it sound like the musicians are trapped in the speaker boxes or in the small space between them. Polk's patented SDA speakers fill the entire width of your listening room with sonic images so breathtakingly real that it's just like having the musicians in the room with you. They must be experienced to be believed!

Introducing the SDA SRS 2.3

Introduced two years ago, the flagship SDA Signature Reference System (SDA SRS) is the ultimate expression of loudspeaker technology. A two-time winner of the prestigious Audio Video Grand Prix Award, the SDA SRS was recently chosen by the editors of Stereo Review magazine for their ultimate dream system.

Now being introduced, the SDA SRS 2.3 offers all of the benefits of third generation SDA technology in a slightly more modest package. It is the perfect speaker for those listeners who demand the best and most exciting listening experience but who cannot accommodate the larger SDA SRS.

Words can never fully express the thrilling experience of listening to the new SDA SRS 2.3. Effortless reproduction at live concert levels, distortion free, body-tingling bass and room-filling stereo imaging are executed so flawlessly that when you close your eyes you'll forget that you are listening to speakers at all. Visit your local Polk dealer and experience them for yourself.



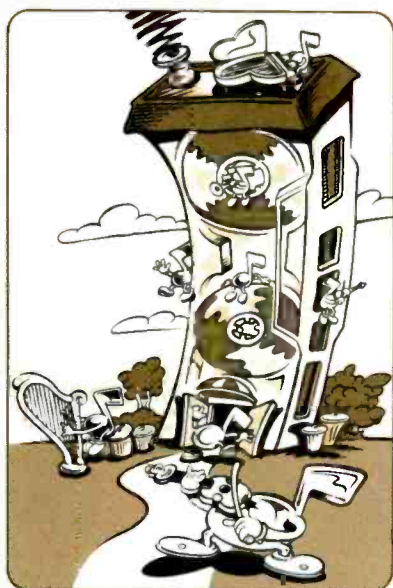
Matthew Polk's award winning SDA SRS 1.2 and the SDA SRS 2.3.

polkaudio
The Speaker Specialists®

5601 Metro Drive, Baltimore, Md. 21215

Where to buy Polk Speakers? For your nearest dealer, see page 103.

CIRCLE NO. 90 ON READER SERVICE CARD



IS YOUR CLASSICAL MUSIC SUFFERING FROM POOR HOUSING CONDITIONS?



High resonance housing will put any tape in a nasty mood. Especially when pests, such as modulation noise, gnaw on the purity of digitally sourced music.

At TDK, we believe the formula for perfect reproduction includes not only technologically superior tape, but housing that enhances its performance.

Our incredible new SA-X, for example, features an ultra low resonance SP-ARII mechanism. By utilizing our unique co-molding technique, the unified two-layer shell realizes maximum total rigidity to improve reliability. Which drastically reduces modulation noise—an enemy of clear, pure sound that even noise reduction systems are powerless against.

This undesired "noise" is also attacked by SA-X's revolutionary magnetic characteristics and smooth, flat tape surface. First, there are the densely packed and uniformly distributed ultra fine Super Avilyn magnetic particles. Then, there is the advanced dual coating technology.

Together, the result is an unbelievably quiet tape with an exceptionally low bias noise of -61.0 dB. Plus, low and high frequency MOLS of +5.0 dB and -6.5 dB respectively.

And SA-X, which provides transparent reproduction of the most powerful digital sources, is available in convenient lengths of 46, 60 and 90 minutes.



EXTRA HIGH RESOLUTION / RESOLUTION EXTREMEMENT ELEVEE

CIRCLE NO. 119 ON READER SERVICE CARD

Stereo Review

LOUISE BOUNDAS
Editor in Chief

MICHAEL SMOLEN
Executive Editor

SUE LLEWELLYN
Art Director

WILLIAM WOLFE
Technical Editor

CHRISTIE BARTER
Music Editor

DAVID STEIN
Managing Editor

REBECCA DAY, WILLIAM GOLDMAN
ROBERT ANKOSKO
Senior Editors

LOREN FALLS **LAURA KELLY**
Associate Art Director Associate Editor

CATHERINE FLEMING
Assistant Art Director

BARBARA AIKEN, ROCCO MATTERA
MARYANN SALTZER
Editorial Assistants

WILLIAM LIVINGSTONE
Editor at Large

Contributing Editors: Robert Ackart, Chris Albertson, Richard Freed, Phyl Garland, David Hall, Ron Givens, Bryan Harrell (Tokyo), Roy Hemming, Julian Hirsch, Ralph Hodges, Stoddard Lincoln, Ian Masters, Louis Meredith, Alanna Nash, Mark Peel, Henry Pleasants (London), Ken Pohlmann, Parke Puterbaugh, Charles Rodrigues, Eric Salzman, Steve Simels, Craig Stark, David Patrick Stearns

Production Director: Karen Rosen
Production Manager: Michele Lee

WINSTON A. JOHNSON
Vice President and Publisher

ADVERTISING

Advertising Director: Nick Matarazzo

National Manager: Charles L. P. Watson
(212) 719-6038

Consultant: Richard J. Halpern
(212) 719-6940

Account Executive: Sharon Dube
(212) 719-6037

Account Manager: Tom McMahon
(212) 719-6025

Assistant to the Publisher: Nadine L. Goody
Classified Advertising: (800) 445-6066

Midwestern Managers: Arnold S. Hoffman,
Jeffrey M. Plaster, (312) 679-1100

Western Managers: Robert Meth,
Paula Borgida Mayeri, (213) 739-5130

Tokyo Office: Iwai Trading Co., Ltd.
603 Ginza Sky Heights Building, 18-13,
Ginza 7-Chome, Chuo-Ku, Tokyo, Japan 104
Japan Representative: J. S. Yagi, (03) 545-3908



STEREO REVIEW is published by Diamandis Communications Inc., a wholly owned subsidiary of Hachette Publications, Inc.

President & CFO: Peter G. Diamandis
Executive Vice President: Robert F. Spillane
Senior Vice President, Finance & CFO: Arthur Sukel
Senior Vice President, Manufacturing & Distribution: Murray Romer

Senior Vice President, Operations & Administration: Robert J. Granata

Vice President, Controller: David Pecker
Vice President, General Counsel: Catherine Flickinger

Vice President, Circulation: Leon Rosenfield
Vice President, Communications: Phyllis Crawley
Vice President, Marketing: Anthony F. Incalcaterra
Vice President, Research: Bruce Geishfield
Senior Vice President, Sales: James A. Frahm

New. More amazing than ever.

Introducing the new Silver Edition Amazing Loudspeaker with Sonic Holography® Generator and Electronic Control System.



By looks alone you know this is no ordinary speaker. The Silver Edition trades a bulky, boxy cabinet for unfettered musical freedom. Its full-range ribbon transducer is open to the room, projecting seamless 25 Hz to 40,000 Hz sound both forward and back, creating near-photographic imaging and realistic spatial ambience. Its three enclosureless, twelve-inch subwoofers deliver bass that's tactilely tight and deep.

And each fifty-four-inch, piano-lacquered panel looks as good as it sounds. While occupying less than two square feet of floor space.

Up to this point we've described a brilliant, unconventional and yet proven dipole speaker design. One which offers openness, detail and sonic impact far in excess of its modest price. And which solves inherent problems plaguing far more expensive ribbon transducer designs.

But in order to fully earn the title "Amazing Loudspeaker," Bob Carver has endowed the new Silver Edition with even more technology.

At its heart is an Electronic Control System. Not an "equalizer" to compensate for shortcomings, but three dramatic sound enhancement circuits, plus bass "Q" and high frequency trim adjustments in a single component.

Select *Sonic Holography*® for the spectacular, 3-dimensional imaging *High Fidelity* described as seeming to "open a curtain and reveal ... musical forces extending behind, between and beyond the speakers." With any CD, record, tape or video sound source.

Add ultra-low fundamentals below 20 Hz with a *Sub Bass* generator that detects and enhances existing low level information. On bass-shy recordings, it takes advantage of the Silver Edition's long-throw free-air subwoofer system to restore bone-shaking musical reality.

There's even a unique circuit

that psychoacoustically "zooms" you back from the speakers. Called the *Gundry Perspective*, this effect creates the illusion of concert hall depth ahead of you without disturbing overall frequency balance. Combine it with *Sonic Holography*®, *Sub Bass* generation and the Silver Edition's own innate ability to create a vast, open listening space, and you have a truly amazing aural phenomenon.

More than just a reproducer of music, the Amazing Loudspeaker Silver Edition becomes a restorer of sonic reality. In its most minute, organic detail.

Finally, there is one more very realistic thing about this new Amazing Loudspeaker model. Its price. Far less than you might pay for conventional loudspeaker designs which can't begin to match the Silver Edition's warmth, vitality and spaciousness.

Reawaken your sense of amazement with an audition at your nearest Carver dealer soon.



CARVER

POWERFUL

MUSICAL

ACCURATE

Carver Corporation, P.O. Box 1237, Lynnwood, WA 98046
For more information or the dealer nearest you, call 1-800-443-CAVR

Distributed in Canada by EVOLUTION AUDIO INC.

Accelerate to audiophile performance in the automotive environment. Introducing the first high-power, pull-out cassette/receivers good enough to be called Harman Kardon.

Harman Kardon autosound is backed by more than thirty-five years of leadership in advanced audio technology. Always innovative, Harman Kardon is responsible for such audio breakthroughs as ultrawidebandwidth, low negative feedback, High Instantaneous Current Capability, Phase Locked-Loop FM tuning and the world's first stereo and high fidelity receivers. Applying its technical expertise to autosound, Harman Kardon delivers quality performance that's designed for the home, built for the road.

The latest components from Harman Kardon's complete line of mobile electronics are designed to perform both together and in conjunction with existing systems. Sleekly styled, these units offer American-designed ergonomics for ease of operation. A calculated, precise front panel layout truly makes listening easy, even under the most demanding conditions.

The CR131 and CR151, powered* cassette/receivers feature the same premium heads used in Harman Kardon's renowned high-end home systems. Teamed with Dolby B noise reduction and precise, bi-directional azimuth adjust, they provide true 20Hz to 18kHz bandwidth (+/- 3dB) while driving hiss and distortion to new lows. Both models include quartz-synthesized FM sections, 18 FM and 6 AM presets, and dual fader-controlled pre-amp outputs. The CR151 adds Dolby C, full-logic feather-touch transport, special Hi-Q interference rejection and external processor loop.

To double the output, add the CA212 half-DIN in-dash power amplifier for solid, clean, reliable power* with advanced protection circuitry and 0.5% THD. Incorporate the CQ10 7-band equalizer and you can optimally contour the sound to the specific environmental conditions of any automotive system. Convenience features include a front panel mini-jack input for portable stereos or CD's. It offers a built-in electronic crossover to allow for additional subwoofer system expansion. The CQ10's extraordinary flexibility makes it an important addition to any sophisticated component system.

Classically designed, innovatively driven. Accelerate to audiophile performance with Harman Kardon.

*Our ratings are as distortion-free as our amps. Unlike many manufacturers, Harman Kardon uses only the conservative FTC measurement standard. The CR131 and CR151 deliver 12 Watts per channel into 4 Ohms, 20Hz-20kHz with less than 0.9% THD. Beware of "peak power" ratings, measurements at 1k bandwidth: only or those with as much as 10% harmonic distortion.

CR151

Autoreverse Hi-Power Pull-Out Cassette Receiver

- PLL quartz tuning
- Hi-Q interference rejection
- 18 FM / 6 AM presets with scan
- Dual azimuth heads
- Dolby B/C** NR
- Music search
- Full logic transport
- Key-off release & tape end eject
- Separate bass/treble
- External processor loop
- 2 preamp outputs
- 12 + 12W RMS/ch.



CQ10

1/2-DIN Equalizer/Electronic Crossover

- 10dB boost/cut
- 50, 200, 500, 1K, 3.2K, 8K & 16K bands
- Portable CD/tape player front & rear panel jacket
- Fader 80/125/200Hz 2-way electronic crossover



CA212

1/2-DIN Power Amplifier

- 12 + 12 W RMS into 4 Ohms 20-20kHz w/less than 0.5% THD
- Low negative feedback design
- Advanced protection circuitry

**Dolby is a trademark of Dolby Licensing Corp.

For more information and your nearest dealer call toll free 1-800-525-7000 Ext. 101 or write 240 Crossways Park West, Box 9101, Woodbury, New York 11797



***In-Home Performance In-Dash.
Inevitably Harman Kardon.***



harman/kardon

A Harman International Company



“Why all Boston Acoustics

speakers sound alike. (More or less, that is.)”

Andy Petite, chief designer, Boston Acoustics.

“At Boston Acoustics, live music is our basic reference standard. And since we design each of our speakers to sound musically accurate, all of our systems have a remarkable sonic resemblance.

“Any full-range speaker system, whatever its size, should have good octave-to-octave tonal balance and wide dispersion. We provide these qualities in *all* of our speaker systems—from the A40 bookshelf to the T1000 tower. (From our long experience in listening to many competitive speaker lines, the same can be said of only a few.)

“In larger rooms and at higher listening levels, the differences—and the superiority—of our more expensive systems begin to emerge. They can play louder without strain, and reproduce deeper bass. *But this doesn't detract from the musicality, accuracy and tonal balance of our smaller speakers.*

“How much sound a speaker produces in your listening room also depends on the room's size, the music you listen to, and how loud you play it. Because all Boston Acoustic speaker systems—bookshelf, floor-standing and tower—meet all *our* standards, there's at least one that should meet *your* special requirements and conditions.*

“So when you visit a Boston Acoustics dealer, ask to hear a Boston speaker. *Any* Boston. We can't promise you perfection, but we *will* bring you as close to the music as the state of the art allows.”

*“It certainly helps that we design and build our own speakers—all with the same high quality materials. Further, we manufacture all our speakers to such tight tolerances that any two samples of a given model are virtually identical. And to insure this, we test each completed system—every single one—before it leaves the factory.

“Finally, sonic similarity is especially important with surround-sound systems. An all-Boston system assures the greatest sonic impact.”



The A40 Series II.

Our most popular bookshelf system.

“...attains an aura of spaciousness surpassed only by some of the far more expensive multi-directional speakers.” *The New York Times.*

Suggested retail: \$170 a pair.



Introducing the T930 Tower System.

Combines our finest midrange and tweeter with a new 10-inch long-throw woofer.

Suggested retail: \$800 a pair in walnut veneer, \$650 a pair in black woodgrain laminate.

BostonAcoustics

NEW PRODUCTS

Carver

The Silver Edition of Carver's Amazing Loudspeaker system combines a full-range ribbon driver with three 12-inch, very-long-throw subwoofers that have a bipolar dispersion pattern. Frequency response is rated as 23 to 40,000 Hz -3 dB, impedance as 8 ohms, and sensitivity as 88.5 dB. Recommended power range is 60 to 1,200 watts per channel. The system includes an out-board electronic controller with a Sonic Holography generator, a sub-bass synthesizer, and a "gundry perspective" circuit that can modify upper-midrange output to make the sound source appear to be further back than it is. The speaker panels are 54 inches high, 27½ inches wide at bottom, and 10 inches deep. Finish is ebony lacquer with silver highlights. Price: \$2,195 a pair. Carver Corp., Dept. SR, P.O. Box 1237, Lynnwood, WA 98036.



Bang & Olufsen

Bang & Olufsen's Beosystem 4500 is a wall-mountable system consisting of a matching receiver, CD player, cassette deck, and turntable. All the components can be controlled with a single handheld Beolink remote unit. The system can feed remote speakers in other rooms through optional B&O Master Control Links.

The Beomaster 4500 AM/FM receiver is rated for 100 watts per channel into 8 ohms and has twenty presets. The Beogram CD4500 compact disc player uses quadruple oversampling and has a mo-

torized lid. A special disc clamp holds CD's firmly when the player is vertically wall mounted. The Beocord 4500 is an autoreverse cassette deck with Dolby B, Dolby HX Pro, and automatic head demagnetization. The radial-tracking Beogram 4500 turntable includes a built-in phono preamplifier. Prices: receiver, \$1,098; CD player and cassette deck, \$800 each; turntable, \$499; remote control, \$175. Bang & Olufsen of America, Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

Circle 121 on reader service card

Case Logic

Case Logic's CD-60 carrying case can hold sixty CD's. The soft-sided case has a nylon outer shell, padded with foam rubber, and plastic trays inside. There is a detachable shoulder pad and strap. Colors are black, gray, or blue. Price: \$39.95. Case Logic, Dept. SR, 6930 Winchester Circle, Boulder, CO 80301.

Circle 120 on reader service card



Teac

Teac's AG-75 AM/FM receiver is rated for 75 watts per channel. It features a discrete output stage, matrix-surround circuitry, connections for two tape decks with dubbing in both directions, a CD input with a CD direct switch, and a twenty-eight-key remote control with a motorized volume control. The quartz-

PLL, frequency-synthesis tuner section has sixteen presets and auto-scan tuning. Capture ratio in FM is rated as 2 dB, alternate-channel selectivity as 50 dB, AM suppression as 55 dB. Price: \$399. Teac, Dept. SR, 7733 Telegraph Rd., Montebello, CA 90640.

Circle 122 on reader service card

NEW PRODUCTS



Cooustic

The Cooustic RX-728 car cassette receiver features the company's Auto-Aligned Azimuth system, said to eliminate high-frequency losses associated with azimuth misalignment. Rated to deliver 25 watts per channel, it has quartz-PLL, frequency-synthesis tuning, twelve AM/FM presets, ignition-off pinch-roller release, Dolby B and Dolby C noise reduction, and metal-tape equalization. Price: \$315. Cooustic, Dept. SR, 4260 Charter St., Vernon, CA 90058-2596.

Circle 123 on reader service card

Altec Lansing

Altec Lansing's Model 511 four-way tower loudspeaker is designed to give listeners control over the tonal balance of the system. Its crossover system has four level controls: The first, for the two 10-inch long-throw woofers, provides a choice of three rolloff curves. Other controls allow ± 3 -dB level adjustments for the upper bass, midrange, and treble. Frequency response is rated as 20 to 22,000 Hz ± 3 dB. Users can select either normal amplification or bi-, tri-, or quad amplification by connecting the gold-plated jumper on the back of the speaker. Input terminals are made of heavy-duty gold-plated copper. Cabinet dimensions are 57 x 13 x 13½ inches. Price: \$3,000 per pair. Altec Lansing, Dept. SR, Milford, PA 18337.

Circle 124 on reader service card



Memorex

To make it easier to record typical compact disc albums on cassette tape, Memtek has added three new lengths to its high-bias Memorex HBS II line: 46, 76, and 100 minutes. The 60- and 90-minute Memorex HBS II cassettes will continue to be available. Prices for the new lengths: C-46, \$1.59; C-76, \$1.99; C-100, \$2.59. Memtek Products, Dept. SR, P.O. Box 901021, 1600 Two Tandy Center, Fort Worth, TX 76101.

Circle 125 on reader service card



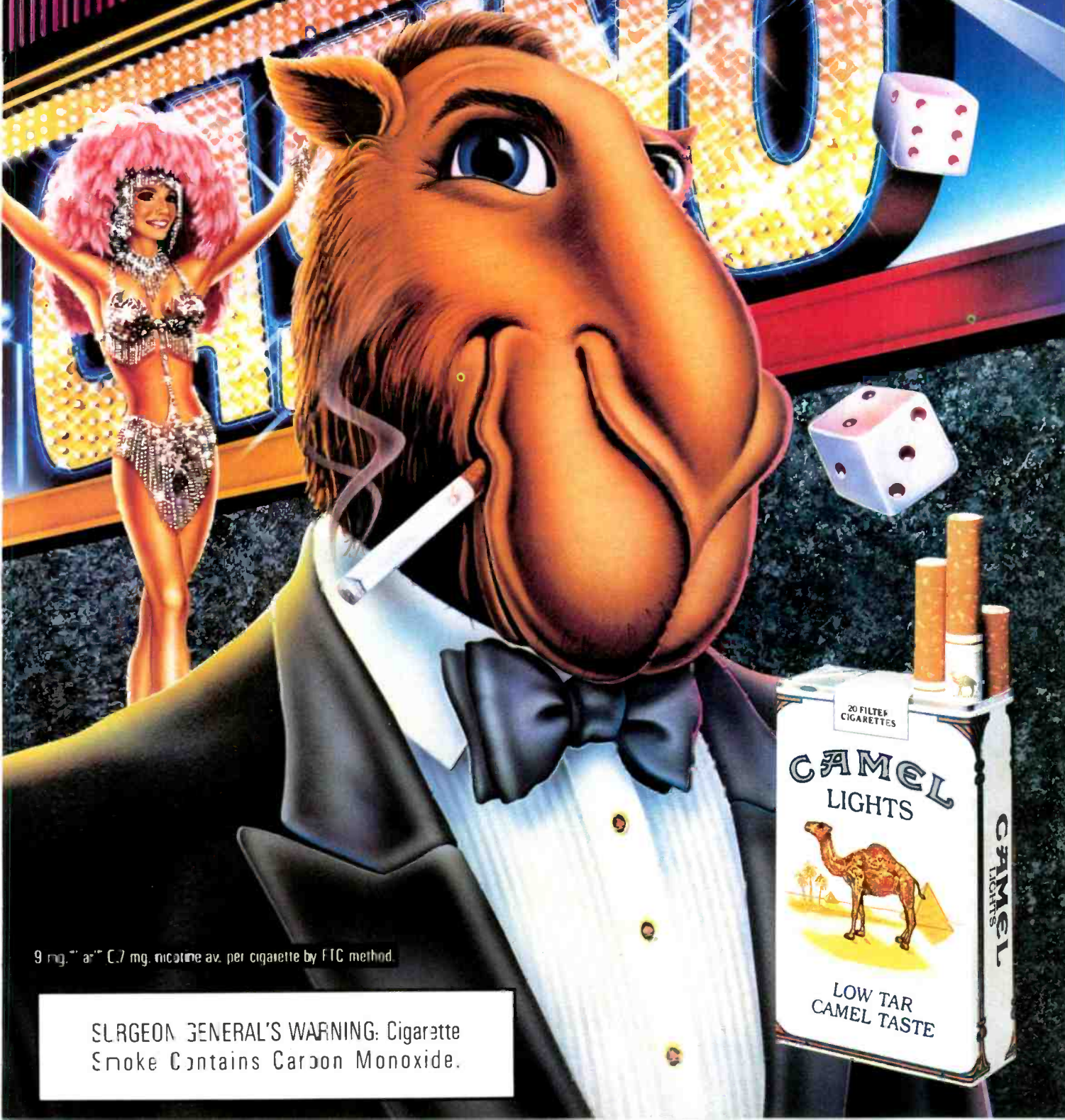
Pioneer

The Elite C-91 is Pioneer's top preamplifier. It can control up to five video sources and two audio tape decks along with inputs from a CD player, tuner, and MM or MC phono cartridge. The dual-mono construction isolates the left and right audio channels to reduce crosstalk, noise, and distortion. There are separate power supplies for each channel and a third for the video circuits, displays, relays, microprocessors,

and electronic switches. The circuit boards are said to be isolated from vibration and other external disturbances. Included is a "smart" remote control that can learn the infrared codes for virtually any other remote-controlled component regardless of manufacturer. Price: \$1,400. Pioneer Electronics, Dept. SR, 2265 E. 220th St., Long Beach, CA 90801-1720.

Circle 126 on reader service card

Smooth character.



9 mg. "a" C.7 mg. nicotine av. per cigarette by FTC method.

SRURGEON GENERAL'S WARNING: Cigarette
Smoke Contains Carbon Monoxide.

NEW PRODUCTS



Onkyo

Onkyo's TA-R300 cassette deck has Dolby HX Pro in addition to Dolby B and Dolby C noise reduction. It features quick-autoreverse using an optical sensor rather than mechanical devices to

reverse tape travel. Its Accubias circuit automatically sets the deck for the tape type being used. A remote control is included. Price: \$360. Onkyo, 200 Williams Dr., Ramsey, NJ 07446.

Panasonic

The Panasonic SL-NP11 portable compact disc player can operate on two AA-size NiCad rechargeable batteries for up to 2 hours. The batteries are said to recharge in 3 hours using the supplied AC adaptor. The supplied one-button, four-function remote control plugs into any headphone cord. An auto-power-off function operates if the player is left in the stop or pause mode for more than 5 minutes. The SL-NP11 uses quadruple oversampling. Weight is about 14 ounces with batteries. Price: \$349.95. Panasonic, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

Circle 127 on reader service card



Velodyne

Velodyne's SA-7 forward-firing tower subwoofer incorporates the company's High Gain Servo technology. An accelerometer-based correction loop is said virtually to eliminate harmonic distortion at any frequency or output level. Distortion is rated as no more than 2 percent at 25 Hz. The 12-inch driver has a stiff, low-mass cellulose cone, a 56-ounce magnet, and a copper voice coil said to be capable of more than 1 inch of peak-to-peak excursion. The built-in amplifier is rated at 100 watts rms, 400 watts peak. Speaker-level crossovers allow integration with an audio or video system, and a mono line-level input can be used with external crossovers or surround-sound processors. The cabinet measures 33½ x 13¾ x 15¾ inches. Price: \$995. Velodyne Acoustics, Dept. SR, 1746 Junction Ave., San Jose, CA 95112.

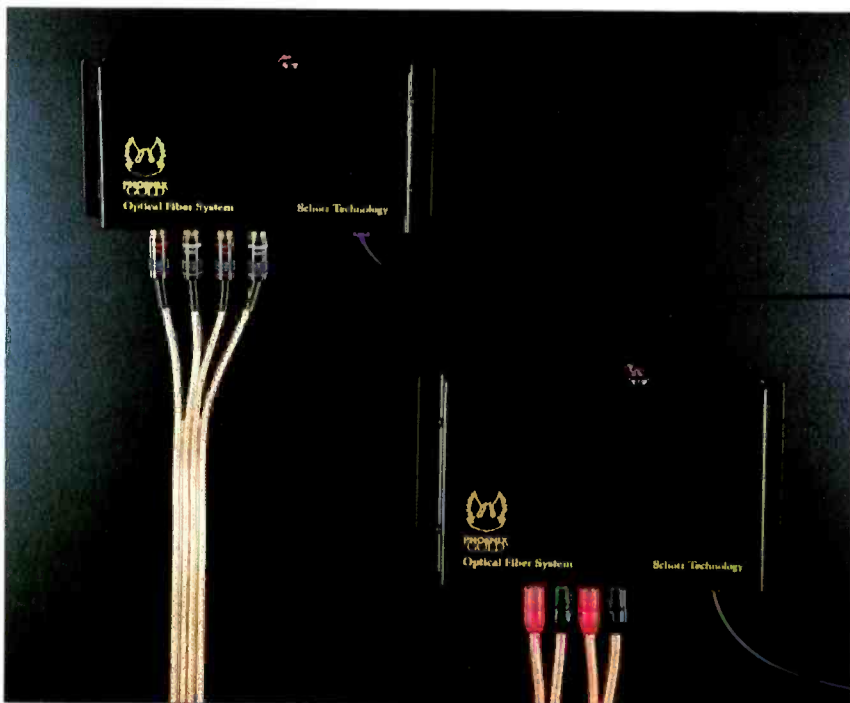
Circle 128 on reader service card

Phoenix Gold

The Phoenix Gold Optical Fiber System, OFS-1, is designed specifically for car audio and transmits four signals through one fiber-optic cable ¼ inch in diameter. Claimed advantages of the OFS-1 system include its small cable size, immunity to radio-frequency and electromagnetic interference, elimination of capacitance and resistance problems, and elimination of ground loops.

The transmitter unit (left in photo) can be mounted in the dash next to a cassette receiver or CD player. The receiver unit (right) is designed to be mounted near the system amplifiers and crossover, connected by short RCA cables. Price (including 20-foot cable): \$225. Phoenix Gold, Dept. SR, 8 Jackson Rd., Marblehead, MA 01945.

Circle 129 on reader service card



Fresh air and wide-open spaces.

Introducing the first tuner/preamplifier that includes Carver's remarkable sonic enhancements.

We didn't invent the preamplifier/tuner combination. We just gave it what it's always needed:

Fresh air — A remarkable FM tuning system that virtually eliminates station noise and multipath interference.

Wide open spaces — The ability to recreate 3-dimensional sonic reality with your existing speakers.

Asymmetrical Charge-Coupled FM Detector. At the touch of a button on the CT-Seven's burnished face plate, multipath distortion, interference and distant station noise are dramatically reduced. Yet stereo separation, space, depth and ambience are not only retained, but seemingly enhanced by the lack of background noise. Choose 6 FM and 6 AM presets by remote control or scan the broadcast band in auto or manual mode. You may even discover "new" stations which were previously unlistenable!

Sonic Holography® Generator. The CT-Seven is capable of redefining your perception of music by recreating the multi-dimensional sound stage of a live performance. According to some of America's top reviewers, Sonic Holography® "...seems to open a curtain and reveal a deployment of musical forces extending behind, between and beyond the speakers. The effect strains

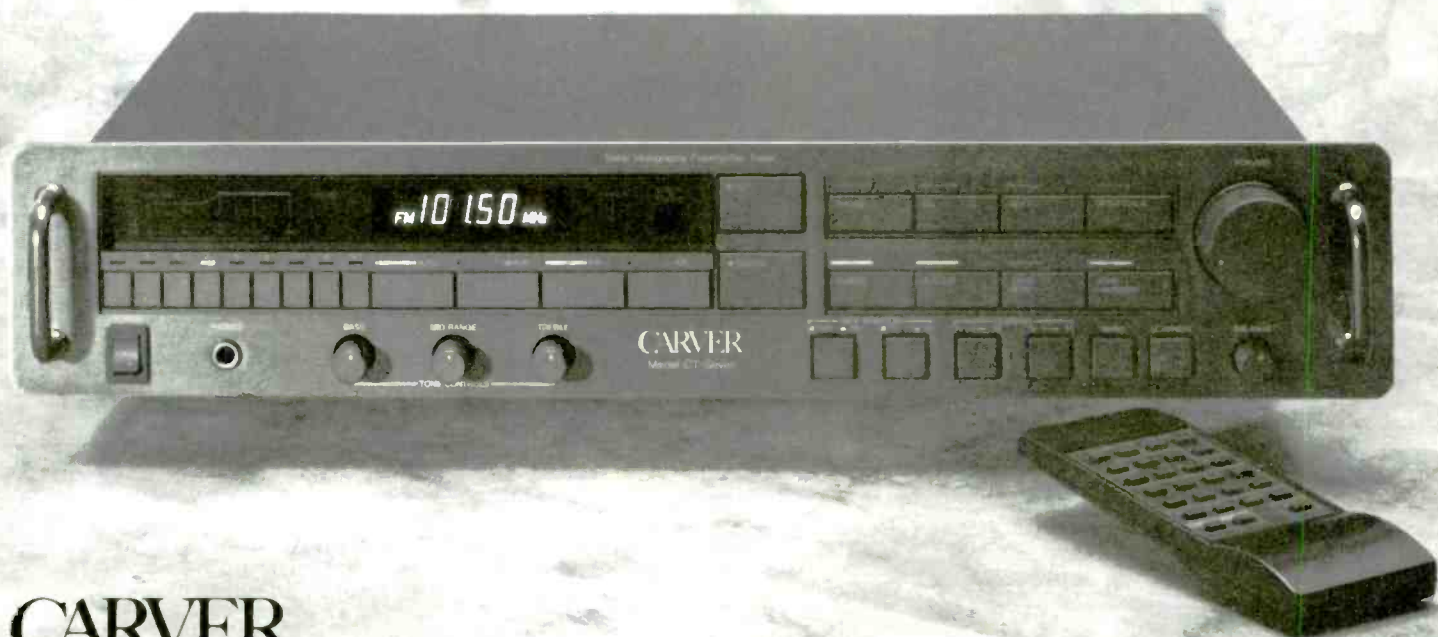
credibility." And you can create it from any stereo sound source. With your existing speakers.

Useful features and remote control. The CT-Seven includes an ultra-low noise phono stage pre-preamplifier for both moving magnet and moving coil cartridges plus dual tape monitors, CD input and AUX for video sound. Instead of distortion-inducing electronics, the CT-Seven's remote volume control is motorized for smooth control and smoother sound quality.

The CT-Seven's powerful partners. Only Carver gives you four perfectly matched power amplifier choices each using Carver's cool-running Magnetic Field Technology which dispenses with bulky power supplies and power-wasting external heat sinks... yet which is so rugged it's used in the world's largest touring professional sound systems.

Fresh air, wide open spaces and serious power at your Carver dealer. Switch between the CT-Seven and the most expensive tuner in the room to hear Asymmetrical Charge-Coupled FM Detection work its magic. Turn up the volume to live performance sound levels and discover the impact of true dynamic headroom.

And then get ready for another pleasant experience when you discover just how affordable performance like this can be.



CARVER

POWERFUL

MUSICAL

ACCURATE

Carver Corporation, P.O. Box 1237, Lynnwood, WA 98046
For more information or the dealer nearest you, call 1-800-443-CAVR

Distributed in Canada by EVOLUTION AUDIO INC.



Live in Concert. Forget the tickets. Put away the tux. Just hook up a pair of Pioneer's new ST Series speakers and let the performance begin.

Now there's a new line of advanced speakers designed to bring out the full dynamic range and emotion of today's digital recordings.

Developed by the same team that makes Pioneer's renowned TAD speakers for major recording studios, these speakers feature ceramic carbon dome tweeters for flawless, brilliant highs and integrated twin woofers for natural, powerful bass. Even the cabinets are superbly crafted to enhance imaging and minimize vibration for smooth, true-to-life sound.

So if it's great live performances you're looking for, catch the debut of our new ST Series at your Pioneer dealer today.



 **PIONEER**

We Bring The Revolution Home.™

LETTERS

Recordable CD's

I just read the January "Bulletin." Where do CD enthusiasts write to complain to the RIAA and IFPI about their opposition to the recordable compact disc? I was so excited when I first heard about a recordable compact disc—the ability to preserve my personal recordings forever: the kids, the dog barking, etc. Then I heard nothing about it for months while I patiently waited. Now this! I don't normally write letters, but I am so angry right now I'll need a bulk rate from the Post Office!

CARL TENNEY
Ringoes, NJ

You can write to the Recording Industry Association of America at 1020 19th St., N.W., Suite 200, Washington, DC 20036. The International Federation of Phonogram & Videogram Producers is at 54 Regent St., London W1R 5PJ, Great Britain.

Keith Richards

The last sentence of Steve Simels's review of the new Keith Richards album in January highlights, probably unintentionally, the Jagger/Richards mystique. Mr. Simels calls the album "a convincing declaration of artistic independence from one of rock's most influential figures." The reader cannot tell if the phrase "one of rock's most influential figures" refers to Richards himself or to Mick Jagger. I suspect that Mr. Simels intended the former.

Richards's album is not bad. The problem is that you have to listen to it about twenty-five times before you start liking it. In the old days (up to and including "Exile on Main Street"), it only took about twenty-five seconds.

ROBERT KANEDA
U.S. Embassy, Paris

CD Reissues

Music Editor Christie Barter's comments (February, page 62) about the significance of reissued material on CD's are valid and useful. It might be said that the reissues alone are worth the investment in a CD player. There is one problem that I have found with some "reissued" material, however, particularly jazz recordings: Some analog recordings are being released on CD as reissues when the material consists partially or entirely of alternate takes. For example, at least half of the selections on Columbia's Miles Davis-Gil Evans "Miles Ahead" CD are alternate takes. I have no problem with the release of alternate takes or alternate solos if they are identified as such. The problem is that Columbia and other record compa-

nies do not always let the buyer know when CD's contain alternate takes.

STEWART VANDERMARK
Natick, MA

Cataloging Tip

In the letter from W. S. Hubbard in the January issue, "Cataloging a Collection," Mr. Hubbard suggests that the computer program dBase III+ is the best choice for this purpose. But dBase III+ is an elaborate relational data-base program, not easy to use and quite expensive. The type of reports that Mr. Hubbard describes, as well as much more elaborate reports, could easily be produced by a program of the "file manager" (or "flat file") type, in which only one data-base file is open at a time. This kind of program is much cheaper to buy and much easier to learn. I am using PC-File Version 1.04 for exactly the same application as Mr. Hubbard.

JOSEPH RICHARD
Yorktown Heights, NY

Longer CD's

With the hope that you have not set off a Guinness Records type of search for the longest-playing CD with "CD Stretch" in February's "Letters," let me report that I purchased a Pilz compact disc that exceeds the seventy-nine-minute length of the Angel CD of Strauss's *Eine Nacht in Venedig*. The Pilz disc is Dvořák's *Stabat Mater* in a recording by the Radio Symphony Orchestra of Ljubljana. Its length is seventy-nine minutes and thirty-eight seconds, and at a retail price of \$6.98, it must be the most "generous" CD yet produced.

WILLIAM G. MILLER
Lancaster, PA

Rykodisc's "Mission of Burma" CD by the group of the same name is eighty minutes and eight seconds long.

SEAN MCGOLDRICK
Brooklyn, NY

Thanks to the other readers who also cited "Mission of Burma."

High-Definition Television

In a reply to a letter in the January issue, Technical Editor William Wolfe said, "... fortunately, the FCC has ruled that it will consider only those HDTV [high-definition television] designs that are compatible with the current NTSC system." STEREO REVIEW should be leading the charge against that decision, not applauding it.

For twenty-five years, Americans have put up with color TV images of significantly lower quality than those available in Japan and Western Europe

because the FCC insisted on making our color TV compatible with 1940's-technology black-and-white receivers. Now, astonishingly, the Commission wants to cripple 1990's HDTV by tying it to the same obsolete technology, now half a century old. Sort of like saying the new Stealth bomber must be made with parts interchangeable with a B-25!

Clearly, the search should be for the best available picture.

STEPHEN D. LEONARD
Mesa, AZ

William Wolfe replies: While some HDTV prototypes based on non-NTSC-compatible systems do outperform their NTSC counterparts in some areas, the differences are often subtle and may not be discernible at all under real-world viewing conditions. Because the FCC is a governmental body, political and economic considerations are unavoidably part of its decision making. But its ruling in this case is still "fortunate" because it means that every American will still be able to watch TV, whether he can afford a new HDTV set or not.

Shocking Tactics

As a retail salesperson, I enjoyed Ken C. Pohlmann's "How to Buy a CD Player" (October) up to the point where he said, "Hit the player a few times on the top and the sides to ascertain the pickup's ability to track." Why does everyone feel it is necessary to beat, poke, and pound on equipment? If you test drive a Mercedes, do you drive it into a wall to ascertain the bumper's ability to withstand the shock? I think you might encounter some difficulties when you return it to the dealer.

I don't want a customer to bang, hit, or otherwise abuse any piece of equipment on my sales floor. This merchandise will someday be owned by a valued customer. Even though there may be no cosmetic damage, who is to say what the life expectancy might now be? Until you can convince manufacturers to give stores free floor samples to be beat on, please refrain from advising people to test equipment in this fashion.

BRENT THULL
Columbia, MO

Corrections

An incorrect address was given in the March test report on the Wharfedale Diamond III speaker. Wharfedale's U.S. address is 1230 Calle Suerte, Camarillo, CA 93010.

In the photo on page 142 of the November 1988 issue, the singer shown with Luciano Pavarotti is not Edita Gruberova but the Chilean mezzo-soprano Victoria Vergara. □

Say "No" To Oatmeal

I've been a studio drummer for eight years. So, I'm very critical about speakers, mostly because I know what drums are supposed to sound like. Most speakers make a kick drum sound like someone's playing a bowl of oatmeal. I don't even like the way oatmeal tastes, let alone how it sounds.

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

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

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

*For your nearest KLIPSCH dealer,
look in the Yellow Pages or call toll free,
1-800-223-3527.*

 **klipsch®**
A LEGEND IN SOUND™

P.O. BOX 688 • HOPE, ARKANSAS USA 71801

CIRCLE NO. 2 ON READER SERVICE CARD



Family Affair. If you're looking for a place to take the family for some great entertainment, don't move an inch. Because with Pioneer's 50" projection monitor, you can turn an evening at home into a night at the movies.

It's a fact. No other projection monitor delivers a brighter, sharper picture. Images are as crisp and clear from the sides as they are head on. Plus you get built-in digital Dolby Surround™ sound capability; and the convenience of a "Smart Remote"™ control.

So if you want the best, you only have one choice: the full line of projection monitors from Pioneer. Finally, theater-quality entertainment in your own home. Just make sure you have plenty of popcorn.

 **PIONEER**®

We Bring The Revolution Home.™



© 1988 Pioneer Electronics (USA) Inc., Long Beach, CA For more information, call 1-800-421-1404. Dolby Surround is a trademark of Dolby Labs, Inc. E.T. The Extra-Terrestrial is available on MCA Home Video, cassette and video laser disc. © 1982 Universal City Studios, Inc. All Rights Reserved.

WHERE'S THE ROT?

A SPECIAL REPORT ON CD LONGEVITY BY REBECCA DAY

THE headlines in British newspapers last summer undoubtedly sent chills down every CD owner's spine: "Compact discs 'fade out after eight years' use," the *Manchester Guardian* said. "The CD Controversy—Music Giants on the Warpath as Manufacturer Claims Those 'Everlasting' Albums Fade Away. Warning: The Years Can Leave Your Discs in Dire Straits," the *Daily Mail* trumpeted. The headlines accompanied highly publicized articles on the alleged deterioration of compact discs, or, as it came to be known, "CD rot."

A few weeks earlier, the British magazine *New Scientist* had reported on CD tests conducted by the Japanese pressing plant Ultech for Mobile Fidelity Sound Lab, which was experimenting with metals other than aluminum for the reflecting layer of CD's. The company was looking for a metal more durable than aluminum.

The *Guardian* picked up the story and asked the U.K. disc manufacturer Nimbus Records for more information on the longevity of CD's. It then quoted Nimbus officials as saying that certain CD's would begin to self-destruct within eight to ten years because inks used for labeling had "begun to eat into the protective lacquer" coating, oxidizing the reflective aluminum layer and making the CD's unplayable.

Amid the uproar that followed, subsidiaries of Philips and Sony, co-developers of the compact disc, issued statements to the press.

The Philips response was issued by Philips and DuPont Optical Company (PDO), which is the world's largest manufacturer of compact discs: "We have produced nearly 200 million CD's throughout Europe and America," PDO said, "and no one has ever complained of 'fade-out' effects. We have over fifteen years' experience in manufacturing optical discs. During this time we have conducted continual testing, including artificial aging, under severe environmental condi-

tions, and our original discs, now fifteen years old, are still not showing signs of quality loss."

In another statement, Leon Vogels, worldwide managing director of consumer media at PDO, said: "We foresaw the potential danger of corrosive inks and other noncompatible materials destroying the aluminum layer by oxidation. So we got our chemistry and materials right, and obviated that problem from the word go. It simply doesn't happen to PDO discs."

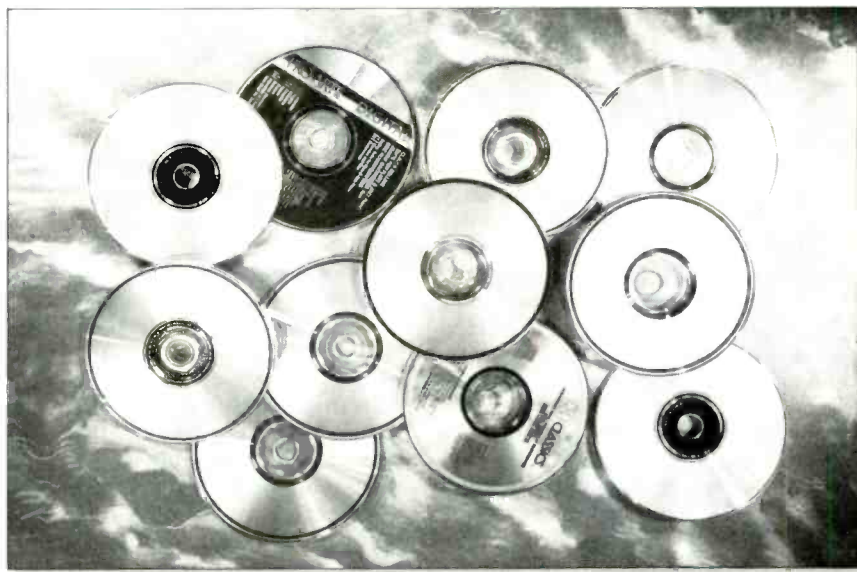
Sony Corporation of America said: "This is not a CD format problem. Theoretically speaking, it is true that materials used for CD production, including ink for the printed label, may show some kind of chemical change over time. Such change could damage a compact disc if the materials are not chosen carefully. . . . Before launching compact discs to the market, Sony conducted accelerated aging tests which show no change of the product even after more than ten years' time. Sony has continued to conduct such tests on a permanent basis ever since."

Even Nimbus, which started the whole flap, pulled in the reins a bit, issuing a news release that called the

Guardian story an "oversimplification." The company, which itself had encountered problems with labeling ink eating through the lacquer coating and oxidizing the aluminum layer, had its own reasons for questioning the reliability of CD's produced by other manufacturers. It had just come up with a new CD manufacturing process that it claimed cleared up previous problems, and it was now guaranteeing its discs for a hundred years.

In the release, Nimbus maintained that "There is certainly no cause for any CD customer to doubt the durability and quality of any disc manufactured to appropriate high standards, but in those cases where the delicate information layer has been badly protected, a lifetime guarantee must be considered speculation. In the end, you get what you pay for."

Meanwhile, Mobile Fidelity's reasons for wanting to come up with a superior CD were clear: It had built its reputation on a two-tiered record catalog that offered a "better/best" choice for consumers. To bring the story up to date, I spoke with Mobile Fidelity's president, Herb Belkin. He compared the company's Ultradisc, a compact disc that uses



DAVID KELLEY

24-karat gold for the reflective layer, to its UHQ LP's, which are pressed on pure vinyl and command a higher price than its standard LP's.

Belkin told me that the test conducted for Mobile Fidelity by Ultech indicated that "There are deleterious effects on aluminum CD's when they're subjected to a variety of environmental circumstances. The degradation has to do with the type of aluminum and the type of polycarbonate [substrate] used and the steps used in a variety of processes which allow air and moisture to get between the aluminum layer and the polycarbonate."

In the tests, Ultech compared discs made using 24-karat gold with aluminum discs pressed by a number of other plants. All of the discs were subjected to the same life-cycle test: 2 hours at 65° C and 95 percent humidity, 12 hours at 40° C and 95 percent humidity, and 2 hours at -30° C. After thirty cycles, more than half of the aluminum discs exhibited error rates that made them unplayable, but the gold discs were relatively unchanged.

Does this mean you should junk all your aluminum CD's in favor of gold? Absolutely not. Mobile Fidelity guarantees its aluminum CD's as well as its gold discs, and a Sony official told me that a properly manufactured aluminum disc will last "indefinitely." Other factors—such as the thickness of the substrate, the type of polycarbonate used, or the kind of labeling inks—may have contributed to the results of the Ultech tests. Also, the quality control for the gold discs may have been much more stringent than for the aluminum discs. Finally, *your* discs are not likely to encounter the same extreme conditions as the Ultech test discs.

The next question, then, is how reliable are extreme, simulated-aging tests in determining real-life durability? "What our research points to," Mobile Fidelity's Belkin told me, "is that in a laboratory environment you can create oxidation in an aluminum CD to the point where the CD loses reflectivity." He added, however, "I don't think anybody has come out and said what the life cycle of a CD is under normal conditions."

Even Nimbus conceded in a press release that aging tests are speculative: "Our accelerated-aging tests are intended to simulate in a short space of time (hundreds of hours)

what might be expected to happen over many decades, but we make no indication of a quantitative conversion factor. . . . We cannot say how many years of real use correspond to an hour of accelerated aging."

Cambridge Audio, which had been studying CD error rates for corrective purposes, also released to the press test results for aluminum discs. Its findings were that "well under 5 percent" of the sample discs showed significant signs of long-term failure. In the worst case, the number of dropouts increased by more than two hundred times in three years, which, the company said, "gives direct evidence of serious deterioration in an eighteen-month period." But Cambridge Audio also said that "Discs made by certain companies have proven to be worse than others, but not consistently so, giving evidence that the problems are primarily of a batch-to-batch [quality-control] nature."

When I spoke with Dr. Harald Ahrens, director of development and consumer media at PDO in Hanover, West Germany, he told me that it's difficult to transfer the results of forced laboratory tests to real-life situations. Moreover, he said, comparison tests to determine sonic and reliability differences among various types of metals have yielded "no remarkable differences." As PDO's Vogels told the press, PDO produces gold- or silver-metalized discs when customers want them, "but they have no performance or longevity advantage over aluminum."

Ahrens explained that manufacturers use "bler values," representing the number of errors per second, to determine a disc's susceptibility to deterioration. Bler values of up to 220 are allowed by "Red Book" CD format standards developed by Sony and Philips. "Today's discs," he said, have bler values "in the range of 50." Philips and Sony receive royalties of 3¢ for every disc pressed, and license to press is granted on condition that discs meet Red Book standards.

How can you tell if your discs have been manufactured to standard? A good policy would be to stick with major labels or reputable specialty labels that you're familiar with, which is probably what you do when you buy LP's and cassettes. "The problem with offbeat labels is that you're not sure of the manufacturing source," I was told by Ron

Petty, director of corporate communications for Sony of America. "The well-known labels are going to be quality-controlled."

Keep in mind that manufacturers' longevity claims for CD's are based on the discs' being handled under proper conditions. Contrary to what some salesperson might have told you, you can't eat pizza off a disc or throw one like a Frisbee without risking damage. Also, exposure to extremes of heat, humidity, or cold could increase the number of errors in a disc. Storing CD's in your car is asking for trouble. Here are PDO's suggestions for CD care:

1. Don't leave oily finger deposits on CD's. Handle them on the outer edges only, holding them between your thumb and fingers.

2. Don't bend a disc when removing it from the jewel box.

3. Be sure that the blank side is dustfree before you put the disc in the player.

4. Remove dust with a soft, lint-free cloth, wiping the disc in a radial direction, from the center to the outer edge.

5. Breathe onto a disc before wiping off impurities or fingerprints.

6. Don't use solvents such as gasoline or alcohol that might damage the protective coating or the label.

7. Don't use markers or gummed stickers to label CD's. They could eat through the protective coating and destroy the aluminum layer.

There will probably always be some people who believe CD's are doomed to failure. But, realistically, all we have to go on regarding the longevity of CD's after their seven short years on the market is what the two largest disc pressers told me: They have had *no* discs returned because of so-called "CD rot." The same goes for the Tower Records chain, whose president, Russ Solomon, told me that Tower's return rate on CD's is "very, very small." And of those that have been returned, Solomon said, none can be attributed to deteriorating discs.

Right now, there's no definitive way to predict the life span of a CD. The original Philips promotional motto for the CD—"Perfect Sound Forever"—was a pretty weighty statement that almost invited intense scrutiny. The word today from PDO is that as long as discs are handled and stored properly, they should last at least as long as the people who own them. And that should be long enough. □

by Ian G. Masters



Wet Playing

Q *I have heard of playing vinyl records with water or isopropyl alcohol sprayed onto the surface. Can this degrade the sound quality or damage the record?*

TOM SEVERS
Slidell, LA

A Some years ago, wet playing enjoyed a brief popularity, and at least one company produced an accessory that tracked along with the tone-arm, dampening the grooves as it went. Dampening was supposed to help the stylus negotiate the groove smoothly by lubricating the surface, to reduce static charges that could collect dust as the record played, and to reduce the surface noise caused by contaminants on the disc. The practice did do all this to some extent, but its benefits were heavily outweighed by its drawbacks.

For one thing, the liquid alters the chemical composition of the vinyl surface, with the result that once a record has been played wet, it always has to be played that way. Also, the fluid has a tendency to mix with whatever dust is in the groove; when this dries on the stylus it has the consistency of cement. Finally, because it takes a record some time to dry, you have to wait several minutes before playing the second side or returning the disc to its sleeve.

Still, there are situations where these drawbacks might be tolerated. For instance, many people are willing to put up with all the hassles to tape one good

copy of an irreplaceable old favorite. Wet playing should definitely be a last resort, and the improvement is likely to be small, but if you choose to try it make sure that you use only distilled water, that you clean your stylus after each record (while the stylus is still wet), and that the record is thoroughly dry before you put it away.

Efficiency and Subwoofers

Q *I'm confused about the use of subwoofers with high-efficiency main speakers. Is it correct to assume that a highly sensitive speaker would nullify the effect a subwoofer is supposed to produce?*

KENNETH J. HARRIS
Washington, DC

A No. The sensitivity of a speaker determines how much acoustic output is achieved for a given electrical input, not the frequencies at which the output occurs. If your high-sensitivity speakers roll off sharply in the bass—some do, some don't—then a subwoofer might be a worthwhile addition, as it is designed to reproduce the lowest octave or two, where many full-range speakers are relatively weak.

Matching sensitivities of subwoofers and primary speakers is only a concern when they are to be driven by the same amplifier, as the two together should produce a balanced sound, and that is difficult to achieve if the bass unit is much less sensitive than the full-range speakers. Separately amplified subwoofers can be independently adjusted to take care of this, so they are probably the best bet for use with very efficient main speakers.

70-Volt Speaker System

Q *My son is building a new home, and he plans to install ceiling speakers in each of six rooms. We have heard of using a 70-volt system to feed these speakers from a common source. Would that be a practical solution?*

AL ERBES
Piqua, OH

A Only if he plans to listen at fairly low levels. Sound contractors use 70-volt systems where they wish to drive a large number of speakers from one amplifier, such as in public-address or background-music applications. A transformer is used at the amplifier's outputs to step the maximum voltage up to 70 volts, and a similar transformer is placed in the circuit at each speaker location to drop the voltage to an appropriate level for that speaker. As long as the total power requirement of the speakers does not exceed the ampli-

fier's capacity, speakers can be added or subtracted (or turned on and off) at will, without regard to impedance considerations.

That might seem to make a 70-volt setup ideal for your son's purposes. But most of the transformers available are not designed for high-quality use; they're typically very small, and their cores are easily saturated if too much power is applied. At anything higher than elevator-music levels, therefore, most of the bass will be lost.

Protecting Cassettes

Q *When my listening room is being cleaned, I put my cassettes in a closet to keep them away from any electromagnetic fields generated by the vacuum cleaner. Is this necessary?*

JESSE GARFIELD
Tamarac, FL

A It can't do any harm, but you are probably being too cautious. True, electromagnetic fields such as those generated by motors, speakers, the coils in television sets, and the like have the potential to erase magnetically recorded material, but these fields have to be very strong to do any damage. Radiation of this sort decays rapidly with distance, so unless you store your cassettes where the vacuum cleaner can come within a foot or two of them, you needn't take any special precautions.

Y-Cords for Surround Sound

Q *My preamplifier only provides a single pair of output jacks, which I currently have connected by Y-cords to the inputs of two power amplifiers that have been bridged to mono. I want to add a surround-sound decoder and amplifier, but I'm not quite sure how to do it. If I add another Y-cord, will this cause any signal loss?*

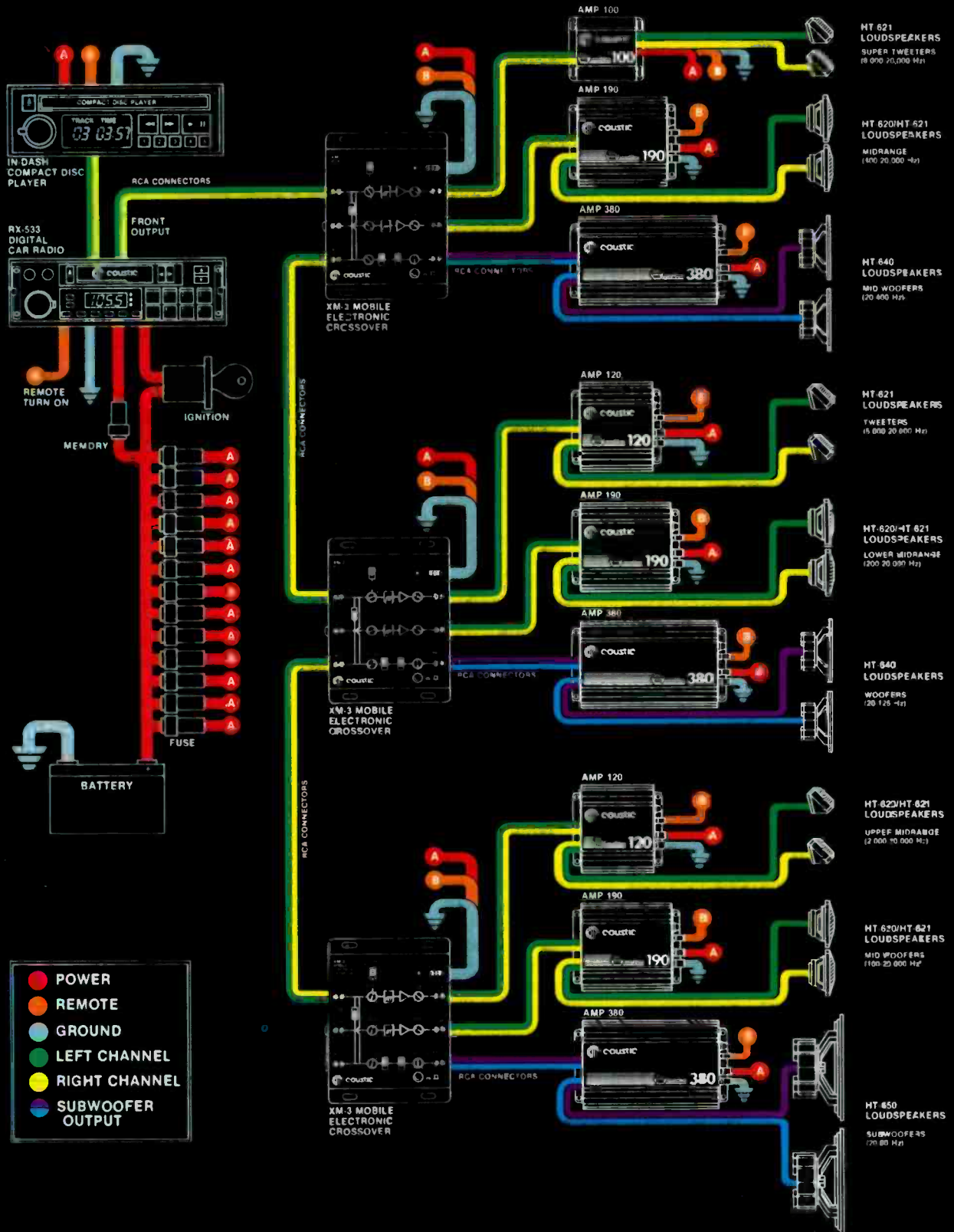
KEVIN E. SUNDERLAND
APO, New York

A Connecting a single output to three amplifier inputs (the two inputs of the bridged unit plus the surround decoder) by cascading Y-cords would probably have no ill effects, but in most cases such an arrangement is unnecessary. Practically all surround decoders have both front and rear outputs, so all you need to do is to connect your preamp to the decoder with conventional patch cords, feed your bridged amplifiers from the front outputs using the Y-cords you now have, and feed a separate rear amplifier from the decoder's rear outputs. If the surround unit has a built-in power amplifier, simply hook up the rear speakers to it, having wired the front as described. □

Plain Vanilla

Not only do we design and build it, we know how to put it together

simple as plain vanilla.



SONIC SOLUTIONS

by Ken C. Pohlmann

ONCE upon a time, noise was noise and that was that. If an interfering signal got in the way of your recording, there was little you could do about it. If your tape deck superimposed tape hiss on a recording, it was there to stay. If a bad microphone cable introduced clicks and pops into a recording, they became part of the performance.

Over the years, technicians have fought valiantly against noise and interference. For example, the hiss on a tape recording could be reduced by rolling off the high frequencies, and clicks and pops could be edited out with a razor blade. Such methods, however, destroyed the audio signal along with the noise. More enlightened methods, such as those devised by a young engineer named Ray Dolby, used dynamic, double-ended processing systems to reduce noise yet compensate for the effect of the processing.

With the advent of digital signal processing, the tools in the battle against noise took a giant step forward. For the first time, it was possible to pinpoint a noise artifact precisely and to minimize its effect without affecting the audio signal. Thomas Stockham, Jr. was a pioneer in this field. In 1971 he restored some early Caruso recordings (circa 1906) using a digital method known as blind deconvolution (so called because the nature of the signals being operated on cannot be precisely defined). The noise and other recording artifacts, such as the resonances of the horn used to make the acoustic recordings, were identified and removed, leaving a restored audio signal. The drawback was the amount of computation that was required.

Today, the idea of digital noise reduction is being implemented with modern signal-processing methods and applied to numerous commercial releases. Case in point is Sonic Solutions, a San Francisco company founded by former employees of The Droid Works, a

defunct subsidiary of Lucasfilm (a pioneering group in its own right). The Sonic Solutions NoNoise system can reduce or remove clicks, pops, hum, tape hiss, and surface noise from a master recording without tampering with the music. In addition, using methods borrowed from the field of artificial intelligence, signal content that was lost because of tape drop-outs can be synthesized with great accuracy.

The all-digital NoNoise process starts by dividing the audio spectrum into frequency bands, then performs an analysis of the recording using digital signal-processing techniques. The spectral composition of surface noise and hiss is determined, and this fingerprint is used to develop an inverse function to remove the noise. Ideally, the fingerprint data are taken from a silent portion of the recording, such as during a pause. Because there is no music signal, the noise can be more accurately analyzed. Alternatively, samples can be taken from an area of low-amplitude music and a noise template applied.

For removal of steady-state artifacts, such as hiss, the audio signal is considered in small sections. The energy in each frequency band is compared with that of the noise fingerprint, and the system determines what action to take in each frequency band. For example, at a particular point in the program, the music may dominate in a lower spectrum and the system will pass the signal in that band unprocessed, while hiss dominating at a higher frequency may trigger processing in that band. In most cases, some original noise is retained, because the result is generally more natural sounding.

Interactive graphic displays are used to locate isolated defects, and a "de-clicking" program removes the offending sound, analyzes the frequency and amplitude of the music around it, and synthesizes a music signal for the section that was removed.

Hiss from a noisy analog recording, wind noise in an outdoor recording, hum from a studio's air conditioner, even the ambient noise obscuring information in a downed aircraft's flight recorder can all be reduced by the NoNoise system. In

short, NoNoise can make a processed recording more faithful to the live sound than the original master recording.

That, of course, is a radical idea. It goes against intuition and will certainly stir some audio skeptics. It seems like faulty logic—you'd expect that a processed recording would contain subtle changes in the music. But within the constraints of the process, only artifacts, and not the music signal, are affected.

On the other hand, as with most technology, NoNoise requires expertise in its application, and improper use *could* degrade a recording. The crux of the issue is the degree to which processing is applied. Perhaps the removal of 10 to 15 percent of the noise level is enough to make the difference between an acceptable recording and one that's unpleasantly noisy. Additional noise removal may pose problems, if only because of psychoacoustic phenomena that make us think it is the audio signal that is being affected. Remember that one criticism of early CD releases was their "unnatural silence," that is, lack of background noise.

The proof of course, lies in your own listening evaluation. Fortunately, many examples of NoNoise-processed recordings are already on the market. Over the past eighteen months, more than two hundred CD reissues have been produced with NoNoise. For example, it was NoNoise processing that made the 1943 original-cast album of *Oklahoma!* (the first musical ever recorded) suitable for reissue.

Of course, even a system as powerful as NoNoise is just the beginning. Because the original NoNoise system was too costly for record companies to buy for in-house use, Sonic Solutions has gone on to develop the Sonic System, a second-generation product offering noise removal and a whole lot more. It is a Macintosh II-based Desktop Audio system capable of editing, equalizing, mixing, dynamics processing, and, of course, NoNoise processing—everything you need to prepare a CD's master tape. Clearly, digital signal processing will increasingly influence tomorrow's recordings as well as yesterday's. □

Deceptive Engineering

Obvious but *very* deceptive...

You'll probably notice our 50-watt RX-533 offers obvious features such as Digital AM/FM cassette/radio with Dolby® B & C noise reduction, 24-preset stations, preset scan, tape program search, separate bass & treble tone controls, etc., and of course, it's *removable!*

But you'll probably overlook the not-so-visible but specially engineered features such as FM optimizer II circuitry designed for superior FM reception and built-in Automatic Radio Monitor for filling the void with music while you are fidgeting with your tape. Special cassette features such as "Auto Azimuth Correction System" rotates the tape head 180 degrees whenever tape direction changes to keep perfect azimuth alignment, Keyoff Pinch Roller Release minimizes wear and tear of tape pinch roller and DC servo motor accurately controls tape movement thus minimizing wow and flutter.

Plus pre-amp outputs and CD/AUX input capability designed for flexible system expansion, two-tone illuminated control panel guarantees easy viewing and identification and replaceable Lithium back-up battery helps protect and store information in the microprocessor.

Though not in plain view, these state-of-the-art engineering innovations are obviously what you have come to expect from a company with over 11 years of manufacturing experience.

Cooustic...a sound investment.



cooustic®

4260 Charter Street
Vernon, CA 90058-2596
(213) 582-2832

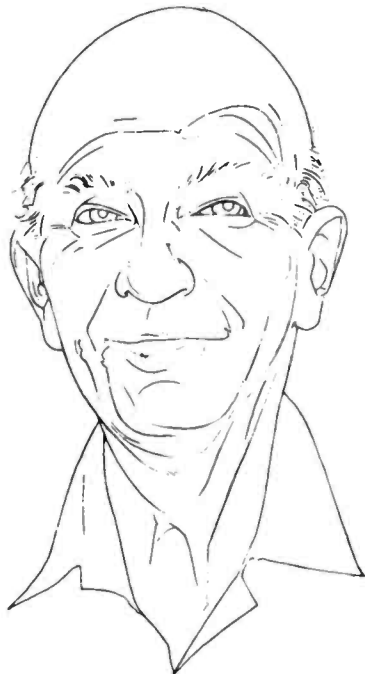


© Cooustic 1987

® Dolby is a registered trademark of Dolby Laboratories.

CIRCLE NO. 38 ON READER SERVICE CARD

by Julian Hirsch



FMX NOISE

THREE years ago, in the March 1986 issue of *STEREO REVIEW*, I discussed a new and promising technique for improving the quality of stereo FM reception. FMX, as it was called, was developed at the CBS Technology Center, and it was designed to reduce noise in weak-signal stereo reception to levels close to those of mono broadcasting with little or no effect on the stereo qualities of the program. Although a specially modified receiver was needed to reap the benefits of the system, FMX-encoded broadcasts could be received with standard FM tuners, though without any reduction in noise level.

Shortly before writing that column, I had heard a demonstration of FMX, using internally generated transmissions and a modified tuner, at the CBS Technology Center. As far as I could tell, the system performed exactly as claimed, even under conditions of simulated "picket-fence" effects such as those often encountered in mobile FM reception. Experimental transmissions

from a Connecticut FM station indicated that the reception area for stereo FM broadcasts could be doubled by the FMX system. Other broadcasters were about to install FMX, and NAD was developing an FMX-equipped receiver. It looked as though a major breakthrough had been made in improving the quality of FM broadcasting.

Not long afterward, CBS closed the Technology Center. A company called Broadcast Technology Partners, or BTP, was formed to continue the development and introduction of FMX. BTP holds the patents relative to FMX and is headed by FMX's co-inventor, Emil Torick. Currently, a number of FM stations are transmitting FMX-encoded programs, and both Alpine and JVC recently announced FMX-equipped car receivers. Seemingly, FMX was finally coming into its own, roughly three years after its introduction.

But wait: A well-attended technical session held at the Massachusetts Institute of Technology in late January of this year cast serious doubt on the viability of FMX. The session featured a dramatic presentation by Dr. Amar Bose and Dr. William Short of Bose Corporation (Dr. Bose is also a professor of electrical engineering and computer science at M.I.T.). Although the Bose Corporation has little direct involvement in FM broadcasting or receiver design, the research team undertook a detailed analysis of the effects of multipath on FM reception.

Multipath, which is the arrival of one or more reflected (and thus delayed) signals at the receiver, is

actually the normal condition of FM reception in most locations, although it can vary widely in its severity. In general, mobile operation is most affected, but few FM receiv-

Currently, a number of FM stations are transmitting FMX-encoded programs, and Alpine and JVC recently announced FMX-equipped car receivers. Seemingly, FMX was finally coming into its own. But wait . . .

ing locations are free of it. Typical effects include harsh distortion, loss of stereo separation (or even of the entire audio program), and a severe increase in noise.

In general, the degree of signal degradation from multipath is a function of the frequencies and levels of the ultrasonic components in the transmitted signal, such as the 19-kHz stereo pilot carrier and the difference-signal (L - R) sub-band from 23 to 53 kHz. A standard mono transmission (rare these days, but not entirely extinct) is inherently quieter and cleaner than any stereo transmission.

On top of all the other portions of a standard stereo program, FMX adds a *second* difference signal in the same frequency band as the normal one but in quadrature with it (shifted in phase by 90 degrees). This second difference band is compressed (compressed in transmission and expanded in reception) to reduce the noise it adds during the demodulation process in the receiver. At low modulation levels the quadrature difference signal replaces the noisy conventional difference signal, yielding an overall noise reduction of up to 14 dB, compared with 20 dB for fully blended or mono reception. As the modulation level increases, the normal stereo difference signal comes into use automatically.

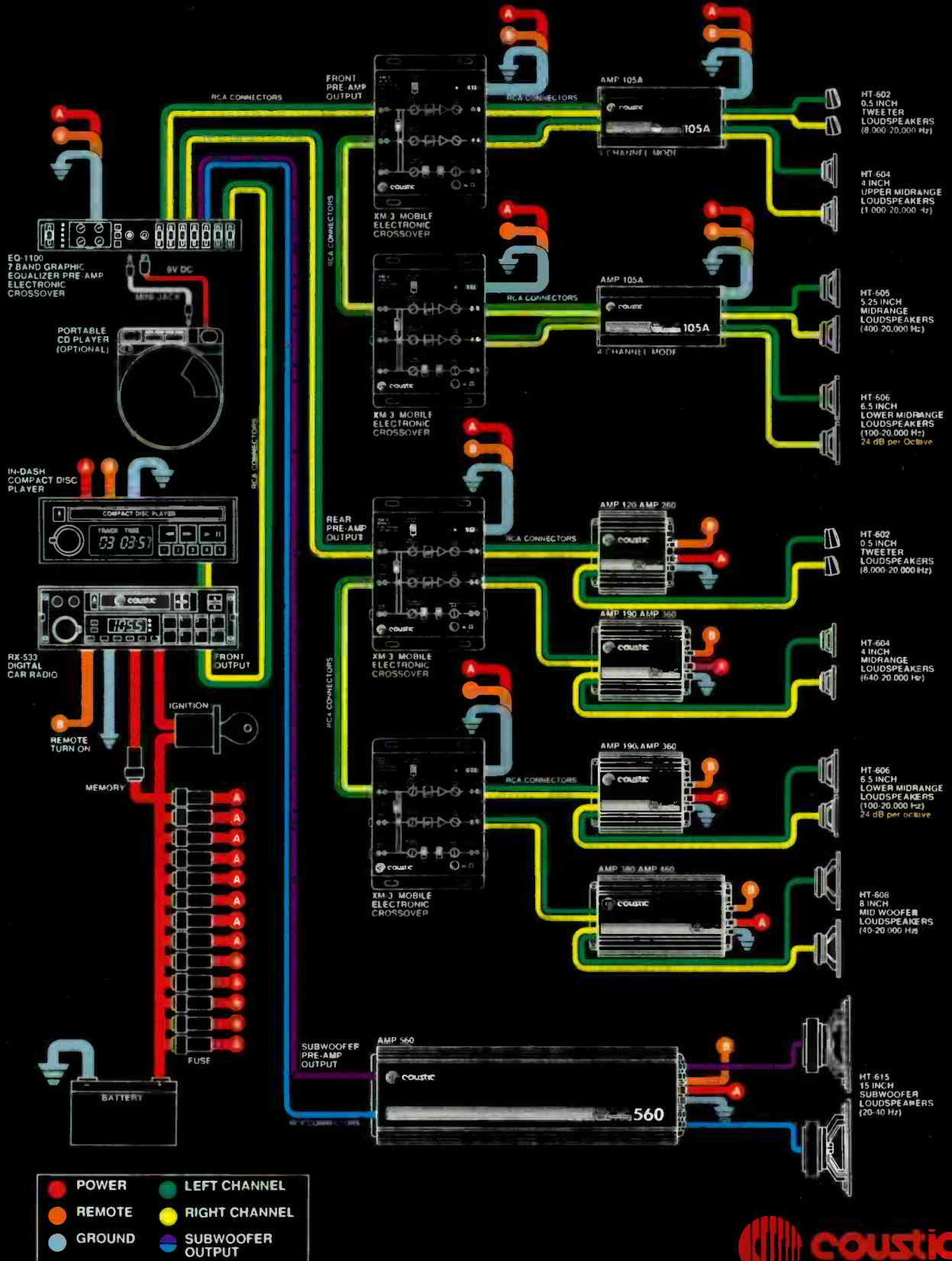
At M.I.T., Dr. Bose claimed that while FMX is an ingenious approach to improving FM stereo reception quality, the system renders

Tested This Month

*Onkyo DX-7500
Compact Disc Player
Ohm CAM 16 Speaker
System
Ortofon Model 540
Phono Cartridge
Hafler XL-600 Power
Amplifier*

Double Scoop

When one is plainly not enough indulge!



CIRCLE NO. 18 ON READER SERVICE CARD

cooustic
...a sound investment.

CRUTCHFIELD



Audio/Video, Car Stereo, Telephones
AT LOW DISCOUNT PRICES!

You'll find the most helpful shopping information in the 116 page Crutchfield catalog.

FREE Stereo Catalog

Refer to the Crutchfield catalog before buying your next car stereo, home stereo, or video product:

- 116 pages of helpful articles, consumer tips, charts, and installation guides.
- Color photos, complete descriptions and technical specifications on hundreds of the finest brand name products.

You get more value shopping Crutchfield:

- Toll-free product advice, ordering, and customer service.
- 24 hour shipping.
- Absolute satisfaction guaranteed.
- Full 30-day return privileges.
- Discount prices on Sony, Pioneer, JVC, Jensen, Proton, Advent, Clarion, Kenwood, Canon, AR, Infinity, Bose, and many more!

Call or send this coupon now for your FREE Catalog

800-336-5566

Be sure to mention *Stereo Review* when calling

Name _____

Address _____ Apt. # _____

City _____ State _____ Zip _____

CRUTCHFIELD

1 Crutchfield Park, Dept. SR, Charlottesville, VA 22906

TECHNICAL TALK

a receiver even *more* susceptible to multipath degradation than a conventional stereo receiver. Multipath can introduce large amounts of noise into a received signal, and it will also modify the relative phase of the difference signal and the pilot-carrier signal. The added noise results in increased amplitude distortion and alters the spatial distribution of the stereo program, and the altered phase reduces stereo separation.

The Bose people made actual field tests of FMX by recording FMX-encoded and standard stereo transmissions from WMBR (the M.I.T. radio station) in a car while driving over a route in the Boston suburbs. Subsequent sampling and analysis of the data provided level, distortion, and noise measurements at some 15,000 points along the test route. From these data, Dr. Bose concluded that FMX broadcasting is, in general, *worse* than conventional stereo FM under multipath conditions and that an FMX-equipped receiver is *more* susceptible than a standard receiver to multipath-induced signal degradations while decoding FMX broadcasts.

A recent paper by BTP's Emil Torick in the *Journal of the Audio Engineering Society* discussed many of these problems and, not surprisingly, came to diametrically opposite conclusions. According to BTP, there have been virtually *no* listener complaints to any FMX-equipped station regarding signal quality as received on standard receivers (no FMX receivers have yet been sold to the public).

Clearly, this is a potentially explosive situation. Both parties to the controversy boast impressive technical qualifications, yet they disagree strongly on the *audible* problems, if any, of FMX. There is apparently little or no controversy about the theoretical validity of Dr. Bose's analysis, however, and the demonstration presented at the M.I.T. meeting of the effects of multipath on standard and FMX receivers was devastating. It may have been a "worst case" demonstration, however.

The outcome of this question is obviously uncertain at this time, but we can look forward to some newsworthy developments in the near future. Stay tuned. □



"Listen, Lucille, it's still playing!
Wow! What a great stereo system!"

Prism Effect

What has prism effect, a refractive phenomenon, to do with audio equipment?

Nothing, except that it is the simplest analogy to describe what our sophisticated XM-3* Mobile Electronic Crossover does to audio signals.

When an ordinary ray of white light passes through a prism, it is systematically separated into the primary colors of the spectrum—optically much more aesthetic than the original light.

Similarly, when an audio signal enters the XM-3, the original signal is then separated, via various controls, to the front and/or rear tweeters, mid-ranges and sub-woofers, creating distinctive bands of the audio frequency spectrum that are space and user-specific.

Specially engineered features such as Front and Rear Pre-Amp Inputs and Front and Rear Outputs as well as a constant Sub-Woofer Output, Asymmetrical Electronic Crossover which has two high-pass (32-400 Hz variable)

crossover points for the front and rear outputs and a low-pass (32-400 Hz variable) crossover point for the sub-woofer output, Woofer/Enclosure Equalization engineered for optimizing bass response, Phase Inverter allowing the sub-woofer output to be shifted 180 degrees out-of-phase to compensate for in-vehicle acoustical abnormalities and Frequency Multiplier Switch which, by multiplying crossover points for the front channel, transforms the XM-3 from a **BI-AMP SYSTEM** to a **TRI-AMP SYSTEM**, etc., all contributed to create the **PRISM EFFECT** and make the XM-3 the most versatile electronic crossover ever manufactured for automotive use.

Cooustic...a sound investment.



cooustic[®]

4260 Charter Street
Vernon, CA 90058-2596



History Repeats Itself.

History shows that in 1973 the Nakamichi 1000 forever changed the destiny of the audio cassette. Against all odds the world's first true three-head cassette deck had transformed a medium designed for convenience into a serious audio recorder's dream-come-true.

And over the years the Nakamichi 1000 has come to represent a product philosophy—an example of what can be accomplished when a group of single-minded people throw out the rules and eliminate the word "compromise" from their vocabulary.

If, therefore, you're inclined to expect achievements of historical proportions in the new Nakamichi 1000 Digital Audio Recording System, you won't be alone, and you won't be disappointed.

You'll notice a profound difference the very first time you use the Nakamichi 1000 Digital Audio Recorder. Unlike other DAT recorders, the Nakamichi 1000 neither looks nor feels like a VCR. The

smooth, rapid, and quiet operation of the transport will rather remind you of the acclaimed Silent Mechanism found in Nakamichi analog cassette decks.

That's because the unique F.A.S.T. (Fast Access Stationary Tape Guide Transport) mechanism was designed from the ground up as a digital audio tape transport. Its exclusive, patented stationary tape guides assure more precise and stable tape alignment, so digital error caused by mistracking is dramatically reduced. And articulated link arms gently bring the tape into playing position within 1.9 seconds after a cassette is inserted—two to three times faster than VCR-derived DAT mechanisms.

The four-head drum has separate record and play heads, so you can monitor off the tape while you record. And a unique half-load position fast-winds the tape at 400-times normal play speed—twice that of conventional fast wind—with less wear and tear on tape and heads.

Included with each Nakamichi 1000 recorder is the 1000r infrared wireless remote controller, which gives you full access to the deck's expansive array of advanced operating features.

The Nakamichi 1000p Digital Audio Processor establishes a new reference

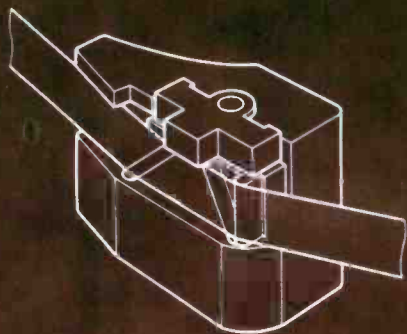
standard for sonic accuracy. 8-times oversampling digital filters and fully calibrated 20-bit digital-to-analog converters deliver unprecedented resolution, linearity, and dynamic range.



In conventional VCR-derived DAT mechanisms tape alignment guides move with the loading arms. Nakamichi's F.A.S.T. mechanism has exclusive stationary tape guides for faster alignment and superior long-term accuracy.



Nakamichi 1000 Digital Audio Recorder



Each stationary tape guide block actually consists of four separate guide surfaces—two slanted, one vertical, and one horizontal—that work together to more reliably maintain critical tape alignment.

Simply increasing the number of bits is meaningless unless they are implemented with a high degree of precision. So, the Nakamichi 1000p 20-bit D/A converter employs a novel ROM (read-only memory) calibration system. Each D/A converter IC has a corresponding ROM chip programmed at the factory with individual bit error compensation data. Together with a newly developed glitch cancellation circuit, this sophisticated calibration system brings the D/A converter to the theoretical limits of 20-bit performance.

The equally advanced analog-to-digital converter employs an ingenious charge comparison principle that assures accurate encoding without conventional, distortion-causing sample-and-hold circuits. And an extraordinary auto-calibration system precisely trims the quantization increments for all bits within 1.4 seconds every time the 1000p is turned on. That means, unlike typical designs, the 1000p's A/D converter maintains its high level of precision forever.

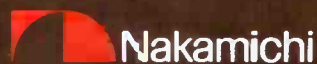
Finally, to eliminate the adverse effects of any jitter at the digital inputs, the Nakamichi 1000p incorporates a sophisticated two-speed phase-locked-loop interface that more effectively handles a wide range of time-axis fluctuations.

Perhaps most significant is the basic design of the Nakamichi 1000 Digital Audio Recording System. Not content to capture a mere, fleeting moment in audio history, Nakamichi engineers have made the system easily upgradable. The essential circuitry of both recorder and processor resides on plug-in boards, all readily accessed from the rear panels. The system thus delivers the very best performance available today... whenever "today" happens to be.

Prove it to yourself by auditioning the Nakamichi 1000 Digital Recording System. It promises to be an unusual opportunity to witness history in the making. Again.



The system's modular plug-in circuitry accommodates change and, thus, defies obsolescence.



Nakamichi America Corporation
1970 South Vermont Avenue
Torrance, CA 90502 (800) 421-2313
(800) 225-1521 (California)
Nakamichi Canada (800) 663-6358
CIRCLE NO. 78 ON READER SERVICE CARD



Nakamichi 1000p Digital Audio Processor



Nakamichi 1000r Remote Controller

"McIntosh . . . no other transistor amplifier is capable of reproducing as well."

"All the sounds, even those different one from another, remain separated and distinctive. There results a sensation of contrast, precision, and uncommon clarity.

. . . A close analysis of different frequencies reveals an extremely deep bass, very rich in spatial detail . . . The upper bass region is very linear testifying to an extraordinary richness of information. The very structured mid-range contributes enormously to listening pleasure.

The feeling of power is never refuted and instead of stunning the listener, the 7270 recreates an audio environment of a majesty that *no other transistor amplifier is capable of reproducing as well.*" Need we say more?

—REVUE DU SON, foremost French stereo magazine.

For a copy of the REVUE DU SON and information on the McIntosh MC 7270 Amplifier and other McIntosh products write:

McINTOSH LABORATORY INC.
P.O. Box 96 EAST SIDE STATION, DEPT. A47
BINGHAMTON, NY 13904-0096





ONKYO DX-7500 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

THE Onkyo DX-7500 is a full-featured CD player incorporating the latest digital technology, but it is priced just above a typical midrange player. It features dual 18-bit digital-to-analog (D/A) converters with eight-times oversampling (at 352.8 kHz). The player also makes extensive use of optical signal transmission and isolation techniques.

Onkyo's Opto-Drive system is claimed to completely eliminate any electromagnetic interference from the outputs of the D/A converters by using phototransistors in-

stead of diodes to regulate the power-supply voltage to the converters. Optical coupling between the digital and analog circuitry of the DX-7500 eliminates the possibility that digital signals could leak into the analog sections and degrade the output quality. The analog audio outputs are supplemented by two digital outputs (electrical and optical) for use with an external D/A converter.

In addition to its internal sophistication, the DX-7500 offers almost every feature one could hope to find in a CD player. Besides the usual operating functions, including re-

peat of a track, disc, or any selected portion, it has a Time Editing feature that determines how many tracks can be accommodated on each side of a tape cassette. When you're copying a CD, this feature automatically puts the player into pause mode at the end of the tape's first side to allow the cassette to be turned over.

The memory system can be programmed to play up to twenty tracks of a CD in any order, and a Memory Edit feature allows the program to be modified at any time. The player has a shuffle-play mode, in which all the tracks on a disc are played back in a random order. It also provides direct keypad access to any numbered track.

The rear of the DX-7500 has three pairs of analog output jacks, identified as fixed, variable, and direct. The direct output bypasses the

TEST REPORTS

player's analog filtering, minimizing the circuitry between its D/A converters and the system amplifier. The manual warns that recording on a cassette deck from the direct outputs may result in "beat" sounds on the tape similar to those sometimes experienced when recording from an FM tuner with inadequate ultrasonic filtering.

Unlike most CD players, the DX-7500 has a front-panel volume control for its variable analog outputs as well as the headphone jack. The volume knob is motor-driven so that it can be operated from the supplied wireless remote control. Besides the analog and digital outputs (optical and coaxial), the rear apron has two small phone jacks for linking the DX-7500 to other Onkyo audio and video components for unified system control.

The easily read white front-panel display of the DX-7500 shows track

and index numbers and elapsed or remaining times on the track and disc. The LAP/REM button toggles the time display, and there is an index button for cueing. The lower part of the display shows the status of the program memories, including the remaining tracks on the disc or in the program and the order in which they will be played.

The Onkyo DX-7500 is a heavy, solidly constructed player. Its disc-transport mechanism is made of metal, unlike the light, plastic construction used in low-cost players. It can play 3-inch discs without an adaptor ring.

The supplied remote control duplicates virtually every front-panel function, including opening and closing the disc drawer. In addition, it has a CD/TAPE switch, enabling it to operate an Onkyo cassette deck as well, an intro-scan button to play the first 7 seconds of each track on a

disc, and an auto-space button to insert a 4-second pause between tracks during taping. The DX-7500 measures 17 $\frac{1}{8}$ inches wide, 14 $\frac{1}{2}$ inches deep, and 5 $\frac{1}{8}$ inches high, and it weighs about 19 $\frac{1}{2}$ pounds. Price: \$700. Onkyo Corporation, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.

Lab Tests

The output of the Onkyo DX-7500 was almost exactly 2 volts, as rated. Its frequency response was flat within ± 0.1 dB from 20 to 20,000 Hz, with a channel imbalance of 0.04 dB. The interchannel phase shift was less than 0.4 degree from 20 to 20,000 Hz.

The linearity of the D/A converters was virtually perfect down to a -70-dB level. At -80 dB the output was low by 0.5 and 1.5 dB for the left and right channels, respectively. At -90 dB, the left-channel output was exactly -90 dB, while the right channel was 2 dB low. The error at -100 dB was +2.5 dB for the left channel and +1.3 dB for the right channel.

Channel separation was greater than 120 dB at 100 Hz, a very high 111 dB at 1,000 Hz, and 80 dB at 20,000 Hz. The total harmonic distortion (THD) plus noise at a 0-dB level was between 0.003 and 0.006 percent from 20 to 20,000 Hz. At 1,000 Hz, the distortion was less than 0.003 percent for recorded levels from -10 to -80 dB.

The A-weighted noise level measured during the "infinity zero" track of a test disc, when the D/A converters were essentially not operating, was -100 dB in the left channel and -109 dB in the right channel. In effect these figures represent the noise level of the player's analog section. The quantization noise (with the converters active) was about -90 dB. The dynamic range was 92 to 94 dB. The frequency error of the player's output was less than 0.02 percent.

The DX-7500 had no difficulty tracking the highest-level defects (900 micrometers) on the Philips TS5A test disc. Since this disc is no longer adequate to test the error-correction capabilities of a late-generation CD player, however, we have begun to use the new "Digital Test"

FEATURES

- Dual 18-bit D/A converters with 352.8-kHz sampling rate
- Opto-Drive power supply to eliminate interference from converter outputs
- Optical coupling between digital and analog circuits
- Optical and coaxial digital outputs for use with external D/A converters
- Fixed- and variable-level analog outputs
- Direct analog output (bypasses analog filter circuits following D/A converters)
- Direct keypad access to any track
- Programmable to play up to twenty tracks in any order; program can be edited at any time
- Shuffle play
- Time Edit for dubbing
- Repeat of track, disc, or selected portion
- Index cueing
- Display of track and index numbers, elapsed or remaining time on track and disc, track sequence in programmed or shuffle playback, unplayed track numbers, status of other controls
- Front-panel headphone jack and volume control (also controls variable-level rear output)
- Can be connected to other Onkyo components for unified system control
- Wireless remote control for all front-panel functions (volume controlled through motor drive); can also be used with Onkyo tape deck
- Intro scan and auto space (on remote only)

LABORATORY MEASUREMENTS

- Maximum output level:** 2.005 volts
- Total harmonic distortion at**
 - 1,000 Hz: 0.008% at 0 dB,
 - 0.003% at -30 dB, 0.0024% at -70 dB
- Signal-to-noise ratio (A-weighted):** 100 dB
- Quantization noise (A-weighted):** -89 dB
- Channel separation:** 111 dB at 1,000 Hz, 80 dB at 20,000 Hz
- Dynamic range:** 93 dB
- Frequency response:** 20 to 20,000 Hz ± 0.1 dB
- Maximum phase shift** from 5,000 to 20,000 Hz: 0.3 degree at 5,000 Hz
- Cueing time:** 1.8 seconds
- Cueing accuracy:** A
- Impact resistance:** top, C; sides, B
- Defect tracking** (Pierre Verany test disc): tracked 1,000-micrometer defects

TEST REPORTS

CD on the French Pierre Verany label, which contains calibrated "defects" in a range that is almost certain to overtax the capabilities of any CD player at some point. The Onkyo DX-7500 was able to track the 1,000-micrometer levels on this disc, although a 1,250-micrometer defect produced crackling noises in playback.

The slew time from Track 1 to Track 15 of the Philips TS4 disc was 1.8 seconds, which is very rapid, though not quite the fastest we have seen. The cueing accuracy was excellent. The only respect in which the DX-7500 did not more than live up to our expectations was in its impact resistance. It was able to absorb a fairly solid slap on a side without mistracking, but even light finger taps on the top cover would interrupt playback for a moment, after which it almost always returned to the point where it had stopped. Fortunately, it appeared that the player's physical isolation through its mounting feet was considerably more effective.

Comments

The measured performance of the Onkyo DX-7500 ranks with the best we have seen from any CD player, including some selling at considerably higher prices. It is difficult to assess the *audible* benefits of the measurable qualities of a CD player. Personally, I do not find significant differences in sound quality between most CD players. That does not mean they all sound alike, of course, merely that the differences, for me at least, do not warrant a conclusion that one is *better* than another.

I can say that the Onkyo DX-7500 sounded at least as good as any other CD player I have heard, and it also has just about every useful feature that can be found in any other player. Its front-panel volume control (remotely controllable as well) makes it possible to drive a power amplifier directly from it, and that is the way I operated the player for listening purposes. Whether you're looking for the latest refinements in CD player technology or just want a full-featured, high-performance machine at a reasonable price, the DX-7500 would be hard to beat. □



OHM CAM 16 SPEAKER

Julian Hirsch, Hirsch-Houck Laboratories

THE Coherent Audio Monitor (CAM) speaker systems from Ohm Acoustics were designed to provide optimum sound and stereo imaging under a variety of difficult installation conditions that may make these qualities unattainable with conventional speakers. All three CAM speakers—we tested the smallest model, the CAM 16—are two-way systems that enclose the woofer (plus a passive radiator in the two larger models) in a rigid, vented cabinet with a frameless, acoustically transparent, removable plastic grille. The tweeter is housed in a separate enclosure that plugs into the top of the main cabinet and can be rotated freely through 360 degrees in the horizontal plane. By aiming the tweeters correctly, it is possible to create a stereo image (sound stage) that remains fixed as the listener moves about the room, even outside the area bounded by the speakers themselves.

An additional degree of placement flexibility is provided by the tweeter's rotating capability. The speakers need not be along the same wall but can be on adjacent walls or even opposite walls. Even if it is not

possible to achieve an optimum stereo effect, aiming the tweeters properly will enable maximum stereo performance to be obtained from any speaker locations. Ohm also suggests that a modification of the high-frequency balance of the system is possible by turning one or both tweeters away from the listening position.

The tweeter's position relative to the woofer was selected to provide correct time and phase alignment between the high and low frequencies for good stereo imaging. The egg-shaped tweeter housing minimizes diffraction around its front, and the beveled edges of the woofer cabinet perform a similar function for the middle and low frequencies. The cabinet is internally braced, and the inside of the woofer frame is lined with sound-absorbent material to damp surface reflections. The tweeter has a 3/4-inch polycarbonate dome, with ferrofluid cooling, and a large (2-inch) magnet.

A Thermo Guard protective device minimizes the possibility of damaging the drivers by prolonged high-level listening. It is a bistable resistor whose value increases suddenly when the temperature rises to

TEST REPORTS

a critical value, greatly reducing the speaker's output. After the excessive drive is removed or reduced, the resistor returns to normal temperature (and a negligible resistance) in about 2 minutes, and normal operation is restored automatically.

The CAM 16 has a 6½-inch woofer, with a polypropylene cone, in a 16-liter enclosure (the model number corresponds to the cabinet volume). The cabinet, finished in black, is 17¼ inches high, 9 inches wide, and 11 inches deep. Each speaker weighs 19 pounds. The manufacturer's specifications include a sensitivity of 89 dB sound-pressure level (SPL) and a frequency response of 46 to 20,000 Hz \pm 4 dB. Price: \$300 a pair. Ohm Acoustics, Dept. SR, 241 Taaffe Place, Brooklyn, NY 11205.

Lab Tests

The room-response curve was very smooth and free of the large variations that are often found in live-room measurements. The only significant irregularity was a 7-dB hole at 400 Hz, caused by the reflected signal from the floor (the speakers were on 26-inch stands). The close-miked bass response, combining separate measurements made at the cone and the port, was flat within about \pm 1 dB from 30 to 250 Hz and decreased smoothly by another 5 dB at 2,000 Hz. Although Ohm does not specify the crossover frequency of the system, our measurements suggested that it was about 2,000 Hz.

The composite frequency response was flat within \pm 4 dB from 20 to 20,000 Hz. It could be viewed as consisting of two relatively flat sections about 5 dB apart in level, extending respectively from 25 to 1,000 Hz and from 1,000 to 20,000 Hz—except for a narrow tweeter resonance of about 5 dB amplitude at 14,000 Hz. Along with a smaller peak at 16,000 Hz, the 14,000-Hz one was also present in all our FFT response measurements, appearing as a ringing of about 2 milliseconds duration in the time/frequency/amplitude plots created by the IQS FFT analysis system. Up to 10,000 Hz, there was a slight frequency-independent directivity, with about 3 dB level difference between the re-

sponse curves on-axis and 45 degrees off-axis. Above 10,000 Hz, the normal tweeter directivity was apparent.

The minimum impedance of the CAM 16 was about 5 ohms, at 200 and 7,000 Hz, and the maximum value of 20 ohms occurred at 82 Hz. The system's sensitivity was 90 dB SPL at 1 meter with a 2.83-volt drive signal (corresponding to 1 watt). With the same input signal, the bass distortion rose smoothly from under 1.5 percent at 100 Hz to 4.5 percent at 50 Hz and 14 percent at 25 Hz. In pulse testing, the woofer cone bottomed audibly at a 100-Hz input of 175 watts, but at 1,000 and 10,000 Hz the amplifier clipped, at 720 and 1,400 watts, before the speaker overloaded.

Comments

Ohm states that the optimum spacing between the CAM 16 speakers is about 5 feet. Not only is a full stereo effect obtainable with this spacing, but the mutual coupling between the woofers provides some enhancement of output at low-bass frequencies. For our listening tests we installed the speakers on stands 5 feet apart and about 2 feet in front of a wall.

When we aimed the tweeters inward at about 30 or 40 degrees, the sound stage developed between the speakers (and extending somewhat beyond them to the sides) remained essentially fixed as we walked across

the room from side to side. It was effectively anchored midway between the speakers, and we heard the left, right, and center portions of the sound with little change as we moved about the room.

Controlling the position of the sound stage by shaping a speaker system's directivity is neither new nor exclusive to Ohm. The company's CAM speakers are unusual, however, in having rotatable tweeters, which provide greater flexibility in one's choice of speaker and listener locations than do speakers whose directive characteristics are fixed in their design. The system works, and works well. It was interesting to hear what a broad stereo sound stage could be developed by a pair of small speakers only 5 feet apart without resorting to electronic or other spatial-enhancement techniques.

In addition to its spatial qualities, the CAM 16 was a very comfortable, smooth-sounding speaker. Of course, a small bass driver cannot generate room-shaking levels at low bass frequencies, and the bass distortion was somewhat greater than we would prefer (though not unreasonable for the speaker's price class). Nevertheless, the CAM 16 managed to sound larger (and considerably higher-priced) than it is. We suspect that few, if any, speakers of comparable size and price can match it, let alone outperform it.

Circle 140 on reader service card



"Oliver, would you like me to get some books to put under your feet so you can experience the full effect of the subwoofer?"

“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

vol. 8, no. 4



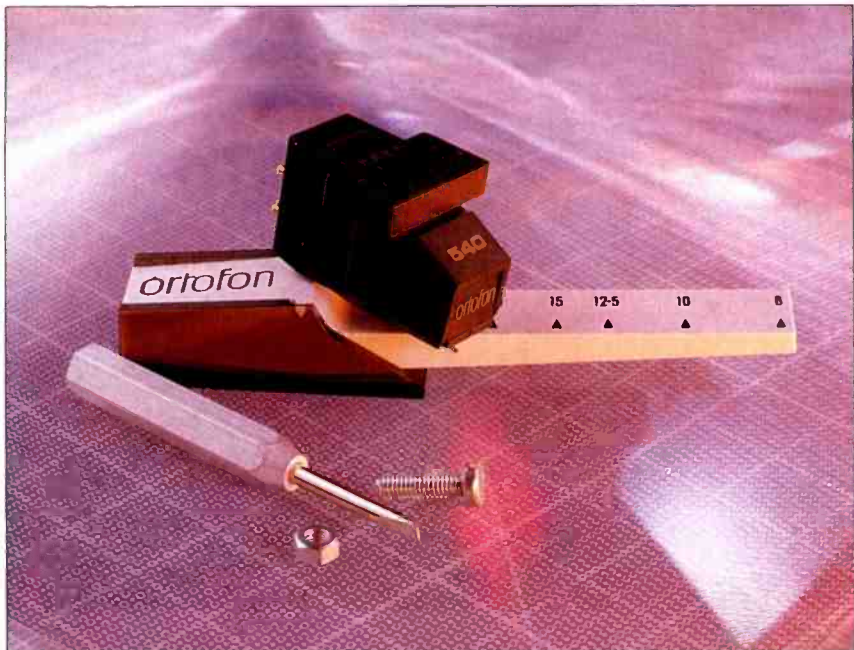
ADCOM® GFA-555 POWER AMPLIFIER

HIGH POWER, HIGH CURRENT

CIRCLE NO. 60 ON READER SERVICE CARD

ADCOM®

11 Elkins Road, East Brunswick, NJ 08816 U.S.A.
Distributed in Canada by: PRO ACOUSTICS INC.
Pointe Claire, Quebec 49R4X5



ORTOFON MODEL 540 PHONO CARTRIDGE

Julian Hirsch, Hirsch-Houck Laboratories

ORTOFON'S Series 500 moving-magnet phono cartridges were designed to compete with digital sound sources by emulating their response uniformity and low distortion while retaining the musical qualities often associated with analog music reproduction.

All six Series 500 models are fundamentally the same. Three are of conventional construction, compatible with the 1/2-inch-spaced mounting holes of universal tonearms. The other three are P-mount cartridges that plug directly into the end of a T4P standard tonearm and require no adjustment, balancing, or tracking-force setting. Each group shares the same body and internal design, differing only in the shape of the stylus tip. Since all of the user-replaceable styli (which have integral pivoting stylus guards) fit any of the cartridges, the purchaser of one of the lower-price models can easily upgrade it without replacing the entire cartridge.

We tested the top of the line, the

Model 540, a universal-mount cartridge fitted with a fine-line Fritz Gyger II nude stylus. The stylus's contact area with the groove wall closely resembles that of a cutting stylus, which gives it an extended high-frequency response, rated to 27,000 Hz, and lower distortion when playing high-level passages.

The performance differences among the three universal cartridge models in the line are principally in their lateral tracking ability at 315 Hz. The least expensive, the Model 520, with an elliptical stylus, is rated at 70 micrometers (μm) in this test. Its 1,000-Hz channel separation is also rated as 23 dB, compared with the 25-dB rating of the other two models. The middle cartridge, the Model 530, has a fine-line stylus with a tracking-ability rating of 80 μm , and the Model 540 carries a 90- μm rating.

All of these ratings are based on a nominal 1.5-gram tracking force. Other characteristics the cartridges have in common are an equivalent stylus tip mass of 0.3 milligram,

output of 3 millivolts, and channel balance of 1.5 dB at 1,000 Hz. All of the styli have a nominal vertical tracking angle of 20 degrees.

According to Ortofon, the frequency response of the cartridges has been flattened by using slit pole pins in their magnetic systems, thereby reducing eddy currents and eliminating the sagging high-frequency response characteristic of solid pole pins.

The Ortofon Model 540 is furnished with a small screwdriver, mounting hardware, and a stylus gauge. The black, plastic-encapsulated cartridge body weighs 5 grams, well within the balancing range of almost any tonearm. Price: \$300. Ortofon, Dept. SR, 122 Dupont St., Plainview, NY 11803.

Lab Tests

We installed the Ortofon Model 540 in the medium-mass tonearm (about 18 grams) of a good, popular-priced turntable. We used the rated tracking force of 1.5 grams and a load of 47,000 ohms and 140 picofarads for our measurements.

The cartridge's output was 3.7 millivolts at a recorded velocity of 3.54 cm/s, with a channel imbalance of only 0.35 dB. The vertical tracking angle was 22 degrees. Frequency-response and crosstalk measurements with two test records (the CBS CTC 300 and the older STR 100) yielded similar results. Cartridge response was very flat, within about 1 dB, well beyond 10,000 Hz and rose by 1 to 3 dB at 20,000 Hz. The channel separation (crosstalk) was rather asymmetrical, which is not uncommon among cartridges, with readings of 15 to 25 dB over the full frequency range.

The true mettle of the Ortofon Model 540 was revealed in its tracking ability. It easily handled the very high-level 32-Hz tones of the Cook 60 test record, and the 30-cm/s 1,000-Hz tones of the Fairchild 101 record were reproduced with only the moderate peak-flattening typical of this record (but with no sign of mistracking). Playing the DIN 45549 test record, the Model 540 tracked the 110-micrometer level at 315 Hz, the first cartridge in our experience to do so, far surpassing its 90- μm rating. Other tracking

We don't show people smoking in our ads.

Because we figure smokers already know how. Heck, we're not talking rocket science here. So, we'll get right to the point: flavor. In a nationwide taste test, a majority of smokers said Merit tasted as good as or better than cigarettes that have up to 38% more tar. Enriched Flavor™ is the reason why. And only Merit has it. So the next time you do what you already know how to do, do it with Merit.

Enriched Flavor™ low tar. A solution with Merit.



SURGEON GENERAL'S WARNING: Smoking By Pregnant Women May Result in Fetal Injury, Premature Birth, And Low Birth Weight.

© Philip Morris Inc. 1989

Kings: 8 mg "tar," 0.6 mg nicotine av. per cigarette by FTC method.

TEST REPORTS

tests with the CBS CTC 300 test record (which we have not used previously for this measurement) indicated that the cartridge could track the 100- μm lateral section and the maximum-level 63- μm vertical section.

Comments

Our measurements indicate that the Ortofon Model 540 is one of the top-performing cartridges of today, and possibly of all time. It seems unlikely that any recording will ex-

ceed its tracking abilities. Its frequency response was also very uniform (we have seen a few others with comparable flatness, but they are rare). The channel separation, though falling a little short of the cartridge's ratings, was nevertheless adequate for a full stereo effect. The output was higher than that of most other cartridges of comparable quality, though not enough to make a significant difference.

Our measurements indicate that the Ortofon Model 540 is one of the top-performing cartridges of today, and possibly of all time. It seems unlikely that any recording will exceed its tracking abilities.

The only sour note in our experience with the Ortofon 540 was the omission from the instruction sheet of information on how to remove the stylus. Even though the instructions advised removing the stylus before mounting the cartridge, we had to mount it with the stylus installed. Later, we found in a brochure on the Ortofon 500 Series that the stylus assembly is locked in place when the stylus guard is in either storage or playing position; only midway between the two is it possible to remove the stylus. Another surprising omission in the cartridge's documentation was any mention of the recommended load or of the inductance and resistance of the coil windings.

We found no surprises in listening to the Model 540, however. Its sound quality and clarity are certainly close to those of a CD player (some might say better, but we won't get involved in that!). Only an occasional tick or pop gave away the analog nature of the source. One can hardly expect more of an analog playback system.

Ortofon has demonstrated quite effectively that the LP is not yet dead and that first-rate playing quality is possible from a reasonably priced cartridge.

Circle 141 on reader service card

Hear the difference only PURE COPPER can make...

now from Signet.

While others try to overcome the limitations of ordinary copper wire with fanciful theories, Signet has attacked the problem head on...by creating dramatically better copper wire!

Introducing Pure Copper by Ohno Continuous Casting (PCOCC). Unlike other copper that must be heated, lubricated, acid washed, and annealed during fabrication, each PCOCC wire strand glides from its thermally-controlled mold uniquely free from impurities. The process creates long, flexible continuous copper crystals that permit audio signals to flow unimpeded, without the coloration that inferior wire imposes.

Signet has created two series of Maximum Transfer PCOCC interconnects using this new wire. Each features premium-quality gold-plated terminations and high-density braided shields to minimize RF and magnetic interference. And each is jacketed by extra-flexible, heavy-duty polyvinyl.

New Signet Music Line PCOCC speaker cable extends the value of pure copper to your entire system. Thick dual-gauge strands are jacketed individually, then enclosed in extra-flexible opaque insulation for unvarying quality and appearance.

Your Signet dealer will gladly demonstrate the superiority of Signet PCOCC cables and interconnects for your system. Enjoy the Pure Copper connection from Signet today!

**signet**[®]

4701 Hudson Drive
Stow, OH 44224

The first CD changer worth listening to for 10 hours straight.



There are surprisingly few activities the human body can endure for 10 hours straight.

Listening to the CD player you see before you, the CDC-610U, is a delightful exception to the norm.

The first 10-disc CD changer capable of capturing both the attention and the imagination of even the most demanding audiophiles.

For hours on end.

Boasting specs and features that are nothing less than sensational.

Like Yamaha's Hi-Bit Technology with advanced 18-bit 4x oversampling digital filters and high-speed D/A conversion.

Direct Track Access,



A sound reason to start collecting magazines — Yamaha's 10-disc magazine, YCM-10 — the handy way to organize your CD collection.

which lets you enjoy virtually instant access to any track on any disc.

Random Programming, which permits programming of an entire evening of music — up to 36 selections — in any order you like.

“Plus One” Memory — a unique little feature that allows you to momentarily interrupt your program to hear another selection.

And as you might expect, quite a bit more.

Stop by your nearest Yamaha Audio Specialist and experience the impressive CDC-610U for yourself.

But be forewarned.

One listen and you could be hearing about it for a long, long time.



Arguably the simplest, most versatile remote control to ever accompany a CD player.

YAMAHA®

"They Were Designed To Play Music This They Do Very Well, In At A Bargain Price... It's Hard To Ima

It has always been true that placement in the listening room has a profound effect on the sound of any loudspeaker, regardless of its inherent qualities. Cambridge SoundWorks has confronted this fact and created Ensemble," a speaker system that can provide in your home, the superb sound once reserved for the best conventional speakers under laboratory conditions. And because we market it directly, Ensemble costs far less than previous all-out designs. Perhaps best of all, it virtually disappears in your listening room.



Henry Kloss, creator of the dominant speaker models of the '50s (Acoustic Research), '60s (KLH), and '70s (Advent) brings you Ensemble, a genuinely new kind of speaker system for the '80s, available factory direct from Cambridge SoundWorks.

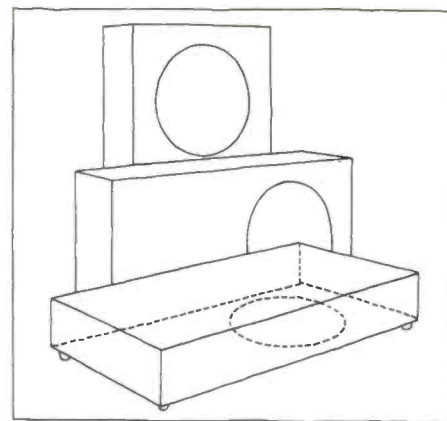
The best sound comes in four small packages.

Ensemble consists of four speaker units. Two compact low-frequency speakers reproduce the deep bass, while two small satellite units reproduce the rest of the music. Separating the low bass on both channels from the rest of the range makes it possible to reproduce just the right energy in each part of the musical spectrum without turning your listening room into a stereo showroom. With clumsy conventional systems, you can either strive for that balance by letting loudspeakers dominate your room, or sacrifice it for less conspicuous speaker placement.

Your listening room works with Ensemble, not against it.

Room acoustics emphasize and de-emphasize various parts of the musical

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



Because low frequencies are non-directional, Ensemble's bass units can be installed horizontally, vertically, facing upwards, or facing downwards.

range, depending upon where the speaker is placed in the room. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa.

Ensemble, on the other hand, *takes advantage* of your room's acoustics. You put the low-frequency units where they provide the best bass, whether or not that location is good for the high frequencies (and it usually



-And Make It Sound Like Music. A Most Unobtrusive Way, gine Going Wrong With Ensemble.”

Julian Hirsch
Stereo Review, Sept. '88

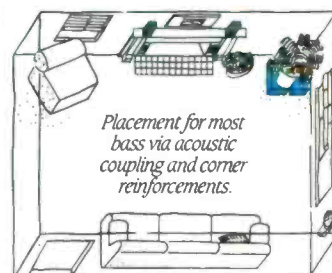
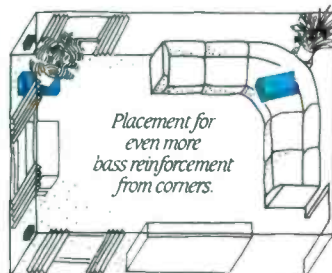
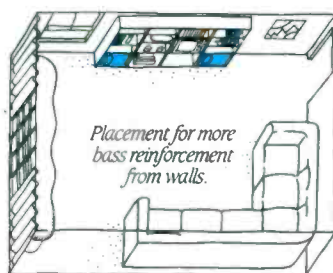
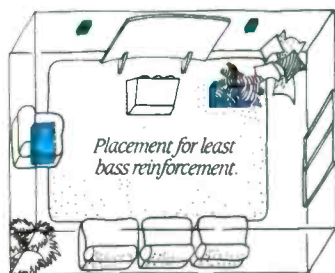
isn't for any speaker). Then you put the satellites where they provide a well-defined stereo "stage."

The ear can't tell where bass sounds come from, which is why Ensemble's bass units can be tucked out of the way—on the

in gunmetal gray Nextel, a suede-like finish highly resistant to scratching. We even gold-plate all connectors to prevent corrosion. But perhaps an even bigger difference between Ensemble and other speakers is how we sell it...

Call 1-800-AKA-HIFI*
(1-800-252-4434)

Our toll-free number will connect you to a Cambridge SoundWorks audio expert. He or she will answer all your questions from



You can put Ensemble's low-frequency units exactly where they should go for superb bass. You can't do this with conventional speakers because you have to be concerned about the upper frequencies coming from the same enclosures as the low ones.

floor, atop bookshelves, or under furniture. The satellites can be hung directly on the wall, or placed unobtrusively on windowsills or shelves (among other possibilities). The result is extraordinary. There are no bulky speaker boxes to dominate your living space, yet Ensemble reproduces the satisfying deep bass that no mini speakers can.

Not all the differences between Ensemble and other speaker systems are as obvious as our two subwoofers.

Unlike three-piece satellite systems that may appear similar, Ensemble's four-piece design doesn't cut any corners. We use premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustical performance. The low-frequency units use the classic acoustic suspension design, and are finished in black laminate. The satellites are finished

The best showroom of all: your living room.

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

That only makes sense. You get to match Ensemble specifically to your listening room in a way no other system permits. You get to listen for hours without a salesman hovering nearby. And if after 30 days of all that you're not happy, you can return Ensemble for a full refund (we'll even reimburse the original UPS

shipping charges in the continental U.S.).

You also get to save.

At only \$499—complete with all hardware, 100' of speaker cable, and free ongoing assistance—Ensemble

costs hundreds of dollars less than it would in a retail store.

What Henry Kloss tells his friends:

Every time I came out with a new speaker at AR, KLH, or Advent, my friends would ask me, "Henry, is it worth the extra money for me to trade up?" And every time I would answer, "No, what you've already got is still good enough."

But today, with the introduction of Ensemble, I tell them, "Perhaps now is the time to give your old speakers to the children."

CIRCLE NO. 157 ON READER SERVICE CARD

why (or why not) to buy Ensemble to those you may have about related equipment. Your audio expert will take your order (you can use Visa, MasterCard or American Express), and arrange surface shipment via UPS (\$7 to \$25 anywhere in the continental U.S.). You should have Ensemble within one week. And your Cambridge SoundWorks audio expert will continue as your personal contact with us, to answer questions which might come up after you've begun to enjoy Ensemble at home. We think you'll like this new way of doing business.

*In Canada, call 1-800-525-4434. Audio experts are on duty Mon.-Fri., 9AM-10PM, Sat., Sun., 9AM-6PM Eastern Time.

Fax # (617) 332-9229.

CAMBRIDGE SOUNDWORKS

154 California St., Newton, Massachusetts 02158

- Send more information and test reports.
- Send Ensemble risk-free for 30 days, for \$499*
- Send an Ensemble Gift Certificate for \$499*

I'm paying by Check MC Visa AmEx

Acct. Number _____ Exp. _____

Signature _____

Name _____

Address _____

City _____ State _____ Zip _____

Phone (Area Code) _____ Number _____

FOR IMMEDIATE SERVICE: 1-800-AKA-HIFI

MA residents add 5% sales tax

*Plus freight. Call and ask.

Suite 102A



JOOK LEUNG

HAFLER XL-600 POWER AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

THE XL-600 is the newest and most powerful amplifier to bear the Hafler name. This formidable unit, which is rated to deliver 305 watts per channel into 8 ohms from 20 to 20,000 Hz with no more than 0.05 percent total harmonic distortion (THD), is not current-limited. Its rated output at the clipping point is 360 watts per channel into 8 ohms, 500 watts into 4 ohms, 750 watts into 2 ohms, and 900 watts into 1 ohm! It also has a bridged mono mode in which it can deliver 1,000 watts into 8 ohms or 1,500 watts into 4 ohms (at the clipping point).

The XL-600 was designed to use some 30 dB less overall negative feedback than previous Hafler amplifiers, which contributes to its low transient intermodulation distortion (TIM) and high stability. In accord with Hafler's "Excelinear" concept, phase shift in each channel has been kept to a minimum. Each output stage has eight power MOS-FET's (metal-oxide-semiconductor

field-effect transistors) capable of driving the most difficult speaker loads. Except for the single large power transformer, the two channels are completely separate, and the total filter capacitance of 72,000 microfarads gives the amplifier a powerful low-end capability. A small, separate power supply operates the low-level stages.

The output stages are constructed about a square, chimney-like heat-sink structure through which a fan blows cooling air. The air enters the cabinet through openings on the sides and exhausts through the rear apron. The fan's speed is variable and responds automatically to the cooling requirements of the amplifier. The outputs are protected by a heavy-duty relay that connects them after a 3-second turn-on delay to prevent transients from reaching the speakers. If any significant DC component appears at the speaker outputs or if the heat-sink temperature becomes excessive, the relay also disconnects the speakers while

allowing the fan to continue cooling the amplifier.

The rear apron of the XL-600 contains the gold-plated input jacks, four multiway binding-post speaker terminals (with a speaker-fuse holder for each channel), and a slide switch that converts the amplifier to bridged mono operation. The front panel, fitted with heavy-duty handles, has a rocker-type power switch and a clearly visible red pilot light. The XL-600 weighs 51 pounds and measures 19 inches wide, 13 inches deep (plus 2 inches for the handles), and 7 inches high (plus half an inch for the feet). Price: \$1,195. David Hafler Co., Dept. SR, 5910 Crescent Blvd., Pennsauken, NJ 08105.

Lab Tests

The cooling fan of the XL-600 turned slowly and inaudibly in normal operation, although during the 1-hour preconditioning period and other high-power operation it sped up and could be heard clearly. It was never as noisy as most other amplifier cooling fans we have heard, however, and it should not be audible in a home environment.

Our clipping-level power measurements clearly established the credentials of the XL-600. Driving two-channel loads of 8 and 4 ohms



MAGNA

Good Smoke.
Great Price.

LITES: 9 mg. "tar", 0.6 mg. nicotine,
BOX: 14 mg. "tar", 1.0 mg. nicotine, av. per cigarette by FTC method.

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

THE PERFECT HARMONY.



POWER AND PRECISION.



Introducing three hot new performers from Blaupunkt. We're cranking the level of performance way up! To a place where concert hall precision meets the power of rock 'n' roll. All it took was innovation, technological leadership and an eye for quality like only one maker of car audio systems can achieve: Blaupunkt. Feast your eyes on our three latest components. Compare the features. Then visit a Blaupunkt dealer and compare the performance. You'll see there's no comparison.

The Power Source 350 Amp World's best 5/3 channel amplifier 350 watts RMS at 4 ohms Integrated electronic crossovers for satellite (12dB/Octave) and subwoofer (24dB/Octave) drivers 2 ohm stability S/N ratio greater than 110 dB.

The New York CD Tuner FM reception referenced to Hi-Fi specs (F/R 20Hz-18kHz) 36 FM/AM presets Track Scan Unique CD Track Program Memory Super Clean Digital Filter CD Cartridge System Ergonomic Faceplate Design Code Protection Optional Shuttle.

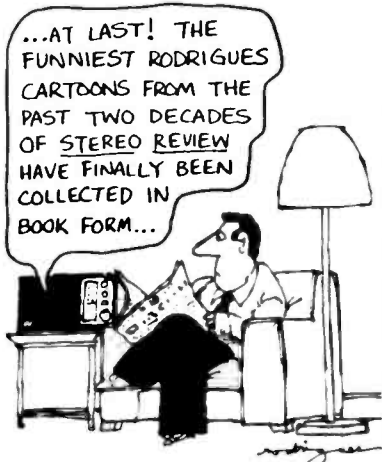
The ACS Advanced Component Series speakers Contains ACS 1220 polypropylene woofer w/200 watts maximum of deep bass power (93 dB sensitivity) ACS 5090 5-inch sealed back mid-range w/90 watts maximum power (93 dB sensitivity) ACS 1000 "aluminum sputtered" tweeter w/100 watts maximum power (90 dB sensitivity).

BLAUPUNKT
BOSCH Group
the difference is pronounced.

The Blaupunkt name and BLUE DOT symbol are registered trademarks of Blaupunkt-Werke GmbH Bosch Group.

CIRCLE NO. 67 ON READER SERVICE CARD

TOTAL HARMONIC DISTORTION



Yes, now you can own **TOTAL HARMONIC DISTORTION** by Charles Rodrigues!

This handsome, 128-page paperback—with 118 classic cartoons, a foreword by William Livingstone, and an illustrated autobiographical sketch by Rodrigues himself—is only \$7.95. Enjoy your favorites again, catch the gems you missed, and share the laughs with friends!

Makes a great gift!

Get two copies for the full stereo effect!

TO ORDER: Send check or money order for \$7.95 per copy, plus \$1.50 for postage & handling to:

Perfectbound Press
Suite 4118A
1120 Ave. of the Americas
New York, NY 10036

Type or print mailing address with order. New York State residents add 6% sales tax per copy. Outside U.S.: add \$1.75 postage & handling for first copy and 50¢ for each additional copy (U.S. bank funds only). Allow six to eight weeks for U.S. delivery, longer outside U.S.

TEST REPORTS

at 1,000 Hz, the amplifier clipped at outputs of 372 and 680 watts, respectively. For the 2-ohm measurement, we loaded only one channel with 2 ohms, leaving the other to drive 4 ohms. The 2-ohm clipping power measured an impressive 900 watts. The dynamic power, as expected, was even greater, with readings of 478, 900, and 1,300 watts into respective loads of 8, 4, and 2 ohms.

The amplifier's distortion was typically about 0.01 percent at most power outputs and frequencies, but it increased to about 0.03 or 0.04 percent at the upper audio frequencies. The amplifier required an input of 0.14 volt for a reference 1-watt output, and its A-weighted noise level was -89 dB referred to 1 watt. The frequency response varied only ± 0.02 dB from 10 to 30,000 Hz. Phase shift was truly negligible, varying ± 0.1 degree from 20 to 7,000 Hz and reaching 0.8 degree at 20,000 Hz.

Comments

The Hafler XL-600 lived up to the claims made for it in full measure. Not only did our bench measurements confirm its specifications, but it proved itself to be as "bullet-proof" an amplifier as one could wish.

Testing a large, powerful amplifier such as the XL-600 often produces unwelcome surprises such as blown-out power transistors or even damage to one's speakers. When we blew out a 10-ampere speaker fuse at one point, we continued the test with the only available substitute, a 15-ampere fuse (these fuses protect only the speakers; the amplifier is separately fused in its DC power circuits). Although this inadvisable procedure enabled us (barely!) to make our 2-ohm clipping-level power measurement, that channel of the amplifier shut down, having blown one of its power-supply fuses. After a fuse replacement, however, the amplifier appeared to be as good as new.

Otherwise, there were no surprises in our use of the XL-600. Its fan was quite inaudible in normal use, and its exterior never became more than faintly warm. As claimed, it came on (and shut off) with not a trace of a thump. The speakers we used had reasonable impedance characteristics and probably would not tax the abilities of any good amplifier, but we have no doubt that the XL-600 would be able to drive *any* speaker to its limits without approaching its own limits in any respect.

Circle 142 on reader service card

FEATURES

- Dual-mono construction (sharing only the power transformer between channels)
- Eight power MOSFET's for each channel
- Double-differential J-FET cascode input stage
- Current-mirroring driver stage
- Low overall negative feedback
- No current limiting; able to drive low-impedance loads
- Rear-apron switch for bridged mono operation
- Gold-plated input connectors
- Speaker outputs protected by relay against DC output level or turn-on transients

LABORATORY MEASUREMENTS

1,000-Hz power output at clipping: 372 watts into 8 ohms, 680 watts into 4 ohms, 900 watts into 2 ohms

Clipping headroom (relative to rated output): 0.86 dB into 8 ohms

Dynamic power output: 478 watts into 8 ohms, 900 watts into 4 ohms, 1,300 watts into 2 ohms

Dynamic headroom: 1.95 dB into 8 ohms

Harmonic distortion (THD + noise) at 1,000 Hz into 8 ohms: 1 watt, 0.028%; 10 watts, 0.01%; 305 watts, 0.0058%

Maximum distortion (20 to 20,000 Hz into 8 ohms): 0.095% at 30 watts (20,000 Hz)

Sensitivity (1-watt output into 8 ohms): 140 mv

A-weighted noise (referred to a 1-watt output): -89 dB

Slew factor: 2

Music made Beautiful



Sonance makes music more beautiful with "Architectural Audio:" Custom in-wall stereo speakers and controls that blend unobtrusively into your home's most discriminating decor.

All Sonance speakers and controls can be painted or cloth covered to aesthetically match any room's delicate design. Precision flush mounting insures excellent high fidelity response and consistent decorative perfection.

To experience "Architectural Audio-" we invite you to call your local Custom Audio/Video Specialist.



32992 CALLE PERFECTO, SAN JUAN CAPISTRANO
CALIFORNIA 92675 (714) 661-7558
Outside CA (800) 582-7777 FAX (714) 240-4995



Thanks to Pioneer's CD Changer system, this is



Before you buy a CD changer, there are two things you should consider. Your home. And your car.


Because Pioneer makes a compatible 6-disc CD changer system for both, now you can enjoy your favorite music wherever you go.

The key to home and car compatibility



is Pioneer's ingenious 6-disc magazine, which works in all Pioneer home and car CD changers. It's the most convenient way to load, store and catalog your CDs.

All of Pioneer's home CD changers feature the latest innovations in digital



the only place you'll be without your music.

© 1989 Pioneer Electronics (USA) Inc., Long Beach, CA



technology, as well as multiple programming capability and random play.

As for versatility, you simply won't find a better car CD changer system. A Pioneer car CD changer can either replace or be added on to your current car

stereo, using one of four advanced CD controller units.

Of course, there are still some places where you won't be able to enjoy Pioneer's 6-disc CD Changer system. But we're working on it.

 **PIONEER**[®]

For more information and the name of your nearest Pioneer Dealer, call toll-free 1-800-421-1404.



LA POTENZA DELLA LAMBORGHINI. LA PUREZZA DI ALPINE.



THE FINE ART OF CAR AUDIO.

In between reinventing the CD changer and revolutionizing car audio loudspeakers, we occasionally find time to build some exciting, new posters.

Here is our latest, featuring the 1989 25th Anniversary Edition Lamborghini Countach.

We didn't just use the Lamborghini because it is the world's most magnificent example of automotive art.

It also happens that inside every Lamborghini is a state-of-the-art Alpine car audio system.

Art meets art.

If you would like to have your own copy of this striking 18 x 38 full-color poster, drop by your Alpine dealer with this ad and \$2.00.

Then roll home with your very own Lamborghini.

While there are still a few left.

 **ALPINE**
CAR AUDIO SYSTEMS



© 1989 Alpine Electronics of America, Inc., parent corporation of Alpine mobile electronics and Luxman home audio products • 1-800-ALPINE-1.

CIRCLE NO. 9 ON READER SERVICE CARD

SHOW STOPPERS

NEW PRODUCTS FROM THE CONSUMER ELECTRONICS SHOW

BY REBECCA DAY

If there was any concern that audio/video equipment was nearing its technological limits, the 1989 Winter Consumer Electronics Show did its best to prove otherwise. As in years past, STEREO REVIEW editors joined manufacturers, retailers, distributors, and other journalists converging on the Las Vegas Convention Center to show and see the latest and greatest equipment, and few came away from the show unimpressed. The following pages preview some of the hottest products we saw. They should be showing up at your local stores in the next few months.

Loudspeakers made a lot of news at the show, and not just those from U.S. and European manufacturers. Japanese electronics firms showed renewed interest in the American speaker market, with Pioneer, Yamaha, Sony, and Sansui introducing new lines. The introductions of smaller, bookshelf-size speakers from Celestion, Allison Acoustics, JBL, and Ohm Acoustics, to name a few, and in-wall speakers from Sonance and Boston Acoustics, among others, gave evidence of continuing efforts to offer space-saving or "invisible" speakers with improved sound quality.

Show attendees got a peek at the home of the future, which may use the new data-transmission standard called CEBus to combine all audio/video, appliance, heating and cooling, and security functions in one automated system. The demonstration was sponsored by the Electronic Industries Association, and the participating companies included Marantz, Mitsubishi, Panasonic, Sony, Tandy, and Thomson Consumer Electronics (RCA and GE).

As audio technology advances, so, of course, does video, and on hand at the show were some indications of video's future: high-definition TV (HDTV). Although it will be a few years before HDTV becomes a mainstream household product in the United States, Philips, Boffi Vidikron, Fisher, and Barco Electronics gave showgoers a preview of what's to come. If the impressive Barco/Fosgate surround-sound demonstration was an example of



the next decade's audio/video offerings, you can look forward to a television image rivaling 35mm photography in clarity and multichannel surround sound to go along with it.

It was a show of futures and a show of firsts. While Nakamichi is not the first manufacturer to announce marketing plans for digital audio tape (DAT) recorders in the U.S., it may be the first to execute those plans. Delivery of its \$10,000 Model 1000 recorders, which can make digital copies of CD's, was promised for early spring. Taiyo Yuden became the first manufacturer to demonstrate recordable compact discs in the United States when it showed a prototype in a private suite during the show, but the company said it will not introduce the product on the consumer level until copyright issues are resolved. NEC introduced its first CD player with sixteen-times oversampling, and Sansui took the CD bit race in an unusual direction, demonstrating a player with the first 1-bit digital-to-analog converter.

On the mobile-audio side, Toshiba entered the field with a line of cassette and CD receivers, speakers, equalizers, and amplifiers. Polk showed its first subwoofer for the car, and Pioneer introduced the first system in its Nautica line, designed for boats. Alpine's CD Shuttle is the first CD changer that can be controlled by either an in-dash CD player or a cassette receiver. The CD Shuttle can also operate with Alpine's Model 1390 tuner, which is one of the first tuners, along with JVC's KS-RX5500 cassette receiver, to incorporate FMX decoding circuitry. Hafler introduced its first line of car speakers, and Blaupunkt and HiFonics brought out their first multichannel amplifiers. Precision Power showed the first digitally controlled active electronic crossover for the car and the first digital remote-control module for signal processing in the car.

All in all, the future looks very bright in consumer electronics, and audio/video enthusiasts have a lot to look forward to in the coming months and for years ahead. □



The Denon AVC-2000 integrated amplifier (\$1,000) offers Dolby Pro-Logic decoding, fourteen audio inputs and nine outputs, seven composite video inputs and four outputs, and two S-VHS inputs with three outputs. It can provide on-screen display of its operating status.



The Allison Acoustics AL Series loudspeakers feature Convex Diaphragm tweeters and Power Guard thermal protection. The 16-inch-high AL 110, \$349 a pair, and 24-inch-high AL 120, \$600 a pair, are in the middle of the six-speaker line. The speakers are available in black, oak, or walnut finishes.



Sony demonstrated one of its new digital signal processing (DSP) components, the TA-V925E preamp, which can do all of its audio processing—input to output—in the digital domain, thus avoiding many of the phase, distortion, and imaging problems associated with analog circuitry. The preamp is currently available in Japan; an American model is to be introduced some time this summer.

The Celestion Model 3 (below) is a two-way bookshelf speaker with a rated frequency response of 75 to 20,000 Hz ± 3 dB and an operating range of 10 to 60 watts. At \$250 a pair, it is significantly less expensive than other Celestion speakers, yet it claims close to the same spatial imagery and dynamics.





Sumo's new *Aria* speaker (\$3,000 a pair) uses a single stretched-polyester membrane. The system applies drive to a small area at the center of the diaphragm and controls the traveling waves to create a spherical waveform. The *Aria* measures 60 x 30 x 9 inches and has a rated frequency response of 40 to 20,000 Hz \pm 3 dB.



The floor-standing TZ-9 (above, \$4,000 a pair) is the top model in Pioneer's Elite TZ speaker series. It has ceramic-graphite midrange and tweeter domes made of 99.9 percent pure carbon and a twin-bass drive system with two opposing woofers, one firing out of the front of the cabinet, the other firing out of the rear.

Yamaha's new Active Servo Technology (AST) speakers are designed to provide accurate very low bass from small enclosures. The AST-S1, with a 7½ x 11½ x 9-inch cabinet, is capable of producing a usable frequency response down to 28 Hz. The system has a matching amplifier and two impedance-modifying cartridges that plug into its front panel. Price: \$1,200 complete.





Barco Electronics and Fosgate joined forces for a home A/V theater that featured HDTV and surround sound. The audio system used Fosgate's 3610 Pro Plus surround processor (top right, \$1,429) and 100 Series amps, including the T-100 (\$599). Barco's 600C projector (above) provided a state-of-the-art picture, and the 1001 Data Projector gave a glimpse of the HDTV future.



Beyer Dynamic's IRS 690 wireless headphones have an FM infrared transmission system. The transmitter and the charging device use a single power supply. A 9-volt storage battery built into the headpiece is charged via the transmitter. Price: \$399.



The Proton VT-331 stereo monitor/receiver has a 31-inch flat, square screen, a 1-watt-per-channel amplifier, a pair of 4 x 6-inch internal loudspeakers, an MTS/SAP decoder,

and the Aphex Systems Aural Exciter circuitry, which enhances harmonics. The \$2,499 set is rated for more than 600 lines of horizontal resolution and is S-VHS compatible.





The Altec Lansing two-piece Ambigraphic control system for cars combines an in-trunk electronic crossover/equalizer (above) and an under-dash remote control module (not shown) with its own voltage-controlled amp. Price: \$875.

The Alpine Model 1390 AM/FM tuner module, designed to be used in a car system with the Model 5953 controller (not shown), has no controls or displays, only a DIN input and output, so it can be mounted anywhere in a car. The 1390 is one of the first tuners to include FMX decoding circuitry. Price: \$200.



The Koss JCK/300 Kordless Stereophones are said to have a coverage area of more than 500 square feet. The transmitter consists of a modulator and an emitter panel that can be remotely installed up to ten feet from the base. Additional panels can be added to expand coverage. Price: \$275.

Sony's CDX-2001 DiscJockey CD changer (\$1,400) is the first car player to use eight-times oversampling. Its ten-disc magazine is interchangeable with those of other Sony home and

car magazine-type changers. The accompanying in-dash Remote Commander uses a precision logic attenuator that is said to achieve precise linearity and channel balance.



THE BEST SEAT IN THE HOUSE

A home theater combines a remarkable surround-sound system and improved-definition television.

BY WILLIAM LIVINGSTONE

AFTER haunting surround-sound demonstrations for years, last fall I decided the time had come for me to stop using my living room for storing the boxes my audio equipment came in and turn the space into an up-to-date media room. When I started looking for the units necessary for a home wedding of audio and video at my house, Editor in Chief Louise Boudas asked me to do some in-home user evaluations of new equipment before making my final choices, and I jumped at the chance.

The setup we decided on was a top-of-the-line array with strong emphasis on sound. For audio we chose the Shure HTS Theater Reference System, which includes speakers, amplifiers, and a Dolby Surround decoder. For video we selected the brand-new 27-inch Philips improved-definition TV monitor/receiver, and for sources we added JVC's Model HR-S5000U Super VHS VCR and Sony's Model MDP-700 combi-player for videodiscs and CD's.

Working with so much topflight equipment was enlightening, and I can't think when I've enjoyed a project more, but when it was delivered to my apartment in fifteen cartons I was taken aback. The Shure audio system costs \$9,600. The Philips IDTV set lists for \$1,500, the JVC S-VHS VCR for \$1,299, and the Sony combi-player for \$1,450. It all adds up to \$13,849, and the prospect of making a mistake with that much expensive equipment that didn't belong to me was a little intimidating.

To start me off, Executive Editor Michael Smolen, an experienced installer, came to my apartment to hook the system up. It took him just under two hours from the time he opened the first carton until the last connection was made. He picked up the first CD that came to hand, *Lisztronique*, a performance of Liszt's music by synthesizer artist Jeffrey Baker (Newport Classic NC 60022), and we got sound on the first try. Standing in the center of the room, I was flooded by extraordinarily clean sound from deep bass to crystal-





INSTALLATION

As daunting as a pile of fifteen boxes may seem, installing the Shure system was not extremely difficult. Armed with Shure's excellent documentation, wirestrippers, a spool of good speaker cable, and a modicum of patience, we had the Shure system up and running in just under two hours.

We would recommend that you fully map out where you intend to place each piece of the system before you start tearing open boxes. This will prevent confusion later. And because of the possibly extensive runs of speaker cable, you may want to consider having an electrician pre-wire your listening room for you, particularly if you have little experience in hooking up complicated hi-fi systems. That way you will avoid unsightly coils of thick speaker cable lying exposed on the listening-room floor.

We placed the three Shure HTS50SPA amplifiers in a stack on a shelf, with the HTS5300 Acra-Vector Logic Decoder on the shelf below and nearer to eye level for ease of use. On a separate shelf above the amps we placed the Sony MDP-700 combi-player, one of the system's sources. Off to the left on another shelf, unseen in the room photograph, we placed our other source, JVC's HR-S5000U S-VHS video deck.

Wiring the system was simple because of Shure's easily followed

wiring diagrams, which offer many options. One installation trick is to place your components in their stacks on the shelves, but rotate them a quarter turn so you have access to the back of each unit for wiring. Once you've made all your connections and run a system check, simply turn the stack around facing forward and you're all set.

We used a low-profile TV cart made by Sony, placing the Philips IDTV on a swivel tray on top. By removing the cart's inner shelves, we had a perfect fit for the HTS50CF center-channel speaker. The HTS50SW subwoofer, the least placement-specific speaker in the system, was placed on the floor off to the right. The two HTS50LRS speakers used for the front channels were placed roughly 10 feet apart on either side of the television set, while the two used for rear-channel information were placed further apart against the room's rear wall.

If you feel comfortable wiring hi-fi systems and do the proper pre-installation planning, the Shure system should go together with little difficulty. But remember, if you are a novice at this kind of thing, you should turn to your dealer for help. The Shure HTS components are part of an extremely sophisticated audio system, and unless you wire everything properly you defeat the purpose of your investment.

—Michael Smolen

line highs, and the first words out of my mouth were, "It sure beats stereo."

For a video recording we pulled a LaserDisc down from a shelf, and it turned out to be Donizetti's *Lucia di Lammermoor* with Joan Sutherland, a 1982 live performance from the Metropolitan Opera (Pioneer Artists PA-84-076). The picture had never looked better to me, and when the enthusiastic audience seemed to applaud from all around the room, I knew I was going to have a lot of fun over the next few weeks.

A few days later Robert Schulein, general manager of Shure Brothers' Home Theater Sound Division, was in New York on business, and he spent an afternoon with me. After making a few minor changes in wiring and speaker placement, he gave me a little orientation on how to use the system and left me with a list of his favorite movies that make the most effective and artistic use of Dolby Surround technology.

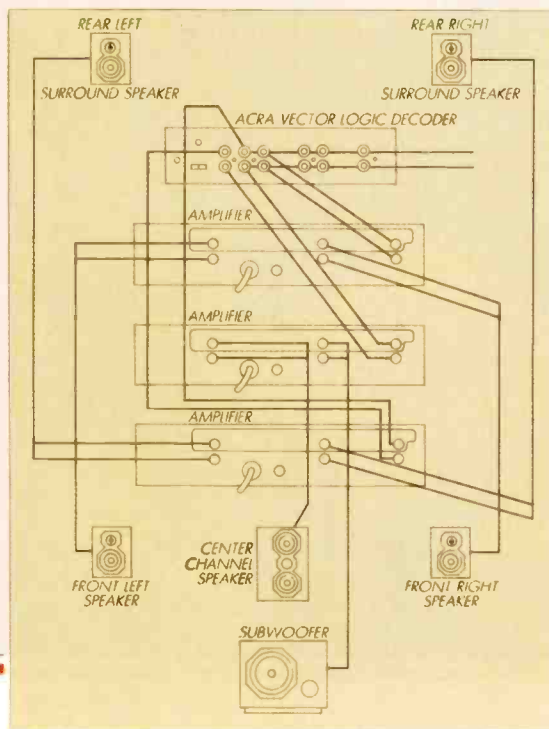
The Equipment

The Shure HTS Theater Reference System consists of six loudspeakers, three signal-processing amplifiers, and a surround-sound decoder plus a wireless remote control. Designed entirely by Shure HTS engineers in Evanston, Illinois, all the units are manufactured in the United States (using some imported parts). They are available separately for those who wish to combine some of them with audio equipment they already own, but to get the maximum benefit from compatibility of design, we chose to evaluate the components together as a system.

Developed for movies, Dolby Surround technology encodes four channels of sound into two. When this is decoded in a home installation, three signals (left, right, and center) are fed to the front speakers, and a fourth (embodying ambience or surround information) goes to the rear pair. A large amount of information is handled by the center front speaker, including almost all of the dialogue. Movie soundtracks contain more low-frequency energy than music does, and in the Shure HTS system this is handled by a subwoofer.

In cabinets of 1-inch particle-board covered with walnut veneer, all six of the Shure HTS speakers are fairly compact. Designed for the

WIRING DIAGRAM FOR TYPICAL INSTALLATION



center front channel, the HTS50CF speaker measures 13½ inches wide, 20 inches high, and 8⅞ inches deep, and it weighs 37 pounds. It has two 6½-inch woofers and a 1-inch soft-dome tweeter. The subwoofer, containing one 12-inch driver, measures 23 x 18 x 14 inches and weighs 65 pounds.

Left, right, and surround information is handled by four identical HTS50LRS speaker systems, each measuring 10 x 13½ x 8 inches and weighing 24¼ pounds. Each contains a 6½-inch woofer and a 1-inch soft-dome tweeter.

THE Shure HTS Theater Reference System includes three HTS50SPA power amplifiers, each measuring 16⅞ x 4 x 14 inches and weighing 27 pounds. Front-panel controls include level controls for each channel and five different operational modes. In most mode settings frequency response and sensitivity are tailored to the characteristics of the Shure HTS speakers. A CF_x mode setting for the center channel extends the frequency response of the HTS50CF down to 55 Hz for an installation that does not include a subwoofer. A FLAT setting makes the amplifier suitable for use with any loudspeaker.

The heart of the Shure HTS Theater Reference System is the HTS 5300 Acra Vector Logic Decoder, which measures 16¾ x 2½ x 15 inches. On its front panel are controls for master and surround volume, input level and balance, delay range, Dolby Surround, and stereo and mono surround synthesis with defeat, as well as a tape-monitor switch. A graphic display indicates the strength of signal to the various channels in the system.

The wireless remote-control unit permits changing the settings of the volume controls, and it also has a MUTE switch. Holding that down activates a generator in the decoder, sending a pink-noise signal to each of the speakers in turn for the purpose of balancing.

The JVC Model HR-S5000U Super VHS Hi-Fi stereo videocassette recorder is rated for an improved picture quality with horizontal resolution of more than 400 lines. On-screen menu selection permits remote-control channel presetting, timer setting, and so forth. The many other features include automatic on-screen mode display (with manual recall capability) and a fly-



For listening, we placed the two rear speakers on Premier stands about 18 feet apart (they were moved closer together for this photograph).

ing erase head for smooth insert edits. The unit measures 17¼ x 4¼ by 15 inches and weighs about 18 pounds.

The Sony MDP-700 Multi-Disc Player can be used to play 8- and 12-inch videodiscs, 5-inch CDV's, standard-size compact discs, and the newer 3-inch CD's. It claims 425 lines of horizontal resolution.

Both the front panel and the remote control have a combination jog dial and shuttle ring for fast forward and reverse and for scanning. In addition to the usual open, close, pause, and still functions, the unit has a memory stop, which makes it possible to resume playback at a specified point even after the player has been turned off and back on. It has a headphone jack with separate volume control.

The Philips 27J245SB improved-definition television set is a 27-inch

table model with Philips's patented noninterlaced scanning system, which creates a new line of information to go into the visible space between each pair of scanning lines. According to Philips, the number of scan lines on the IDTV is doubled, resulting in a 40-percent improvement in vertical resolution. A digital comb filter delivers 480 lines of horizontal resolution to insure maximum performance for such wide-band video sources as videodiscs and Super VHS videotapes.

THE on-screen display menus permit the viewer to call up a variety of picture-in-picture (PIP) images, select input, and make a wide variety of adjustments in picture quality and audio tone. The set also offers built-in surround sound. All functions are handled by the wireless remote control, which can learn the functions of almost all

MANUFACTURERS' SPECIFICATIONS

□ Shure HTS50SPA Power Amplifier (flat mode)

Frequency response: 20 to 20,000 Hz ± 0.5 dB

Power output: 100 watts per channel into 8 ohms with less than 0.1% total harmonic distortion

Input impedance: 100 kilohms

Input sensitivity at full power: 0 dBV (1.0 V)

Dynamic range: >100 dB (300 to 20,000 Hz)

□ Shure HTS5300 Acra Vector Logic Decoder (outputs loaded with 50 kilohms)

Frequency response: front left and right channels, center channel, 20 to 20,000 Hz ± 0.5 dB; subwoofer channel, -3 dB at 80 Hz, 12 dB/octave low-pass rolloff; left and right surround channels, 50 to 7,000 Hz -3 dB

Input sensitivity: 0.25 V (input control maximum), 2.5 V (input control minimum)

Input clipping: 4.0 V

Input impedance: 75 kilohms

Output clipping: 4.0 V

Output impedance: 5.5 kilohms

Total harmonic distortion (1 kHz, 1 V output): front left and right channels, center channel, $<0.1\%$ with volume at maximum; left and right surround channels, $<0.3\%$ with master volume at minimum and surround volume centered

Output noise (A-weighted): -90 dBV with master and surround volumes centered, -80 dBV with master volume at maximum and surround volume centered

Delay range: 16 to 36 ms

□ Shure HTS50LRS Two-Way Speaker

Frequency response: 60 to 18,000 Hz with amp in LRS extended mode, 80 to 18,000 Hz with amp in LRS mode

Sensitivity: 85 dB SPL at 1 meter with 2.83 V input

Power handling: 100 watts into 8 ohms

Impedance: 5.6 ohms nominal, 200 to 18,000 Hz

□ Shure HTS50CF Center-Channel Speaker

Frequency response: 55 to 18,000 Hz with amp in CF extended mode, 80 to 18,000 Hz with amp in CF mode

Sensitivity: 88 dB SPL at 1 meter with 2.83 V input

Power handling: 100 watts into 8 ohms

Impedance: 5.6 ohms nominal, 200 to 18,000 Hz

□ Shure HTS50SW Subwoofer

Frequency response: 33 to 80 Hz

Sensitivity: 91 dB SPL at 1 meter with 2.83 V input

Power handling: 100 watts into 8 ohms

Impedance: 8 ohms nominal

□ Sony MDP-700 Multi-Disc Player

Audio Section

Frequency response: 4 to 20,000 Hz ± 0.3 dB

Signal-to-noise ratio: >105 dB

Dynamic range: >96 dB

Total harmonic distortion: 0.003%

Channel separation: 92 dB

Wow-and-flutter: unmeasurable

Video Section

Horizontal resolution: 425 lines

Signal-to-noise ratio: >47 dB

□ JVC HR-S5000U S-VHS Hi-Fi VCR

Video Section

Horizontal resolution: >400 lines S-VHS, 240 lines VHS

Signal-to-noise ratio: 45 dB

Audio Section

Frequency response: 20 to 20,000 Hz in hi-fi mode, 70 to 10,000 Hz in normal mode

Signal-to-noise ratio: >40 dB in normal mode

Dynamic range: 90 dB in hi-fi mode

Wow-and-flutter: $<0.005\%$ wrms

□ Philips 27J245SB IDTV Monitor/Receiver

Video Section

Screen size: 27 inches

Deflection angle: 100 degrees

Tuning capability: 178 channels

Horizontal resolution: 480 lines

Noise reduction: digital, up to 12 dB

Audio Section

Power output: 10 watts per channel

Speakers: two two-way systems, each with a 5-inch woofer and two piezo tweeters

remote-controlled audio and video products.

Using the System

The kind of help I had in installing this audio/video system is available not only to writers and editors of major magazines. According to Shure, the HTS Theater Reference System is sold exclusively through retailers who are trained in setting it up and operating it, and installation and some in-home orientation are typically included in the purchase price.

The manuals for all this equipment are informative, clear, and easy to understand, and I found the equipment itself user-friendly and comparatively simple to operate. I used to regard remote controls with the scorn audiophiles reserved for LP changers, and I thought on-screen menus were only for computer nerds. But anyone who can get cash out of an automated teller machine can operate these devices effectively, and menu operation can ease you over one of the great technological barriers in modern life: setting up a VCR for time-shift recording.

Some of the features on the video units, such as PIP and digital special effects, held little interest for me. I did not get around to some others, such as audio-only recording on the VCR, that would be practical. The JVC S-VHS VCR made recordings from videodiscs that were excellent in sound and picture. The difference between these and the old prerecorded cassettes in the standard VHS format with mono soundtracks is greater than the difference between compact discs and LP's. It's more like the difference between CD's and 78's!

In addition to decoding Dolby Surround soundtracks, the Shure audio system enhances mono soundtracks effectively by providing stereo and surround synthesis. It also provides surround synthesis for two-channel stereo sources. If you want to, however, you can cancel the surround sound through the DEFEAT button and hear a mono source only from the center front speaker or two-channel stereo only from the left and right front speakers, with the subwoofer providing the lowest bass. I found that I liked at least a little of the concert-hall ambience the synthesized surround gave to my favorite CD's.

According to Shure, the intention

of the HTS engineers was to recreate as faithfully as possible the sonic environment in which the music (or whatever) was originally recorded. The philosophy behind the Theater Reference System is, therefore, quite different from the one embodied in signal processors that seek to create a variety of sonic environments so that the user can move the music from a cabaret to a cathedral to a concert hall.

ONCE the Shure system is balanced and adjusted for an individual room and an owner's tastes, it is possible to use it indefinitely without additional tweaking. More technically oriented owners will want to try various settings described in the instruction booklet to give more visceral kick to the low bass for movies about volcanic eruptions, tank attacks, or intergalactic battles.

I experimented a bit with speaker placement and found that I prefer the center front speaker above the monitor instead of below it as Michael Smolen installed it (and as it is shown in the photograph on page 62). In my living room, which measures approximately 20 x 20 feet, the rear speakers were about 18 feet apart and aimed at the central listening area.

Having this installation at my disposal at home for a couple of months made me understand better the phenomenon that marketing experts refer to as "cocooning." This term describes the process of shutting out unpleasantness to enjoy a privately created environment in which one is surrounded by luxurious products that are useful or beautiful.

For me the principal benefits of all this equipment were the high-quality picture and the superb sound, which greatly enhanced my pleasure in watching network television as well as videodiscs and tapes. The system is most impressive with an adventure film, such as *Raiders of the Lost Ark* or *Back to the Future*, with a well-recorded Dolby Surround soundtrack, but audiophiles will not be surprised to hear that even newscasts have greater impact with improved sound.

Friends who came to watch and listen with me were so intrigued and impressed that they were reluctant to go home. If I was at home alone, I generally ate dinner in front of the TV set and often stayed up too late watching just *one* more program or



The shelves were stacked with the Sony MDP-700 combi-player, the Shure power amplifiers, and, at eye level, the Shure Acra Vector Logic Decoder. Another shelf held the JVC HR-S5000 S-VHS VCR.

videodisc. I made some excellent recordings, including an exercise tape that I may actually get around to using for workouts.

Evaluations

Although I played some Pioneer test discs designed for the evaluation of audio/video equipment, I performed no lab tests on the components in this installation, and my opinions are based entirely on subjective reactions. As you must have gathered by now, I liked this equipment and have reasons to give high marks to all units in the system.

Since attending a laboratory demonstration of the Philips IDTV technology last year, I have been aching to get my hands on one of the sets. Having the Model 27J245SB to evaluate has confirmed my high opinion of it where it counts, at

home. Using only a very simple antenna I had around the house, it received VHF and UHF broadcasts well, and the sound from its built-in speakers was superior to that of the majority of other sets. For obvious reasons I did not try out its built-in surround-sound capability.

WHAT was most remarkable about Philips's IDTV was its picture quality. Color and sharpness were excellent, and control was easy with the versatile remote. For comparison I substituted a couple of other monitors in the installation, and the Philips won hands down. The noninterlaced scanning system really worked in eliminating visible scan lines, an important step toward high-definition TV. I consider this a great product and a bargain at its price.

The Sony MDP-700 upheld my



The heart of the surround-sound system is Shure's HTS5300 Acra Vector Logic Decoder, which can be operated by remote control.

good opinion of videodisc technology, which I have always considered superior to videotape. Used with the Shure amps and speakers, it produced sparkling sound from digital recordings, and even the analog sound with CX noise reduction from older videodiscs was quite good. The picture on IDTV was excellent.

At first it seemed a little awkward to open the large videodisc drawer to play the much smaller and lighter compact discs and CD-3's, but I got used to it, and it is convenient to have one player for those discs of varying sizes.

I got good results from the JVC S-VHS VCR in both recording and playback. It is compatible with earlier VHS units in that it will play tapes made on them, and you can record with a Super VHS machine in the standard VHS mode to make tapes for your less up-to-date friends. But a tape recorded in the S-VHS mode can be played only on an S-VHS deck. To check for uniformity from one S-VHS model to another, I made recordings with the JVC unit and with a similar one, the Mitsubishi HS-U70. Each played the other's tapes perfectly.

The improvement offered by S-VHS is a brighter picture. Since there are very few prerecorded tapes available in this format, the only way to take advantage of the increased brightness is to record from a high-resolution source (videodisc) or make live recordings with an S-VHS camcorder. Whether the increase in quality is worth the higher price of the equipment and blank tape is something you will have to decide for yourself. At present the S-VHS VCR is still a high-end videophile product.

When I asked Robert Schulein why the Shure home theater system is so expensive, he answered in high-end terms. "With this system Shure wanted to make a statement about what surround-sound tech-

nology is capable of," he said, "and as any consumer of high-end audio equipment will tell you, such a product always costs money. But when you consider that with three amplifiers and six speakers, it is the equivalent of three stereo systems, you realize it's not so expensive after all."

The quality of the Shure HTS components was suggested by their heft and feel as Michael Smolen unpacked them. It was verified for me by their performance every time I used the audio/video system.

When the sound of a home theater system is this good, you can consider video a further dimension of audio. I am impressed by the design of the Shure system, by its flexibility, by its ease of operation, but most of all by its sound. I give it five stars.

The A/V Experience

With a home theater system you never have to stand in line to see a movie, and the picture always starts when you want it to. Home systems are meant primarily for the "picture-dominated experience," for which you tend to sit down, and the seats are more comfortable at my house than at the movies because my first step in setting up was to buy new chairs.

That's about as far as I got in decorating my new media room, however. Once the equipment was delivered, I became too involved in using it to attend to new carpets and painting the walls. Consequently, we photographed the components a few blocks away in the home of Music Editor Christie Barter, whose cocoon was already complete.

Our rock critic Steve Simels (also a movie fan and videophile) was helpful in steering me to movies with exceptional soundtracks. They included some old-time wide-screen epics—*Spartacus* (1960) and *El Cid* (1961)—which had multichannel soundtracks that are quite effective in home systems. Steve lent me that

shameless tear-jerker *E.T.—The Extra-Terrestrial* (which still works its magic despite those repulsively smug child actors) and *Sid and Nancy*, a depressing but well-crafted film about the lethal combination of sex, drugs, and rock-and-roll. Winners for me were *The Empire Strikes Back* and *La Bamba*.

Audiophiles have traditionally looked down on television for its wretched sound, but this year's Super Bowl game was broadcast in surround sound, and more sonic improvements can probably be expected from the networks. Those who prefer classical music have been especially critical of TV despite the many hours of fine-arts programs with which the Public Broadcasting Service stimulates and delights the cultivated mind.

What now appears on your home screen is up to you. Many of those PBS programs are available on videotape or disc. Bon Jovi, Fleetwood Mac, and Michael Jackson all have current videos with Dolby Surround tracks. Will it be Horowitz, Pavarotti, Diane Schuur, or Barbra Streisand? Classic films currently available in carefully reconstructed versions include *Lost Horizon*, *Citizen Kane*, and *A Star Is Born*. Films recorded in Ultra Stereo (a compatible multitrack system) include *Rented Lips* and *Attack of the Killer Bimbos*.

THE range of choice is staggering, but if you watch sports on TV, like movies, or love music, there is probably a surround system of some kind in your future. If you enjoy the process of choosing, owning, and operating the equipment, you will probably be shopping sooner rather than later. I intend to continue decorating and furnishing my media room, but I already have some other audio/video equipment to evaluate. It had better be good. My experience with these components from JVC, Philips, Shure, and Sony has made me hard to please. □

GET THE PICTURE!

A guide to high-technology TV ● by Glenn Kenny

BEFORE we do anything else, let's get one thing straight: There's no such thing as "high-density television," despite what you may have read in the newspaper. The general media are often just as confused by new technology as the general public is, and there are quite a few misnomers resulting from that confusion. Actually, HDTV stands for high-definition television, and it's just one spoonful of the new television technology's alphabet soup. Others include IDTV, or improved-definition television, and the high-resolution monitor/receiver. These two categories of products are available to consumers now; HDTV sets won't be available in this country for a few more years.

Consumer electronics technology really is grand. Just when you feel on top of the game, marketers, manufacturers, and research labs spring something new on you, completely unnerving folks who thought

they had just installed the ultimate home video setup. The technology is driven, for the most part, by economic concerns. The introduction of Super VHS, for example, was spurred by the declining profits of Japanese manufacturers when cheaper Korean VCR's flooded the market (which explains why JVC is in no hurry to license the S-VHS format to any Korean manufacturers). Like S-VHS, IDTV and high-resolution TV are genuine breakthroughs, providing consumers with higher quality at a premium price. But HDTV is a much bigger deal, with much wider economic ramifications. Many billions of dollars are at stake, and the Japanese are way ahead of the U.S. in terms of development. Congress, after reading about HDTV in the Sunday supplements, has sat up and taken notice. The eventual outcome of the growing controversy will decide how soon HDTV arrives in this country, and just how good it will be once it gets here.

But what is HDTV anyway? And, while



The Philips Model 31J460SA improved-definition TV (IDTV) has digital video noise reduction of up to 12 dB, progressive scanning for better picture definition, high-resolution graphics, and three- and nine-frame picture-in-picture features. The list price is \$2,600.

we're at it, what are IDTV and high-resolution TV? Although the three sound similar, they are not even close to being the same thing. Let's start with the one that's most widely available right now: the high-resolution monitor/receiver.

High-Resolution TV

Basically, a high-resolution TV set has what it takes to handle high-resolution video sources like S-VHS, ED Beta (ED stands for extended definition), and videodiscs. Now, broadcast TV signals come into your home with a horizontal resolution of about 330 lines. Conventional VHS VCR's record and play back with a horizontal resolution of 240 lines. The more resolution a TV picture has, the more detail it conveys, and if you think numbers like 240 and 330 aren't that hot, you're right. Low resolution is why you can't read the license-plate numbers during car-chase or traffic-jam scenes. Admittedly, that's a frivolous example; the fact is, though, more detail means more realism, and more realism means more involvement in whatever you're watching.

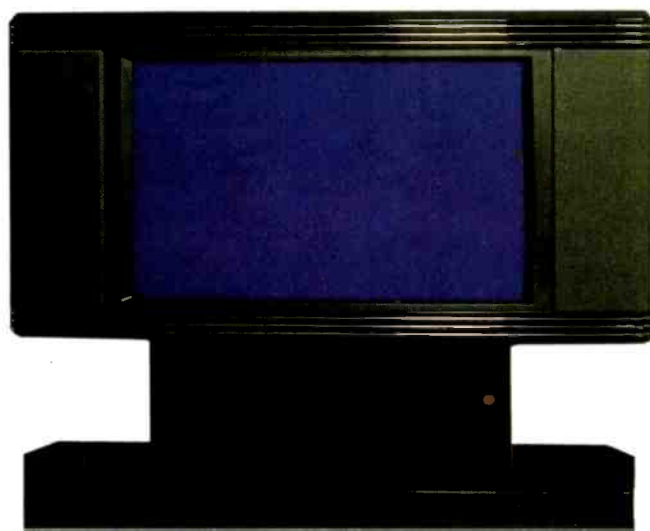
The S-VHS format records and plays back with 400 lines of resolution, the playback-only videodisc has a slight edge over that, and the ED Beta tape format goes up to 500 lines. Even though resolution isn't the be-all and end-all of a television picture, and broadcast formats using 1-inch videotape recording still have an edge in parameters such as color reproduction, there's no disputing the impressive capabilities of the new consumer formats. And home videographers, too, have access to this greater resolution through S-VHS and ED Beta camcorders.

In any case, these advanced VCR's and camcorders need TV sets that match their capabilities. That's where the high-resolution monitor/receiver comes in. To achieve higher resolution, ED Beta and S-VHS components record at a higher frequency than conventional components, and many high-resolution monitor/receivers employ wide-band video amplifiers to match the video output of these formats. In fact, current monitor technology has gotten a bit ahead of even ED Beta and S-VHS; many sets are capable of a horizontal resolution of 600 lines, more than any video source available to consumers can



Toshiba's Model CF3048 stereo monitor/receiver (\$2,500) has a 30-inch FST Magnum picture tube, an MTS/SAP stereo decoder with dbx noise reduction, a 5-watt-per-channel amplifier, two RF inputs, S-VHS input, A/V inputs, and a variable audio output. It has a CD comb filter and is rated for horizontal resolution of 600 lines.

Sony's KV-27FX10 IDTV has a noninterlacing scanning system and digital frame memory. A built-in motion detector is said to provide a crisper picture by differentiating still and moving elements. The price is \$4,000.



RCA's Advanced Compatible TV I was one of the first proposals for a wide-screen U.S. TV system. It uses time compression to squeeze an enhanced signal into the regular NTSC bandwidth of 6 MHz. ACTV II is an NTSC-compatible IDTV system that uses two broadcast channels.

currently use. Better more than enough, however, than too little.

The other hallmark of such sets (aside from their direct video inputs and outputs, which provide better signal quality than you get from an antenna hookup) is the S-connector. Both ED Beta and S-VHS decks contain an S-video output—and many of the latest videodisc players boast this feature as well. Developed by renowned video engineer Yves Faroudja, the five-pin S-video output separates luminance (brightness) and chrominance (color) signals so they can be sent to a monitor/receiver with a corresponding input. Separating the two parts of the signal results in fewer picture “artifacts” like color bleeding and dot patterns. This has nothing to do with resolution per se—hooking an S-VHS deck to a high-resolution monitor/receiver by way of its direct video jacks will yield you the same level of picture detail. But the more detailed a picture, the more noticeable its other flaws become, and the S-video system does a good job of filtering out those flaws.

Since the introduction of S-VHS in 1987, the popularity of high-resolution monitor/receivers with S-connectors has grown considerably. Super sets—large-screen TV's loaded with features, including wideband amplifiers and S-connectors as well as MTS decoders for receiving stereo broadcasts, stereo speakers, and digital effects like picture-in-picture (PIP)—are practically commonplace. And these features are now beginning to show up on sets with smaller screen sizes. Panasonic, for instance, recently introduced a 20-inch model with everything but the digital effects. Wider acceptance doesn't make the high-resolution monitor/receiver old news. It just means that more middle-of-the-road consumers are beginning to appreciate the benefits of the new technologies, which spurs manufacturers to make further refinements—and that's where IDTV comes in.

Improved-Definition TV

An understanding of IDTV requires a little bit of background. A close look at the picture on your TV

set will reveal that it's made up of horizontal lines. These *scan lines* (which are not to be confused with the lines used to measure resolution) are created by an electron gun at the rear of the TV tube as its beam of electrons hits the color phosphors on the inner screen surface. Video, like film, is made up of *frames*, and in our NTSC broadcast system (established in the Forties and Fifties by the National Television System Committee), the 525-scan-line picture changes at a rate of 30 frames per second. But that's not what you're actually seeing on your set. Each frame comes up on screen in the form of two sequential meshing fields of 262.5 scan lines each. The electron gun shoots these fields every sixtieth of a second, and two of them have to come together to make a one-frame picture on your screen. The meshing of fields is known as *interlace*, and how good the interlace on your set is determines how solid your video picture will appear on the screen.

Perfect interlace is described as 50/50, but even with perfect interlace, experienced eyes can notice the scan lines. And just as better resolution equals more realism, visible scan lines equals less realism. On a set with 60/40 interlace, for example, scan lines look like Venetian blinds to some viewers—distracting, to say the least.

The IDTV sets attempt to eliminate this distraction by eliminating interlace. What's made this possible is the substantial boom in digital technology we've seen over the past few years, particularly the ability to digitize and store video signal information. The first applications of digital memory in video were for snazzy effects like picture-in-picture or digital freeze frames. The IDTV application is an attempt to use digital memory for real picture improvement. Noninterlace scanning stores the video information of an incoming field and combines it with the video information from the next field—so that instead of two successive 262.5-line fields, each frame contains 525 scan lines shown all at once. With no interlace, scan lines are almost impossible to perceive. Flicker and jitter practically disappear, and, perhaps most important, perceived resolution increases dramatically.

Noninterlace scanning is not strictly a new development. Toshiba introduced a noninterlace set a

couple of years ago, but while the principle behind it was sound, digital technology was not as highly refined as it is today. Although the Toshiba set got rid of interlace-related artifacts, it introduced an element of lag into the picture, particularly when fast-moving objects were on screen.

It was Philips Consumer Electronics that brought the technology to its current state, however, and Philips also coined the term IDTV. The new generation of sets gets the job done, and

not just through the noninterlace scanning method. Like most high-end sets, the Philips IDTV system also uses a three-dimensional comb filter, which improves the separation of the color and brightness signals to take care of artifacts like “dot crawl”—if you've ever seen a woman in a red dress on TV, but the red was extending outside the boundaries of the dress, you know what that is. Finally, the Philips system adds digital noise reduction, which uses digital field memory to clean up a grainy picture or boost the quality of weak broadcast signals.

This year IDTV is going to be a buzzword in high-end monitor/receivers. The two outstanding Philips models are the 27-inch 27J245, which features eight direct video inputs, and the 31-inch 31J460. Sony plans to introduce an IDTV set this spring, and a host of other manufacturers will be following suit. The IDTV system is particularly welcome for large-screen rear-projection sets, which almost never achieve 50/50 interlace and whose screen size makes such imperfections very noticeable. But the benefits of IDTV are visible on any screen 20 inches or larger. Pundits are saying that the IDTV system is the last major technological refinement in TV that the U.S. will see until HDTV gets here.

High-Definition Television

Ah, HDTV. NBC News recently reported that it made our current NTSC pictures look “crude.” Movie buffs are all excited over the fact that HDTV uses a wide-screen aspect ratio similar to the ones used in movie theaters. No longer will they have to put up with watching Clint

Eastwood's nose glaring at Eli Wallach's nose when they view a videocassette of *The Good, the Bad, and the Ugly*. Audiophiles are thrilled that HDTV sound is digital; CD-quality audio will add tons of drama to *The Morton Downey Jr. Show*. Wisecracks aside, what HDTV has going for it is genuinely impressive. But the questions it raises and the controversy it's created put something of a damper on celebratory expectations. The political and economic concerns fueling today's HDTV debate are grabbing the headlines. The outcome of the debate will determine both when we get HDTV and what form it will take. The stakes are high because HDTV is not just a record/playback system, like S-VHS, and it's not just an improvement of an already existing system, like IDTV. Rather, HDTV is an entire broadcast system that will substantially change the way TV signals are transmitted and how we receive them.

It all began with the invention of the tenth Muse. No, this is not Greek mythology revised—Muse is the name of the HDTV production / transmission system developed by NHK, the Japanese broadcasting giant. The Japanese have been researching high-definition television since the early Seventies, and the NHK Muse system is the fruit of their labors. The system delivers a beautiful, high-resolution wide-screen picture and great sound, but it is completely incompatible with the NTSC broadcast/transmission standard hitherto shared by the United States and Japan. That is, no part of the signal will be accepted by any of the TV sets Americans have in their homes today. So the adoption of the Muse system for HDTV in America would mean the trashing of our entire broadcast system, including not only transmission equipment but *all* current TV sets. Of course, since the Japanese also now use the NTSC broadcast system, they will have to phase it out for HDTV. But that's not as much of a problem for Japan as it would be here, since the Muse system was developed by NHK, and when we called NHK the Japanese broadcasting giant, we meant it.

Another sticking point for the Muse system—the one developed for use in Japan, at least—is that it requires too much spectrum space for its transmission. Broadcasts travel through the airwaves at different assigned frequencies, and spectrum space is dear. Everyone wants some, from two-way radio operators to satellite transmitters. The Federal Communications Commission currently allows a U.S. TV channel to take up 6 MHz of the broadcast spectrum. Because a wider, better picture and digital sound translate into a bigger broadcast signal, the Muse system used in Japan needs 9 MHz of spectrum space. To receive such a Muse signal here, you'd have to tune in to the equivalent of two separate TV channels. If you ever got a look at an FCC chart of allotted bandwidths, you'd be shocked to see how little blank space it contains. (Those extraterrestrials who receive all the transmissions traveling out into space are probably very confused by now.)

American TV engineers are faced, then, with a multifaceted challenge. Compatibility is something every consumer wants—many are frightened at the least suggestion that one piece of equipment won't work properly with another. For instance, because 8mm tapes can't be played back on a VHS deck, many would-be camcorder buyers assumed that VHS-C, which offers VHS playback with the help of an adaptor, was a more desirable format than 8mm. It took the public a little while to realize that playing back an 8mm camcorder tape was as easy as plugging the camcorder into a TV set, and now 8mm is making some impressive gains in popularity. But real and complete incompatibility does not make consumers happy. Last year the FCC handed down the final word: Any HDTV system proposed for United States use has to be compatible with our current NTSC system—that is, any HDTV broadcasts would have to be receivable on non-HDTV sets. And that means so long Muse. It's very likely that the NHK system will be used for production purposes here in the States, but not for broadcast and transmission.

In the meantime, a number of manufacturers and engineers have been working on NTSC-compatible HDTV systems, hoping the FCC will award them the brass ring by adopting their proposed system as a

standard. Essentially, HDTV is in the process of being reinvented for America, and different companies have different ideas about what the ideal HDTV configuration is. One of the big issues is the aspect ratio of the HDTV screen, the screen's proportion of width to height. Any HDTV picture will be wide-screen, but to what extent? The Muse system specifies a 5:3 aspect ratio; some proposed American systems vary from that a bit. Moreover, a number of proposals contain improvements over the Muse system—almost all of them employ noninterlace digital scanning as part of the standard. And all of them offer some form of compatibility with our current NTSC system.

One of the earliest proposals for America was Advanced Compatible Television I, introduced in 1987 as a joint venture of NBC, RCA, and the David Sarnoff Research Center. Described as an interim system, it uses time compression to squeeze an enhanced signal into the standard NTSC bandwidth of 6 MHz. Viewers with regular NTSC sets would receive only the center part of the wide-screen picture (aspect ratio 5:3); information for the sides of the picture and enhanced detail would be contained within the time-compressed portion of the signal, which could only be received with special ACTV sets. As the second stage of its proposal, the ACTV team has unveiled ACTV II, an NTSC-compatible HDTV system using two broadcast channels.

Philips first showed its High-Definition System for North America (HDS-NA) to the press late last year at its research laboratories in Briarcliff, New York, and demonstrated it again at the Winter Consumer Electronics Show in January. It employs a satellite feed that sends a dual-component HDTV signal containing a picture with a 16:9 aspect ratio and four-channel digital audio. The first part of the signal contains the standard NTSC signal; the second part is an augmentation signal that provides the information for the HDTV picture and the enhanced audio. What kind of picture and sound a viewer would get would depend on the receiver he had.



• NEC's KX2792S 27-inch
 • monitor/receiver has matrix, hall,
 • and Dolby surround-sound
 • settings, an S-VHS input, MTS/SAP
 • stereo decoder, and more than 500
 • lines of horizontal resolution. It
 • has four built-in speakers and a
 • built-in amplifier that delivers 10
 • watts per channel into four
 • channels. The price is \$1,399.



• The Zenith ZB2777H stereo
 • monitor/receiver (\$1,900) has a
 • Zenith/Bose sound system.
 • Features include on-screen
 • display, picture-in-picture, and
 • S-VHS input. The 27-inch set has
 • 560-line resolution, and it provides
 • a variable audio output switchable
 • for direct connection to an
 • amplifier or a speaker system.

The Glenn system, developed by New York Institute of Technology director William E. Glenn, also employs an augmentation signal. The Del Rey system uses subsampling and slices off the bottom and top lines of the picture in order to squeeze the HDTV signal into a standard broadcast channel. Zenith's Spectrum Compatible system would simulcast a full HDTV signal on an otherwise unused adjacent channel, partly digitizing it to reduce power requirements and prevent interference. In terms of their approaches to the problem, the engineering community is reveling in diversity, but in terms of real progress, we seem to be playing catch-up with the Japanese.

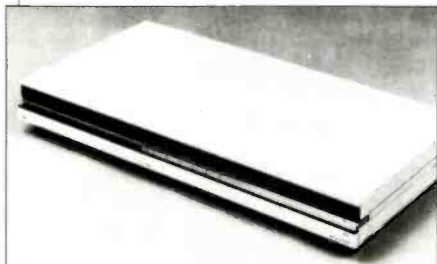
In Japan, players from every part of the consumer electronics business are gearing up for HDTV. Matsushita is making TV sets and VCR's for Muse HDTV, anticipating NHK's experimental broadcasts beginning this spring. Maxell has shown a 1-hour-length HDTV videocassette called Hi-Vision. And so on. Things aren't quite up to that speed here in the U.S. One thing is for sure, though: The HDTV equipment, once it arrives, will be more expensive than the television gear we have now. But not *too* much more expensive. A study prepared for the Electronic Industries Association predicts that if there is a timely adoption of standards we could have HDTV in the U.S. by 1993, and that the first sets, which will be large-screen models, will be sold for an average price of \$2,500. But prices are expected to decline rapidly as larger volume permits production economies, and by the turn of the century, the study estimates, 25 percent of all American homes will be HDTV equipped. That's a big number for such a short time frame, and prohibitive pricing won't help make it happen.

Until the FCC adopts an HDTV broadcast standard—which could be this year or sometime in the early 1990's—we have little to go on but debate and speculation. The FCC's order for an NTSC-compatible system cleared the fog a bit, but there's still a way to go before those wide-screen pictures get to you. In the meantime, however, high-resolution and IDTV sets offer dramatic improvements over conventional TV equipment, and they are well worth investigating while you are waiting for HDTV. □

HI-FI VCR'S A BUYING GUIDE

BANG & OLUFSEN VX 5000 S-VHS VCR

Super VHS Hi-Fi recorder with PIP, and 9-picture, multi-screen monitoring. Features on-screen table of contents; real-time counter; MTS/SAP; 3 tape speeds; 8-event/1-year timer; variable-speed slow motion; still picture; freeze frame; search forward/rewind 36x normal speed; index search; 4 video and 2 audio heads; remote control. FR 20-20,000 Hz \pm 3 dB; dynamic range >80 dB; THD <0.5%; W&F <0.005% wrms. 21 $\frac{1}{4}$ x 3 $\frac{3}{8}$ x 11 $\frac{3}{4}$ in; 22 lb.....\$2,000



Bang & Olufsen Beocord VX 5000

CANON ES-100 8mm PCM VCR

Tabletop 8mm VCR with PCM digital and AFM audio. Features theater mode for surround-sound effects; MTS; flying-erase head; 2-speed slow motion; 3-event/2-week timer; 152-channel tuner; records FM simulcasts. Maximum recording time 4 hours. Search, slow-motion, still, frame advance, and double speed playback controlled via remote. Audio: FR 20-20,000 Hz; dynamic range > 85 dB; W&F <0.005% wrms. 11 $\frac{1}{8}$ x 8 $\frac{1}{4}$ x 2 $\frac{7}{8}$ in; 5.7 lb.....\$899

FISHER FVH-Z1 Digital S-VHS VCR

Super VHS Hi-Fi deck with PIP and multistrobe digital video effects. Features MTS; VHS Hi-Fi recording/playback; 4 video and 2 audio heads; CCD dropout compensation and noise-cancellation circuitry; 181-channel quartz-PLL tuner; jitter-free slow motion, still frame, and frame advance; on-screen programming; remote control with 10-key random-channel access; remote controlled quick-timer for 4-hour recording with optional 24-hour delay; digital auto-tracking; SP, LP, and EP recording/playback speeds; 6-event/1-year timer; index search.....\$1,400

FVH-S6800 S-VHS VCR

Super VHS Hi-Fi recorder with 4 double-azimuth video heads and 2 audio heads. Features VHS Hi-Fi recording/playback; digital auto-tracking; MTS; 6-event/1-year timer; 32-function/41-button remote control with 10-key random channel access; index search; 181-channel



INDUSTRY pundits like to point out that the VCR boom that has altered the TV viewing habits of millions of Americans is losing its gusto. After all, they reason, three out of every five U.S. households now own at least one VCR.

But the truth is, for all those who have not yet experienced the added dimension that real hi-fi sound brings to video, the boom hasn't even begun. Whether you are buying your first VCR or an upgrade, now is a good time to purchase a hi-fi deck—special features are more plentiful and prices lower than ever before. In fact, a no-frills hi-fi VCR can be had for \$400 or less today.

As always, the information in this guide was provided by the manufacturers and does not represent the results of tests by STEREO REVIEW. All prices are list prices; actual selling prices may vary. A directory of manufacturers appears on page 79.

Robert Ankosko

quartz-PLL tuner, IRC and HRC cable compatible; multichannel scan; search cue/review and index; jitter-free still frame; FL display. . . \$1,000



Fisher FVH-Z1

FVH-6600 VHS VCR

Features VHS Hi-Fi recording and playback; 4 double-azimuth video heads; 2 audio heads; MTS; instant-action full-loading system; remote on-screen 6-event/3-week timer; 122-channel, cable compatible quartz-PLL tuner; 29-function wireless remote control; auto channel-programming; auto channel-scan; 2-speed picture search; CCD dropout compensation and noise cancellation circuitry; HQ picture-enhancement circuitry; jitter-free still frame. 16.5 lb.....\$600

GE VG-7795 S-VHS VCR

Super VHS Hi-Fi deck with MTS. Features 4 patented Pro-Fect video heads; 155-channel, cable-compatible, frequency-synthesis tuner; on-screen display with remote programming; 8-event/1-month timer; 49-function remote; 1-touch recording with standby; time-stamp recording; real-time tape counter; auto-tracking control; index search; 8 hours max. recording/playback. 3 $\frac{1}{4}$ x 15 $\frac{3}{8}$ x 11 $\frac{3}{8}$ in; 10.1 lb...\$999



GE VG-7785

VG-7785 VHS VCR

VHS Hi-Fi VCR with MTS. Features 4 patented Pro-Fect video heads; 155-channel, cable-compatible, frequency-synthesis tuner; on-screen display with remote programming; 8-event/1-month timer; 48-function remote; 1-touch recording with standby; time-stamp recording; real-time tape counter; index search; 8 hours maximum recording/playback. 3 $\frac{1}{4}$ x 15 $\frac{3}{8}$ x 11 $\frac{3}{8}$ in; 9.7 lb.....\$699

ILLUSTRATION BY NORVIND COUSINEAU

HI-FI VIDEOCASSETTE RECORDERS

GRUNDIG

Monolith VS-9500 Digital VHS VCR

VHS Hi-Fi VCR with image memory and multistrobe digital video effects. Features 4 video heads; 155-channel, cable-compatible tuner; MTS decoder; PIP; on-screen programming; multiple-channel search; HQ; CCD comb filter; 88-function remote. Audio: dynamic range 90 dB; FR 20-20,000 Hz, w&F 0.005% wrms. Video: resolution >230 lines; S/N >43 dB in SP mode. \$799

HITACHI

VT-3800A Digital Super VHS VCR

Super VHS Hi-Fi deck with multistrobe and mosaic/digital painting digital video effects. Features MTS; flying-erase video head with double-azimuth; PIP; 12-screen picture; slow motion and freeze frame; remote control; high-speed search; auto repeat/frame advance; index search; 8-event/1-year timer; auto play/rewind; 85-channel, cable-compatible tuner. . . . \$1,400

VT-2600A Digital VHS VCR

VHS Hi-Fi recorder with strobe, mosaic/art, freeze and store digital effects. Features MTS/SAP; still frame; variable-speed slow motion; frame advance; visual search; remote control with LED; provisions for video printer; auto play/repeat; 120-channel, cable-compatible tuner. 17 1/8 x 3 1/4 x 13 3/4 in. \$899

VT-3400A VHS VCR

VHS Hi-Fi VCR featuring MTS; 4-event/1-year timer; clock, calendar, and program review; on-screen display; 30-second program skip; 120-channel frequency-synthesis tuner; HQ; soft-touch operation; fine edit; FL display; 5-segment recording level indicator; 5-minute timer backup. \$649



Hitachi VT-3800A

INSTANT REPLAY

Image Translator VCR's

Videocassette recorders that are compatible with foreign video formats. Each model plays all PAL video tapes in color including PAL B (Western Europe, India, Africa, Far East, Australia, Scandinavia), PAL N (Argentina, Peru, Paraguay), PAL I (UK, South Africa, Ireland); also plays back SECAM B, G, V (Eastern Europe), SECAM D (Russia), SECAM H (Middle East), SECAM L (France) in monochrome. Compatible with most television sets and monitors. Common features include: front-loading cassette mechanism; 107-channel, cable-compatible tuner; 2-week/4-event timer; video peaking sharpness control; 4 heads; VHS Hi-Fi audio; fast-scan in forward and reverse; still frame; pushbutton electronic tuning; full track/audio track erase; multi-function remote control; one-touch recording; automatic stop; built-in switchable RF modulator for channels 3 and 4; multi-function FL display.

771T5S. Super VHS Hi-Fi VCR that plays both PAL and NTSC tapes. Features 420 lines hori-

zontal resolution; index and address search; on-screen programming; 183-channel, cable-compatible tuner; direct-access remote control; RF, video and "S" outputs; optional RGB output; mode switch to record S-VHS signal on regular VHS tapes with only a slight increase in S/N. \$1,995

618IT3RGB. Features MTS/SAP decoder; on-screen programming; remote control; frame advance; noise-free special effects; cable-compatible tuner; 1-touch recording; channel lock; auto fine-tuning; time-remaining display; auto rewind; RF, video composite, and RGB outputs; plays SECAM in monochrome. \$1,895

618IT3. Features MTS/SAP decoder; on-screen programming; remote control; frame advance; noise-free special effects; cable-compatible tuner; 1-touch recording; channel lock; auto fine-tuning; time-remaining display; auto rewind; plays SECAM in monochrome. \$1,795

615IT3. Features HQ; FM simulcast switch; 2 sets of audio outputs; auto index; 4 video heads; records stereo (NTSC) with or without video input; A/V editing; 27-function remote; auto program-finder; 107-channel, cable-compatible tuner; 1-month/8-event timer; plays SECAM in monochrome. \$1,595

JVC

HR-S8000U Digital S-VHS VCR

Super VHS Hi-Fi recorder with numerous digital video effects, including zoom, freeze-frame, strobe, multiscreen-freeze, solarization/mosaic, and multi-screen search. Features 4 double-azimuth video-heads; variable-speed search; slow motion; still frame; LCD programmable remote control; flying-erase head; auto tilling; index search; PIP; multiscreen channel scan; 181-channel, cable-compatible PLL frequency-synthesis tuner; MTS; 8-event/2-week timer; audio dubbing; edit switch; on-screen display of mode and timer programming; shuttle search with latch function; skip search. Maximum recording time 8 hours. Video: S/N >43 dB, resolution >400 lines. Audio: S/N >40 dB, FR 70-10,000 Hz. Hi-fi audio: FR 20-20,000 Hz, w&F <0.005% wrms. 18 1/2 x 4 1/4 x 14 3/4 in; 18.6 lb. \$1,599

HR-S5000U Editing S-VHS VCR

Super VHS Hi-Fi VCR featuring 4 double-azimuth video heads; HQ; flying-erase head; real-time tape counter; special effects; multi-function VCR/TV remote control; 8-event/2-week timer; 155-channel, frequency-synthesis tuner with MTS; index search; intro search; tape-stabilizing head drum; on-screen menu and auto channel-set; skip search; zero-frame editing system; audio dubbing facility; edit switch; headphone jack with adjustable output; shuttle search with latch function; 1-button instant recording. Maximum recording time 8 hours; Video: S/N 45 dB, resolution >400 lines. Audio: S/N >40 dB, FR 70-10,000 Hz. Hi-fi audio: FR 20-20,000 Hz, w&F <0.005% wrms. 17 1/4 x 4 1/4 x 15 in; 17.9 lb. \$1,299



JVC HR-S5000U

HR-D750U VHS VCR

VHS Hi-Fi VCR with HQ; 4 double-azimuth heads; on-screen menu system; real-time counter; special effects; multi-function VCR/TV remote control; 4-event/2-week timer; 155-channel, frequency-synthesis tuner with MTS; index search; intro search; skip search; zero-frame editing system; headphone jack with adjustable output; shuttle search with latch function; 1-button instant recording; FL display. Maximum recording time 8 hours. Video: S/N 45 dB, resolution 240 lines. Audio: S/N >40 dB, FR 70-10,000 Hz. Hi-fi audio: FR 20-20,000 Hz, w&F <0.005% wrms. 17 1/4 x 3 3/8 x 13 3/8 in. \$899

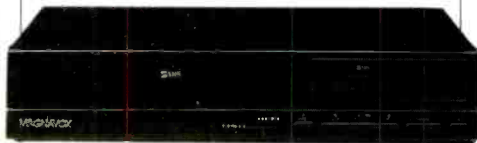
KENWOOD

KV-D957S Digital S-VHS VCR

Super VHS Hi-Fi deck with digital effects, including slow motion, strobe, and picture memory. Features digital NR and digital dropout compensator; 8-event/3-week timer; on-screen display with question and answer format (manual or remote control); 1-touch recording; 140-channel, frequency-synthesis PLL tuner; real-time counter; search system; index scan; MTS; quick view; 1-hour memory backup. . . . \$1,199

KV-956 VHS VCR

VHS Hi-Fi deck featuring jitter-free slow motion, freeze frame, and frame advance; 8-event/3-week timer; 140-channel tuner; MTS/SAP; on-screen display; manual/remote control programming. Maximum recording time 8 hours. Video: S/N >43 dB, resolution >240 lines. Hi-fi audio: FR 20-20,000 Hz, dynamic range >90 dB, channel separation >60 dB. 17 x 3 3/8 x 14 3/4 in; 19.21 lb. \$950



Magnavox VR9770AT

MAGNAVOX

VR9780AT Digital S-VHS VCR

Super VHS Hi-Fi VCR with strobe, multistrobe, TV still, multi-still/slow digital video effects. Features PIP; channel search; program review; 57-function remote; bar-code programming; MTS/SAP; 8-event/1-month timer; index/address search; 155-channel quartz-controlled tuner; auto tracking; time stamp; HQ; 4 video and 2 audio heads; digital direct-drive video head servo system; digital direct-drive capstan servo system; maximum recording time 8 hours; auto scan tuning; on-screen function display; real-time counter with memory; soft-touch controls; edit switch. Record/playback resolution >400 lines. 17 x 3 3/4 x 13 1/2 in. \$1,399

VR9770AT S-VHS VCR

Super VHS Hi-Fi VCR featuring 4 video and 2 audio heads; MTS/SAP; index search; remote on-screen programming; 8-event/1-month timer; 155-channel quartz-controlled, random-access tuner; 45-function remote; time stamp; auto tracking; HQ; digital direct-drive servo video head system; digital direct-drive capstan servo system; on-screen function display; 1-touch record with standby; audio mute; maximum recording time 8 hours; 3-speed record/playback;

HI-FI VIDEOCASSETTE RECORDERS

multi-function display with auto dimmer; soft-touch controls; auto TV/VCR switching; auto fine-tuning; transition editing. Resolution >400 lines. 15¼ x 3¼ x 11½ in. \$999

VR9760AT VHS VCR

VHS Hi-Fi deck featuring 4 video and 2 audio heads; MTS/SAP; index search; remote on-screen programming; 8-event/1-month timer; 155-channel digital quartz-controlled, random-access tuner; 44-function remote; on-screen function displays; linear-time counter with memory; HQ; digital direct-drive servo video head system; digital direct-drive capstan servo system; 1-touch record with standby; audio mute; maximum recording time 8 hours; 3-speed record/playback; multi-function display with auto dimmer; soft-touch controls; auto TV/VCR switching; auto fine-tuning; transition editing. 15¼ x 3¼ x 11½ in. \$699

MINOLTA

MV-160S Digital S-VHS VCR

Super VHS Hi-Fi VCR with numerous digital video effects, including strobe, frame memory, mosaic and posterization; frame-by-frame advance, and adjustable slow motion. Features more than 400 lines of resolution; 167-channel cable-compatible tuner with MTS; multichannel search; 12-channel still picture; multi-index search; multi-sampling play; PIP; 2-speed visual search; double-speed playback; index search; 8-event/1-year timer; 43-function remote; on-screen menu display; 1-touch recording with auto playback. \$1,530



Minolta MV-160S

MITSUBISHI

HS-U80 Digital S-VHS VCR

Super VHS Hi-Fi VCR with freeze frame, slow motion, still frame, variable slow motion, and frame advance digital video effects. Features 4 video heads; HQ; CCD NR; twin digital tracking; S-VHS dubbing output; edit switch; flying-erase head; resolution >400 lines; video mute; PIP; tape preview; channel preview; search-by-time and skip search; auto front loading with rapid start transport; 2-speed visual search with lock; insert edit and fine edit; jog dial with variable-speed search; high-speed address/index search; 181-channel, cable-compatible, frequency-synthesis tuner; on-screen programming from remote; 8-event/1-month timer; 1-touch recording; manual/auto record level control; gold output jacks. Maximum recording time 8 hours. Audio: FR 20-20,000 Hz, dynamic range >90 dB (SP), W&F <0.005% wrms. 5⅞ x 18 x 16 in; 28.7 lb. \$1,699

HS-U70 S-VHS VCR

Super VHS Hi-Fi VCR featuring 4 video heads; HQ; CCD NR; twin digital tracking; still frame; variable slow motion and frame advance; 2-speed visual search with lock; search-by-time and skip search; auto front loading with rapid start transport; 181-channel, cable-compatible,

frequency-synthesis tuner; auto canceling of programmed recording; on-screen remote programming; 8-event/1-month timer; on-screen display; resolution >400 lines; edit switch; video mute; dubbing output; high-speed address/index search; insert edit and fine edit; auto programmable channel-memory scan tuning; on-screen menus; 1-touch recording; MTS; manual/auto recording level control; transient recovery circuit; gold output jacks. 4⅞ x 16¼ x 15 in; 17 lb. \$999



Mitsubishi HS-U80

HS-U50 VHS VCR

VHS Hi-Fi deck featuring 4 video heads; HQ; CCD NR; twin digital tracking; still frame; variable slow motion and frame advance; 2-speed visual search with lock; search-by-time and skip search; auto front loading with rapid start transport; 155-channel, cable-compatible, frequency-synthesis tuner; auto-canceling of programmed recording; on-screen remote programming; 6-event/1-month timer; on-screen displays; resolution 220-240 lines; index search; channel-memory scan tuning; 1-touch recording; MTS. 3⅝ x 16¾ x 12¼ in; 14 lb. \$599

NEC

DS8000U Digital S-VHS VCR

Super VHS Hi-Fi VCR with digital noise reduction and digital video effects, including strobe, still, slow motion, and picture memory. Features >400 lines of resolution; on-screen programmable timer and display; 8-event/3-week timer; multi-speed shuttle play with picture and jet search; index search; 140-channel, cable-compatible tuner; MTS/SAP; LCD remote; 1-touch recording; real-time counter; HQ; manual recording level control; multi-function display; 1-day timer memory backup. Maximum play time 8 hours. Video: S/N >43 dB. Audio: FR 100-10,000 Hz, S/N >40 dB. Hi-fi audio: FR 20-20,000 Hz, dynamic range >90 dB, channel separation >60 dB. 17 x 4 x 14¾ in; 19.2 lb. \$1,499



NEC DS8000U

N978U VHS VCR

VHS Hi-Fi deck featuring patented Exac-Trac 4-head system; 140-channel, cable-compatible, frequency-synthesis tuner; MTS/SAP; remote compatible with most NEC TV's; 4-event/3-

week timer; HQ; picture and jet search; on-screen function and channel display; 1-touch record with delay start; real-time counter; multi-function display. Maximum play time 8 hours. Video: S/N >43 dB. Audio: FR 100-10,000 Hz, S/N >40 dB. Hi-fi audio: FR 20-20,000 Hz, dynamic range >90 dB, channel separation >60 dB. 17 x 4 x 14¾ in; 16.3 lb. \$899

N958U VHS VCR

VHS Hi-Fi VCR featuring 110-channel, cable-compatible, frequency-synthesis tuner with manual skip memory; 4-event/2-week timer with on-screen programming; picture search; HQ; 1-touch recording; full-function remote; multi-function FI display. Maximum play time 8 hours. Video: S/N >43 dB. Audio: FR 100-10,000 Hz, S/N >40 dB. Hi-fi audio: FR 20-20,000 Hz, dynamic range >90 dB, ch sep >60 dB. 17 x 4 x 14¾ in; 16 lb. \$699

PANASONIC

PV-S4880 Digital S-VHS VCR

Super VHS Hi-Fi VCR with digital video effects, including strobe, 16-screen multistrobe, and still TV-picture memory. Features 4 video heads; PIP; TV in TV allows an external TV to be displayed on the screen; 16-screen TV channel search; digital auto index; MTS/SAP; bar code, on-screen display programming; 155-channel, digital quartz tuner with auto set; index/address search; auto tracking search; 57-function wireless remote control; edit switch; real-time counter; A/V noise muting; stand-by, 1-touch recording; multi-function display; auto operations; search lock/skip search; HQ; CCD NR; direct-drive cylinder and capstan motors. Audio: dynamic range >90 dB, FR 20-20,000 Hz, W&F <0.005% wrms. 17 x 3¼ x 13⅞ in; 13 lb. \$1,350

PV-S4864 S-VHS VCR

Super VHS Hi-Fi VCR featuring 4 heads; MTS/SAP; bar code, on-screen display programming; 155-channel digital quartz tuner with auto set; 44-function wireless remote control; index search; real-time counter; A/V noise muting; stand-by, 1-touch recording; multi-function display; auto operation functions; search lock; skip search; HQ; CCD NR; direct-drive cylinder and capstan motors. Audio: dynamic range >90 dB, FR 20-20,000 Hz, W&F <0.005% wrms. 15⅝ x 3¼ x 11⅞ in; 10.4 lb. \$950
PV-4860. Same as S4864 (above) without bar-code programming, S-VHS. 9.9 lb. \$630

PHILIPS

VR6885 Digital S-VHS VCR

Super VHS Hi-Fi deck with digital video effects, including still frame, PIP, channel preview, strobe, and multi-strobe. Features bar code programming; HQ; 4 double-azimuth heads; direct-drive head drum and capstan; still; slow; frame advance; 2x play; slow tracking; edit switch; transition editing; time stamp; on-screen function displays; line-input selection; index and program search; real-time counter; MTS/SAP; audio dubbing; 155-channel quartz frequency-synthesis tuner with auto program scan; 8-event/1-month timer; 1-touch record with standby; 57-function remote. Audio: S/N >70 dB, FR 20-20,000 Hz, dynamic range 90 dB, 0.47% THD. 16½ x 3¼ x 13¾ in. \$1,499
VR6785. Same as above except without digital features, time stamp, and some functions on remote control. \$1,299

HI-FI VIDEOCASSETTE RECORDERS

VR6585 VHS VCR

VHS Hi-Fi VCR featuring HQ; 4 double-azimuth heads; direct-drive head drum and capstan; still; slow; frame advance; 2x play; digital slow tracking; transition editing; on-screen function displays: line-input selection; index search; real-time counter; MTS; audio dubbing; 152-channel quartz frequency-synthesis tuner with auto program scan; 8-event/1-month timer; 1-touch record with standby; 35-function remote. Audio: S/N >70 dB, FR 20-20,000 Hz, dynamic range 90 dB, 0.47% THD. 16½ x 3¼ x 13¾ in. \$699



Philips VR6585

PIONEER

VH-930SD Digital S-VHS VCR

Super VHS Hi-Fi VCR with digital video effects, including PIP, still frame, single/multi strobe, slow motion, and 1-shot picture memory. Features 4 video heads; HQ; more than 400 lines of horizontal resolution; multi-channel search; 8-event/3-week timer; on-screen programming; index search; real-time counter search; picture search; jet search; MTS; 140-channel, cable-compatible, frequency-synthesis tuner; 59-function remote (may be used with any Pioneer SR audio or video products); manual record level control with audio level meter \$1,500



Pioneer VH-930SD

QUASAR

VH5985 S-VHS VCR

Super VHS Hi-Fi VCR featuring MTS/SAP; 4 double-azimuth heads; bar-code programming; on-screen programming; index search; real-time counter; A/V noise muting system; 8-event/1-month timer; standby, 1-touch recording; 45-function remote; high-speed picture search with lock; CCD digital filter; HQ circuitry; digital auto tracking; multi function display; direct-drive cylinder and capstan motors. Audio: dynamic range >90 dB, 15¾ x 3¼ x 11½ in; 10.4 lb. \$1,050

VH5685. As above, lacks S-VHS \$680



Quasar VH5985

VH5485 VHS VCR

VHS Hi-Fi VCR featuring MTS/SAP; 4 double-azimuth heads; 155-channel, quartz-controlled tuner with auto set by digital memory; on-screen programming; 4-event/1-month calendar/timer; 43-function remote; A/V noise muting; stand-by one-touch recording; high-speed picture search with lock; double-speed playback; CCD digital filter; HQ circuitry; direct-drive cylinder and capstan motors. 12¾ x 3¼ x 11½ in; 8.8 lb. \$540

RCA

VR695HF Digital S-VHS VCR

Super VHS Hi-Fi VCR with digital video effects, including PIP, multi-pix, freeze with recall, mosaic and posterization. Jitter-free still effects: 2-speed picture search, stop action, frame advance, variable-speed slow motion. Features 4 double-azimuth video heads; resolution >400 lines; MTS/SAP decoder; index search; remote programming with on-screen display; on-screen tape titler; wireless remote; master tracking; 167-channel, quartz-controlled tuner with auto programming; A/V dub; maximum recording time 8 hours; 8-event/1-year timer with remote programming. Audio: FR 20-20,000 Hz, dynamic range >80 dB, 0.4% THD. 3¾ x 14¾ x 14 in; 16.3 lb. \$1,299

VR640HF S-VHS VCR

Super VHS Hi-Fi VCR with jitter-free field-still effects, including 2-speed picture search, stop action, frame advance, and variable speed slow motion. Features 4 double-azimuth video heads; resolution >400 lines; MTS/SAP decoder; index search; remote programming with on-screen display; wireless remote; 120-channel, quartz tuner with auto programming; maximum recording time 8 hours. Audio: FR 20-20,000 Hz, dynamic range >80 dB, 0.4% THD. 3¾ x 14¾ x 14 in; 15.6 lb. \$999

VR630HF VHS VCR

VHS Hi-Fi VCR with jitter-free field-still effects, including 2-speed picture search, stop action, frame advance, and variable-speed slow motion. Features 4 double-azimuth video heads; MTS/SAP decoder; index search; remote programming with on-screen display; wireless remote; master tracking control; 120-channel, quartz tuner with auto programming; maximum recording time 8 hours. Audio: FR 20-20,000 Hz, dynamic range >80 dB, 0.4% THD. 3¼ x 14¾ x 14½ in; 13.6 lb. \$699

REALISTIC

Model 44 VHS VCR

VHS Hi-Fi VCR with 10 W/ch amp. Features on-screen programming; high-speed forward/visual search; slow/quick motion; frame advance; HQ; 6-event/1-year timer; 122-channel, cable-compatible PLL tuner; bass, treble, volume, and balance controls; FL display; MTS/SAP decoder; 38-function remote; remote programming with on-screen prompts. Audio: 10 W/ch x 2 minimum rms into 8 ohms from 50-20,000 Hz with <1.0% THD. \$600

SAMSUNG

VR7500F VHS VCR

VHS Hi-Fi VCR featuring 110-channel, frequency-synthesis tuner; HQ; MTS/SAP decoder; 20-key/23-function remote; 4-event/2-week timer; 3-speed picture search; 1-touch record; A/V input/output; 3-speed record/playback; elec-

tronic counter/timer; front-loading, 240 lines horizontal resolution. Audio: FR 20-20,000 Hz, dynamic range >80 dB, w&F <0.005% wrms; ch sep >60 dB. 16½ x 3¾ x 13¾ in. \$650

SANYO

VHR8700 S-VHS VCR

Super VHS Hi-Fi VCR featuring digital memory sound; outputs for chrominance and luminance signals; auto program search; MTS/dbx decoder; 4 double-azimuth heads; 140-channel, cable compatible tuner; 14-event/2-week timer; on-screen display; quick play mode; cue and review picture search in SP and SLP; memory rewind; tape remainder display \$1,299

VHR3950 Digital VHS VCR

VHS Hi-Fi VCR with digital special effects, including PIP, mosaic, solarization, multi-still, multi-strobe, slow motion, freeze frame, and frame advance. Features remote control; 4 video heads; 111-channel, cable-compatible tuner; 4-event/2-week timer with on-screen programming; MTS/SAP decoder; 1-touch record; HQ; plays and records in SP, LP, SLP speeds; channel lock; record-level meters; left and right input-level controls. Video: S/N >45 dB. Audio: dynamic range 90 dB. 17¾ x 3¾ x 15½ in; 19.6 lb. \$849



Sanyo VHR9500

VHR8310 VHS VCR

VHS Hi-Fi VCR featuring MTS; 122-channel tuner; HQ; 6-event/1-year timer; on-screen display; quick-touch record; 4 video heads; still; slow motion playback; quick play mode; cue and review picture search in SP and SLP; memory rewind \$599

VHR9600 VHS VCR

VHS Hi-Fi deck featuring 4 double-azimuth video heads; pause, still, frame advance, variable slow-motion and quick-play modes; 6-event/3-week timer; 122-channel, frequency-synthesis tuner; 29-function remote; on-screen programming; auto channel programming; quick timer recording; direct-access tuning with remote; channel scan function; MTS/dbx decoder; CCD dropout compensation and noise cancellation circuitry; 2-speed cue and review; linear time counter; auto operation. S/N 48 dB (video), 80 dB (audio). 17½ x 3½ x 13½ in. \$500

VHR9500 VHS VCR

VHS Hi-Fi VCR featuring HQ; CCD dropout compensation and noise cancellation circuitry; MTS/dbx decoder; 6-event/3-week timer; 122-channel, cable compatible frequency-synthesis tuner; 27-function remote; channel scan; quick-timer recording; on-screen programming; 2-speed cue and review; linear time counter; fully auto operation. S/N 48 dB (video), 80 dB (audio). 17¼ x 3¾ x 13¾ in; 13.9 lb. \$400

SHARP

VC-H857U VHS VCR

VHS Hi-Fi VCR featuring 4 double-azimuth video heads; multi-function on-screen display.

HI-FI VIDEOCASSETTE RECORDERS

MTS/SAP decoder; 62-function remote; index search; interval search; 169-channel quartz-PLL tuner with 10 key random access; 8-event/1-year timer; still, frame advance, and variable line slow motion; full auto play; blue-screen feature mutes noise between recorded channels; remote tracking adjustment; channel memory. Max. record/play time 8 hours. Video: S/N > 50 dB. Audio: FR 20-20,000 Hz, dynamic range > 90 dB. 17 x 3 3/4 x 13 3/8 in.; 14.1 lb. . . . \$900

front-panel A/V input, control S terminal, Micro-Timing phase circuitry, linear time counter; Beta-scan; BetaSkipScan; auto rewind, eject, power-on/play. Audio: dynamic range > 80 dB; FR 20-20,000 Hz; w&F < 0.005%. Video: S/N > 45 dB. 17 x 4 x 16.1 in. . . . \$1,100

SLV-70HF VHS VCR

VHS Hi-Fi VCR featuring edit monitoring; flying-erase head; 4 double-azimuth heads; PIP; on-screen displays and LCD remote programming; 8-event/1-month timer; synchro edit switch; index search/scan; auto menu; TV scan; HQ; linear time counter. S/N > 45 dB (video), > 40 dB (audio). Audio: FR 50-10,000 Hz SP, 50-7,000 Hz EP. Hi-fi audio: dynamic range > 90 dB, FR 20-20,000 Hz, w&F < 0.005% wrms. 14 x 3 3/4 x 13 3/8 in.; 16.2 lb. . . . \$1,100

EV-S1 Portable 8mm PCM VCR

Portable 8mm VCR with PCM digital sound. Features MTS/SAP; hi-band recording with metal tape; freeze-frame; slow motion; 10-key wireless RMT-437 Remote Commander; 152-channel cable-compatible tuner; 3-event/2-week timer; AC/DC power supply capability; ATF (Automatic Track Finding); AFM (Audio Frequency Modulation); theater-sound mode; audio dubbing; flying-erase head; edit switch; PCM audio; Dynamic range 88 dB; sampling frequency 31.5 kHz; quantization 10-bit sampling, 8-bit nonlinear quantizing. w&F < 0.005%. 10.9 x 2.75 x 8.2 in.; 5.75 lb. . . . \$1,000

time counter; auto scan tuning; 1-touch recording with standby; time stamp; auto track. 15 1/2 x 3 3/4 x 11 3/4 in. . . . \$699

SYMPHONIC BY FUNAI 8800 VHS VCR

VHS Hi-Fi VCR featuring MTS/SAP decoder; 4 video and 2 audio heads; HQ circuitry; on-screen display; 32-function wireless remote control; 155-channel, cable compatible tuner; auto power-on, play, rewind, eject; 6-event/2-week timer with weekly setting; 1-touch record. 3 3/4 x 17 x 13 1/2 in.; 22 lb. . . . \$499

TEAC

MV-550 VHS VCR

VHS Hi-Fi VCR featuring 4 heads; HQ; on-screen display; special playback, still, slow motion, advance frame; quick timer programming; 29-key remote; PLL frequency-synthesis, 155-channel tuner; 6-event/2-week timer; 4-digit electronic tape counter with memory function; auto power on/off; auto playback/rewind; auto eject; 2-step search. 16 7/8 x 3 3/4 x 13 3/8 in.; 14.5 lb. . . . \$599

TEKNIKA

VCR887 VHS VCR

VHS Hi-Fi VCR featuring 4 heads; HQ; MTS/SAP decoder; on-screen display; 155-channel tuner; 32-function remote; 6-event/2-week timer; 1-touch recording; 2-speed forward/reverse search; noise-free still and slow motion; multi-function display; maximum recording time 8 hours. Video: resolution 230 lines, S/N 43 dB. Audio: FR 20-20,000 Hz, S/N 80 dB. 17 x 13 1/2 x 3 3/4 in.; 15.5 lb. . . . \$549



Sharp VC-H857U

SONY

EDV-9500 ED Beta PCM VCR

ED Beta Hi-Fi VCR with 500 lines of resolution and PCM digital audio processor. Features metal tape compatibility; Tilted Sendust Sputtered (TSS) video heads; tape stabilizer; 16-segment peak level meter; freeze frame, 1/4x slow motion; flash motion with 6-step speed control; stop motion; scan search; frame-by-frame advance; dual flying-erase heads; 5-second pre-roll capability with sync adjustment control; 8-segment assemble editing; auto insert editing; linear time counter and frame counter; audio dubbing; jog/shuttle dial; remote allows operation of 8mm and Betamax; tab marker indexing; 181-channel, quartz-locked, frequency-synthesis, cable-compatible tuner; 8-event/3-week timer; FL display; full auto operation. Beta Hi-Fi: dynamic range > 90 dB, FR 20-20,000 Hz, w&F < 0.005% wrms. Beta Hi-Fi off: S/N > 40 dB, FR 50-10,000 Hz. 19 1/8 x 6 x 17 1/2 in.; 39.5 lb. . . . \$3,300

EDV-7500 ED Beta PCM VCR

ED Beta Hi-Fi VCR with 500 lines of resolution and PCM digital audio processor. Features metal tape compatibility; tape stabilizer; 12-segment peak level meter; freeze frame, 1/4x slow motion; flash motion with 6-step speed control; stop motion; scan search; recall; flying-erase head; shuttle edit; synchro edit; remote with 10-key direct access channel selection; 149-channel, quartz-locked, frequency-synthesis, cable-compatible tuner; 6-event/1-week timer; FL multi-display; full auto operation. Beta Hi-Fi: Dynamic range > 90 dB, FR 20-20,000 Hz, w&F < 0.005% wrms. 18 1/2 x 4 3/8 x 16 3/8 in.; 24.9 lb. . . . \$1,950

EV-S800 8mm PCM VCR

Tabletop 8mm VCR with PCM digital audio dubbing. Features 4 hour video recording; flying-erase head; index search with 99 program access; MTS decoder; cable-compatible tuner; 6-event/3-week timer; jog/shuttle dial; freeze frame, slow motion, frame-by-frame advance; 10-key remote; synchro edit; edit switch; FL display. Audio: Dynamic range > 90 dB; FR 20-15,000 Hz; w&F < 0.005% wrms. 17 x 3 1/2 x 12 3/8 in.; 15.5 lb. . . . \$1,950

SL-HF860D Digital Super Beta VCR

Super Beta Hi-Fi VCR with digital special effects. Features B-I playback speed; MTS/SAP stereo decoder; 151-channel, cable-compatible tuner; 6-event/1-week timer; special effects include zoom, multi-strobe, mosaic, solarization, posterization, flash and stop motion with sound. PIP; RMT-160 Remote Commander with direct access; editing functions include synchro edit,



Sony EDV-9500

SL-HF360 Super Beta VCR

Super Beta Hi-Fi VCR with Betascan high-speed search. Features B-I playback speed; pause; freeze-frame; color and sharpness switches; 149-channel cable-compatible Express Tuning system; 1-event/1-week timer; linear time counter; counter/clock button; auto rewind, play, power-on/play, eject; stereo headphone jack with adjustable level; RMT-156 Remote Commander. Video: S/N > 45 dB. Hi-fi audio: dynamic range > 80 dB, FR 20-20,000 Hz, w&F < 0.005%. 17 x 3.75 x 14.6 in.; 15.5 lb. . . . \$600



Sylvania VC4070AT

SYLVANIA VC4070AT VHS VCR

VHS Hi-Fi VCR featuring 4 video heads; remote on-screen programming; 8-event/1-month timer; 155-channel digital quartz tuner; 45-function remote; index search; on-screen function displays; MTS/SAP decoder; skip search; real-



Toshiba M-9485

TOSHIBA

SV-970 Digital S-VHS VCR

Super VHS Hi-Fi VCR with digital special effects, including PIP, freeze frame, multi still, variable speed search, channel search, strobe, mosaic, color art, and zoom. Features 4 double-azimuth heads; HQ circuitry; MTS decoder; 139-channel, frequency-synthesis tuner; 8-event/2-week timer; color on-screen programming; resolution 400 lines; index search; 50-function remote. Audio: Dynamic range 90 dB, FR 20-20,000 Hz, w&F 0.005% wrms, channel separation 60 dB. Video: S/N 45 dB. 17 x 4 1/4 x 15 1/4 in.; 20.9 lb. . . . \$1,300

DX-900 VHS VCR

VHS Hi-Fi VCR with PCM digital sound-processor and digital video effects, including clear freeze frame in EP and SP, and clear slow motion (1/2 speed in reverse); also freezes four still-frames (from broadcast or tape) and shows them simultaneously. Features double-speed play; MTS/SAP decoder; on-screen programming using fiber-optic lightpen; remote control; 139-channel, cable-compatible tuner; 4-event/2-

HI-FI VIDEOCASSETTE RECORDERS

week timer; HQ circuitry; audio level display; mic jacks; headphone jack; 4 heads. 17 x 4½ x 14¾ in.; 22.7 lb \$1,000

M-HF845 VHS VCR with Graphic EQ
VHS Hi-Fi VCR featuring 4-band graphic equalizer with FL display; spectrum analyzer; 10-key random access tuning; HQ; color on-screen programming; MTS/SAP decoder; 4 double-azimuth video heads; 155-channel, cable-compatible; frequency-synthesis tuner; 8-event/2-week timer; flying-erase head; synchro edit; full-load/quick access; linear time counter; index search \$749



Toshiba DX-900

M-9485 VHS VCR
VHS Hi-Fi VCR featuring 4 double-azimuth video heads; 122-channel, cable-compatible; frequency-synthesis tuner; MTS/SAP decoder; full-load system; tape-remaining counter; color on-screen programming; 4-event/2-week timer; HQ; linear time counter; 10-key random access tuning \$649

M-P200 VHS Videocassette Player
VHS Hi-Fi player that does not record. Features 9-function remote; audio level meter; HQ with edit mode; 2-speed picture search; 2-speed slow motion; headphone jack with adjustable level; auto power-on, rewind, and play; picture sharpness control \$399

VECTOR RESEARCH
V-6040D Digital VHS VCR
VHS Hi-Fi VCR with digital special effects, including freeze frame and jitter-free slow motion. Features MTS decoder with dbx; 124-channel PLL frequency-synthesis tuner; color on-screen programming; index search; linear time counter; direct-access transport; HQ circuitry. Maximum recording time 8 hours. Audio: FR 20-20,000 Hz, dynamic range >90 dB, channel separation >65 dB, w&F <0.005% wrms. Video: S/N >47 dB. 16½ x 3¾ x 14¾ in.; 17.6 lb \$1,099

YAMAHA
YV-1110S Digital S-VHS VCR
Super VHS Hi-Fi VCR with digital special effects, including PIP, 2-picture display, TV in TV (reverse and shift), picture and jet search, still picture, and frame advance. Features 4 video and 2 audio heads; manual record-level control; 140-channel, PLL frequency-synthesis tuner; MTS decoder with dbx; 3-speed slow motion;



Yamaha YV-1110S

HQ; editing control; program timer; 8-event/3-week timer; on-screen display and programming; segment recording; delayed segment recording; real-time counter; counter search; index search; 10-key remote compatible with Yamaha TV's; headphone jack with volume. 17 x 3¾ x 14¾ in \$899
YV-910D. Same as YV-1110S without S-VHS \$749
YV-810. Same as YV-1110S without S-VHS or digital special effects \$649

ZENITH
VRE550HF S-VHS VCR
Super VHS Hi-Fi VCR featuring 157-channel, cable compatible quartz tuner; resolution >400 lines; 4 double-azimuth video heads and 2 audio heads; still, slow motion, and speed search; MTS decoder; HQ with luminance and chrominance NR; comb filter; 8-event/2-week timer; on-screen programming; index search; real-time counter; intro search; dual-function remote compatible with many Zenith TV's; 5-speed slow motion; double-speed play with muted sound; auto programming; silent blue screen on non-broadcast channels; forward and reverse picture search lock; flying-erase head, insert edit, audio dubbing, mic input, edit switch, and camera pause. Video: S/N >43 dB. Audio: S/N >40 dB, FR 10-14,000 Hz. Hi-fi audio: FR 20-20,000 Hz, dynamic range >90 dB, w&F <0.008% wrms, channel separation >60 dB, THD <0.8% at 1kHz. Maximum recording time 8 hours. 17½ x 3¾ x 13 in \$1,149

VRE510HF VHS VCR
VHS Hi-Fi VCR featuring 157-channel, cable compatible quartz tuner; HQ with luminance and chrominance NR; MTS decoder; 5-speed slow motion; dual-function remote compatible



Zenith VRE550HF

with many Zenith TV's; 4-event/2-week on-screen programming; auto hi-fi linear switching during playback; real-time counter; index search; instant record; blue screen replacement of non-broadcast channels; next function memory; double speed play with muted sound; forward and reverse picture speed search; comb filter; 4 double-azimuth video heads and 2 audio heads. Video: S/N >43 dB. Audio: S/N >45 dB, FR 100-10,000 Hz. Hi-fi audio: FR 20-20,000 Hz, dynamic range >80 dB, w&F <0.008% wrms, channel separation >60 dB, THD <0.8% at 1kHz. Maximum recording time 8 hours. 17½ x 3¾ x 13 in \$649

DIRECTORY OF MANUFACTURERS

Bang & Olufsen, 1150 Feehanville Dr., Mt. Prospect, IL 60056
Canon, 1 Canon Plaza, Lake Success, NY 11042-1113
Fisher, 21350 Lassen St., Chatsworth, CA 91311-2329
General Electric, 600 N. Sherman Dr., Indianapolis, IN 46201
Grundig by Lextronix, 3520 Haven Ave., Unit L, Redwood City, CA 94063
Hitachi, 401 W. Artesia Blvd., Compton, CA 90220
Instant Replay, 2951 S. Bayshore Dr., 8th Fl., Coconut Grove, FL 33133
JVC, 41 Slater Dr., Elmwood Park, NJ 07407
Kenwood, 2201 E. Dominguez St., Long Beach, CA 90810
Magnavox, 1-40 & Straw Plains Pike, P.O. Box 14810, Knoxville, TN 37914-1810
Minolta, 101 Williams Dr., Ramsey, NJ 07446
Mitsubishi, 5757 Plaza Dr., P.O. Box 6007, Cypress, CA 90630-0007
NEC, 1255 Michael Dr., Wood Dale, IL 60191
Panasonic, 1 Panasonic Way, Secaucus, NJ 07094
Philips, 1-40 & Straw Plains Pike, P.O. Box 14810, Knoxville, TN 37914-1810
Pioneer, 2265 E. 220th St., Long Beach, CA 90801-1720

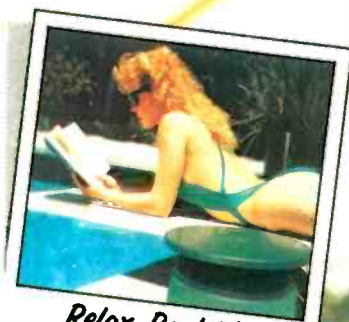
Quasar, 1325 Pratt Blvd., Elk Grove Village, IL 60007
RCA, 600 N. Sherman Dr., Indianapolis, IN 46201
Realistic by Radio Shack (Div. of Tandy Corp.), 1300 One Tandy Cir., Fort Worth, TX 76102
Samsung, 301 Mayhill St., Saddle Brook, NJ 07662
Sanyo, 21350 Lassen St., Chatsworth, CA 91311-2329
Sharp, Sharp Plaza, Mahwah, NJ 07430-2135
Sony, 1 Sony Dr., Park Ridge, NJ 07656
Sylvania, 1-40 & Straw Plains Pike, P.O. Box 14810, Knoxville, TN 37914-1810
Symphonic by Funai, 100 N. St., Teterboro, NJ 07608
Teac, P.O. Box 750, 7733 Telegraph Rd., Montebello, CA 90640
Teknika, 353 Rt. 46 W., Fairfield, NJ 07006
Toshiba, 82 Totowa Rd., Wayne, NJ 07470
Vector Research, 1230 Calle Suerte, Camarillo, CA 93010
Yamaha, 6722 Orangethorpe Ave., Buena Park, CA 90620
Zenith, 1000 Milwaukee Ave., Glenview, IL 60025-2493



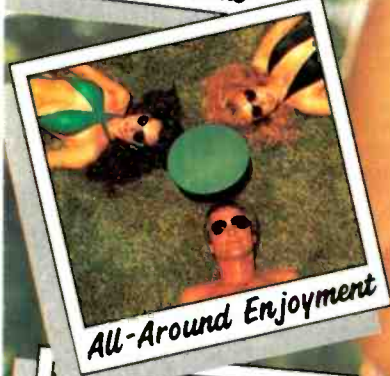
Paramount Pictures Corporation®

PRESENTS

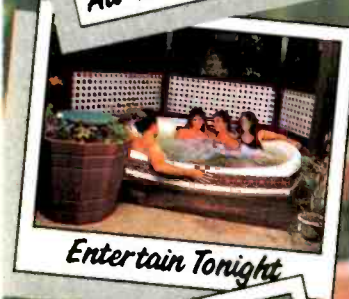
PARAMOUNT, The Paramount Logo, PARAMOUNT PICTURES CORPORATION, GULF+WESTERN and the GULF+WESTERN logo are among the trademarks and service marks of PARAMOUNT PICTURES CORPORATION and their related companies.



Relax Poolside



All-Around Enjoyment



Entertain Tonight



Unlimited Possibilities



OMNISPEAKER

Now enjoy quality indoor audio outdoors, year-round! The OMNISPEAKER easily handles 100 Watts of power and has been commercially proven for years at major theme parks, along with some of the finest homes around the world.

Available at these fine stores and others:
Jost Montgomery Wards, Lechmere and Builders Emporium stores.
For additional information please call
1-800-669-0664

To order from Sears Catalog call toll free anytime:
1-800-255-3000

THE OUTDOOR WATERPROOF SPEAKER

CIRCLE NO. 35 ON READER SERVICE CARD

BEST RECORDINGS OF THE MONTH

Stereo Review's critics choose the outstanding current releases

THE POWER OF EMMYLOU HARRIS

EMMYLOU HARRIS, the godmother of the New Traditionalists, has had a spotty time of it on the record charts ever since divorcing her long-time producer, Brian Ahern, and moving to Nashville several years ago. "The Ballad of Sally Rose," her concept album about a country singer, and "Trio," her collaboration with Dolly Parton and Linda Ronstadt, were critically and commercially successful. But her last solo album, "Angel Band," a collection of acoustic gospel songs, was a tough sell, and the one before that, "Thirteen," lived up to her usual high standards without plowing new ground.

The word Harris uses to characterize her new album, "Bluebird," is "experimental." And while she has difficulty calling it a straightforward country record, she doesn't see it as being far off from a lot of other things she's done, either. All in all, she's right.

Produced by Harris and Richard Bennett, who picked the thick-as-steel-cables six-string on Steve Earle's "Guitar Town," the album differs from Harris's other efforts mainly in its deft manipulation of sound and texture. Largely an acoustic work, with Bennett's distinctive electric lead standing above the instrumental bed like big, shivery goosebumps, the backing often resembles a tapestry of woven sound. In *No Regrets*, the Tom Rush song Harris has carted around since her hardscrabble folk days, she and Bennett meld the soft jangle of a twelve-string acoustic guitar, the resounding thump of an upright electric bass, an electric slide guitar, and the heavenly background vocals of Pam Rose and Mary Ann Kennedy. The otherworldly Kate

and Anna McGarrigle come on board for a wash of background sound in a couple of songs, the soulful Bonnie Raitt joins in on another, and *If You Were a Bluebird*, the Butch Hancock song that rounds out the album, features a four-piece mandolin orchestra, producing a tremolo effect that lovingly underscores the shimmering, ethereal quality inherent in the song.

From presentations such as these it is clear that Harris is as concerned with the beauty and power of the instrumentals as she is with the punch of the lyrics. She is also in exceptional voice here, which is most apparent in John Hiatt's remarkable *Icy Blue Heart*, where she easily moves from one end of her register to another in a dynamic explosion of romantic tension and conflict. She is nearly as good in *A River for Him*, one of her rare flirtations with solo songwriting.

If other songs in the album seem like odd choices (Johnny Cash's *I Still Miss Someone*, the old country

chestnut *Lonely Street*), it may be that Harris picked the songs in this hodgepodge of country, bluegrass, and ballad as much for what they say about a woman's existence as for their musical merit. As always, she is concerned with the spiritual side of love, and the ten selections find her wrestling with the full cycle of love: a woman hopeful, a woman consumed, a woman betrayed, wounded, and finally resolved and hopeful again, stronger for her ordeal. In a way, "Bluebird" is a metaphor for Emmylou Harris's life and career—a career that continues to be surprising, thrilling, and ultimately rewarding. *Alanna Nash*

EMMYLOU HARRIS: *Bluebird*. Emmylou Harris (vocals, guitar, percussion); vocal and instrumental accompaniment. *Heaven Only Knows*; *You've Been on My Mind*; *Icy Blue Heart*; *Love Is*; *No Regrets*; *Lonely Street*; *Heartbreak Hill*; *I Still Miss Someone*; *A River for Him*; *If You Were a Bluebird*. REPRISE 1-25776, © 4-25776, © 2-25776 (39 min).



BEST RECORDINGS OF THE MONTH

DOHNÁNYI CONDUCTS SCHUMANN

SCHUMANN'S orchestrations have sometimes been criticized for being opaque, but you'd never know it from the new London recordings of his First and Second Symphonies made in the clear and brilliant ambience of Cleveland's Masonic Auditorium with the Cleveland Orchestra conducted by Christoph von Dohnányi. The opening of the *Spring* Symphony sounds forth with splendid urgency, and the main body of the first movement is full of rhythmic vitality as well as a lyricism that Dohnányi never allows to become self-indulgent. Tenderness and a

tension, but also a passionate singing quality that keeps the music from lapsing into hysteria. The recorded sound is superb in both performances. Highly recommended.

David Hall

SCHUMANN: *Symphony No. 1, in B-flat Major, Op. 38 ("Spring")*; *Symphony No. 2, in C Major, Op. 61*. Cleveland Orchestra, Christoph von Dohnányi cond. LONDON © 421 439-4, © 421 439-2 (71 min).

LOU REED'S ANGRY "NEW YORK"

ANOTHER year, another good Lou Reed album. Ho-hum, right? Well, not really. Reed's latest effort, "New York," is actually rather different from anything he's ever done. It's a protest album, a cry in the wilderness, and one of the angriest blasts of rock-and-roll in memory. It is also the best-sounding Lou Reed record ever.

The instrumentation in "New York," co-produced by Reed and drummer Fred Maher, is straight ahead—two guitars, bass, and drums—and the sound is big, bassy, and right in your face, as if the band were jamming at top volume in your living room. This is, of course, Lou Reed as nature intended, and while it's the kind of thing that fans have been clamoring for for years, the explicitly topical, political cast of most of the songs is probably going to throw people for a loop, especially when you consider how much of Reed's music has always seemed to be autobiographical or confessional.

On the other hand, the personal is ultimately political, as Reed doubtless realizes, and the odd thing is that "New York," in its blunt, outspoken way, is one of the most overtly "poetic" pieces of writing the man has ever done. Still, you probably won't notice the felicitous literary touches (*Last Great American Whale*, for example, is one of the best extended metaphors that ever masqueraded as a rock-and-

roll song) as much as you'll notice the bravado with which Reed spits out the bitter lines of *Dirty Blvd.* or the way Reed and Mike Rathke's guitars careen through *There Is No Time*, an ironic salute to the end of the Age of Reagan.

Of course, not everything is bile and vitriol. *Halloween Parade*, for example, Reed's meditation on what the AIDS epidemic has done to his friends, tempers its justifiable anger with characteristic humor and tenderness. And *Beginning of a Great Adventure*, a warped fantasy about becoming a parent that's set to an amusing beatnik-jazzbo background, is fairly sneaky about its politics: "I'd be as progressive as I could possibly be," Reed sings, "as long as I didn't have to try too much."

Still, at heart "New York" is a jeremiad, a howl of outrage at a society that the artist sees as indifferent at best and cruelly venal at worst, backed with music that strikes a carefully considered balance between tunefulness and white noise. It is also Lou Reed operating somewhere near the peak of his post-Velvet Underground form, as abrasive and (sometimes) scary as the city he backhandedly celebrates. Don't miss it.

Steve Simels

LOU REED: *New York*. Lou Reed (vocals, guitar); Dion DiMucci (vocals); Mike Rathke (guitar); Rob Wasserman (bass); Fred Maher, Maureen Tucker (drums). *Romeo Had Juliette*; *Halloween Parade*; *Dirty Blvd.*; *Endless Cycle*; *There Is No Time*; *Last Great American Whale*; *Beginning of a Great Adventure*; *Busload of Faith*; *Sick of You*; *Hold On*; *Good Evening Mr. Waldheim*; *Xmas in February*; *Strawman*; *Dime Store Mystery*. SIRE 25829-1, © 25829-4, © 25829-2 (56 min).

Lou Reed: political



Christoph von Dohnányi: vital

natural flow characterize his treatment of the slow movement, the scherzo has a fine solidity, and there's a jaunty feel to the finale. Exposition repeats are observed in the outer movements.

While the performance of the Second Symphony is a fine one, it could stand a shade more warmth and body in the bass line, especially in the slow introduction and in the scherzo. Nonetheless, the first-movement allegro (with repeat) fully conveys the curiously manic quality inherent in its rhythmic drive. The scherzo finds the Cleveland players at their alert and brilliant best; the purity of the melodic line is admirably preserved throughout, and the little fugato interlude is made to sound more vital than usual. The finale has enormous



REALISTIC®

The CD Player for the Changing Times

America's biggest name in audio presents a better way to enjoy the best in sound—the Realistic compact disc changer. You can load up to six discs in its magazine and enjoy hours of superb digital stereo. Or, program up to 32 selections from the discs to play in any sequence. Either way, you can pause, replay, program and search, using the wireless remote control.

The large LED display simplifies remote operation. Manual and automatic search make it easy to find selections.

This high-performance changer has a Tri-Spot laser pickup system for accurate tracking. Two-times oversampling

provides super sound. And Radio Shack carries extra magazines so you can protect all of your CDs and have them loaded and ready for play.

Come in and try the Realistic CD-6000. It's affordably priced at only 359.95 and available today.



Exclusively at

Radio Shack®
The Technology Store™

A DIVISION OF TANDY CORPORATION

Price applies at participating Radio Shack stores and dealers.

FREE 184-Page Radio Shack Catalog! Write Dept. 483, 300 One Tandy Center, Fort Worth, TX 76102

BEST RECORDINGS OF THE MONTH

EVGENY KISSIN'S DEBUT

THE first release in RCA Victor's new program of recording Soviet musicians introduces the young pianist Evgeny Kissin in the Rachmaninoff Piano Concerto No. 2, with the London Symphony Orchestra under Valery Gergiev, and six of the *Études-tableaux* from the same composer's Op. 39. No need to hedge about this, or to exaggerate, or to make allowances: Kissin, who was all of sixteen when he recorded these performances last May, is not only the most exciting teenage virtuoso to appear since Anne-Sophie Mutter started recording violin concertos with Karajan, but one of the most impressive pianists of any age to come along in decades. If this recording is truly representative, he is a master musician of astounding maturity and depth.

While Kissin looks even younger than sixteen in the cover photograph, it is not youthful exuberance that characterizes his playing but the most profound and assured response to what Rachmaninoff created. He is not demonstrating technique, he is making music. It's as simple as that, and as wonderful. It's the kind of playing that endeared Artur Schnabel to us—unfussily communicative, unvaryingly tasteful, with both power and poetry in abundance and in ideal balance—and Kissin perhaps already has a keener sense of unobtrusive discipline. Every note is beautifully shaped, every phrase individually weighted, yet never in a way that calls undue attention to the process itself or impedes momentum. At every point the music goes forward with the sweep and spontaneity that insure the most vibrant "live" quality, but with the subtle control that keeps it from running away from itself. Kissin is not content to skate on a lovely surface; he seems to be guided by an instinctive judgment in avoiding both understatement and excess in responding to the emotional qualities in Rachmaninoff's music, so that there is not the slightest hint of

caricature. Forget about his youth, and forget about "pianism." This is music making of ageless quality, with enough conviction, compassion, and eloquence to inspire new respect for the sometimes battered old Concerto No. 2 and remind us that it can be an elegant work, after all, as well as a colorful one.

The orchestral contribution is adequate, though not on the same level. Gergiev seems to be a considerable partner but a rather pedestrian conductor, and the orchestra is less vividly recorded than the piano, too. In the *Études-tableaux*, of course, Kissin has the stage entirely to himself, and he relishes every one of them with the same unselfconscious mixture of seriousness, authority, and delighted discovery that is so compelling in the concerto performance. Can Kissin play Mozart, Beethoven, Chopin, Debussy, and Schumann this convincingly? It is intriguing to think about where his other sympathies may lie, and whether he will have the courage, the confidence, and the plain good luck to maintain and extend the phenomenal qualities so abundantly evident here. In the meantime, this is quite a debut. Even with the less than stunning orchestral playing, it strikes me as one of the three or four most persuasive accounts of the well-loved concerto to be recorded since Rachmaninoff's own with Stokowski. *Richard Freed*

RACHMANINOFF: *Piano Concerto No. 2, in C Minor, Op. 18. Études-tableaux, Op. 39: No. 1, in C Minor; No. 2, in A Minor; No. 4, in B Minor; No. 5, in E-flat Minor; No. 6, in A Minor; No. 9, in D Major.* Evgeny Kissin (piano); London Symphony Orchestra, Valery Gergiev cond. RCA © 7982-4-RC, © 7982-2-RC (60 min).



NOW ON CD Compact Discs of previously released LP's

POPULAR

- **ANYONE CAN WHISTLE** (Stephen Sondheim). COLUMBIA CK 2480. Essential Sondheim by the original Broadway cast of 1964, with Angela Lansbury.
- **LOUIS ARMSTRONG AND DUKE ELLINGTON: Together for the First Time.** MOBILE FIDELITY UDCD 514. The classic Roulette recording of 1961.
- **JIMMY CLIFF: Special.** COLUMBIA CK 38099. "A mix of personal and political statements grounded in reggae" (November 1982).
- **BOBBY DARIN: The Bobby Darin Story.** ATCO 33131-2. A compilation of the singer's hits, including the big one, *Mack the Knife*, from 1959.
- **PATTI LABELLE: The Spirit's in It.** PHILADELPHIA INTERNATIONAL PIR 37380. "Wild and wonderful" (January 1982).
- **RAMSEY LEWIS: Golden Hits.** COLUMBIA CK 32490. The good stuff, including his first hit, *The "In" Crowd*, from 1965.
- **THE MAHAVISHNU ORCHESTRA WITH JOHN MCLAUGHLIN: The Inner Mounting Flame.** COLUMBIA CK 31067. "Stunning" (Best of Month, April 1972).
- **FRANK ZAPPA: Absolutely Free.** RYKODISC RCD 10093. *One Size Fits All.* RCD 10095. *Waka/Jawaka.* RCD 10094. Early hits and misses, 1967-1975.

CLASSICAL

- **BARTÓK: The Wooden Prince: Dance Suite.** Boulez. CBS MK 44700. "Splendid" (Best of Month, October 1977).
- **HAYDN: Piano Sonatas Nos. 56 and 58-62.** Gould. CBS M2K 36947 (two CD's). Late recordings (1982).
- **MAHLER: Lieder eines fahrenden Gesellen; Kindertotenlieder; Four Rückert-Lieder.** Fischer-Dieskau. DG 415 191-2. "Mellow" (Best of Month, July 1976).
- **POULENC: Les Soirées de Nazelles; Villageoises; Thème varié; Nocturnes;** other pieces. Tacchino. EMI/PATHÉ MARCONI CMS 62551 (two CD's). "A glowing collection" (Best of Month, June 1983).
- **VERDI: La traviata.** Ricciarelli, Carreras; Bartoletti. LEGATO SRO 501-2 (two CD's). A live recording made in Italy in 1976 (locale and exact date unspecified).

Care Created a Classic:



Energy 22 Reference Connoisseur.

What started one day as a passionate desire to produce the world's best loudspeaker ended four years later when Energy passed its final gruelling test.

The rest is history.

The success attained by Energy was driven by care. By never accepting *very good*, but holding out for *perfect*.

For the last six years, Energy has complemented the sound systems of thousands of very particular audiophiles throughout the world. We'd like to thank them for their confidence.

We also extend our thanks to the professional studios, musicians and audio reviewers in North America and other countries around

the world who now use Energy exclusively as their reference monitors.

Energy's brilliance of sound is matched only by the brilliance of the cabinets which contain it. Furniture so rich and so varied it challenges the master craftsman – custom matched hand laid hardwood veneers in lustrous oak, American black walnut, rich rosewood, natural teak, red high gloss mahogany and high gloss black grand piano.

When you choose your next speaker system, may we suggest you take the same care. Broaden your musical horizon with Energy 22 Reference Connoisseur. Also available at more modest prices the Energy 22 Pro Monitors and Energy ESM models.



YES, WE DO OFFER AN IN-DASH COMPACT DISC SYSTEM.



WHY DO YOU ASK?

It must have been the richness and full clarity of the laser/digital sound that caught your ear. Or how faithfully full-frequency sound is reproduced.

That's what you probably noticed about our new in-dash compact disc system with integral receiver. It's one more example of the wide range of systems we offer to suit your taste in music. Which also includes the premium cassette/receiver with graphic equalizer. And even a Digital Audio Tape system for select GM cars.

They're all the result of the

Delco Electronics "designed-in" philosophy. Designing sound systems to match specific car and truck interiors.

And that's just part of what we do at Delco Electronics. From music systems and engine controls to security systems and anti-lock brake controls. We're working to help make the cars and trucks you drive more secure, more enjoyable, more comfortable and dependable. Through electronics.

Delco Electronics.

We give you the best seat in the house.

© 1988 GM Corp. All Rights Reserved.

Delco Electronics

Subsidiary of GM Hughes Electronics

It's who we are.

Discs and tapes reviewed by Robert Ackart, Richard Freed, David Hall, Stoddard Lincoln, Eric Salzman, and David Patrick Stearns

BEETHOVEN: *Symphony No. 3, in E-flat Major ("Eroica")*. Orchestra of the 18th Century. Frans Brüggen cond. PHILIPS © 422 052-4, © 422 052-2 (49 min).

Performance: *Often insightful*
Recording: *Anemic*

Today an "authentic-instrument" performance of Beethoven's *Eroica* is no longer a rarity. There are at least four such recordings available, and this one would have my top recommendation had it come out a little earlier. Frans Brüggen leads a fleet, spirited performance in which Beethoven's dissonances seem as shocking as they must have seemed to early-nineteenth-century ears. Next to the Hanover Band's *Eroica* conducted by Roy Goodman on Nimbus, however, this one really sounds a bit thin.

Brüggen's interpretation is marginally more daring than Goodman's. His tempos are surprisingly slow considering the quick decay time of the early instruments, and he sometimes tends to pull the tempo back a bit to make a rhetorical point. I also like the collage effects he obtains with a clear juxtaposition of the different sections of the orchestra. But the Hanover Band has a much fuller, more interesting sound even though it has only three more players than Brüggen's group. The Philips recording is realistic but lacks any resonance that might flatter the orchestra, and the playing time, at just over forty-nine minutes, is rather stingy for a CD. *D.P.S.*

BRUCKNER: *Symphony No. 4, in E-flat Major ("Romantic")*. Staatskapelle Dresden, Giuseppe Sinopoli cond. DEUTSCHE GRAMMOPHON © 423 677-4, © 423 677-2 (67 min).

Performance: *Colorful*
Recording: *Very spacious*

What Giuseppe Sinopoli and the great Dresden orchestra give Bruckner's *Romantic* Symphony here is not your basic dyed-in-the-wool Austro-Germanic treatment. Using the Nowak edi-

BACHIANAS BRASILEIRAS



Soprano Leila Guimaraes

LISTENERS certainly don't have to be Finnish to love Sibelius's music, or Czech to love Dvořák's, but there are instances in which national identity on a performer's part can be invaluable. The new Sigla CD set of Heitor Villa-Lobos's nine *Bachianas brasileiras*, with the Symphony Orchestra of Brazil under its conductor of many years, Isaac Karabtchevsky, makes a powerful argument for the notion of ingrained authority and commitment on the part of performers who have the music in their blood—or, if you prefer, in their bones. These Brazilian musicians would seem to have the *Bachianas* in their blood, bones, lungs, fingertips—and most certainly in their hearts.

Since Karabtchevsky and his orchestra had recorded the *Bachianas* No. 4 for a series of records issued by the Organization of American States, I had some grounds for high expectations, but I could not have imagined how thoroughly persuasive they would be in the entire cycle. In every phrase of every movement of every one of the *Bachianas* there is an effortless and irresistible evocation of the fantasy world Villa-Lobos created by commingling native sources and Bachian forms. I went through the set from one work to the next expecting the inevitable drop in intensity and fluency—but it didn't happen; the remarkable level is maintained for nearly three hours of music.

You have to do some digging to find

the names of the soloists, which turn up only with the recording credits on the back of the insert booklet. The pianist in the concerto-like *Bachianas* No. 3 turns out to be Nelson Freire, who is very much attuned to the music's essence. In No. 5, the best known of the *Bachianas* and very likely the best loved of all Villa-Lobos's works, the wonderful Brazilian soprano Leila Guimaraes is so deep inside the piece that there is no point in making comparisons with other performances. It's not just a matter of her singing in her native language and a familiar idiom; it's as if that delicious voice—rich and creamy and incredibly luminous—had been created just for this music, or the music written in anticipation of it.

The sound quality itself, aside from the unfailingly well-judged balance, tends perhaps more toward mellowness than brilliance (the recordings are from analog originals of unspecified date), but it seems just right for this material—as pointedly so in the intimate realism of No. 6, for flute and bassoon alone, as in the pieces for full orchestra. An extraordinary set. *Richard Freed*

VILLA-LOBOS: *Bachianas brasileiras, Nos. 1-9*. Nelson Freire (piano); Leila Guimaraes (soprano); Norton Morozowicz (flute); Noël L. Devos (bassoon); Symphony Orchestra of Brazil, Isaac Karabtchevsky cond. SIGLA/QUALITON IMPORTS © VG 662 600 208 three CD's (175 min).

EXPLANATION OF SYMBOLS:

- = DIGITAL-MASTER LP
- Ⓢ = TAPE CASSETTE
- Ⓢ = COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)

"Shure's most recent version of its top model, the V15 Type V-MR... strikes this listener as perhaps the most musical-sounding cartridge ever made."

Hans Fantel



SHURE®

For more information, call 800-257-4873
(In Illinois, 800-624-8522)

CIRCLE NO. 104 ON READER SERVICE CARD

FREE details
A DIFFERENT KIND OF RECORD CLUB

TREMENDOUS SAVINGS INCLUDING COMPACT DISCS...

on every record and tape in print—
no "agree-to-purchase" obligation of any kind.

DISCOUNTS OF 20% TO 73%
off mfg. suggested list... special catalog
features hundreds of titles and artists.

MOST LABELS AVAILABLE
including most imports through special custom
ordering service—guarantees satisfaction

SCHWANN CATALOG
lists thousands of titles.

DISCOUNT DIVIDEND COUPONS
redeemable immediately for extra discounts.

NEWSLETTERS
Informational news and happenings in the
world of music... special super sale listings.

DISCOUNT NEEDLE GUIDE
most mfg. replacements available.

QUICK SERVICE
same day shipping on many orders...
rarely later than the next several days.

100% IRON-CLAD GUARANTEES
on all products and services—your total
satisfaction is unconditionally guaranteed

Discount Music Club is a no-obligation membership club that guarantees tremendous discounts on all stereo records, tapes and CD's and let you buy what you want... when you want... or not at all if you choose.

These are just a few of the money-saving reasons to write for free details. You can't lose so why not fill out and mail the coupon below for immediate information.

DISCOUNT MUSIC CLUB, INC. 009-0489
481 Main Street, New Rochelle, N.Y. 10801

Name _____
Address _____
City _____
State _____ Zip _____

CIRCLE NO. 71 ON READER SERVICE CARD

tion. Sinopoli takes a more volatile and colorful view than usual of the opening movement. For me, it works just fine as an alternative approach. He imbues the slow movement with a high degree of atmosphere so that it emerges as a sort of nocturnal procession, and he exploits the resplendent Dresden horns and Wagner tubas to produce a sure-fire scherzo. The finale, which can seem overly long for its substance, gets a highly charged reading, with huge dynamic contrasts and some magnificent outbursts from the full string body. This may not be an interpretation for the ultrapurist, but dramatically effective it surely is, and the acoustics of the Lucas-kirche contribute brilliant, spacious sound to match. *D.H.*

HANDEL: *Acis and Galatea.* Grayson Hirst (tenor), Acis; Julianne Baird (soprano), Galatea; Stephen Oosting (tenor), Damon; John Ostendorf (bass-baritone), Polyphemus; Jeffrey Dooley (alto), Amor Artis Orchestra, Johannes Somary cond. NEWPORT CLASSIC © 60045 two CD's (95 min).

Performance: *Airy*
Recording: *Radiant*

Handel's ever-popular masque *Acis and Galatea* has never really sounded like much on record until now. Sir Adrian Boult's recording, reissued on London, is a stylistic nightmare despite its attractive cast, and John Eliot Gardiner's authentic-instrument recording on Deutsche Grammophon sounds anemic and precious. But within the first few minutes of this performance, it's clear that *Acis* has finally received a worthy recording.

Johannes Somary contends that the choruses should be sung by soloists, one to a part. Whatever the musicological merits of this contention, the results in this case make perfect sense to the ear in a way that previous Baroque recordings using this approach have not. There's an unaffected airiness about the performance, with its woody-sounding recorders in place of the usual flutes, and other, more transparent touches from the authentic instruments. All of the singers are winning, too, especially Julianne Baird as Acis, whose stylistic scrupulousness sometimes robs her singing of passion, but whose vocal purity and artistry warms the heart. John Ostendorf is an unusually amiable, woolly-voiced Polyphemus, but he imparts great sensual delight to "O Rudder Than the Cherry."

As an ensemble, the vocalists are occasionally too labored and heavy for such delicate music, and their approaches to ornamentation are not consistent. Somary sometimes seems content to let style carry the piece rather than finding memorable insights into the music, but that should not deflect any music lover, Handelian or not, from this Newport Classic recording. It may be some time before we get another

Acis and Galatea as charming as this one is. *D.P.S.*

PÄRT: *Passio.* Michael George (bass), Jesus; John Potter (baritone), Pilate; solo quartet; Western Wind Chamber Choir; Hilliard Ensemble, Paul Hillier cond. ECM ● 837 109-1, © 837 109-2 (71 min).

Performance: *Divine boredom*
Recording: *Very good*

Estonian-born composer Arvo Pärt is a kind of closet minimalist who has enjoyed something of an underground following in this country as well as a growing reputation in Europe. His work is very static, mystical, and sorrowful in an Eastern European sort of way. *Passio*, a setting of the *Passion According to St. John*, is clearly a deeply felt work, composed in an almost continuous sort of vocal keening that is medieval in sound. The writing is exquisitely beautiful and unbearably sad, and nothing ever happens. It makes for a long, intense, blank seventy minutes. *E.S.*

PISTON: *Piano Sonata; Piano Quintet; Improvisation; Passacaglia.* Leonard Hokanson (piano); Portland String Quartet. NORTHEASTERN © NR 232-CD (47 min).

Performance: *Committed*
Recording: *Excellent*

The Incredible Flutist has been Walter Piston's *Sorcerer's Apprentice*. We hardly ever get to hear anything else of his, even the symphonies or the highly regarded Concertino for Piano and Orchestra. The Piano Sonata, *Improvisation*, and *Passacaglia* on this disc constitute his entire output for solo piano. The sonata, composed in Paris in 1926, was withheld from publication. Perhaps Piston felt it owed too obvious a debt to the past, with its grand gestures and cyclic form, but it's a stimulating work for all that; the three concise and well-balanced movements have very little fat on their bones. The Piano Quintet, similarly concise and well balanced, is more interesting, not because of its broader range of colors but because of its greater individuality and pervading sense of drama. It dates from 1949 and is thoroughly characteristic of Piston's great maturity, the period that produced the *Flutist*. The two brief solo pieces, from a bit earlier in the same decade, are both more thoughtful than brilliant, perhaps, but also characteristically direct in their appeal.

Leonard Hokanson brings his customary sense of commitment to all of this music, and his interaction with the Portland Quartet in the quintet suggests more of a celebration than a mere assignment. Northeastern's elegant presentation includes notes by Mark de Voto and a reproduction of a painting by Piston's wife, Kathryn Nason, as well as warmly realistic sound. A most welcome issue. *R.F.*

RACHMANINOFF: Piano Concerto No. 2; Études-tableaux (see Best of the Month, page 84)

ROSSINI: Les Soirées musicales. June Anderson (soprano); Raúl Giménez (tenor); Kathryn Bouleyn (soprano); Alessandro Corbelli (baritone); Nina Walker (piano). NIMBUS © 5132 (48 min).

Performance: *Delightful*
Recording: *Fine*

This record really belongs to June Anderson, who turns in splendid performances of five of the songs and is joined by Kathryn Bouleyn for two duets and Raúl Giménez for one. Anderson's voice is a sharply focused, silvery, and wonderfully expressive instrument. Her feeling for Rossini's vocal idiom is dead on, with a clarity of line and a sense of portamento that so well becomes these florid melodies. Her interpretation of *La partenza* is moving in its simplicity, and the sparkle of her coloratura in *La pastorella dell'Alpi* is a sheer delight. Giménez is appropriately swaggering in *L'orgia* and turns in a rousing performance of the ever-popular *La danza*. Bouleyn and Alessandro Corbelli make important contributions as partners in the various duets, in which the ensemble is precise and nicely balanced. Nina Walker, the pianist for these festivities, deserves special recognition for her stylish introductions and sensitive accompaniments. All in all, this is charming music, delightfully sung. S.L.

D. SCARLATTI: Sonatas: E Major, K. 495; E Major, K. 381; E Major, K. 20; E Minor, K. 394; G Major, K. 454; G Major, K. 425; D Major, K. 491; D Minor, K. 32; A Major, K. 342; A Minor, K. 109; A Major, K. 39; G Major, K. 125; G Major, K. 470; G Major, K. 124; G Major, K. 79; G Major, K. 547; B-flat Major, K. 551; B-flat Major, K. 128. Maria Tipo (piano). EMI/ANGEL © CDC-49078-2 (75 min).

Performance: *Excellent*
Recording: *Excellent*

Many of us first discovered Maria Tipo in her earlier recordings of Scarlatti sonatas, on imported Italian LP's, about twenty years ago. Her playing of this music seemed so persuasive as to transcend any questions regarding the type of instrument, and so it does in this new collection. While now and then, as in K. 394, she achieves a *secco* quality that reminds us that these sonatas were written for the harpsichord, she most often demonstrates how gratefully the music adapts to the full-blooded possibilities of the modern piano. It is all enlivening in the very best sense, music making of subtlety and depth as well as considerable charm, in a sequence artfully chosen for its effective contrasts. Nobody does this better than Tipo, or indeed as well, and the recording is just about ideal in its presence and warmth. R.F.

SCHUBERT: Symphony No. 4, in C Minor (D. 417, "Tragic"); Symphony No. 6, in C Major (D. 589). Vienna Philharmonic Orchestra, Riccardo Muti cond. EMI/ANGEL © CDC-49724-2 (62 min).

Performance: *Intense*
Recording: *Very good*

This installment of Riccardo Muti's Vienna Philharmonic Schubert-symphony cycle is a decided improvement interpretively over his earlier reading of

the *Great C Major*. He gives the opening of the *Tragic* Symphony considerable emotional weight, but it can take it. The main allegro is deliberate in pace but not heavy-handed, and though the slow movement is on the brisk side and the chromatically convoluted minuet a mite foursquare, the finale is effectively levered. Exposition repeats are observed in both the first and last movements.

The real prize on this disc is the so-called "little" C Major. Muti imparts to

Exclusively on



ANNE-SOPHIE MUTTER

New Releases



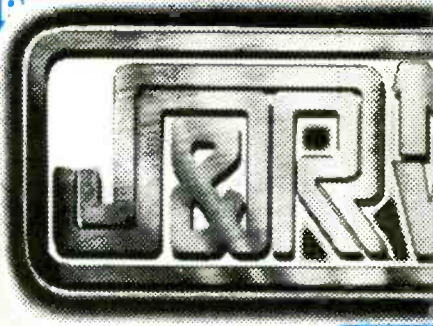
CD/LF/MC 419 241-2/-1/-4



CD 423 096-2

© PolyGram Records/Deutsche Grammophon 1989

Photo: Zoé Deminac



Stereo Cassette Decks



Teac V-285CHX Stereo Cassette Deck
 • Dolby B and C • Dolby HX Pro headroom extension system • Bias fine tuning • LED peak level meter • 3-digit tape counter • Black finish

Sale Price **\$99⁹⁵** Retail \$160 (TEA V285CHX)

Teac V270C
 Dolby B & C, LED meters **\$84⁹⁵**

Teac V570
 Dolby B/C, HX Pro, 2-motors, logic . . . **\$219⁹⁵**

Teac R455CHX
 Auto reverse, Dolby B/C, HX Pro . . . **\$149⁹⁵**

Nikko D100III
 Dolby B/C, dbx, 3-heads 499 . . . **\$299⁹⁵**

Teac R616X
 Auto reverse, Dolby B/C, HX Pro, dbx . . **\$319⁹⁵**

Technics RS29R
 Auto reverse, Dolby B/C **\$179⁹⁵**

Stereo Dual Cassette Decks



Teac W-66OR Double Auto Reverse Cassette Deck
 • Dolby B and C noise reduction • One touch high speed cassette dubbing • Continuous play • Memory play/search/dubbing • Full logic control • Black

Sale Price **\$299⁹⁵** Retail \$519 (TEA W66OR)

Technics RST130
 High speed dubbing, Dolby B **\$139⁹⁵**

Technics RST230
 Dolby B/C, high speed editing **\$179⁹⁵**

Sharp RTW800
 Double auto reverse, Dolby B **\$159⁹⁵**

Nikko ND850
 Double auto reverse, Dolby B/C **\$279⁹⁵**

Teac W45OR
 Dolby B/C, HX Pro, high speed dubbing . **\$199⁹⁵**

Teac W350
 High speed dubbing, Dolby B NR **\$119⁹⁵**

Stereo Receivers



Nikko NR-105OR Remote Computer Controlled Receiver
 • 100 watts RMS per channel • Advanced microprocessor controls • 2-tape monitors with bi-directional dubbing • 20 AM/FM presets • Preset volume with LED indicators

Sale Price **\$299⁹⁵** Retail \$599 (NIK NR105OR)

Sherwood S270CP-II
 74 watts/channel, surround sound . . . **\$249⁹⁵**

Teac AG35
 35 watts/channel, 16-preset tuner . . . **\$109⁹⁵**

Technics SA160
 40 watts/channel, 24-preset tuner . . . **\$149⁹⁵**

Technics SAR230
 50 watt/channel, wireless remote . . . **\$199⁹⁵**

Sharp SAX50
 50 watts/channel, surround sound . . . **\$129⁹⁵**

Technics SAR430
 100 watts/channel, wireless remote . . **\$349⁹⁵**

This Month's

Compact Disc Players



Teac PD-470 Remote Control Compact Disc Player
 • Dual 16 bit D/A converters • 4x oversampling for high quality digital sound • Full function remote control • Programmable track selection • Black finish

Sale Price **\$199⁹⁵** Retail \$299 (TEA PD470)

Teac PD160
 3-beam pickup, 2x oversampling . . . **\$139⁹⁵**

Teac PD500M
 6-disc changer, remote, 32-track . . . **\$229⁹⁵**

Technics SLP150
 4x oversampling, dual D/A's **\$174⁹⁵**

Technics SLP230
 as above, 20-track programming . . . **\$199⁹⁵**

Magnavox CDB582
 4x oversampling, memory playback . . **\$199⁹⁵**

Technics SLP222
 Remote, 4x, 4 D/A converters & more . **\$229⁹⁵**

Compact Disc Players



Teac AD-4 CD Player/Cassette Deck Combo
 • Wireless remote control of both CD & cassette sections • 16-track random program dubbing & play • Dolby B & C • Auto reverse record/play • Synchro start dubbing

Sale Price **\$274⁹⁵** Retail \$599 (TEA AD4)

Technics SLP400C
 6-disc changer, 4x, remote **\$279⁹⁵**

Teac AD7
 CD/Cassette combo, wireless remote . **CALL**

ADC CD16/2R
 Remote, 3-beam laser, SPECIAL PRICE . **\$149⁹⁵**

Sharp DX660
 3-beam laser, 20-track memory, SPECIAL . **\$119⁹⁵**

Sharp DXR770
 Wireless remote, LCD display, repeat . **\$159⁹⁵**

Technics SLP555
 18-bit, 4 D/A's, 4x, remote **\$299⁹⁵**

Amplifiers and Tuners



Nikko Alpha-230 Professional Stereo Power Amplifier
 • 120 watts RMS per channel • High speed, non-switching design • A/B speaker selector switch • LED peak power display • 19-inch rack mountable design • Black finish

Sale Price **\$299⁹⁵** Retail \$499 (NIK A230)

Nikko Gamma30
 Digital AM/FM tuner, 14-presets **\$179⁹⁵**

SAE T101
 Digital AM/FM tuner, 16-presets **\$249⁹⁵**

Nikko NT950
 Quartz AM/FM tuner, 20 presets **\$159⁹⁵**

Nikko Alpha130
 100 watts/channel stereo power amp . . **\$229⁹⁵**

Nikko Alpha450
 220 watts/channel stereo power amp . . **\$499⁹⁵**

LP, Cassette & CD Specials



THE BIGGEST HIT MUSICALS OF ALL TIME. NOW PLAYING ON SPECIAL LOW-PRICED CDS AND CASSETTES.

Your Choice **9⁹⁹** Per CD **4⁹⁹** Per Cassette

- Anything Goes (CBS 15100)
- Bells Are Ringing (CBS 2006)
- Cinderello (CBS 02005)
- Day At The Movies/Doris Day (CBS 44371)
- Film Music Of John Barry (CBS 44376)
- Film Music Of Dimitri Tiomkin (CBS 44370)
- Kismet (CBS 32605)
- Kiss Me Kate (CBS 04140)
- Little Bit Of Broadway (CBS 44375)
- My Fair Lady (CBS 5090)
- Pal Joey (CBS 04364)
- Peter Pan (CBS 04312)
- A Star Is Born/Garland (CBS 44389)

Graphics Equalizer



Teac EQ-A20 Stereo Graphic Equalizer/Analyzer
 • 10 bands per channel • Spectrum analyzer display • Two tape monitors with simultaneous recording and 2-way dubbing • EQ record

Sale Price **\$99⁹⁵** Retail \$169 (TEA EQA20)

ADC SoundShaper 300SL
 10 bands/channel, analyzer **\$159⁹⁵**

ADC SoundShaper 525X
 Auto computerized 12-band EQ **\$349⁹⁵**

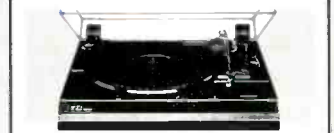
Teac EQA30
 10 bands/channel, analyzer, pink noise . **\$199⁹⁵**

Teac EQA5
 10 bands/channel, illuminated controls . **\$69⁹⁵**

Nikko EQ950
 10 bands/channel, analyzer, mic . . . **\$179⁹⁵**

ADC SoundShaper 100SL
 10 bands/channel, LED display **\$99⁹⁵**

Turntables



Dual CS-2110A Belt Drive Turntable
 • Convenient semi automatic, auto return operation featuring easy-to-use top mounted controls • Hinged dust cover • European styling

Sale Price **\$99⁹⁵** Retail \$189 (DUA CS2110A)

ADC LT34
 Automatic linear tracking, belt driven . **\$69⁹⁵**

Dual CS5000/X3MC
 Semi-auto with Ortolan cartridge . . . **\$449⁹⁵**

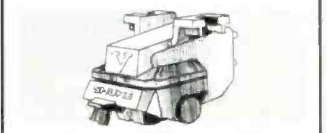
Technics SLB22K
 Semi-outo, belt drive, pitch **\$89⁹⁵**

Technics SLQD22
 Direct drive fully automatic **\$119⁹⁵**

Gemini DJQ1100
 Belt drive, semi automatic **\$84⁹⁵**

Gemini DJQ1300
 Manual direct drive, DJ use **\$169⁹⁵**

Phono Cartridges



Shure V-15 Type V-MR Deluxe Micro Ridge Phono Cartridge
 • Micro ridge stylus tip • Excellent trackability • Dynamic stabilizer • Side-guard stylus protection • Duo-point alignment gauge • Top rated design

Sale Price **\$129⁹⁵** Retail \$299 (SHU V15-VMR)

Shure V15-IVMR
 Improved type IV with microridge . . **\$69⁹⁵**

Audio Technica AT231LP
 Universal linear contact **\$39⁹⁵**

Audio Technica AT211EP
 Universal, bi-radial stylus **\$19⁹⁵**

Shure V15-HRP
 P-mount, hyper-ridge stylus **\$49⁹⁵**

Shure MI11HE
 Universal, hyperelliptical stylus **\$49⁹⁵**

Audio Technica AT152MLP
 P-Mount, microline stylus **\$99⁹⁵**

Speakers Systems



The Base Acoustimass AM-5 Speaker System
 • A new technology for the home • Clean sound & low distortion system contains 2 miniature satellites & 1 sub-woofer for big sound in a small package • Black satin finish

Sale Price **\$699⁹⁵** Retail \$799 (BOS AM5)

Base RoomMate II
 4.5" full range, built-in amp Pair **\$279⁹⁵**

Pinnacle PN5+
 2-way bookshelf, patented design . . . **\$139⁹⁵**

Technics SBL36
 2-way 10-inch, 100 watts max Pair **\$99⁹⁵**

BSR 82
 2-way 8-inch bookshelf system Pair **\$59⁹⁵**

Technics SBL76
 3-way 12-inch, 100 watts max Pair **\$199⁹⁵**

Pinnacle PN2
 2-way mini speakers, big sound Pair **\$99⁹⁵**



ORDER TOLL-FREE 1-800-221-8180

Mail Order Hours: Monday To Friday 8 AM to 8 PM, Saturday 9 AM to 6 PM, Sunday 10 AM to 4 PM
 Dealer & Institutional Inquiries Call Toll-Free 1-800-221-3191 — In New York 1-718-417-3747

J&R Music World, Dept. SRO489, 59-50 Queens-Midtown Expressway, Maspeth, Queens, NY 11378

Outside U.S.A. Call: 1-718-417-3737



MUSIC WORLD

Super Specials

VHS Video Movie Specials

3 NEW RELEASES!

18⁹⁵ Each

NEPTUNE'S DAUGHTER
 A DATE WITH JUDY
 VHS CASSETTE

- Also Available
- Anchors Aweigh
 - The Band Wagon
 - Show Boat
 - That's Entertainment II
 - Easter Parade

Audio Add-Ons



- Terk FM-9500**
 Indoor FM Electronic Antenna
 • Perfect for the apartment or office • Modern high tech style • 24-dB's of gain • Omnidirectional pick-up • LED display • One year warranty • Black finish
- Sale Price **\$49⁹⁵** Retail \$99 (TRK 9500)
- Terk 8500**
 Electronic FM antenna, 20db gain . . . **\$34⁹⁵**
- Terk 9650**
 Electronic FM antenna, 30db gain, grey **\$79⁹⁵**
- Parsec LS4**
 Omnidirectional electronic FM antenna **\$49⁹⁵**
- Parsec LS3**
 "Beambaoster" electronic FM antenna **\$29⁹⁵**
- Nikka CO23**
 3-way electronic crossover **\$199⁹⁵**
- Technics SHAV40**
 Dolby Surround sound processor . . . **\$179⁹⁵**

DJ Mixers & Cartridges



- Gemini MX-4200**
 Disco Mixer with Echo
 • Features include 3-phono inputs • 3-line inputs • 1-microphone input • Separate loaders • Peak reading VU meters • Echo mixing • Black finish
- Sale Price **\$109⁹⁵** Retail \$149 (GMI MX4200)
- Gemini MX6200**
 7-input mixer, 7-band EQ, rock mount **\$179⁹⁵**
- Atus AM50**
 Mixer with 2-phono and 1-line input **\$59⁹⁵**
- Stanton 680EL**
 Standard mount disco cartridge . . . **\$54⁹⁵**
- Stanton 500AL**
 Economical disco cartridge **\$19⁹⁵**
- Stanton 500ALDP**
 As above with extra stylus **\$24⁹⁵**
- Shure DC40**
 Elliptical stylus disco cartridge . . . **\$29⁹⁵**

Portables



- Panasonic RX-FD75**
 Portable Compact Disc System
 • Programmable CD player • Dual auto reverse cassette decks • Dolby B • Clock timer • Synchro tape to CD editing • 2-way 4-speaker system • Black
- Sale Price **\$419⁹⁵** Retail \$649 (PAN RXFD75)
- Sony WMF200-2**
 SuperWalkman AM/FM stereo recorder **\$199⁹⁵**
- Toshiba KT4568**
 Digital AM/FM auto reverse personal **\$119⁹⁵**
- Sony WMF73 "Sports"**
 AM/FM cassette Walkman **\$99⁹⁵**
- Sharp JCK15**
 Auto reverse cassette personal stereo **\$59⁹⁵**
- JVC PCW100J**
 AM/FM/SW dual cassette "boom box" **\$129⁹⁵**
- Technics SLXP6**
 4x oversampling portable CD player **\$269⁹⁵**

Video Specials



- Teac MV-900**
 Digital VHS Hi-Fi Vide Recorder
 • Digital noiseless freeze frame and slow motion • Cable ready MIS stereo tuner • 14 day/8 event timer • 21-function wireless remote control
- Sale Price **\$499⁹⁵** Retail \$999 (TEA MV900)
- Panasonic PV4768**
 VHS HiFi with 25 watt/channel amp **\$499⁹⁵**
- Panasonic PVS4764**
 Super-VHS Bar code programming . . **\$649⁹⁵**
- Sony FD500**
 4.5-inch Mega Watchman B&W TV, grey **\$99⁹⁵**
- Sharp VLL80**
 VHS Camcorder, auto focus, 8x zoom **\$999⁹⁵**
- Samsung VR2640**
 VHS HQ VCR, wireless, 14 day/4 event **\$219⁹⁵**
- Panasonic PVS445**
 Super-VHS camcorder FREE case . . **\$1549⁹⁵**

Radar Detectors & Scanners



- BEL 944 "Express 3"**
 3-Band Radar Detector
 • The new industry standard! Express 3 contains • Image rejection for Ka band and twice the X & K Band sensitivity of other SuperHet models
- Sale Price **\$199⁹⁵** Retail \$349 (BEL 944)
- Whistler Spectrum 2**
 Triple conversion SuperHet radar . . **\$174⁹⁵**
- BEL 976 Vector 3**
 SuperHet 3-band radar detector . . **\$189⁹⁵**
- Cobra RD3168**
 European style compact radar detector **\$138⁹⁵**
- Uniden RD9XL**
 Ultra compact SuperHet X&K bands **\$158⁹⁵**
- Maxon RDXL**
 Compact, cardless radar detector . . **\$144⁹⁵**
- Uniden Bearcat 800XLT**
 40 channel base scanner **\$248⁹⁵**

Musical Instruments



- Casio SK-100**
 Programmable Sampling Keyboard
 • Sample 2 different sounds • Chord and pattern memories • 49 key mini keyboard • 10 auto rhythms • Built-in speaker • AC/DC operation • Lightweight portable design
- Sale Price **\$128⁸⁸** Retail \$299 (CAS SK100)
- Casio DH100**
 Electronic wind instrument, MIDI output **\$99⁹⁵**
- Yamaha DD5**
 MIDI drum pads, PCM percussion . . **\$99⁹⁵**
- Casio MT140**
 PD sound source keyboard, 210 tones **\$99⁹⁵**
- Casio MT240**
 10 note polyphonic keyboard . . . **\$124⁹⁵**
- Yamaha PSS130**
 32-key mini keyboard, 2 note polyphonic **\$32⁹⁵**
- Yamaha PSS140**
 37-key mini keyboard, 5 drum pads . . **\$69⁹⁵**

Headphones



- Sennhesier HD-540**
 "Gold Limited Edition"
 • Special hand made limited edition headphones are actually signed by Dr. Sennhesier himself! • Improved high performance drivers
- Sale Price **\$239⁹⁵** Retail \$350 (SEN HD450-GOLD)
- Beyerdynamic DT990**
 The audiophiles choice **\$189⁹⁵**
- Sennhesier HD540**
 Open air digital ready **\$124⁹⁵**
- Sennhesier HD30**
 Lightweight with 2-plugs **\$29⁹⁵**
- Sony MDRM33A**
 Soft touch earpads, 1-side cord . . . **\$39⁹⁵**
- Sony MDRCD6**
 The perfect choice for portable CD's . **\$77⁸⁸**
- Koss Pro4AAA+**
 Closed ear design for big bass sound **\$38⁸⁸**

Audio Accessories



- Discwasher "DiscKit"**
 Total Record Care System
 • Complete record and stylus care systems with D4 fluid • Zerostat anti-static instrument • Attractive walnut base • Smoked dust cover
- Sale Price **\$24⁴⁴** Retail \$60 (DW DISKIT)
- Naiad RF2**
 All wood Oak finish record rack for 65 LP's **\$16⁹⁹**
- Audioquest Sorbothane Feet**
 Isolates your equipment **\$34⁹⁵**
- Naiad CD2**
 CD holder in black or oak holds 65 . . **\$16⁹⁹**
- Sony RMP700E**
 Programmable wireless remote control **\$88⁸⁸**
- Monster Cable Zapit**
 Wireless remote control booster . . . **\$19⁹⁵**
- Monster Cable Discus+**
 Compact disc stabilizing ring . . . **\$29⁹⁵**

Blank Audio/Video Tapes



- Sony Metal-ES 90**
 Metal Bias Audio Cassettes
 • Enjoy the finest sound from your cassette deck • Whatever your recording, compact discs, radio or live, Metal-ES delivers clean crisp and quiet music
- Sale Price **\$33³³** 10-Pack Price (SON METAL90)
- TDK SA90**
 High bias cassettes 10-Pack **17⁹⁰**
- Maxell XLII-S100**
 100 min. high bias cassettes 10-Pack **20⁹⁰**
- Fuji FR-METAL90**
 Metal bias cassettes 10-Pack **21⁹⁰**
- Maxell T120 HGX-GOLD**
 High grade VHS cassettes Each **\$4³⁰**
- Sony L750-ESXHF**
 Extra high grade HiFi Beta Each **\$4⁹⁰**
- Sony P-120**
 Metal particle 8mm cassettes . . . Each **\$6⁴⁰**



FREE CATALOGUE

For a FREE catalogue call toll-free 800-426-6027, or Write:
 J&R Music World
 Department SRO489
 59-50 Queens-Midtown Expressway
 Maspeth, NY 11378.

Name _____

Address _____

City _____ State _____ Zip _____

CIRCLE NO. 39 ON READER SERVICE CARD

TO ORDER BY MAIL:
 SEND MONEY ORDER, CERTIFIED OR CASHIER'S CHECK, MASTERCARD, VISA, AMERICAN EXPRESS or DISCOVER CARD (Include Interbank No., expiration date and signature.) TO: J&R MUSIC WORLD, DEPT. SRO489, 59-50 QUEENS-MIDTOWN EXPRESSWAY, MASPETH, QUEENS, NY 11378. Personal and business checks must clear our Authorization Center before processing. Shipping, Handling & Insurance Charge is 5% of Total Order with a \$4.95 minimum. (Canadian Orders Add 15% Shipping, with a \$9.95 minimum charge.) For shipments by air, please double these charges. \$25 MINIMUM ORDER. DO NOT SEND CASH. SORRY, NO C.O.D.'s. NEW YORK RESIDENTS PLEASE ADD SALES TAX. WE ARE NOT RESPONSIBLE FOR TYPOGRAPHICAL ERRORS. ALL PICTURES SHOWN FOR VISUAL REPRESENTATION ONLY.
 ALL MERCHANDISE SHIPPED BRAND NEW, FACTORY FRESH, AND 100% GUARANTEED.



the first movement an engaging drive and makes the most of the amusing Rossinian coda. In the scherzo he exploits every opportunity for dynamic contrast with razor-sharp attacks. The finale is a swift affair, sparkling all the way. First-rate sound and superb orchestral execution throughout. *D.H.*

SCHUMANN: *Symphony No. 1, in B-flat Major; Symphony No. 2, in C Minor* (see Best of the Month, page 82)

TCHAIKOVSKY: *Violin Concerto in D Major, Op. 35.* **WIENIAWSKI:** *Violin Concerto No. 2, in D Minor, Op. 22.* Joshua Bell (violin); Cleveland Orchestra, Vladimir Ashkenazy cond. LONDON © 421 716-2 (59 min).

Performance: *Refined*
Recording: *First-rate*

Joshua Bell plays both of these well-worn concertos with a good deal of refinement as well as technical assurance. He and Vladimir Ashkenazy are in thorough accord in their approach, which is expansive enough to let the music breathe, controlled enough to make any meandering or indulgence out of the question. The splendid Cleveland Orchestra is in fine shape, and the sound is first-rate, with the soloist and orchestra really well balanced for once. There may be other recordings of the Tchaikovsky with more flair and excitement, but none of either work, I think, that is more musically sound. If this particular juxtaposition of titles appeals to you, you will find this a very satisfying package. *R.F.*

TCHAIKOVSKY: *Eugene Onegin.* Thomas Allen (baritone), Onegin; Mirella Freni (soprano), Tatyana; Neil Shicoff (tenor), Lensky; Anne Sofie von Otter (mezzo-soprano), Olga; Paata Burchuladze (bass), Prince Gremin; Michel Sénéchal (tenor), Triquet; others. Rundfunkchor Leipzig; Staatskapelle Dresden, James Levine cond. DEUTSCHE GRAMMOPHON © 423 959-2 two CD's (149 min).

Performance: *Beautiful*
Recording: *Exceptionally fine*

No composer created more subjectively than Tchaikovsky did, and no single work from his canon is more personal than *Eugene Onegin*. Like the composer himself, each important figure in the opera seeks and fails to attain personal serenity and fulfillment. The libretto tells of recognizable people with whom we can readily empathize, and once we understand that the honor code of the time not only permitted but obliged dueling, the action of the opera becomes totally comprehensible and, almost like that of Greek tragedy, inevitable and devastating.

In the splendid new Deutsche Grammophon recording, Mirella Freni fully captures the tremulous courage, loneliness, and need of Tatyana and conveys



Joshua Bell: refined Tchaikovsky

the girl's vulnerability in limpid, effortless singing, beautifully phrased and inflected. She is surely the most affecting Tatyana before the public today. The outgoing, fun-loving, and thoughtless Olga of Anne Sofie von Otter provides a telling contrast to her sister's introspective character.

Thomas Allen's full, vibrant baritone suits the role of Onegin admirably; he reminds one of the late George London in this part, one of the American baritone's finest creations. Allen evokes the spoiled cynicism of the protagonist with unusual effectiveness (you want to throttle him after his put-down of Tatyana in Act 1, Scene 3), and he moves through the arrogance of the party scene and the tragic waste of the duel to emerge, in Act 3, wiser, disillusioned, and utterly alone. This is a total conception of the role, and Allen projects it admirably.

As Lensky, Neil Shicoff employs his expressive lyric tenor to good advantage. There is a quality of sincerity and believability in every performance by this fine artist; here, he conveys the full extent of Lensky's idealistic love for Olga, together with his possessiveness and jealousy, as well as his strong devotion to Onegin. As Prince Gremin, Paata Burchuladze imparts the warmth and reverence felt by the older man for Tatyana, his much younger wife.

Another *Onegin* is currently available, conducted by Georg Solti on London Records with Teresa Kubiak and Bernd Weikl. The London set, too, offers an exceptional performance, but I find Freni's voice more beautiful and more expressive than Kubiak's, Allen's more cutting and therefore more characterizing than Weikl's.

So integrated is the new recording that it is impossible to select a "star," but certainly James Levine merits highest commendation. His molding of the score is such that many nuances are heard afresh, and his exciting sense of orchestral coloration greatly enhances the performance throughout. *R.A.*

VAUGHAN WILLIAMS: *Fantasia on a Theme by Thomas Tallis; Fantasia on*

Greensleeves; The Lark Ascending; Five Variants of "Dives and Lazarus." José-Luis Garcia (violin); William Bennett (flute); English Chamber Orchestra, Yehudi Menuhin cond. ARABESQUE © ABQC6568, © Z6568 (46 min).

Performance: *Conscientious*
Recording: *Bright and clear*

This beguiling Vaughan Williams collection features a fine solo performance by flutist William Bennett in a tender reading of the familiar *Greensleeves* Fantasia and exquisite solo violin work by José-Luis Garcia in the ethereal *The Lark Ascending*. And in the Five Variants of "*Dives and Lazarus*," Yehudi Menuhin and the ECO flawlessly capture the music's ruminative, inward-directed character. The only disappointment is the noble Tallis Fantasia. I have always reacted negatively to inflated, overly passionate interpretations of this work, but Menuhin seems to have gone too far in the other direction—his reading seems a bit chilly. The recording that best captures the essence of the music, as well as the multiple perspectives of the two string bodies and solo quartet, is the one by the English String Orchestra under William Boughton on Nimbus. The Arabesque sonics are clean and bright throughout, but also just a bit on the cool side. *D.H.*

COLLECTION

VIKTORIA MULLOVA: *Works for Solo Violin.* Bach: *Partita No. 1, in B Minor (BWV 1002).* Bartók: *Sonata.* Paganini: *Introduction and Variations on "Nel cor più non mi sento."* Viktoria Mullova (violin). PHILIPS © 420 948-4, © 420 948-2 (66 min).

Performance: *Literal*
Recording: *Fine*

Viktoria Mullova is unquestionably a first-class violinist. (Anyone who even *thinks* about recording a program as varied and challenging as this one would have to be either a technical whiz or utterly crazy.) She is also a scrupulous musician, as is shown by her carefully terraced dynamics in the Bach partita. Unfortunately, she isn't a particularly *interesting* musician.

As an artist, Mullova isn't exactly prosaic: Her performances have too much heat for that. But even that heat cools off a bit in the Bartók sonata. One hears a violinist coming to terms with a lot of notes but not with Bartók's musical ideas, particularly compared with Nigel Kennedy's more sweeping, dramatic performance on Angel. I like the plaintive sense of searching Mullova captures in the third movement, but her harmonics are a bit raspy, and the final movement lacks the exotic Hungarian tang of Yehudi Menuhin's authoritative EMI recording. Mullova seems most at home in the Paganini, where she shows a playfulness that's rather engaging. But it's too little, too late. *D.P.S.*

HELP US HELP YOU!

PARTICIPATE IN THE STEREO REVIEW BUYER POLL

Stereo Review wants to know more about our readers. How much equipment you buy (and how often), how much you spend on it, what sort of product features you like. That will help us create a better, more informative magazine, specially geared to your tastes and preferences.

To gather this important information, we've created the Stereo Review Buyer Poll. And we need your help to make it work.

If you've bought any equipment within the past 30 days, we'd like you to participate (see instructions below). We'll use the information you give us to keep manufacturers up to date on the buying habits of stereo enthusiasts—the most knowledgeable group of audio buyers in the country. And in the long run, that will mean better service for you.

HOW TO PARTICIPATE

You can participate in the Stereo Review Buyer Poll by sending in the Reader Service Card appearing next to this page. We've provided space for you to list any equipment purchased in the past 30 days. Any kind of audio/video equipment qualifies.

For example:

Home Audio Components

- Amplifier ■ Receiver/Tuner
- Speakers ■ Turntable
- Cassette Deck ■ Equalizer
- CD player

Portable Stereo

- Portable Cassette Player
- Portable CD Player
- Headphones

Car Stereo

- Tuner ■ Cassette Deck
- Speakers

Home Video

- VCR ■ Camcorder
- Videodisc Player
- Stereo TV

Fill in the type of equipment, manufacturer, model number, and price you paid. Include all the equipment you bought this month. Then print your name and address and drop it in the mail (we pay the postage). It's that simple!

Free Information Service ★ ★ ★

Get free literature on stereo products featured in this issue. Simply fill out your name and address, circle the number on the card that corresponds to the key number at the bottom of the advertisements and mail this card today.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64
65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96
97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128
129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160

STEREO REVIEW BUYER POLL

1. In the past 30 days, have you purchased any audio or video equipment or accessories?
A. YES B. NO → Thank You!

2. Which type(s) of equipment did you purchase in the past 30 days?
A. Home audio B. Portable stereo
C. Car stereo D. Video

3. In the space below, please write in the type (speakers, car CD player, stereo VCR, etc.), the make, the model number and the price paid for each item purchased in the past 30 days.

TYPE	MAKE	MODEL	PRICE PAID
Car stereo	Sony	28-5933	\$ 379.00
Speakers	Logitech	ES3-20	\$ 450.00
Car radio/cassette deck	Speaker	KT 9372 (4)	\$ 1099.00

Indicate if you'd like to subscribe to STEREO REVIEW (you'll save 50% off our regular subscription rate!)

Please send me 12 issues of STEREO REVIEW for \$5.99 and bill me. (Full year subscription price \$11.99)

PLEASE PRINT CLEARLY

NAME: STEVEN NELSON
ADDRESS: 158 LORRAINE AVENUE
CITY: NEW ROCHELLE STATE: NEW YORK ZIP: 10554

(Zip code must be included to insure delivery)
Void after October 31, 1987

LOOK FOR THE BUYER POLL EVERY MONTH

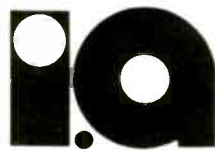
The Stereo Review Buyer Poll will appear in every issue—just check the Table of Contents for that month's location. You can participate in any month in which you purchased audio/video equipment. Of course, even if you don't join our Poll, you can still send in the Reader Service card to get information about products advertised in that month's issue.

We hope you'll participate regularly in the Stereo Review Buyer Poll. Your answers are important to us—and you'll find the resulting benefits important to you.

Thanks for helping us out!

Stereo Review

SAVE MONEY, TIME AND FREIGHT ON FAMOUS BRAND STEREO EQUIPMENT



Illinois Audio (800) 621-8042 / (312) 664-0020
12 E. DELAWARE PLACE • CHICAGO, IL 60611

LOUDSPEAKERS



TECHNICS SBL-36
Powerful
Loudspeaker System
• Linear Phase 2-Way
System • Large Diam. 10"
Woofer • Anti-resonance
Cabinet • Attractive
Woodgrain Finish
CALL FOR PRICE

E.P.I. CD55
3-Way Speaker
System

• 12" Bass Driver • Wide
Frequency Response •
Constant Dispersion
Design • Specially De-
signed High Efficiency
Cabinet
List \$250.00 ea.

SALE: \$99.00 ea.

TECHNICS SBS407
3-Way Speaker
System

• 12" Woofer • Horn Super
Tweeter • High Heat Resis-
tance • Efficiency Boss
Reflex Design • Heavy
Duty Anti-Resonance
Cabinet
CALL FOR PRICE



E.P.I. TE320
Powerful 3-Way
Speaker System

• 10" Bass Drive • Amaz-
ingly Accurate Freq-
uency Response • Ultra-Wide
Dispersion • Integrated
Midrange/Treble
CALL FOR PRICE



PORTABLES

TOSHIBA KT4048
AM/FM Stereo Radio
Cassette Player

• Dolby B NR • Auto
Reverse • 3 Band EQ •
Built-In Stereo Tuner •
Auto Shut-Off • Light
weight headphones &
Belt Clip Included
List \$89.95

SALE: \$55.00



SONY WMF100III
Sony Super Walkman

• AM/FM Stereo Cassette
Player • Xtra Small Size
• Auto Reverse • Quick
Charger • Dolby B NR
List \$199.95

SALE: \$125.00

SONY D-15
Discman Portable
CD Player

• Ultra Small & LightWt.
• 21-Track Random Music
Sensor • 4 Repeat Modes
• Unilinear Converter
w/ Digital Filter
CALL FOR PRICE



AUTO



SONY ES-S92
6" x 9" 2-Way Car Speakers

• Co-Axial • Hi-Power • Oval Shape
• 80 Watts Max Power Handling
List \$79.95 **SALE: \$39.95**



SHERWOOD CRD350
Car Stereo with Cassette Deck

• AM Stereo/FM Stereo Receiver • Full Logic
Controlled • Dolby B C NR • Auto Re-
verse • Built-In Amp w/Balance & Fader
• Local/Dist. Switch • Preset Scan • Clock
• Security Cover
List \$329.95 **SALE: \$182.00**

CASSETTE DECKS



TEAC V-285CHX
Stereo Cassette Deck

• Dolby B C & HX PRO NR • Bias Fine Tuning
• Full Auto Stop Mech. • Metal Tape Com-
patible • 3-Pos. Tape Select. • 3-Digit Tape
Counter
List \$149.95 **SALE: \$99.95**



TEAC R455X
Auto Reverse Cassette Deck

• Bi-Directional record/playback • Auto
reverse • Repeat • Dolby B & C NR • HX Pro
• Timer Rec. Play
List \$219.95 **SALE: \$139.95**



TECHNICS RST-80
Double Quick Auto Reverse
Cassette Deck

• Auto Reverse on both tape decks • 24 hour
contin. playback • Hiss-Ed editing • Synchro
start/stop & mute • dbx. Dolby B & C
CALL FOR PRICE



TEAC W660R
Double Auto Reverse
Cassette Deck

• Dolby B & C • One touch high speed
dubbing • Continuous Play • Memory
play/search dubbing • Full logic control
List \$549.00 **SALE: \$299.95**

RECEIVERS



TECHNICS SA-180
Quartz Synthesizer
AM/FM Stereo Receiver

• 70 Watts (35x2) • 16 Memory Presets • Tape
Mon. Switch • Bass & Treble Controls
• Quartz Clock • Low Distortion
List \$240.00 **SALE: \$127.00**



TECHNICS SAR-330
Quartz Synthesized
Remote Controlled Receiver

• AM FM Stereo Receiver • 140 Watts
(70x2) • Full Remote Control • 24 Presets
• 7-Band EQ w/ Spectrum Analyzer
• 4 Aud. Inputs plus 2 Aud. Vid. Inputs
• Station File
CALL FOR PRICE



JVC RX-777VS
Surround Sound Receiver

• AM FM Stereo Digital Receiver • 160
Watts (80x2) • Dolby Surround Sound
• Built-In Synthesizer-Tuner • 40 Memory
Presets • 7-Band EQ • 2 PR. Speaker
Connections
CALL FOR PRICE



JVC RX-999
Remote Controlled Receiver

• 200 Watts (100x2) • Digital Dolby Surround
Sound • 3 Video Inputs • Programm. 7
band EQ • Dig. Synth. Tuner • 80 presets
• Preset Scan
CALL FOR PRICE

CD PLAYERS



SHARP DX670
Compact Disc Player

• 3-Beam Laser Pick-up • Programmable
Memory • Cue/Review
List \$249.95 **SALE: \$118.00**



TECHNICS SLP999
Remote Controlled CD Player
With The Works!

• 20 bit • 32 Track programmability
• 8X oversampling • 4 DAC's • Peak Level
Control • A/B Repeat/Auto Level • 3 CD
capable • Edit guide • Music Scan
CALL FOR PRICE



TEAC AD-4
CD Player/Cassette Deck Combo

• Remote control of CD player and cassette
deck • 16-track random program dubbing
and play • Dolby B & C • Auto reverse rec.
play • Synchro start dubbing
List \$599.95 **SALE: \$275.00**



TECHNICS SLP400C
Multi-Disc CD Changer

• Programmable 6-Disc Changer/Player
• Remote Control • 36 Step Random Access
Program • Quadruple Oversampling
Digital Filter • High Resolution Laser
Pick-Up
CALL FOR PRICE



JVC XLM600
CD Multi Changer

• 6-Disc Capability • Remote Control
• Random Access Program. up to 32 steps
from 7 discs • Repeat • Memory back-up
• 3 Beam Laser Pick-up and digital filter
CALL FOR PRICE

TURNTABLES

TECHNICS SLLJ33
Programmable
Quartz Linear
Tracking Turntable

• 8-Band random pro-
gramming • Auto high
speed listing • Remote
control capable • TAP
cart. connector system
CALL FOR PRICE



TECHNICS SLL25
Fully Automatic
Linear Tracking
Turntable

• Remote control capable
• Repeat function
• Front panel operation
• Anti-vibration
construction
CALL FOR PRICE



DUAL 503-1
Top Class Audiophile
Semi-Automatic
Turntable

• Belt driven • Low
resonance, anti-vibration
design • Electronic speed
control • Auto switch off
• Gimballed mount low mass tonearm
List \$250.00 **SALE: \$175.00**



HEADPHONES

KOSS PRO/450

• Sound Isolating • Dual
element dynamic driver
• Precision performance
• Perfect for digital music
List \$175.00 **SALE: \$138.00**

SENNHEISER HD480

• Digital • Open Air Design
• CD Perfect
List \$99.00 **SALE: \$69.95**

SONY MDR CD6

Adjustable • Open Air
• Digital Ready
List \$119.95 **SALE: \$79.00**

AUDIO TAPE

MAXELL XLII-100

• 100 minutes perfect for
CD recording • Improved
performance Hi-bias
10 for **\$24.95**

SONY UX-PRO 90

High bias, perfect for live
or digital recordings
10 for **\$24.89**

TDK SA76

• Super high resolution
• Super ovilyn
• Anti-Resonance
10 for **\$17.95**

MAXEL MX90

Melaxial 90 min. cassette
10 for **\$28.95**

CARTRIDGES

SHURE M111HE

• Precision crafted hyper-
leptical diamond tip
• Dynamic stabilizer
• Side guard protector
List \$149.95 **SALE: \$49.95**

AT 122LP

Dual Magnet • Plug-In
Connector • Linear Contact
Diamond Stylus
List \$125.00 **SALE: \$49.95**

SHURE V15VMR

Ultra Accurate Tracking
• Dynamic Stabilizer • Side
guard Protection
List \$275.00 **SALE: \$129.95**



Illinois Audio
12 E. Delaware Pl., Chicago 60611

16 YEARS OF MEETING THE NATION'S STEREO NEEDS WITH
THE ABSOLUTE BEST PRICES ON TOP NAME NATIONAL BRANDS
Call Mon. thru Sat. 10 to 5 (312) 664-0020 • 1 (800) 621-8042



Prices in this ad are for mail-order only.
Freight charges not included in prices. All
merchandise shipped brand new. Factory
fresh with full warranty. Not responsible for
typographical errors.



NOTE: This is just a partial listing of our extensive
inventory, please call for quotes on additional items
or to request a free price list.

*Discs and tapes reviewed by
Chris Albertson, Phyl Garland,
Ron Givens, Roy Hemming,
Alanna Nash, Parke
Puterbaugh, Steve Simels*

COWBOY JUNKIES: *The Trinity Session*. Cowboy Junkies (vocals and instrumentals); instrumental accompaniment. *Mining for Gold; Misguided Angel; Blue Moon Revisited (Song for Elvis); I'm So Lonesome I Could Cry*; and eight others. RCA 8568-1-R, © 8568-4-R, © 8568-2-R (53 min).

Performance: *Eccentric*

Recording: *Substandard to good*

On my first spin through this offbeat collection, when I listened attentively, the hour seemed to stretch into weeks, the weeks into months. The second time, when I played it as background music, things went down quite nicely. Cowboy Junkies is a Canadian quartet consisting of lead singer Margo Timmons, her brothers Michael on guitar and Peter on drums, and Alan Anton on bass, and they recorded this highly subdued collection in a Toronto church, hence the album's title. As for the name of the band, I don't know about their personal habits, but cowboys they are not, despite their description of the album as "an exploration of country music."

Margo's voice, soft and whispery but still intense as a laser, floats above and beneath the melody of such standards as Hank Williams's *I'm So Lonesome I Could Cry*, Waylon Jennings's *Dreaming My Dreams with You*, and Patsy Cline's *Walking after Midnight*. This effect—with no one supplying the true melody, I might add—is either maddening and eventually coma-inducing, or intriguing and even mesmerizing, depending on whether you listen full-tilt or have it on mainly to dull the noise of a faulty appliance. At either volume, though, the instrumentals are often amateurish, particularly Michael's clunky guitar, but they're also occasionally brilliant, especially when sideman Steve Shearer hauls out his graveyard harmonica on *Postcard Blues*. I can appreciate minimalism—and some of this reminds me of early beatnik jazz, some of early Doors sans Morrison (and that's not a compliment)—but most of

EXPLANATION OF SYMBOLS:

- = DIGITAL-MASTER LP
- Ⓢ = TAPE CASSETTE
- Ⓢ = COMPACT DISC (TIMINGS ARE TO NEAREST MINUTE)

THE WATERBOYS



Mike Scott: a newfound naturalness

FISHERMAN'S BLUES" catches the Waterboys in transition, moving toward a more traditional, acoustic, string-oriented sound. Their first album since 1985's "This Is the Sea," it was drawn from three years' worth of sessions. It may not be their most consistent work, but on a song-for-song basis it is their finest. Along the way, the Dublin-based group's Scottish leader, Mike Scott, appears to have found a companionable muse in Irish folk music.

For the most part, the first half of the program is vintage Waterboys: long songs that build over droning guitar chords as Scott unburdens himself of some troubling thoughts about individual concerns (*We Will Not Be Lovers*) or the plight of the world at large (*Strange Boat*). A barnstorming number with Dylanesque imagery, *World Party* (not to be confused with the band of the same name formed by ex-Waterboy Karl Wallinger) carries Scott's kitchen-sink approach toward arrangements to a breathless climax with horns, congas, and a choir.

But then the album shifts into a Celtic trance as Scott and company fearlessly tackle a Van Morrison number, *Sweet Thing*. Scott scats his way into dreamtime with the same driven passion Celtic Soul Brother No. 1 put into the song, even interpolating a bit of the Beatles' *Blackbird* much the way U2 works snippets of familiar songs into a concert performance when the spirit moves them.

Having cleared the air with *Sweet Thing*, the Waterboys re-emerge in scruffy street clothes, bearing battered instruments, to busk their way through some new tunes with a decidedly tradi-

tional bent, mandolins and fiddles substituting for electric guitars. *And a Bang on the Ear* is lilting, rollicking, and altogether effortless. It flows in a way that suggests Scott has arrived at some breakthrough in his conception of the Waterboys. This newfound naturalness recalls the rustic folk balladry of the Byrds and the Band, not to mention early Fairport Convention and even American country-and-western in its pure, undiluted state. Scott's lovely, funny ode to Hank Williams, *Has Anybody Here Seen Hank?*, is a honky-tonk weeper sung with a Scottish burr—talk about cultural cross-pollination!

In the past Scott has reached to make grand statements, and there's some of that in "Fisherman's Blues," too. But it strikes me that *When Ye Go Away*, the finest song he's ever written, is also one of the simplest. The reverberations are quietly haunting, much like Joni Mitchell's timeless *Urge for Going*. All in all, there's a lot of fine music in "Fisherman's Blues," but the most fascinating aspect of the album is witnessing a good artist evolving into a great one.

Parke Puterbaugh

THE WATERBOYS: *Fisherman's Blues*. The Waterboys (vocals and instrumentals); vocal and instrumental accompaniment. *Fisherman's Blues; We Will Not Be Lovers; Strange Boat; World Party; Sweet Thing; And a Bang on the Ear; Has Anybody Here Seen Hank?; When Will We Be Married?; When Ye Go Away; Dunford's Fancy; The Stolen Child; Jimmy Hickey's Waltz* (CD and cassette only). CHRYSALIS FV 41589, © FVT 41589, © VK 41589 (52 min).

'TIL TUESDAY



Aimee Mann: achingly autobiographical

IN one song in "Everything's Different Now," 'Til Tuesday's striking third album, Aimee Mann sings, "We just gave up 'cause sometimes, you know, there's limits to love." In the last track, she returns to the question, "How can you give up?" Well, there's no good answer to the riddle of why we keep going or finally quit, but Mann tries to get to the bottom of these matters anyway in one gorgeous confessional after another.

Mann recently lived out a very public love affair with songwriter Jules Shear, and their breakup provided achingly autobiographical material for "Everything's Different Now." There's no disguising the characters in this love story. One song is unabashedly titled *J for Jules*; in it Mann recalls how she lived "in a country that began with J." The album opens with the title song, which was written by Shear in happier times.

His words have a sadly ironic ring now, especially as sung by Mann in this context.

Despite the highly charged emotional content, the songs are not lachrymose. Mann is a terrific songwriter, marrying incisive lyrics to brisk, mint-fresh melodies. On the subject of love and disappointment, "Everything's Different Now" is as eloquent as it is frank.

Parke Puterbaugh

'TIL TUESDAY: *Everything's Different Now*. Aimee Mann (vocals, guitars); Michael Hausman (drums); vocal and instrumental accompaniment. *Everything's Different Now*; *Rip in Heaven*; *Why Must I*; *J for Jules*; *(Believed You Were) Lucky*; *Limits to Love*; *Long Gone (Buddy)*; *The Other End (Of the Telescope)*; *Crash and Burn*; *How Can You Give Up*. EPIC OE 44041, © OET 44041, © EK 44041 (39 min).

the songs never truly deliver, although several, including a quirky cover of Lou Reed's *Sweet Jane*, make vague promises before they quietly tiptoe away. Still, there's something going on beneath this mountain of subtlety. *A.N.*

CROSBY, STILLS, NASH, AND YOUNG: *American Dream*. Crosby, Stills, Nash and Young (vocals and instrumentals); instrumental accompaniment.

American Dream; *Got It Made*; *Name of Love*; *Don't Say Goodbye*; *This Old House*; *Nighttime for the Generals*; *Shadowland*; and seven others. ATLANTIC 81888-1, © 81888-4, © 81888-2 (56 min).

Performance: *Pretty dull*
Recording: *Good*

Well, it's not slick. Inoffensive, bland, and forgettable, yes. But slick? Naah.

Which means that this latest effort from the newly reformed CSNY is at least consistent, because if you go back and listen to their earliest efforts you might be surprised at how roughhewn they actually sound.

Of course, you might also be surprised at how much they sound like actual human beings with honest-to-God feelings, which in "American Dream" they don't, particularly. They sound here like a bunch of competent professionals without much of interest to say or a compelling reason to say it (including Neil Young, who we can only hope is saving his good stuff for a future solo album). To be fair, there are occasional moments of minor interest. The title song, for example, sets the Jim and Tammy Bakker story to a modified Motown groove, and *Name of Love*, with its signature guitar solo from Neil Young, does indeed sound—superficially—like vintage CSNY. The rest of the album, sadly, just sort of wafts by you, and only the deepening of David Crosby's tenor is likely to distract anybody who's doing the dishes and listening to this set at the same time. Like I said, at least it isn't slick. *S.S.*

ROBERTA FLACK: *Oasis*. Roberta Flack (vocals); vocal and instrumental accompaniment. *Oasis*; *All Caught Up in Love*; *Uh-Uh Ooh-Ooh Look Out (Here It Comes)*; *Shock to My System*; *You Who Brought Me Love*; *Something Magic*; and five others. ATLANTIC 81916-1, © 81916-4, © 81916-2 (49 min).

Performance: *A class act*
Recording: *Very good*

It hardly seems like twenty years since Roberta Flack defined the mood of a war-weary generation with her debut album, "First Take." Her hits came regularly during the Seventies, including her unforgettable duet with the late Donny Hathaway in *Where Is the Love* in 1972. Her rare combination of passion and restraint, her dreamy, transfixed quality with a touch of gospel vitality, said something special to us. But as the Eighties progressed, she seemed to fade away. We haven't heard from her since 1983, when the album she made with Peabo Bryson yielded the hit *Tonight, I Celebrate My Love*. But "Oasis," her new solo album, marks a triumphant return and reflects Flack's decision to speak to a new generation in its own language. That means there's a lot of production here, compared to the lean, spare quality that distinguished her best earlier work. At times, this seems to obscure one of her strengths, the ability to convey a sense of intimacy, but in spite of all the clutter she shines through with genuine ebullience and reaffirming joy.

Although the title song has caught on, there's rather less to it, I think, than meets the ear. I prefer Flack's punchier songs, like *Shock to My System* and

WDS

1-800-356-9514

Wisconsin Discount Stereo
 2417 W. Badger Road
 Madison, WI 53713
 608-271-6889



NEW HOURS
 M-F 8-8
 SAT 9.5-3.0
 or COD

VIDEO SPECIALS

- GE VG7795 **GUARANTEED LOW PRICE** **\$349**
- VHS MTS HI-FI **\$349**
- ZENITH VRE510 **\$444**
- PANASONIC PV4860 **CALL!**
- Super VHS 4-Head MTS Hi-Fi. Call for other Super VHS Specials!
- Best Buy rating and loaded with features.
- 4-Head MTS Hi-Fi. Extended Warranty Available
- 4-Head MTS Hi-Fi with O.S.P. WE STOCK MOST MAJOR BRANDS

VIDEO SPECIALS

- JVC **GUARANTEED LOW PRICE** **\$389**
- 4-HEAD MTS HI-FI **\$389**
- JVC **GUARANTEED LOW PRICE** **HRS5000**
- RCA VR630 **GUARANTEED LOW PRICE**
- Over 20 4-Head MTS Hi-Fi models under \$499—CALL!
- Super VHS 4-Head MTS Hi-Fi. Call for other Super VHS Specials.
- MTS Hi-Fi with O.S.P. Extended Warranty Available

VIDEO SPECIALS

- SONY **GUARANTEED LOW PRICE** **CDPF30**
- PANASONIC **GUARANTEED LOW PRICE** **PV400**
- RCA **GUARANTEED LOW PRICE** **CC300**
- JVC **GUARANTEED LOW PRICE** **GR55**
- Sony CCDV5 **\$869**
- GE CG9808 **GUARANTEED LOW PRICE** **GE CG9810**
- CALL FOR OTHER SONY SPECIALS
- CALL FOR OTHER RCA SPECIALS
- JVC GFS550U **GUARANTEED LOW PRICE** **JVC GFS1000U**

MISCELLANEOUS STEREO SPECIALS

- TEAC **GUARANTEED LOW PRICE** **X2000R**
- AMISOOE **GUARANTEED LOW PRICE** **\$189**
- DUAL **GUARANTEED LOW PRICE** **CSS000**
- FREEDOM **GUARANTEED LOW PRICE** **PHONE FF1700X \$119**
- 10" Reel/Reel
- Auto Reverse * 6 Heads * dx.
- Cassette/Style mount in wood cabinet TOP OF THE LINE!
- HAND RUBBED WALNUT BASE
- BEST CORDELESS PHONE

MISCELLANEOUS STEREO SPECIALS

- UNIDEN RD9 **\$119**
- SHERWOOD S870II **\$239**
- SHERWOOD S8750 **\$139**
- KOSS JCK8005 **\$107 SET**
- BADMA DETECTORS **\$167**
- AUDIO/VIDEO receiver with 70 WATS/CH and remote.
- Digital Audio / Video Receiver with 55 WATS/CH
- SONY MDR76 **\$179**
- SONY MDR606 **\$179**

TV SPECIALS

- 96" MONITOR RECEIVER **\$459**
- SONY KV27SR10 **GUARANTEED LOW PRICE**
- Best 97" Monitor / Receiver
- CALL FOR OTHER TV SPECIALS

WE STOCK MOST MAJOR BRANDS

Some Items Limited Quantities



★ ★ ★
 FIVE STAR RATING
 STEREO REVIEW BUYER'S GUIDES: send \$3.95 for STEREO — \$3.95 for VIDEO — or \$7.00 FOR BOTH

1-800-356-9514

PORTABLE DISC PLAYER SPECIALS

- SONY D160 **GUARANTEED LOW PRICE** **\$219**
- SONY D15 **GUARANTEED LOW PRICE** **\$149**
- SONY D110 **GUARANTEED LOW PRICE** **\$179**
- SONY D10 **SPECIAL PURCHASE CALL!**
- HOME AND CAR DISCOMAN
- SONY D2 **\$149**
- TOSHIBA XR9458 **CALL!**
- SHARP QTC090 **\$179**

DISC PLAYER SPECIALS

- JVC XLV550 **\$219**
- AIWA XC001 **GUARANTEED LOW PRICE** **\$239**
- TEAC PD500 **\$239**
- TEAC ZD880 **\$259**
- Special Closeout Purchase RATED BEST BUY!
- 4K Oversampling with 18 bit digital filter and remote.
- 5pc disc staker with 32 program memory.
- Zero distortion circuitry. Way Below Dealer Cost!

CASSETTE DECK SPECIALS

- TEAC ADS **\$379**
- TEAC V970X **GUARANTEED LOW PRICE** **\$97**
- TEAC V85CHX **\$97**
- TEAC V670 **\$259**
- Combination CD / Cassette
- Way Below Dealer Cost!
- Top of the Line 3-Head SPECIAL PURCHASE
- Dolby B + C + HX Pro with Tape Bias Control
- 3-Head, 2 Motor Cassette deck with Dolby B + C + HX Pro.

CAR STEREO SPECIALS

- SHERWOOD CRD210 **\$159**
- CLARION 8893RT **\$239**
- SHERWOOD XR1604 **\$239**
- ALPHASONIC MA8035 **\$149**
- Auto Reverse with CD inputs. Dolby B + C and high Dower.
- Removable DIN Cass. 18 Pre-Set, Dolby HIGH POWER.
- Top of the line with removable DIN Casses.
- TOP RATED 35 WATT / CH CAR AMP

SPEAKER SPECIALS

- DESIGN **ACCOUNSTICS PS103 \$248 each**
- RECOTON **WIRELESS 100'S \$179 Complete Set**
- WIRELESS REMOTE SPEAKERS
- Best Speaker under 1000
- Extends your stereo
- SHERWOOD **SX693 \$59 pr.**
- 6 x 9 3-WAY CAR SPEAKERS
- PLYLE **KP6940 CALL!**
- Extended Warranties Available

MISCELLANEOUS SPECIALS

- MEMOREX **CP's \$99**
- AUDIOSOURCE **GUARANTEED LOW PRICE** **SS-TWO**
- Wireless Remote. Dolby Surround Sound

WHY YOU SHOULD BUY FROM US!

- Guaranteed Low price.
- All products BRAND NEW with full factory warranty.
- Most orders shipped within 24 hours.
- Ten day return policy.
- 30-day Buyer Protection Plan—FREE.
- The ONLY mail order with factory authorized service center.

WE STOCK MOST MAJOR BRANDS WHY PAY MORE? WE STOCK MOST MAJOR BRANDS WHY PAY MORE? WE STOCK MOST MAJOR BRANDS WHY PAY MORE? WE STOCK MOST MAJOR BRANDS WHY PAY MORE?

Ashford and Simpson's bouncy *Uh-Uh Ooh-Ooh Look Out (Here It Comes)*. On the sweet side there's the shimmering *All Caught Up in Love* by Marvin Hamlisch and Siedah Garrett, which Flack sings with an edge of longing in her voice, and the similarly appealing *You Who Brought Me Love* and *You Know What It's Like*. Flack's ability to communicate directly with the listener remains intact. In spite of the gaudier trappings, she is still a class act. P.G.

EMMYLOU HARRIS: *Bluebird* (see *Best of the Month*, page 81)

AL JARREAU: *Heart's Horizon*. Al Jarreau (vocals); vocal and instrumental accompaniment. *All or Nothing at All*; *So Good*; *All of My Love*; *Pleasure over Pain*; *Yo' Jeans*; *Way to Your Heart*; and six others. REPRISE 25778-1, © 25778-4, © 25778-2 (50 min).

Performance: *Dazzling*
Recording: *Excellent*

With this album, Al Jarreau comes full circle, working once again with George Duke, the composer-keyboardist-producer with whom he performed during his formative years in West Coast jazz clubs. Since then, both have moved decidedly into pop, but this collaboration shows how they have adapted their sophisticated sense of harmony and musical texture to popular tastes. The result is a dazzling album of brilliantly produced songs.

Jarreau is assertive and sure-footed as he makes his way through a wide-ranging set. He's funky in *All or Nothing at All*, rakish in the driving *10K Hi*. He brings gospel to *Killer Love*, complete with a rousing back-up chorus. He shifts to a Michael Jackson groove in *Way to Your Heart*, edgily spitting out the lyrics to a frenetic beat, but eases into tropical mellowness on the Brazilian-flavored *One Way*. Jarreau is also a superb balladeer, as heard here in the sweetly intimate *More Love*, the haunting *Pleasure over Pain*, and the sensitive *Heart's Horizon*. One track of special interest is his playful but brief *a cappella* duet with Bobby McFerrin, *Yo' Jeans*. But everything Jarreau attempts in "Heart's Horizon" is so fully realized that it should leave both old and new fans smiling with satisfaction. P.G.

UTE LEMPER: *Ute Lemper Sings Kurt Weill*. Ute Lemper (vocals); RIAS Berlin Chamber Ensemble, John Mauceri cond. *Mack the Knife*; *Alabama Song*; *In Potsdam Under the Oak Trees*; *Nanna's Lied*; *Je ne t'aime pas*; *Speak Low*; *I'm a Stranger Here Myself*; and seven others. LONDON © 425 204-4, © 425 204-2 (50 min).

Performance: *Riveting*
Recording: *Crisp and clean*

Ute Lemper, in her mid-twenties, has been winning international accolades like few other singer-actresses of her

generation (for *Cats* in Vienna, *Cabaret* in Paris, two Kurt Weill concerts in New York, and more). This new recording gives an exciting taste of what all the shouting is about, even if it doesn't exactly live up to the liner's hype about Lemper spurning "the popular throaty, declamatory 'Brechtian way'" of singing Weill's songs in favor of "something new and fresh" and "destined to reach a new generation of listeners."

Notwithstanding considerably more nasality than throatiness, this young German artist is closer to the stalwart and long-predominant style of Lotte Lenya and Gisela May than she is to the gentler musical sounds of Martha Schlamme and a few other Weill specialists. But there is, undeniably, a distinctiveness to Lemper's sound as well as an instinctive musicality and a dramatic intensity that digs into the heart of each song. Despite a few excesses (as in the tornado approach to *Westwind*), her performance is indeed compelling. And she is certainly less eccentric and uneven than Teresa Stratas has been in her Weill recordings. So if this be the way to open up a new, cross-generational interest in Weill's great songs, then onward Lemper!

The well-chosen program mixes familiar and unfamiliar songs from a cross section of German, French, and American works, including *The Threepenny Opera*, *Mahagonny*, *Silver Lake*, and *One Touch of Venus*—all sung comfortably in their original languages and with crisply recorded arrangements that remain agreeably faithful to the songs' original periods. R.H.

MIKE AND THE MECHANICS: *The Living Years*. Mike and the Mechanics (vocals and instrumentals). *Nobody's Perfect*; *The Living Years*; *Seeing Is Believing*; *Nobody Knows*; *Poor Boy Down*; and five others. ATLANTIC 81923-1, © 81923-4, © 81923-2 (47 min).

Performance: *Energizing*
Recording: *Fair*

Mike and the Mechanics has become a bassman's holiday for guitarist Mike Rutherford whenever Genesis goes on vacation. For a second job it hasn't worked out too badly; the group's previous album launched a pair of hits in *All I Need Is a Miracle* and *Silent Running*. Though he's not a flashy or assertive personality, Rutherford is a smooth professional who can line up all the elements—strong vocals, assured production, solid material—in a way that virtually guarantees some measure of success. (Multiply such punch-the-clock cunning by three, and you've got a supergroup called Genesis.)

Some intangible ingredient, however, is lacking in "The Living Years," resulting in a tedious stew of keyboard-dominated progressive rock. Paul Carrack and Paul Young do their best to breathe some soul into the vocals, but the whole

Q. JUST WHAT IS DAT?

A. Digital Audio Tape is the ultimate digital recording medium. For the first time, anyone from professionals to inexperienced consumers can make recordings that are master quality each and every time, with no tape distortion, no hiss, and no background noise! It's the finest quality audio recording that exists today.

Q. WHAT ABOUT CD? ISN'T CD THE BEST SOUND?

A. Both CD's and DAT have unmatched, crystal-clear sound quality with incredible dynamic range. DAT has the added advantage of being not only a playback machine, but a recorder as well. So, in addition to being able to listen to pre-recorded cassettes, you can also record all your own favorite selections.

Q. ARE THERE OTHER BENEFITS TO DAT?

A. DAT records live performances, CD's, LP's, cassettes and radio broadcasts with the greatest accuracy now available. But the potential doesn't stop there. DAT recorders are also an exceptional business tool, capable of storing and retrieving data with great speed and accuracy. Using DAT's indexing capabilities and programmability, a professional like a doctor or lawyer can expand the use of voice tapes to great advantage. Plus, DAT's can record up to four hours on cassettes that are almost half the size of standard audio cassettes.

Q. WHO USES DAT RECORDERS?

A. Everybody! Over 40% of the leading professional recording studios in the U.S. are already using DAT technology. Everyone, from music pros to audiophiles to average consumers, is buying DATs. There are more kinds of buyers than there are kinds of machines—and there are dozens of home, studio, portable and car models available now.

Q. ARE DAT MACHINES LEGAL?

A. Of course they're legal! They've never been anything but 100% legal, in every state in the Union. In fact, the Federal Government is one of our oldest customers. We also sell recorders to a number of state governments and state universities, as well.

Q. ARE THESE MACHINES COVERED BY A WARRANTY?

A. Definitely! Every DAT recorder we sell is fully covered by either the manufacturer's U.S. warranty or a complete one year parts and labor service contract administered nationally by the American Warranty Company of Princeton, NJ. They have a network of service labs across the country, so that our customers can get their units serviced as locally as possible.

Q. WHY HAS AMERICAN INTERNATIONAL CHOSEN TO SPECIALIZE IN DAT RECORDERS?

A. This is an exciting new technology. These are units that aren't otherwise available in the U.S., except to the privileged few who can afford to fly overseas to buy them. We believe the people of this country have a right to have the same opportunity to purchase DAT recorders that is being offered to people in Japan, England, France, Germany and other places around the world. So we're giving them that opportunity.

**American
International
Audio Video**

Are You Ready To Enter The True Digital Domain?



A DAT Recorder Is Like Having Your Own Home/Portable Recording Studio.

Master Quality Sound Production With No Distortion! No Tape Hiss!

- English Operating Manuals
- All Connecting Cables
- AC Converters



SONY PCM-2500
Professional two piece studio standard

- Wireless remote control
- Fully programmable
- Switchable sampling freq. 32/44.1/48 khz



SONY DTC-500ES
Sony's second generation bestseller

- Direct digital-to-digital
- Transmission capability
- Switchable sampling freq. 32/44.1/48 khz



SONY TCD-D10
Sony's #1 consumer portable

- High-speed (near-instant) index search
- Built-in clock/calendar
- Stereo microphone and windscreen



TECHNICS SV-D1100
18 Bit high resolution DAT

- Full function remote
- 6-speed CRV digital servo system
- Reduce conversion error by 75%



PANASONIC SV-250
A masterpiece of miniaturization

- 9 - 1 3/4 - 5 1/2. under 4 lbs.
- MASH A/D converter w/ 64X O. Samp.
- Digital-to-digital editing



CLARION DAC-2000 CAR STEREO

- Full-logic transport
- High-speed music search
- Intro tape scan

KENWOOD KDT-99R CAR STEREO (not pictured)

- Din-size. Dual-chassis
- Wireless remote control
- Direct track access

Did You Know:

- **DAT** recorders offer you better sound quality than CD players, plus all the benefits of a cassette recorder.
- **DAT** cassettes are half the size of standard analog cassettes, and are a higher quality tape.
- **DAT** recorders are fully programmable, with high speed (up to 300 times playback speed) indexing and music search.

CHOOSE FROM THE FOLLOWING:

- Sony • Panasonic • Technics • Tascam
- Kenwood • Pioneer • Akai • Sharp • Alpine
- Nakamichi • Denon • Yamaha

Knowledgeable, Friendly Customer Service.

American International Audio Video

127 ROUTE 206 TRENTON, NJ 08610



DAT HOTLINE
609-888-4414

609-888-2930
FAX ORDERS

FLEXIBLE LEASING PROGRAMS
START AT

\$69 per month

- NO MONEY DOWN
- QUICK APPROVAL
- COMMERCIAL ACCTS WELCOME

- USA Written Warranty
- Nationwide Service Centers
- Pro User Extended Warranties



AUDIO AND VIDEO AT WHOLESALE PRICES!

HIGHVOLTAGE

800-654-7787

TOSHIBA
MITSUBISHI

PIONEER
PIONEER VSX-9300S
• Surround Sound Audio Video •
• 125 Watts Per Channel • Dolby
Pro-Logic With Digital Delay •
Programmable "Smart" Remote
• 4 Audio / 4 Video Inputs • Video
Enhancer With Split Screen and
Video Noise Filter.....Call For Price

PIONEER

Pioneer VSX-7300	For
Pioneer VSX-5300	Lowest
Pioneer VSX-3300S	Price
Pioneer VSX-3300	249
Pioneer VSA-910	Wow
Pioneer PD M700	Call
Pioneer PD M600	For
Pioneer PD M500	Best
Pioneer PD M400	Price
Pioneer PD 5100	in
Pioneer PD 7100	USA

AZDEN
DM-90

AZDEN DM-90
New Digital Headphone
Out Performs All Others. Frequency
Response 4-26,000 Hz
Don't Pay More Than 79
Azden DSR-50 Digital 49
Sony MDR CD6 75
Beyerdynamic DT-990 175

HI-TECH CD

Laser Lens Cleaner
• Prevents Skipping
• Restores CD Quality
Introductory Price Now.....29

CC310
• ProEdit System
Flying Erase Head
Video/Audio Dubbing
Mic Mixing
Edit Search
Synchro Edit

Panasonic

PV 400	799
PV 420	Call
PV 440	1275
PV 415	1299

MINOLTA

V 1400	Free
V 2100	Case

rci

CC 300	in
CC310	Stock
CG 9806	Lowest
CG 9810	Price

Kyocera KD-1700 Call
Sony CCD-F30 848
Sony CCD-F40 1059
Minolta CR-8200 Price
Canon E-70 875

RECEIVERS + AMPS

Sony STR AV1000	489
Sony STR AV900	399
Sony STR AV290	169
Nikko Alpha 650	949
Nikko Alpha 450	579
JVC RX 1001V	Best
JVC RX 999	Price
JVC RX 777	in
JVC RX 555	in
JVC RX 333	USA
SSI 4000 Pro Logic	New
SSI 360 III	299
Sherwood AI-1110	Call
Sherwood RV-1340R	369

CASSETTE DECKS

Pioneer CT W900R	Best
Pioneer CT W700R	Price
Pioneer CT W500	in
Pioneer CT S800	The
Pioneer CT S600	USA
JVC TDW 999	Call
JVC TDW 777	265
JVC TDW 444	205
Sherwood DD-1230R	225
Sherwood DD-1030	99

CD PLAYERS

JVC XLM 600	369
JVC XLM 400	320
JVC XLM 300	249
JVC XLZ 555	385
JVC XLZ 444	225
Sony CDP C70	335
Sony CDP 350	189
Magnavox CDB 486	269
Magnavox CDB 482	169
Magnavox CDB 480	139
Magnavox CDB 473	Call
Sherwood CD-1162R	185
Sherwood CD-1160R	169

Remote Control ALARM

SERPICO SP-2
Protect Your Car With This
New Remote Alarm. Simple
2 Wire Hook-Up Includes
125 Remotes

RADAR

Uniden RD 55	99
Uniden RD 9	105
Uniden RD 9XL	139
Uniden Talker	175
Cobra RD 3170	150
Cobra RD 3160	129
Whistler Spectrum I	99
Whistler Spectrum II	159
Bel XPR 977	169
Bel XPR 976	149

FAX MACHINES

Toshiba 30100. Special	839
Toshiba 3700	1299
Murata M1200	675
Panasonic KX-F120	Call

CP4 UNIVERSAL REMOTE
• Replaces Up to 4 Different
Remote Controls • Easy to
Program • Easy to Use.....49

CAR STEREO

Pioneer DEX 77	We
Pioneer DEH 66	Have
Pioneer CDX M100	Your
Pioneer KEH 8050	Best
Pioneer KEH 6010	Price
Pioneer KEH 6070 TO	in
Pioneer KEH 6040 QR	All
Pioneer KEH 8686	of
Pioneer KEH 5656	USA
Sony CDX A20	Call
Sony CDX R88	For
Sony XR 7200	Low
Sony XR 7150	Price
Sony XR 7050	249
Clarion 9970 RT	489
Clarion 9425 RT	269
Clarion 8825 RT	245
JVC KS RX618	325
JVC KS RX518	309
JVC KS RX418	265
JVC KS R285	169
Jensen SJS 9000	289
Jensen SJS 8000	239
Jensen JS 6100	120
Jensen JS 6200	169

HIGHVOLTAGE, 39 W. 32nd ST., NEW YORK, NY 10001
OPEN 10am-7pm Mon.-Fri., Sat. 10am-6pm. FAX 212-268-6828 CUSTOMER SERVICE 212-564-4410

CIRCLE NO. 66 ON READER SERVICE CARD

ADVERTISEMENT

**NAKAMICHI BUYERS
BEWARE**

Although there are hundreds of authorized Nakamichi dealers in the U.S.A., every month non-authorized dealers will advertise the availability of Nakamichi products. Countless numbers of these non-authorized dealers possess Nakamichi products designed specifically for use in other countries. Such products are purchased at the buyer's risk because they are excluded from the factory warranty coverages provided by Nakamichi America Corporation. Also, some non-authorized dealers provide U.S.A. designated products, but will remove our serial number and replace it with their own. Any alteration of the original serial number voids the factory warranty.

For the name and location of your nearest authorized Nakamichi dealer, call 1-800-421-2313 (in California-1-800-223-1521)

**STEREO REVIEW'S
CALENDAR OF CLASSICAL
COMPOSERS**

In response to popular demand, we have reprinted the five-page, fold-out Calendar of Classical Composers by William Livingstone published in the November 1987 issue. In addition to showing the life spans of 147 major composers, the calendar includes pithy descriptions of the principal musical stylistic periods. For each full-color copy, please send a mailing label with your name and address along with a check or money order for \$2 (no cash or stamps) to Stereo Review, Calendar of Classical Composers, 1515 Broadway, New York, NY 10036. Outside the United States, send \$3 (in U.S. funds).

enterprise is rather too calculated to allow for any spontaneous excitement. The material is at best passable and at worst tepid and nondescript, as in *Poor Boy Down* and *Black and Blue*. There are two exceptions, though: *The Living Years*, an affecting meditation on the passing of a father and birth of a son, and *Beautiful Day*, which captures the glory of a day's unfolding, beginning at sunrise. Overall, though, "The Living Years" is stock, by-the-numbers professionalism: slick, airless, and often simply boring. P.P.

NRBQ: Diggin' Uncle Q. NRBQ (vocals and instrumentals); instrumental accompaniment. *It Comes to Me Naturally; What a Nice Way to Go; Just the Way You Are; You're So Beautiful; Macho Maria; Some Kind of Blues*; and six others (eight others on CD). ROUNDER 3109, © C-3109, © CD-3109 (43 min).

Performance: *Snazzy*
Recording: *Okay*

NRBQ put out a live album, "God Bless Us All," about a year ago. The release this soon of another live album, "Diggin' Uncle Q," seems curious, but it's a rave-up wonder, full of the rollicking music for which NRBQ is notorious. You've got the steady-rocking *It Comes to Me Naturally* as well as the edgy, almost creepy *Some Kind of Blues*. You've also got deep yet subtle irony, in the form of very straight cover versions of middle-of-the-road schlock (Billy Joel's *Just the Way You Are*) and a cornball classic (the Browns' 1959 hit *Scarlet Ribbons*). For the most part, however, NRBQ boogies out on "Diggin' Uncle Q," and, when that happens, there's no other band in the land that can touch it. R.G.

LOU REED: New York (see *Best of the Month*, page 82)

THE SANDERS: Into Every Life. The Sanders (vocals); instrumental accompaniment. *Dancin' to the Radio; So Have I; Walking on the Moon; You Fit Right into My Heart; Starry Lullaby*; and five others. AIRBORNE ABL-0106.

Performance: *Flying start*
Recording: *Exceptional*

Initial press reports about the Sanders, a brother-sister duo from Alaska, compared the newcomers' style to the early sound of the O'Kanes. In reality, the comparison isn't quite apt: Vicki and Dale Sanders, whose vocal blend resembles that of the Everly Brothers more than anyone else, write none of their own material and play no instruments on record, which makes them not so much creators as interpreters of other people's work. But what superior interpreters they are! In "Into Every Life," their debut album, the duo lays claim to songs by Guy Clark, Tom Russell, Katy Moffatt, and Schuyler, Knoblock, and Overstreet, owning them by the sheer

SUPER VHS CAMCORDERS 8mm CAMCORDERS HI-FI STEREO CAMCORDERS



CANON F1000 10:1Z



OLYMPUS VX405

OLYMPUS VX802 Call



MINOLTA 8200 PENTAX 850KV KD1700V



HITACHI RCA MINOLTA

— MOST POPULAR FEATURES —

- SUPER VHS 8:1 ZOOM w/FLYING ERASE HEAD INCLUDES ALL ACCESSORIES
- SAME AS ABOVE w/CHARACTER GEN
- SAME AS ABOVE w/DIGITAL

\$1199 Call \$1399

- 8mm 6:1 ZOOM 5 LUX INCLUDES ALL ACCESSORIES
- VHS-C 6:1 ZOOM 7 LUX INCLUDES ALL ACCESSORIES
- VHS FULL-SIZE TAPE 7 LUX 6:1 ZOOM TIME/DATE (w/HARD CASE)
- SAME AS ABOVE w/FLYING ERASE HEAD

\$799 \$699 \$799 \$899

• TOSHIBA SKS80 — **Call for the BEST PRICE!**

BEST VALUE:

- OLYMPUS VX406
- OLYMPUS VXS405
- KYOCERA KD5010
- RICOH R620
- PANASONIC PV420
- CANON E708
- CANON E77KIT
- CANON F1000S
- CANON CG9825
- and MANY MORE!

SUPER PRICE REDUCTIONS:

- HITACHI 3100
- TOSHIBA SKS80
- GR25U
- SONY CCDF30
- PANASONIC PV460
- PANASONIC PV330
- GE CG9810
- GE CG9808
- GE CG9806
- MINOLTA 1400
- MINOLTA C50
- MINOLTA 8200

CANON E708 E70 & E77



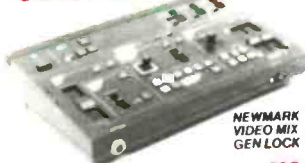
Call For Lowest Price!

VCR's - VHS & BETA



- 4 HD VHS **\$259**
- 4+2 HD Hi-Fi ST MTS **\$359**
- 4+2 SUPER VHS Hi-Fi MTS SUPER & FLY ERASE **\$699**
- 4+2 SUPER VHS Hi-Fi MTS SUPER & FLY ERASE w/DIGITAL **\$985**
- VHS RECORDER **\$200**
- BETA DECK **\$300**
- PLAYER ONLY **\$159**
- AC/DC **\$198**
- 8mm & STEREO PCM Hi-Fi PORT **\$700**
- 13" TV VCR PANASONIC **\$550**
- 5" TV PLAYER ONLY **\$399**

SPECIAL EFFECT & CHARACTER GENERATORS



- ZENITH Source Selector/ RCA 5 in-3 out **\$98**
- ZENITH Character Generator **\$219 Call**
- SANSUI Character Generator VCG99 **\$319 Call**
- NEWMARK VAM2000 Digital Dissolv **\$199**
- JVC JXW9 Special Effects **\$350**
- JVC Color Corrector **\$199**
- SANSUI VX99 **\$695**
- VAC312 **\$199 Call**
- AZDEN or NADY Wireless Mics

SUN PAK VIDEO LIGHT



- #150 **\$88** • #300 **\$119.00**
- NP77 **\$68** • P6120 8mm SONY **\$6.50**
- SUPER VHS TAPE (T120) **\$10.00**

TV's

- 20" REMOTE COLOR TV MTS STEREO **\$299**
- 9" AC-DC COLOR ZENITH **\$219**
- SUPER 30" TV **\$1199**



700 LINE 50" w/MTS SURROUND 46" PNP TOSHIBA, PIONEER SONY JVC

AUDIO HI-FI RECEIVERS



LASER DISC COMPACT DISC RECEIVERS

CAR STEREO

JVC • SONY — Call



FAX MACHINES

- SHARP UX80 ... Call
- UX140 ... Call
- MURATA M1200 **\$675**



FOR MORE INFO, Call: **WE WILL MATCH OR BEAT ANY LEGITIMATE PRICE**
(201) 696-6531 **FEDERAL EXPRESS AVAILABLE**

Call Toll-Free: **1 (800) 444-6300**
Orders: **1 (800) 247-4654**

We ship within 24 hours. All prices quoted included manufacturer's standard accessories & U.S. Warranty. All units are factory sealed. Shipping & handling extra. Not responsible for typographical errors. S&H non-refundable.

JAZZ

force of their personality, their enviable grace and intonation, and the familial hand-in-glove authority of their vocal blend. The duo scores points, also, by somehow avoiding the slightly incestuous vapors that billow up when other male-female family members get together to sing about love and lust.

Producer Steve Roberts, who discovered the Sanders a decade ago when they were playing the forty-ninth state's rough-and-tumble bars, provides crisp, uncluttered backing and achieves exceptional separation of the instruments. Best of all, he keeps the album country, yet modern, and he shows his good taste in selecting David Schnauffer and Herb McCullough's lovely *Starry Lullaby*, which gets my vote as the theme song of a kinder, gentler nation. A keeper all around. *A.N.*

SIMPLY RED: *A New Flame*. Simply Red (vocals and instrumentals); vocal and instrumental accompaniment. *It's Only Love; You've Got it; To Be with You; More; Turn It Up*; and five others. ELEKTRA 60828-1, © 60828-4, © 60828-2 (41 min).

Performance: *Soul par excellence*
Recording: *Fine*

Vocalist Mick Hucknall of the British group Simply Red knows that when it comes to soul, what you leave out is as important as what you put in. There's not one superfluous note in this lean, cleanly produced album of love songs. The way Hucknall contains his voice is a considerable part of his talent: You never doubt that there's plenty of power in reserve, and when he chooses to let it loose, the results are therefore all the more thrilling.

Vocal arrangements are the focus of "A New Flame." Hucknall and his back-up singers exploit the dynamic range of their voices in stirring ways. In *More* they rise from a whisper to a full-throated fortissimo, pouring on the intensity to illustrate a mounting desire for physical closeness. All the way through "A New Flame" Hucknall courts eroticism, though in a much less ribald way than, say, Prince. In other words, he doesn't talk dirty, although he does spell out his agenda: "I want to be with you/Talk to you/Sleep with you/Make love to you," he implores in *To Be with You*.

The musicians in Simply Red are selfless and unobtrusive, staying out of the limelight for the sake of the song. Generally, keyboards block out the chords and drums tap out a pulse, with the remaining instruments providing support and coloration. The group's lack of ego and abundance of emotion indicate that they have both an intellectual and an intuitive grasp of what soul is all about. "A New Flame" doesn't deliver any knockout punches, but it will gradually grow on you until you can't get it out of your head—and believe me, you won't want to. *P.P.*

JAZZ '84—HIGHLIGHTS FROM THE NINTH MOSCOW JAZZ FESTIVAL. Novosibirsk Jazz Orchestra; M. Yuldybayev's Stardust Ensemble; Leonid Vintskevich; others. *Stardust; Manteca; I Got Rhythm; Embraceable You; Free Jazz Dialogue; Festival Blues*; and seven others. MOBILE FIDELITY © MFCD 894 (68 min).

Performance: *Western*
Recording: *Fine remote*

We all know that Russia is changing. These days, the nightly network news broadcasts are fond of showing us pizzas in Red Square and rock in Riga. They have also done jazz-invasades-Russia bits, one of which featured a visit by saxophonist Grover Washington, Jr.—a bad choice, especially when you hear what the Russians themselves are capable of producing. And if you think all the changes have occurred in the past couple of years, listen to this recording from the 1984 Moscow Jazz Festival, the *ninth* such event.

Licensed from Melodiya, this CD features some of the U.S.S.R.'s most accomplished jazz musicians and composer/arrangers, and it reflects a diversity of styles ranging from Dixieland to fusion. There is also an impressive dose of originality in this nearly seventy-minute offering. Pianist Leonid Vintskevich's *Fragment from an Improvisation on a Song from Russia's Central Region*, for instance, is not only a mouthful but also an earful, with a high NPM (notes per minute) count. Then there is *The Bells Were Pealing in Novgorod* by the V. Konovaltsev Chamber Jazz Orchestra, a Russian folk song given a Cannonball Adderley touch. These are clearly not the expressions of artists who have been sheltered from jazz. We send Grover Washington to Russia and, so far, the Russians have paid us back in kind by sending us inferior groups, but let's hope some of the truly talented

Mel Lewis: team spirit



artists heard in this album will also be heard in the U.S. in person. *C.A.*

STANLEY JORDAN: *Flying Home*. Stanley Jordan (guitar); instrumental accompaniment. *Street Talk; Tropical Storm; The Music's Gonna Change; Can't Sit Down*; and five others. EMI MANHATTAN E1-48682, © E4-48682, © E2-48682 (47 min).

Performance: *Boring*
Recording: *Good*

Sad to say, it looks as if jazz fans can chalk up yet another loss to pop, at least judging by this latest Stanley Jordan album. Jordan *can* make his guitar sing, but in "Flying Home" he falls back on easy-listening clichés that slip in one ear and out the other. I think it's a terrible waste of talent—there *has* to be a better way for Jordan to make money in the music business. *C.A.*

MEL LEWIS: *Naturally!* Mel Lewis Jazz Orchestra (instrumentals). *Cherry Juice; My Centennial; Easy Living*; and three others. TELARC © CD-83301 (46 min).

Performance: *Promise*
Recording: *Very good*

MEL LEWIS: *Soft Lights and Hot Music*. Mel Lewis Jazz Orchestra (instrumentals). *Compensation; Off the Cuff; The Touch of Your Lips; Lester Left Town; It Could Happen to You*; and four others. MUSICMASTERS © CIJD 60172F (65 min).

Performance: *Fulfillment*
Recording: *Very good*

A mainstay at New York's Village Vanguard for twenty-two years, the Mel Lewis Jazz Orchestra continues to keep the big-band spirit alive. Formerly known as the Thad Jones-Mel Lewis Orchestra, the band draws on New York session men for manpower and on its remaining leader for sheer drive. "Naturally!" was the 1979 recording debut of a new edition of the band. It's a fine but, as running time on CD's goes these days, fairly skimpy set devoted to compositions and arrangements by the late co-leader, Thad Jones, who had left to pursue a separate career. "Soft Lights and Hot Music" features more familiar material recorded nine years later, by which time Lewis's sole leadership was firmly established and the band had an identity of its own. Both recordings are all-digital, both reflect the precision and team spirit that has always marked this band, and both contain a wealth of fine solos. My preference, however, is for "Soft Lights and Hot Music," a more eclectic set that offers riper solos and sensibly avoids lingering spotlights on the leader's drums. Best to acquire both sets. *C.A.*

INDEX TO ADVERTISERS

READER SERVICE NO.	ADVERTISER	PAGE NUMBER
60	Adcom	41
9	Alpine	56
192	American Int'l Audio	98, 99
58	API-Energy	85
67	Blaupunkt	50-51
	Boston Acoustics	12
157	Cambridge SoundWorks	46-47
	Carver	9, 17
	CBS Columbia House-CD Club	25
68	Cooustic	27
38	Cooustic	29
18	Cooustic	31
8	Cooustic	33
	Crutchfield	32
	Delco Electronics	86
71	Discount Music Club	88
1	Electronic Wholesalers	101
58	Energy	85
	Harman Kardon	10-11
66	Highvoltage	100
	Illinois Audio	94
19	Infinity Systems, Inc.	Cover 2, 1
39	J&R Music World	90-91
2	Klipsch	21
29	McIntosh	36
74	Nakamichi	34-35, 100
35	Omnispeaker	80
	Perfectbound Press	52
	Philip Morris-Merit	43
	Pioneer-Car	54-55
	Pioneer-Home	18-19, 22
90	Polk Audio	6-7
	PolyGram	89
93	Proton	Cover 3
	Radio Shack	83
	R. J. Reynolds-Camel	15
	R. J. Reynolds-Magna	49
99	Sansui	Cover 4
103	Sherwood	4
104	Shure Bros.	88
105	Signet	44
59	Sonance	53
106	Sony	2
119	TDK	8
35	Tripod Int'l-Omnispeaker	80
	Wisconsin Discount Stereo	97
	Yamaha	45

APRIL

STEREO REVIEW RETAIL MART

Where to buy Polk Speakers

AUTHORIZED HOME DEALERS

CANADA Call Evolution Technology, Toronto for nearest dealer: 1-416-335-4422

AK Anchorage: Magnum Electronics • Fairbanks: Hort's

AL Birmingham: Audition • Dothan: International Audio • Huntsville: Sound Distributors • Mobile: Hi-Fi Zone • Montgomery: The Record Shop • Tuscaloosa: Kincaid Stereo & TV

AR Ft. Smith: Stereo One • Little Rock: Leisure Electronics • Searcy: Softmart

AZ Flagstaff: Sound Pro • Phoenix/Mesa: Hi-Fi Sales • Tucson: Audio Emporium • Yuma: Warehouse Stereo

CA Bakersfield: Casa Moore • Campbell: Sound Goods • Canoga Park: Shelley's • Chico: Sounds By Dave • Corona Del Mar: Pacific Coast Audio Video • Davis: World Electronics • Eureka: Eureka Audio Video • Lancaster: California Soundworks • Mountain View: Sound Goods • Napa: Futurvision • Orange: Absolute Audio • Penngrove: California Stereo • Redondo: Systems Design • Sacramento: Good Guys • San Diego: Sound Company • San Francisco & Suburbs: Good Guys Stereo Store • San Gabriel: Audio Concepts • San Jose: Good Guys • San Luis Obispo: Audio Ecstasy • Santa Barbara: Creative Stereo • Santa Cruz: Sound Wave • Santa Maria: Creative Stereo • Santa Monica: Shelley's Stereo • Sherman Oaks: Systems Design • Stockton: Gluskins • Thousand Oaks: Creative Stereo • Ukiah: Music Hut • Upland: Audio Haven • Ventura: Creative Stereo • Victorville: Incredible Sounds • Westminster: Videotek Stereo

CO Boulder: Soundtrack • Colorado Springs: Sunshine Audio • Denver & Suburbs: Soundtrack • Pueblo: Sunshine Audio

CT Avon: Hi-Fi Stereo House • Danbury: Carlson's • Fairfield: Audio Design • Greenwich: Al Franklin's • Hartford: Al Franklin's • New Haven: Audio Etc. • Newington: Hi-Fi Stereo House • New London: Roberts • Norwalk: Audiotronics • Waterbury: Zino Music

DE Wilmington: Bryn Mawr Stereo

FL Daytona Beach: Stereotypes • Ft. Myers: Stereo Garage • Ft. Lauderdale: Sound Advice • Ft. Pierce: Sound Shack • Ft. Walton Beach: Audio International • Gainesville: Electronics World • Jacksonville: Audio Tech • Key West: Audio International • Lakeland: Sound Factory • Merritt Island: Southern Audio • Miami: Electronic Equipment Co. • Sound Advice • Naples: Stereo Garage • Orlando: Audio Spectrum • Panama City: WattSound Stereo • Pensacola: Fidler Hi-Fi • Sunrise: Sound Advice • St. Petersburg: Cooper for Stereo • Sound Advice • Tallahassee: Stereo Store • Tampa: Sound Advice • W. Palm Beach: Electronic Connection • Sound Advice

GA Athens: Hi-Fi Buys • Atlanta & Suburbs: Hi-Fi Buys • Augusta: Stereo City • Brunswick: H&H Service Store • Columbus • Merrill TV • Macon: Georgia Music • Savannah: Audio Warehouse • Valdosta: Stereo Connection

HI Honolulu: Honolulu Audio Video

IA Davenport: Gong's Music • Des Moines: Audio Labs • Dodge City: Sound World • Dubuque: Beners • Iowa City: Hawkeye Audio • Mason City: Sound World • Waterloo: Team

ID Boise: Stereo Shoppe • Sandpoint: Electracraft • Twin Falls: Audio Warehouse

IL Alton: Reliable Stereo • Aurora: Stereo Systems • Carbondale: Southern Stereo • Champaign: Good Vibes • Chicago & Suburbs: United Audio • Decatur: J.R. Lloyd's • DeKalb: Audio Plus • Highland Park: Columbia • Joliet: Stereo Systems • Kankakee: Barrett's Entertainment • Lansing: Audio Clinic • Naperville: Stereo Systems • Normal: Sundown One • Peoria: Team Electronics • Rockford: Columbia • Springfield: Sundown One • Spring Valley: Audio Labs • Vernon Hills: Alan's • Waukegan: Alan's

IN Bloomington: Campus Audio • Bluffton: Eley TV & Appliance • Evansville: Riskey's • Ft. Wayne: Classic Stereo • Indianapolis: Ovation • Lafayette: Good Vibes • Marion: Classic Stereo • Michigan City: Audio Connection • Muncie: Classic Stereo • South Bend: Classic Stereo • Terre Haute: Stereo Crafters

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

KY Bowling Green: Audio Center • Lexington: Ovation Audio • Louisville: Audio Video Buy Design • Owensboro: Paducah: Riskey's • Pikeville: Mayo Inc.

LA Lafayette: Sound Electronics • Metairie & New Orleans: Alterman Audio • Opelousas: Sound Electronics

MA Boston: Watham Camera & Stereo • Fitchburg: Fitchburg Music • N. Dartmouth: Sound II • Pittsfield: H.B.S. Stereo • Worcester: O'Connors

ME Bangor: Sound Source • Camden: Harbor Audio • Portland: New England Music

MD Annapolis: Spaceways • Baltimore: Soundscape • College Park: Spaceways • Gaithersburg: Audio Buys

MI Ann Arbor: Absolute Sound • Hi-Fi Buys • Birmingham: Almas Hi-Fi • Dearborn: Almas Hi-Fi • Farmington Hills: Almas Hi-Fi • Flint: Stereo Center • Grand Rapids: Classic Stereo • Kalamazoo: Classic Stereo • Lansing/Midland: Hi-Fi Buys • Petoskey: Kurt Music • Royal Oak: Absolute Sound • Court St. Listening Room • Traverse City: Kurt Music

MN Duluth: Mel's TV & Audio • Mankato: Audio King • Minneapolis & Suburbs: Audio King • Rochester: Audio King • St. Paul: Audio King

MO Cape Girardeau: Stereo One • Columbia: Johnson Audio • Rolla: End of the Rainbow • St. Louis: Sound Central

MS - Hattisburg: McLeland TV • Jackson: Hoopers • Pascagoula: Empress

MT Billings: Video Sal & Sound • Bozeman: Thrifty Ear • Great Falls: Rocky Mountain Hi-Fi • Missoula: Aspen Sound

NC Boone: Holtons • Chapel Hill: Stereo Sound • Charlotte: Audio Video Systems • Concord: Hi-Fi • Greensboro: Stereo Sound • Hendersonville: Pro Sound • Kinston: Stereo Concepts • Moorehead City: Anderson Audio • New Bern: Anderson Audio • Raleigh: Audio Buys • Stereo Sound • Rocky Mount: Microwave Audio • Wilmington: Atlantic Audio • Wilson: Modern Stereo • Winston Salem: Stereo Sound

ND Bismarck: Pacific Sound • Fargo: Today Electronics

NE Kearney: Midwest Audio • Lincoln: Stereo West • Omaha: Stereo West • York: Midwest Audio

NH Concord: Audio of New England • Laconia: Lakeside Stereo • New London: North Star • Salem: Cuomo's

NJ East Brunswick: Atlantic Stereo • Maple Shade: Bryn Mawr Stereo • Montclair: Perdue Radio • Raritan: AC Audio • Ridgewood: Soundring Board • Shrewsbury: Mowmouth Stereo • Toms River: Rands Camera • Wall Twp.: Mowmouth Stereo • West Caldwell: Perdue Radio

NM Alamogordo: O&K Electronics • Albuquerque: West Coast Sound • Carlsbad: Beeson's • Clovis: Lowe Cier • Santa Fe: West Coast Stereo • NV Las Vegas: Upper Ear

NY Albany: Clark Music • Batavia: Unicorn Audio • Buffalo: Speaker Shop • Corning: Chemung • Elmira: Chemung • Fredonia: Studio One • Glens Falls: Audio Genesis • Goshen: Longplayers Stereo • Ithaca: Chemung • Jamestown: Studio One • Manhasset: Audio Breakthroughs • Massena: Hi-Fi Shop • Newburgh: Audio Expressions • New Hartford: Good Vibes Music • New York City: Audio Breakthroughs • Electronic Workshop • Rochester: JB Sound • Scarsdale: Listening Room • Syracuse: Clark Music • Vestal: Hart Electronics • Woodbury: Audio Breakthroughs

OH Akron: Audio Craft • Canton: Belden Audio • Cleveland & Suburbs: Audio Craft • Cincinnati: Stereo Lab • Columbus: Stereo Lab • Dayton: Stereo Showcase • Findlay: Audio Craft • Lima: Classic Stereo • Toledo: Audio Craft

OK Lawton: Hi-Fi Shop • Oklahoma City: Audio Dimensions • Shawnee: Rave Sounds • Stillwater: Cartunes • Tulsa: Audio Advice

OR Beaverton: Stereo Superstores • Eugene: University Hi-Fi • Grants Pass: Sheckells • Medford: Sheckells • Portland: Stereo Superstores

PA Allentown: Bryn Mawr Stereo • Blakely: Hart Electronics • Bryn Mawr: Bryn Mawr Stereo • Camp Hill: Bryn Mawr Stereo • Chambersburg: Sunrise Electronics • Erie: Studio One • Johnstown: Gary's Entertainment • Kingston: Hart Electronics • Lancaster: G'N'T Stereo • Longhorne: Bryn Mawr • Montgomeryville: Bryn Mawr Stereo • Natrona Heights: Stereo Land • Philadelphia & Suburbs: Bryn Mawr Stereo • Pittsburgh: Audio Junction • Quakertown: Bryn Mawr Stereo • Reading: G'N'T Stereo • Selinsgrove: Stereo Shoppe • State College: Paul & Gary's Stereo • Stroudsburg: Main St. Audio Video • Westport: Audio Insights • Williamsport: Robert M. Sides

PR PUERTO RICO Rio Piedras: Precision Audio

RI N. Providence: Eastern Audio

SC Anderson: Music Machine • Charleston: Audio Warehouse • Columbia: Music Machine • Greenville: Mitchell's Stereo, Music Machine • Greenwood: Stereo Shop • Spartansburg: Stereo Shop

SD Aberdeen: Engel Music • Rapid City: Team Electronics • Sioux Falls: Audio King

TN Chattanooga: R&R TV • Cookeville: Lindsey Ward • Jackson: New Wave Electronics • Kingsport: Audio • Knoxville: Lindsey Ward • McMinnville: Lindsey Ward • Memphis: New Wave Electronics • Nashville: Hi-Fi Buys

TX Amarillo: Sound Systems Ltd. • Arlington: Stereo Idea • Austin: Marcum Electronics • College Station: Audio Video • Corpus Christi: Tape Town • Dallas: Hillcrest Hi-Fidelity • El Paso: Soundquest • Ft. Worth: Sound Idea • Houston: Sheffield Audio • Hurst: Sound Idea • Laredo: Metex International • Longview: Audio Techniques • Lubbock: Electronics Supercenter • San Antonio: Bill Case Sound • San Marcos: Discovery Audio Video • Sherman: Worldwide Stereo • Temple: Audio Tech • Texarkana: Sound Town • Waco: Audio Tech

UT Logan: Stokes Brothers • Ogden: Stokes Brothers • Salt Lake City: Broadway Music • St. George: Boulevard Home Furnishings

VA Bristol: Audition • Charlottesville: Holdens • Sound Machine • Falls Church: Manassas: Audio Buys • Richmond: Gary's Stereo • Roanoke: Holdens • Virginia Beach: Digital Sound

VT Brattleboro: Scientific Stereo • Essex Junction: Stereo Sound • Rutland: Mountain Music

WA Bellingham: OC Stereo • Chelan: Music Store • Oak Harbor: OC Stereo Center • Richland: Tin Ear Stereo • Spokane: Electracraft (Hal's)

WI Appleton: Sound World • Eau Claire: EME Audio Systems • Green Bay: Sound World • Lacrosse: Sound World • Madison: Happy Medium • Milwaukee: Audio Emporium • Wausau: Sound World

WV Barboursville: Beckley, Charleston: Pied Piper • Clarksburg: Audio Visual Concepts • Huntington: Pied Piper • Piedmont: Sound Gallery • Wheeling: Stereo Lab

WY Cheyenne: Electronics Unlimited

polkaudio
The Speaker Specialists®

RETAIL MART

AN EXCLUSIVE MEDIUM FOR ALL RETAILERS OF AUDIO AND VIDEO EQUIPMENT

The STEREO REVIEW Retail Mart is an ideal forum to reach interested audio/video enthusiasts who are active buyers themselves, and who advise others on stereo and video purchases. The Retail Mart is an exclusive section designed to showcase your advertising in STEREO REVIEW, and since the manufacturers of many of the brands you sell consistently advertise in STEREO REVIEW, your impact is even greater!

**CALL US TODAY TO PLACE YOUR AD
IN THE STEREO REVIEW RETAIL MART . . .
AND MAKE STEREO REVIEW READERS YOUR CUSTOMERS!
(800) 445-6066**

STEREO REVIEW RETAIL MART



YOU CAN AFFORD SOMETHING BETTER AT HIFI BUYS

WE CARRY THE BEST STEREO & VIDEO AT THE BEST PRICE!

- | | | | |
|------------------|-----------------|--------------|------------|
| • Advent | • Kenwood | • NEC | • Stax |
| • Bang & Olufsen | • Kicker | • Panasonic | • Thorens |
| • Bazooka | • Magnavox | • Pickering | • Toshiba |
| • Belles | • Mitsubishi | • Sennheiser | • Velodyne |
| • Carver | • Monster Cable | • Sharp | • Yamaha |
| • Denon | • Nakamichi | • Signet | |
| • Infinity | | • Sony | |

14 ATLANTA LOCATIONS (404) 436-1231

**The Best Price
on Sound Advice**

At SOUND STAGE you can talk to a knowledgeable salesperson who will advise you on the best audio or video equipment that meets your needs and budget. From our large selection you can compare performance specifications and prices.

ALL SOUND STAGE equipment includes:

- 30 day best price protection
- free 3-year warranty with parts & labor
- free delivery

PLEASE, NO MAIL ORDER

NAD	CARVER	DENON	BANG & OLUFSEN
ADS	M&K	ENERGY	DBX SOUNDFIELD
CWD	GRADO	ELITE	AUDIO CONTROL
DCM	PULSAR	SIGNET	MONSTER CABLE
NEC	KLOSS	UNGO BOX	
	AMBRIA	TALISMAN	

Call for store hours
(718) 961-9888
Midtown Man-NEW
115 W. 40th
(212) 575-8600
Downtown Man
173 Broadway
(212) 227-6738

184-10 Horace Harding Expy
Fresh Meadow, NY 11365 (Exit 25 LIE)

THE FINEST IN HOME AUDIO, CAR STEREO & VIDEO EQUIPMENT

AUTHORIZED DEALER FOR

- | | |
|------------------|--------------------|
| • ADS | • MISSION |
| • AKG | • MONSTER CABLE |
| • ALTEC-LANSING | • ORION |
| • AUDIO CONTROL | • OLYMPUS |
| • AUDIO PRO | • POLK AUDIO (CAR) |
| • B & W | • PROTON |
| • dbx | • SAE |
| • DENON | • SANSUI |
| • GUL | • SURROUND SOUND |
| • HAFLER | • SNOOPER |
| • INFINITY (CAR) | • SONY |
| • JVC | • SOUND |
| • KENWOOD | • CRAFTSMEN |
| • KICKER | • TERK ANTENNAS |
| • MINOLTA | • CELESTION |
| | • CERWIN VEGA |
- Please, No Mail Orders.

SOUND CITY
Meatdown Shopping Center
Route 23 South
Kinnelon, N.J. (201) **838-3444**

The Sound Seller

For the Musical Difference

Authorized Dealer For:

- | | |
|---------------|---------------------|
| Acoustat | NAD (in store only) |
| Audio Control | Belles |
| Nitty Gritty | CWD |
| M&K | dbx |
| Nakamichi | Fried |
| Oracle | Harman Kardon |
| Polk | 3D |
| PROAC | Ormyo |
| Proton | Grado |
| STAX | Audioquest |
| Thorens | Celestion |
| Dahquist | DCM |
| Hafler | Niles |
| Monster Cable | Kinergetics |
| Citation | Duntech |

1706 Main St.
Mannette, WI 54143
(715) 735-9002

Audio Den Ltd.

Authorized Sales and Service
Residential • Commercial
AUDIO AND VIDEO COMPONENTS
MEDIA ROOMS • SURROUND SOUND • ANTENNAS

- | | | | |
|-------------------------|-----------------------------|----------------|--------------------------|
| • ADCOM (in store only) | • MOTIF | • NITTY GRITTY | • SHURE ULTRA |
| • A R TURNABLES | • NAD (in store only) | • ORTOFON | • SONOGRAPH |
| • CALIFORNIA LABS | • NAKAMICHI (in store only) | • PARADIGM | • SOTA |
| • CAMBER | • N E C | • PINNACLE | • SPECTRAL |
| • CONRAD JOHNSON | • MAGNEPAN | • ROGERS | • STAX |
| • C W D | • MERLIN | • SENNHEISER | • SYNTHESIS |
| • DUAL | | | • TERK |
| • GRADO | | | • THORENS |
| • HAFLER | | | • VELODYNE |
| • KLIPSCH | | | • V P I |
| • MIT CABLES | | | • WELL TEMPERED |
| • MONSTER CABLES | | | • YAMAHA (in store only) |
- SMITH HAVEN PLAZA
2021 NESCONSET HWY (RT 347)
LAKE GROVE, N.Y. 11755
(516) 360-1990

STEREO REVIEW CLASSIFIED

AUTHORIZED

GRADO audio-technica TWEAK

YOUR SEARCH IS OVER!

We specialize in hard to find phono cartridges and original replacement styli.

(800) 221-0906

CALL TOLL-FREE FOR FREE PRICE QUOTES AND VISA/MC ORDERS N.Y. STATE (518) 599-1112

SEND SELF ADDRESSED STAMPED ENVELOPE FOR OUR FREE CATALOG.

LYLE CARTRIDGES
Dept. SR, Box 158
Valley Stream, N.Y. 11582

Phones Open Mon-Sat 9 am-8 pm

ORTOFON SHURE STANTON

TIPTOP LASER MONSTER CABLE

Dynavector Bang & Olufsen PICKERING

High-end and hard-to-find audio components. Low, low prices! AUDIO AMERICA (Virginia). Call 1-703-745-2223.

HIGH-END LOUDSPEAKER systems, speaker kits and the widest selection of raw drivers from the world's finest manufacturers. For beginners and audiophiles. Free catalog. A&S SPEAKERS, 3170 23rd St., San Francisco, CA 94110. (415) 641-4573

PHILIPS, AUDAX, PEERLESS, FOCAL, AND DYNAUDIO LOUDSPEAKERS in stock with good prices and competent services. Crossover components also. MADISOUND SPEAKER COMPONENTS, 8608 University Green, Box 4283. Madison, WI 53711, (608) 831-3433.

STEREO REVIEW CLASSIFIED

FOR MORE ADVERTISING INFORMATION CALL 1-800-445-6066

CALL US LAST

WE WILL
BEAT ANY PRICE
PRINTED IN THIS MAGAZINE ON
AUDIO & CAR STEREO

The SOUND Approach

6067 Jericho Tpke., Commack, NY 11725
FAST DELIVERY (516) 499-7680
FULL WARRANTY

CABLE TV CONVERTERS/DESCRAMBLERS Guaranteed lowest prices in U.S., Jerrold, Hamlin, Zenith—many others! Lowest dealer prices! Orders shipped within 24 hours! MasterCard—Visa—C.O.D. accepted. Free catalog—call (800) 345-8927 only! Pacific Cable Co., Inc., 7325 1/2 Reseda Blvd., 1348, Reseda, CA 91335. All other information, call (818) 716-5914.

ORDER TOLL-FREE 1(800) 222-3465.
DISCOUNTS! AR * AUDIOQUEST * BOSE * B&K * GRADO * HARMAN KARDON * JBL * LAST * LIVEWIRE * MONSTER CABLE * NITTY GRITTY * SONY * STAX * STRAIGHTWIRE * PLUS MORE. HCM AUDIO, 1600 BX MANGROVE, CHICO, CA 95926. (916) 345-1341.

LOUDSPEAKER COMPONENTS—KITS, Eton, Dynaudio, Focal, Eclipse. Catalog \$1.00, Meniscus, 3275S Gladiola, Wyoming, Michigan 49509. (616) 534-9121.

WE SELL MORE HIGH PERFORMANCE SPEAKER KITS than anyone in the U.S. Free catalog: 1 (800) 346-9183. AUDIO CONCEPTS INC.

SINGERS! REMOVE VOCALS FROM RECORDS AND CDs!



SING WITH THE WORLD'S BEST BANDS!

An Unlimited supply of Backgrounds from standard stereo records! Record with your voice or perform live with the backgrounds. Used in Professional Performance yet connects easily to a home component stereo. This unique product is manufactured and sold Exclusively by LT Sound - Not sold through dealers. Call or write for a Free Brochure and Demo Record.

LT Sound, Dept. SR-3, 7980 LT Parkway
Lithonia, GA 30058 (404) 482-4724
Manufactured and Sold Exclusively by LT Sound
24 HOUR PHONE DEMO LINE: (404) 482-2485

EXPERIENCED, FRIENDLY ADVICE! AUDIRE, PS, CWD, STAX, SUPERPHON, THORENS, MIRAGE, GRADO, FRIED, MONSTER CABLE, QUAD, SPICA, STRAIGHTWIRE, more. Immediate, FREE Shipping! READ BROTHERS STEREO, 593-B King Street, Charleston, South Carolina 29403. (803) 723-7276.

SAVE 40% ON HIGH-END home speakers, subwoofers, amplifiers. FREE CATALOG!
RTRD, 3021 Sangamon Ave., Springfield, IL 62702. (217) 529-8793.

GET LOW PRICES ON ALL

types of audio equipment — including high-end and esoteric products not normally discounted. Now we can **SAVE YOU MONEY** on the equipment you really want. Extensive selection — no need to settle for second choice. Thousands of satisfied customers world-wide. All products feature USA manufacturer's warranty. Call us for price quotes or friendly, expert advice. Catalog \$1.00. **616-451-3868**. Audio Advisor, 225 Oakes, S.W., Grand Rapids, MI 49503. We accept **VISA/MC/AMEX/DISCOVER**.

SERIOUS AUDIOPHILES DESERVE SERIOUS SERVICE.

And that's what you'll get at Reference Audio Systems. We offer the best in high-end audio and the best in friendly service by our knowledgeable staff. From the latest CD player to a classic mega-watt amplifier, you'll like our surprisingly affordable prices and fast shipping.

Reference Audio Systems

Call Us... (213) 719-1500

Member Better Business Bureau
18214 Dalton Ave, Dept. D, Gardena, CA 90248
Hours: M-F 9 to 6, Sat. 9 to 1 Pacific Time

LOWEST PRICES On over 150 brands Car - Home - Video

For Specials List and Catalog only
800-233-8375

HIGH QUALITY BRANDS—Car, Home, Video including esoteric. Audio Unlimited, 1203D Adams Ave., La Grande, Oregon 97850. (503) 963-5731.

LOW PRICES!! Yamaha, Denon, Carver, Adcom, Boston Acoustics, Luxman, Haller, A/D/S, B&K, KEF, Onkyo, Proton, Bose, Snell, DCM, M&K, P.S. Audio & many others!! SOUND ADVICE: (414) 727-0071.

CALL TOLL FREE! 1 (800) 826-0520.
KINERGETICS, ACOUSTAT, DAN, HARMAN KARDON, PROTON, AUDIO CONTROL, NITTY-GRITTY, M&K, STAX, PROAC, DAHLQUIST, CELESTION, BELLES. dbx, FRIED, ORACLE, THORENS, MONSTER, CWD, ONKYO. 3D. GRADO, DCM. CITATION. NILES. AUDIOQUEST. SOUND SELLER 1706 MAIN MARINETTE, WI 54143. (715) 735-9002.

"STEREO WORLD" IS YOUR DISCOUNT MAILORDER SOURCE WITH SUPER DEALS ON AUDIO/VIDEO AND CAR STEREO LINES INCLUDING: TECHNICS, MAGNAVOX, PANASONIC, JVC, SONY, PYLE, PIONEER, SHERWOOD, PHILIPS CAR, CLARION, BLAUPUNKT, AIWA, ADVENT, JENSON, G & S DESIGNS AMPS AND MANY OTHERS. CALL OR WRITE FOR FREE CATALOG. FREE UPS IN 48 STATES. 10AM-6PM MON-FRI; WEDNESDAY TIL 9PM. VISA MC/COD EXTRA. P.O. BOX 596, MONROE, NY 10950. (914) 782-6044.

FOR SALE

CARVER, NAKAMICHI, BANG & OLUFSEN, A.D.S., CROWN, REVOX, TANDBERG, HAFLER, ADCOM, MISSION, N.A.D., HARMAN/KARDON, KYOCERA, YAMAHA, LUXMAN, DENON, KLIPSCH, B&W, KEF, D.C.M., E-V, J.B.L., INFINITY, D.B.X., AKG, AND OTHER QUALITY COMPONENTS. BEST PRICES—PROFESSIONAL CONSULTATION. ALL PRODUCTS COVERED BY MANUFACTURERS' U.S.A. WARRANTY. OPEN 24 HOURS A DAY. AMERISOUND SALES, INC., EAST: (904) 262-4000; WEST: (818) 243-1168.

ATTENTION DENON CUSTOMERS

Not everyone offering Denon products for sale is an authorized Denon dealer. This has great significance to you as a potential Denon customer.

Denon America's warranty applies to the original purchase only. Denon products sold by non-authorized dealers are not covered under our warranty.

Additionally, some of this equipment may have been designed for foreign markets and therefore will not meet Denon America's specifications.

So look for the Authorized Denon Dealer Sticker before you buy.



To find your nearest
AUTHORIZED Denon Dealer call:
1-201-575-7810 (9:00am - 5:00pm EST)

CUSTOM HANDCRAFTED LOUDSPEAKERS. AFFORDABLY PRICED! \$1 BROCHURE. GUARANTEED! ETL 1100 ENGLISH, SUITE 314, ROCHESTER, NY 14616.

STEREO REVIEW CLASSIFIED

FOR SALE

SHURE • MONSTER CABLE • GRADO

We Are Proud To Offer
A LARGE SELECTION OF:
**NEEDLES
CARTRIDGES**

TOLL FREE
(800) 342-9969
*High Quality Turntables
& Accessories in Stock...*

M&Y CO.
8344 Melrose Ave.
Los Angeles, CA 90069

Featuring

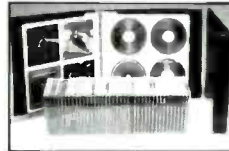
- ORTOFON
- SHURE
- GRADO
- DYNAVECTOR
- AUDIO TECHNICA
- PICKERING
- SIGNET
- NIFTY GRITTY
- STANTON
- BEYERDYNAMIC
- AUDIOQUEST
- STAX
- CARNEQUE ONE
- THORENS
- MICRO SEIKI
- AND MANY MORE

SIGNET • ORTOFON • BEYERDYNAMIC

COMPACT DISCS

LOW COMPACT DISC prices—Schwann CD and COLOR CATALOGS \$7.00—Mini-Catalogs \$2.00—DUWARS, P.O. Box 6662-D, Greenville, SC 29608.

CD-BINDER 40™



Organize 40 CDs in 1 1/4" space. Your collection protected in soft "safety-sleeve"™ pages.
Our Executive CD-Binder with padded cover only \$29.95 includes shipping in continental U.S. Money-back guarantee. Dealers welcome.

1-800-992-8262

VENTURE

TASKAMICHI AUDIO, FOR ORDER ONLY 1-800-622-HIFI*, FAX 1-206-562-8720 24 Hrs.

*This Toll Free number is for orders only. No other brand names are offered. This ad is our total product line and no price list is mailed out. For customer service or product availability information CALL 1-206-747-9999.
P.O. Box 25583 Seattle, WA 98125 All equipment are U.S.A. Models, Brand New with USA warranty. We ship most orders within 24 hours; receive orders within 1-7 days. 2 weeks damage and defect replacement period.
We accept VISA/MC, AMEX, Discover, Diners Club, COD Price are subject to be changed without notice.

Receivers	CD players	Cassette	AM/FM	Denon	Yamaha	Turntables	Loudspeakers
Yamaha RX1100U \$799	CDX5000U \$1799	KX1000U \$599	AX700U 479	LV-109 1,249	PA400M 439		
RX300U 639	CDX1100U 979	KX300U 479	AX500U 329	LV-105 1,119	SP10 149		
RX700U 479	CDX910U 559	K460U 359	AX400U 229	T-100 1,049	SP10 149		
RX500U 329	CDX900U 529	K5000U 319	CS500U 359	T-111 249	SP50 119		
RX300U 239	CDX710U 419	K640U 259	DSF-1 799	T-117 509	SP65 249		
Carver AVR-100 \$949	CDX700U 369	KDF700U 469	DSP-3000 1,519	T-407 309	SP20 209		
Rec 150 639	CDX510U 299	KW900U 569	EC200 319	SP300 319	SP7 75		
6500 589	CDX410U 259	KW300U 359	EQ1100 499	PMA1520 799	SP-7 75		
6250 739	CDX610U 489	KW600U 279	DSR-100 239	PMA120 499	FM-15 CALL		
Luxman R-117 \$959	DTL50 \$459	K-105 \$489	MX800 429	TLU80 419			
R-115 649	DTL200 II 559	K-106 469	MX600 679	TLU60 329			
R-113 369	D-90 369	K-112 239	MX1000 959	TLU50 239			
Denon DRA1025R \$789	D-111 299	Denon D-111 299	MVS-1 119	NAD TT500 \$479			
DRA825R 679	D-112 419	DRM300HR 549	SP50 279	TT500 199			
DRA95A 529	D-107 729	DRM24HX 369	TX-500 269	KEF R1042 1,499			
DRA625 449	D-109 1,249	DRM12HX 279	TX-900 329	Kube 299			
DRA425 399	Denon DCD3020 \$1,349	DRM10HX 229	TX-1000 449	104-2 1,039			
	DCD3030 1,199	DRM10R-R C1	400T \$999	219 102			
	DCD330 889	NAD C9 369	4220 4220	109 978			
	DCD1520 669	NAD C7 209	4300 4300	102 649			
	DCD1500 II 499	CI 209	499 499	978 978			
	DCD1400 369	CI 209	499 499	578 578			
	DCD810 339	CI 209	499 499	418 418			
	DCD300 289	CI 209	499 499	338 338			
	DCD610 249	CI 209	499 499	278 278			
	DCD600 219	CI 209	499 499	198 198			
	DCM655 469	CI 209	499 499				
Nakamichi SR3A \$589		Separates Yamaha TX11A 589	EC200H 1189	B & W DMS70 \$1,069			
SR2A 369		Nakamichi PA100 109	PA150 189	Math2 \$1,199			
Rotel RBX75 \$519		Luxman LV-112 \$419	LV-117 899	Tannoy Edipie \$219			
RBX85 449				569 569			

Buying and selling new and used audio components! All kinds. AUDIO AMERICA (Virginia) Call 1(703) 745-2223.

ARE YOU INTERESTED in Quality Prewound Audio Equipment? Subscribe to "The Sound Track," published 6 x annually, your listings of items for sale or wanted. \$10 yr. Call or write: Play It Again Sam, 12611-R Madison Avenue, Lakewood, Ohio 44107, (216) 228-0040. MC/VISA.

CASH FOR ALL TYPES of used Stereo equipment. We buy by phone. THE STEREO TRADING OUTLET, 320 Old York Rd., Jenkintown, PA 19046. (215) 886-1650.

WE SELL SECOND HAND high quality audio-video with money back guarantee! Send your name and address for FREE monthly inventory. Ross Stereo, 2423 Morena Blvd. San Diego, CA 92110. (619) 275-3632.

ACOUSTICAL MAGIC IS FLEXIBLE BOROSILICATE CERAMIC COATING. A MODERN DAY SPACE AGE PRODUCT, ADAPTED TO AUDIO. DESIGNED ESPECIALLY FOR SPEAKER ENCLOSURES. GONE IS THE MUFFLED, BLURRED, SOUND OF CONE SPEAKERS. FOR FURTHER DETAILS CALL: 1 (800) 654-4761.

CABLE TV EQUIPMENT SUPPLIES LIST. Send \$2.00 to ELK COMPANY, POB 293, Portland, CT 06480.

DISCO/STAGE LIGHTING AND SOUND EQUIPMENT. Foggers-trusses-mixers-etc. New and used. FREE WHOLESALE CATALOG. Phone: (502) 782-1172.

GOVERNMENT SURPLUS

IS IT TRUE you can buy jeeps for \$44 through the US government? Get the facts today! Call 1(312) 742-1142, ext. 4670.

RECORDS

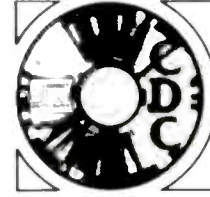
RECORD COLLECTORS SUPPLIES. REPLACEMENT JACKETS, inner sleeves, 78 RPM sleeves, CLD boxes, etc. COMPLETE CATALOG. Cabco, Box 8212, Room 640, Columbus, Ohio 43201.

FREE RECORD, CASSETTE AND COMPACT DISC CATALOG: Features a tremendous selection of remaindered LP new releases at discount prices. Many imports and smaller labels offered. Prompt delivery. Rose Records, Dept SR.214 SO. Wabash Avenue, Chicago, IL 60604.

SOUNDTRACK & ORIGINAL CAST COLLECTORS Largest selection of in-print, out-of-print, foreign, and domestic records, CD's. Free Catalog. Soundtrack Album Retailers, Dept. SR24, Box 487, New Holland, PA 17557. (717) 656-0121.

COMPACT DISCS

OVER 8000 USED CD's \$4.99 to \$9.99. Buy Sell, monthly catalog. Shipping \$2.50 per order UPS. Fast service for over 3 years. Visa MC. Audio House CD Club, 4304 Brayan, Swartz Creek, Michigan 48473. (313) 655-8639.



COMPACT DISC CENTER
P.O. Box 6165, Clifton Park, NY 12065
NY (518) 383-4855
Outside NY—To Order Only
Call 1-800-333-4422
STARTING DISCS AT \$12.99
Quantity Discount Pricing
\$2.75 Cont. U.S. Shipping
FREE CATALOGUE

COMPACT DISCS—At low warehouse prices. Now in our 5th year. CATALOG: Send \$2.00, OZ ENTERTAINMENT, 1575 P Highway 29, Lawrenceville, GA 30044.

TAPES

3.95 SHIPPING ANY SIZE ORDER, UPS 1-800-245-6000

IDK	LINEAR	SONY	MAXELL
MAX 60 5.99	IR 15 2.99	SONY US-90 2.29	MR 90 2.99
MAX 90 5.99	IR 30 2.99	SONY US-90 2.29	EL15 90 2.49
MAX 120 5.99	IR 45 2.99	SONY US-90 2.29	EL30 90 2.99
MAX 150 5.99	IR 60 2.99	SONY US-90 2.29	UD90 90 2.79
MAX 180 5.99	IR 75 2.99	SONY US-90 2.29	EL 135 90 3.79
MAX 210 5.99	IR 90 2.99	SONY US-90 2.29	UD90 90 2.79

TAPE WORLD 220 SPRING ST. BUTLER PA 16001
TRIAD, DAT CALL

AMPEX OPEN REEL TAPE—USED ONCE, 1800' OR 2400' (BOXED)—10 Reels: \$25.00. Sample: \$2.50. Also: New MAXELL reels/cassettes. AUDIO TAPES, BOX 9584-R, ALEXANDRIA, VA 22304. (703) 370-5555 VISA/MC.

SHORT BLANK TAPES. C-10, C-20, etc. BASF, clear shells. (818) 567-2277 (collect). Classic Cassettes of California.

CAR STEREO

CONFESSIONS OF A PROFESSIONAL INSTALLER--300 pages: "HOW TO BUY CAR STEREO" --\$14.95. Satisfaction Guaranteed! 1(800) BE4-UBUY.

CAR STEREO SALE-HIGH END BRANDS NAMES-LOW PRICES! CALL B. J. AUDIO (513) 662-3351.

BUSINESS OPPORTUNITIES

MAILORDER OPPORTUNITY! Start profitable home business without experience or capital. Information Free. Mail Order Associates, Inc., Dept. 788, Montvale, NJ 07645.

NOW, FAST CASH. EASY. Few dollars make thousands. Investing in real estate, discounted homes, many beautiful, free details. Aspen Consultants, Box 1246, Sykesville, MD 21784.
YOUR OWN RADIO STATION! AM, FM, cable, licensed-unlicensed, transmitters! Broadcasting: Box 130-R6, Paradise, Ca 95969.

STEREO REVIEW MAIL ORDER MART



- Prices subject to change
- Prices exclude shipping charges
- Not responsible for typographical errors

FOR FASTEST SERVICE CALL

(212) 684-6363

OR FAX **(212) 684-8046**

HOURS: MONDAY-FRIDAY, 9AM-7PM EST • SATURDAY 10AM-5PM
or Write Direct: 2 PARK AVENUE, DEPT. 15, NEW YORK, N.Y. 10016

We sell authorized U.S. branded merchandise and parallel imports. All products covered by manufacturer's warranty or New York Wholesaler's exclusive limited warranty. Manufacturer's rebates may not apply. Ask for full details at the time of purchase.

RECEIVERS	DENON	TURNTABLES	PIONEER	SOUNDSTREAM	B&W
YAMAHA	PM4920 499	DENON	6262TR 279	TC308 519	MATRIX 3II 1799
RX1150 New 829	PM4720 389	DP59L 479 DP7F 159	KEH8050 339	SP90 269	MATRIX 2II 1179
RX950 New 679	PM4520 299	DP47F 349 [CS431New129	KEH6050R 279	D60 159	MATRIX 1II 979
RX750 New 479	PM42200 749	DP35F 239 [CS455New189	GMA2000 249	D100 249	DM550 329
RX550 New 329	PM46600 549	DP23 199	DEXM300/CDXV100 779	D200 349	DM560 439
RX350 New 239	PR41100 399	DUAL		TC301 269	DM570 519
	TU460 Call	CS505 249	CDXA20 529	TC303 339	DM580 729
DR41025 749	TU550 249	CS5000 349	CDXR88 489		
DR4825 649	TU800 389	CS7000 Call	XR6100 159	BOSTON	CANTON
DR4625 439			XR7050 259	741 149	GL260 349
DR4425 359	CO PLAYERS	TECHNICS	XR7300 499	751 179	KARAT20 579
DR4325 279	YAMAHA	SL1200 II 349	XR6300 229	767 189	KARAT30 699
	CDX1110 749	SLOD33 149	XR6150 199	C700 159	KARAT40 1029
STRAV1000 519	CDX910 559	SLOD10 69	XR7200 429	C793 259	CT80 1289
STRAV900 369	CDX710 249	THORENS Call For Prices			CT90 1349
STRAV700 319	CDX410 279	PIONEER		POLK SPEAKERS	PLUS C 279
STRAV500 279	CDX510 499	PL570 89		6902 199	PLUS S 479
STRAV300 229	CDX610 499	PL670 109		MM1A 79	
STRAV200 159	DENON	PLL550 199		MM4A 189	ADVENT
	DCM555 469	PL310 299	ADS	MM10A 149	MAESTRO 469
RX222 199	DCD1520 New 649	CAR STEREO'S	320i 399		LEGACY 349
RX555 299	DCD910 New 429	CONCORD CX	300i 300	RADAR DETECTORS	PRODIGY 249
RX777 429	DCD810 329	CKX70 549	PO10 389	SNOOPER D4 Call	PRODIGYII 249
RX999 579	DCD610 269	CKX60 449	PQ8 189	SNOOPER D6 Call	MINI/SUB 159
RX1001 799	SONY	CKX50 349	PH15 189	CBRA3110 99	AR 259
	CDP950 389	CKX40 289	PSS 219	CBRA3170 179	ROCK PARTNERS 179
VSX9300S 649	CDP70 359	CKX30 269	PQ20 589	SPECTRUM II 175	
VSX7300 529	CDP100 449	CKX20 239	S87 299	WHISTLER 2 50	PINNACLE
VSX5300 449	CDP750 279	CKX10 199	INFINITY	BEL 876 129	PN5+ 139
VSX3300 279	CDP570 New 199	JVC	RS452K 109	BEL-VECTOR 189	PN6+ 199
VSX2300S 329	CDP30S New 269	RSRX618 359	RS4692K 149	BEL 844S 189	CASSETTE DECKS
SK2300 199	CDPC30 New 249	RSRX518 329	RS4693K 189	UNIDEN RD9XL 159	YAMAHA
	CDPC30 New 269	RSRX418 279	CS1K 299	UNIDEN RD9 139	KX1200 579
7225 279	PIONEER	RSR48 199	KENWOOD		KX500 New 319
7240 429	CLD1030 639	NAKAMICHI	KRC2000A 189	FAX	KX400 259
7100 589	PDM700 499	RD260 New 269	KRC555 319	SHARP	KX200 209
7400 899	PDM600 409	RD350 349	KDC80 489	UX140 889	KX800 469
7600 1199	PDM500 329	RD460 New 349	KRC757 Special 349	UX160 1039	KXR700 New 489
	PDM400 279	RD500 789	KRC858 479	UX350 1189	KXW202 279
NAKAMICHI	PD7100 399	TD500 629	KRC959 649	FD 420 1169	KXW302 349
TA1A New 269	PD5100 229	TD400 429	KDC90R 649	CANON	DENON
TA2A New 449	PD4100 169	PA000 209	KAC820 259	FAX8 699	DRM24HX 379
TA3A New 629	NAD	PA200 359	BLAUPUNKT	FAX20 929	JRM34HX 439
AMPS & TUNERS	5220 289	PA350 359	DENVER 219	FAX25 1449	DRM12HR 289
YAMAHA	5240 379	PA200 359	PORTLAND 259	TOSHIBA	DRM10HR 239
MX600 New 429	5300 729	PA200 359	LEXINGTON New 419	MURATA	DRW750 329
MX800 New 679	5100 479	ALPINE	LDS ANGELES New 369	6100R 399	
MX1000 New 949	5170 649	7907 679	SAN FRANCISCO New 319	6155 379	
AX900 549	JVC	7903 629	Washington 299	6240 259	
AX700 399	XLMA400 329	7385 469	DENON	6300 729	
AX500 359	XLV222 189	7390 New 469	OCR5520 449	LOUDSPEAKERS	AIWA
CK600 New 559	XLV444 249	7256 299	OCR5220 399	MISSION	ADWX909 549
CK1000 New 949	XLZ555 349	7156 219	DCR5220 279	Argonaut 1249	ADWX505 139
TX900 249	MAGNAVOX	7179 299	DCA3280 249	Freedom 749	ADWX808 329
TX500 199	COB486 New 269	5952 499	DCC8920 649	Renaissance 559	ADF780 349
EQ1100 469	COB482 New 169	5952 499	HIFONICS	761 New 219	ADS27 99
EQ500 249	COB480 New 139	3521 219	THOR Please call for our low prices	762 New 339	ADWX707 229
DSR100PRD 479	COB582 199	3501 169	GEMINI 209	CELESTION	PIONEER
DSP1 689	PORTABLE CO PLAYERS	3523 249	DDIN 299	SL600 1549	CTS600 259
AVC50 439	PANASONIC	3528 249	VULCAN 299	SL65 I 769	CTS800 529
AVX100 559	SONY D4 209	3528 249	EURDPA 299	DL10 II 649	CTW300 159
	SONY D7a 239	3528 249	PLUTO 129	DL8 II 409	CTW500 219
3225 199	SONY D10 289	3528 249	CALLISTO 179	DL6 II 329	CTW700R 309
3240 329	SONY D12 189	3528 249		DL4 II 259	CTW900R 459
3400 639	SONY D15 309	3528 249			
2200 499	SONY D15 309	3528 249			
1300 429	TOSHIBA XR9 199	6265 129			
1700 649	TOSHIBA 9437 259	6394 179			

TIPS FOR MAIL ORDER PURCHASERS

It is impossible for us to verify all of the claims of advertisers. Therefore, the following information is provided for your protection:

1. Confirm price and merchandise information with the seller, including brand, model, color or finish, accessories and rebates included in the price.

2. Understand the seller's return and refund policy, including the allowable return period and who pays the postage for returned merchandise.

3. Understand the product's warranty. Is there a manufacturer's warranty, and if so, is it from a U.S. or foreign manufacturer? Does the seller itself offer a warranty? In either case, what is covered by warranty, how long is the warranty period, where will the product be serviced, what do you have to do, and will the product be repaired or replaced? You may want to receive a copy of the written warranty before placing your order.

4. Keep a copy of all transactions, including cancelled checks, receipts and correspondence. For phone orders, make a note of the order including merchandise ordered, price, order date, expected delivery date and salesperson's name.

5. If the merchandise is not shipped within the promised time or if no time was promised, 30 days of receipt of the order, you generally have the right to cancel the order and get a refund.

6. Merchandise substitution without your express prior consent is not allowed.

7. If you have a problem with your order or the merchandise, write a letter to the seller with all the pertinent information and keep a copy.

8. If you are unable to obtain satisfaction from the seller, contact the consumer protection agency in the seller's state or your local U.S. Postal Service.

Stereo Review MAIL ORDER MART

lets you turn up the volume where your customers are...

Advertising to prime, heavy spending STEREO REVIEW customers is no longer a luxury! Now, with mail order marketer's needs in mind, STEREO REVIEW has launched a Mail Order Mart, a new ad program to enable you to hear up where the customers are. To sell surplus inventory, for example

In today's crowded, competitive market, you can't afford not to be heard by STEREO REVIEW subscribers who spent \$400 million on equipment in 1983 alone. And now, the economical new Mail Order Mart lets you tune in profits at surprisingly affordable rates.

To place your ad in Mail Order Mart,

(800) 445-6066

TO ORDER BY PHONE CALL
(212)575-4792
STORE HOURS:
MON-SAT: 10am-7pm EST
SUN: 11am-5pm EST
TO ORDER OUR NEW
CATALOG SEND \$5 OR
FREE W/ORDER!

6th AVE

ELECTRONICS CITY, INC.
PROVIDING YOU WITH AN ALTERNATIVE!

TO ORDER BY PHONE CALL
(212)575-4792
• WE SHIP C.O.D
• NO DEPOSIT REQUIRED
• EXTENDED SERVICE POLICIES
• AVAIL. ON ALL PRODUCTS

CD PLAYERS

DENON DCM 555

• 6 DISC CHANGER
• 4X OVERSAMPLING
• W RELESS REMOTE

\$398

ADCOM GCD-575	469	PIONEER PD-5100	210
CARVER DTL-200 MKII	539	PIONEER PD-7100	369
DBX DX-5	CALL	REVOX 9-226-5	CALL
DENON DCD-610	249	SONY D-15	259
DENON DCD-810	299	YAMAHA CDX-510	269
DENON DCD-910	389	YAMAHA CDX-910	539
DENON DCD-1520	629	YAMAHA CDX-1110	749
LUXMAN D-111	279	YAMAHA CDX-710	CALL
LUXMAN D-113	389		
LUXMAN D-107	689		
MAGNAVOX CDB-473	199		
MAGNAVOX CDB-650	299		
MAGNAVOX CDB-582	349		
MARANTZ CD-74	499		
NAD 5240	349		
NAD 5300	689		
NAKAMICHI OMS-1A	269		
NAKAMICHI OMS-3A	CALL		
NAKAMICHI OMS-7AII	CALL		
ONKYO DX7500	569		

CD CHANGERS

DENON DCM-555	398
JVC XLM-600	359
MAGNAVOX CDB-486	CALL
NAD 5170	589
PIONEER PDM-500	299
PIONEER PDM-600	389
PIONEER PDM-700	CALL
SONY CDP-C70	CALL
SONY CDP-C100	CALL
TECHNICS SL-P600C	CALL
YAMAHA CDC-610	NEW

SEPARATES

ONKYO A8170

• 80 W.P.C
• CD DIRECT INPUT
• SELECTIVE TONE CONTROLS

\$315

ADCOM GFA-545	439	DENON POA-2400	CALL
ADCOM GFA-555	619	LUXMAN LV-117	869
ADCOM GFA-545	439	NAD 3240PE	299
ADCOM GTP-500	CALL	NAD 2200PE	469
AUDIOLAB 8000A	699	NAD 2600A	CALL
CARVER M-10T	489	NAD 1700	CALL
CARVER TX-11A	569	NAKAMICHI PA-5	849
CARVER M.O.5 T	CALL	PROTON D-1200	629
CARVER CT-SEVEN	CALL	TOSHIBA XB-1900	899
DENON PMA-720	349	YAMAHA AX-900	499
DENON TU-800	369	YAMAHA MX-1000	929
DENON PMA-1520	719	YAMAHA DSP-3000	1389
		YAMAHA DSP-1	CALL

HI-END SPEAKERS

BOSTON ACOUSTIC T 830

• 3 WAY
• 8 WOOFER
• FLOOR STANDING

\$389

ADS MIS	CALL	D. ACOUSTIC PS-103	649
ADS CM6	689	FRIED Q3	440
ADVENT B&BY II	179	INFINITY KAPPA 6	769
ADVENT LESACY	389	INFINITY KAPPA 8	1689
AR POWER PARTNER	249	INFINITY KAPPA 9	CALL
BOSE 2.2	229	INFINITY RS-4000	389
BOSE SE-5	IN STOCK	INFINITY RS-5000	489
BOSE 10.2	CALL	JBL FULL LN IN STOCK	
BOSE ROOMMATES	CALL	JBL 6312	699
B. ACOUSTIC A60DSII	189	KARAT 20	589/pr
B. ACOUSTIC A70SII	249	KEF C55	CALL
B. ACOUSTIC T830	389	KEF C95	969
B. ACOUSTIC T1000SII	889	KEF 103.3	1099
B&W CM1	649	KEF 107	3800
B&W DM566	419	OHM SPEAKERS IN STOCK	
B&W DM58C	699	MISSION 707	369
B&W MATRIX II	1189	KLIPSH FORT	CALL
CANTON PLJS 5	279/pr	SEATTLE SOUND 36	599
CELESTION DL10SII	CALL	YAMAHA NS-10M	269
CELESTION DL6SII	394	WALSH 5	IN STOCK
D. ACOUSTIC PS-10	389		

RECEIVERS

PIONEER VSX 9300

• 125 W.P.C
• PRO LOGIC SURROUND SOUND
• REMOTE CONTROL

\$619

CARVER 6200	579	NAKAMICHI TA-1A	279
CARVER AVR-100	899	NAKAMICHI TA-3A	CALL
CARVER 6250	CALL	NAKAMICHI TA-4A	CALL
DENON DRA-425	339	PIONEER VEX-5300	419
DENON DRA-625	419	PIONEER VSX-7300	499
DENON DRA-1025R	719	PIONEER VSX-9300S	619
DENON DRA-25	CALL	PROTON D-920	449
DENON DRA-825R	CALL	SANSUI SX-1200	789
JVC RX-999 V8K	549	SONY STRAV-900	CALL
LUXMAN R-115	629	TECHNICS SA-R530	CALL
LUXMAN R-117	939	YAMAHA RX-330	239
NAD 7225 PE	269	YAMAHA RX-530	349
NAD 7240	389	YAMAHA RX-700	379
NAD 7600	1199	YAMAHA RX-900	549
NAD 7100	CALL	YAMAHA RX-1100	649

VCRS AND CAMCORDERS

PANASONIC PV-4860

• 1 HEAD
• 1/4" VHS
• SCREEN PROGRAMMABLE REMOTE

\$439

VCR'S

G&E VG-7785	529	MAGNAVOX CDV-474	699
JVC HRD-5000U	739		
JVC HRD-8000U	989		
PANASONIC PVS-4864	699		
PANASONIC PV-4860	469		
NEC N968U	499		
NEC DS-8000U	899		
NEC DS-8000U	699		
TOSHIBA DX-900	CALL		
TOSHIBA DS-970	CALL		

CAMCORDERS

PANASONIC PV-420	999
PANASONIC PVS-350	1569
SONY CCD-F30	869
SONY CCD-F40	809
SONY CCD-V9	1049
OLYMPUS VXS-405	1699
OLYMPUS VX-802	959
MINOLTA CR-8200	1149
PENTA PVC-880	CALL
G&E 9808	1089
RCA CPR-250	899

LASER PLAYERS

PIONEER CLD-1030	699
PIONEER CLD-3030	899
PIONEER LVDI	1099

TURNABLES & CARTRIDGES

DUAL CS-5000B

• 3 SPEED
• BELT DRIVE
• SEMI-AUTO

\$329

AR ES-1	549	TECHNICS SL 1200MKII	339
d&O TX-2	289	YAMAHA PF-800	469
DUAL CS-5000B	329		
DUAL CS-505MK111	239		
DENON DP-23F	199		
DENON DP-59F	466		
DENON SP-35FB	226		
SYNCO REGA	CALL		
THORENS TD-280	249		
THORENS TD-320	54R		

CARTRIDGES

AZDEN YM-PSOVL	119
GRADO SIGNATURE I	149
LAB STANDARD	69
ORTOFON X1MC	89
SHURE V15 TYPE V-MR	149
X3MC	149
X5MC	189

TAPE DECKS

NAKAMICHI CR-1A

• DOLBY B&C • PEAK METERS
• 1 HEAD

\$287

AIWA ADWX909	479	PIONEER CT-W900R	419
AIWA ADF-780	CALL	PROTON 74D	299
AIWA ADWX808	CALL	SONY TC-WR900	429
DENON DRM-10HR	219	TEAC V-285CHX	98
DENON DRM-24HX	319	TEAC AD-4	249
DENON DRM-30HX	389	TEAC W-990RX	CALL
DENON DRM-44HX	CALL	YAMAHA KXW-202	269
LUXMAN K-106	469	YAMAHA KX-430	289
MARANTZ SD-565	389	YAMAHA KX-1200	549
NAD 6300	699	YAMAHA KX-800	CALL
NAD 6240	CALL	YAMAHA KXW-900	CALL
NAKAMICHI CR-1A	287		
NAKAMICHI CR-2A	396		
NAKAMICHI CR-3A	629		
NAKAMICHI CR-7A	1349		

DAT NOW IN STOCK

SONY DTC-100	1399
SONY PORTABLE	2299
ALPINE 5700	1199

CAR STEREO

ALPINE 7385

• TOP OF THE LINE
• PRE-AMP TUNER
• DOLBY B&C

\$479

HEAD UNITS

ALPINE 7156	199	ALPINE 3326	199
ALPINE 7179	269	ALPINE 3528	279
ALPINE 7280	339	CARVER M-240	269
ALPINE 7284	449	DENON DCA-3400	399
ALPINE 7385	479	NAKAMICHI PA-400	379
CLARION CQ-8825RT	CALL	NAKAMICHI PA-300	CALL
DENON DCR-5220	269	PROTON D-230	190
DENON DCR-5520	439	PROTON D-275	319
JVC KSR-618	339	S. STREAM SF-90	269
KENWOOD KRC-757	389	S. STREAM D-200	389
KENWOOD KRC-858	469		
KENWOOD KRC-555	CALL		
NAKAMICHI TD-350	329		
NAKAMICHI TD-450	429		
NAKAMICHI TD-700	769		
NAKAMICHI TD1200MKII	CALL		
NAKAMICHI TD-460	CALL		
PROTON 214CD	389		
SONY XR-7150	CALL		
SONY XR-7200	CALL		
S. STREAM TC-303	319		
S. STREAM TC-305	419		
S. STREAM TC-308	519		

CAR CD'S

ALPINE 5902	489
ALPINE 7905	629
ALPINE 5950	CALL
ALPINE 7907	CALL
KENWOOD KDC-90R	CALL
SONY CDX-A20	649
SONY CDX-88	CALL

SPEAKERS

ADS 300	289
ADS 320I	429
B. ACOUSTIC 767	98
B. ACOUSTIC 797	149
B. ACOUSTIC 763	CALL
INFINITY 63K	149
INFINITY R5693K	169
INFINITY CS1	239
INFINITY R562K	CALL
JBL T95	IN STOCK
NAKAMICHI SP-1010	CALL
PYLE FULL LINE	IN STOCK

AMPS EQ

ADS-PQ8	179
ADS-642	189
ADS-PQ10	369
ADS-PH15	529
ADS-PQ20	598

3 SOUND ROOMS • CAMRECORDER VIDEO ROOM • 7 DAY NO-QUESTIONS-ASKED DEFECTIVE EXCHANGE • 30 DAY HOME TRIAL SPEAKER AUDITION • DELIVERY & SET-UP AVAILABLE.
6th Ave. Electronics is conveniently located at 1030 & 1024 Ave. of the Americas, NY, NY 10018 (Between 38th and 39th Sts.)

RETAIL ONLY
212-391-2777

STORE HOURS:
MON-SAT: 10am-7pm EST
SUN: 11am-6pm EST

We carry a full line of Acoustic Research, Arston, AudioLab, Audio Quest, ADS, Advent, Bose, B&W, Celestion, Citation, DBX Soundfield & Electronics, Dual, Fosgate, Fried, Harman Kardon, Infinity, JBL, J.A. Michell, Kindel, Kenwood Car, Luxman, Magnat, Magnavox, Marantz 94 series, Nakamichi, NAD, Philips, Proton, Revolver, RH Labs, Sansui, Sony, Teac, Thorens and Vintage. ALL PRODUCTS WARRANTED.

ALL MAJOR CREDIT CARDS ACCEPTED





by *Christie Barter*
& *Ron Givens*

OUTSTANDING among the sizable crop of Soviet musicians recently signed by RCA Victor is **Vladimir Spivakov**, who is music director of the highly regarded chamber ensemble that calls itself the **Moscow Virtuosi**, and who is himself an internationally acclaimed virtuoso violinist. The exclusive, long-term contract Spivakov and the group signed with RCA calls for a total of eighteen recordings, which, according to RCA, represents "the most



Spivakov: traveling

extensive collaboration of Soviet musicians with a Western recording company to date."

The first two recordings will be released this summer and fall. One is an all-Shostakovich album containing the composer's First Piano Concerto, the Chamber Symphony, and six of the twenty-four piano preludes in orchestral transcriptions. The other disc is an all-Haydn one, with the C Major Violin Concerto, the D Major Piano Concerto, and the B-flat Major *Sinfonia Concertante*. The piano soloist on both discs is young **Evgeny Kissin**, whose first record under the new RCA contract is among the Best of the Month for April.

Spivakov is in this country right now, appearing as soloist with the Dallas Symphony and in a recital with **Paul Ostrovsky** in St. Paul, Minnesota. He returns for a solo engagement in New York's Mostly Mozart Festival this

summer and will lead the Moscow Virtuosi on a country-wide tour this fall. □

Etta James is definitely on a roll. She performs Jimmy Reed's *Baby What You Want Me to Do* in the Columbia Records album derived from the new film *Tap*, and she's featured in the just-released Capitol soundtrack of *Rooftops*, singing *Avenue D* with **Dave Stewart** of the Eurythmics. There's also an *Avenue D* video in which they both appear (Stewart wrote the song). James's latest album of flat-out blues and raucous soul, "Seven-Year Itch," was released by Island last fall, her first in seven years, and Chess has recently reissued a two-record set of material she recorded in the Sixties and early Seventies. And, for those who consider the recorded Etta too tame, she's been belting it out live in concerts around the country. □

IT'S been eleven years since **Dion DiMucci** last rocked out, and that's why the release of his new Arista album, "Yo Frankie," is a special occasion. Dion recorded a gospel record two years ago, but his last secular LP, "The Return of the Wanderer," came out in 1978. The new release, produced by **Dave Edmunds**, includes new songs by Dion, such as *King of the New York Streets* and *Loving You Is Killing Me*, as well as a cover version of a **Tom Waits** tune, *Serenade*. Dion and Edmunds share guitar duty, and there are background vocals by **Lou Reed**, who early this year inducted Dion into the Rock and Roll Hall of Fame in ceremonies at New York's Waldorf-Astoria Hotel. □

Dion: rocking out



Stewart and James: belting out

LIKE *Evita* and, more recently, *Chess*, **Maury Yeston's** new musical *Goya . . . A Life in Song*, starring **Placido Domingo**, will be marketed as a record album well ahead of its Broadway run in 1990. It's just been released on Columbia Records, as well as CBS Masterworks, CBS Discos, and the new Sony Records label in Japan. It was preceded, too, by three versions, released as singles, of the show's love theme, *Til I Loved You*—one by **Barbra Streisand** and **Don Johnson**, another by **Domingo** and **Dionne Warwick**, and yet another, in Spanish, by **Domingo** and **Gloria Estefan**.

Yeston, you may remember, was the composer of a Tony Award winner, the musical *Nine*, also recorded by CBS. His new show, he'd want you to remember, is related only in subject matter—the Spanish painter **Francisco Goya** (1746-1828)—to the **Gian Carlo Menotti** opera *Goya*, produced by the Washington (D.C.) Opera in 1986, also starring **Placido Domingo**. The opera was never recorded. □

EVER since embarking on a solo career in the early Eighties, **Robyn Hitchcock** has been an alternative-rock favorite. The British singer-guitarist has won a devoted following on the college scene with his eccentric style, but now, with his ninth solo album (his second for A&M),

"Queen Elvis," he seems poised to break through to a larger audience. His regular band, the **Egyptians**, plays on the record, as does **R.E.M.** guitarist **Peter Buck**. Not so coincidentally, Hitchcock will soon be an opening act for **R.E.M.** on a U.S. concert tour. □



Hitchcock: breaking through

WHEN Soviet pianist **Vladimir Viardo** returns to this country in April, he should be pleased to see first copies of the recording of **Rachmaninoff's** Third Piano Concerto he made last fall

CHRISTIAN STEINER/RCA

FBET ROBERTS

A. TANNANBAUM/SYGMA/CAPITOL

LAURA LEVINE/A&M



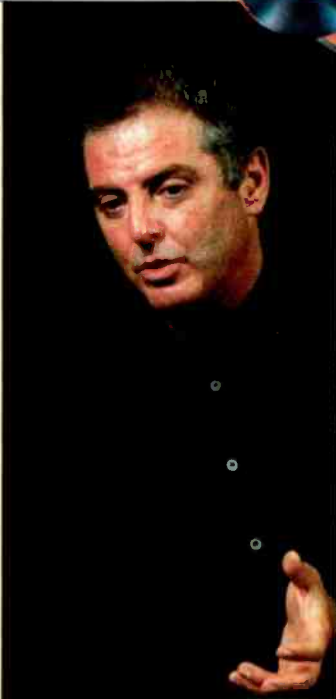
with Eduardo Mata and the Dallas Symphony for Pro Arte. This trip the 1973 Van Cliburn Competition winner is back for recitals in Texas and at Carnegie Hall in New York. □

ALTHOUGH winds of political change recently removed Daniel Barenboim from his position as artistic director of the new, yet-to-open Bastille Opera in Paris, it appears that his future in the world of opera is anything but bleak. Erato, the independent label based in the French capital, has taken him on to record the three Mozart operas with librettos by Lorenzo Da Ponte. The recording sessions, which will involve the services of the Berlin Philharmonic and RIAS Chamber Chorus, are scheduled to take place over a three-year period beginning with *Così fan tutte* in November. *The Marriage of Figaro* will be recorded in May 1990 and *Don Giovanni* in April 1991, the Mozart Year (the two hundredth anniversary of the composer's death).

Barenboim has conducted these works many times over the past six years, notably in Paris, Tel Aviv, and Washington, D.C., but these will be his and the Berlin Philharmonic's first recordings of them.

Barenboim's influence on the cultural life of Paris will be further diminished at the end of the current season when he (voluntarily) steps down as music director of the Orchestre de Paris, which he brought to the U.S. in February on a valedictory tour. But he's covered on that score too. He is set to succeed Sir Georg Solti in 1991 as music director of the Chicago Symphony, and there is talk that he might just conduct the Mozart-Da Ponte cycle with that orchestra as well. □

WHEN Nickolas Ashford and Valerie Simpson put out an album, they can always rely on the help of two top songwriters: themselves. They're the authors of such hits as Ray Charles's *Let's Go Get Stoned*, Marvin Gaye and Tammi Terrell's *Ain't No*



Barenboim: Chicago's gain

Mountain High Enough, and their own 1985 hit, *Solid*. For their new Capitol album, "Love or Physical," Ashford & Simpson wrote all but one song. The first single off the album, their *I'll Be There for You*, was heading up the

Ashford and Simpson: hitmaker songwriters



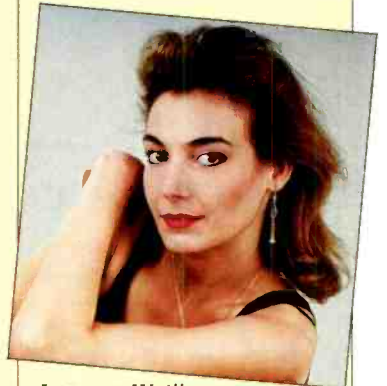
record charts at press time. □

MANY of today's techniques of filming and telecasting classical music events were developed under the guidance of the Media Department of the Lincoln Center for the Performing Arts in New York. A prominent showcase of its work has been the Live from Lincoln Center series on PBS, programs from which are being released, for the first time on videocassette, by Paramount Home Video. The first three, due in stores by mid-April, are *The Barber of Seville* performed by the New York City Opera with Beverly Sills, making her home-video debut; "An Evening with Danny Kaye and the New York Philharmonic"; and American Ballet Theatre's *Giselle*, with Natalia Makarova and Mikhail Baryshnikov. Available in stores in Beta and VHS formats at \$29.95 each, they can also be ordered by phone, toll free: (800) 445-3800, operator 863. □

THE new album by German singer Ute Lemper, "Ute Lemper Sings Kurt Weill," inaugurates an ambi-

tious project being undertaken by London/Decca to record all of Weill's major stage works over the next few years.

Lemper comes to this project, at age twenty-five, with some impressive theatrical credits. She made her stage debut in a Viennese production of *Cats*, she was subsequently hailed in Berlin for her performances as Peter Pan, and she won a Molière Award (the French equivalent of Broadway's Tony) for her portrayal of Sally Bowles in a Parisian production of *Cabaret*. Her current commitment to London/Decca



Lemper: Weill star

includes leading roles in recordings of Weill's *The Threepenny Opera*, which she taped last year; *Happy End* and *Marie Galante*, scheduled for later this year; and *The Seven Deadly Sins* in 1990. The conductor in all three is John Mauceri. □

GRACENOTES. Saxophonist David Murray's "Ming's Samba" on Portrait is his first solo album for a major U.S. label. . . . Nearly all of the albums recorded by the singer-songwriter Tim Buckley, who died in 1975, will be reissued by either Enigma or Elektra in the next few months. . . . Pink Floyd's latest album, "Delicate Sound of Thunder," was requested by cosmonaut A. A. Serebrov to accompany him on the Soyuz 7 during the first French-Soviet joint space mission this winter. . . . Andrew Lloyd Webber's new musical, *Aspects of Love*, will have its London première on April 12. □

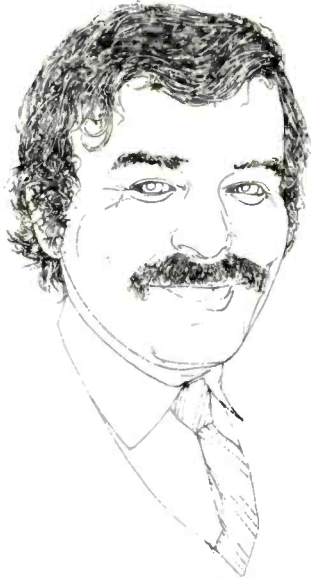
JACQUES SARRAT/ERATO

AUDREY MICHAELS

CAPITOL

THE HIGH END

by Ralph Hodges



THE OHM/WALSH DRIVER

YEARS ago, a visionary named Lincoln Walsh took a look at loudspeakers and perceived the obvious: that an impulse originating at the center of a speaker cone (the voice-coil region) is not going to influence the outlying areas of the cone *immediately*. There will be a brief delay before they get involved in the process of pushing and pulling air, and that delay, inevitable with a cone that is not infinitely stiff, makes for complex acoustical interference. Even though the center and the suburbs may ultimately say the same thing, their doing it at significantly different times creates a garble that, at its worst, is referred to as cone breakup.

One mark of engineering genius is being able to take a liability and turn it into an advantage. Walsh thought that if a cone was deliberately designed to break up in a tightly controlled fashion, some good things might result. Specifically, he thought of impulses that traveled from voice coil to surround in concentric ripples. The rate at which they traveled would be controlled by the cone material they were passing through, and if the slope of the

cone (its included angle) was properly coordinated with the rest of the design, a wavefront that was perfectly coherent (without interference) would emerge.

The first commercial realization of Walsh's concept was the Ohm A, a very large box with a megaphone (the driver) placed mouth-down upon it. The cone of the driver, as implemented by Martin Gersten after Walsh died, was composed of successive rings of titanium, aluminum, and a paper-like material. It had to be hand-tuned, and much of this tuning was necessarily done by ear. At its best, a well-tuned Ohm A fulfilled Walsh's expectations, producing a vertically cylindrical wavefront that expanded into the listening space like an exploding beer can. It was not at all omnidirectional, but it was utterly nondirectional in the lateral plane. It was also grossly inefficient and at the same time quite limited in power-handling capability.

Enter John Strohbeen, a founder of the Tech Hi-Fi chain (now defunct) and obsessed devotee of audio technology. Strohbeen had direct experience at the retail level with the Ohm speakers' shortcomings, and when he took over the company from Gersten, he made improved system efficiency the priority. As Strohbeen tells the story, Gersten had been laboring to reduce the moving mass of the large diaphragm/voice-coil assembly. As he did so, he was, not surprisingly, losing bass response as well.

Strohbeen decided to turn things upside down. Let the Walsh driver be massive enough to maintain low-end response, and let what turned out to be a consequent loss in high-end sensitivity be supplemented by a tweeter. This was a daring step, because said tweeter was going to impose something on the system that Walsh had deliberately tried to avoid: lateral directivity. Yet Strohbeen elected to go ahead anyway. He was not fond of the reflected sonic images that laterally omnidirectional sound sources produce in most domestic rooms, and his wish was to make the *entire* system more directional. He did this by installing acoustical absorption within the grille hood surrounding the two

drivers and arranging it so that the dispersion patterns of the Walsh radiator and the tweeter matched at the crossover point. Of course, he threw away some acoustical output in the bargain, but apparently not enough at critical frequencies to make a serious difference.

The cone material of the new Walsh driver employed for this application became thicker, but it didn't really become more massive in the aggregate because the Walsh principle dictated a shallower cone. The transit time of impulses from center to surround was prolonged, so that the lateral distance from center to surround had to be increased or the vertical distance between center and surround had to be decreased. As it happened, a vertical decrease, making for a smaller and less expensive package, fit into Strohbeen's marketing plans perfectly. Everything was playing right into his hands.

Thus came about the present generation of Ohm/Walsh loudspeaker systems (not to be confused with the other current Ohm products, which are rather conventional in comparison). Strohbeen makes a claim for them that is now almost a cliché, that the stereo image remains stable and satisfactory no matter what the listening position. In my experience, the Ohm/Walsh systems come at least as close to this objective as any of their competition. Unfortunately, the theory of stereo seems to preclude the full realization of such image stability. Strohbeen believes there is something in the nature of coherent sound emanation that causes the ear/brain mechanism to ignore arrival-time and amplitude cues and instead compose a sonic spatial image based on waveform integrity. It is perhaps possible that some ears and brains will do this, but it's never been shown that all are capable of it.

Neither has it really been shown that Ohm's new Walsh driver configuration, which is radically altered from previous versions, truly behaves like a Walsh device. It clearly doesn't when the tweeter takes over. I don't think there's much doubt, however, that the Ohm/Walsh system is an uncommonly fine-sounding loudspeaker. □

Nothing comes remotely close.



Introducing "The System" by Proton.



You're looking at the perfect synthesis of advanced electronics, sophisticated design and uncompromising sound. It's "The System," Proton's incomparable new, integrated audio components with remote control.

There's a fully programmable compact disc player that lets you play up to 20 of your favorite selections—in any order—totally free of distortion or noise.

A digital tuner that locks in the precise station frequency for clean, undistorted listening. Powered by a component-quality amp with 22 watts per channel. An auto-reverse cassette deck with Dolby® B Noise Reduction that plays and records in both directions for continuous enjoyment.

And our AL-200, two-way acoustic suspension speaker system. Its 6.5 inch woofer and wide dispersion dome tweeter

deliver sound so breathtaking, you simply won't believe your ears.

Even the sleek, comfortable remote control is a work of art that's exceptionally easy to work. While you may find a system with similar components as "The System," that's where the similarity ends. Because when it comes to sound, nothing comes remotely close.

Call for your free Ultimate Systems Guide. Proton's Ultimate Systems Guide for Audio/Videophiles tells you all about the innovative technology and design in our renowned line. For your copy, and the name of the Proton retailer nearest you, call (800) 772-0172. In California, (800) 428-1006.

PROTON

CLEARLY THE BEST
5630 Cerritos Ave., Cypress, CA 90630



SANSUI



C R A F T S M A N S H I P



T H E D I S T I N G U I S H E D R Z - S E R I E S F R O M S A N S U I

SANSUI ELECTRONICS CORPORATION P.O. Box 625, 1250 Valley Brook Avenue Lyndhurst, New Jersey 07071, (201) 460-9710
In Canada: Vantage Electronics Corp., Richmond, B.C. (604) 276-9898
CIRCLE NO. 90 ON READER SERVICE CARD