

Stereo Review

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SOUND

HANS FANTEL

An Enduring Speaker Idea Takes a Cue From Concerts

In an industry which lives by compulsive innovation, something merely new is hardly news. What is more remarkable in the fast-changing field of audio is the persistence of an old concept proving its merit over and over again. That's what makes a classic.

Such classics, as noted in a recent column on the Acoustic Research AR turntable and the Ohm/Walsh loudspeakers, have a way of popping up in updated versions, adapted to changing technologies but basically true to their former and familiar selves. One old acquaintance now reappearing in modernized guise is the Bose 901 loudspeaker, whose basic design dates back to 1968 and owes its remarkable lifespan to the seminal ideas of Dr. Amar Bose, a professor at the Massachusetts Institute of Technology.

The kind of imagination basic to creative achievements—whether they be works of art or feats of engineering—usually requires a springboard—a distinctive point of departure. Dr. Bose began by throwing away most established notions about loudspeakers. Recognizing the fact that most of the sound heard at a live performance reaches the listener not directly from the sound source—the musicians' instruments—but by way of reflections from the walls and ceiling, Dr. Bose fashioned a loudspeaker to disperse the sound in a similar way. In consequence, the Bose 901 radiates most of its sound not toward the listener but toward the wall in back of the speaker and toward the sides of the room. Where the rearward and sideways sound hits the walls, it reflects as from a mirror. Surprisingly, this changes the apparent size of the listening room.

This curious effect is more easily understood by analogy to light reflections. Suppose you look at yourself in a mirror from a distance of five feet. Your reflection then appears not in the plane of the mirror itself; rather, your image seems to be standing five feet behind the mirror. Likewise, the sound reflections produced by the Bose 901 seem to be coming not from the wall but from behind the wall. This gives rise to the impression of sitting in a larger space than the actual dimensions of the listening room. Such spatial enlargement contributes to the illusion of hearing music in the kind of acoustic ambiance for which most music was intended. To some degree, this is true of all multidirectional loudspeakers, but the Bose seems particularly effective in its ability to suggest an enlarged environment.

The speaker is unusual in other ways. There are no woofers and tweeters. The sound is generated by nine identical four-inch speakers, each separately chambered within the overall enclosure. To produce full-range sound from this array, a special equalizer is connected to the amplifier as an external device, modifying the amplifier's output to tailor it to the requirements of the speaker. As a Bose engineer explains, "Most speaker designers try

to get proper response by stretching the capabilities of the speaker materials. We think it's easier to compensate electronically for the mechanical properties of the speaker's structural elements."

The nine separate speakers in the single box are so arranged that a group of four radiates sound rearward to one side, another group of four radiates rearward to the other side, and a single speaker faces forward. According to Dr. Bose, this configuration results in a sound field similar to that experienced at a live performance. While the reflected rearward sound creates the feeling of a generous sonic ambiance, the forward-facing speaker pinpoints the locations of the musicians on the imaginary stereo stage, thus contributing to what is called "stereo imaging." To be effective in this manner, the speakers must be positioned at least one foot distant from the wall at their rear. Attractive pedestals are available for this purpose, or the speakers may be hung from the ceiling, taking up no floorspace at all and being visually unobtrusive thanks to the uncommon compactness (21 x 12 x 13 inches).

The new version of the Bose 901—called the Series V—sells for \$1,400 per pair and differs from its precursors by alterations intended to fortify the speaker against the rigors of digital challenges. The dynamic range has been extended to a staggering 106 decibels—more than enough to brave sonic onslaughts from laserdiscs. Despite their masterly way with laserized fortissimi, these speakers nonetheless treat the subtler aspects of music with equal aplomb and do not lose their characteristic fullness and spaciousness of sound at moderate or low volume levels. And since the sound is broadly scattered, one may approach these speakers quite closely without ever feeling sonically blasted.

Their high efficiency allows these speakers to produce room-filling volume levels from relatively modest amplifier wattage. This is also significant for the digital present and future, for it allows the amplifier or receiver to stay within its rated power capacity and avoid overload distortion even at the spectacular sonic peaks typical of many digital recordings. Yet the speakers themselves remain unfazed by even the most powerful signals and can handle as much as 1,000 watts of power—and that third zero is no misprint!

In terms of musical veracity, the Bose 901 ranks with the finest and is convincing with any type of music. From solo piano to massive symphonic scores, everything sounds airy and open. Especially the sound of strings has a pleasing aura of roundedness. Part of this stems from the sound dispersion achieved by this unique design, which goes a long way toward the accomplishing the ultimately impossible task of making an orchestra believable in the living room.



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Many speakers today are supposed to be digital ready. But what happens if there's something beyond digital?

The original Bose® 901® Direct/Reflecting® speaker was ready for digital back in 1968, because it reproduced music with realism and impact never before heard from a speaker. Today's Bose 901 Series V system brings some 350 design improvements to the original's legendary performance. Unlimited power handling and very high efficiency make the Series V speaker ideal for listening to the best that audio currently has to offer—the digital compact disc. And while no one can predict exactly what the audio future has in store, one thing is certain: it will sound better on the Bose 901 system. Hear the legendary speaker that New York Times audio critic Hans Fartel says "... ranks with the finest and is convincing with any type of music" at your authorized Bose dealer soon. For more information, the name of your nearest dealer and a copy of Dr. Amar Bose's famous MIT lecture *Sound Recording and Reproduction* write: Bose Corporation, Dept. SR901, 10 Speen St., Framingham, MA 01701

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The New JBL "L Series"...Bringing Pro Sound All The Way Home.



by Christie Barter and Gordon Sell

STEREO TV ON CABLE

The lack of compatibility between the stereo-TV broadcast system and the nation's various cable-TV networks has been a subject of great concern to many. It turns out that most of the cable systems have no problem sending stereo TV. Others, however, don't deliver stereo sound to their customers for a variety of technical and economic reasons. For the consumer who has just spent several hundred dollars extra to get stereo, it is a bad shock to come home and find the system doesn't work. Anyone who is cable-dependent should call his cable company before buying stereo TV.



PARTON'S NEW PARK

The opening of Dollywood, a theme park conceived by RCA recording artist Dolly Parton, is set for the first week in May. Located at Pigeon Forge, Tennessee, thirty miles southeast of Knoxville, Dollywood was created by Parton to preserve the heritage and mountain lifestyle that she says nurtured her as a child growing up in the area. Indigenous arts and crafts are featured along with regional food, games, and music.

MAIL-ORDER CD'S

Columbia House, the direct-mail record and video club, has launched a Compact Disc club. Inquiries should be addressed to Columbia House at 1400 N. Fruitwood Ave., Terre Haute, IN 47811. The club's toll-free phone number is (800) 457-0500. . . . A new mail-order RCA Video Club offers over a hundred film and music-video titles, with an emphasis on the latter. For further information write the club at P.O. Box 91506, Indianapolis, IN 46291, or phone (800) 428-1928.

NEW TO THE CHARTS

References to Ronald Reagan (not always by name) have begun to turn up in current hit albums. Sting alludes to the President in "The Dream of the Blue Turtles" (specifically in *Russians*, the Top 20 single drawn from the album).

So do the Violent Femmes in their debut album, "The Blind Leading the Naked."

BACK ON THE CHARTS

Another name to add to the roster of major pop artists making significant comebacks these days is that of Little Richard, whose hit single *Great Gosh A'mighty* is from one of the year's hottest movies, *Down and Out in Beverly Hills*. Little Richard thereby joins Tina Turner, Patti LaBelle, Aretha Franklin, and James Brown, whose recent comebacks have won them a whole new generation of fans and record buyers.

CHARITY ROCKERS

Two rock benefits are occurring within two days of each other at opposite ends of the country. The day-long concert at the Rose Bowl in Pasadena, California, on April 26, billed as an anti-drug benefit, will feature celebrity performers like Madonna, George Michael, Mr. Mister, the Pointer Sisters, the Beach Boys, and Sheena Easton. A record album and a film of the event are being planned. . . . The four-hour gala "Rock for Liberty" at Madison Square Garden in New York on April 28 benefits the ongoing restoration of the Statue of Liberty and Ellis Island. The show is being syndicated to some 250 radio stations across the country and will be carried by MTV on cable television.

SOUNDTRACK UPDATED

MCA Home Video has released *The Glenn Miller Story*, the Academy Award-winning bio-film of the popular bandleader starring James Stewart, with what the company describes as "a new stereo surround soundtrack." . . . The soundtrack of Irving Berlin's *Easter Parade*, just released by MGM/UA Home Video, has been reprocessed for stereo and "revectorized," a new technique involving the use of a computer to rid the track of unwanted noise as well as to predict and fill in sounds that presumably *should* be present. *Easter Parade* stars Fred Astaire, Judy Garland, and Ann Miller.

TECH NOTES

"Down with Zippers" is a new Monster Cable promotion that encourages consumers to trade in

their old zipcord for 5¢ a foot. . . . NBC and RCA executives predict that 1986 will be the "breakthrough year" for stereo TV, with more than half the color sets sold having stereo-TV capability. Among broadcasters, NBC leads the way with sixty affiliates broadcasting in stereo. CBS has twenty-five, ABC twenty-three, and PBS twenty-three, while thirty-eight independents are broadcasting in stereo. Some experts predict that around five hundred stations will be broadcasting in stereo by the end of 1986. . . . Audio Source has introduced the LLC-ONE CD-player lens cleaner, which consists of a special brush attached to a CD. The price is \$26.95. . . . The U.S. Navy is investigating taking CD players to sea, and although they will be used to entertain the crews, their chief purpose is to store hundreds of thousands of pages of technical manuals on CD-ROM discs. It is estimated that one disc can store manuals that would consume 8 to 10 feet of shelf space. . . . Sony and Philips have developed specifications for "CD interactive media," which would enable CD players to handle music, computer data, and limited graphics not possible with the current CD standards. . . . Car-stereo amplifier manufacturer Zapco has been engaged by the Ford Motor Company to produce a seven-band graphic equalizer and a subwoofer amplifier for use in Ford car systems. . . . Nearly two years after discontinuing production of the CED videodisc player, RCA has announced plans to stop producing CED discs by the end of June. . . . Blaupunkt has been named the official car stereo of the Long Beach (California) Grand Prix.



TERRY ALLEN

Polk's Revolutionary SDAs



SDA 2
\$625.00 ea



SDA SRS
\$1395.00 ea



SDA CRS
\$395.00 ea



SDA 1A
\$875.00 ea

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

"The Genius of Matthew Polk Brings You the Breathtaking Sound of the SDAs"

"Breathtaking...a new world of hi fi listening"

Stereo Buyers Guide

"Literally a new dimension in sound"

Stereo Review Magazine

"Mindboggling...Astounding...Flabbergasting"

High Fidelity Magazine

The experts agree: Polk's revolutionary TRUE STEREO SDAs* sound dramatically better than conventional loudspeakers!

"They truly represent a breakthrough"

Rolling Stone Magazine

Matthew Polk's critically acclaimed, Audio Video Grand Prix Award winning SDA technology is the most important fundamental advance in loudspeaker technology since stereo itself. Listeners are amazed when they hear the huge, lifelike, three-dimensional sonic image produced by Polk's SDA speakers. The nation's top audio experts agree that Polk SDA loudspeakers always sound better than conventional loudspeakers. Stereo Review said, "Spectacular... the result is always better than would be achieved by conventional speakers." High Fidelity said, "Mindboggling... Astounding... Flabbergasting... We have yet to hear any stereo program that doesn't benefit." Now the dramatic audible benefits of Polk's exclusive TRUE STEREO SDA technology are available in 4 uniquely superb loudspeaker systems, the SDA-1A, SDA-2, SDA CRS and the incredible new SDA SRS.

"Spectacular... Impressive Achievement"

Stereo Review Magazine

The design principles embodied in the SDAs make them the world's first true stereo speakers. When the big switch was made from mono to stereo, the basic concept of speaker design was never modified to take into account the fundamental difference between a mono and stereo signal.

What is the difference between a mono and stereo speaker? It's quite simple: the fundamental and basic concept of mono is that you have one signal (and speaker) meant to be heard by both ears at once. However, the fundamental and basic concept of stereo is that a much more lifelike three-dimensional sound is achieved by having 2 different signals, each played back through a separate speaker and each meant to be heard by only one ear apiece (L or R). So quite simply, conventional mono loudspeakers are designed to be heard by two ears at once while true stereo loudspeakers should each be heard by only one ear apiece (like headphones). The revolutionary Polk SDAs are the only TRUE STEREO speakers engineered to accomplish this and fully realize the astonishingly lifelike three-dimensional imaging capabilities of the stereophonic sound medium.

"An amazing experience."

High Fidelity Magazine

Words alone cannot fully describe how much more lifelike TRUE STEREO reproduction is. Reviewers, critical listeners and novices alike are usually overwhelmed by the magnitude of the sonic improvement achieved by Polk's Stereo/Dimensional Technology. You will hear a huge sound stage which extends not only beyond the speakers, but beyond the walls of your listening room itself. The lifelike ambience revealed by the SDAs makes it sound as though you have been transported to the acoustic environment of the original sonic event. Every instrument, vocalist and sound becomes tangible, distinct, alive and firmly placed in its own natural spatial position.

You will hear instruments, ambience and subtle musical nuances (normally masked by conventional mono speakers), revealed for your enjoyment by the SDAs. This benefit is accurately described by Julian Hirsch in Stereo Review, "...the sense of discovery experienced when playing an old favorite stereo record and hearing, quite literally, a new dimension in the sound is a most attractive bonus..." Records, CD's, tapes, video and FM all benefit equally as dramatically. SDAs allow you to experience the spine tingling excitement, majesty and pleasure of live music in your own home.

"You owe it to yourself to audition them"

High Fidelity Magazine

You must hear the remarkable sonic benefits of SDA technology for yourself. You too will agree with Stereo Review's dramatic conclusion: "the result is always better than would be achieved by conventional speakers... it does indeed add a new dimension to reproduced sound."

Other Superb Polk Speakers from \$85

The experts agree: Polk speakers sound better. Hear them for yourself! Visit your nearest Polk Dealer today.

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*U.S. Patent Nos. 4,489,432 and 4,497,064. Other patents pending.

Where to buy Polk Speakers? For your nearest dealer, see page 116.

CIRCLE NO. 37 ON READER SERVICE CARD

by William Livingstone



Gordon Sell, Technical Editor

THE hundredth anniversary of the automobile is being celebrated this year, and it's a bit surprising to be reminded that the car is younger than the phonograph. We celebrated the centennial of recorded sound way back in 1977! Since car stereo turns only sixty this year, it's a little more surprising to realize that forty years passed before somebody combined audio and the automobile.

Often regarded as a stepchild of home hi-fi, car stereo is catching up. "Technological advances such as the Compact Disc, digital tuners, and now fiber optics have appeared in car products almost as soon as in home audio equipment," says STEREO REVIEW Technical Editor Gordon Sell.

"The problem is not with the technology," he says, "but with the installation. Significant research on automobile acoustics has been done by ADS, Alpine, Bose, Ford/JBL, and several others, but only a modest number of the thousands of car stereo dealers know how to install a system in a car so that it will sound right." For Gordon's advice on buying and installing sound equipment in your car, see his article on page 68 of this issue.

Sell's interest in electronics and cars goes back to his youth. Born in

England, he grew up in the United States, where in his middle teens he became an avid reader of *Car and Driver* and *Road & Track*. After a couple of years as a physics major at Lynchburg College in Virginia, he went into the army in 1968 for a three-year hitch as an avionics technician.

While he was in the army, his interest in electronics focused on hi-fi. "I served in West Germany and Vietnam," Gordon says, "and my memories of army life include a lot of behind-the-lines action. For instance, there was a big battle in the barracks over the merits of Teac and Akai open-reel tape decks."

For more than a year after he got out of the army he worked as an electronics technician operating and maintaining portable radio navigation stations in oil-exploration projects in Egypt, Spain, Morocco, and the Canadian Arctic. When he went back to college, he enrolled at New York University, where he earned a B.A. in journalism. After holding various editorial positions on *Yacht Racing*, *Elementary Electronics*, and *Hi-Fi/Stereo Buyers' Guide*, he joined STEREO REVIEW as Associate Technical Editor in 1981 and was promoted to his present position in 1983.

He has been active in all our car-stereo coverage since he joined the staff. "I'm especially interested in it," he says, "because of the ongoing evolution of my own never-completed car system." But in one way or another Gordon is involved in all aspects of STEREO REVIEW's coverage of audio and video products and technology. Perhaps his most important contribution is choosing products to be tested and acting as liaison between manufacturers, the magazine, and Hirsch-Houck Labs. "I am proudest of my part in designing testing procedures used in our comparisons of speaker cables, CD players, and hi-fi VCR's. The VCR tests revealed some surprises. Home video has a way to go in terms of sonic development to meet audiophile standards."

The ongoing evolution of audio technology is what keeps Gordon interested in it. Monitoring its progress is what keeps him making contributions to STEREO REVIEW that give him satisfaction. □

Stereo Review

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EPI engineers discovered that conventional speakers don't reproduce short signals cleanly. Since this type of signal is particularly relevant to the ear's ability to recognize sound it was a profound discovery.

A NEW SOURCE OF DISTORTION. When conventional high quality speakers were tested with very short signals the computer showed they

continued to produce sound long after the signal had ended. We call this Time/Energy distortion.



CLOSER THAN EVER TO PURE SOUND. One discovery led to another and it didn't stop until EPI engineers had developed tweeter diaphragms and woofer cones made of new materials formed into new shapes. EPI engineers even developed a special bonding process and special tools and fixtures to laminate together the cone layers with an ideal combination of stiffness and damping. The result is



drivers that stop producing sound almost immediately after the signal from the amplifier ends. The benefits are distortion-free sound from solo instruments, and superb detail and a sense of separation from groups of instruments.

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Top Tape Decks

I read with interest Craig Stark's review of "Three Top Tape Decks" in March, but I disagree with the point he makes in the sentence, "Among so-called 'purist' audiophiles, it is axiomatic that any audible difference carries with it an infinite worth—a proposition I find plain silly."

What is silly about the quest for perfection? I feel that any audible *improvement* does have worth, and the closer a system nears perfection, the less finite the worth becomes. Who are the winners, the champions, the No. 1's? It is those who score the most points, have the lowest quarter-mile time, have the highest batting average. There *is* an infinite difference between a perfect "10," a winner, and second best. The winners go down in history. The second-place finishers just go down.

BOB BOOKMAN
Eagan, MN

Blank Tapes

I enjoyed the "Blank Tape Buying Guide" in March very much. It certainly

ended some confusion for me. I was very surprised, however, to note the omission of the tapes that nearly every cassette-deck manufacturer has featured in publicity photos for the last four years—the Teac CRC series cassettes in the "mini-open-reel" packages.

ROBERT C. RASSA
Granada Hills, CA

The information in our buying guides comes from the manufacturers, and in this case Teac failed to supply any current data on its blank tapes.

Car Stereo

STEREO REVIEW does an excellent job of keeping enthusiasts abreast of the latest in car audio products, but you fail to acknowledge or demonstrate the importance of system engineering in optimizing their performance. Those of us who consider car audio as important as home audio (a growing cult, I might add) take great pride in building systems with good frequency response, excellent imaging, and superior sound quality while maintaining the integrity of the automobile's interior.

Give us a break. Recognize car audio as more than a stepchild of the audio industry. I'm sure readers would appreciate some how-to's and tips on improving the sound and appearance of their car stereo systems. I have heard and built systems whose sound would make the most critical esoteric audiophile smile.

HOWARD C. ZIMMERMAN, JR.
Lake Charles, LA

I just wanted to thank you for your years of publication, but I wish you would have more on car stereo equipment, the way you did in the May 1984 issue.

WILL CANNON
Fresno, CA

See pages 58, 64, and 68 in this issue.

Retail Professionals

Thank you for publicly revealing the existence of professional audio salesmen in "Speaking My Piece" (March). As an enthusiastic member of the home-entertainment industry, I have thoroughly enjoyed sharing my knowl-

THE \$2000 CAR STEREO (THAT JUST MIGHT FIT IN YOUR CAR)



More than 48 million units...over 34 years experience designed into every state-of-the-art Fujitsu Ten car audio.

CIRCLE NO. 21 ON READER SERVICE CARD

FUJITSU TEN

Write: Fujitsu Ten, 19281 Pacific Gateway Drive, Torrance, California 90502.

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We're not playing video games.

If your video viewing goes beyond games and cartoons, you should know that Yamaha has entered the field. With equipment that, like our legendary audio components, is anything but entry level.

The YM-950 25" monitor/receiver features built-in MTS (Multichannel TV Sound) and SAP (Separate Audio Program) circuitry, plus full stereo capability and 134 channels of cable input.

Its 100° black cross-matrix picture tube and advanced design comb filter give you a sharp, high contrast, high resolution picture.

The six-head YV-1000 VHS Hi-Fi video deck is the first of the new generation of VHS machines. With its advanced HQ circuitry, it provides 20% greater picture definition over previous VHS decks. Along with improved brightness and color signal, and reduced video noise. Even in the extended play mode.

And because the circuitry is VHS Hi-Fi, the same high tracking speed that's used to record the video is used to record the audio. So the YV-1000 has a frequency response from 20Hz to 20kHz, dynamic range of 80dB, channel separation of 60dB and virtually unmeasurable wow and flutter. For hi-fi sound that's measurably better than any you've heard.

Connected to a pair of rear speakers, the 30-watt-per-channel SR-30 Surround Sound amplifier brings full movie theater sound into your home.

And the R-9 receiver with remote control and 125 watts per channel* gives you the power and connections to integrate your video components with your audio system.

Of course, you can use Yamaha video equipment to play games. We just wanted you to know that we weren't.

*125 watts RMS per channel, both channels driven into 8 ohms, from 20 to 20,000 Hz, at no more than 0.015% Total Harmonic Distortion.

Yamaha Electronics Corporation, USA, P.O. Box 6660, Buena Park, CA 90622



YAMAHA®

CIRCLE NO. 14 ON READER SERVICE CARD



edge and experiences with those who have less time to follow all the latest improvements in home audio and video components.

JOHN GANNON
Dearborn, MI

Terk Antenna

Julian Hirsch did not do justice to the Terk FM 8403 antenna in his March test report. I live fifty miles from New York City, and the signal paths of that city's stations are interrupted by a mountain. The Terk is the only indoor antenna that gives me a clean, strong signal.

ROBERT RAHTZ
Garrison, NY

Classical Reviews

After reading January's "Letters" I began to think I was missing out on something. Well, I was right. For the first time in three years of subscribing to STEREO REVIEW I read the music sections. I found that there is more to the magazine than test reports and notes on new products. Your reviews of new

releases are indeed informative and interesting. You have helped to educate me, to some degree, in an area I have long appreciated but knew nothing about, classical music. I plan in the future to read all your reviews, not only those on equipment. Thanks for *all* the good reviews.

LAWRENCE R. CHRISMAN
Mercogliano, Italy

Standard of Measurement

I have been a STEREO REVIEW reader since early in 1985, when the dreaded (and expensive) audiophilia bug bit me. Since then the regular doses of your news, views, and reviews have been eagerly awaited (A-weighted?) by me. In all the equipment reviews that have passed through your pages, however, there has never once, to my knowledge, been a detailed explanation of the one piece of testing equipment that is applied in every instance.

I refer, of course, to that shiny little object in the photographs leading off each report, the one with the numerically marked extension. Questions about its dynamic range, signal-to-noise ratio,

wow and rumble figures, and even whether it is available in black continually fill my head. Don't you think it is time for Julian Hirsch to give us an in-depth explanation of what is apparently an indispensable piece of test equipment?

JACK CLARK
Attadale, Western Australia

The tape measure shown in our test-report photos is placed there by the photographer to give a rough idea of the size of the unit being tested. Mr. Hirsch never touches it. The editors (and readers) who have protested that it is insufficiently precise have failed to provide an acceptable substitute to suggest scale. The tape measure in current use has been doctored by Art Director Sue Llewellyn, who would prefer one with a more high-tech look. Any suggestions?

Price Change

There has been a change in the suggested retail price of the Yamaha K-1020 cassette deck featured in March's "Three Top Tape Decks." The new price is \$629.

Discwasher® gets the grubbies out of your grooves.



The Discwasher® D4+™ Record Care System features a unique fluid and special directional micro-fiber pad to clean your records safely and effectively. It picks up the grubbies without leaving behind any residue.

For your stylus, Discwasher® SC-2™

Stylus Care System loosens and wipes away all damaging contaminants. Gently and thoroughly.

Discwasher is the technological leader in keeping your records and equipment in top condition. Discwasher, 4309 Transworld Road, Schiller Park, IL 60176.

Find out what we can do for your tape, compact disc and video equipment, too!

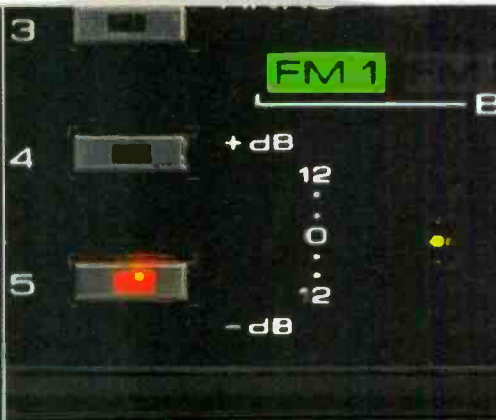
discwasher® For good, clean fun.



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A Division of International Jensen Inc.

CIRCLE NO. 10 ON READER SERVICE CARD

OPEN
CLOSE



Taken on face value alone,
this is the most remarkable
car stereo in the world.



Introducing the phenomenal Kenwood KRC-999 cassette tuner. If the face plate isn't enough to make your jaw drop, wait 'til you hear the way the 999 sounds. And performs.

It's the most advanced car stereo ever made. Period.

"Sure," you say, "I've heard that before." But how many car stereos have you heard that are driven by a 16K ROM computer?

A computer that lets you customize the sound to suit your car's environment.

And pre-set electronic volume levels.

And automatically seek out

a track anywhere on a side.

And scan the first five seconds of every cut.

And take stations with the strongest signal and automatically program them into memory.

Heard enough?

How about the lowest signal to noise ratio available. Metal tape frequency response of 20 ~ 22.5k (± 3 dB). A 7-band graphic equalizer that instantly converts to a spectrum analyzer.

Or an automatic azimuth-adjusting hyperbolic-contour tape head. And three drive motors.

Yes. The beauty of the KRC-999 is more

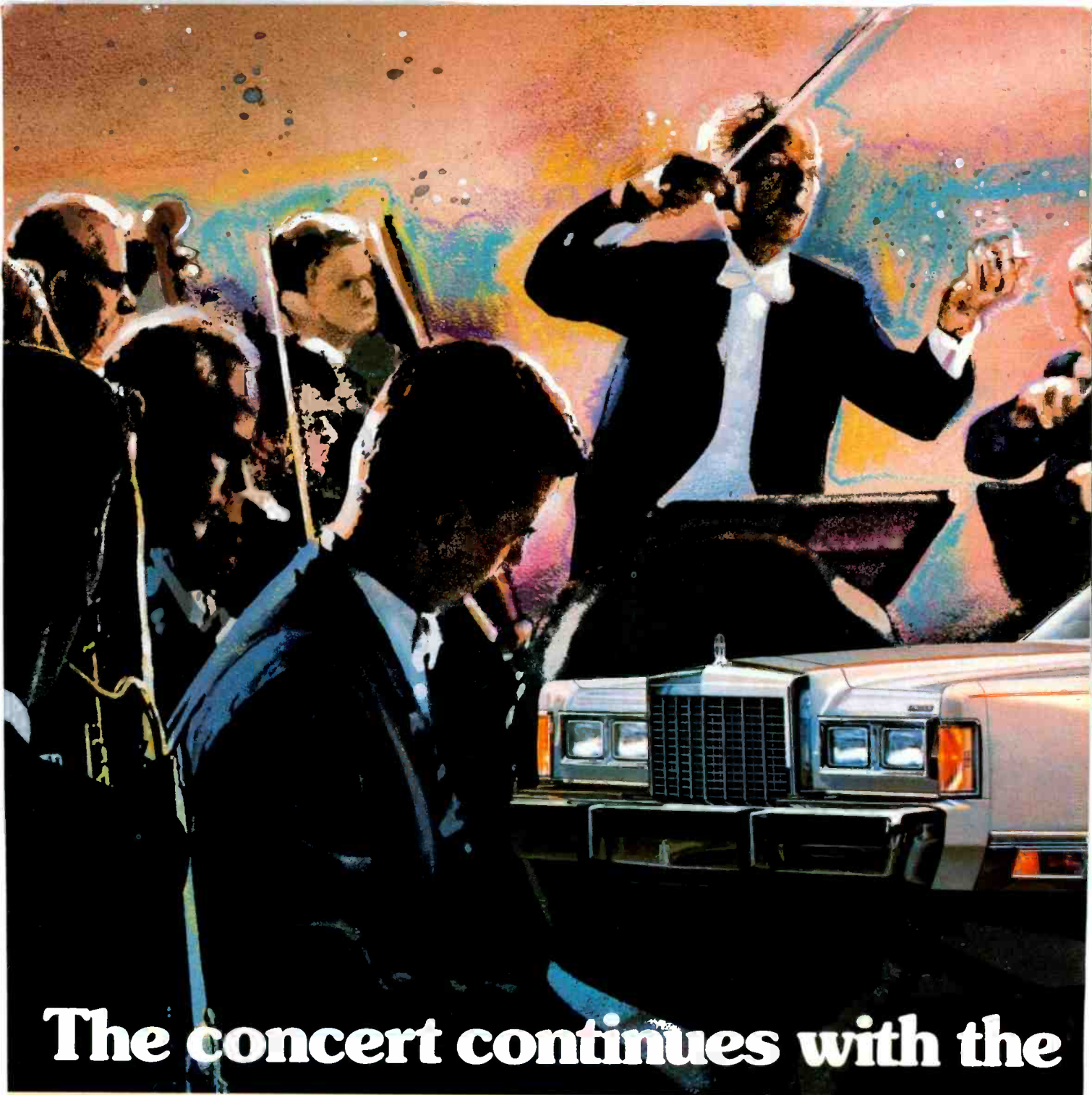
than skin deep. It represents the culmination of 25 years of superior audio technology from Kenwood. Consider it our anniversary present to the world of music.

25th
Anniversary

For the Kenwood dealer nearest you, call 1-800-CAR SOUND.

KENWOOD
STEREO FOR YOUR CAR





The concert continues with the

Imagine the concert continuing in your car with the ultimate high fidelity music system.

Imagine a car audio system that could deliver music as rich and full as a live concert. Music that surrounds you with solid basses, crystal clear highs and subtle overtones. A high fidelity audio system that delivers the full orchestral spectrum of the symphony to you and all your passengers.

Ford and JBL have taken this music lover's dream and turned it into a reality. They have combined their efforts and resources to develop a remarkable high fidelity audio

system now available to you in the Lincoln Town Car.

JBL, the recognized leader in professional loudspeaker design, has been delivering breathtaking sound in concert halls, theaters and movie houses for over forty years. In fact, today, over 70% of the world's top recording studios use JBL loudspeakers.

Ford expertise in electronics and audio engineering speaks for itself with over 50 years of audio design. In addition, Ford maintains one of the most technically advanced



new Ford JBL Audio System.

audio development and test facilities in the world.

Together, Ford and JBL have provided an outstanding high fidelity audio system for Lincoln Town Car featuring:

- 12 speakers strategically located throughout the car that have been adjusted and equalized to the surrounding acoustics.
- 140 watts of total system power that has been designed with extremely low distortion for comfortable listening even at high volume for long periods of time.

- Advanced audio features including full electronic tuning, Automatic Music Search, Dolby® B, Automatic Tape Equalization and a low frequency control computer for continuous loudness compensation and reduced distortion.

All in all, an amazing audio system. But it's still almost impossible to imagine how good it really sounds until you hear it for yourself at your Lincoln-Mercury dealer.

*Dolby is a registered trademark of Dolby Laboratories Licensing Corporation.

JBL loudspeakers are featured in world renowned sound systems everywhere, including Tokyo's NHK Hall, Los Angeles Music Center, Tanglewood Music Shed, Frankfurt Opera House, the 1986 Lincoln Continental and now the 1986 Lincoln Town Car.



AUDIO SYSTEMS

CIRCLE NO. 70 ON READER SERVICE CARD

NEW PRODUCTS

Audio Control

Audio Control's Richter Scale III bass-equalizer/analyzer/crossover has six half-octave bands in the bass range with ± 12 -dB adjustments. The spectrum analyzer generates warble tones at the center frequencies (22.5, 31.5, 45, 63, 90, and 125 Hz), and the reproduced tones are picked up by a calibrated microphone and shown on a pointer display. Crossover frequency is adjustable with plug-in modules, and the slope is 24 dB per octave. An infrasonic filter cuts signals below 18 Hz at 18 dB per octave. There is a mono bass output



and an amplifier bridging adaptor. The connectors are gold plated. Price: \$349. Audio Control, Dept. SR, 6520 212th

St. SW, P.O. Box 3199, Lynnwood, WA 98036.

Circle 120 on reader service card



Technics

The Technics CQ-DP5 is a DIN-sized car stereo Compact Disc player, preamplifier, and AM/FM tuner. The tuner

circuitry is housed separately from the in-dash player/control unit. When a CD is playing, the function controls are used for track skip, track search, pause, repeat, and other access functions; in

the tuner mode, the same buttons are used for up/down, scan, and seek tuning. The liquid-crystal display shows which track is playing and its elapsed time or which station preset has been selected and the tuned frequency. Up to fifteen CD tracks can be programmed for playback in any order, with a display of the stored program. The frequencies of twelve FM and six AM stations can be memorized for instant access.

The preamplifier controls adjust bass, treble, front/rear and left/right balance, and volume. The frequency response of the CD player is given as 5 to 20,000 Hz ± 0.5 , -1 dB, with a signal-to-noise ratio greater than 90 dB. The FM tuner section's frequency response is said to be 20 to 15,000 Hz ± 3 dB, its signal-to-noise ratio 70 dB. Price: \$700. Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

Circle 121 on reader service card

Teac

Teac's remote-controlled ZD-5000 Compact Disc player can reach any one of up to ninety-nine tracks on a CD in less than 2 seconds. Up to twenty tracks can be programmed for playback in any order, and the player can be reprogrammed while it is playing. Low-level distortion is said to be eliminated by maintaining absolute linearity at all input levels during digital-to-analog (D/A) conversion. The digital output filter uses double (88.2-kHz) oversampling and dual D/A converters. The three-beam laser pickup is mounted in a floating suspension for improved isolation. The ZD-5000 features index search and INTRO CHECK, which permits sampling the first part of each track on a disc. A subcode output port is included for future applications. Rated frequency response is 5 to 20,000 Hz ± 0.3 dB, and



channel separation is said to be better than 95 dB over the full range. Price: \$1,100. Teac Corporation of America,

Dept. SR, 7733 Telegraph Rd., Montebello, CA 90640.

Circle 122 on reader service card



The best sound you can hear next to Carnegie Hall.

Listen to Toshiba's Portable CD player outdoors and something remarkable happens. It sounds like you're inside a concert hall. There's no distortion. No wow. No flutter. Only pure, concert quality sound.

Yet, when you take home this portable, it's a top of the line CD player. Hooked up to your stereo system through its AC adaptor, it offers features you won't find in other portables: 16 program random memory, 3-beam laser pick-up to guard against mistracking, plus a full function display that monitors the track, lap and remaining

time. There's even a 15 function wireless remote control. And, of course, incomparable sound.

Toshiba's portable CD player. Outside of a concert hall nothing sounds better.



In Touch with Tomorrow
TOSHIBA

Toshiba America, Inc., 82 Totowa Road, Wayne, NJ 07470

NEW PRODUCTS



Harman Kardon

Harman Kardon's new top-of-the-line receiver is the hk795i, rated for 70 watts per channel into 8 ohms from 20 to 20,000 Hz with no more than 0.008

percent total harmonic distortion. The amplifier section is said to have an instantaneous current capability of 50 amperes, making it suitable for use with low-impedance speakers. The design uses low levels of negative feedback (15

dB) to improve the dynamic performance, a wide bandwidth (0.2 to 150,000 Hz) to reduce phase shift, and discrete components in the audio stages to improve sound quality further.

There are inputs for a CD player, a turntable, two audio tape decks (with facilities for dubbing in either direction), and a video or auxiliary source. The bass and treble tone controls have selectable turnover frequencies of 400 or 200 Hz for the bass and 2,000 or 6,000 Hz for the treble. Other features include tone-control defeat, loudness compensation, eight AM and eight FM presets, an infrasonic filter, FM muting, and an LED signal-strength meter. Price: \$645. Harman Kardon, Dept. SR, 240 Crossways Park W., Woodbury, NY 11797.

Circle 123 on reader service card

Infinity Systems

The car speakers in Infinity Systems' Reference Standard Series II have polypropylene woofers for reduced distortion and increased reliability and "Dual Drive" polycell midrange/tweeters for improved midrange and high-frequency reproduction. All the dual-cone models have polycell whizzers. The Model CS-1 (\$325) is a 6 x 9-inch component system with a separate clip-on Emit tweeter. Three-way RS systems with Emit tweeters include the 6 x 9-inch A693 (shown, \$215 per pair) and the 6 1/2-inch A63 (\$165 per pair). Two-way speakers include the 6 x 9-inch A692 (\$155 per



pair), the 6 1/2-inch A62 (\$120), and the 5 1/2-inch thin-mount A52 (\$115). The Series II has three dual-cone replacement speakers: the 4-inch A42, with a snap-on grille (\$85 per pair); the 4 x 6-



inch A462 (\$50); and the 3 1/2-inch A32 (\$40). Infinity Systems, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311.

Circle 124 on reader service card



Audio Research

The Audio Research SP-11 hybrid preamplifier uses both FET's (field-effect transistors) and vacuum tubes in signal circuits and solid-state circuitry in the separate power supply (lower unit in photo). Volume is regulated by level and gain controls. Other knobs control balance, output mode (mono, reverse, stereo, left, right), input (phono, tuner, CD, video, spare), and impedance of the phono input (47,000, 100, 30, 10, or 3 ohms). Switches select source or monitor, copy or normal mode, tape 1 or 2, dubbing direction, muting, and inverted or normal phase. The preamplifier mutes automatically while powering up or down and during any power-line interruption. Price: \$4,900 in silver finish, \$5,100 in black. Audio Research, Dept. SR, 6801 Shingle Creek Parkway, Minneapolis, MN 55430.

Circle 125 on reader service card

Deciding on a new car?

“If your car is this well equipped, you won’t want to go home again.”

Chicago Magazine

“... their extraordinary Delco-GM/Bose Music System ...”

Stereo Review

“... the performance ... was astounding.”

High Fidelity

Our experience has convinced us that, regardless of your interest in music, you will require less than one minute of listening to know that you want the Delco-GM/Bose Music System in your next General Motors car.*



Sound so real, it will change how you feel about driving.

* Available on selected models of Cadillac, Buick, Oldsmobile and Chevrolet.

"CARVER CD PLAYER: SUPERB SOUND PLUS THE DIGITAL TIME LENS"

AUDIO MAGAZINE

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

—Leonard Feldman
AUDIO MAGAZINE



The Carver Compact Disc Player answers the audiophile's demand for a CD Player which provides not only the greater dynamic range and richer bass expected from compact disc technology, but also the musicality, spectral balance and spatial qualities of well executed analog high fidelity recordings.

LOGICAL

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

There are dozens of models of compact disc players now available, many of them demonstrating little regard for the finer points of digital playback technology. Bob Carver was in no hurry. He wanted to do digital right. And he did.

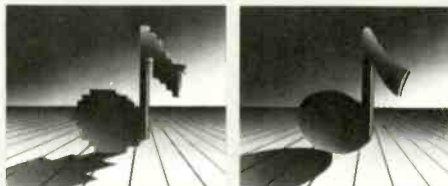
The state of the art has advanced considerably since the first players appeared several years ago. The Carver Compact Disc Player makes use of the latest **triple laser beam** pickups, **sophisticated oversampling**, **digital**

filtering technology and, very importantly, Carver's unique distortion reducing **dither signal** that effectively removes the low level quantization distortion existing in all other CD players.

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

IMPROVED TRACKING

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



The Digital Time Lens circuitry restores the octave-to-octave balance originally intended by the musician and recording engineer.

DIGITAL FILTERING

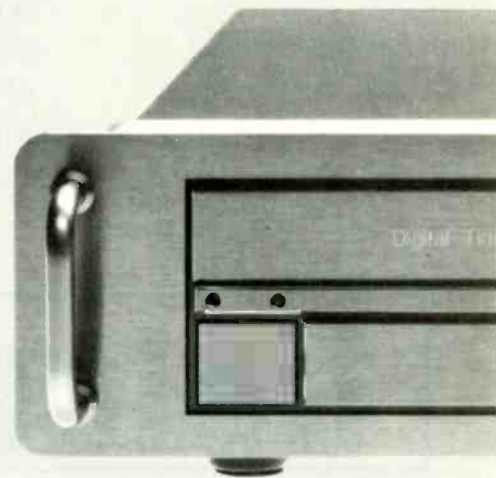
Along with a potentially audible signal ranging up to 20kHz, there are endless images of the signal at 40kHz, 80kHz and 160kHz. While they are above the range of human hearing, they must be removed from the signal to prevent harmonic problems which could turn into audible distortion. Earlier CD models placed an anti-imaging filter after the digital/analog converter stage. Carver uses **DIGITAL** filtering ahead of the D/A converter through a process called multiple oversampling. The sig-

nal is passed through a shift register which delays the samples, so that the weighted average of a large number of signals is generated. Through a complicated process, frequency bands are suppressed between 20kHz and 160kHz, eliminating harmonic distortion problems early on before the complicated D/A 16 bit translation.

The same oversampling process also distributes the same amount of noise over twice as wide a frequency range, resulting in half as much noise in the final signal. Then after translation to analog, the signal is once again filtered for a gentle roll-off above 20kHz. This yields a marvelously natural musical sound to the final output.

ABSENCE OF PHASE ERROR

One of the important tests applied to determine the effectiveness of digital-to-analog translation circuitry is the reproduction of a square wave.



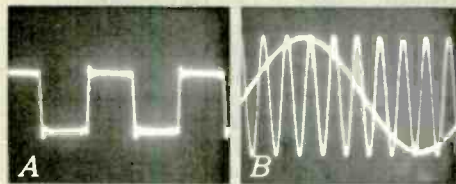
CARVER

POWERFUL

Corporation, PO Box 1237, Lynnwood, WA 98046

"Reproduction of a 1kHz digitally generated signal was as close to a true square wave as I have ever seen from a CD player that used digital filtering. (The Carver Digital Disc Player) shows a virtual absence of phase error."

AUDIO MAGAZINE



- A. Square-wave reproduction, 1kHz.
B. Two-tone phase test signal (200Hz and 2kHz) with Digital Time Lens off.

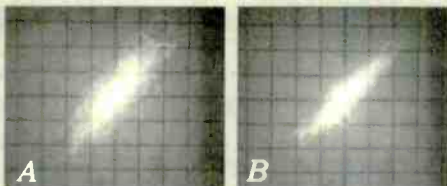
PLUS THE DIGITAL TIME LENS

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

The Carver Compact Disc Player is the world's **only** compact disc player to address the problem of the bright, hot, harsh sounding midrange and a lack of ambience and spatial detail characteristic of the **majority** of compact discs currently available.

When Bob Carver obtained his first compact disc player, he was surprised at the sound derived from most of the compact discs he purchased. The three-dimensional musical perspective which his analog system provided in lush abundance on phono discs evaporated into a flat, brittle wasteland. After extensive testing, Bob uncovered two fundamental flaws in almost all compact discs: 1) An unpleasant, harsh spectral energy balance. The overall octave-to-octave energy balance was shifted on the CD towards more midrange above 400Hz; 2) The amount of L-R signal (which carries the spacial detail of the music) on the CD was inexplicably, but substantially, reduced

when compared with the amount of L-R signal found on the corresponding analog disc.



- A. Lissajous pattern showing spatial detail (L-R)/(L+R) ratio from an LP record.
B. The same instant of music but taken from the CD version. Note the decreased (L-R) content, as shown by the narrowed trace.

Carver's circuitry corrects the ratio of L-R to L+R by performing one extra, but important mathematical operation on the signal stream that all other CD players fail to perform. This final operation makes all the difference.

The result is a natural sound with more of the three-dimensional information that places us in the same space with performers. You won't need the Digital Time Lens on all CDs. But it is there when you need it.

In the beginning, Carver hoped, indeed he expected, that once recording artists and engineers became more experienced with CD technology fewer and fewer CDs would require the Digital Time Lens. But both laboratory and listening tests reveal that the great majority of even the most recently released CDs benefits significantly from the Digital Time Lens.

EASY TO USE

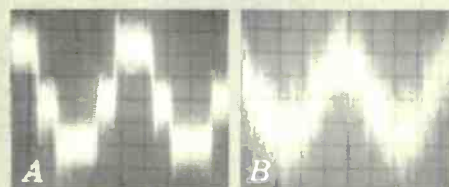
Ease of operation is a hallmark of Carver components and the Carver Compact Disc Player is no exception. A subtle but easy-to-read LCD display not only shows selection number, elapsed time and total time of the CD, but also "talks" to the user. Turn on the Carver Compact Disc Player and the display asks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

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

The large, easy-to-use feather-touch controls include pause, fast forward and reverse. You can even monitor music at high speed to find a certain portion of a selection.

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

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

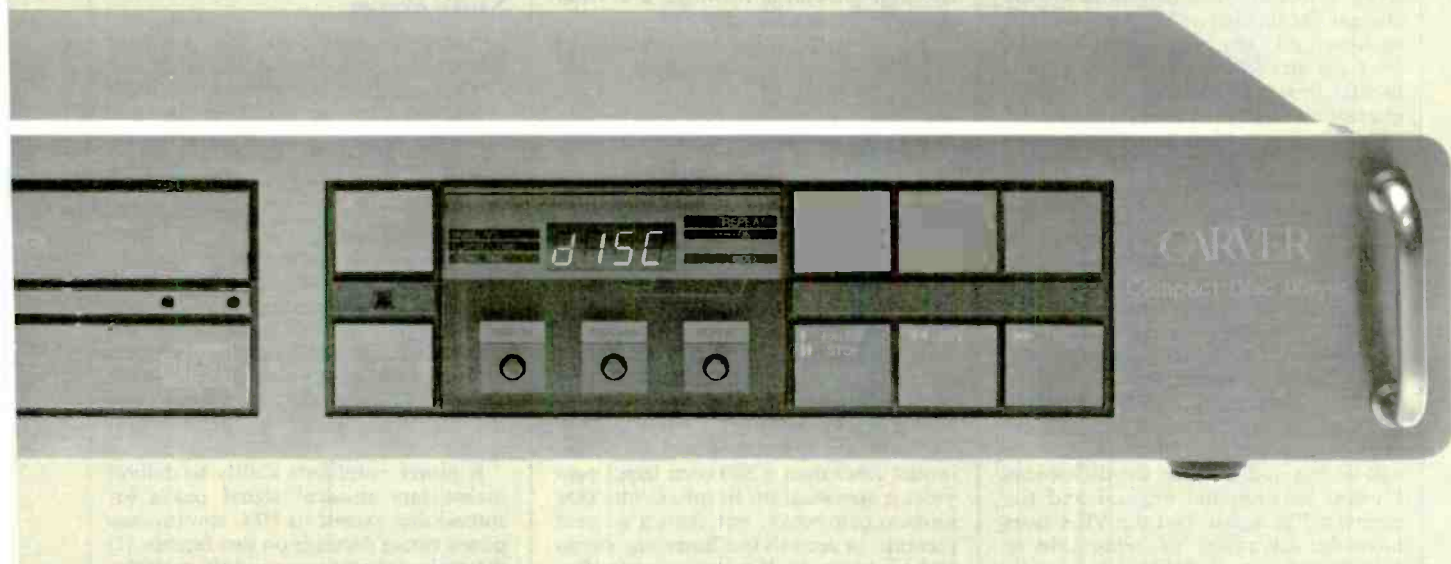


- A. Ultra-low-level (4 significant bits) 1kHz signal, as reproduced by conventional CD players.
B. Same signal with dither added before D/A conversion by Carver CD player. Note that dither has caused the distorted step-wise approximation of the 1kHz tone virtually to vanish. Quantization distortion has been reduced to insignificance.

IF YOU ALREADY HAVE A CD PLAYER

By buying a CD Player you made a commitment to vastly improve your sound source: now you can go the short extra step that lets digital realize its true potential.

That step is the CARVER Digital Time Lens. Simply connect it between your CD player and your preamplifier or receiver.



MUSICAL

ACCURATE

DISTRIBUTED IN CANADA BY EVOLUTION TECHNOLOGY

CIRCLE NO. 49 ON READER SERVICE CARD

by Larry Klein



FM/CD Dubbing

Q My favorite FM station uses Compact Discs for almost all its programming. I'm curious about how much of the CD quality is lost by the broadcast process. Also, I record all of my music off the air using an excellent cassette deck. I am considering buying a hi-fi VCR; will it produce better-sounding dubs than my cassette deck?

WILLIAM WHITON
Westport, IN

A A few years ago I was asked to be a guest commentator by the New York classical-music FM station WNCN for its first broadcasts of Compact Discs. I knew that both the dynamic range and the frequency range of CD's exceeded the capabilities of the current FM format, and I was curious as to how well they would come across over the air. During those first experimental broadcasts the strong high-frequency material on the discs tended to overmodulate the transmitter, but the station's engineers solved the problem with some very judicious high-frequency compression.

During the broadcasts I was able to switch back and forth between the broadcast signal, as picked up by a monitor tuner in the studio, and the original signal sent out to the transmitter. The monitor signal was very good, but the original signal was still audibly better. I suspect that the difference in dubbing quality between your top-of-the-line cassette deck and a hi-fi VCR will be less audible than the differences I heard between the original and the received FM signal. But the VCR does have the advantage of being able to record six hours of material.

CD Error Correction

Q Since most recent CD players tested by Hirsch-Houck Labs track the Philips TS4A test disc without problems, shouldn't a more demanding test be used? I ask because I own a player that tracked that test disc perfectly in STEREO REVIEW's tests, but I have encountered a number of CD's with audible defects. Wouldn't it be better to use real defective CD's for such tests, just as Julian Hirsch uses actual warped records to test a turntable's warp-tracking ability?

MITCHELL WEITZ
New York, NY

A Unlike a record warp, a digital defect is difficult to see and quantify with the naked eye. Although the Philips TS4A test disc does not show any differences in error-correcting ability among the latest CD players, it does have the advantage of being calibrated and thereby establishing minimum acceptable standards for error correction.

In general, I would consider a Compact Disc itself to be defective if it has audible problems or is physically unplayable on a machine that is able to track the Philips test disc. It also occurs to me, however, that the error-correction circuitry of your particular sample of the model that H-H Labs tested might not be doing its job. I suggest you check with the manufacturer, and offer to send in the problematic CD's for checking.

FM Microvolts/dBf

Q Could you provide information to help me convert FM tuner microvolt sensitivity specifications to dBf figures (and vice versa)? Also, why are there two different rating methods, and what does the "f" in dBf stand for?

J. GARY SPARKS
Indianapolis, IN

A The accompanying conversion chart includes the most commonly encountered figures. Note that the conversion is valid only for 300-ohm inputs; for 75-ohm inputs the microvolt values should be halved.

The reason for the switchover from microvolts (μV) to dBf was to help end confusion and eliminate some hanky-panky around tuner sensitivity ratings. The problem with microvolt sensitivity ratings is that valid comparisons can be made only when the load into which the test generator is operating is specified. For example, measuring into a 75-ohm input rather than a 300-ohm input provides a specification in microvolts that looks much better, but there's no real increase in sensitivity. Since car stereo FM tuners, as well as tuners manufac-

ured in Europe, are usually specified with 75-ohm inputs, be aware that their microvolt ratings cannot be compared to those of units that have been measured through 300-ohm inputs.

The dBf unit ends the 75/300-ohm confusion by referring all signal-input levels to a 0-dB reference of 10^{-15} watts, or 1 femtowatt. (When I first encountered the term "femtowatt," I thought it might be derived from *femlin*, the female gremlin. *Femto* just means fifteen, however, though it is a Scandinavian root rather than the more usual Greek and Latin, which gave us *micro*, *nano*, *mega*, *pico*, etc.) Because most manufacturers' literature still uses microvolt specifications, test results in STEREO REVIEW are given in both microvolts and dBf.

SENSITIVITY RATING EQUIVALENTS
(300-OHM INPUT)

dBf	microvolts	microvolts	dBf
0	0.55	1	5.2
5	0.97	2	11.2
10	1.7	3	14.7
15	3.1	4	17.2
20	5.5	5	19.2
25	9.7	10	25.2
30	17	20	31.2
35	31	30	34.7
40	55	100	45.2
45	97	300	54.7
50	170	1,000	65.2
55	310	3,000	74.7
60	550	10,000	85.2
65	970	30,000	94.7
70	1,700		
75	3,100		
80	5,500		
85	9,700		
90	17,000		
95	31,000		
100	55,000		

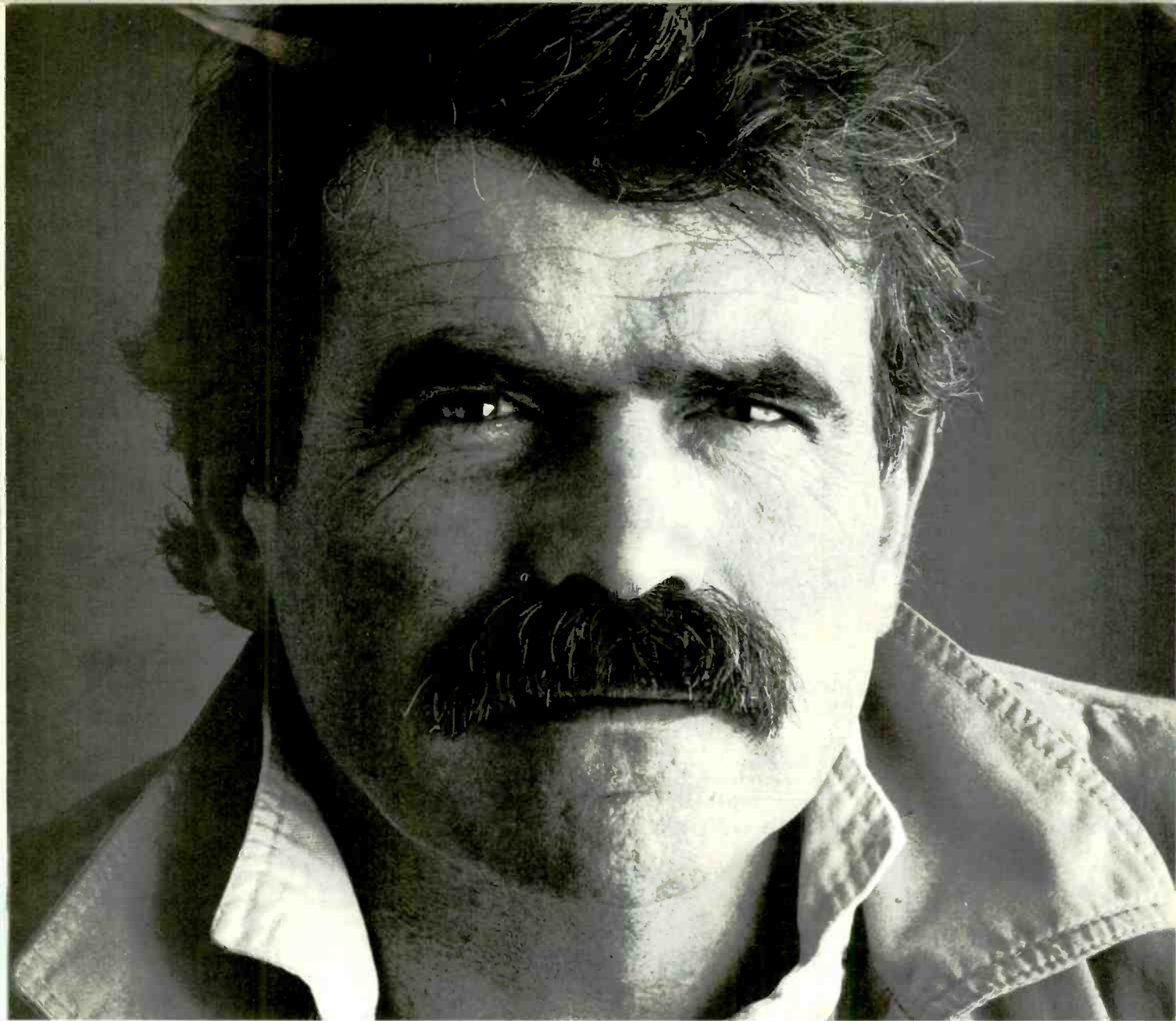
Spike Power

Q I understand that there are large signal spikes in music and that CD's are able to record them. Do these spikes get through the amplifier and move the speaker cones to create spike sound pressure?

O. O. CALLAWAY
Carlsbad, CA

A What you refer to as "signal spikes" are usually called peaks, although I must admit "spikes" not only conveys a more vivid picture but also avoids the confusion between the mathematical peak value of a sine-wave signal (1.41 times the rms voltage) and the amplitude peaks in audio waveforms.

A power amplifier's ability to deliver momentary musical signal peaks (or spikes) that exceed its FTC continuous-power rating depends on two factors: (1) the ability of its power supply to main-



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AUDIO Q. AND A.

tain—at least for the brief duration of the peak—a voltage higher than that needed for its continuous-power rating, and (2) output transistors that can handle the extra power demands.

The spikes found in music waveforms are thought by some to be a significant test of an amplifier's (and a speaker's) "speed." Measurements of live musical instruments indicate, however, that the most rapidly changing waveforms (those produced by cymbals and triangles) have a rise time on the order of 20 to 30 microseconds. (Rise time is defined as the time required for the leading edge of a pulse to rise from 10 to 90 percent of its final value.) If an amplifier has a flat response out to 20,000 Hz, it can easily handle a music signal with a rise time of 20 microseconds. And since most amplifiers have at least double that bandwidth when operating with less than full power output, even the fastest music waveforms are usually easily accommodated.

As to whether the high-frequency "spikes" are converted into sound, that depends on the quality of the tweeter in use. Since most tweeters can't deliver a flat response out to 20,000 Hz, it is just as well that losses at that frequency aren't audible to most listeners.

Decibel Wars

Q In shopping for new stereo equipment, I am principally concerned with lots of volume. When I complained to the man in the next apartment about how loud he was playing his music, he replied that he was going to blast me out of the building. I want to make sure that I have enough sonic muscle to fight back. Is 200 watts a channel enough?

ROYCE P. BOONE
 New York, NY

A It appears to me that you and your neighbor intend to engage in a no-win battle of sonic annihilation. For those who want loudness for legitimate reasons, however, here are some guidelines:

To achieve both fidelity and loudness, you will need large, high-efficiency speaker systems. Every 3-dB increase in speaker efficiency reduces the power demands on the amplifier by 50 percent. Make sure that the impedance of your chosen speakers doesn't dip into a region (2 ohms or so) where the driving amplifier runs out of current, or else make sure that the amplifier has sufficient current capacity to handle any impedance.

Personal experience has convinced me that even a speaker with a high, 91-dB sensitivity can use all the power it can get when very high volume levels are desired. I would suggest 200 watts per channel as a minimum.



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VIDEO BASICS

by Chris Albertson



Videodisc Players

IF you are thinking of adding a videodisc player to your system, you have in all probability already installed a VCR, which means that you have experienced the agony of having to make the right choice among more models and makes than any single catalog holds. Rest assured that selecting a videodisc player is a much simpler

task, for there are only a handful to choose from. The problem is more likely to be finding a store that carries them.

Never properly promoted, the videodisc medium has yet to capture the imagination of Americans. It is generally agreed that the enormous growth of the videocassette market owes much to the early introduction of pornographic software, but while cassette buyers could take home such spicy items as *Debbie Does Dallas* and *Nuns in Nirvana*, early videodisc customers reached the wall of propriety with the purchase of R-rated Hollywood movies. That situation has since changed, but videodiscs also suffered another handicap.

In the beginning, there were two systems competing for the American videodisc market. One of these was RCA's CED (Capacitance Electronic Disc) system. The low prices of CED players and discs lured many people into a purchase they would soon regret, and the highly publicized demise of the CED system fostered the common misconception that videodiscs in general are a medium of the past.

Not so. In fact, the future looks bright for the laser-read videodisc, which was developed jointly by MCA and Philips and promoted most vigorously by Pioneer, whose LaserDisc and LaserVision trademarks are often used generically. The recent introduction of noise-

SOME COMMONLY ASKED QUESTIONS

- Can I record on videodiscs?* No, it is strictly a playback medium.
- Does my TV set have to have a special video-input terminal?* No, a videodisc player is connected in the same way as a VCR, but it's easier because you only have output, no input.
- Does my TV need a stereo decoder?* No, videodisc players can be connected directly to your stereo system. In the absence of an audio system, the disc's soundtrack will be heard through the television set's speaker(s).
- Are videodiscs expensive?* They are generally less expensive than the videocassette versions, ranging in price from \$13 for an 8-inch music single to \$59 for a complete opera. Movies on videodisc are usually \$25 to \$35.
- How much software is available?* There are more than 3,000 laser-read videodisc titles at present, with 30 to 40 new releases each month. Then, too, there is a tremendous number of Japanese imports. Although there is not an overabundance of outlets, videodiscs are also available for rental.
- What is the difference between the CLV and CAV formats?* The CLV (constant linear velocity) or extended-play format allows a playing time of up to one hour per 12-inch side (55 minutes for digital-sound versions) with chapter search. CAV (constant angular velocity) or standard-play discs let you take advantage of all the special effects—such as random frame search, variable-speed slow motion, and on-screen lapsed-time or frame numbering—but the playing time is reduced to 30 minutes per side (19 minutes for digital-sound releases).

free digital sound and of dual player units that can also play the increasingly popular Compact Discs have made the medium more attractive to the consumer and sparked interest in laser-videodisc players among such established audio manufacturers as Teac and Yamaha, who now find it quite natural to introduce a line of these machines. New sources of software are also appearing, with Thorn EMI/Home Box Office Video the latest major company to make its titles available in the LaserDisc format.

Nevertheless, while interest in the medium is growing among manufacturers and consumers, the products (both players and discs) continue to keep a surprisingly low profile in the stores. The purchasing process thus begins with a search. I suggest you try the major audio/video stores first, then perhaps the department stores.

Players range in price from \$299 for the Pioneer LD-660 to \$1,100 and up for a model that also handles Compact Discs. The LD-660 has neither remote control nor random frame and chapter search, and it will not reproduce digital sound, but the picture quality is superb, and, thanks to the built-in CX noise-reduction decoder, even the analog sound can be impressive. There is, however, a dramatic difference in features and general design with the next step up, and you might find it well worth the \$200 or so additional expense. The higher-priced machines also boast an advanced, more reliable laser-pickup system. All laser-read videodisc players can play both the 8- and 12-inch discs in color and stereo, and all play both the CLV and CAV formats (also known as extended play and standard play—see box).

If all you want to do is watch movies or music videos, the Pioneer LD-660 will do rather nicely, but I can say from experience that having the frills is a lot more fun. For one thing, the more elaborate players allow you to use a recently issued encyclopedia on disc and to enjoy such two-way interactive releases as *Murder, Anyone?* and *The History DisQuiz* with a special remote control so that you can "talk back" to the TV set. Try doing that with a videocassette player. □

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CIRCLE NO. 35 ON READER SERVICE CARD

by Julian Hirsch



When Are Nonstandard Measurements Justified?

IN reviewing reader mail, I have noticed several questions dealing with legitimate aspects of audio-equipment performance that are rarely discussed in hi-fi magazines because they call for nonstandard specifications or measurement techniques. I am a firm believer in standardized test procedures, which provide the only basis for meaningful objective product comparisons. Decades ago, when there were no suitable hi-fi standards, I had to devise my own. In later years I served on several industry standards committees, and after suitable standards were promulgated I used them to the greatest extent possible. But there are still some aspects of equipment performance that are not dealt with by current standards, so it is occasionally necessary to resort to nonstandard procedures—or simply to omit making a measurement that might be misleading because no satisfactory technique is available.

One example is the mechanical noise emitted by some products.

Such noise can arise from humming or buzzing power-transformer laminations in amplifiers or receivers (often aggravated by vibration of their metal cabinets), the whir of cooling fans in some high-power amplifiers, “clunks” from solenoid operation in some tape decks and VCR’s, and occasionally the grinding or rubbing together of some portions of component mechanisms. Most of these effects are present to some degree in any mechanical system; the question is whether they are audibly intrusive on your listening experience.

After you carefully select system components for (among other things) their very low electrical noise outputs, it is possible to find that their acoustic noise is plainly audible in the absence of a program or when you listen at low levels. Sometimes the noise is only momentarily disturbing (the sounds of tape-recorder switching solenoids and of the tape-loading mechanisms in most VCR’s are typical examples), but an audible steady sound from a tape deck or fan motor is something that I, at least, find intolerable. I do not intend to discuss the treatment for this malady—sometimes there is none short of replacing the offending component—but readers with the same feelings have asked why we do not measure and report on the acoustic noise output of the products we test.

There are several reasons why we do not. Although there *are* standards for measuring ambient noise, they usually reflect health and safety considerations in business and industry. I do not know whether there

are any standards dealing with annoyance factors. I do know, from personal experience, that health and safety noise standards can be totally inadequate for that application. For example, the noise output of power lawn mowers, chain saws, and similar equipment is regulated in my local community. The law allows something like a 55-dB sound-pressure level (SPL) at a distance of 100 feet from the noise source. On summer days the din from these machines can be (subjectively) deafening, yet my own measurements with a sound-level meter have shown that it is well within the legal limits. Similarly, while there are probably standards for measuring the noise output of typewriters and other office machinery, I am sure they are equally valueless for application to a hi-fi listening room.

One key reason for this is that the annoyance factor depends on both the time and frequency characteristics of the noise (in other words, its waveform) in addition to its level. During music listening, a steady, moderate-level hum or noise is less bothersome than irregular or periodic impact sounds or other sudden changes in level. How can we measure such effects in any subjectively meaningful way? The best I can do is to comment on the subjective mechanical (acoustic) noise output of a product *if* it is audible or obtrusive. Bear in mind, however, that such effects are often found with some individual samples of a product but not all or even most others. Ours might be quiet while yours will hum—or vice versa!

A very different question concerning nonstandard measurements was raised by another reader. He observed that some manufacturers advertise the current-output ratings of their amplifiers (sometimes as high as 40 to 60 amperes) and wonders how this specification relates to voltage or power-output ratings.

Conventional test standards call for terminating an amplifier in a resistive load (typically 2, 4, or 8 ohms), and the power output is calculated by measuring the voltage across that resistance. The power (in watts) is the square of the voltage divided by the resistance. Some people are fond of pointing out that no speaker presents a resistive load

Tested This Month

Yamaha CD-2000
Compact Disc Player
Onkyo TX-RV47
Audio/Video Receiver
Signet MK440ml
Phono Cartridge
John Bowers Active 1
Speaker System
Fried Triplet Speaker
System

to an amplifier, except at a few discrete frequencies, and that this fact invalidates conventional power measurements. As is often the case, this is a half-truth. The premise is correct, but the conclusion does not follow.

By using a resistive load it is at least possible for different testers to obtain repeatable and consistent measurements on amplifiers. Since no two speakers are alike, such results would be impossible if actual speaker loads were used for amplifier testing. And the prospect of working in such a high-sound-level environment would be enough to discourage most amplifier testers—it certainly would dampen my enthusiasm for the work! Furthermore, no speaker could withstand a continuous application of the output of typical hi-fi amplifiers, especially at high frequencies.

Even if no simple, universal load could replace a resistor for amplifier

testing and yield more meaningful results, it is possible to infer something of the limitations of an amplifier with speaker loads from another measurement. An actual speaker load does not look to the amplifier output like a purely passive combination of resistance, capacitance, and inductance. As the voice coil moves under the application of a drive signal, a voltage is induced in the coil by virtue of its motion in the speaker's fixed magnetic field. The mechanical inertia of the voice coil and cone introduces phase shifts at certain frequencies, causing the test signal and the speaker's internally generated voltage to interact in such a manner that the speaker briefly draws a much larger current than would have been expected from its passive impedance and the amplifier's output voltage.

Looking at it another way, the speaker's impedance under dynamic conditions can be several

times lower than its static impedance, which suggests that an amplifier should be able to deliver, at least for brief periods, a much larger current than steady-state ratings would call for. That is part of the rationale for the high maximum-current ratings ascribed to some amplifiers, and it makes good sense, although I know of no controlled tests that have confirmed the listening benefits of such a design.

We measure maximum current output indirectly by making both dynamic and long-term power measurements into loads of 2, 4, and 8 ohms even when the amplifier is not rated for 2-ohm operation. I feel that an amplifier that cannot deliver a reasonably high output into 2 ohms might not always be able to perform with full effectiveness with 8-ohm speakers. I freely admit that I have no proof of this; it is merely a reasoned judgment.

These measurements are far from

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testing an amplifier's ultimate current-output capability. For example, if an amplifier can drive 10 amperes through a 2-ohm load, its power output is 200 watts. How, then, can we verify a claim for a 40-, 50-, or 60-ampere capability? Ideally the amplifier should be short-circuited (loaded with 0 ohms) and the maximum unclipped current waveform measured. There are at least two flaws in that procedure. First, most amplifiers show their displeasure at driving a short circuit by shutting off, blowing a fuse, overheating, or self-destructing. Second, the most practical way to measure current, especially under dynamic conditions, is to measure the voltage across a very small load resistance, preferably less than the amplifier's internal impedance. But if the amplifier has an internal impedance of 0.1 ohm (many have less than that), it is difficult to load it with something significantly lower.

Frankly, we have never attempted to subject an amplifier to the sort of abuse implied by such an "ideal" measurement. Most amplifiers will not drive even a 2-ohm load for any length of time without shutting down, or worse, and on the few occasions when we have gone to 1 ohm, operation could not be sustained long enough to make a measurement. So we have to admit that we cannot verify most claims for high current output, except by noting how well the amplifier behaves with loads of 2 ohms.

There is a somewhat related situation involving speakers. We drive a speaker with a 1- or 2-cycle sine-wave burst at several frequencies to see how much input (voltage) it will handle without obvious acoustic waveform distortion. In some cases this type of measurement can result in the amplifier's shutting down or an apparent clipping of its output at an unexpectedly low voltage—given

that the amplifiers we use for these tests (the Carver M-1.5t and the NAD 2200) are capable of enormous outputs into resistive loads (even 2 ohms or less) as well as into most speaker loads. It is conjecture, but the most reasonable explanation for the observed effect seems to be that the speaker-test operation presents the driving amplifier with just the sort of unacceptably low load impedance described above.

Of course, the pulse-power test is nonstandard. For that matter, every speaker measurement is nonstandard since no industry-wide measurement standard exists at present. Every tester tries to measure what he thinks is meaningful within the limits imposed by test facilities. Test methods evolve constantly, although the unique nature of the loudspeaker makes it unlikely that we will soon see a speaker standard that compares to the existing EIA tuner and amplifier standards. □

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HALLEY GANGES

YAMAHA CD-2000 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

YAMAHA'S highly flexible new top-of-the-line CD player, the CD-2000, includes such deluxe features as direct numerical track access, programmable playback of tracks in any sequence, music search, repeat operation, and "phrase" repeat of any defined portion of a program. Among its other features are dual gold-plated output jacks carrying fixed and variable signal levels and a DIN connector that provides subcode outputs for compatibility with future accessories that will allow still video images or other visual information to be extracted from a suitable CD and displayed on a video monitor.

The basic playback operations are controlled by a row of black keys along the bottom of the front panel. These include fast forward and reverse search with the program audible, track skipping in forward or reverse directions, and an index key that displays the current index number (when applicable). The CD-2000 does not, however, allow the programming of indexed portions of a disc. A SPACE INSERT control adds 3-second quiet intervals be-

tween the tracks during playback.

The display window initially shows whether there is a disc in the horizontal front-loading drawer and, if so, its total number of tracks and total playing time. After playing has commenced, it shows the current track number and elapsed playing time in the track, the status of the REPEAT and SPACE INSERT buttons, and the setting of the volume control (which affects both the rear-panel variable outputs and the front-panel headphone jack).

A total of twelve selections can be programmed, and the CANCEL button can be used to correct any errors in entering the program. Repeated operation of the CHECK button displays the programmed track numbers in order, and pressing the REMAIN TIME button converts the time display from the elapsed time in the current track to the remaining time on the entire disc or in the programmed sequence.

The Yamaha CD-2000 uses a three-beam laser pickup. The program is oversampled at 88.2 kHz, and independent left- and right-channel digital filters are used to remove the unwanted components

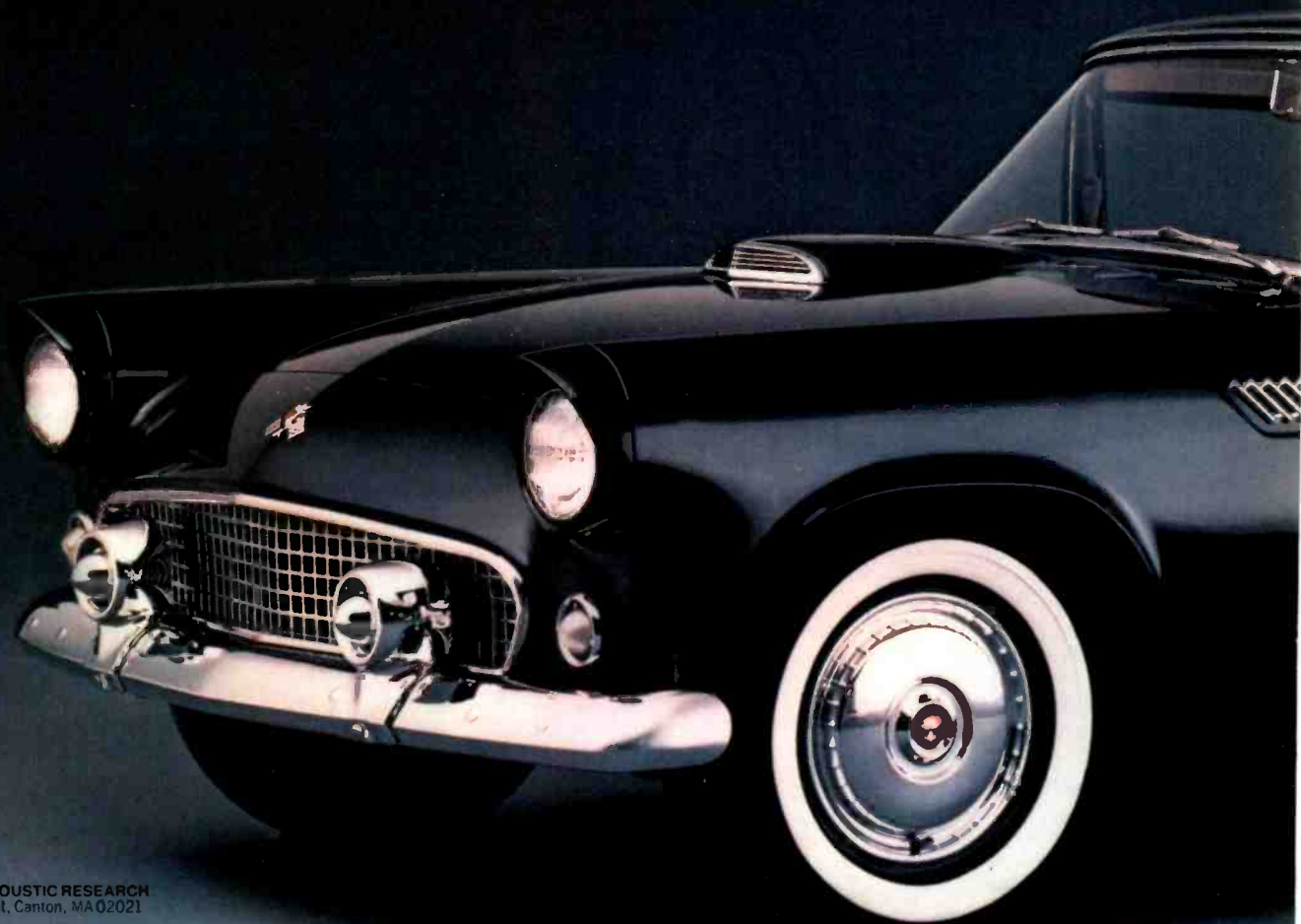
above 20,000 Hz. Yamaha claims that conventional CD circuits are microphonic and that even the digital integrated circuits are affected by noise and vibration that impinges on the structure of the player. Therefore, in addition to isolation of the disc drive and laser mechanisms from external vibration, the CD-2000 uses a Vibration Damping circuit assembly that is said to give it a purer output than the usual construction methods.

The Yamaha CD-2000 is 17 $\frac{1}{8}$ inches wide, 11 $\frac{1}{2}$ inches deep, and 4 inches high, and it weighs about 11 $\frac{1}{2}$ pounds. It is furnished with a wireless remote controller that duplicates most of the front-panel controls, including the volume adjustment, index button, and even the drawer open/close control. Price: \$799. Yamaha International Corp., Dept. SR, 6600 Orangethorpe Ave., Buena Park, CA 90620.

Lab Tests

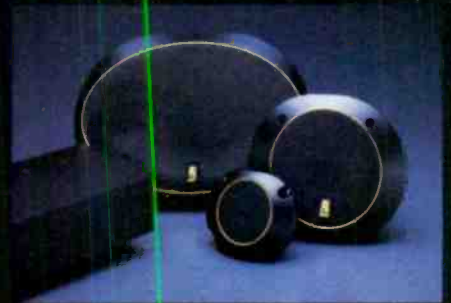
The output level from the fixed outputs of the CD-2000 was 2.06 volts from a maximum-level (0-dB) recorded test signal. The maximum output from the variable outputs was 5.15 volts, and it could be reduced to unmeasurable levels by the volume control. The volume changes were smooth, unlike typical digital control systems, since the level is actually varied by a motor-driven analog potentiometer. The channel levels were matched within

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In 1954, the Dodgers were in Brooklyn, Brando was on the waterfront, and Elvis was in Sun Studios. In September 1954, a classic two-seater called the Ford Thunderbird went into production.

That same year, Acoustic Research invented the Acoustic Suspension principle and used it to create another classic: the first high fidelity bookshelf speaker. Soon, AR products became the most revered, most sought-after, most imitated speakers in history.



Now, Acoustic Research puts its years of loudspeaker experience on the road. With the sophisticated new GCS Speakers. Most car speakers aim their tweeters at your rear window, not at your ears. AR's GCS-100 system has separate component woofers, midranges and tweeters. So you can mount the tweeters up front, where you can hear them. And the GCS-300, a classic 6 x 9, tilts the tweeter towards the front. While many car speakers have no crossover at all, these AR speakers have true electronic crossovers for minimum IM distortion. And while others use flimsy paper cones, AR uses ultra-rigid polypropylene.

Ultimately, making car speakers is easy. The hard part is making speakers sound good. And that's precisely what AR has been doing for 32 years.



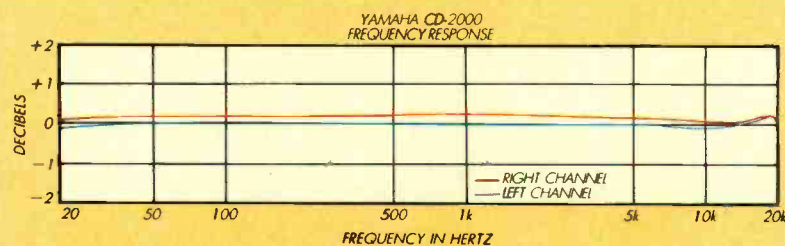
AR
ACOUSTIC
RESEARCH

We speak from experience.

CIRCLE NO. 18 ON READER SERVICE CARD

FEATURES

- Oversampling at 88.2 kHz
- Separate digital filters for left and right channels
- Three-beam laser pickup
- Direct access to any track through numerical keypad
- Up to twelve programmed selections in any order
- Audible music search in fast forward or reverse
- Skip to beginning of each track in either direction
- Repeat play of entire disc, programmed sequence, or defined program segment
- SPACE INSERT adds 3-second pause between tracks in playback
- Fixed- and variable-level output terminals
- Gold-plated phono-jack outputs
- Subcode output connector
- Pushbutton volume-level control for line/headphone output
- Timer-operated playback
- Display window shows track number, elapsed time, remaining time, volume-control setting, status of operating functions, and current index number
- Front-panel headphone jack
- Full-function wireless remote control



LABORATORY MEASUREMENTS

Maximum output level: 2.06 volts (fixed); 5.15 volts (variable)

Total harmonic distortion at 1,000 Hz: 0.0022% referred to 0 dB; 0.0032% referred to -10 dB; 0.017% referred to -20 dB

Signal-to-noise ratio (A-weighted): 98 dB referred to fixed output (2 volts); 99 dB referred to variable output (5 volts)

Channel separation: 95.5 dB at 1,000 Hz; 79.5 dB at 20,000 Hz

Frequency response: ± 0.1 dB from 20 to 20,000 Hz

Cueing time: 2.5 seconds

Cueing accuracy: A

Impact resistance: sides, A; top, B

Defect tracking: tracks all maximum defect levels on Philips TS4A test disc

about 0.15 dB. The frequency response of the CD-2000 was among the flattest we have measured, varying only about ± 0.1 dB from 20 to 20,000 Hz. Since the player uses separate digital filters for its two channels, we were surprised to find an interchannel phase shift (measured at the fixed-level outputs), which ranged from 2 to 10 degrees up to 5,000 Hz and increased to about 20 degrees at 10,000 Hz and 36 degrees at 20,000 Hz. This amount of phase shift is entirely negligible, however.

The error correction of the Yamaha CD-2000 was excellent. There was no evidence of loss of tracking at any defect level of the Philips TS4A calibrated test disc. The laser pickup moved from Track 1 to Track 15 of the Philips TS4 disc in

only 2.5 seconds. The transition from Track 17 to Track 18 of that disc, which are not separated by a silent interval, was perfect, with no clipping of the opening syllable of Track 18. The player's resistance to external shock was quite good. Although hard knuckle raps on its top caused occasional backward skipping along the disc, it seemed to suffer no ill effects from side blows.

Comments

Almost all CD players today do an excellent job of extracting the music from the discs, and such differences as have been noted by various critics are certainly exceedingly minor. Although we cannot say that the Yamaha CD-2000 sounded any different to us than others we have used, we could not fail to be im-

pressed by its smooth and flawless operation. In sharp contrast to some of the first-generation CD players (only three years ago!), the CD-2000 is easy to use—virtually self-explanatory. Even without an instruction manual for our test sample, we had no difficulty using its many features. The full-function remote control was also much appreciated.

The Yamaha CD-2000's smooth, analog output-level control was a clear winner, and its 5-volt maximum output makes it ideal for driving any power amplifier directly, without need of an intervening preamplifier.

We have often wished that CD players had output-level controls, if only so that their levels could be matched to those of other program sources used in the system. We have seen only a couple of players that have this feature, and Yamaha's analog control is a clear winner as far as we are concerned. In addition, the availability of a smoothly controlled audio level with a healthy 5-volt maximum output makes the CD-2000 ideal for driving any power amplifier directly, without an intervening preamplifier.

We remain unconvinced about the importance of "microphonic" circuits in degrading CD sound. For one thing, we have never heard any evidence of such degradation. Although Yamaha's literature shows some impressive spectrum-analyzer photos of the effects of microphonics in CD circuits, there is no indication of their magnitude. It certainly cannot hurt, however, to remove even this minute flaw (if it exists) from a music system.

Nit-picking aside, we liked the Yamaha CD-2000 very much and can honestly say we have never used a better CD player—or, indeed, one we would choose in preference to it if such a choice became necessary. It definitely embodies the Yamaha tradition of quality, and if it has any weaknesses, we did not find them.

Circle 140 on reader service card



Come to where the flavor is.



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SURGEON GENERAL'S WARNING: Quitting Smoking
Now Greatly Reduces Serious Risks to Your Health.

16 mg "tar" 1.1 mg nicotine
av. per cigarette FTC Report Feb. '85

The Pioneer® SD-P40 is not a projection television. It is a projection *monitor*. The first of its kind.

And in one masterstroke, all—not some, but *all*—of the compromises associated with projection television have been eliminated.

In fact, the SD-P40 is not merely far

For the first time, a true skin tone is achieved in the presence of a vivid green. At last, color compromise is eliminated.

The exceptional performance of the Pioneer SD-P40 is the result of several major technological advances developed by Pioneer engineers over the last 3 years.

PIONEER INTRODUCES THE WORLD'S FIRST PROJECTION MONITOR.

superior to *any* other conventional projection system, it is also superior to all but a few direct-view monitors.

450 LINES. AND THAT'S THE BEGINNING.

The horizontal resolution on the SD-P40 is more than 450 lines.

The brightness is more than 300 footlamberts. It is actually brighter than any direct-view system.

The contrast has a dynamic range more than twice that of conventional projection systems.

THE END OF BIG-SCREEN COMPROMISE.

Ambient light, one of the great problems in projection video, is no problem at all. In fact, there is less deterioration in contrast due to ambient light than in direct-view systems.

Focus, so much a problem in conventional projection systems, is sharp to the edges of the screen. Further, the picture is equally bright regardless of what angle you are viewing it from.

Blacks, so often grey on conventional systems, are rich while holding detail.

The fuzziness you're so used to seeing around white lettering and objects at high brightness, known as "blooming," is eliminated.

Color values are exceptionally accurate.

AN UNPARALLELED LENS. A REVOLUTIONARY LENS SYSTEM.

The lens itself is the largest projection lens ever developed for private use—with a maximum bore of 160 mm.

Perhaps even more significant is Pioneer's development of the world's first liquid-cooled optical-coupling system. Far superior to conventional silicone gel or air coupling systems, the "Liquid Lens" is clearly the most accurate, efficient projection lens system ever devised.

MAJOR ADVANCES IN CIRCUITRY.

A new High-Voltage Stabilizing Circuit eliminates anode voltage drop, preventing darkness in white areas and focus loss.

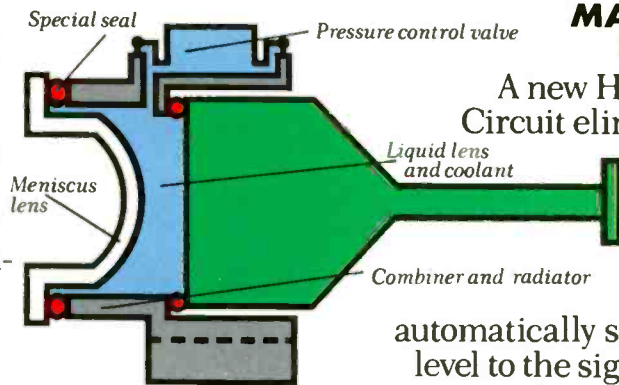
A new Black-Level Stabilizer Circuit automatically sets the optimum black level to the signal source.

A newly created Dynamic Focus Circuit guarantees sharp focus to the edges of the screen.

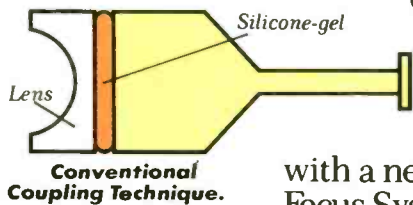
And new High-Focus CRTs utilize not one but three electron lenses. These, combined with a newly developed Linear Tracking Focus System, result in a focal performance superior to conventional CRTs.

THE HEART OF A SOPHISTICATED AUDIO/VIDEO SYSTEM.

Inputs are provided for a LaserVision player



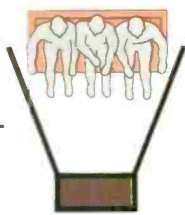
The "Liquid Lens" Technique.



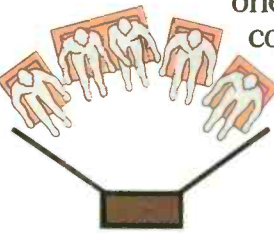
Conventional Coupling Technique.

and two videocassette recorders, in addition to 139 cable-capable channels with 10-key direct access. There's an MTS decoder for stereo/SAP broadcasts, and a simulated-stereo processor. There's a built-in high-powered 12W + 12W amplifier, with two built-in 6⁵/₁₆-inch speakers. There's a monitor output, and a TV output. There's even a variable audio output that lets you control volume through your hi-fi system by remote control.

In fact, the entire system is controlled by



Conventional seating



Our seating

Finally, you can sit anywhere.

one 54-function System Remote control (which will also control Pioneer LaserDisc™ and VCRs bearing the SR symbol).

We could go on and on. Suffice it to say, all you have to do is see the Pioneer SD-P40 once, and you will suddenly understand the difference

between the world of projection televisions and the only projection monitor in the world.

PIONEER®

CIRCLE NO. 25 ON READER SERVICE CARD



PIONEER

WIDE SCREEN MONITOR SD-P40



ONKYO TX-RV47 AUDIO-VIDEO RECEIVER

Julian Hirsch, Hirsch-Houck Laboratories

ONKYO'S TX-RV47 combines a highly versatile audio and video control center with an amplifier rated to deliver 55 watts per channel continuous output into 8-ohm loads from 20 to 20,000 Hz with no more than 0.08 percent total harmonic distortion. It carries dynamic-power ratings (at 1,000 Hz) of 90 watts per channel into 4 ohms or 73 watts into 8 ohms. In addition to all the usual control features, it has sound-processing circuits that can simulate stereo from mono programs, expand the sonic image of a stereo program, and dynamically enhance the bass response. There is also a four-channel matrix system designed to extract "surround sound" from encoded stereo movie soundtracks as well as ordinary two-channel stereo programs.

The TX-RV47's digital-synthesis AM/FM tuner has both automatic and manual tuning modes and sixteen station presets that can be assigned to either band. The preamplifier has inputs for a phono cartridge, a CD player, and two audio

tape decks, with dubbing possible from Tape 1 to Tape 2. It can also control two VCR's and a videodisc player (VDP), channeling their video outputs to an external TV receiver or monitor and their audio to the hi-fi system's speakers. Videocassettes can be dubbed from either VCR to the other, and the sound portion of any video program can be replaced by a program from any of the audio inputs.

Except for three small horizontal sliders for bass, treble, and balance, all the receiver's controls are soft-touch keys or pushbuttons, and most of their functions are duplicated on the supplied wireless remote control. Although preset stations cannot be randomly accessed from the remote control, it can step through the presets sequentially in either direction or else scan them automatically with a 5-second pause on each station. The display window on the front panel provides complete information on the receiver's operating status.

In addition to the usual audio input and output phono jacks, the

rear apron of the TX-RV47 contains jacks for the video inputs and outputs from the VDP and VCR's. A slide switch for each VCR selects either mono or stereo audio output (stereo is usable only with a hi-fi VCR), and a third switch disables the audio "beep" that normally accompanies any operation of a tuning or input-selector button. There are insulated spring terminals for the two pairs of speaker outputs and four a.c. outlets (three of them switched). The binding-post antenna terminals for AM loop and 300-ohm FM antennas are supplemented by an F-type jack for use with 75-ohm coaxial inputs. Finally, there are two integral cables, terminated in DIN plugs, to connect a compatible Onkyo record player or cassette deck for control by the receiver's remote unit.

The Onkyo TX-RV47 measures 17 $\frac{1}{8}$ inches wide, 15 $\frac{3}{8}$ inches deep, and 4 $\frac{3}{4}$ inches high, and it weighs 21 pounds. Price: \$500. Onkyo U.S.A. Corp., Dept. SR, 200 Williams Dr., Ramsey, N.J. 07446.

Lab Tests

The Onkyo TX-RV47 is a relatively large and heavy receiver for its rated power, and as a result it became no more than moderately warm at any time during our tests, including the 1-hour preconditioning period at one-third rated power.

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PHOTOGRAPHY: STEPHEN ESSSENGER

Mission Electronics Corp. of America 5985 Atlantic Drive, Unit 6, Mississauga, Ontario L4W 1S4 Phone: (416) 673-3777

CIRCLE NO. 54 ON READER SERVICE CARD

FEATURES

- Input selection for three video and five audio sources
- Bidirectional video tape dubbing
- Audio tape dubbing from Tape 1 to Tape 2
- Two pairs of speaker outputs
- Four-channel matrix for surround-sound playback
- A separate audio source can be combined with a video program from a VCR or videodisc player or dubbed in place of a video soundtrack
- Separate mono/stereo selectors for two VCR's
- Wireless remote control unit can also control a compatible Onkyo turntable and cassette deck
- Digital-synthesis AM/FM stereo tuner with sixteen station presets
- Automatic and manual tuning modes
- Memory-scan tuning function on remote control
- Electronic pushbutton volume and tuning controls
- Audio muting switch (-20 dB)
- Audio signal-processing functions include bass and treble tone controls, loudness compensation, dynamic bass expander, stereo image expander, and simulated stereo from mono program
- Stereo headphone jack
- Illuminated indicators for all major control settings
- Auto high-blend for weak FM stereo broadcasts
- Audible key-touch tone (defeatable)
- FM antenna jack for 75-ohm coaxial cable
- Four rear-panel a.c. outlets (three switched)

LABORATORY MEASUREMENTS

- FM Tuner Section**
Usable sensitivity (mono): 13.5 dBf (2.6 μ V)
50-dB quieting sensitivity: mono, 16 dBf (3.5 μ v); stereo, 35 dBf (30 μ v)
Signal-to-noise ratio at 65 dBf: mono, 80.5 dB; stereo, 71 dB
Harmonic distortion (THD + noise) at 65 dBf: mono, 0.15%; stereo, 0.13%
Capture ratio at 65 dBf: 1 dB
AM rejection at 65 dBf: 80 dB
Selectivity: alternate-channel, 51 dB; adjacent-channel, 3 dB
Stereo threshold: 16 dBf (3.5 μ v)
19-kHz leakage: -75 dB
Hum: -76 dB
Stereo channel separation: 43 dB at 100 Hz, 50 dB at 1,000 Hz, 26 dB at 10,000 Hz.
Frequency response: 30 to 15,000 Hz +1.2 dB, -0.1 dB
- AM Tuner Section**
Frequency response: -6 dB at 60 and 2,200 Hz
- Audio Amplifier**
1,000-Hz output power at clipping: 72 watts into 8 ohms; 88 watts into 4 ohms; 64 watts into 2 ohms
Clipping headroom (relative to rated output): 1.17 dB (8 ohms)
Dynamic power output: 90 watts into 8 ohms, 124 watts into 4 ohms, 90 watts into 2 ohms
Dynamic headroom: 2.14 dB
Harmonic distortion (THD + noise at 1,000 Hz into 8 ohms): 1 watt, 0.02%; 10 watts, 0.015%; 55 watts, 0.03%
Maximum distortion (from 20 to 20,000 Hz into 8 ohms): 0.13% at 20,000 Hz, 55 watts output
Slew factor: >25
Sensitivity (1-watt output into 8 ohms): phono, 0.37 mV; CD, 20 mV
Phono-input overload: 170 mV
A-weighted noise (referred to a 1-watt output): phono, -73.5 dB; CD, -78 dB
Phono-input impedance: 44,000 ohms and 40 picofarads
RIAA phono-equalization error: +0.3, -0.2 dB from 20 to 20,000 Hz
Tone-control range: +10.5, -9 dB at 100 Hz; +9, -7.5 dB at 10,000 Hz

The audio amplifiers had no difficulty driving loads as low as 2 ohms at power levels considerably exceeding their 8-ohm ratings. The amplifier's dynamic headroom (2.14 dB) was also excellent for a moderate-power receiver. The equalization accuracy of the phono preamplifier

was so good that we had to plot its response on the expanded scale used for CD players in order to measure its departure from the ideal RIAA response. In all of our significant other measurements, the TX-RV47 either met or surpassed its rated specifications (see box).

The loudness-compensation control boosted both low and high frequencies as the volume setting was reduced, although the effect was only slight until the volume was set at least 30 dB below its maximum. Below this point the response was fixed, with a maximum bass boost of 7 dB and a treble boost of 5 dB. The SIMULATED STEREO circuit is a comb filter that modifies the frequency response of each channel to create the illusion of a "true" stereo signal.

The stereo IMAGE EXPANDER appears to be a phase and amplitude modifier that spreads the soundstage across a larger portion of the room (sometimes beyond the limits of the speaker positions). The DYNAMIC BASS EXPANDER is an unusual circuit that boosts the response below about 100 Hz when the program contains energy in that band, but only in proportion to the signal level. At low levels the response is not affected, and the bass is gradually boosted at higher program levels, to a maximum of about 6 dB.

The FM tuner section of the TX-RV47 was in some ways quite ordinary and in others outstanding. For example, its 44-dB image rejection is only marginally acceptable for a good-quality home receiver, though it still surpassed the manufacturer's rating of 40 dB, and the alternate-channel selectivity of 51 dB fell slightly short of the rated 55 dB. In some other important respects, however, such as its capture ratio of 1 dB and AM rejection of 80 dB, the tuner far surpassed both its own ratings and the expected performance of a receiver in its price class.

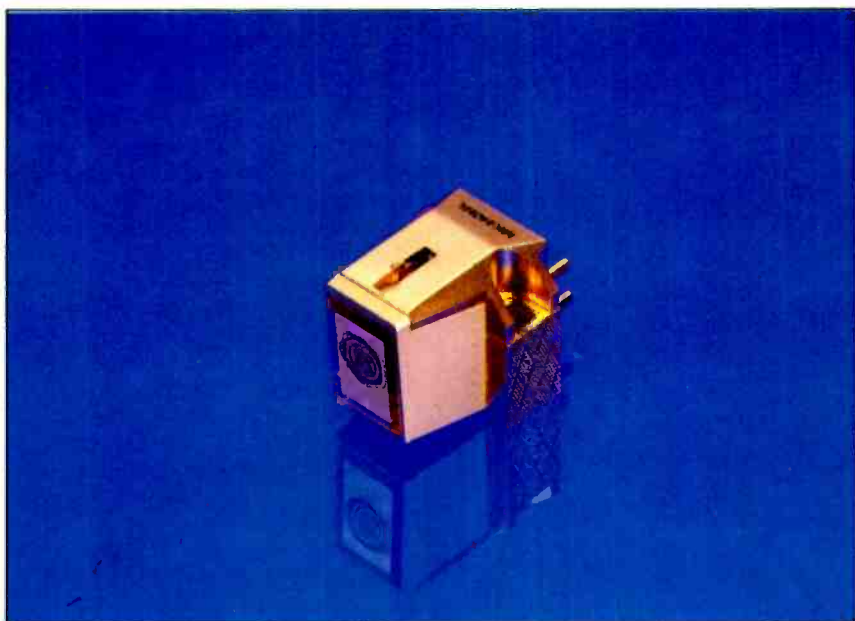
Comments

Onkyo has created a highly versatile and attractive receiver in the TX-RV47. It does many things and virtually all of them very well. If you have, or plan to have, an integrated audio/video entertainment system, this receiver could meet your needs. The emphasis seems to be on the audio portion of its capabilities, in which it provides more genuinely useful control than most other receivers we have seen. Its video role is essentially one of signal switching, with no attempt to provide specialized video modification

effects besides the option of substituting any audio program source for the recorded video soundtrack. But most users will probably find the audio and video dubbing capabilities more than adequate.

We used all of the TX-RV47's audio control and signal-modification features in our listening tests, and they all worked well for their intended applications. The four-channel surround-sound matrix was especially interesting to us. Since there is no independent control of the rear speaker level, we wondered how effective the system would be. In a word, very! Apparently the results are quite satisfactory as long as both front and rear speakers are of moderate sensitivity (say, 85 to 90 dB), with an effect of enhanced spaciousness even though the rear speakers are rarely audible as distinct sound sources. The rear speakers carry only the difference signal (L-R) and are effectively silent during mono programs. A novel feature of the Onkyo matrix system is that the lower-bass frequencies, which usually have little or no separation, are injected full strength into the rear speakers at all times. The intent is to impart an enhanced bass response to the overall system (especially if the rear speakers have good low-end response) without losing the spatial enhancement of the speaker matrix. The circuit seemed to have the desired effect, as did the dynamic bass enhancer.

Everything about the Onkyo TX-RV47 worked as it was supposed to, leaving us with a very positive feeling about it. Although the receiver is certainly feature-laden, it is easy to use, and every control does something useful. If you are a purist, you don't have to use all its features to enjoy its performance. Even though some of the super-power receivers on the market today might give you the impression that 55 watts per channel is a skimpy power reserve, the TX-RV47 is far from underpowered. Its amplifier section can deliver a lot more than 55 watts into almost any speaker load it is likely to face without getting hot or even tripping its protection circuits (they never operated during our tests, which tend to be rather abusive of an amplifier). This is a lot of receiver for the money.



SIGNET MK440ML PHONO CARTRIDGE

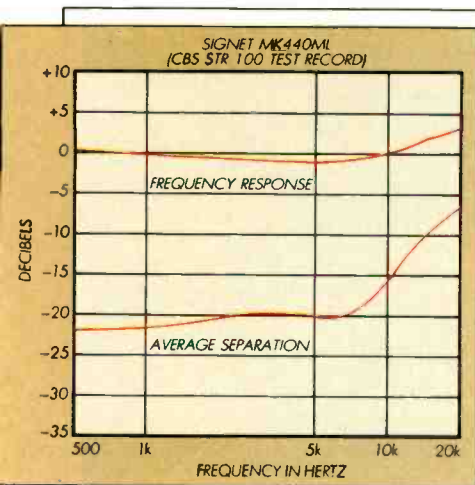
Julian Hirsch, Hirsch-Houck Laboratories

THE Signet MK440ml Dual Moving MicroCoil phono cartridge embodies several advanced and unique design features, some of which are suggested by its name. Its two small, low-mass coils are mounted at right angles to each other and are driven by a thin, tapered beryllium cantilever. The cantilever is coated with 24K gold applied by vapor deposition, a process Signet claims effectively damps the high-frequency resonance typical of moving-coil cartridges while adding little to its effective moving mass. The use of a nude-mounted, square-shank MicroLine diamond stylus also contributes to the low mass of the stylus/cantilever system. The MicroLine stylus is ground in an extended line-contact shape, which is said to give it about three times longer life than an elliptical shape and a narrower scanning radius (2.5 micrometers) for improved high-frequency tracing. For stylus replacement, the cartridge must be returned to Signet.

The coils of the MK440ml are wound with linear-crystal oxygen-

free copper, whose use is thought by some to improve the sound properties of audio components. Although the magnet uses high-energy samarium cobalt, the tiny coils (whose impedance is rated at 3 ohms) develop only about 0.1 millivolt of output at normal recorded levels, thus requiring a step-up device between the cartridge and the preamplifier. Signet recommends using its MK12T universal moving-coil cartridge transformer, which can be switched to input impedances of 3, 20, or 40 ohms or can be bypassed completely when you are using a moving-magnet cartridge.

The Signet MK440ml, which has standard 1/2-inch mounting centers, is housed in a metal case that provides both shielding and a flat, rigid mounting surface between the cartridge and the tonearm shell. The cartridge weighs 7 grams, well within the balance capability of almost all tonearms. We tested, and listened to, the MK440ml through the MK12T step-up transformer but did not measure the transformer's performance separately. Manufacturer's suggested maximum retail



prices: MK440ml, \$600; MK12T, \$400. Signet, Dept. SR, 4701 Hudson Dr., Stow, OH 44224.

Lab Tests

For our tests, we installed the Signet MK440ml in a low-mass tonearm (the well-damped system resonance was in the 8- to 11-Hz range). Although we experienced no problems with the cartridge's vertical alignment, its flat bottom and the small protrusion of its stylus require that the arm be close to parallel to the record surface. The measured vertical stylus angle of the cartridge was 20 degrees, as rated.

We measured the tracking limits of the cartridge, as a function of its vertical tracking force, with several high-velocity test records. At its minimum force rating of 1 gram, the MK440ml easily tracked the low and middle frequencies of our Cook and Fairchild high-level records and the 80-micrometer level of the German HiFi #2 record.

We also used the DIN 45-549 tracking-test record, which has a set of 300-Hz test bands equivalent to those of the HiFi #2 record, though it is recorded at higher levels (120 micrometers instead of 100 micrometers) and seems to be trackable at slightly higher levels with most cartridges. With the Signet, we could play its 90-micrometer band at 1 gram and the 100-micrometer band at the cartridge's maximum rated force of 1.6 grams. We used a 1.5-gram tracking force throughout our other tests.

The two channels had identical outputs of 2.3 millivolts through the

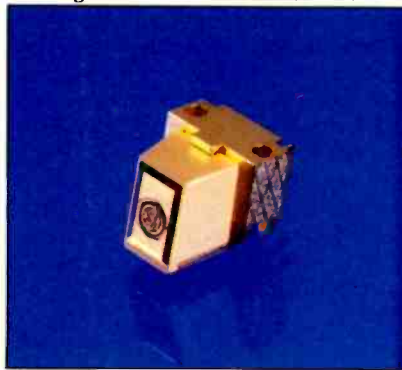
MK12T transformer's 3-ohm input, or 83 microvolts directly, at a recorded groove velocity of 3.54 cm/s. The frequency response was very flat, varying only about 1 dB overall, up to 10,000 Hz, and the output rose to +3 dB at 20,000 Hz. The averaged channel separation was 22 dB in the midrange, 16 dB at 10,000 Hz, and 10 dB at 20,000 Hz. Tracking distortions, including intermodulation (IM) between 400- and 4,000-Hz tones on the Shure TTR-102 and TTR-103 test records and the 10.8-kHz tone bursts of the TTR-103, were low at any usable recorded level. The IM distortion increased rapidly when the velocity exceeded 27 cm/s, but the increase was not associated with any obvious waveform clipping or other mis-tracking even at these high levels.

Comments

Judged solely by its measured performance, the Signet MK440ml has exceptional tracking ability and response flatness throughout the audible range. In fact, among the moving-coil cartridges we have tested, only a few could track very high levels as well as this one, especially with tracking forces in the 1- to 1.5-gram range. Although it appeared that the cartridge could be used satisfactorily at 1 gram, we decided to use 1.5 grams to be on the safe side. The MicroLine stylus shape should keep record and stylus wear at negligible levels even at that force.

The proof of a cartridge is in the listening, however, and here the MK440ml confirmed the verdict of

The Signet MK440ml's metal case provides shielding from hum and a flat, rigid mounting surface between the cartridge and the tonearm headshell.



our test records and instruments. It is a superbly smooth, transparent, and easy-sounding cartridge. Obviously, the results were best with very good records, with some even rivaling good CD's in their clarity and freedom from distortion. Not one of the records we tried, however, showed a trace of hardness or distortion. The cartridge's frequency response was ideally balanced, with no sense of emphasis (or loss) at any frequency.

Frankly, in many ways the Signet MK440ml measured and sounded like an ideal (perfect, if you will) moving-magnet cartridge, with a striking absence of the typical aberrations of moving-coil cartridges such as high-end "sizzle" and the almost universal problem of poor to mediocre tracking ability. This should be taken as the highest praise, since we strongly believe that the important thing about a hi-fi component is *how well* it works, and not *how* it works! In fact, the only faults we find with the MK440ml—its non-user-replaceable stylus and low output voltage—derive from its purely moving-coil characteristics.

The MK12T is a superb transformer, but we had to use all of its voltage step-up (the 3-ohm setting) to obtain a comfortable listening volume while retaining a little reserve gain. The transformer is (as claimed) very well shielded against hum pickup from stray fields, but ground loops in the system can introduce hum that is very difficult to eradicate. This problem is typical of moving-coil cartridges, and if you have the patience you can overcome it. Still, it is not easy to achieve as good a signal-to-noise ratio with a moving-coil cartridge as with a good moving-magnet type.

In spite of an admitted lack of enthusiasm for moving-coil cartridges as a class, we have come to the conclusion that these Signet components form one of the most highly refined record-playing combinations available to the audiophile. You can buy cartridges very nearly as good (and probably a lot easier to optimize in your system) for a lot less money, but it is not likely that you could find one significantly better at any price.

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CIRCLE NO. 59 ON READER SERVICE CARD

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16 mg. "tar", 1.2 mg. nicotine
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ROBERT LORENZ

JOHN BOWERS ACTIVE 1 LOUDSPEAKER

Julian Hirsch, Hirsch-Houck Laboratories

As its name indicates, the John Bowers Active 1 speaker is an "active" system; that is, it has built-in power amplifiers and requires only a line-level audio input for its operation. It is the initial product from John Bowers, Ltd., a company whose founder is the "B" of the well-known British manufacturer, B&W Loudspeakers.

An active speaker (sometimes also called a "powered" speaker) enjoys a number of recognized advantages over a conventional passive speaker, which requires a signal from a power amplifier. The complex and costly crossover network required for a standard multiple-driver speaker system is replaced in an active system by efficient low-

level crossover circuits at the input to the amplifiers, rather than at their outputs. The reference to amplifiers (plural) is another key to the properties of an active speaker design. Normally at least two power amplifiers are used, one to drive the woofer and the other for the tweeter. In a three-way active speaker, it is not uncommon to use a passive crossover between the midrange and high-frequency drivers, although a third amplifier is another option open to the designer.

Each amplifier in an active speaker system can be matched, in its power capabilities and frequency response, to its associated driver, thus greatly reducing or eliminating any undesirable interaction between an

amplifier and the complex impedance of its driver. Amplifier intermodulation distortion, though rarely a problem in any case, is also effectively eliminated by channeling different frequency ranges to separate amplifiers. Bass response, for any given enclosure size, can be extended by active equalization in the low-frequency amplifier. An integrated protection system can prevent damage to either the amplifiers or the drivers from excessive inputs. Integrated tone controls can be designed to compensate for variable room acoustics. Finally, the complete package (speaker and amplifiers) is inherently compatible and easy to operate.

While all these advantages might suggest that active speakers are "the way to go," they have disadvantages as well. Active speakers are usually expensive, though not unreasonably so compared with the cost of purchasing separate amplifiers and speakers. To the hard-core audiophile, active systems have the disadvantage of removing freedom of choice in component selection. There is also a more tangible disadvantage: the complete loss of use of the system should either the drivers or the amplifiers fail, since user replacement is not possible.

The John Bowers Active 1 can be considered either a two-way or a three-way system, with two apparently identical 6-inch Bextrene-cone woofers operating in a ported enclosure. The output of one, the bass driver, is rolled off above 300 Hz by a passive equalizer while the other, the bass/midrange driver, continues up to about 2,000 Hz before its electronic crossover to the single 1-inch polyamide-dome tweeter.

Both woofers have the same low-frequency response and are driven by an amplifier rated for 200 watts into 4 ohms. The tweeter is driven by a 100-watt (8-ohm) amplifier. The electronic components are entirely enclosed within the speaker cabinet, whose back is a metal plate with external heat-sink fins. There are two rotary-switch frequency-trimming controls on the rear of the cabinet. The three-position HF switch provides the option of a small boost or cut in response above 3,000 Hz. The six-position LF switch boosts or cuts the response

below 200 Hz to compensate for the effects of room boundaries on the loudspeaker's bass response.

Other rear-panel features include a power switch and a.c. line-cord connector, a phono-input jack for unbalanced inputs, and a socket for balanced audio inputs (a slight internal wiring change is required for this mode). There are also red and green pilot lamps. The red light indicates that the system is powered. Any audio signal appearing at its input connectors automatically switches on the amplifiers (together with the green pilot lamp). The system remains active for about 15 minutes after all input has been removed, then it shuts itself off. In operation, the power consumption of each Active 1 ranges from 120 watts at zero drive to 400 watts at full drive. In standby mode it draws only 4 watts of power.

The specifications of the Active 1 include a frequency response of 45 to 18,000 Hz ± 2 dB with the LF control set to maximum, a 30,000-ohm input impedance (balanced or unbalanced), and a dispersion of more than 60 degrees horizontally and 10 degrees vertically. The input sensitivity is rated at 175 millivolts (mV) for a sound-pressure level (SPL) at 1,000 Hz of 95 dB measured at 1 meter.

The John Bowers Active 1 measures 24 $\frac{5}{8}$ inches high, 10 inches wide, and 15 $\frac{3}{4}$ inches deep including its cloth grille, and it is supplied with a stand that places its top 33 $\frac{7}{8}$ inches from the floor. Each system unit weighs 66 pounds. The cabinets are finished in black-ash, natural-oak, or walnut veneers. Price: \$2,995 per pair. John Bowers, Ltd., distributed by Anglo American Audio, Dept. SR, P.O. Box 653, Buffalo, NY 14240.

Lab Tests

Our measurements followed conventional practice except that no external amplifier was used and neither the voltage across the speaker drivers nor their actual operating power levels were measurable (or of any importance). The Active 1's sensitivity for our reference 1,000-Hz acoustic output of 90-dB SPL at 1 meter was 135 millivolts. Our low-frequency distortion measurements were made at the same input

level. We measured the response first with the speaker's controls set as received—HF at the middle, or 0 setting, and LF just below its middle setting—and made additional measurements to determine the effects of the controls at their limit settings. Although we made close-miked measurements at each of the woofers to establish their operating-frequency limits, we also measured their combined overall response with the microphone midway between them and close to the front of the cabinet.

The room response of the Active 1 speakers was very smooth, sloping gently down as frequency increased. The woofer response was comparably flat and smooth, and the two curves spliced easily to form a composite curve that dropped a total of about 8 dB from 100 to 20,000 Hz, with no irregularities greater than 2 dB in that range. The woofer output decreased rapidly below 80 Hz, reaching the 20,000-Hz level at 55 Hz. We were unable to measure the output at the woofer port, which was inaccessible underneath the enclosure and surrounded by the perforated-steel support structure. Its small size relative to the area of the two woofers suggests, however, that its contribution to the total bass output would be relatively slight.

The HF control varied the output by 2 dB in the 13,000- to 20,000-Hz range, with a decreasing effect down to about 4,000 Hz. At maximum boost the control flattened out the response curve slightly. The LF response adjustment range was considerably greater, about ± 5 dB below 150 Hz and less than 1 dB at 700 Hz. The factory setting gave the flattest overall response in our composite curve as well as the best sound with the speakers 2 to 3 feet from the wall behind them.

The bass distortion was extraordinarily low, less than 1 percent from 100 down to 40 Hz and only 3.5 percent at 30 Hz. Encouraged by the smoothness of the speaker's mid-range response, we also extended our distortion measurements to higher frequencies, where it increased gradually from 0.1 percent at 200 Hz to 0.24 percent at 600 Hz. These measurements were made with a 135-mV input, correspond-

ing to a comfortably loud 90-dB midrange output level. The amplifiers could be turned on by an input of less than 1.5 mV and remained on for at least the rated 15 minutes after the signals were removed.

For our pulse-power tests we measured the peak-to-peak sine-wave input (1 or 2 cycles on, followed by 64 to 128 cycles off) and observed the speaker's acoustic-output waveform as the input level was increased. At each of our test frequencies (100, 1,000, and 10,000 Hz) the output saturated at an input of 8 volts peak to peak, or 2.83 volts rms. There was no evidence of clipping distortion, and we heard no raspy sounds from a woofer cone's reaching the end of its linear travel. The only sign that a limit had been reached was that the acoustic output no longer increased with larger input signals. These tests confirmed the effectiveness of the Active 1's protection system.

The maximum input signal corresponded roughly to an acoustic output of 116 dB at all test frequencies. To relate this to similar measurements we make on conventional speakers, consider a system with a sensitivity of 90 dB SPL with 2.83 volts ("1 watt") input, which is above-average sensitivity for today's hi-fi speakers. An output of 116 dB would require an input power of 400 watts, making such a system the rough equivalent—in this respect only—of the John Bowers Active 1. Less sensitive speakers might have to be driven with more than 1,000 watts to produce the same sound level as the Active 1.

Quasi-anechoic measurements made with the IQS FFT analysis system confirmed the smoothness and other sonic properties of the Active 1 system. Axial response curves made at distances of 1 and 2 meters from the speaker revealed a small (3-dB) peak at 7,000 Hz, but it did not appear in measurements made 45 degrees off axis. The FFT measurements showed a response variation of ± 2 dB from 300 to 23,000 Hz on axis, and at 45 degrees off axis the response dropped off above 10,000 Hz. The phase linearity of the speaker was very good. Its overall group-delay variation was 0.2 millisecond from 23,000 to 5,000 Hz and reached a maximum

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of 0.4 millisecond at 300 Hz. According to the manufacturer, the system contains electronic delay compensation to correct for differences in group delay between the bass and treble drivers; it appears to be very effective.

Comments

The John Bowers Active 1 certainly measured like a fine speaker, and we are happy to report that it sounds as good as its measurements imply—beautifully balanced and uncolored. We found it equally enjoyable with the HF control at 0 and at maximum boost. The bass output from the two 6-inch drivers may not satisfy those who are accustomed to using subwoofers, but it compares very well with the output from good 12-inch woofers in cabinets at least twice the size of the Active 1. If you like a lot of bass, setting the LF control to maximum will help, although we often found the resulting sound a bit too heavy. The important thing is that this system has enough response flexibility to adapt to a wide variety of listening environments and tastes. Very few speakers we have used are as well equipped in this respect.

The Active 1 looks deceptively small from the front (it is considerably deeper than it is wide), but it is a heavyweight. It is supplied with plastic glides that distribute its weight sufficiently to prevent indenting floors or carpets. It is also furnished with sharp feet ("carpet spikes") for those who prefer their speakers anchored to bedrock, or as nearly so as possible.

We compared the John Bowers Active 1 with some other more conventional (unpowered) speakers, including a few in its own price range. Its sound was definitely in the same class as the best of them, although of course tastes differ so widely that it would be foolhardy to make any firm comparisons. And when you consider that a good power amplifier for speakers of this caliber is likely to cost \$500 to \$1,000 and would still not be able to provide the same degree of protection (and probably not the same maximum undistorted sound level) as the Active 1 system does, even its price begins to look more down to earth.

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HALF GANGES

FRIED TRIPLET SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE Fried Beta is a small, moderate-priced speaker that can be used either in a conventional stereo installation or in combination with a Fried subwoofer to form a three-piece Triplet system. The Beta is a two-way speaker with a 6½-inch polypropylene-cone woofer crossing over at 2,000 Hz to a 2½-inch "cone-dome" tweeter (the dome is

at the center of a conventional cone). A series-configuration crossover network is claimed to provide proper phasing for the system along with 12-dB-per-octave crossover slopes. The drive levels are set internally, and there are no external adjustments.

The Fried Beta is neither an acoustic-suspension system nor a vented system but a hybrid of the

two design approaches. The cabinet is effectively closed insofar as acoustic radiation from the rear of the woofer cone is concerned, but there are two ½-inch-diameter holes on the speakerboard described as a "pressure release." Backed with foam damping material, these holes are intended to reduce the internal pressures normally created in a small sealed box and to approximate a nonresonant (aperiodic) system. A pair of five-way binding-post input connectors and a reset button for the speaker's protective circuit breaker are recessed into the rear of the cabinet.

The cabinet measures 13½ inches high, 8 inches wide, and 8 inches deep, and it is finished in simulated-walnut-grain vinyl with a snap-on black cloth grille. Each speaker weighs 11½ pounds. The Beta's specifications include 8 ohms nominal impedance, a sensitivity of 89-dB sound-pressure level (SPL) at 1 meter with a 1-watt input, and a frequency response of 60 to 16,000 Hz ± 3 dB. Fried recommends an amplifier power of 25 to 100 watts per channel.

The Fried Duo subwoofer supplied to us with the Betas was designed primarily as a bass extender for Fried's Beta and Q/3 speakers. Although the subwoofer can be used with other small speakers, differences in speaker impedance characteristics can affect the overall system performance.

The subwoofer's single, front-facing driver is a 10-inch polypropylene-cone woofer with separate voice-coil windings for the left- and right-channel stereo inputs. Although the channels are summed at low-bass frequencies, the subwoofer normally operates only below about 100 Hz, so stereo separation is unaffected. If a separate subwoofer is used for each channel, the voice coils of each unit are connected in parallel. Fried's literature describes the subwoofer as "heavily braced, damped with free-flow filters, and loaded by a 'line tunnel' that provides an auxiliary source of time-accurate very low bass." The only visible opening in the cabinet is a foam-filled strip half an inch high across its bottom front. The cabinet's finish matches that of the companion Fried speakers, and it meas-

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ures 24 inches high, 15 inches wide, and 12 inches deep. Weight is about 45 pounds.

The crossover network built into the Fried subwoofer uses the same series configuration featured in the Beta system, with a nominal crossover frequency of 110 Hz. There are no adjustments since its efficiency and crossover characteristics are designed to be compatible with the Fried Beta and Q/3 speakers. Each channel's input is protected by a 2.5-ampere fuse. Two fuse holders, two sets of five-way binding posts for the amplifier inputs, and two sets of speaker outputs (for the left and right satellites) are recessed into the rear of the cabinet. A diagram and instructions are supplied for internal rewiring of the subwoofer for bi-amplified operation, which may be necessary for use with other manufacturers' satellites but is not recommended for use with the Fried speakers. The rated frequency response of the subwoofer extends down to 32 Hz, within a few decibels, and it has a nominal impedance of 8 ohms.

Suggested retail price for the Fried Triplet system is \$625, which includes \$300 per pair for the Beta satellites and \$325 for one Fried Duo subwoofer. Fried Products Co., Dept. SR, 7616 City Line Ave., Philadelphia, PA 19151.

Lab Tests

We measured the frequency response and other characteristics of the Fried Beta and subwoofer as a system as well as separately. Following the manufacturer's recommendations, we mounted the Betas about 8 feet apart on stands that were about 25 inches high and equally far from the rear wall. We tried the subwoofer in two locations: behind one of the speakers and in the recommended placement, midway between and slightly in front of the satellites.

The measured sensitivity of the Beta system was 86 dB at 1 meter with 2.83 volts of pink noise in a one-octave bandwidth centered at 1,000 Hz. Its impedance was about 6 ohms at 20 Hz and rose to 18 ohms at its bass resonance of 80 Hz, then fell to its minimum of 5.3 ohms at 150 to 200 Hz. The impedance rose again to about 22 ohms at 1,800 Hz

and remained above 11 ohms from there to 20,000 Hz. These measurements indicate that the Beta's nominal impedance should be rated as 5 or 6 ohms rather than 8 ohms. The subwoofer's bass resonance was at 39 Hz, where its impedance was about 14 ohms. Its minimum impedance was about 4 ohms at 150 Hz, above which it rose smoothly to more than 1,000 ohms at 15,000 Hz. The combined impedance of the Beta and the subwoofer was much like the Beta alone above 150 Hz and like the subwoofer alone below that frequency. The minimum combined impedance was 3.8 ohms at 250 to 300 Hz.

The room response of the Beta was quite uniform and smooth. Except for a moderate peak and dip in the 300- to 500-Hz range, evidently the result of a floor reflection, the response varied only about 7 dB overall from 70 to 17,000 Hz. The tweeter's dispersion was excellent for a radiator of its dimensions. The close-miked woofer frequency response was maximum at 100 Hz, falling the expected 12 dB per octave at lower frequencies and dropping gently at higher frequencies to about -9 dB between 1,000 and 2,000 Hz. Although the output measured at the "pressure release" holes had about the same response shape as the cone's output, it was 10

to 15 dB lower in level (more like 30 dB lower when corrected for the sizes of the two sources) and therefore contributed nothing significant to the total acoustic output of the Beta system.

The results above 100 Hz were very similar when we paired the Betas with the subwoofer, although because of room resonances the output below 100 Hz was both higher in level and less regular than that of the unaided Beta. The close-miked response of the subwoofer peaked at 50 Hz, falling off at 18 dB per octave below that frequency and more gradually from 50 to 140 Hz, where it was down 6 dB, and then at 18 dB per octave from 140 to 300 Hz. The electrical crossover frequency (the -3-dB point) between the subwoofer and the Beta satellites was 170 Hz, but the actual acoustic crossover was considerably lower, apparently around 100 Hz.

Our usual practice of splicing a woofer's response curve to the room response of the other drivers to derive a composite frequency-response curve is less meaningful for a three-piece system like this one since the remote placement of the subwoofer makes its actual acoustic performance somewhat unpredictable and largely independent of the bass output of the satellites. All we can say about the complete Fried



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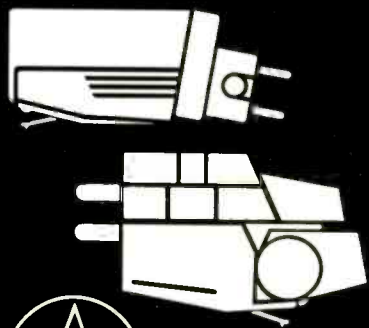
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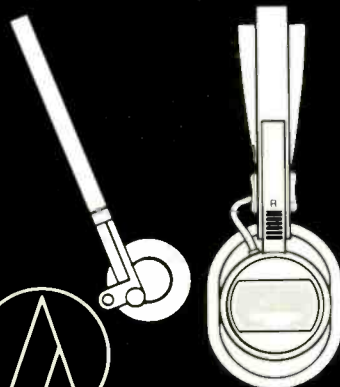
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TEST REPORTS

Triplet system is that its bass extends to the vicinity of 30 Hz.

The subwoofer's distortion at a constant 4.5 volts input (equivalent to a 90-dB SPL from the Beta at 1,000 Hz) was quite low, varying between 0.6 and 2 percent from 100 to 35 Hz. At the same drive level, the small woofer of the Beta generated distortion levels from 1.7 to 3 percent at frequencies of 100 to 60 Hz, rising to 7.7 percent distortion at 40 Hz. Of course, when the Beta is used with the subwoofer, frequencies below 100 Hz never reach its woofer, so its distortion remains negligible.

Our FFT measurements on the system confirmed the key characteristics of its room response. The group delay was excellent, varying about 0.4 millisecond overall through most of the audio range, with occasional excursions to 0.8 millisecond below about 4,000 Hz.

Our peak-power tests of the system confirmed Fried's claims of an exceptional dynamic range for speakers of this size and price. At 100 Hz the subwoofer did not rattle or otherwise distort with a 1- or 2-cycle tone burst until the power input reached 360 watts into 5 ohms. At the same frequency, the woofer of the Beta, operated without the subwoofer, reached its excursion limits and generated a highly audible rasping sound at 120 watts into 8.5 ohms, which is still a very creditable performance for a 6½-inch cone driver. At 1,000 Hz the Beta took the full output of the amplifier, which clipped at 255 watts into the Beta's 15-ohm impedance. Finally, at 10,000 Hz, the amplifier clipped at 327 watts into 11 ohms without any signs of distress from the Beta's 2½-inch tweeter.

Comments

Despite the claims of aperiodicity made for the Fried Beta, and implied for the Fried subwoofer, both speakers had the expected low-frequency resonances. It was not evident from external measurements or the audible sound of the system that the "pressure release" holes on the Beta, or their equivalent on the subwoofer, contributed to any special performance characteristics. Beyond this minor quibble, our overall reactions to the Fried Tri-

plet system were unquestionably positive.

We listened to the Betas alone for some time, but after adding the subwoofer we preferred the Triplet system. The overall sound quality was not much different—nor should it have been, since the Betas were radiating almost all of the audible sound from the system. But it was instructive to disconnect the satellites and listen only to the output of the subwoofer. There is very little musical or vocal content below 100 Hz, and all that could be heard was a formless, low-level rumbling. Added to the output of the Beta system, however, this almost subliminal floor of low bass transformed a pair of rather good small speakers into a system where the full audio range was very much "all there." The combined system is able to compete on even terms with many larger and more costly systems.

Even without the subwoofer, the Beta was still a very easy speaker to live with. Its sound quality was very well balanced and did not convey any of the sense of "smallness" or "thinness" that afflicts so many small speakers. The Beta was also free of most of the common problems of inexpensive speakers, such as the edginess and mid-bass coloration that often result from the peaked bass response of a small woofer. Although the system exhibited a slightly soft quality, its output was smooth and covered a wide frequency range. The sound stage was as wide as the speaker spacing allowed, without any of the artificial effects that appeal to some listeners. The speakers were just plain good to listen to.

Fried calls the Betas "mini monitors," which implies an ability to handle high-level program peaks without dynamic compression or damage. Our peak-power tests certainly confirmed that ability.

The bottom line is that the Fried Beta is one of the best speakers of its size and a strong contender in its price class, where the competition is severe. And the combination of the Beta with the Fried subwoofer is one of the most potent three-piece systems you can find at a list price around \$625, very inexpensive for this type of system.

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WHAT'S NEW IN CAR STEREO?



*A survey of trends and developments in autosound
by Daniel Sweeney*

NEW is still the byword in car stereo. Manufacturers of autosound components rarely boast about how long they have been in business or claim their products are made the old-fashioned way. And, not surprisingly, autosound has produced no classic components that hold their value on the used market and serve as enduring benchmarks of audio performance.

Instead, car stereo manufacturers emphasize the new and novel technologies in unending succession, instantly outdating last year's marvels. The cautious consumer is likely to wonder how many of the product revisions of the present represent significantly new answers to the problems of musical reproduction in the automobile, what innovations are the beginnings of new trends and which are dead ends, and what real changes are occurring be-

hind the constantly refurbished costume jewelry of LED's and liquid-crystal displays.

Factory Sound Systems

The most important change in autosound is as much a marketing phenomenon as a technological revolution, and that, of course, is the rise of serious factory sound systems. A few years back, Bose and General Motors collaborated on an equalized, multi-amped factory system for Cadillacs, Corvettes, and other luxury cars that set new standards for the auto industry. The Delco-GM/Bose Music System was very much an isolated development, a lone high-quality pioneer among the many low-quality factory systems built into most cars.

But now Ford has entered into a similar collaborative venture with JBL and Chrysler is working with Infinity Systems. The Ford-JBL marriage has already borne fruit in

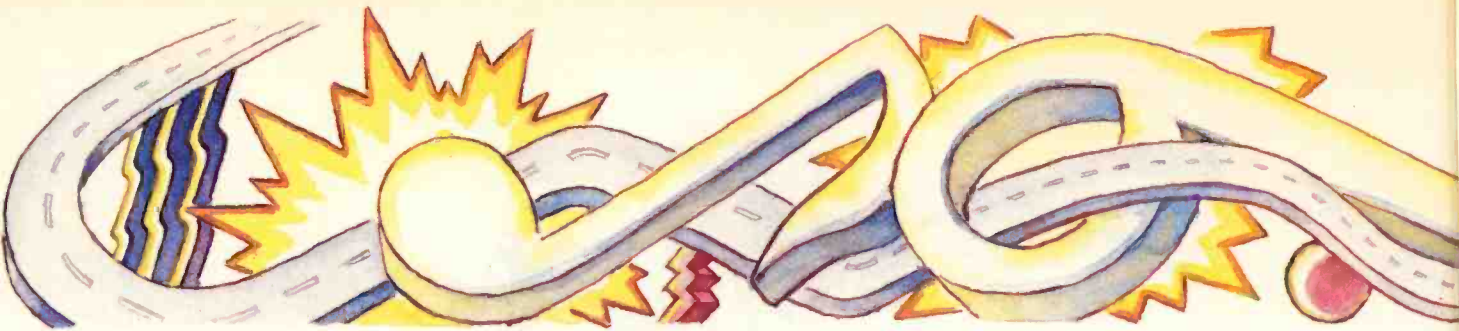
the form of a multi-amp, equalized, controlled-dispersion system that features sub-bass and high power, neither of which the Delco-GM/Bose system has.

Indeed, the Ford-JBL system more closely resembles the work of the better esoteric custom installers and thus would appear to represent a real threat to aftermarket components (those designed to replace the original equipment built in by the car's manufacturer). Ford also promises a Sony-manufactured CD player as a factory option in the Lincoln Town Car some time this year.

Meanwhile, across the Pacific, Mazda has introduced a multi-amp system, rated at 100 watts total and complete with a CD player, for the RX-7 sports car, and Toyota collaborated with Fujitsu Ten to create an impressive system for the Toyota Celica GT-S. Mercedes-Benz, Saab, and Volvo are said to be developing

ILLUSTRATIONS BY BACURUN LOWELE





sophisticated audio systems as well. Powerful, tuned autosound systems are still far from standard in luxury cars, but they are starting to appear in greater numbers. And unlike many esoteric aftermarket installations, which still feature disco-style, sizzle-boom sonics, the more sophisticated factory systems are tuned for linear amplitude and phase response.

Do such developments mean that factory systems will begin to take the lead in the debut of new technology? Not necessarily. Factory systems require extremely long lead times for development, and the decision-making process required to initiate a project—after preliminary design work has been completed—may itself take many months.

As one manufacturer bidding on a Detroit subcontract said, "It takes a committee action for an auto maker to change one resistor in a circuit." He may be exaggerating just a bit, but the relative slowness of automakers in embracing the Compact Disc format is testimony to the basic conservatism of the industry with regard to audio.

Digital Sound in Cars

The digital *Compact Disc* format is another recent innovation in autosound, and it should come into its own this year. Automotive Compact Disc players were introduced in 1984, but through most of last year availability was limited, with only Sony and Sony-derived players being shipped in large numbers. This year, the majority of established autosound manufacturers will have at least one Compact Disc player in their product lines, including such companies as Sanyo and Fujitsu Ten.

We can also expect sharp drops in price on the retail level. Low-end players will go for suggested lists of \$300, with discounts likely. In other words, Compact Disc players will soon be available for about the cost of a midpriced cassette/radio.

The big question concerning new product developments for 1986 is

whether any *digital audio tape* (DAT) players will be brought to market before the end of the year. A representative of one prominent Japanese cassette-deck manufacturer says that research and development on conventional analog cassette machines has virtually ceased in Japan and that the industry as a whole is readying itself for a rapid transition to a compact, digitally encoded magnetic-tape format.

The Electronic Industries Association of Japan has already blessed a rotary-head standard for DAT and simultaneously left the door open for an alternative fixed-head standard (a ruling strongly reminiscent of our own Federal Communication Commission's decision to let four AM stereo formats fight it out in the marketplace). But no fixed-head standards exist so far, and the etched, thin-film playback heads necessitated by a fixed-head format are still too expensive for consumer applications.

To add to the confusion, a number of manufacturers favor the existing 8mm rotary-head digital-tape standard used for 8mm videocassette recorders. Certainly an automotive audio-only 8mm cassette player could be developed fairly rapidly, though the standards for 8mm specify a narrower bandwidth (cutting off at 15,000 Hz) than that of either the rotary-head DAT or the Compact Disc format.

THERE'S little question that the Japanese audio industry as a whole sees DAT as an eventual replacement for the standard analog cassette deck. Earlier, Sony had taken the position that the Compact Disc format, by virtue of its application to portable music systems, would cause home recording to disappear. No one is expressing that position anymore, but, at the same time, many of the marketing people within the major companies are con-

cerned about consumer acceptance of a new digital format hard on the heels of the first.

Within the industry, the prevailing view is that the Compact Disc should be allowed to penetrate very deeply into its potential market before any new digital audio format is introduced.

Otherwise, expect no revolutions in 1986 beyond increases in consumer prices. The devaluation of the dollar relative to the yen is bound to result in some upward movement on retail prices for Japanese goods, which, of course, include the majority of autosound components. Speculation is still rife as to the extent of price escalation during the remainder of the year.

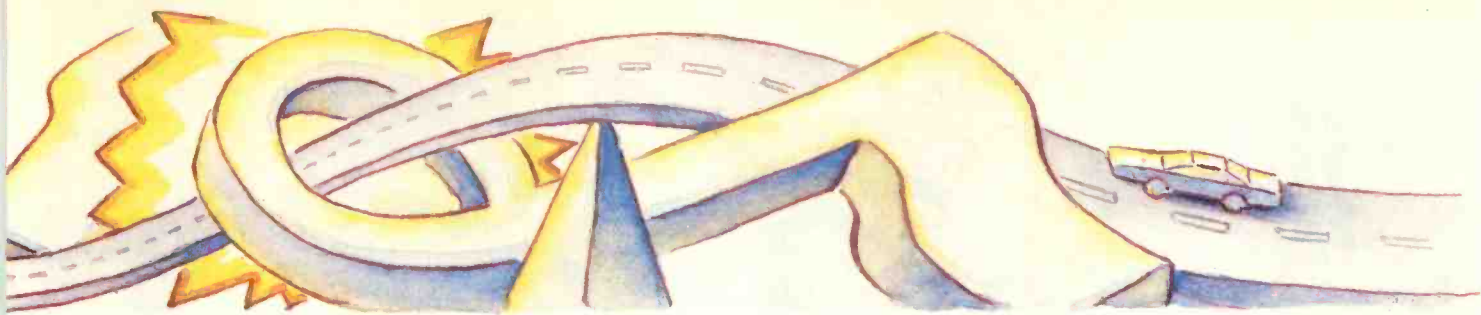
But if autosound systems remain fairly stable in 1986, the components that make them up continue to evolve.

Head Units

Cassette radios combine a cassette player, an AM tuner, an FM tuner, control knobs and buttons, and a power amplifier; cassette tuners have all that except for the power amp. With the CD format appearing in the car, we now have CD tuners that replace the cassette-player section with a CD-player section. Whatever signal sources are included, the head unit is the brain of any car stereo system.

Despite price reductions and ready consumer acceptance, the growth of the Compact Disc format in the automobile will not be as rapid as in the home. The sonic advantages so obvious in the home—the low noise, low distortion, and broad dynamic range—are not as obvious in the car. Through 1986, the overwhelming majority of head units purchased will be cassette radios, not CD radios, and the new models will be plentiful.

So what distinguishes the new cassette radios and cassette tuners? First of all, analog tuning will virtually cease to exist in aftermarket tuners or radios regardless of price. The *digital-synthesis tuner* is now



the industry standard. Another trend is the appearance of *full-logic cassette decks* at prices under \$300. Full-logic decks provide for *sole-noid-operated transport functions* that avoid stressing the tape.

ALSO look for tuners and receivers with *CD inputs* permitting instant hookup of a portable, battery-operated Compact Disc player. Head units permitting such hookups are said to be "CD ready." A different way to attain CD readiness is with an adaptor introduced by Sparkomatic that converts the output of a portable Compact Disc player into an FM signal, permitting the user to connect the CD player via the antenna cable. With this device (at a list price of about \$30), a CD player can be added to virtually any radio in existence—whether factory or aftermarket. One might carp about the compromise in Compact Disc fidelity entailed by such a strategy, but many people are attracted to the CD as much for its durability as its sound qualities.

Recoton's CD adaptor (\$20) is a simple cable with a mini plug at one end that goes into the headphone output of any player and a cassette-shaped gizmo at the other that fits into any transport. It is claimed to cause no sound degradation at all. Other companies have other techniques for getting the output of a portable CD player into a car's audio system.

There are two new *remote changers* designed for trunk mounting.

Sony's DiscJockey (see special test report in this issue) is built around a Compact Disc player rather than a cassette deck. It holds ten discs, is fully programmable, and includes two switchable compression circuits for adjusting dynamic range for noisy automobile interiors. It also has a surround-sound matrix reminiscent of the old Hafler circuit.

The Alpine Model 7375 cassette changer (\$1,500) has a magazine that holds up to six cassettes, which can be played in any order. It is fully programmable from an in-dash module, but perhaps most remarkable is that it communicates with the module by an *optical fiber* transmitting light instead of an ordinary cable transmitting electricity.

Alpine has been quietly conducting research on fiber optics for a number of years because the advantages of optical over electrical transmission of signals in an automobile are considerable. Automobiles are plagued with an abundance of electrical noises, many of which will enter an audio system through ground loops or false grounds where electrical charges seeking a ground circulate through the chassis of the car instead of returning directly to the battery. Such ground loops work particular mischief on low-level audio signals.

The state-of-the-art equipment on this month's cover includes, from the bottom up, the Alpine Model 3521 50-watt-per-channel stereo power amplifier (\$250), Kenwood's feature-laden KRC-999 computer-controlled cassette tuner (\$1,300), Denon's DCE-2150 seven-band graphic equalizer with a separate, variable subwoofer output (\$165), and Phase Linear's PL3690 three-way 6 x 9-inch speaker with a carbon-fiber cone (\$200 a pair).



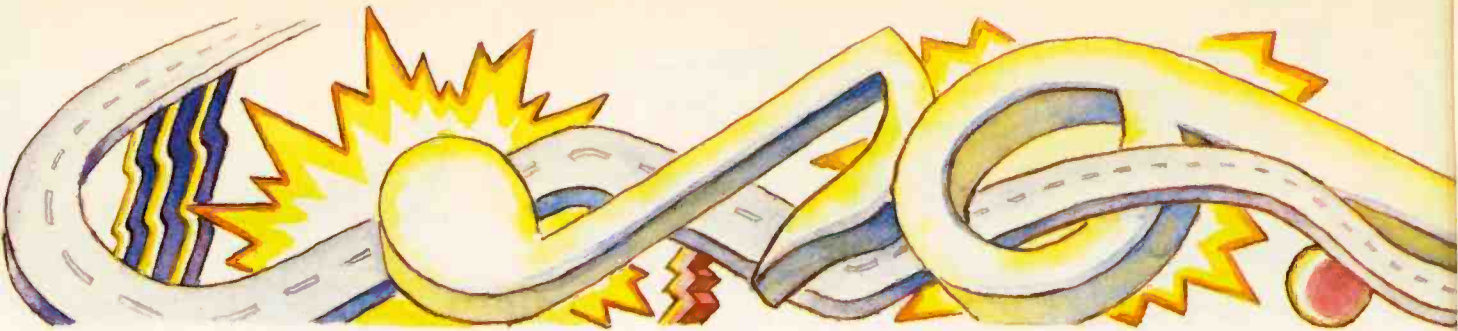
Fiber-optic transmissions, which utilize pulses of laser light traveling through fiberglass cables, do not require grounding, are completely unaffected by stray electrical charges, and will not themselves interfere with any audio component. The only problem with fiber-optic transmission, apart from its higher cost, is that the output of a fiber-optic system cannot be used to power a speaker directly.

Fiber optics is fine for low-level signals, but the light signal must be converted into alternating current via photodiodes and then amplified electronically in order to perform any work. Hirschman's OAX-201 antenna (\$500), which uses fiber-optic cable instead of wire, is said to have no signal or bandwidth loss and to be much more resistant to noise and interference.

In terms of signal sources, the emphasis in 1986 is clearly on tape decks rather than on tuners. But this year is seeing much interest in a companding FM broadcast system called *FMX* that is said to extend usable FM stereo reception as far as present *mono* reception (see "Technical Talk" in the March issue). In other words, with an FMX tuner receiving an FMX broadcast, the stereo reach of the station will be equal to its former mono reach. The system is said to be fully compatible with existing tuners; an FMX tuner will have better reception than a standard tuner, but a standard tuner can receive an FMX broadcast as well as a nonencoded broadcast.

With radio stations able to go FMX (thus increasing their listening audience) for roughly \$5,000, manufacturers are working feverishly to perfect the integrated circuits that can decode the encoded signal. NAD was the first to announce an FMX tuner for the home, but car-stereo manufacturers aware of the problems of mobile reception will not be far behind.

Besides FMX, nothing very momentous is happening in radio circuitry, though several manufacturers are showing refinements in the



auto stereo-blend circuit, which reduces separation in noisy conditions. Carver's ingenious and effective circuit for reducing FM multipath is in that company's new cassette tuners along with its BEST system, which automatically programs the strong stations in the area into the tuner's memory.

In 1985, a strong push for AM stereo-capable tuners and receivers seemed possible, and Pioneer launched an all-out promotional effort for it. The AM option was eminently affordable, but it seems to have generated little enthusiasm in the marketplace, and this year no one is pushing it very hard. But with the steady conversion of AM radio stations to stereo broadcasting and the widespread adoption of AM stereo in American factory-installed radios, AM stereo is likely to become a standard feature on the better tuners.

F RONT-END developments are not limited to trick circuitry, however, and one thing we're certain to see more of is *removable head units with slide-out chassis*. This concept was introduced by Sony and an accessories manufacturer named Bensi a couple of years ago and has since been adopted by Kenwood with great success. This year, Denon, Philips, Grundig, JVC, and Clarion will offer removable head units as well, and all these companies expect to do big business with them, especially with customers who have been ripped off by car stereo thieves.

Amplifiers

Last year saw a lot of activity in the amplifier category, including a Magnetic Field car amplifier from Carver, a Class A amp (more or less) from Soundstream, and MOS-FET amps from Hafler, Soundstream, and Rockford-Fosgate. In the same year, a number of presti-

gious home audio manufacturers offered high-end amplifiers for the car, including Infinity, Harman Kardon, and Crown as well as Hafler and Carver.

This year promises less excitement, but it should bring a plentitude of new models as the amplifier market expands in the wake of Compact Disc players. While the compression circuits used in the Sony DiscJockey are certainly welcome—the broad dynamic range of CD's sometimes makes the loud parts too loud or the soft parts too soft—the loud parts do demand a lot of power, and many Compact Discophiles are buying more power for their car systems.

Most new amplifiers will only be new in terms of model numbers and cosmetics. In general, manufacturers are sticking with proven circuits, but we can still expect a few evolutionary changes.

The major trend in amplifiers is the growth of the *four-channel* category. Among manufacturers offering four-channel amplifiers are Blaupunkt, Precision Power, Nakamichi, Hifonics, and Monolithic, with more sure to follow. Four-channel amps are generally used to power front and rear satellite speakers. Manufacturers favor the format because of the tendency of installers in the past to wire two pairs of speakers in parallel (reducing the impedance from 4 to 2 ohms) and then to try running all four from a single stereo amplifier. Most amps just don't like 2-ohm loads, and overheating can be a problem with continuous 2-ohm operation. One speaker per channel is best.

Another trend in amplifier design—one that is largely unheralded—is the total substitution of *integrated circuitry* for discrete components. For the last couple of years, automobile amplifiers have used IC input and driver stages, with discrete transistors only used at the output stage. Now the increasing availability of power IC's with up to 50 watts output has led to the general use of ICs throughout

lower-powered amps. Since, all things being equal, IC's are cheaper than hand-assembled discrete circuits, the cost of amplification is likely to go down even in the face of dollar devaluation.

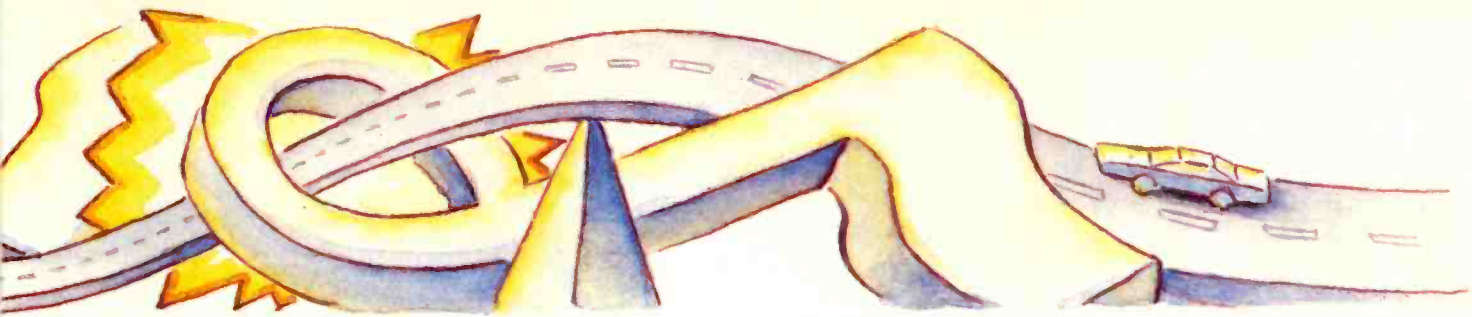
Still, a few high-end manufacturers, notably ADS, Infinity, Harman Kardon, and Hifonics, are selling new amplifiers with *discrete circuitry* only, on the theory that such circuits sound better (completely discrete circuits are still used in high-end home amplifiers retailing in excess of a thousand dollars).

Other borrowings from domestic esoterica are *fully complementary circuitry*, offered by Nakamichi and Hifonics, and *low negative feedback*, a characteristic of Denon and Hifonics amplifiers. Most automotive amplifiers still remain pretty simple compared with the high-end products for the home, but clearly a market is emerging for brute-force, high-spec units.

Another development in automotive amplification that may be the beginning of a trend is *built-in equalization* to compensate for high ambient noise levels and the consequent necessity for relatively high playback levels. Rockford-Fosgate has marketed pre-equalized amplifiers for years, but now Linear Power has announced that it is developing a sophisticated loudness-control circuit. How these manufacturers will come up with average curves for the myriad of cars on the road and whether other manufacturers will follow suit remains to be seen.

We may also see more widespread use of *modulated power supplies*. The modulation here is in the voltages of the power-supply rails for the output stage. In such a scheme, the rail voltages go up for peak power demands but stay low when the output power is low. Modulated supplies are smaller, cheaper, and more efficient than conventional supplies, and they have won considerable acceptance in high-power applications in the home and in sound reinforcement.

Last year Carver introduced an



automotive amplifier with such a supply, and this year Hifonics offers a similar supply (called Vari-power) in its most powerful amplifiers. With the increasing demand for amplifiers capable of delivering more than 200 watts per channel, we can expect other modulated power supplies to appear in car amps.

A final trend in amplifier design is the increase in the number of specialized *mono subwoofer amps*—often with built-in electronic crossovers. New offerings in this area include units from Alphasonik, Zapco, Linear Power, and Coustic.

Signal Processors

A bit of a stir is occurring in the equalizer category with the debut of the first true production-line *parametric equalizer* for the car—the Ceres from Hifonics. Custom parametrics have appeared in esoteric installations from time to time, as well as a number of very flexible *graphic equalizers*, but no one has offered an automotive parametric to the public until now. The three-band Ceres, priced around \$400, should be able to tame almost any response problem. If it can't, you can always buy two and gang them together for six-band capability.

PARAMETRICS, for those unfamiliar with their operating characteristics, have continuously adjustable center frequencies within each bandwidth, adjustable Q's (the ratio of bandwidth to center frequency), and adjustable boost or cut. Thus, center frequencies can be selected to match specific problem frequencies, and compensating equalization slopes can be adjusted precisely. One-third-octave graphic equalizers offer different advantages, but the size of their front panels is impractical in a car.

The chief drawback of a parametric, aside from its somewhat higher cost, is the difficulty in using it. It's

not a toy, it's not a user-friendly tone control, but it's a tool for obtaining optimally flat response that should generally be used with a professional-quality pink-noise generator and a spectrum analyzer. Hifonics' parametric is accordingly intended primarily as a tool for professional installers.

While not a true parametric, Precision Power's PAR 224 (\$250) is much more flexible than most graphics. Each of its four bands has several selectable center frequencies, making it what is sometimes called a *paragraphic*. Another fairly powerful new automotive equalizer is Audio Control's EQX (\$299), which allows for half-octave adjustments. Finally, Coustic has introduced the EQ-1030 combination equalizer/spectrum analyzer/crossover (\$300), a component also aimed primarily at the installer.

Speakers

The biggest news in car speakers is *flat diaphragms*, currently offered by Sony, Ultrix, Pioneer, and SFI; they should be appearing in many other product lines in the future. Why flat? Primarily for easy installation and easy shipping. Space is critical in both instances, and flat speakers have very low profiles and take up little space.

In the past, flat drivers have not enjoyed much success in home applications because of the very non-linear behavior of such drivers once the breakup level was exceeded. But intensive research efforts have been devoted to improving such drivers in Japan, and such research may bear fruit. Then, too, the ready availability of steep-slope electronic crossovers tends to make breakup problems less critical in car installations than in single-amped domestic speakers.

Meanwhile, cones and domes are still the predominant drivers in use, with paper very rapidly giving way to *synthetic cone materials*. Philips recently showed a new acrylic-fiber cone material, and combinations of polymer plastics with carbon also

seem to be finding favor. Of course, in an automobile, the linearity and self-damping characteristics of a cone material are almost secondary to its ability to survive extremes of temperature and moisture.

AS far as speakers are concerned, no radically new categories have appeared this year, but there does seem to be a significant increase in large, portable, upholstered *box systems* intended for use in pickup trucks and vans. Such systems, which are larger than many home speakers, are made by a number of manufacturers, including Pyle, Philips, Poly Power, Devastator, and Stillwater Designs.

Growth also seems to be occurring in the area of *subwoofers*, and a number of manufacturers are offering 12-inch and even 15-inch cones. The growing popularity of high-powered, multi-amped, bass-heavy custom systems may have contributed to this trend.

Things to Come

The most interesting future products from autosound manufacturers may not be audio components at all. Last year Etak, a small Northern California firm, introduced a cassette-based navigation system for automobiles that projects road maps on a small stalk-mounted video screen. Philips recently showed a more sophisticated system of this type based on a laser-scanned video-disc, and the company has developed a radio navigation system using satellite signals.

We can expect research efforts in sound reproduction to focus on two areas: more sophisticated system equalization and better switching power supplies. Another possibility is fully digital amplifiers. The shape of future systems is, of course, unknowable, but we can be fairly certain that the industry will continue to promote what's new. □

Special Test Report

SONY

CDX-A10

by Julian Hirsch and
Christopher Greenleaf

SONY'S revolutionary CDX-A10 "DiscJockey" is more than just a car Compact Disc player, more even than a car CD *changer*, novel as that is. It is even more than just an unusually impressive engineering tour de force of miniaturization. What it represents is the first step toward moving car stereo electronics out of the dashboard and into the trunk or another protected area—safe from covetous eyes and meddling fingers.

The DiscJockey consists of two basic modules and an optional third. The main unit, designed for trunk mounting, is a combination CD player/changer and preamplifier inside a protective case measuring about 12¾ x 5¼ x 8¼ inches. Its weight is about 12½ pounds. A long umbilical cable connects the trunk unit to a remote control/display unit, called the Commander, that measures 7 x 1 x 2 inches. The cable's length allows the Commander to be placed virtually anywhere in the car within reach of the operator—who doesn't have to be the driver.

The Commander's dimensions allow it to fit into a

VITTORIO SARTOR





LABORATORY TESTS



BESIDES testing the Sony CDX-A10 DiscJockey and the XT-10 tuner on the bench, operating them from a 14.4-volt d.c. power supply, we also connected the audio outputs to a high-quality music system and spent some time listening to both tuner and CD sources and using the system's various operating features.

The maximum unclipped output across a standard EIA load of 10,000 ohms in parallel with 1,000 picofarads was about 1.7 volts, and the channel levels (from a CD test disc) differed by 0.36 dB with the control unit's balance indicator centered. The interchannel phase shift was 72 degrees at 20,000 Hz and varied between about 9 and 30 degrees over much of the audio range; presumably this effect was due to the tone-control circuits and not the CD player itself. The square-wave response indicated that analog low-pass audio filters were used.

Other measurements, though not always matching those of home CD players, were far superior to any analog system, including distortion at 1,000 Hz of 0.2 percent referred to the 0-dB level and 0.025 percent referred to -20 dB; A-weighted signal-to-noise ratio of 93 dB; frequency response from 20 to 20,000 Hz ± 0.4 dB; and channel separation of 68 dB at 1,000 Hz and 37.5 dB at 20,000 Hz.

The CDX-A10 was outstanding in its error correction and ability to withstand physical shock. All the calibrated errors on our Philips TS4A test CD were played without a problem, and the player made the transition from Track 17 to Track 18 of the TS4 disc with no loss of the opening syllable of the second track. It scanned from Track 1 to Track 15 of that disc in 4 seconds (about average), but about 10 seconds were required when a disc change was involved. On the test bench there were audible mechanical sounds during a change, but these would not

be heard from a trunk-mounted unit. As for coping with physical shocks, the CDX-A10 was clearly the best CD player we have seen in this respect, as it would have to be for its intended service environment. The most violent pounding on the case of the changer—even dropping it on the bench from a height of several inches!—produced not the slightest audible malfunction.

The XT-10 tuner module's FM section was also very good with respect to usable sensitivity (8.3 dBf, or 0.7 μ V, in mono) and most other characteristics. The 50-dB quieting sensitivity was 20 dBf (2.8 μ V) in mono but unmeasurable in stereo because of the automatic channel-blending circuitry. Signal-to-noise ratio at 65 dBf was 74 dB in mono, 69.5 dB in stereo. Capture ratio at 65 dBf was 2.5 dB. Frequency response was 30 to 15,000 Hz +1.5, -3 dB. Channel separation was 33 dB at 100 Hz, 42 dB at 1,000 Hz, and 31 dB at 10,000 Hz.

The tuner's harmonic distortion (THD + noise), like that of most car radios we have measured, was higher than that of a typical home receiver: 0.38 percent in mono, 2.76 percent in stereo (at 65 dBf). Measuring the alternate-channel selectivity, however, yielded an extremely high reading of 88 dB, a figure we find very hard to believe; Sony's rating is 75 dB, a good figure in itself. The adjacent-channel selectivity of 3.5 dB was more consistent with typical car tuner performance.

The AM tuner section's frequency response had a peak of more than 11 dB at 30 Hz and rolled off above 1,000 Hz but varied only ± 6 dB overall from 50 to 3,000 Hz. The tone controls had excellent response characteristics, with a sliding bass turnover point from about 200 to 100 Hz and a maximum boost or cut of 12 dB. The treble response curves hinged at about 1,500 or 2,000 Hz, and their range was ± 7.5 dB at 20,000 Hz. J.H.

standard dashboard cutout if desired, but such a "hard-wired" installation seems to miss the point. The chief advantage of the DiscJockey design is that the control module can be put in any convenient position—on top of the dash, on the adjacent seat, or in the user's hand—when its functions

are needed, then be tucked safely out of sight the rest of the time.

The optional part of the DiscJockey is a digital-synthesis AM/FM tuner, the XT-10, that can be mounted in the trunk with the CD player, or anywhere else one wants to put it, and be controlled remotely by the Commander. The

tuner is housed in a flat metal box about 6 or 7 inches square and 1 inch thick. Besides the cable connecting it to the CDX-A10 preamplifier, there is a coaxial antenna-cable extension that accepts the car's existing antenna cable at one end and plugs into the tuner module at the other. Suggested retail price for the CDX-A10 two-piece system is \$999.95; the XT-10 tuner costs \$129.95.

An Automotive Jukebox

The CDX-A10's main unit has line-level outputs for driving external front and rear stereo power amplifiers and speakers (not included). Brackets are supplied for rigidly mounting it on the trunk floor (or another suitable surface). A hinged, rubber-gasketed cover seals out moisture and dirt. Opening the cover reveals the CD player/changer, which is designed to accept a special disc magazine, the XA-10, that holds up to ten CD's.

The inner case is suspended on soft springs that effectively isolate the player from road shocks and physical vibration from the car. The magazine-and-changer system answers one of the more serious objections that might be leveled against an automotive CD player—the difficulty, and even danger, of inserting and replacing discs while one is driving. Ten CD's can provide enough varied entertainment for the longest period of uninterrupted driving anyone is likely to do.

To facilitate selection and programming, Sony supplies a folder with each disc magazine that has ten transparent envelope "pages" into which you can slip the printed cover/annotation inserts from the CD jewel boxes. The folder can be kept with the Commander to give instant reference to the contents of each disc and the order in which they are loaded in the magazine.

Remote Commander

The CDX-A10's remote Commander contains a number of push-buttons, most of which serve dual functions for either CD or tuner operation. It also switches the system power and has a multifunction illuminated LCD display window. In the tuner mode, the display shows the tuned frequency, band, preset station number, local/dx mode, and mono/stereo mode. Up to ten AM and FM station frequencies can be stored in the tuning memory. A row of short bars in the window shows the relative volume

ROAD TESTS



setting, which is raised or lowered by pressing the UP or DOWN control button. A unique SELECT key changes the function of the UP/DOWN keys, and the display indications, to adjust the bass and treble tone-control response, the left/right balance, and the front/rear fader. The tuner has automatic (signal-seeking) scan as well as channel-stepping and rapid-scan modes.

In CD operation, most of the Commander's controls work analogously to their tuner functions. The ten station-preset buttons are used to select or program particular discs and tracks. The player can be programmed to play up to ten selections or discs in any order along with many other programming options, giving the CDX-A10 the most extensive CD programming facilities we have seen. The tuner scanning buttons are used to step the laser ahead or back one track at a time or to advance it rapidly (with audible playback) to a specific passage. The display shows the program number (if applicable), the current disc and track numbers, and elapsed playing time on that track.

The Commander also has three SOUND EFFECT keys that function with either the CD or the radio input. The SURROUND key feeds an L - R signal to the rear speakers for enhanced ambience. And there are two controls—identified as DRS 1 and DRS 2 (for Dynamic Range Suppressor)—that compress a CD's wide dynamic range by different amounts in order to make the quiet passages more audible in the relatively noisy car environment.

Performance

When the CDX-A10 was connected to a home hi-fi system, it performed as well as its excellent bench measurements (see box) would suggest. The XT-10 tuner module was equally impressive, outperforming most conventional car stereo tuners in many respects.

The Sony DiscJockey could even be a highly satisfactory, though fairly expensive, substitute for a standard home CD player. Its remote Commander has all the operating controls you would need other than the power switch for a 12-volt d.c. power supply, and the player/changer unit could be tucked away almost anywhere. More realistically, besides automotive use, the system would be ideal for a motor-home or trailer installation, to which it would bring real high fidelity if teamed with good mobile pow-

MY experience with the Sony DiscJockey was in a Sony-owned van that was also fitted out with the company's new automotive video component system. With the small remote Commander, whose long umbilical cord allows you to place it anywhere, comfortably in the palm of my hand, I began my initial check of the controls.

All the preamplifier functions—such as bass, treble, volume, balance, and front/rear fader—are compactly yet logically placed on the nearly flat control surface. Only those buttons and readouts appropriate for the signal source in use are illuminated. Having only the pertinent data at your fingertips is becoming commonplace in high-end car stereo gear, but the Sony Commander's display is better than most. For instance, the volume setting is clearly indicated even when the system is turned off, so there's no way you'll suffer from aural meltdown when you power up.

Although I was able to find my way around the basic functions immediately, because the Commander is moderately "familiar" at first glance, my learning curve for the various kinds of CD programming was longer. You can program up to ten track selections from anywhere on the ten discs in the magazine, program up to ten complete discs in any order, or simply play any particular disc or track. And that's just the tip of the programming iceberg, with a fifteen-track non-volatile memory option included as well. Cueing between discs takes just 10 seconds, even between Disc 1 and Disc 10.

One element that makes the car/CD marriage frustrating to anyone who likes dynamically wide-range music, such as symphonic works, acoustic jazz, and good vocal recordings, is that the dynamic "window" in a moving car is much narrower than the program material. With this in mind, Sony has included a three-position dynamic-range control on the Commander. In its normal (off) setting, the signal is untouched. The other two settings,

DRS 1 and DRS 2, respectively provide mild compression or somewhat more emphatic compression to "tame" excessive peak levels. The quiet passages are left unaltered, but the compression of the louder passages brings them relatively closer in level.

At the several volume settings—and highway speeds—I tried, I found that the DRS1 setting gave more musically pleasing results for critical listening. The DRS2 setting, however, was able to reduce the contrast between very loud and very soft passages to the point where I no longer felt I needed to use the volume control to level things out relative to vehicle noise. We have needed a dynamic-range control in high-end autostereo equipment for a long time—cassettes could benefit from such a feature too—and it's nice to see this first one done so well.

Such dirty tricks as a drive through the cratered streets and alleys around the old Brooklyn Navy Yard left the DiscJockey CD player unfazed. Railway crossings, missing pavement, frost heaves, and hard turns did not cause it to skip even once, something I have never experienced with cassette players on the same route! The XT-10 tuner was just as resistant to multipath and all the other horrors lurking in the "FM Bermuda Triangle" beneath the Brooklyn Bridge as the excellent tuner in the Sony CDX-R7, the first auto CD player. Throughout my test drive, I was impressed with the tonal purity of the tuner and came to rely on its clear reception.

The Sony CDX-A10/XT-10 system combines a high-performance tuner/preamplifier in a convenient, flexible format with a fast, unflappable CD changer that works well and is easy to operate once you're used to it. The \$1,140 list price may make a big dent in your wallet, but the system can be installed so as to leave your dashboard intact—and, if the nighttime car stereo shoppers can read your NO RADIO sign, your windows as well. And to keep those folks in your back seat happy, pass them the Commander! C.G.

er amplifiers and home-type loudspeakers.

The Sony CDX-A10 and its accessory tuner are emphatically not "just another car stereo," even if a deluxe model. The price and installation requirements make it unlikely that the DiscJockey will be a mass-market item, but we are likely

to see future products incorporating some of its design concepts that will make their mark on home systems as well as in mobile applications. In fact, Sony tells us that the same disc magazine will be usable in future home CD changers. Sony's reputation for product innovation is reinforced by the DiscJockey. □



TIPS

ON BUYING HI-FI EQUIPMENT FOR YOUR CAR

by Gordon Sell

ONCE you've heard great car stereo sound, there's no way you'll ever be satisfied again with ordinary car stereo. In fact, many people who have experienced the best would rather travel in silence than listen to anything less.

Getting that great sound, however, is not just a matter of walking into a store and plunking down your American Express card. You can't just buy any conglomeration of components that fits your fancy and your budget—you have to plan your car stereo system around your car. A little bit of common sense and a little bit of homework will go a long way toward getting you the best possible sound in your car. To start with, here are some tips to point you in the right direction and help you avoid the pitfalls waiting for the ill-prepared shopper.



1 Listen to other car stereo installations.

Start listening critically to car stereo systems owned by friends, and go around to local dealers to hear what they have to offer. As you become more experienced and more critical, you will get a clearer idea of what you want for your own car—and you'll be better prepared to evaluate alternatives. For instance, you'll learn the difference between good, clean, solid bass and the boomy, overemphasized bass common in mass-market installations. Audition systems with a cassette you know well from home listening so you can tell when the tonal balance is off or the imaging isn't right.



2 Evaluate your own car.

Your car's design configuration will determine what you can and cannot do when it comes to installing speakers, wires, in-dash head units, and other components. In most cars the location of the head unit will be pretty obvious, but if you want to add an equalizer, a CD player, or a booster amplifier you need somewhere to put it. If you can't live without at least five 100-watt amplifiers but your Toyota lift-back only has room under the cargo deck for two James Michener novels, you'll need to develop an alternate plan.

For speakers, look at the existing

mounting holes, if there are any, and then survey the dashboard, doors, kick panels, and any rear surfaces that might be used. Try to determine if there is room behind these surfaces for the speakers or if they will interfere with the door latch or window hardware.



*Don't put a square
peg in a round
hole.*

Most of today's cars come with pre-engineered mounting holes for a radio and speakers. Some cars have dashboards that can accommodate almost any head unit made; others have small dash openings with little clearance behind them. A reputable dealer will have various manufacturers' installation guides, which will tell you if their products will fit your car with no modification, with minimal modification, or only after major dashboard surgery. The same is true for loudspeakers. If there is room for a 4-inch driver in the door and a 6 x 9-inch in the rear deck, the least troublesome system you can select is one that uses speakers of those sizes in those locations. Choosing speakers that won't fit means more work and more money for the installation, but the results may be worth the cost.



*Install it
professionally.*

Even if you believe you are capable of doing a professional-quality car stereo installation on your own, think twice before you charge ahead. If it is a relatively easy job—such as replacing an existing speaker with one about the same size or installing a radio in a dashboard where there is plenty of room to work and the wiring is very straightforward—then read over the directions several times and proceed with great caution. If the job looks feasible but still somewhat challenging, however, you should probably take it to a professional installer—such installation jobs are almost always much harder than they look. When in doubt, go to a pro.



*Find a dealer you
can trust.*

Choosing a dealer/installer is one of the hardest parts of buying a car stereo system. While there are some

very good independent installers, it is safest to have the system installed by the dealer who sells it to you. Otherwise, if you have problems with it, the dealer can blame the installer and the installer can blame the dealer's equipment, and neither may fix the problem without extra charge.

Before you buy anything, ask to see the dealer's installation facilities and to inspect some of his work in progress or some recently completed installations. If he refuses access and gives you the old line about his insurance policy not allowing customers in the work area, shop elsewhere.



*Choose the
speakers first.*

Most people buy a car stereo system backwards. They buy the in-dash unit, and perhaps some amplifiers, and then, almost as an afterthought, they buy some speakers. And since they probably went over budget on the electronics, they try to scrimp on the speakers. In terms of your final objective, however, speakers, and speaker locations, are the *first* things you should choose. This is where the time you spent evaluating your car and thinking about what you want from your system will pay off. And be sure to insist on good speakers from a reputable manufacturer.



*Keep your speaker
system simple.*

Too many people think that the key to great car stereo sound is to install dozens of speakers in every available nook and cranny—an approach that has resulted in some pretty absurd and generally rotten-sounding systems. Some of the most successful car stereo installers keep their systems simple, using a midrange/treble speaker in each of the car's four corners and a subwoofer system wherever it fits.

Usually it's best to have four identical corner speakers, or at least speakers that sound very similar, since using speakers with different characteristics could make the sound image shift around as the different models favor different frequencies in the program. As much as possible, aim each speaker at the listener on the opposite side. That way the speaker close to each listener is somewhat off axis, reducing its

apparent loudness, while the far speaker is on axis and sounds louder. Carefully done, such an installation can give both front-seat passengers the impression of an equal left-right channel balance.

If you can't afford a separate subwoofer/bass speaker for frequencies under 125 Hz—which will require a crossover and another power amplifier—try using two midrange/treble speakers up front and a pair of similar full-range speakers in back.

If your system has problems with tonal balance, these can usually be cured with careful adjustment of tone controls, the loudness control, or, if necessary, an equalizer. If you have an equalizer, it's best to adjust it carefully and install it out of sight so bored passengers can't mess up your settings.



*Get more power than
you think you'll need.*

Because of the high ambient-noise levels in moving cars, car stereo speakers and amplifiers have to work much harder than their living-room cousins. Even people who say they prefer quiet listening turn up the volume when they have a clean-sounding, adequately powered system. The reason many systems in cars aren't played loud is that their underpowered amplifiers are driven to high distortion levels at anything but the lowest volumes, making the music unpleasant to hear. Moreover, the distortion from an amplifier that is being pushed too hard contains a lot of high-level, high-frequency signals that can burn out a tweeter.

Beware, however, of unrealistic amplifier power ratings. Some car stereo manufacturers claim an output power that produces 10 or 15 percent distortion, and some four-channel amplifiers carry as their rated power the *total* output for all four channels. I have seen "100-watt" amplifiers that, in reality, could deliver only 15 watts per channel with acceptable distortion.



*Consider separate
components
as well as all-in-one
head units.*

At first glance, most car stereo head units seem pretty much alike, but there are some significant variations. A cassette tuner includes a tuner, a cassette player, and a



preamplifier but no power amplifier. You'll need one or more separate power amplifiers for it. A cassette receiver or cassette radio has the same basic circuits but includes a built-in power amplifier as well. Since there is only so much space inside an in-dash chassis, there may have been some economizing to make room for the amplifier.

If your budget is limited, however, a flexible all-in-one unit is a pretty good place to start. You can always add more power later by connecting one or more booster amplifiers to the speaker outputs.

10

Buy a digital tuner section.

The performance and convenience of a digital tuner is well worth the added expense. Once you program the presets with your favorite stations, each one is just a button push away, and you'll get a clear, unambiguous display of tuned frequency. While many analog tuners have mechanical presets, they are usually less accurate and often tune in surprise stations. Moreover, most digital tuners feature convenient seek and scan tuning.

The best way to get great radio performance is to buy a top-quality receiver or component tuner. Since FM stereo has a relatively short range, some radios have stereo-blend circuits that shift gradually to mono as the signal gets weaker, but it is useful to have a manual mono/stereo switch so you can select mono when the signal fluctuates. Another feature, a local/distant (or DX) switch, lets you reduce sensitivity when you're too close to the transmitter.

11

Choose the same noise-reduction system you use at home.

If you make Dolby C or dbx cassettes at home, it makes sense to

buy a car stereo cassette player with those noise-reduction systems. But if you only buy mass-produced pre-recorded cassettes, almost all of which use Dolby B, that is all you need. Be aware, however, that there are some good prerecorded Dolby C cassettes on the market, and once you have a good car system you may find your cassette buying becoming more discriminating.

12

Look for a tape player with the right balance of features.

Autoreverse cassette decks can work pretty well, but many don't deliver the same frequency-response performance in both directions because of the difficulty of maintaining precise azimuth alignment. Recently, some manufacturers have started offering high-performance unidirectional car decks. You need to decide which is more important to you: the convenience of autoreverse or the possibility of higher performance from a unidirectional deck.

An important feature that is available on better cassette units is key-off eject/disengage. If you have trouble remembering to eject the tape before you turn off your car's ignition, this feature will do it for you, saving you from dented tapes, a dented pinch-roller, and the increased wow-and-flutter and even jamming that can result from leaving a cassette loaded with the mechanism engaged.

13

Don't overlook Compact Discs.

There are several ways to play CD's in your car. You could get one of the new tuner CD players and forget about tape, or you can buy an add-on CD player and keep your radio cassette player. A variation on the latter option is to use one of the many CD adaptors to connect a

portable CD player to your system. It could run off its own batteries or be plugged into the cigarette-lighter socket. This route is a bit awkward, but it might be a good interim step before you buy a car CD player.

14

Shop around.

Product quality in the car stereo field varies greatly, with performance ranging from near-audiophile level to worse than "mid-fi." To get good sound in your car, you'll have to study test reports, get recommendations, and shop just as carefully as you would for your home system.

Check specifications, compare features, and get some hands-on feel for the controls. If a cassette radio is awkward to adjust in a display board, it will be almost impossible to deal with while you're driving. If the controls feel cheap and flimsy, the problems may be more than cosmetic. Buying from a reputable car stereo specialist is a good way to avoid junk products.

15

Don't get discouraged.

For every piece of well-engineered, well-made car stereo equipment on the market, there are dozens of "bargain" units that make your ten-year-old clock radio look sophisticated. For every good car stereo dealer/installer, there are a lot of other people selling car stereo equipment. You may not find the right mix of product range and installation expertise at your first stop, but keep looking. Once you hear the system that careful shopping can achieve, you'll wonder how you ever lived without it.



CAR STEREO MANUFACTURERS



Acoustic Research, 330 Turnpike Street, Canton, MA 02021-2703. (617) 821-2300. *Speakers.*

ADS (Analog and Digital Systems), One Progress Way, Wilmington, MA 01887. (617) 658-5100. *Amplifiers, signal processors.*

AFS Kriket, P.O. Box 68893, Indianapolis, IN 46268. (317) 872-0088. *Speakers.*

Aiwa America, 35 Oxford Drive, Moonachie, NJ 07074. (201) 440-5220. *Cassette radios, equalizer amplifiers, speakers.*

Alaron, 185 Park Street, P.O. Box 550, Troy, MI 48099. (313) 585-8400. *Cassette radios, equalizer amplifiers, speakers.*

Allsop, 227 N. El Camino Real, Box 2486, Encinitas, CA 92024. (206) 734-9090. *Accessories.*

Alphasonik, 701 Heinz Avenue, Berkeley, CA 94710. (415) 548-4005. *Equalizer amplifiers, signal processors, crossovers, speakers, accessories.*

Alpine Electronics, 19145 Gramercy Place, Torrance, CA 90501. (213) 326-8000. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

AM Products, 1051 Clinton Street, Buffalo, NY 14206. (716) 834-9192. *Accessories.*

ARA Manufacturing, 606 Fountain Parkway, Grand Prairie, TX 75050. (214) 647-4111. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Audia, 5500 Rosecrans, Lawndale, CA 90260. (213) 973-1100. *Cassette radios, cassette tuners, amplifiers, signal processors, speakers, accessories.*

Audio Control, 6520 212th SW, P.O. Box 9966, Lynnwood, WA 98036. (206) 775-8461. *Signal processors.*

AudioMobile, 1500 Executive Drive, Elgin, IL 60120. (312) 888-7200. *Amplifiers.*

AudioSource, 1185 Chess Drive, Suite G, Foster City, CA 94404. (415) 574-7585. *Speakers.*

Audiovox, 150 Marcus Blvd., Hauppauge, NY 11787. (516) 231-7750. *Cassette ra-*

dios, amplifiers, equalizer amplifiers, speakers.

AutoSound Innovations, 4308 W. Victory Blvd., Burbank, CA 91505. (818) 848-8485. *Signal processors.*

Babb Corporation, 3230 A Towerwood, Farmer's Branch, TX 75234. (214) 484-8573. *Speakers.*

Bib Hi Fi Accessories, P.O. Box 27682, Denver, CO 80227. (800) 325-0853. *Accessories.*

Blaupunkt, 2400 South 25th Avenue, Broadview, IL 60153. (312) 865-5200. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Bose Corporation, 100 The Mountain Road, Framingham, MA 01701. (617) 879-7330. *Amplifiers, speakers.*

Boston Acoustics, 247 Lynnfield Street, Peabody, MA 01960. (617) 532-2111. *Speakers.*

B&W Loudspeakers, P.O. Box 653, Buffalo, NY 14240. (416) 297-0595. *Speakers.*

Canton North America, 254 First Avenue N., Minneapolis, MN 55401. (612) 333-1150. *Speakers.*

Carver Corporation, P.O. Box 1237, 19210 33rd Avenue W., Lynnwood, WA 98036. (206) 775-1202. *Cassette tuners, amplifiers.*

Cerwin-Vega, 12250 Montague Street, Arleta, CA 91331. (818) 896-0777. *Signal processors, speakers.*

Clarion, 5500 Rosecrans, Lawndale, CA 90260. (213) 973-1100. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Concord Electronics, 6025 Yolanda Avenue, Tarzana, CA 91356. (818) 344-9335. *Cassette radios, amplifiers, signal processors, speakers.*

Cooustic, 4260 Charter Street, Vernon, CA 90058-2596. (800) 227-8879. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Craig Corporation, 921 W. Artesia Blvd., Compton, CA 90220. (213) 537-1233. *Cassette radios, equalizer amplifiers, speakers.*

Denon America, 27 Law Drive, Fairfield, NJ 07006. (201) 575-7810. *Cassette radios, amplifiers, signal processors.*

Design Acoustics, 1225 Commerce Dr., Stow, OH 44224. (216) 686-2600. *Speakers.*

Discwasher, 1407 N. Providence Road, Columbia, MO 65201. (314) 449-0941. *Accessories.*

Epicure Products, 25 Hale Street, Newburyport, MA 01950. (800) 225-7932. *Cassette radios, amplifiers, speakers.*

FAS Industries, 1476 Camden Avenue, Campbell, CA 95008. (408) 371-1722. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Fischer America, 175 Rt. 46W, Fairfield, NJ 07006. (201) 227-9283. *Accessories.*

Fujitsu Ten Corporation, 19281 Pacific Gateway Drive, Torrance, CA 90502. (213) 327-2151. *Cassette radios, CD components, amplifiers, signal processors, speakers.*

Fultron (Arthur Fulmer), Box 177, 122 Gayoso at 2nd, Memphis, TN 38101. (901) 525-5711. *Cassette radios, amplifiers, equalizer amplifiers, speakers.*

Gold Sound, P.O. Box 141, Englewood, CO 80151. (303) 761-6483. *Speakers.*

David Hafler, 5910 Crescent Boulevard, Pennsauken, NJ 08109. (609) 662-6355. *Amplifiers.*

Harman Kardon, 240 Crossways Park West, Woodbury, NY 11797. (516) 496-3400. *Cassette tuners, amplifiers.*

Hifonics, 845 Broad Avenue, Ridgefield, NJ 07657. (201) 945-8880. *Amplifiers, signal processors, speakers, accessories.*

Richard Hirschmann, Industrial Row, P.O. Box 229, Riverdale, NJ 07457. (201) 835-5002. *Accessories.*

Infinity, 9409 Owensmouth Ave., Chatsworth, CA 91311. (818) 709-9400. *Amplifiers, speakers.*

IntraClean, 4395 Valley Fair Road, Simi Valley, CA 93063. (805) 527-7690. *Accessories.*

Jamo, 425 Huehl Road, Northbrook, IL 60062. (312) 498-4648. *Speakers.*

JBL (Harman America), 240 Crossways Park West, Woodbury, NY 11797. (516) 496-3400. *Speakers.*

Jensen Car Audio, 4136 North United Parkway, Schiller Park, IL 60176. (312) 671-5680. *Cassette radios, amplifiers, equalizer amplifiers, speakers.*

Jet Sound, 1000 E. Del Amo Boulevard, Carson, CA 90746. (213) 637-1001. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

JVC Corporation of America, 71 Slater Drive, Elmwood Park, NJ 07407. (201) 794-3900. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Kenwood Electronics, 1315 E. Watson-center Road, Carson, CA 90745. (213) 518-1700. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Kraco, 505 E. Euclid Avenue, Compton, CA 90745. (800) 421-1910. *Cassette radios, equalizer amplifiers, speakers, accessories.*

Linear Power, 11545 Avenue D., Auburn, CA 95603. (916) 823-7891. *Amplifiers, signal processors, speakers, accessories.*

Magtone Electronics, 20445 Gramercy, #204, Torrance, CA 90501. (800) 421-2813. *Cassette radios, cassette tuners, equalizer amplifiers, signal processors, speakers.*

Majestic Electronics, 7037 Hayvenhurst Avenue, Van Nuys, CA 91406. (800) 423-2961. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Mansoor Electronics, 72 Fadem Road, Springfield, NJ 07081. (201) 564-8666. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Marantz, 20525 Nordhoff St., Chatsworth, CA 91311. (818) 998-9333. *Cassette radios, amplifiers, speakers.*

Maxxima (Div. of Pan Orient Corp.), 137 Express Street, Plainview, NY 11803. (516) 935-5311. *Cassette radios, amplifiers, speakers.*

Mitek Group, One Mitek Place, Winslow, IL 61089. (815) 367-3811. *Speakers.*

Mitsubishi Sales America, 799 N. Bierman Circle, Mt. Prospect, IL 60056. (312) 298-9223. *Cassette radios, CD components, amplifiers, equalizer amplifiers, speakers.*

Monster Cable, 101 Townsend St, San Francisco, CA 94107. (415) 777-1355. *Accessories.*

Morel Acoustics, 414 Harvard Street, Brookline, MA 02146. (617) 277-6663. *Speakers.*

MTX Electronics, One Mitek Plaza, Winslow, IL 61089. (815) 367-3811. *Speakers.*

Mustang Electronics, 11 West 30th Street, NYC 10001. (800) 327-1544. *Cassette radios.*

Nakamichi USA Corporation, 19701 S. Vermont, Torrance, CA 90502. (213) 538-8150. *Cassette tuners, amplifiers, signal processors, speakers, accessories.*

Panasonic, One Panasonic Way, Secaucus, NJ 07094. (201) 348-7000. *Cassette radios, tape & tuner components, CD components, amplifiers, equalizer amplifiers, speakers.*

Parasound Products, Wharfside, 680 Beach Street, #400, San Francisco, CA 94109. (415) 673-4546. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Peconic Industries, 1157 Pagni Drive, Elk Grove Village, IL 60007. (800) 228-6380. *Cassette radios, amplifiers, equalizer amplifiers, speakers.*

Phase Linear by International Jensen, 4134 N. United Parkway, Schiller Park, IL 60176. (800) 323-4815. *Speakers.*

Philips Auto Audio, 230 Duffy Avenue, Hicksville, NY 11802. (516) 931-6200. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Pioneer Electronics, 5000 Airport Plaza Drive, Long Beach, CA 90815. (213) 420-5700. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, speakers.*

Polk Audio, 1915 Annapolis Road, Baltimore, MD 21230. (301) 837-4300. *Speakers.*

Polydax Speaker Corp., 2 Park Avenue, New York, NY 10016-9389. (212) 684-4442. *Speakers.*

Pompano Manufacturing, 2501 NW 17th Lane, Pompano Beach, FL 33064. (305) 979-4305. *Accessories.*

Precision Power, 2140 East 5th Street, #8, Tempe, AZ 85281. (602) 947-1444. *Amplifiers, signal processors.*

Proton, 737 W. Artesia Boulevard, Compton, CA 90220. (213) 638-5151. *Cassette radios, cassette tuners, amplifiers, equalizer amplifiers, signal processors, speakers.*

Pyle Industries, 501 Center Street, Huntington, IN 46750. (219) 356-1200. *Amplifiers, signal processors, speakers.*

Realistic (Division of Tandy Corp.), 1300 One Tandy Center, Fort Worth, TX 76102. (817) 390-3011. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Recoton Corporation, 46-23 Crane Street, Long Island City, NY 11101. (718) 392-6442. *Accessories.*

Sansui Electronics Corporation, 1250 Valley Brook Avenue, Lyndhurst, NJ 07071. (201) 460-9710. *Cassette radios, cassette tuners, amplifiers, equalizer amplifiers, speakers.*

Sanyo, 1200 Artesia Boulevard, Compton, CA 90220. (213) 537-5830. *Cassette radios, CD components, amplifiers, equalizer amplifiers, signal processors, speakers, accessories.*

Scosche Industries, 4565-8D Industrial Street, Simi Valley, CA 93063. (805) 522-1827. *Accessories.*

Sentrek Industries, 751-Racket Club Drive, Addison, IL 60101. (312) 628-6767. *Cassette radios, amplifiers, equalizer amplifiers, signal processors, speakers.*

Sharp, 10 Sharp Plaza, P.O. Box 588, Paramus, NJ 07652. (201) 265-5600. *Cassette radios, speakers.*

Sherwood, 13845 Artesia Blvd., Cerritos, CA 90701. (213) 926-6337. *Cassette radios, amplifiers, equalizer amplifiers, speakers.*

Sonic Research, 180 Sunny Valley Road, New Milford, CT 06776. (203) 354-9332. *Speakers.*

Sony, Sony Drive, Park Ridge, NJ 07656. (201) 930-1000. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, speakers.*

Soundstream Technologies, 2907 182nd Street, Redondo Beach, CA 90278. (213) 214-4652. *Cassette tuners, amplifiers, signal processors.*

Southern Audio Services, 2099 Crater Lake Dr., Baton Rouge, LA 70814. (504) 924-9964. *Speakers.*

Sparkomatic, Routes 6 and 209, Milford, PA 18337. (717) 296-6444. *Cassette radios, amplifiers, equalizer amplifiers, speakers, accessories.*

Speakerlab, 735 N. Northlake Way, Seattle, WA 98103. (206) 633-5020. *Signal processors, speakers.*

Speco, P.O. Box 624, Lindenhurst, NJ 11757. (800) 645-5516. *Equalizer amplifiers, speakers, accessories.*

Stillwater Designs, 1212 South Main, Stillwater, OK 74074. (405) 624-8510. *Speakers.*

Sunkyoung, 30 Congress Drive, Moonachie, NJ 07074. (212) 620-7717. *Cassette radios, amplifiers, equalizer amplifiers, speakers.*

Technics, One Panasonic Way, Secaucus, NJ 07094. (201) 348-7000. *Cassette radios, cassette tuners, CD components, amplifiers, signal processors, speakers.*

Ultrax, 1200 Artesia Boulevard, Compton, CA 90220. (213) 537-5830. *Cassette radios, amplifiers, speakers.*

Yamaha Electronics, 6600 Orangethorpe Avenue, Buena Park, CA 90620. (714) 522-9105. *Cassette radios, cassette tuners, CD components, amplifiers, equalizer amplifiers, signal processors, crossovers, speakers.*

Zapco, 2135 Stone Avenue, Modesto, CA 95351. (209) 577-4268. *Amplifiers, signal processors.*

CHARLES DUTOIT



*Montreal's
maestro
stresses
style and
sound*

THE career of the French-Swiss conductor Charles Dutoit is zooming like few others on the classical-music scene today. His London/Decca recordings with the Orchestre Symphonique de Montréal are best-sellers as LP's, cassettes, and Compact Discs. One critic recently called Dutoit/Montreal the hottest team since Sir Georg Solti and the Chicago Symphony.

Dutoit, who turns fifty this coming October 7, is also in demand as a guest conductor by virtually every major orchestra on both sides of the Atlantic, and he is the only conductor other than Leonard Slatkin who has conducted all of America's "Big Five" (Boston, Chicago, Cleveland, New York, Philadelphia) in the same season. This spring he completes a three-season stint as principal guest conductor of the Minnesota Orchestra, and he is already booked as a guest with the New York Philharmonic, the Philadelphia Orchestra, and the Metropolitan Opera, among others, through 1990.

There are some detractors who say that Dutoit's tall-dark-and-handsome looks, his lively, ingratiating manner, and his dapper, square-jawed sexiness on and off the podium have had more to do with his success than his music making. Some critics wonder whether he conducts the French repertoire he specializes in as well

by Roy Hemming

as such illustrious predecessors as Ernest Ansermet, Pierre Monteux, and Charles Munch.

Dutoit's many admirers, on the other hand, feel that he does. And almost everyone agrees that he is one of the few conductors to rise to prominence in recent years who are more concerned with style, orchestral color, and the texture of sound than with interpretation. Dutoit's standards for sound are high and unflinching.

"I hate the brown international sound," Dutoit told me during an interview in New York. "It's what we call in French *passe-partout*—something that fits everything. I am much more concerned about the specific color of every piece I play."

As he talks, Dutoit's words flow quickly and spiritedly, with his light French accent adding lilt to his phrases. "Style, for me, is the basic thing we have to solve," he says. "There is an enormous difference between the way Schubert and Mozart should sound, or between Schumann and Brahms, and so on."

Dutoit points out that his mentor, Ernest Ansermet (founder and for many years conductor of the Orchestre de la Suisse Romande in Geneva), had a big influence on him in this regard. "He made me aware of the different colors in different composers—such as

the differences in Stravinsky and Bartók, and composers of every period.

"There is also a big difference between playing loud and playing noisy," he continues. "In some halls, I always have to remind the brass and percussion to play loud and lively, with full texture, but *not* noisily. The more you force an instrument, the less you produce. I like *beautiful* sound. Most of the repertoire is made to sound beautiful—except maybe for some modern pieces with their very strange noises and effects."

At a time when many other orchestras have lost their recording contracts or get recording engagements only infrequently, the Orchestre Symphonique de Montréal has maintained one of the busiest recording schedules in the world. "I think a big part of our success is our work on balance, color, and sound," Dutoit says with pride.

He prefers to record using only two tracks, not the multitrack system that is prevalent today. With the latter, he complains, the engineers do the mixing of the performance, not the conductor. "If you use fourteen or sixteen tracks, with everything miked separately, the conductor can never really judge balances," he argues. "Then, while listening to a playback after a take, if the conductor says this or that balance isn't good, the producer can say, 'Don't worry, we'll fix that in the mixing.' I *hate* that! London/Decca doesn't do that. What I hear in the playback is what's going to be produced on the record. Since music is the art of sound, I think the sound on a record must be what the conductor wants."

Compared with many other present-day conductors, Dutoit was a latecomer to music. He grew up in Lausanne, and he was about eleven when he began lessons on the violin. As a teenager, he pursued musical studies at the Lausanne Conservatory, then at the Academy of Music in nearby Geneva, where he came under the

spell of Ansermet. He studied violin, viola, piano, and percussion and then moved on to composition and conducting at the Accademia Musicale Chigiana in Siena, Italy, and at the Berkshire Music Center at Tanglewood in the United States.

In 1963, Dutoit became an assistant conductor with the Berne Symphony and made his conducting debut with that orchestra. A performance of Stravinsky's *Le Sacre du printemps* brought him to the attention of Herbert von Karajan, who invited him to the Vienna Opera in 1964 as an assistant. He subsequently held conducting posts in Zurich, Gothenburg, and Mexico City, steadily building his repertoire and developing his all-important sense of style and color.

Dutoit credits Zubin Mehta and Isaac Stern with the breakthrough that led to Montreal. "Zubin was one of the first to have confidence in me," he says. "Back in the mid-Seventies, he invited me to Israel to conduct the Israel Philharmonic, and the music making was wonderful. As a result, Zubin spoke to his brother Zarin (now the Montreal orchestra's manager), and Isaac recommended me to Montreal at the same time. I conducted in Montreal in February of 1977—and six months later I became music director."

In Montreal, Dutoit found a symphony orchestra that had fallen on difficult times in the ten years since Zubin

Mehta had left it. (Mehta had shared the Montreal and Los Angeles Philharmonic directorships for most of the Sixties.) According to Dutoit, "The orchestra was depressed and looking for somebody to *do* something. I guessed right away what could be done with motivation, drive, and ambition in the good sense. So I said let's see what we can do. I was a catalyst."

He was also French-speaking and from a basically French cultural background, unlike his immediate predecessors. He used those assets—plus his own considerable skills and commitment—to give the orchestra



"I hate the brown international sound."

During our interview, I asked Dutoit for his personal comments on some other conductors, past and present:

Ernest Ansermet: "He was a tremendous influence on my development, not only musically but also intellectually. He was a humanist who needed to understand many other fields and to relate them to each other. He brought so much clarity and light to music."

Charles Munch; "An extraordinary performer! He was almost a monster

on the stage, in the sense that he just took over the orchestra and made everything his thing. It was hard to remain seated after a Munch performance. When I was a student at Tanglewood, I got to talk to him a lot. I liked him very, very much."

Pierre Monteux: "I met him only twice, at Tanglewood. He was so adorable, in a good sense, and so charming with his white shoes, white suit, and white mustache. I was so impressed when he gave the downbeat for

Strauss's Don Juan. It was just a very small motion—and the orchestra was exploding! He had tremendous control with such tiny movements."

Herbert von Karajan: "He is just the opposite of Ansermet and others who relate music to philosophy and light. He is more the Black Forest style of shadow and darkness and mystery. But I learned from his concentration—you know, like a yogi, with power coming from the inside. I played viola in his Lucerne Festival orchestra several sum-

motivation, discipline, and a sense of style. He made it clear that he would not tolerate sloppiness, mediocrity, or an "I don't care" attitude. Soon both the orchestra and its conductor were the talk of the town—and then, through recordings, of the whole music world.

Dutoit has now hired about sixty percent of the orchestra's players. Many of them are young, and there is no longer a primarily provincial character to the orchestra. "Whenever we have an opening," he says, "I try to hire the best that is available—wherever the player is from. Of course, whenever we can get a good qualified Canadian, I feel it is better for the stability of the orchestra to hire a Canadian musician."

Is there much rivalry between the Montreal orchestra and the Toronto Symphony? Dutoit smiles impossibly. "Oh, yes, an active rivalry—but it's a cordial one. I've conducted in Toronto, and Andrew Davis has conducted in Montreal. I've told Andrew we should work out some kind of regular exchange, but now, as you must know, he is leaving Toronto, so I don't know what will happen with his successor."

Dutoit bristles a bit whenever he hears himself and the Montrealers described *only* in terms of French music. His own repertoire, he points out, runs from Monteverdi to Gershwin and Stockhausen. As he puts it, "We have had some of our

biggest recording successes with the French repertoire, especially Ravel. But we have also recorded Russian music, such as Rimsky-Korsakov's *Scheherazade* and Stravinsky's *Sacre*, Spanish music by Falla, Respighi's Roman trilogy (*Pines, Fountains, Festivals*), a Mendelssohn record, and a Bartók record. And this spring we will record Holst's *The Planets*. One of our latest is a record of seven Suppé overtures—German music, lovely music that shows off our brio and virtuosity, and music that is fun to play. There's nothing wrong with that."



“ . . . I like beautiful sound.”

Like most conductors today, Dutoit admits that he rarely gets a chance to hear other conductors with their home orchestras. Whenever he goes to a city as guest conductor, the music director is usually off conducting somewhere else. "Most of us know each other chiefly from records," he says with a shrug.

"I conduct about 150 concerts a year, and when I do have a day off I don't often feel like going to a concert. I like to go to the theater. Or, best of all, I like to stay at home with my beautiful wife." Marie-Josée Drouin is Dutoit's third wife and a Canadian celebrity in her own right. An economist, she is executive director of the Hudson Institute of Canada, the country's top "think tank." Dutoit remains good personal and professional friends with his second wife, the Argentine pianist Martha Argerich. "We are civilized people," he says without defensiveness. "She played concerts with us recently on our European tour."

Dutoit's contract in Montreal runs through 1988, and he has already been approached by other orchestras in North America and in Europe. "I haven't made up my mind yet what I will do," he says, "but I would certainly not like to destroy what I have done in Montreal by leaving abruptly. Europe is something very special, but I've come to the point now where I prefer the American society to work with. Here people are more enthusiastic about taking chances. I like that. For at least the next ten years or so I want to stay here. I'm very happy in this part of the world."

A few years ago, some critics were saying that second- and third-level orchestras in North America were doomed, that only the top five to ten major orchestras could survive healthily in the near future. Charles Dutoit and the Orchestre Symphonique de Montréal have done much to change that prognosis—and in the process they have brought new excitement to the cultural life of this continent. □

mers when I was young. I got more just by being there with him than I can express in words. He was always concerned with sound. He hated harsh or brutal sound. But sometimes I find his sound a little too mellow for my taste. He rounds off the corners."

Leonard Bernstein: "The most gifted musician of the century. He's an incredibly interesting man, with so many abilities, and he's explored so many things so well. He is certainly the most gifted musician I've ever met."

Pierre Boulez: "I admire him tremendously as a musician, as a mind, and as a leader in this century's musical history. He's an utterly charming and highly intelligent and fascinating man, one of the great men of this century."

Arturo Toscanini: "He's obviously the biggest name in conducting in this century. I know only his recordings. Some of them are still wonderful, but others I feel have not aged well—some musical options are, well, too fast. But

I think Toscanini is important for the way he reacted against the excesses of ego of the nineteenth-century interpreters and insisted on sticking to the score."

Bernard Haitink: "One of the most traditional conductors in a good sense: well-prepared, humble, a great European musician. I like his attitude. He is not wildly career-minded but is genuinely interested in making the best possible music, and in creating the atmosphere in which to do it."

HOW TO BUY A CD PLAYER

DIGITAL recording technology and the Compact Disc system have brought change to almost every aspect of hi-fi. Music is recorded and played back differently, and without the annoyance of tape hiss and the ticks and pops of LP surface noise, it actually sounds different. The generally superior sound quality of the CD system is apparent even to audio novices. Everyone I know who has heard a Compact Disc system demonstrated in a home listening room has wanted to buy one.

The speed with which the American public embraced the video cassette recorder was phenomenal. Figures for sales of CD players in the scant three years since they were first offered to American consumers show that the Compact Disc is being accepted at an even faster rate than the VCR.

Your first question in considering the purchase of a Compact Disc player might well be: Is this a good time for me to buy one? The answer to that question is a resounding Yes.

Obstacles to sales in 1983 were the high prices of players and the limited selection of music available on Compact Discs. Both obstacles have been overcome.

by *William Livingstone*

Prices have been reduced dramatically, and there is tremendous variety in the kinds of music available

on the four to five thousand Compact Discs listed in current catalogs.

Prices now range from less than \$200 for a few players marketed under brand names that have not been long associated with hi-fi equipment to more than \$1,500 for players with special features. No matter what your budget is, you should therefore be able to find a unit that will permit you to enjoy the benefits of this revolutionary advance in audio technology.

Before you go shopping you should think a bit about the way you listen to music and how you will use your CD player so that you can judge the appropriateness of various features for you. Each extra bell or whistle adds something to the cost of the unit and may add clutter to the control panel and needless complication to the way you operate the machine. I tend to be a minimalist when it comes to features, but there is no reason why you should deny yourself the convenience and pleasure of any of the tricks a CD player can perform, and features constitute one of the principal grounds on which you should base your choice.



An elementary approach that stresses features and simplicity of operation rather than the elusive difference in sound

Remote control. Manufacturers of television sets have taught us to enjoy the convenience and sense of power that comes from changing channels without leaving one's easy chair—or hot tub for that matter. Similarly, it is very handy to be able to control your CD player from your favorite listening spot. If you listen primarily to pop, rock, or jazz albums made up of many short selections, it is particularly useful to be able to skip a band you don't care for without leaving your seat. Infrared wireless remote controls either come with many of the units that cost more than \$500 or \$600 or are available as options.

Access functions. An advantage the turntable has over the tape cassette is the comparative ease with which you can locate a particular band on an LP or even a passage of music within a band. Designers of CD players have worked very hard to make it easy to gain quick access to desired passages on a Compact Disc with pinpoint accuracy.

CD's are divided into numbered bands or *tracks*. If you want to play Track 9, you may have to press a button nine times to select it. But some players have direct access for quicker service—press 9 on a button or key pad and Track 9 is played.

The bands or tracks on a CD may be subdivided with digitally encoded indexing points, which break the tracks down into smaller sections so that you can zero in on the exact part of a piece of music you wish to hear. This is particularly useful with lengthy classical compositions, which may have only three or four tracks for the movements of a concerto or symphony. Not all players can access by index code, but this feature will probably become more important in the future as more Compact Discs are manufactured with indexing cues encoded on them.

There are various scanning and searching functions that give additional flexibility in finding the passages you want to play. You may find it helpful to have audible fast scanning of a disc. Some units have search systems that play the first few seconds of each track until you find one you want to hear.

Programming. Random-access programming is probably the most highly touted convenience feature on CD players. It makes it possible for you to be a disc jockey, reprogram the order of the tracks on a Compact Disc, and play them back in whatever rearranged sequence you wish. Players vary widely in the number of selections they can program.

HALLEY GANGES





The top-loading Beogram CDX from Bang & Olufsen looks very different from other players.

If you listen primarily to classical music, it is not likely that you will want to scramble the scenes of an opera or the movements of a symphony and reprogram them out of their normal sequence. But if you listen to a lot of pop albums and if you enjoy putting machinery through its paces, you can have a lot of fun programming a CD player. One Magnavox unit can remember instructions for 785 tracks from different discs.

A programming refinement I like is the Random Play feature on the Pioneer PD-M6 Multi-Disc player. This permits you to leave the random sequence in which the tracks are played to the machine. Giving a pleasant element of novelty to familiar albums, this feature is also available on other players, such as some Sony models on which it is called Shuffle Play.

Displays. The display panel on all the players will tell you which track is being played. A considerable amount of additional information can be called up on certain players—such as elapsed playing time or remaining playing time on a track or disc—which is useful if you do a lot of home taping.

Headphones. There are people who maintain that listening via headphones is the best way to appreciate Compact Discs (or any other kind of recorded music), but not all CD players are equipped with headphone jacks. If you want this feature, look for a unit that also has a separate volume control.

Special Options

Portability. The small Sony and Technics portable CD players are marvels of engineering and miniaturization. When Sony introduced the D-5 at \$299.95 in 1984, it was not only the smallest available CD player, but the cheapest. Since it could be used as an add-on unit for a home system, it was viewed not just as a classy way to take CD's on the road, but as an inexpensive way to play Compact Discs at home.

If you know that you will take advantage of the portability of these units, it would make sense to consider buying one and using it at home as well. But I would not recommend that you choose one of these if you

intend to use it only with your home system. At this same low price both Sony and Technics, as well as many other manufacturers, now have weightier units that are designed for home use and are easier for those with big hands to operate.

Multi-Play. Toshiba has a unit, the Model XR-V22, which can play two CD's in sequence or can be programmed to alternate back and forth between them.

The Pioneer PD-M6 changer will play up to six CD's in sequence, in your programmed order, or in an automatically selected random order. Its ability to provide more than six hours of music makes it ideal for anyone who wants long stretches of background music at home, in a doctor or dentist's waiting room, or even, I suppose, in a bar or restaurant.

Nikko has a changer that accommodates sixty CD's. Sony makes a changer for use in automobiles, so it is reasonable to expect a home changer from them before long and changers from other manufacturers as well.

Special circuitry. If you often play music just for background listening, you may find that the wide dynamic range afforded by Compact Discs means that the volume drops too low or becomes obtrusively loud for your purposes. In that case you might consider the Model DX 3 from dbx. Its special circuitry includes a compression control that evens out the volume peaks and valleys for smoother background listening. Also included is a signal-processing circuit to increase or decrease the spaciousness of the sound field.

The Carver CD Player includes the Digital Time Lens, a special circuit designed to improve the quality of improperly recorded Compact Discs. It can be switched out for playing correctly made recordings.

CD plus Video. I hope you haven't written off Pioneer's LaserDisc home video system. Pioneer hasn't. In fact, the system has been upgraded so that new LaserDiscs have digital audio soundtracks. Consequently, it is not surprising that Pioneer has introduced a machine that plays both Compact Discs and LaserDiscs, the Model CLD-900. Similar units (manufactured by Pioneer) are available from Luxman, Teac, and NAD.

After you have considered the convenience features and other options available to you, you can look for a CD player whose features mesh with your listening habits. You can do a little advance window shopping in test reports and manufacturers' ads in this magazine or the listings in the Equipment Buying Guide section of the February issue. That way, when you get to the store, you can already have an idea of a number of



Special circuitry on dbx's DX 3 can provide compression for background listening.



Sony's 620ES has a twenty-function remote control and very quick access.

actual models that have the features you want and are in your price range. Obviously, as in shopping for any kind of product, you will give preference to a CD player made by a company whose reputation for quality and service you respect.

In the Store

Only in the store can you really assess a unit's look and feel. Most stores other than the cheapest discount outlets will let you operate the basic functions of a CD player in order to get a feel for it. In giving buying advice on any kind of equipment, I always lean heavily on human engineering. It has been my experience that one does not get used to a button or knob that is awkward to operate. It merely becomes more irritating with time.

Operate the PLAY, PAUSE, and FAST FORWARD functions, for example. Are the buttons and key pads of a size that is suitable for your fingers? Are they clearly marked so that you will not have to use a flashlight and magnifying glass to operate them at home?

Does the unit feel rugged and well made? You pay extra for ruggedness, and you should expect the ADS CD 3, for example, to give a greater feeling of solidity, precision, and quality than, say, the Emerson CD 150. The ADS player weighs 20 pounds and lists for \$895. The Emerson player weighs less than 10 pounds and is widely available for less than \$200.

Check the speed with which a unit responds to its controls. How long does it take to find a track you have punched in for play? Outside the dentist's chair, the longest seconds in my life are probably those few that it takes for the tonearm of a semi-automatic turntable to return to its rest. CD players vary considerably in the time they take to search for and find a particular track and even in the time it takes for the loading door or drawer to open.

Most CD players are front-loading with a drawer that slides out to receive the disc you want to play. There are a number of top-loading machines for you to choose from, however, if that method seems easier or more natural to you. But remember that a front-loading machine usually requires less shelf room for easy operation than a top-loading model and fits more easily into a rack-mounted or "tower" installation.

Don't apologize for being interested in the way a unit looks. Many people respond to the sturdy, almost industrial appearance of Carver equipment. Others like Bang and Olufsen's Scandinavian styling. If you are tired of the aluminum look or the black that has become basic in audio equipment, there are many shades of gray in between, and Luxman even has an opulent gold-toned line.

Once you get a CD player, I predict that you will be using it a lot, and it's important to buy one that you

will enjoy looking at and handling. If you are interested in extensive programming and indexing functions, take along a CD with numerous tracks and encoded indexing points when you go shopping and hope that a cooperative salesperson will permit you to operate a player's programming features. If not, perhaps he or she will demonstrate it for you.

In the store you should also check for shock resistance by tapping the unit's case at different points while it is playing to see if physical impacts cause it to mistrack or shut off. If a player mistracks simply from your operating its controls, it is either defective or too touchy for you to consider, but you needn't subject it to assault and battery or kick its tires.

You can generally give extra preference points to recent models. Our Hirsch-Houck Laboratory tests showed that a group of \$300 CD players current during the latter part of 1985 outperformed most of the players that sold for three or four times that price in 1983. I find that most new models are easier to operate and respond with greater speed.

Don't bother to try to make comparison tests of the error-correction abilities of players you are considering. If you keep your Compact Discs in good condition, any CD player that is operating properly will play them without problems.

Technology and Specifications

Should you look for a unit that has digital instead of analog filters? What is oversampling? Are three-beam laser devices better than one? Our more technically oriented readers will, of course, want to know as much as possible about how a CD player works and what is going on inside its case. But just as good speakers can be produced using any one of a variety of design approaches, so can CD players. Many inexpensive players have three-beam lasers, and top-of-the-line

The optional remote control for the ADS CD3 also operates other ADS Atelier components.



models may have one or three. These are not questions that should influence your choice of a player.

But what about specifications? The audio specifications on all CD players are wonderful. Distortion has reached the vanishing point, the dynamic range is almost more than you want for home listening, and the frequency response is fantastic. There are measurable tiny differences in the frequency response of various players at the very highest frequencies, but they are simply not significant.

The notion that there are not enough differences in CD players' specs to influence a buying decision is very hard for long-time audiophiles to accept. They are accustomed to poring over spec sheets and lab-test measurements, and they are not comfortable with this change that the Compact Disc system is bringing into the equipment market. But for a lot of other people, who would like to own good equipment and enjoy the best sound but have never been comfortable with all those numbers, this change is liberating.

Sound Quality

The most controversial aspect of the performance of Compact Disc players is the quality of sound they deliver. There are people—including some well-respected audio experts—who insist they can hear subtle, but significant, differences in the sonic performance of various CD players. They speak of differences in such things as "smoothness," "sweetness," and "musicality."

On the other hand, from the time CD players were first introduced the editors of this magazine have taken the position that the measurable differences are too small to take into account in choosing a player. Julian Hirsch, who has conducted all our individual and comparative tests of Compact Disc players, has repeatedly stated that the difference in sound quality from one player to the next is inaudible or insignificant.

We all agree that some very poorly recorded Compact Discs have been released (just as there have always been some analog LP's of poor technical quality), and that comparative sound quality is a basis for choosing software (CD's) but not for choosing hardware (CD players).

To verify the evidence of our own ears we decided to conduct blind listening tests of a range of CD players. Since our staff members had already taken a stand on the question, none of us were included in the listening panel. To eliminate any possible appearance of bias on

The Magnavox FD1051 BK has three-speed audible search to help you find the track you want.



Realistic's CD-1200, which can play sixteen tracks in any desired order, lists at only \$299.95.

our part we had the tests carried out by David L. Clark, of DLC Design in Ann Arbor, Michigan, far from Hirsch-Houck Laboratories and far from our New York offices. Ian Masters, a freelance writer, was commissioned to report on the results.

Published in our January issue, the results showed that using test signals in A/B comparisons under carefully controlled laboratory conditions, the listeners were able to hear minute differences just often enough to have statistical significance. When *music* was used in the comparisons instead of test tones, however, the panel could not hear any significant differences or indicate preferences for one machine over the others.

If all the players sound alike, you may well ask, why not just buy the cheapest one available? For the same reason that you don't buy the cheapest watch that will keep time accurately or the cheapest car that will transport you to work and back. In buying a watch or a car you are interested in features, styling, quality of construction, durability, ease of operation, and even pride of ownership. The same factors play a part in your choice of a CD player.

Among the changes brought about by new digital technology is the simplicity of operation of CD players. This appeals to large numbers of buyers who were daunted by the complexity of choosing and operating conventional hi-fi equipment. The sonic virtues of the Compact Disc system have made many jaded record collectors get excited about music all over again. They find themselves thrilled once more by the standard recorded repertoire as they rebuild their collections on Compact Discs.

Any way you look at it, the digital age of recording is too exciting for you to miss, and the important thing is for you to buy a CD player now. If you can only afford the cheapest one, buy that and hope you can trade up in a year or two.

And if a friend or a salesperson tries to demonstrate to you that one player sounds better than another, be sure that they are played at equal volume in the comparisons. Otherwise, the louder one will always sound better. If in such a comparison you should hear one that *does* sound "smoother," "sweeter," or more "musical" to you, my advice is to buy that player. It is the one that will make you happy. □



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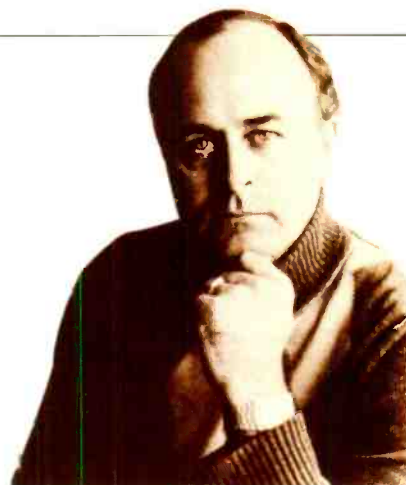
THE FABULOUS FABULOUS THUNDERBIRDS

SELF-STYLED "fabulous" rock acts are nothing new. There have been the Fabulous Poodles and the Fabulous Rhinestones, and even the Who once billed themselves as "the world's most fabulous group." But that was then, and this is now, as the psychedelic revivalists are fond of proclaiming, and the Fabulous Thunderbirds are about as fabulous as anybody could want.

A blues band with all the authenticity of early Butterfield or J. Geils but with superior pop instincts and an overlay of Texas frat-party row-

diness, these guys have been cult figures for a couple of years. Given recent developments, however—the ubiquity of ZZ Top, the rise of T-Bird Jimmy Vaughan's younger brother Stevie Ray, and the difficult-to-resist grunge-rock appeal of their latest album, "Tuff Enuff"—the Thunderbirds may at last be poised to break through to wider popularity.

Produced by Dave Edmunds with his usual exemplary attention to serious fun, "Tuff Enuff" strikes a near-perfect balance between rooted blues purism and commercial accessibility. Among the standout tracks are *Tell Me*, an infectious romp from the catalog of Rockin' Sidney (*My Toot Toot*) Simien; the hilarious *Why Get Up*, in which lead singer Kim Wilson spins a tale of justifiable paranoia while the band makes like the bastard child of the Coasters behind him; *Wrap It Up*, which gets my vote as the definitive Sam and Dave cover of 1986; and the raucous instrumental *Down at Antones*, one of the coolest blues-



Van Dam: warm eloquence

harp workouts since Little Walter gave up the ghost.

None of this stuff is particularly profound, of course (if there is a subtext, it's what Nick Tosches referred to as the Chicken Shack That Transcendeth All Knowing). And there is some truth to the fears of certain critics that the current vogue for such rooted pop is symptomatic of a reactionary political climate. But "Tuff Enuff" is an honest piece of work. You can't fake the kind of demented glee the T-Birds bring to their performances. Besides, it's got a good beat, and you can dance to it, which are qualities not to be sneezed at no matter what the cultural context. *Steve Simels*

THE FABULOUS THUNDERBIRDS: *Tuff Enuff*. The Fabulous Thunderbirds (vocals and instrumentals); other musicians. *Tuff Enuff*; *Tell Me*; *Look at That, Look at That*; *Two Time My Lovin*; *Amnesia*; *Wrap It Up*; *True Love*; *Why Get Up*; *I Don't Care*; *Down at Antones*. EPIC BFZ 40304, © BZT 40304, no list price.

A FINE BRAHMS REQUIEM FROM KARAJAN

A NEW Deutsche Grammophon recording of the Brahms *German Requiem* unites Herbert von Karajan with the same chorus and orchestra he conducted in the first-ever recording of this masterpiece back in 1947.

The Fabulous Thunderbirds: an honest piece of work



GIKYSA LIS RECORDS

BAYAT/DEUTSCHE GRAMMOPHON

And a great one it was, with Elisabeth Schwarzkopf and Hans Hotter as his soloists and the Vienna Singverein and Vienna Philharmonic. While the Singverein also served as the chorus in Karajan's 1964 (DG) and 1977 (Angel) recordings of the Requiem, the orchestra in each of these instances was the Berlin Philharmonic. At all events, I find his latest go at it to be not only the most stirring since his 1947 version but the most impressive yet in terms of sonic impact.

A darkly solemn devotional mood pervades the opening "*Selig sind, die da Leid tragen*," during which you become aware of both the ultra-spacious acoustic surround and the wonderfully full choral sound, with the male voices flawlessly balanced against the women's. The pacing of the somber "*Denn alles Fleisch*" is along the same lines as the justly celebrated Klemperer reading for Angel and is never allowed to become merely funereal. The great outburst on "*aber...*" leading into the allegro comes off stunningly.

José Van Dam, who was the baritone in Karajan's 1977 recording, is warmly eloquent in his "*Herr, lehre doch mich*" solo. Following the chorus's finely paced "*Wie lieblich sind deine Wohnungen*," soprano Barbara Hendricks essays the famous solo "*Ihr habt nun Traurigkeit*" in convincingly compassionate style and with minimal strain at the top of the staff.

The great sixth movement, with its baritone arioso recitative and the choral evocation of the Last Judgment and the triumph over death, achieves the utmost in drama. The elemental musical conflict here is more than usually relentless, with no sign of anticipatory victory until the "*Herr, du bist würdig*" fugue. After all the drama, the valedictory "*Selig sind die Toten*," sung with quiet intensity, comes as welcome catharsis.

Karajan and the superb Vienna Philharmonic go to unusual lengths with respect to coloristic detail, particularly in the harp parts in the first two movements and the winds at the close of "*Wie lieblich...*" The organ, which in most performances serves chiefly as pedal underpinning, is here allowed at climactic movements to sound forth in its

upper registers, and with a striking effect.

Would that this fine recording were filled out with more Brahms, such as the *Schicksalslied* and *Gesang der Parzen*. Instead, we get the Bruckner *Te Deum*, an imposing masterwork that Karajan previously recorded in 1976. While his new recording offers fine work on the part of the soloists, I don't find the same controlled tension he achieved a decade ago. And the cost-conscious Compact Disc buyer will have to consider that other recordings of the *German Requiem* in that format come as single discs.

David Hall

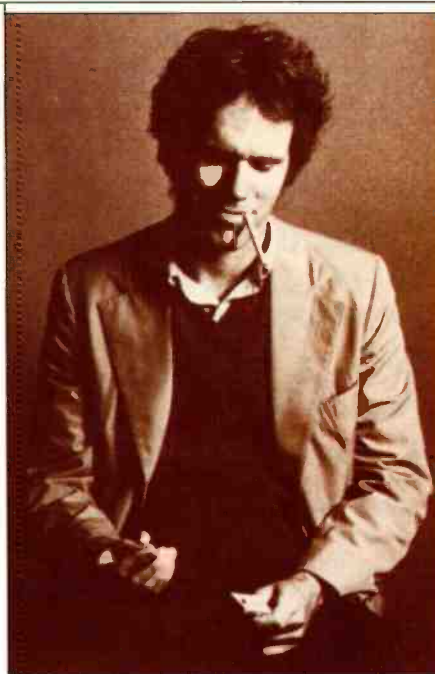
BRAHMS: A German Requiem, Op. 45. Barbara Hendricks (soprano); José Van Dam (baritone); Vienna Singverein; Vienna Philharmonic, Herbert von Karajan cond. **BRUCKNER: Te Deum.** Janet Perry (soprano); Helga Müller-Molinari (contralto); Gösta Winbergh (tenor); Alexander Malta (bass); Vienna Singverein; Vienna Philharmonic, Herbert von Karajan cond. **DEUTSCHE GRAMMOPHON** ● 410 521-1 two discs \$19.96, © 410 521-4 two cassettes \$19.96, © 410 521-2 two CD's no list price.

LOUDON WAINWRIGHT TAKES STOCK

BACK in the early Seventies, Loudon Wainwright III was often talked about in the same breath as Bob Dylan. A brilliant social satirist who aimed his wit primarily at the middle class, Wainwright could be biting and acerbic, but also uproariously funny in a way that Dylan never was.

For his first album in three years, "*I'm Alright*," co-produced by Richard Thompson, Wainwright turns his critical eye inward. In a set of songs that analyze, reflect, and probe the ups and downs of his career and psychological condition, he surveys his own life to date. Although he admits he may have fooled himself a time or two, the songwriter decides that he's "alright" after all.

Many of the tunes—such as *One Man Guy* and *Cardboard Boxes*, the latter about his recent move to Eng-



Wainwright: challenging

land—highlight Wainwright's wry sense of humor in delightful, deft treatments. Others, such as *How Old Are You?*, which makes mince-meat out of music journalists, carry the barb and sting of old. But Wainwright also turns pensive on *Screaming Issue*, *Career Moves*, and *Not John*, variously contemplating his role as a father, his years as a man who makes his living with music, and his feelings of loss at the death of John Lennon.

Co-producer Thompson has wisely chosen to let Wainwright's acoustic-folk style stand on its own. Often the backing is only a guitar or two, with the larger pieces hauled out for an occasional Dixieland or blues approach.

From start to finish, "*I'm Alright*" is an album that challenges the listener—to consider the small as well as large joys of his own life, to take stock of himself, and to smile at the foibles of fate. Because sometimes, as the Chinese—or Wainwright—might say, that's just the way the egg rolls. *Alanna Nash*

LOUDON WAINWRIGHT III: *I'm Alright*. Loudon Wainwright III (vocals, guitar); Richard Thompson (guitars, mandolin); vocal and instrumental accompaniment. *One Man Guy*; *Lost Love*; *I'm Alright*; *Not John*; *Cardboard Boxes*; *Screaming Issue*; *How Old Are You?*; *Animal Song*; *Out of this World*;



GOOD NEWS TRAVELS FAST.

People talk, when

there's something worth talking about. Like Aiwa. And Aiwa's new Avimax 8 camera-recorder.

A small idea that's getting a lot of attention. What's the big deal? This

8mm video cassette for starters. It's less than half the size



new tiny of a VHS

cassette. Aiwa's new Avimax 8 camera-recorder gives you all the dramatic performance capabilities of

the new 8mm video format. The videotape that's fast becoming the worldwide video standard. Over

100 companies are already behind it. And it's no wonder. Up to 2 hours of high-resolution recording

can now fit on a video cassette as small



as an audio cassette. Which brings us to sound.

Remember, this Avimax 8 camera-re

order is an Aiwa. For those who love technical audio

specs, here's one your neighbors

will hate. Aiwa's AFM sound recording system gives you an

astounding 85dB S/N ratio! That's second only to the sound quality of the compact disc. What's

more, with the optional 181-channel Tuner/Timer, it can all be activated by the Aiwa 10-key Remote

Commander. Even the 3-week/4-event program timer. Now let's focus on Aiwa's amazing new CCD

image sensor. It lets you be sure that when you shoot, what you shoot will come out bright and clear,

just like you see it in the electronic viewfinder, without the image lag or burnout you get with

conventional pickup tubes. Combine the CCD image sensor's extra-low-light sensitivity with Aiwa's

6:1 ratio f1.4 power zoom lens and even Cecil B. DeMille gets envious.



The amazing

new Aiwa Avimax 8mm camera-recorder—it's portable video's open,

and shut case.



CIRCLE NO. 9 ON READER SERVICE CARD



Daddy Take a Nap; Ready or Not (So Ripe); Career Moves. ROUNDER 3096 \$8.98, © C-3096 \$8.98.

OFFENBACH'S SPARKLING "LA BELLE HÉLÈNE"

IT is ironic that Offenbach is most generally known for the uneven *Contes d'Hoffmann*, his one attempt at composing a serious opera. The truth is that his natural and very real talent lay in spinning out bewitching melody and in the rarer gift of writing music that is genuinely amusing. The comic opera *La belle Héléne* is a fine example of the composer at the height of his creative vigor, doing what came naturally to him, and the listener who sits down to the new Angel recording conducted by Michel Plasson is in for a delightful experience.

Every moment in the set sparkles, musically and dramatically, with ingratiating melody, inventive orchestration, amusing plotting, and individual performances that fairly bub-

Norman: seductive insouciance



MALCOLM CROWTHERS/EMI

ble with good humor. While the libretto by Meilhac and Halévy (best known for their collaboration on *Carmen*) does not quite sustain the level of infectious nonsense suggested by Act I, individual later numbers do attain it, and the score never flags. It is always tuneful, original, and catchy. It is also frequently downright funny.

Every member of the large cast, headed by Jessye Norman, is quite obviously having a grand time. The rewarding effect is that the performance is truly an *ensemble* one. It should be noted that Janine Reiss, credited as the French-language coach, has evoked line readings, both sung and spoken, that are both delightfully inflected and totally understandable.

For those of us who admire Norman as a "serious" artist, this recording comes as a happy surprise. She takes to Offenbach's music and to the good-humored naughtiness of the text like the proverbial duck to water. She speaks her lines with seductive insouciance and sings with warmth, charm, and great beauty of tone. She is a natural comic, and there are far too few of them these days.

John Aler is delightfully bumptious as Pâris. His light tenor is well suited to the score, and he creates an engaging character. As Ménélas, Charles Burles is the archetypal *pantalone*—stupid, credulous, complacent, and ultimately duped—and we love him for it. Gabriel Bacquier, that estimable artist, brings a bouncing zest to Agamemnon that makes his role a highlight of the recording, and Jean-Philippe Lafont's Calchas is both well sung and funny. The chorus and orchestra based in the French city of Toulouse respond eagerly to Plasson's conducting, which is neat, crisp, spirited, and irrepressibly ebullient. The sound, too, is absolutely first-rate throughout.

Robert Ackart

OFFENBACH: *La belle Héléne*. Jessye Norman (soprano), Héléne; John Aler (tenor), Pâris; Charles Burles (tenor), Ménélas; Gabriel Bacquier (baritone), Agamemnon; Jean-Philippe Lafont (bass), Calchas; Colette Alliot-Lugaz (soprano), Oreste; others. Chorus and Orchestra of the Capitole de Toulouse, Michel Plasson cond. ANGEL ● DSB-3981 two discs \$23.98, © 4D2S-3981 two cassettes \$23.98.

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POPULAR

- **MERLE HAGGARD: *That's the Way Love Goes*.** EPIC EK 38815. "Magnificently moving" (January 1984).
- **ROCK AND ROLL: *THE EARLY DAYS*.** RCA PCD1-5463. Soundtrack of the video compiled in 1984.
- **SADE: *Promise*.** PORTRAIT RK 40263. "Classy" (March 1986).
- **BARBRA STREISAND: *Memories*.** COLUMBIA CK 37678. A compilation featuring her 1982 hit *Memory*.
- **SUZANNE VEGA. A&M CD-5072.** "Spectacular debut" (September 1985).
- **TOM WAITS: *Rain Dogs*.** ISLAND 90299-2. "Major work" (Best of the Month, January 1986).
- **DOC AND MERLE WATSON: *Down South*.** RYKODISC RCD-10008. "Pure and pretty" (April 1985).

JAZZ

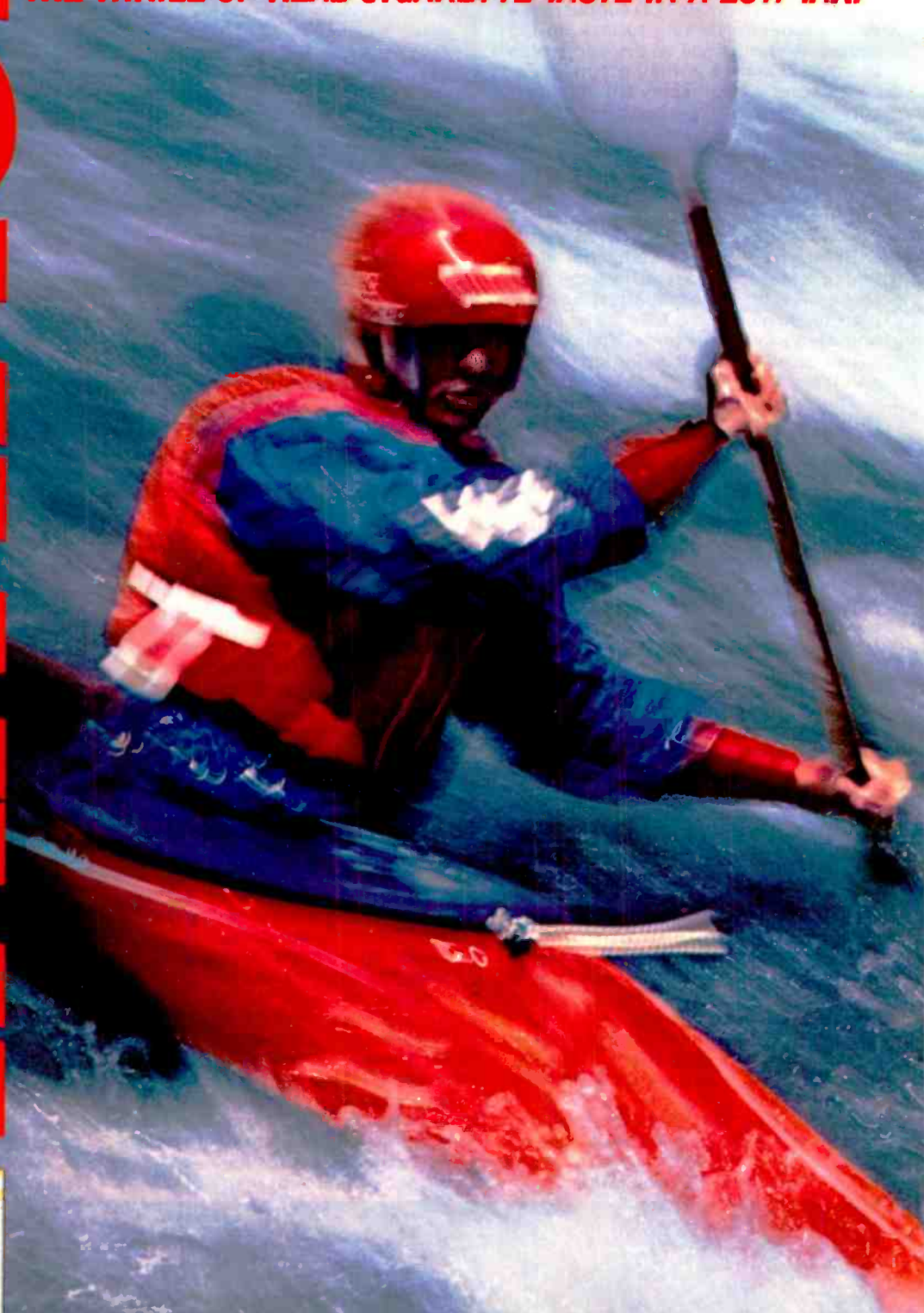
- **CANNONBALL ADDERLEY: *Know What I Mean?*** RIVERSIDE 644-9433. Recorded in 1961.
- **MILES DAVIS QUINTET: *Workin'*.** PRESTIGE 647-7166. *Steamin'*. PRESTIGE 648-7200. Both recorded in 1956.
- **STAN GETZ AND LUIZ BONFA: *Jazz Samba Encore*.** VERVE 823 613-2. Recorded in 1963.
- **THELONIOUS MONK SEPTET: *Monk's Music*.** RIVERSIDE 642-1102. Recorded in 1957.
- **SONNY ROLLINS: *Freedom Suite*.** RIVERSIDE 646-258. Recorded in 1958.

CLASSICAL

- **BACH/HANDEL: *Arias*.** Ferrier; Boulton. LONDON 414 623-2. One of the classics, recorded in 1953.
- **MONTEVERDI: *Orfeo*.** Rogers; Medlam. ANGEL CDCC 47142 (three CD's). "Close to perfection" (Best of the Month, September 1985).
- **RIMSKY-KORSAKOV: *Scheherazade*.** DEBUSSY: *La Mer*. Reiner. RCA RCD1-7018. "One of the best" versions of *Scheherazade* (August 1972) and a "taut, controlled" *La Mer* (May 1961).
- **VERDI: *Attila*.** Raimondi; Gardelli. PHILIPS 412 875-2. Unique and "invaluable" (May 1973).

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CD Extortion

Let's put the screws to our CD suppliers on a fully programmable, 5hz to 20,000hz, 3 beam CD player with a novel new consumer buying tool called GREED!

By Drew Kaplan

It's a war. The major CD suppliers are each desperately trying to lock up big orders. And now, we've devised a plan to take advantage of their greed.

Together we can apply enough pressure to get you a CD player that produces sound with such sonic violence that music will simply explode in your living room. And we can get it for you for just \$149⁹⁰. And, hopefully we'll make a good profit. But, there's a problem.

TIGHTEN THE SCREWS

Before I tell you all about the automated features and incredible sound of these CDs, let me explain just how we plan to deliver these CDs for such an admittedly foolhardy price. You see, it's called extortion (legal definition please) and it works like this.

There are two large CD manufacturers (BSR and Emerson) that are trying to get DAK's CD business. Honestly, the quality, guarantee and sound are so close that we couldn't decide between the two.

Even their prices are close. So here's what we did. We got quotes from both of them for 5,000, and then for 50,000 of their best CD players.

And here's what we decided. As you place your orders, we'll offer each of the two companies a check (cash in advance) for the number of CDs we need.

The company with the lowest price of the day will get that day's order. You see, your orders give us incredible leverage.

Usually we buy just one CD from one supplier. Unfortunately, once they have a contract with us, they have no incentive to lower our cost. And, at our costs today, we really can't come out at only \$149⁹⁰.

SAFE INVESTMENT

Don't worry about your \$149⁹⁰. DAK is a large company. If this plan to sell 50,000 CDs fizzles out, we'll still be OK. Plus, DAK doesn't even charge your credit card until after we ship.

And most important. Each CD will come to you in its factory sealed carton, and will be backed by the manufacturer's standard limited warranty.

Finally, you won't be getting a cheap stripped down CD. We aren't dumb. We picked the CDs we wanted before we got the quotes.

And we'll get 50,000 of you new customers to send our electronics catalog to. So, even if it does fizzle, we're sure to get another chance at you later.



This is the experience you can expect with your first introduction to digital audio. Forget any experience you've ever had before with stereo. CD audio is an awesome advance that dwarfs the switch we made years ago from 78s to LPs.

Imagine listening to music with a frequency response from 5hz to 20,000hz +0.5db -1db. Wow! Imagine sound so pure that harmonic distortion is just 0.004%. And, if you're into zeros, flutter and wow is "unmeasurable".

The sound quality, and yes, the sonic violence will thrill you. The only equal I've heard to this sound is 'live sound'.

And, live sound doesn't mean the sound you hear at a concert where you are simply listening to the auditorium's PA system. Live sound means sitting right in the middle of the orchestra.

I know, I'm a cellist. And, there's just no sound experience like the sound we hear in 'the pit'.

NO SOUND AT ALL

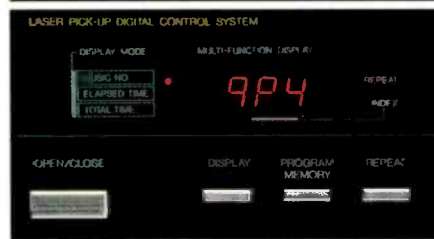
CD gives you a signal to noise ratio of 98db. There is absolutely no hiss, no scratch, and best of all, no surface noise.

You've got to experience the silence during very quiet passages to comprehend the sonic adventure of the music.

Conventional records and tapes have a dynamic range of perhaps 50db. Dy-

standing next to a jet engine.

Your music will be dramatically more exciting. You won't have to carefully compare CD to conventional sound. From the very first note, you'll be in shock. It's as if the world was just created and you are listening to newly born, virgin sound.



NOT PERFECT?

CD isn't perfect. Or rather, it is, and that's a problem. You'll hear everything. You'll hear every note, every instrument, as if you were sitting in the orchestra.

When CD first came out, there were three complaints. 1) It could sound harsh or hard. 2) There weren't enough CDs released. 3) Not all CD discs were really recorded digitally. **Here are the answers.**

1) Early discs did sound harsh. A characteristic of pressing LPs is that they drop off from 5-10,000hz, so recording engineers tend to boost those frequencies when they mix master recordings.

A few slight cuts with an equalizer will bring even the first discs back to super smooth, sonically alive sound. CDs have a perfectly flat vibrant response.

2) True again. CDs were in short supply and not many titles were released during the first few months. Now there's a virtual avalanche of thousands of titles.

3) True again. Not all CDs come from digital masters. CDs from digital masters can sound phenomenally better than



SOUND LIKE A LIGHTNING BOLT

There's no warning. There's no record noise, no tape hiss. Vibrant but finely detailed music just explodes from your stereo system. The sound is like a shock-wave reverberating through your home.

dynamic range is simply the difference in sound level (volume) between the softest and loudest recorded sounds.

CD gives you a 95db dynamic range, which is roughly equivalent to the difference between absolute silence and

a conventional LP. (It's earthshaking.)

But, when analog (conventional) masters are recorded in the studios, they are recorded on two inch wide tape at 15 inches per second. They sound great.

Most sound quality is lost in pressing records and copying cassettes. A CD from an analog master isn't quite as good as from a digital master, but its superiority over an LP is still like day and night.

CDs are now a standard format. There's no stylus to wear out and the disc doesn't wear out because nothing touches it.

LOADED

These CD disc players are the latest Japanese-made second generation, type.

They have a 3-beam, laser servo system with heavy sampling for superb sound.

You can select up to 9 tracks with the Emerson or 16 with the BSR in any order you like. Then, just sit back and enjoy the sound. There's even a repeat button.

So, you can repeat your selected tracks or the entire disc over and over again.

Just touch a button during play, or skip to the next track during play, or repeat the track you are listening to. A display shows you the track that is playing and the elapsed time, or the total time.

Installation consists of simply plugging it into any 'aux' input on your receiver or preamp, nothing special.

So, about the only difference between BSR's and Emerson's is that BSR's can program 16 tracks instead of 9, and Emerson's has a 95db dynamic range as compared to BSR's 96db.

TRY EXPLOSIVE SOUND RISK FREE

Plug it in. Experience music with a thrilling frequency response and sonic range. Plus, you'll be thrilled by the hiss, and background noise you won't hear.

If you're not 100% satisfied, simply return it to DAK within 30 days in its

original box for a courteous refund.

To order your Fully Programmable CD Disc Player and experience the sonic thrills of a lifetime, call toll free, or send your check for DAK's market breaking price of just \$149⁹⁰ (\$7 P&H). Order No. 4546. CA res add sales tax.

IMPORTANT NOTE: If you have a particular love for either CD player, you can have your choice for just \$159⁹⁰ (\$7 P&H). Use Order No. 4326 for the BSR CD, or use Order No. 4304 for the Emerson CD. So, you'll pay only \$149⁹⁰ if the choice is ours, or \$159⁹⁰ if it's yours.

It may strain my credibility to describe any device I'm offering for only \$149⁹⁰ as providing sound many times better than anything you've ever heard before. But, use DAK's risk free trial to experience this bigger than life sound for yourself.

PLEASE USE ADDRESS AND PHONE AT BOTTOM OF PAGE



CD Extortion Works

Even before we could get our catalog to press with BSR's and Emerson's CDs, Sharp brought in their CD and wanted to be in our catalog. Well with two CDs already, I had to say no. But, Sharp wanted in, so read on.

By Drew Kaplan

It's a remote CD. Sharp gave us their top of the line programmable CD with infrared random access remote control.

You can sit in your favorite easy chair and simply touch the '9 Button' to listen to track 9. You can hear a track again by simply pushing Reverse APSS (Automatic Program Search). And, if you want to skip to the next track, push Forward APSS.

You even have remote 'Cue' and 'Review' which lets you listen to a song at 15 times normal speed to find just the part you want. It's a feature I've never seen in a CD, and obviously requires incredible technology.

And speaking of extra features, Sharp's has a headphone jack which is another feature not found on most CDs. And of course, it's fully programmable.

You can program up to 9 selections in any order you desire. You can program them at the player or from the remote.

Then if you touch the repeat key, you can have the entire CD repeat, a single song, or any songs you have programmed.

So, whatever selection(s) you choose, will automatically repeat endlessly, for an evening or a day of uninterrupted music.

ALL THE SAME

The plain truth about CDs is that no matter which one I test, they all sound virtually the same.

All their specs are so far beyond the

scope of hearing that you really can't go wrong, especially if you stick with a top name-unit that's made in Japan.

So, choose an Emerson, a BSR, or a Sharp, based on the features you desire. Because, the truth is, you won't be able to hear any difference between the 3.

I like the Sharp CD because of the total control you'll have of your music from the wireless infrared remote.

second time or skip through a song I don't like. And, selecting what I want to hear from across the room really enhances my musical enjoyment.

It's backed by Sharp's standard limited warranty.

ENJOY REMOTE EXPLOSIVE SOUND RISK FREE

You'll thrill to the sonic vibrance of your music. You'll thrill to the remote ease. And, you'll thrill to the remote programmable control of your music.

If you're not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order your Sharp Programmable Infrared Wireless Remote Control CD Player risk free with your credit card, call toll free, or send your check for DAK's extorted price of just \$199⁹⁰ (\$8 P&H). Order No. 4427. CA res add tax.

Now the choice is yours. You can have incredibly explosive sound for just \$149⁹⁰ or you can have incredibly explosive remote controlled sound for just \$199⁹⁰.



I often like to hear the same song a

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Gary's Killer HiFi



When the price of Gary's Revenge was beaten, Gary came back fighting with a real market breaker. It's a VHS video recorder with 20-20,000hz VHS HiFi Stereo, a built-in Stereo TV tuner and more, for just \$399. Wow!

By Drew Kaplan

It's not bait and switch. After reading Gary's Revenge, you probably expect me to say that this top of the line VHS HiFi recorder is 100 times better, and the extra dollars would be well invested.

Well, it's not. Both machines are superbly built in Japan. Both are cable compatible. And, both have infrared remote control. But, if you're into perfection in sound as well as superb video pictures, then read on.

But first, a word about Gary. He was so upset about being stabbed on Gary's Revenge's price, that not only did he get us a better price on that recorder, but he said, "I'll more than make up the price on the VHS Stereo HiFi Recorder".

And, if you have the slightest doubts about Gary really existing, watch my next catalog, because I've agreed to use him in one of my pictures as a thank you for his going to bat for DAK.

VIDEO IN YOUR STEREO SYSTEM AND STEREO TV TOO

VHS Stereo HiFi gives you an incredible 20hz to 20,000hz frequency response with an 80db dynamic range.

You'll experience the full sonic drama of movies that you rent, and add a superb audio tape deck to your stereo system.

And, not only can you turn any TV into a cable compatible TV by using the all electronic tuner with wireless remote in this recorder, you can receive the new stereo TV broadcasts automatically.

And frankly, since most of us keep our color TVs for 5 to 10 years, here's a great chance to get stereo TV without replacing your perfectly good set.

VHS HiFi uses a second set of spinning heads to record sound along with the video on the tape at speeds in excess of 200 inches per second. So, the sound quality is to say the least astounding.

Of course, there's a conventional stationary audio head, so this recorder is compatible with all standard tapes, but wait till you hear the sound. **And, wait till you use this recorder for recording music in your stereo system.**

Just imagine, for only \$150 more than Gary's Revenge, you can add an audio deck to your stereo system that will beat any thousand dollar home cassette deck.

And, look at this. With VHS tapes sell-

ing for about \$5, you can record up to 6 hours of this incredible sound on one cassette with or without a picture.

THE BAD PART

Connecting this video recorder to your TV is easy as duck soup. Just unscrew your cable from your TV (round or flat) and connect it to the recorder. Then connect the included cable between the recorder and your TV. Then just record.

To utilize the VHS HiFi and Stereo TV tuning, you must also connect this recorder to your stereo system. Just connect the standard stereo patch cords included, and you'll have fabulous sound from movies and simply the best cassette deck for your audio system.

So, the bad part is that if your TV and stereo aren't together, this incredible machine isn't for you. Of course, it always sends conventional TV sound to your TV.

TOP OF THE LINE VIDEO TOO

Start with all the fine quality features you'll find in Gary's Revenge. You'll have 4 event 2 week programming, controlled by a super easy to use clock/timer.

You'll record shows you miss when you're out or asleep, and shows that you want your children to see at a more appropriate time. I record cable movies to watch when I have time.

And look at this. It can receive up to 139 electronically synthesized cable compatible channels. VHF 2-13, UHF 14-83, and cable 14-65 and Cable Sub Band 95-97. It's more channels than I've seen on any current cable, and every one is ready for stereo.

You can set any 16 preset channels. Just push the corresponding one touch button on the remote and you'll have instant random access from the remote.

And, speaking of the remote, you'll even be able to control still frame, slow motion and high speed forward and reverse visual search. So, you can play the same scene over and over again.

And, there's a one button record timer which lets you record from 30 minutes up to 2 hours without programming.

Much more. The deck features motorized front loading. There's a tape counter, a picture sharpness control, and both high and low speed recording.

TOUGH CHOICE

Both recorders are reliable long term

investments. If \$150 sounds like a good investment for dramatically alive sound from movies and the most incredible recorder you can add to your stereo system, then Gary's Killer HiFi is for you.

It's made by Emerson. And, it's backed by their standard limited warranty.



TRY GARY'S KILLER HiFi RISK FREE

Wait till you experience the freedom of watching any program **when you want.** Wait till you see how easy it is. And, wait till you hear the sound.

If you're not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order Emerson's Gary's Killer HiFi VHS Stereo HiFi Video Cassette Recorder for your TV and your Stereo System risk free with your credit card, call toll free, or send your check for Gary's Killer Price of just \$399 plus \$11 P&H. Order No. 4360. CA res add tax.

Now you can watch last night's midnight show at dinner, or tonight's dinner show at midnight. And, wait till you see the quality of the picture and thrill to the drama of the Stereo VHS HiFi Sound.



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A \$10,000 Challenge To Escort

Let's cut through the Radar Detector Glut. We challenge Escort to a one on one Distance and Falsing 'duel to the death' on the highway of their choice. If they win, the \$10,000 check pictured below is theirs.

By Drew Kaplan

We've put up our \$10,000. We challenge Escort to take on Maxon's new Dual Superheterodyne RD-1 \$99⁹⁰ radar detector on the road of their choice in a one on one conflict.

Even Escort says that everyone compares themselves to Escort, and they're right. They were the first in 1978 to use superheterodyne circuits and they've got a virtual stranglehold on the magazine test reports.

But, the real question today is: 1) How many feet of sensing difference, if any, is there between this top of the line Maxon Detector and Escort's? And 2) Which unit is more accurate at interpreting real radar versus false signals?

So Escort, you pick the road (continental U.S. please). You pick the equipment to create the false signals. And finally, you pick the radar gun.

Maxon and DAK will come to your highway with engineers and equipment to verify the results. And oh yes, we'll have the \$10,000 check (pictured) to hand over if you beat us by more than 10 feet in either X or K band detection.

BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mammoth electronics prime manufacturer. They actually make all types of sophisticated electronic products for some of the biggest U.S. Electronics Companies. (No, they don't make Escort's).

Bob Thetford, the president of Maxon Systems Inc., and a friend of mine, was explaining their new RD-1 anti-falsing Dual Superheterodyne Radar detector to me. I said "You know Bob, I think Escort really has the market locked up." He said, "Our new design can beat theirs".

So, since I've never been one to be in second place, I said, "Would you bet \$10,000 that you can beat Escort?" And, as they say, the rest is history.

By the way, Bob is about 6'9" tall, so if we can't beat Escort, we can sure scare the you know what out of them. But, Bob and his engineers are deadly serious about this 'duel'. And you can bet that our \$10,000 is serious.

We ask only the following. 1) The public be invited to watch. 2) Maxon's Engineers as well as Escort's check the radar gun and monitor the test and the results.

3) The same car be used in both tests. 4) We do this test during the summer when it's warm. (I'm from California, and anything below 80° will do me in.)

5) We'd like an answer from Escort no later than June 1, 1986 and 30 days notice of the time and place of the conflict. And, 6) We'd like them to come with a \$10,000 check made out to DAK if we win.

SO, WHAT'S DUAL SUPERHETERODYNE?

Ok, so far we've set up the conflict. Now let me tell you about the new dual superheterodyne technology that lets Maxon leap ahead of the pack.

It's a technology that tests each suspected radar signal 4 separate times before it notifies you, and yet it explodes into action in just 1/4 of one second.



Just imagine the sophistication of a device that can test a signal 4 times in less than 1/4 of one second. Maxon's technology is mind boggling.

But, using it isn't. This long range detector has all the bells and whistles. It has a separate audible sound for X and K radar signals because you've only got about 1/3 the time to react with K band.

There's a 10 step LED Bar Graph Meter to accurately show the radar signal's strength. And, you won't have to look at a needle in a meter. You can see the Bar Graph Meter with your peripheral vision and keep your eyes on the road and put your foot on the brake.



So, just turn on the Power/Volume knob, clip it to your visor or put it on your dash. Then plug in its cigarette lighter cord and you're protected.

And you'll have a very high level of protection. Maxon's Dual Conversion Scanning Superheterodyne circuitry combined with its ridge guide wideband horn internal antenna, really ferrets out radar signals.

By the way Escort, we'll be happy to have our test around a bend in the road or over a hill. Maxon's detector really picks up 'ambush type' radar signals.

And the key word is 'radar', not trash signals. The 4 test check system that operates in 1/4 second gives you extremely high protection from signals from other detectors, intrusion systems and garage door openers.

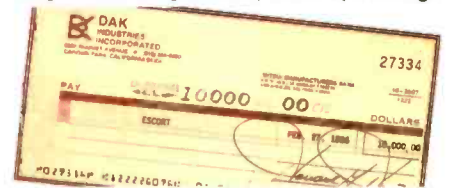
So, when the lights and X or K band sounds explode into action, take care, there's very likely police radar nearby. You'll have full volume control, and a

City/Highway button reduces the less important X band reception in the city.

Maxon's long range detector comes complete with a visor clip, hook and loop dash board mounting, and the power cord cigarette adaptor.

It's much smaller than Escort at just 3 1/2" Wide, 4 3/4" deep and 1 1/2" high. It's backed by Maxon's standard limited warranty. Note from Drew: 1) Use of radar detectors is illegal in some states.

2) Speeding is dangerous. Use this detector to help keep you safe when you forget, not to get away with speeding.



CHECK OUT RADAR YOURSELF RISK FREE

Put this detector on your visor. When it sounds, look around for the police. There's a good chance you'll be saving money in fines and higher insurance rates. And, if you slow down, you may even save lives.

If you aren't 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for just \$99⁹⁰ (\$4 P&H). Order No. 4407. CA res add tax.

OK Escort, it's up to you. We've got \$10,000 that says you can't beat Maxon on the road. Your answer, please?

Escort is a registered trademark of Cincinnati Microwave.

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Singing TV & Cable Commander

Now you can enjoy excitingly vibrant simulated stereo sound with any TV while you tune in VHF, UHF and Cable Channels with Universal's new amplified cable controller/switcher. Just wait till you hear your TV sound. Wow!

By Drew Kaplan

I hate conventional TV sound. It's boring and flat. Now, whatever TV you own, you're in for a sonic adventure in sound.

You're also in for a selection adventure in programming. Whether you tune in Cable or use your own antenna, you can now have complete wireless infrared remote tuning from up to 30 feet away.

Plus, you'll have incredibly powerful simulated stereo sound with full volume control and mute, through the system's speakers or monaurally through your TV.

You'll tune in all UHF channels 14 to 83 and VHF 2-13, Cable channels A-1 (14-22) & J-W (23-36), and, the A1 and A2 Cable Sub Bands.

You can even remotely switch between your UHF/VHF antenna and your cable. And, whatever you tune in, you'll have complete random access remote control.

NOTE: Check with your cable company before viewing anything at all, to see if they require you to pay a fee.

This isn't one of the infamous 'Black Boxes' that decode various 'Pay TV Channels'. On cable, most of the programming isn't scrambled, it's just found outside the tuning range of the average TV. But, this Controller tunes them in.

Just push '2' & '4' when you want to watch channel 24. And you can watch 24 on either cable or UHF by just touching the input select button on the remote.

You can also step tune from channel to channel. And, look at this. You can assign any stations you want (no limit) a 'Special' Status. With a second set of step tuning buttons you can step through only your favorite channels.

I have 4 movie channels on my cable. So, I use the 'Favorite' feature a great deal. The large LED display shows you your channel, its 'Favorite' Status, and if you've selected cable or antenna.

MARVELOUS SOUND

While you don't need cable to use this incredible new tuning, switching and music making device, just think of the excitement of watching movies with the

theater type massively vibrant sound.

You'll hear sounds that your TV's 3" to 5" speaker never even thought about reproducing. You'll become emotionally involved in car chases and other dramatic events. And if there's music, wow!

The simulated stereo, which is powerfully amplified and then reproduced by two-way speaker systems, will quite literally knock your socks off. If you've never heard TV sound with real woofers and tweeters, you're in for a treat.

And, instead of listening to one small point of sound, the sound will spread out across an entire wall. It's an awesome improvement in your viewing experience.



EFFORTLESS INSTALLATION

It's easy. Just unscrew your antenna or cable connector from the back of your TV. There are three inputs on the back of the Controller. Just screw it into 1) Cable, 2) VHF Antenna, or 3) UHF.

Use the included cable to connect the Controller to your TV. Hook your VCR

before or after the Controller.

And look at this. If you hook your VCR in after the Controller (to make your VCR cable compatible), you can hook its output to one of the Controller's unused inputs for a massive sonic improvement.

Just tune your TV to channel 3 and the noise-free tuner with automatic fine tuning will do all the work. Then plug your TV's AC plug into the Cable Controller. So, when you turn off the Controller, your TV will shut off.

You'll have effortless remote control of all channels on 3 bands (UHF, VHF and Cable) and even the volume.

Its memory is nonvolatile, so it won't be lost during power failures. But best of all, you'll experience massively powerful, vibrant TV sound.

It's made by Universal and backed by their standard limited warranty.

GET CABLE, UHF AND VHF IN POWERFUL SIMULATED STEREO RISK FREE

Wait till you hear the sound. Wait till you switch between your video sources. And wait till you flip through your 'Favorite' channels. If you're not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order Universal's Cable, UHF, VHF Tuner with Built-In Switcher, Volume, Amplifier, Advanced Simulated Stereo Circuit and Complete Infrared Remote Control risk free with your credit card, call toll free or send your check for DAK's breakthrough price of just \$149⁹⁰ (\$8 P&H). Order No. 4553. CA res add tax.

Now you can tune in virtually any TV broadcast and listen to the most phenomenally dramatic sound, plus, you'll have remote control of all functions.



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15" Thundering Subwoofer

Man's best friend meets the audiophile's best friend at an earthshaking bone jarring new price. Now you can add the impact of a 15" subwoofer to any stereo system for just \$99⁹⁰.

By Drew Kaplan

A puppy may be man's best friend. Woof, Woof. . . But, now I've got a new friend you can add on to your stereo system. It doesn't need to be taken on walks, washed or fed. But, it makes a great cocktail table for you when you're being fed. And, oh what a woof it has.

GREAT SOUND FOR EVERYONE

It's called a subwoofer. And, normally it is the beloved pet of only the most ardent audiophiles.

It's not generally understood that it can be used with virtually any speaker system in any stereo. And, in addition to substantially increasing and perfecting the bass response, it has a significant impact on the mid-range clarity too.

Before I tell you exactly how marvelous your stereo will sound when you connect this subwoofer to it, there are two things you should know.

First, you'll be getting your new friend at a phenomenal price. DAK has sold over 10,000 of Cerwin-Vega's 12" subwoofers. They had a retail price of \$332, but we sold them for \$164⁵⁰.

Second, your new friend comes complete with a paid up health insurance policy in the form of a 2 year limited warranty from its father, BSR.

By the way, the puppy sitting on top of the subwoofer is the same puppy I used with Cerwin-Vega's, but wait till you hear what's under him now. You'll have BSR's 15" massive infusion of explosive bass, added to your system for just \$99⁹⁰.

But don't be misled. BSR bass is clean and tight; never sloppy or overpowering. It adds a feeling of depth and fullness to your music that you simply can't get with two or 3-way speaker systems.

HERE'S WHAT IT DOES

Basically, the problem with most speaker systems is that the bass overpowers the system. In a 3-way system, a woofer may be crossed over at about 800hz. And, in a 2-way system as high as 3000hz.

So, the woofer must handle movements of up to an inch at frequencies below about 80hz, while at the same time attempting to reproduce the very fine vibration type movements of the mid-range frequencies.

It is this difference in movements that causes both the bass to be weak or not precise, and the mid-range to become muddy (intermodulation distortion).

Even the best 3-way systems fall prey to these problems. And, it's why a subwoofer can do so much for your mid-range clarity as well as your bass.

PROBLEM SOLVED

BSR's subwoofer has a specially engineered crossover network that sends frequencies above 120hz to your regular speakers and reproduces just the mammoth movement frequencies from 120 hz down to 22hz with a special floor firing dual wound super subwoofer.

If you have downstairs neighbors, this subwoofer isn't for you. The woofer is a very special hybrid. It has a mammoth one and one half inch voice coil which allows the speaker to make the very large



movements required to reproduce the very low frequencies.

But, it would do a lousy job of reproducing mid-range, which is why, cost aside, manufacturers don't put big voice coils in normal 10" or 12" woofers.

To make the massive movements accurate, this woofer has a very large magnetic structure. This magnetic structure also makes the subwoofer system extremely efficient. (The sensitivity is 91.5 db at 1 watt at 1 meter.)

So, whether you have two or three-way speaker systems, with 8", 10" 12" or even 15" woofers, you'll find the sonic improvements staggering.

You'll hear and feel the awesome effect of thunder rumbling through your home. You'll hear a depth and dramatic fullness to your music that won't be heavy but will thrill you with its massive strength.



Here's a 'floor's eye view' of the subwoofer. You'll feel and hear bass so alive, you'll think it is.

EASY HOOKUP

It's easy to connect. Simply run the right and left speaker wires from your amplifier to the input terminals of the subwoofer. It works with any system from 20 to 150 watts per channel.

Then, you simply connect the speaker

wires from your two stereo speaker systems to the output terminals on the subwoofer. They receive the exact signal that they did before except that everything from 120hz down is routed only to the subwoofer.

Placement of your regular speakers is just as critical as usual for stereo imaging, but the subwoofer can be placed anywhere because low frequency material is totally non-directional.

The subwoofer makes a perfect cocktail or end table. Its rich wood-tone appearance matches any decor. It is 24½" long, 16¼" high and 20" wide.

TRY AUDIOPHILE'S BEST FRIEND RISK FREE

The fullness, richness and depth is awe inspiring. Wait till you connect this subwoofer to your system and experience truly massive force from your music.

If you aren't 100% satisfied, simply return it to DAK in its original box within 30 days for a courteous refund.

To order BSR's Thundering Subwoofer with its dramatic 15" Dual Wound Voice Coil Subwoofer risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$99⁹⁰ (\$14 P&H). Or. No. 4514. CA res add tax.

You can't replace the love and softness of a warm puppy. But, wait till you experience the richness and depth this subwoofer will add to your bass and the clarity you'll hear in your mid-range.



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BSR's Endangered Colossus

Prepare for bone jarring bass and dramatically clear highs from these newly developed 15" 3-way 5 speaker systems that nearly missed their chance to charm an audiophile's ear. BSR moved its dbx and ADC divisions into one facility and these speakers almost became orphans. So now, they're yours at a close-out price.

By Drew Kaplan

It's a shame. But, it's also a great opportunity to get a pair of 15" audiophile loudspeakers with the newest in stereo imaging at a market-breaking price.

Imagine a precisely matched mirror image pair of top-of-the-line BSR speakers that can effortlessly recreate the cataclysmic impact of a full orchestral crescendo at full volume and yet offer flawlessly subtle sound detail to 21,500hz.

You'll thrill to thunderous bass all the way down to 26hz. Incredibly rich, full, vibrant sound at low volume will explode with life as you increase the volume.

But before we examine the front speaker complement, the twin overlapping crossovers and the top mounted sonic placement and ambiance speakers, let's see why they were almost orphaned.

You see, BSR, the half billion dollar electronics giant, is the parent company of two of the best names in up-scale audio, dbx and ADC.

Last year dbx developed a new multi-thousand dollar speaker system called the Soundfield One which lets you sit virtually anywhere in your room and have full stereo imaging and terrific sound.

BSR decided to consolidate ADC and dbx into one building (still 2 companies) and put all its speaker efforts into dbx.

POOR JACK

Well, while dbx's engineers were off designing their multi-thousand dollar masterpieces, BSR's Senior Acoustical Engineer (he had been Fisher's Chief Engineer for 10 years during its top end component stereo days), was designing BSR's radically new speaker line.

The revolutionary top of the line 15" stereo imaging pair pictured above will let you enjoy superb stereo imaging without sitting directly in front of your speakers.

But unfortunately, in the consolidation move, BSR's speakers went by the wayside, and so did Jack.

Enter DAK. After a few fearful negotiations and considering the engineering costs BSR had already expended, they agreed to make the speakers just for DAK.

Because there's virtually no BSR overhead left on these speakers, and the R&D was all but complete, we've gotten these speakers for virtually the component costs plus a little BSR labor.

And don't worry about Jack. BSR had him finish the engineering (they really are great people) and they'll pay him a royalty on each speaker we sell. Besides, by the time you read this, Jack is sure to be snapped up as the Chief Engineer at another esoteric audio company.

WHAT'S STEREO IMAGING?

Stereo imagery is the logical separation and interaction between channels. It's the successful creation of a panoramic wall or stage of music rather than the confined, easily located 2 speaker sound. **IT'S WHAT'S INSIDE THAT COUNTS**

Imagine the full thunder of a kettle drum, or the pluck of a string bass being explosively recreated in your living room. BSR's 15" sub-bass acoustic suspension driver will revolutionize your concept of low clean bass



Its magnetic structure weighs a thundering 48 ounces. But that's not all. The magnetic field is developed by the rare earth metal Strontium for state of the art massive but flawlessly controlled bass.

A 38mm voice coil with a 200° centigrade temperature capacity, will handle the most demanding digital or analog recordings. And, a new super rigid cabinet design virtually eliminates coloration due to uncontrolled cabinet resonance.

At low volume, the bass will fill in and envelope you. At high volume, your room, your walls and your neighbors will shake. This is definitely not a speaker system for apartment dwellers.



MATCHED PAIRS

The mid-range and high end of BSR's speakers are truly unique. Front mounted 8" polypropylene mid-range drivers provide rich sound while top mounted 5" polypropylene mid-range drivers provide an open, lifelike ambience.

Front mounted exponential horn tweeters provide awesome brilliance to 21,500

hz, while top mounted tweeters enhance separation because they are mounted to the outside edge of each speaker.

So, this system has a specific left and a specific right speaker. You'll find wide, but interactive separation that will vastly widen your ideal listening area.

The imagery will give the illusion of musicians actually playing in front of you. Your music will take on a three dimensional quality. You'll enjoy superb stereo imaging regardless of each speaker's specific placement in your room.

MORE SPECIFICS

The exponential horn tweeters, both in front and on the top of these systems, employ 25mm rigid phenol diaphragms for stability and accurate response.

Polyamid-imid binders and ferro-fluid coolant allow for a 300% increase in heat dissipation so you can drive the voice coils up to 200° centigrade.

Now, the mid-range. Both the 8" front firing and the 5" top firing polypropylene drivers reproduce the mid-range frequencies like no ordinary speakers.

It's amazing that so many speaker manufacturers simply slap in 5" paper mid-ranges to reproduce what's really the major portion of the sound spectrum.

BSR's 8" and 5" polypropylene mid-ranges are rigid, exacting drivers that deliver incredibly pure uncolored sound.

They have matched 25mm voice coils, also protected by ferro-fluid and polyamid-imid to 200° centigrade. They are driven by powerful barium ferrite magnetic fields.

NOT QUITE FINISHED YET

To prevent phase shift and cancellation, two totally separate crossover networks are employed in these speakers.

Next page please. . .

...BSR's Colossus Continued

All frequencies below 800 hz are directed to the 15" woofer. The front system routes frequencies above 800hz to the 8" mid-range to take full advantage of its superb reproduction capabilities. Frequencies above 3400hz are routed to the horn tweeter.

The top mounted system routes only frequencies above 1200hz to the 5" polypropylene ambient mid-range driver, and frequencies above 3400hz are routed to the top sonic placement tweeter.

There are level controls for both the top and front mounted speakers so that you can voice the speakers to match your musical taste and environment.

Note: Only the top tweeters are mounted at the the edges. The front mounted tweeters are conventionally mounted

for acoustical symmetry.

Each speaker is fuse protected for up to 200 watts peak, 150 watts continuous power. You can operate these super efficient speakers with as little as 20 watts.

AND OH WHAT A PRETTY FACE

The speaker systems are 30" tall, 19 1/4" wide and 10 1/2" deep. Their lovely oak wood-grain appearance is enhanced by the dark removable grill cloths that beautifully contrast with the rich wood-grain tones. They're a statement of audio elegance when placed in any room. They're backed by BSR's 2 year limited warranty. **A COLOSSAL DREAM COMES TRUE RISK FREE**

You'll hear depth of sound at low levels that was previously unobtainable. And yes, when you crank up the volume, your music will explode with realism and drama.

Try these speakers in your own system. Then compare them at any Hi-Fi Store with any pair of speakers up to \$1000. If they don't beat all the competition hands down, simply return them to DAK in their original boxes within 30 days for a courteous refund.

To order your matched pair of BSR top-of-the-line 15" 3-way 5 speaker systems with unique stereo imaging risk free with your credit card, call toll free or send your check for DAK's market-breaking price of just \$298 for the **MATCHED PAIR** plus \$22 for Postage and Handling. Order No. 4352. CA res add tax.

It's a dream system for an audiophile. Sonically pure, thunderously powerful, these BSR speakers will make your future listening years an on-going fabulous, if not earthshaking experience.



So, your spouse or neighbors aren't into thunder and paint peeling audio. Don't worry, BSR has developed two smaller but still mighty versions of the colossus that use the same basic components, at incredible prices.

Don't despair. You won't be relegated to 'little sound' by these more sane versions of the Colossus. After all, a 15" 3-way system is usually a distant dream of only the most ardent audiophile.

10" 3-WAY SANE COLOSSUS

You will experience the same dramatic highs to 21,500hz produced by the identical exponential horn tweeters with the same rigid phenol diaphragms. There's even a variable brightness control.

And, don't look for any cheap paper mid-range speakers. You'll thrill to rich, full, incredibly pure music from a 5" rigid polypropylene mid-range driver.

The 10" woofers utilize a massive Strontium magnetic structure and can reproduce dramatically clean, massive bass down to 32hz. Unless you actually set these speakers next to the Colossus, you'd think the bass is incomparable.

The crossover points are at 1200hz and 3400hz. The speakers are rated for 90 watts peak and 45 watts continuous power and require at least 15 watts.

If you're a normal audio person, you'll be thrilled with these as main speaker systems for your stereo. But, if you're a slightly crazy DAK-type audiophile, the big Colossus Systems add a thrill to your music that goes far beyond printed specs.

These speakers are 23 1/4" tall, 13 1/4" wide, and 8 3/4" deep. Their rich oak wood-grain appearance which surrounds the contrasting dark grill cloth, will be an elegant addition to any room.

8" BOOKSHELF COLOSSUS

Where space is a consideration, your music need not suffer. BSR's newest 2-way 8" systems provide an astounding level of musical fullness.

BSR's exponential horn tweeter produces superb highs to 21,500hz. The 8" woofer/mid-range produces bass down to a very respectable 38hz and powerfully clean mid-range up to 2500hz.

On the floor or in a bookcase, these speakers will give you years of full rich beautiful sound. They are just 19 1/4" tall, 11 1/4" wide and 8 3/4" deep. Their rich oak wood-grain appearance which surrounds the contrasting grill will be a beautiful addition to any room.

All BSR speaker systems are fuse protected and backed by BSR's standard 2 year limited warranty.

TRY RICH DRAMATIC SOUND RISK FREE

These smaller versions of the Colossus may have a hard time competing with the awe inspiring sonic violence of their bigger brother. But, compared with tra-

ditional speakers, you'll find they've gained greatly by their genetic origin.

If you're not 100% satisfied, simply return them to DAK within 30 days in their original boxes for a refund.

To order the 10" 3-way Sane Colossus with its horn tweeter, polypropylene mid-range and 10" Strontium woofer risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$69 each plus \$9 P&H each. (2 required for stereo). Order No. 4348.

To order the 8" 2-way Bookshelf Colossus with its exponential horn tweeter and 8" Strontium woofer/mid-range risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$44 each plus \$5.50 P&H each. (2 required for stereo). Or. No. 4347.

These speakers have gained a great deal from their big brothers. They'll bring you years of superb musical sound and add truly elegant visual appeal to any room.

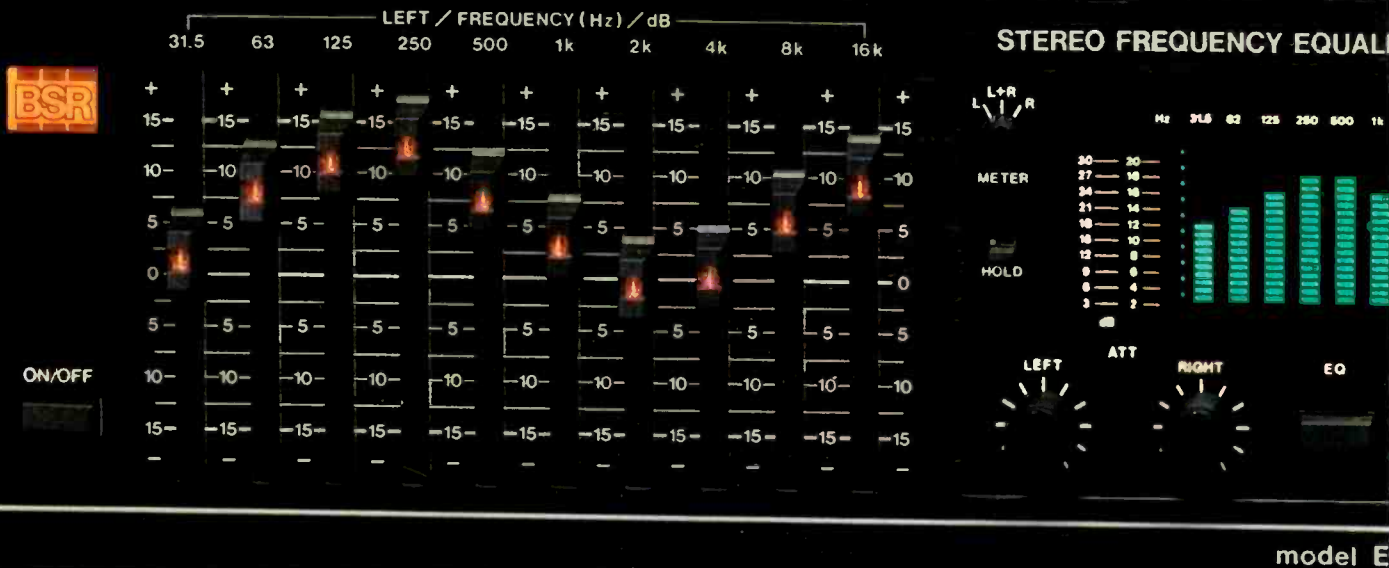


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Smart Sound Detonator

Obliterate the wall between you and the individual instruments in your music. Infuse your own stereo system's sound with a breathtakingly vibrant 30 to 50% improvement in sound quality that you can measure with this superb BSR Equalizer/Spectrum Analyzer limited \$149 close-out.

By Drew Kaplan

Close your eyes. Touch a button. And you'll hear your stereo system literally explode with life.

You'll hear the gentle brushes on a snare drum, the startling bone-jarring realism of a thunder clap, or the excitement of a full cymbal crash.

You'll hear string basses and other deep low instruments emerge from bass (that will sound murky by comparison), with such clarity and such definition that you'll feel you can almost touch each instrument.

This astoundingly distinct yet powerful bass adds such a full bodied warm feeling to your music, you'll feel as if you've been lovingly wrapped in a warm soft blanket on a cold winter's night.

But don't take my word for the sound quality improvement. With the Pink Noise Generator, Calibrated Electret Condenser Mike and the 220 Element Spectrum Analyzer, you can instantly measure each and every improvement you make.

Plus, there's more. A subsonic filter effectively adds the equivalent of many watts onto the power of your amplifier.

Plus, with its provision for two separate tape decks including two way dubbing, you'll have much more than just greatly improved sound.

You can count on great sound from this top of the line Equalizer/Analyzer. It has a frequency response from 5hz to 100,000hz \pm 1db. And, it has an incredible 100db signal to noise ratio.

BSR, the ADC equalizer people, make this super Equalizer/Analyzer and back it with a 2 year standard limited warranty. Our \$149 close-out price is just a fraction of its true \$379 retail value.

FIRST THE EQUALIZER
YOUR STEREO'S HIDDEN SOUNDS
Your stereo can sound incredibly bet-

ter. Just a 5db roll-off at the high end, up around 14,000hz to 16,000hz, can just decimate the harmonics that give you the open feeling you'd experience at a live concert. A similar roll-off at 60hz, causes the fundamental bass notes to just fade away into the 'murk'.

An equalizer isn't some magical device that manufactures sounds that don't exist. Most of the frequencies that will make your music really vibrant, are actually already recorded in your music.

You'll be able to prove this with a few simple tests we'll try when we discuss the Spectrum Analyzer.

You see, certain frequencies are simply not reproduced with as much volume as are the mid-range frequencies which stretch from about 800hz to 2,000hz.

An equalizer simply lets you establish accurate control of all frequencies to fit your equipment, your recordings, your taste, and your listening environment.

TOTAL MUSICAL CONTROL

And, what a job it can do. It's totally unlike bass and treble controls which simply boost everything from the mid-range down for bass, or everything up for treble. You can boost the low-bass at 31.5hz, 63hz and/or 125hz to animate specific areas or instruments.

And, when you boost the part of the bass you like, you don't disturb the mid-range frequencies and make your favorite singer sound like he has a sore throat.

The high frequencies really determine the clarity and brilliance of your music. The problem is that highs are very directional. Wherever you move in your listening room, you'll find a big difference in high end response, as you'll see when we test the Analyzer.

No recording engineer or equipment manufacturer can even begin to control your listening environment.

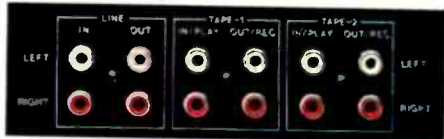
You can control the highs at 4,000hz, 8,000hz and/or 16,000hz, to bring crashing cymbals to life at 16,000hz while at the same time you can cut tape hiss or annoying record scratches at 8,000hz.

But there's more. Don't leave out the mid-range. You can boost trumpets at 300 to 500hz or a clarinet at 1000hz. You can boost or cut any part of the frequency spectrum a full \pm 15db.

TAPE DECK HEAVEN

You can push a button and transfer all the equalization power to the inputs of two tape decks. Now you can pre-equalize your cassettes as you record them and get all the dramatically enhanced sound recorded right on your cassettes.

This is an especially great feature when you play your cassettes on bass-starved portables or high-end starved car stereos.



SIMPLY PLUG IT IN

Use your tape monitor circuit, but don't lose it. Now your one tape monitor circuit lets you connect two tape decks.

Just plug the equalizer into the tape 'in' and 'out' jacks on your receiver or preamp. We even supply the cables.

As you listen to your records, FM or any 'Aux', any time you push the tape monitor switch on your receiver you'll hear your music jump to life.

The output from your receiver is always fed directly to your tape deck(s) for recording, and with the touch of a button, you can choose to send equalized or non-equalized signal to your deck(s).

When you want to listen to a tape deck, just select which tape deck you want, turn the switch on the equalizer,

model E

\$149 CLOSE-OUT

R / SPECTRUM ANALYZER



3000

and your tape deck will work exactly as it did before. Except, now you can listen with or without equalization.

Look at this. You can dub tapes from deck 1 to deck 2, or from deck 2 to deck 1 with or without equalization.

THE SUBSONIC FILTER

Much of the power drawn from your amplifier is used to drive your woofers. When you drive the amplifier too hard, it clips and you end up with distortion.

A subsonic filter removes a lot of non-musical material you can't hear that exists below 20hz. So, it relieves your amplifier of a lot of work. It doesn't actually create more watts (Please, no letters from my 'technical' friends) for your amplifier.

But, it's like turning off the air conditioning in your car. It saves you using about 7hp of what you have. And therefore, you'll have more watts for clean powerful sounding music.

THE SPECTRUM ANALYZER

Now you can scientifically analyze your stereo listening room and test your equipment by using BSR's Real Time Frequency Spectrum Analyzer.

Plus, you'll see your music not as a single level on a VU meter, but as a kaleidoscopic parade of 10 individual 20 element VU meters.

Each is tuned to a specific octave of the sound spectrum. An eleventh 20 element meter averages all levels.

The effect is awesome. You can visually isolate a string bass or cymbal, and actually see each individual instrument almost as a wave moving across the 220 individual florescent elements.

THE MOUTH AND EARS

It talks. The Analyzer speaks with a voice of pure calibrated Pink Noise. Pink Noise is the standard composite 'sound' of all frequencies used for testing in labs around the world. All frequencies from 20hz to 20,000hz are generated at the exact same level at the exact same time.

It listens too. If you are testing a cassette or a component in your system, use the 'Line Button'. If you're testing your whole system with speakers, use the matched calibrated electret condenser

microphone (included). Either way, you'll have a quick, easy and accurate way to evaluate the total sound of your system.

HOW TO TEST

SPEAKERS, EQUIPMENT AND TAPE

Testing your speakers in your listening room is the really crucial test. Simply place the calibrated microphone where you normally sit to listen to your stereo.



At the end of an 18 foot cord is the ear of the system. Just clip the mike wherever you sit and test your room.

Turn on the Pink Noise. You can switch to Left Channel, Right Channel or both. There's a meter range button, a sensitivity control, and even a switch that lets you freeze the meter.

Just sit down at the equalizer. Start with one channel. You'll see all 10 octave bands on the meter. Just slide the corresponding controls to increase or decrease any area that needs help.

You have now set up your system to its maximum capability. But as you'll see, location is very important. Move the microphone 5 feet to the left or right.

Then turn on the Pink Noise and check the Spectrum Analyzer. Now you can see why the specifications that come with your system are only a starting point.

Here's a way to test your tape deck and tape. First record Pink Noise for 3 minutes at -20VU. Then play it back and note the readings on the meters.

Now, record the Pink Noise again at 0VU or +3. Wait till you see how much the high end falls off. Now you'll see why all specifications are listed at -20VU.

With the Equalizer/Analyzer you can enjoy the finest stereo sound from your system and be a test lab too.

WHY SO CHEAP

BSR now only sells equalizers under their ADC name. Well, as Detroit comes out with new cars each year, ADC comes out with new equalizers. We got them to supply us with just 30,000 of last year's

ADC model before they shut it down.

They had already paid for all the tooling, all the research and design, so we were able to buy these for less than half the normal price, for cold hard cash.

THE FINAL FACTS

There are 20 slide controls, each with a bright LED to clearly show its position. Each control will add or subtract up to 15db. (That's a 30db range!)

There are separate sound detonation slide controls for each channel at 31.5hz, 63hz, 125hz, 250hz, 500hz, 1,000hz, 2000hz, 4000hz, 8000hz, and 16,000hz.

BSR backs this top of the line Graphic Equalizer/Spectrum Analyzer with a 2 year standard limited warranty. It is 1 7/8" wide, 3 1/2" tall and 8 3/4" deep.

MAKE YOUR MUSIC EXPLODE RISK FREE

It's startling. Music so vibrant with life you'll swear it's 3 dimensional. Sculpture your music any way you want it. If you're not 100% satisfied for any reason, simply return it to DAK within 30 days in its original box for a courteous refund.

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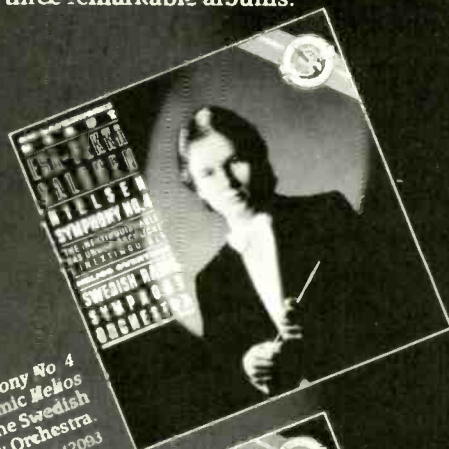
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*Discs and tapes
reviewed by
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Stoddard Lincoln*

ALWYN: *Fantasy-Waltzes; Twelve Preludes.* John Ogdon (piano). CHANDOS ● ABRD-1125 \$12.98, © CHAN 8399 \$18.

Performance: *Compelling*
Recording: *Excellent*

Many Americans have heard a good deal of William Alwyn's music in the form of film scores, but few of us can claim any familiarity with his concert works. While some have circulated here on various labels in past years, the bulk of his Schwann listings today are recent Chandos recordings of his songs and chamber music. This new disc of the *Fantasy-Waltzes* and *Twelve Preludes*, possibly intended as an eightieth-birthday tribute, appears now in the nature of a memorial to the composer, who died last September 11, some eight weeks shy of the anniversary date. It is, I think, the first recording of any of Alwyn's piano music to reach our shores, and it could hardly be in better hands.

John Ogdon, from whom we have not heard nearly enough lately, made this recording in the composer's presence in 1984, and he has supplemented Alwyn's brief annotations with somewhat more extended and quite intriguing notes of his own. He observes, for example, that the third of the eleven *Fantasy-Waltzes* is "a tearful song, presaging the famous pop song *Cry Me a River* (sung by Julie London) . . ." For his own part, Alwyn advised that it was a visit to Grieg's home in Norway that gave him the idea of writing a suite of virtuoso piano pieces. The listener will seek in vain for any reminder of Grieg in the *Fantasy-Waltzes*, but in the two longest, Nos. 6 and 11, you may find reminders of another composer, the Ravel of the *Valses nobles et sentimentales*.

A somewhat Gershwin-esque flavor—recalling the second theme of the Concerto in F in particular—might be said to inform the pithy *Prelude No. 3*. Alwyn indicated no programmatic intent for these characterful preludes except for No. 5, which is an elegy for the

A TALE OF TWO PIANISTS



Sergei Edelmann: bracing and heartwarming Schumann

THIS is a story of two Russian Jewish pianists. The first is Sergei Edelmann, who in January 1979, when he was eighteen, arrived with his family in New York. Within months he won first prize in the Young Concert Artists International Auditions and the Gina Bachauer Memorial Scholarship, which enabled him to study with Rudolf Firkušny at Juilliard. In little more than a year after his arrival he struck out on a concert career and caught the attention of important people at RCA Records. Edelmann has been compared to the young Horowitz, and by now, at twenty-five, he has already played with several big American orchestras and has recorded enough to fill five or six LP's. RCA recently issued the first one, a Schumann program comprising the *Symphonic Etudes*, the *Arabesque*, and the *Toccata*. (It is an analog recording, by the way, and a very good one.)

Several exceptional young pianists have chosen to introduce themselves on records with Schumann: the youthful quality in these particular works, all composed in Schumann's twenties, makes them perhaps especially apt. In any event, Edelmann's response to them is superb, realizing all the poetry as well as all the fire. Throughout all three works, in matters of phrasing, tempo, balancing of inner voices, and overall proportion, Edelmann never puts a foot wrong—or a finger. These are bracing and heartwarming performances to which one returns happily again and again. What they promise for the future is perhaps more heartening still. (Incidentally, pianists who include the five posthumous variations in the *Symphonic Etudes* usually have their own ideas about where to fit them in. Arrau and Perahia scatter them through the sequence, each in a pattern of his own; Pollini plays them all after Variation V; Edelmann plays them all after Variation IV.)

The second pianist, Vladimir Feltsman, is, like Edelmann, unfamiliar to most Americans, and there is not a word about him on the jacket of his new CBS recording of the Chopin preludes. But as we reported in "Record Makers" last month, he has not been allowed to leave Russia. His Chopin recording, the first to reach the West, was not made in a studio but during a live performance at the U.S. Ambassador's residence in Moscow. (This information, too, is omitted from the record jacket, which, in fact, lists no credits at all.)

It is a very good recording—not digital but with warm, realistic piano sound, very well focused, and with only one or two barely noticeable extraneous noises to certify the "live" conditions. The tempo struck me as a tiny bit unsteady in the first piece—understandable enough under the circumstances—but after that the playing is an unalloyed joy. Feltsman, it appears, has no patience with surface glitter (though he shows a fine regard for tone), but is a pianist who goes directly and deeply into the heart of the music. While this record may not displace those of Ashkenazy, Arrau, or Rubinstein, it is definitely in the same class.

The attention already focused on Feltsman by the press and protests by Western musicians seem to have had some impact in the U.S.S.R., but the circulation of this record should help him find an international audience. It certainly makes it clear that Feltsman is a pianist worth fussing over—one who ought to be heard everywhere.

Richard Freed

SCHUMANN: *Symphonic Etudes, Op. 13; Arabesque, Op. 18; Toccata, Op. 7.* Sergei Edelmann (piano). RCA ARL1-5365 \$9.98, © ARK1-5365 \$9.98.

CHOPIN: *Preludes, Op. 28.* Vladimir Feltsman (piano). CBS M 39966, © MT 39966, no list price.

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New Zealand pianist Richard Farrell. Ogdon has volunteered descriptive titles, which range from *Haiku* and *Humoresque* to *An Afro-Hungarian Caravan* (!) and *Balinese*. Whatever you may think of the aptness of these titles, there can be no questioning the authority or commitment of Ogdon's altogether compelling performances.

How delighted Alwyn must have been with both Ogdon and the way his piano was captured by the Chandos engineers! And how delighted anyone with working ears will be to discover the substantial and fascinating music so beautifully recorded here. *R.F.*

BACH: English Suites. Gustav Leonhardt (harpsichord). ANGEL ◉ DSB-3962 two discs \$23.98, ◉ 4D2S-3962 two cassettes \$23.98.

Performance: *Warm*
Recording: *Excellent*

Although Gustav Leonhardt's hard-line approach to authentic performance practice is an admirable one, the results have frequently been more intellectual than musical. Recently, however, Leonhardt seems to have mellowed. The articulation is less severe, rhythmic alternations have been softened, and a long-line legato has crept in. While all we know of "authenticity" is still there, it has now been put into the service of musical expression with a newfound warmth and humanity. This wonderful recording of Bach's English Suites exemplifies the new Leonhardt, and it is a joy to hear. *S.L.*

BRAHMS: A German Requiem (see Best of the Month, page 83)

CHERUBINI: Mass in A Major ("Coronation"). Philharmonia Chorus and Orchestra, Riccardo Muti cond. ANGEL ◉ DS-38240 \$11.98, ◉ 4DS-38240 \$11.98.

Performance: *Luminous*
Recording: *Splendid*

Written in 1825 for the sumptuous coronation of Charles X in the Cathedral at Rheims, Cherubini's A Major Mass should be a razzle-dazzle affair, in the tradition of Delalande or Charpentier, for multiple choirs and lots of fanfaring trumpets and drums. No such thing. Eschewing the pomp and glitter of the event, Cherubini seized on its religious solemnity in a spiritually edifying work that combines the ecstasy of Beethoven's *Missa Solemnis* and the French Catholic mysticism of the Fauré Requiem. The result is a masterpiece that rejuvenates the age-old text in a truly original way.

Riccardo Muti's reading is superbly paced and spacious. He carefully molds Cherubini's taut lines and elicits stark contrasts between sections like the "Et sepultus est" and the "Resurrexit." While there are thrilling sections calling for large forces complete with trumpets and drums, Muti, like Cherubini, is more interested in the reflective pas-

sages. The final "Marche religieuse," for example, is not the triumph of a freshly crowned monarch but rather the solemn progress of a priest-king accepting the responsibilities of fulfilling a holy order.

This Mass is unique, and Muti's performance reveals the greatness of Cherubini's genius. I hope it will lead to a reconsideration of the music of this too often neglected composer. *S.L.*

DVOŘÁK: Cello Concerto in B Minor, Op. 104. Heinrich Schiff (cello); Concertgebouw Orchestra, Sir Colin Davis cond. **ELGAR: Cello Concerto in E Minor, Op. 85.** Heinrich Schiff (cello); Dresden Staatskapelle, Sir Neville Marriner cond. PHILIPS ◉ 412 880-2 no list price.

Performance: *Searching, eloquent*
Recording: *Splendid*

This CD-only coupling restores a first-class recording of the Dvořák Cello Concerto to the catalog (the analog LP was released in 1981 but has since been deleted) and combines it not with a makeweight filler but with a full-scale masterpiece. Moreover, this performance of Elgar's Cello Concerto (formerly available on LP with his *Cockaigne* Overture and the Introduction and Allegro for Strings) makes it a rival with the Dvořák for supreme place in the Romantic cello-concerto literature.

Heinrich Schiff and Sir Colin Davis with the Concertgebouw Orchestra form a team that very nearly equals that of Pablo Casals, George Szell, and the Czech Philharmonic in their famous and unforgettable prewar recording of the Dvořák concerto. In the long opening orchestral *tutti*, Davis brings out every single detail of texture and color, showing us the infinite poetry in the music. Schiff takes the initial entrance with superb address, and his reading progresses to a triumphant first-movement conclusion. His playing in the adagio has a quiet eloquence that makes the orchestral outbursts midway through that much more telling. The high point of the finale is, of course, the lingering, ineffably touching coda, but the performance's poignant lyricism betrays no attempt to "milk" sentiment for its own sake. Other than some barely audible ambient noise, one would never know that the recording was not a digital original. The sound is rich and beautiful, with flawless balancing of soloist and orchestra.

In the Elgar concerto Schiff works with the formidable Dresden Staatskapelle under Sir Neville Marriner to produce the most sinewy and dramatic reading of the work that has come my way. Elegiac the music surely is, but in this performance it is endowed with more strength and dramatic power than usual. The Dresden orchestra plays with tremendous weight but never heavily-handedly. Schiff's opening cadenza "motto" carries unmistakable authority, and he and Marriner bring remarkable drive and eloquence to the first

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movement. Schiff is dazzling in the *moto perpetuo* of the scherzo. The slow movement is quietly eloquent, and in the finale, the most elaborate portion of the concerto, there is maximum contrast between Falstaffian bravado and heart-rending lamentation. The very end, as in the scherzo, is quick and bitter. The recording is altogether superb in every respect. I would go so far as to call this the best single cello-concerto package now available on CD. *D.H.*

ELGAR: Cello Concerto in E Minor, Op. 85 (see DVORÁK)

HANDEL: Atalanta. Katalin Farkas (soprano), Atalanta; Éva Bártfai-Barta (soprano), Meleagro; János Bándi (tenor), Aminta; József Gregor (bass), Nicandro; others. Savaria Vocal Ensemble; Capella Savaria, Nicholas McGegan cond. HUNGAROTON SLPD 12612-14 three discs \$32.94.

Performance: *A joy*
Recording: *Excellent*

The plot of Handel's *Atalanta* is in the highest Arcadian tradition. The princess Atalanta, disguised as the shepherdess Amarilli, falls in love with Meleagro, the King of Aetolia, disguised as the shepherd Tirsi. But neither king nor princess can marry below their rank. In three delightful acts, nymphs and shepherds play their intriguing love games: tokens of love go to the wrong persons, messages are intercepted, eavesdropping abounds, and jealousies are evoked by false declarations of love. Truth will out, however, and the lovers, finally unmasked, are united in a wonderful finale.

Atalanta is surely one of Handel's frothiest concoctions, but every emotion—rage, hate, jealousy, despair, joy, love—is carefully etched by the master's free-flowing melodic genius. Title aside, it is really Meleagro's show, and a splendid show it is. At first Éva Bártfai-Barta's vibratoless singing seems to betray a sort of vocal immaturity, but as she warms up, her musicianship and technique become more and more impressive. She brings the first act to a brilliant climax.

Katalin Farkas's *Atalanta* is beautifully done, especially the moving second-act lament. Unusually generous with his duets, Handel gave two of them to the lovers, whose matched voices sparkle in passage work and languish in melting suspensions. János Bándi's portrayal of Aminta reveals a flexible tenor who brings a truly masculine lyricism to the part, and József Gregor is impressively virile as Meleagro's confidant.

After whipping through the overture, conductor Nicholas McGegan settles down to more sensible tempos, though he keeps things moving at all times, especially in the recitatives. He also evokes a fine sound from his band of early instruments, again offering a convincing argument for their use. In short, this is one of the finest recordings of any Handel opera. *S.L.*



STAN FELLERMAN/CAMI

Browning: a new-found obsession

LISZT: Piano Sonata in B Minor; Sonetti del Petrarca Nos. 47, 104, and 123; Après une lecture du Dante. John Browning (piano). DELOS © D/CD 3022 no list price.

Performance: *Refreshing*
Recording: *Excellent*

In the interview that serves as annotation for this recording, John Browning advises that he had more or less shunned the music of Liszt until five or six years ago, when he was suddenly "turned on" by the two big pieces recorded here. His performances are alive with the passion of the newly converted and with the most striking freshness. As you might expect from an artist on Browning's level who had resisted this music for so long, he is not content to follow any interpretive traditions: his new-found obsession called for a very personal response, and there is a great deal of originality in his attention to both form and substance. The performances are marked most of all, perhaps, by an emphatic but unlabored clarity that emphasizes the structural strength of the B Minor Sonata and underlies Browning's reworking of the ending of *Après une lecture du Dante*, the so-called "Dante Sonata." The emphasis on clarity also makes for a certain Chopinesque character in the performances of the B Minor Sonata and at least the first two of the Petrarch sonnets, with the customary glitter transformed to sheer radiance.

It is especially to Browning's credit that the remarkable quality of his intellect and skill strike the listener more or less as an afterthought. It is the music that makes the big impression here, which, of course, is exactly the way it ought to be. And the very generously filled CD (nearly 72 minutes) is itself a model of "the way it ought to be" when it comes to capturing the sound of a piano. *R.F.*

OFFENBACH: La belle Hélène (see Best of the Month, page 86)

PERLE: Serenade No. 3 for Piano and Chamber Orchestra; Concertino for Piano, Winds, and Tympani. Richard Goode (piano); Music Today Ensemble, Gerard Schwarz cond. *Ballade.* Richard Goode (piano). NONESUCH © 79108-1 \$10.98, © 79108-4 \$10.98.

Performance: *Understanding*
Recording: *Clean*

Serial or twelve-tone techniques rarely lead to music with much expressive content. In the hands of Schoenberg they were a means of personal expression appropriately post-Romantic and neurotically Freudian. But for many composers it becomes a matter of over-intellectualization, and the mere use of these techniques becomes message enough. This approach to composition restricts the emotional range of expression to the nightmarish world of the deranged. I can think of no serial or twelve-tone music that is happy, spiritual, contemplative (unless it's contemplating nightmares), or triumphant.

George Perle's pieces here represent an attempt to retain the twelve-tone technique while trying to warm up the "sound" and the "feeling" of the music. To a certain degree he succeeds. Still, the underlying, unsettled feelings and all-pervasive mood of neuroathetic anxiety poke through the outer layer, giving you the feeling that these are scores for Alfred Hitchcock movies. Richard Goode, Gerard Schwarz, and the Music Today Ensemble play this music with considerable technical fluency, understanding, and sympathy. They provide a good deal of improvisational spirit, too, as Perle intended.

Curiously, the two sides of the LP were recorded by different producers but sound quite similar. Marc Aubort and Joanna Nickrenz chose to record the serenade in Rutgers Church, and a year later Max Wilcox recorded the ballade and concertino in RCA's Studio A. The hard-surfaced walls of the church emphasize the highs, but the room's cavities soften the harshness by creating some beautiful resonance regions in the upper portion of the spectrum. The effect on the sound of the woodwinds is especially mellowing. The instruments seem a bit closer in the studio recording, but Aubort and Nickrenz stepped back just enough to allow that beautiful natural church ambience to make its effect. *Sieve Birchall*

ROPARTZ: Symphony No. 3, in E Major. Françoise Pollet (soprano); Nathalie Stutzmann (contralto); Thierry Dran (tenor); Frédéric Vassar (bass); Orfeon Donostiarra; Orchestre du Capitole de Toulouse, Michel Plisson cond. PATHÉ MARCONI/EMI © 2703481 \$12.98, © 2703484 \$12.98 (from International Book and Record Distributors, 40-11 24th St., Long Island City, NY 11101).

Performance: *Devoted*
Recording: *Good*

Joseph Guy Ropartz (1864-1955) began his career as a lawyer and poet but even-



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tually turned to music, first studying with Massenet and completing his training under César Franck. Until now, Ropartz's representation on discs has been chiefly by way of chamber works and songs, and it was not until late last year, thirty years after his death, that one of his big works, the Third Symphony, was recorded.

The symphony is to all intents and purposes a three-movement choral work with extended orchestral interludes. The musical language is decidedly post-Franckian, but with neither the hothouse passion of Chausson nor the cerebral coolness of D'Indy. The melodic lines are long and richly scored for both the vocal and orchestral forces, and the harmony is post-Wagnerian with occasional impressionist-modal flavoring. The vocal text, by Ropartz himself, is almost pantheistic in its evocation of sea, plain, and forest. It is also utopian-idealist in its hopes that a suffering humanity will one day achieve a society based on "Truth, Justice, and Love!"

Noble sentiments these, and from time to time they give rise to noble music, but a major undiscovered masterpiece the symphony is not. Still, it was worth recording as a significant product of that generation of French symphonic composers who came to maturity between the death of Franck and the emergence of Roussel. Michel Placson and his excellent Toulouse orchestra, with San Sebastian's fine Orfeon Donostiarra chorus and a team of good soloists, perform it with the utmost dedication. The recorded sound is excellent throughout. *D.H.*

SCHUBERT: *Die schöne Müllerin* (D. 795). Francisco Araiza (tenor); Irwin Gage (piano). DEUTSCHE GRAMMOPHON ● 415 347-1 \$10.98, © 415 347-4 \$10.98, © 415 347-2 no list price.

Performance: *Excellent*
Recording: *Favors piano*

Apparently Francisco Araiza's first lied-recording, this is certainly an impressive and vastly enjoyable one. According to the booklet accompanying the CD, Araiza has sung *Die schöne Müllerin* successfully in public before, and the performance recorded here suggests a long and especially loving acquaintance. It is a complete fusion of musical and dramatic values he projects: his tone is beautiful, his articulation remarkably clean and clear, and the sentiment rings true. Indeed, there is not a phrase or gesture throughout the cycle that fails to be convincing on the deepest level. Irwin Gage's accompaniments are exceptional, though the sonic focus seems to favor the piano rather frequently, placing it too far forward in relation to the singer. But the sound must otherwise be acknowledged as warm, well defined, and exceptionally lifelike. *R.F.*

TCHAIKOVSKY: *Yolanta*. Galina Vishnevskaya (soprano), Yolanta; Ni-



Vishnevskaya: spiritual conviction

colai Gedda (tenor), Vaudémont; Walton Groenroos (baritone), Robert; Tom Krause (baritone), Ibn Haika; Dimiter Petkov (bass), le Roi René; others. Groupe Vocal de Paris; Orchestre de Paris, Mstislav Rostropovich cond. ERATO ● NUM 75207 two discs \$21.96. © MCE 75207 two cassettes \$21.96, © ECD 88147 two CD's no list price.

Performance: *Very affecting*
Recording: *Satisfactory*

Well over ten years had elapsed since the premières of Tchaikovsky's *Eugene Onegin* and *The Queen of Spades* when his last opera, *Yolanta*, was first performed along with the *Nutcracker* ballet at St. Petersburg's Mariinsky Theater on December 6, 1892. *Yolanta*, in one act, is imbued with the spirit of the medieval miracle plays: it tells the story of a princess, born blind, who gains sight through the power of love. As performed here by superior artists, the work offers a moving experience even though it is musically and dramatically quite foreign to Tchaikovsky's other, more familiar operas.

Recorded in performance at the Salle Pleyel, Paris, in December 1984, the opera could have been written expressly for the three headliners here—Galina Vishnevskaya, Nicolai Gedda, and Mstislav Rostropovich. At first passive but later suffused with the quiet strength that comes with spiritual conviction, the role of *Yolanta* lies perfectly for Vishnevskaya as she sings today, neither too high nor too low. The nature of the part and the composer's insightful setting of it allow the soprano to concentrate on interpretation of the character, which Vishnevskaya does in a truly touching manner. The same may be said for Gedda, whose singing, while careful these days, bears his signature of polished style and dramatic sincerity.

The other members of the cast acquit themselves very well, especially Petkov as King René and Tom Krause as Ibn Haika, the magician-doctor. The chorus

and orchestra sing and play as if their best were none too good for Rostropovich, who, in turn, conducts lovingly and with breadth, allowing the music to swell and soar but always with sure control. The fact that the recording was made in performance, thus limiting opportunities for adjustments of such things as balance and instrumental detail, means that the sound is not as satisfying as a studio recording might have been. This disappointment, however, is offset by the finish and dramatic conviction these polished and dedicated artists bring to the music at hand. *R.A.*

TCHEREPNIN: *Sonatine romantique*, Op. 4; *Five ("Chinese") Concert Etudes*, Op. 52; *Four Arabesques*, Op. 11; *Chant et refrain*, Op. 66; *Six Pieces from Opivochki*, Op. 109; *Eight Pieces for Piano*, Op. 88. Bennett Lerner (piano). ETCETERA ● ETC 1033 \$12.98.

Performance: *Superb*
Recording: *Crystal clear*

Alexander Tcherepnin (1899-1977) is one of those composers whose names are familiar enough but whose music most of us find hard to place. Although he lived, taught, performed, and composed in the United States for the last thirty years of his life, his music is not heard much here, and some of the big pieces are no longer available on records. That's regrettable, for this charming and fascinating man—a true cosmopolitan who absorbed everything without forgetting his roots—produced music of substance and originality that is invariably a source of pleasure.

Phillip Ramey, who was Tcherepnin's pupil for a time, probably had a good deal to do with the idea of having Bennett Lerner record a disc of his piano music for Etcetera—a follow-up to an earlier Etcetera release on which Lerner played contemporary American piano music, including Ramey's own *Piano Fantasy*. In any event, both Ramey and Lerner contribute to the detailed annotation—Ramey on the composer, Lerner on the music.

The most initially striking works in this collection may be the very earliest—the fantasy-filled *Sonatine romantique* of 1918 and the *Four Arabesques* of 1920-1921—and the very last, the pieces from *Opivochki* (*Leftovers*) of 1975-1977, but the subtler content of the "Chinese" Etudes, the evocative *Chant et refrain*, and the miniatures that make up the *Eight Pieces* makes itself felt just as surely on a somewhat deeper level. The performances are without exception superb: no composer could ask for a more committed advocate, or a more effective one. The sound is crystalline and well balanced, if here and there the slightest bit clangy. All in all, a refreshing, stimulating, and vastly enjoyable issue—one that whets the appetite for more from Tcherepnin (beyond the category of piano music) and Lerner (beyond Tcherepnin). *R.F.*

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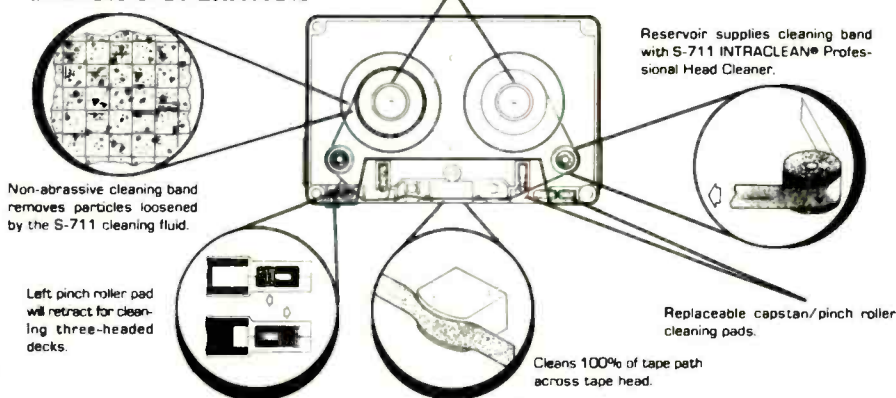
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Discs and tapes reviewed by
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ARCADIA: *So Red the Rose*. Simon LeBon, Roger Taylor, Nick Rhodes (vocals and instrumentals); vocal and instrumental accompaniment. *Election Day; Keep Me in the Dark; Goodbye Is Forever; The Flame; Missing*; and four others. CAPITOL SV-12428 \$9.98, © 4XV-12428 \$9.98.

Performance: *Dur-eaful*
 Recording: *Gummy*

Arcadia's "So Red the Rose" is the second special project from Duran Duran and a worthy successor to the Power Station's "33 $\frac{1}{3}$," one of the ten worst albums of 1985. This time Simon LeBon, Roger Taylor, and Nick Rhodes have collaborated to produce a snarled, overwrought session that wavers between the unlistenable and the merely laughable. While Sting, Herbie Hancock, Dave Van Tiegham (percussionist for Laurie Anderson), and Andy McKay are here to lend star quality, their contrived contributions are buried in a kind of musical sludge.

Most of side one is plagued by gooeey, purposeless synth rhythms that stick to your woofers like a wad of bubble gum on a pair of sneakers. And though side two introduces some musical ideas, they're usually hokey. Skip it. *M.P.*

CLUSTER AND BRIAN ENO: *Old Land*. Brian Eno, Hans-Joachim Roedelius, Dieter Moebius (vocals, synthesizers, percussion). *Base & Apex; Broken Head; The Belldog; Tzima N'arki*; and five others. RELATIVITY EMC 8057 \$8.98, © EMCT 8057 \$8.98, © EMCD 8057 no list price (from Important Record Distributors, 149-03 Guy R. Brewer Blvd., Jamaica, NY 11434).

Performance: *Intriguing*
 Recording: *Very good*

While there's no indication on the record jacket, "Old Land" dates from 1978 and 1979 when Brian Eno was collaborating with the Dutch New Age musicians Hans-Joachim Roedelius and Dieter Moebius. It's an interesting

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SANDY DENNY IN RETROSPECT

THE late Sandy Denny, the star of Fairport Convention along with Richard Thompson, had one of the most hauntingly lovely voices ever possessed by a human being. Unfortunately, she was also pudgy and just this side of plain, which is probably the chief reason she never achieved the Linda Ronstadt-like success she deserved.

Denny was much loved in England, of course, but in the U.S. she was never much more than a folk-rock cult figure. She died in 1978 at the tragically early age of thirty, and if American pop fans remember her at all, it's most likely for having sung on Led Zeppelin's *The Battle of Evermore* or for writing Judy Collins's *Who Knows Where the Time Goes?*—which is also the title of a new four-disc retrospective of her work on Hannibal Records.

Lack of commercial recognition notwithstanding, Denny was one of the most interesting of all the pre-punk English rock women (admittedly, not a large group), and the retrospective set is both a well-deserved tribute and one of the more enjoyable listening experiences in recent memory. Lovingly assembled by ex-Fairport Convention producer Joe Boyd and Denny's singer-songwriter husband, Trevor Lucas, it showcases both her group work (with Fairport and Fotheringay) and her solos. There are lots of previously unreleased odds and ends, which aren't revelatory but do confirm that she was one hell of a singer, had wonderfully eclectic taste in material (from Chuck Berry to the Ink Spots to the Childe ballads), and was a pretty impressive songwriting talent. Her *Solo*, rendered here in a blistering live version, is one of the most pow-

erful musical statements of a woman's need for personal independence that you are ever likely to hear.

Other high points in the set are the Fotheringay numbers, particularly the lovely *Banks of the Nile*, the kind of folkish lament that best showed off Denny's regal, aching pure soprano; a live version, with Fairport, of Dylan's *Knockin' on Heaven's Door*, in which she makes quite a convincing rocker; and, best of all, a version of the Everly Brothers' *When Will I Be Loved?*, with Linda Thompson, that is probably the most gorgeous pop duet recording of the last twenty years. But almost every selection here has its pleasures, and the remastering is flawless. Few of the more familiar numbers sounded as good in their original versions.

Add to all the above a lovely selection of photos and the lyrics to all the songs, and you've got a genuinely poignant retrospective package. An exemplary job, long overdue. *Steve Simels*

SANDY DENNY: *Who Knows Where the Time Goes?* Sandy Denny (vocals, piano, guitar); Fairport Convention (vocals and instrumentals); Fotheringay (vocals and instrumentals); other musicians. *The Lady; Listen, Listen; Next Time Around; Farewell, Farewell; The Music Weaver; Tomorrow Is a Long Time; The Quiet Joys of Brotherhood; The Pond and the Stream; One Way Donkey Ride; Take Away the Load; One More Chance; Bruton Town; Blackwaterside; Tam Lin; The Banks of the Nile; Solo; When Will I Be Loved; Knockin' on Heaven's Door; Who Knows Where the Time Goes?*; and twenty-four others. HANNIBAL HNBX 5301 four discs \$26.98.

example of Eno's efforts to create a kind of rigidly academic Muzak—minimalist tone poems with only the barest melody, harmony, and rhythm. Using synthesizers and percussion, Roedelius, Moebius, and Eno strip music down to the most basic, abstract levels of duration, pitch, and tone color. Although Eno's vocals on side one tend to break the spell for me—a distracting intrusion by reality—side two has some of the most intriguing "ambient music" Eno's ever done, a strange, paradoxical mixture of serenity and uncertainty. Recommended. *M.P.*

THE FABULOUS THUNDERBIRDS: Tuff Enuff (see *Best of the Month*, page 83)

FALCO: Falco 3. Falco (vocals); instrumental accompaniment. *Rock Me Amadeus; America; Tango the Night; Munich Girls (Looking for Love); Jenny;* and five others. A&M SP 5105 \$8.98, © CS 5105 \$8.98.

Performance: *Camp*
Recording: *Good*

"Falco 3" is either a clever parody or the most laughably pretentious Eurodisco ever committed to vinyl. I prefer to give the Austrian singer Falco the benefit of the doubt. You get the feeling you've heard these songs before—it

may have been at Danceteria a couple of years ago or at your aerobics class a couple of nights ago—but since they're all sung in a kind of pidgin German, it's hard to tell. *Rock Me Amadeus*, for instance, a No. 1 hit in Europe and climbing the U.S. dance charts at this writing, is practically an anthology of club-and-dub clichés, mimicking everyone from ABC to Berlin, from Malcolm McLaren to Sister Sledge. Tangos, gigolos, runaway naïfs, pomaded cabaret hosts—you name the nightlife archetype, and it's here. If the sound of a dubbed voice saying "Wu-wu-wu-wu-wu-wunderbar" isn't your idea of yucks, stay away from Falco. If you chuckle at the thought of a campy chorus cooing "Ooh ooh ooh ooh ooh, rock me Amadeus," have a listen. *M.P.*

MIMI FARINA: Solo. Mimi Farina (vocals, guitar); vocal and instrumental accompaniment. *Best of Friends; Big Party; Walk Me 'Round Your Garden; If My Eyes Were Blind; Deep Feelings; How Can We Hang On to a Dream;* and four others. PHILO 1102 \$8.98.

Performance: *From the heart*
Recording: *Excellent*

Mimi Farina's "Solo" is the singer's first album in more than ten years and her first-ever solo LP. Farina, you may remember, is the younger sister of Joan

Baez. In the mid-Sixties she recorded two Vanguard albums with her husband Richard Farina, a novelist whose career ended in a fatal motorcycle accident. Later, Mimi married Tom Jans, and the two recorded an album for A&M Records in 1971.

In the years since, Farina has been the prime force behind Bread and Roses, a nonprofit organization dedicated to bringing free, live entertainment to people confined in institutions—convalescent homes, drug-abuse centers, prisons, mental hospitals, and juvenile treatment centers.

Anyone who cares that much about humanity is bound to spill that concern over into her music, and "Solo" is a reflection of relationships Farina has enjoyed—both personally and vicariously—through the past twenty years. There are songs about war resisters and Vietnam veterans, songs about women at the beginning and at the end of their lives, and songs written by poets who stayed on this earth only a short while. None of them are good-time songs, and all of them will make you more than a bit wistful.

Farina doesn't have that shimmering soprano Baez possesses, but her voice has an honest, homey quality that makes it seem less strident and somehow more genuine than her sister's. That, plus a fascinating combination of

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instruments—the Irish pipes, bodhran, banjo, mandolin, and mandocello mixing it up with the more conventional violin, viola, bass, piano, and guitar—creates an intimate and authentically evocative “folk” atmosphere that is often missing in more commercial acoustic music. *A.N.*

MARVIN GAYE: *Romantically Yours.* Marvin Gaye (vocals); instrumental accompaniment. *More; Why Did I Choose You; Maria; The Shadow of Your Smile; Fly Me to the Moon; I Won't Cry Anymore; Just Like; Walkin' in the Rain;* and three others. COLUMBIA FC 40208, © FCT 40208, no list price.

Performance: *Surprising*
Recording: *Very good*

Although Marvin Gaye presented many musical faces to us during his lifetime, from the boyishly shy performer of his early Motown days and the concerned social commentator of *What's Goin' On?* to the sensual giant he became in his later years, one of his deepest desires was to achieve widespread recognition as a mainstream balladeer like Nat King Cole. Indeed, he recorded a tribute to Cole in 1966, the year he also recorded an album of Broadway tunes. Now, after twenty years, we get another glimpse of this facet of his complex personality with “Romantically Yours.”

Here is material Gaye recorded on his own between 1967 and 1974, first laying down the instrumental tracks and then, intermittently, the vocals. He squirreled the project away when he went into exile in Europe during the late Seventies, but he told Larkin Arnold about it over there. It was Arnold who was responsible for resurrecting Gaye's career by signing him with CBS and producing his hit album “Midnight Love,” and it was Arnold who assembled “Romantically Yours” after Gaye's death.

It is a fascinating set in that it reveals an unusually conventional Marvin Gaye. The sexuality is more subtle, the vocal approach more restrained, with just an occasional well-placed stylistic twist. On the first side, Gaye croons a set of standards, including *More, Why Did I Choose You?, Fly Me to the Moon,* and *I Won't Cry Anymore.* There are times when the music flounders on a wave of syrupy strings or an insipid arrangement, but there are good moments too. Gaye is all innocent awe on *Maria*, his tone youthfully clear in what is possibly the straightest reading he's ever given a song. His hauntingly pensive treatment of *The Shadow of Your Smile* is a little masterpiece. Here he uses his famous high falsetto to accompany his normal voice, creating variations like an accomplished jazz soloist.

The second side consists of Gaye's

own compositions, none of which have been heard before. In many respects, it is more successful since he produced four of the five selections himself. The best of them are *Just Like*, with its flowing melodic line, and *I Live for You*, which is flecked with the blues.

While the open romanticism of this album might seem a bit dated in this hard-boiled, unsentimental period, it is gratifying to have this piece to fit into the puzzle of Marvin Gaye's enigmatic personality. No hint of the turmoil that marked his life is here. It just makes us miss him all the more. *P.G.*

EMMYLOU HARRIS: *Thirteen.* Emmylou Harris (vocals, guitar); vocal and instrumental accompaniment. *Mystery Train; You're Free to Go; Sweetheart of the Pines; Just Someone I Used to Know; My Father's House;* and five others. WARNER BROS. 25352-1 \$8.98, © 25352-4 \$8.98.

Performance: *Up to standard*
Recording: *Good*

For her thirteenth album of new material (she has also released two greatest-hits packages), country singer Emmylou Harris has gathered a collection of odds and ends that should take the onus off that much-maligned number. To be sure, she hasn't broken any new ground here, as she did on “The Ballad of Sally

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Rose," her brilliant concept album of last year, but "Thirteen" is still a most enjoyable set, punctuated by Harris's usually tasteful production and the presence of her road band, which instinctively knows just when to move in for the kill. That's especially true of Frank Reckard, Harris's diminutive ace guitarist, who gives *Mystery Train*, the Elvis Presley gem, a neo-rockabilly feel with his distinctive, breakneck solo and connecting framework riffs.

Harris has never been afraid to take chances. In addition to a genuinely moving and poignant version of Bruce Springsteen's *My Father's House*, there's a nod to the current vogue of Cajun music in *Lacassine Special*, and *Your Long Journey*, with its synthesized bagpipes, gives Harris a chance to explore her fascination with the music of the Celts.

The real stunners on the album, however, are two songs Harris wrote with her coproducer and new husband, Paul Kennerley, *Sweetheart of the Pines* and *When I Was Yours*. *Sweetheart* is the more haunting, full of feeling and bluegrass verve. Also worth mentioning is Harris's duet with John Anderson on the Jack Clement chestnut *Just Some-one I Used to Know*.

Through her eleven-year recording career, Harris has been one of the most consistent of country-music stylists, demonstrating with each album that the three ingredients for greatness—intelligence, remarkable vocal equipment, and emotional range—are all firmly in place. If "Thirteen" is not on a par with her most influential or enduring work, only the songs themselves are at fault. The record remains a handsome addition to her catalog and an album worthy of any popular-music collection. *A.N.*

THE ISLEY BROTHERS: *Masterpiece*. The Isley Brothers (vocals); instrumental accompaniment. *May I?*; *My Best Was Good Enough*; *If Leaving Me Is Easy*; *You Never Know When You're Gonna Fall in Love*; *Stay Gold*; and four others. WARNER BROS. 25347-1 \$8.98, © 25347-4 \$8.98.

Performance: *In their groove*
Recording: *Satisfactory*

Like *Old Man River*, the Isley Brothers just keep rolling along, but after twenty-five years on the boards they don't seem to be rolling quite as swiftly as they once did. There are times on this new album when the pace seems positively arthritic, which is not just to say that it's slow. The original threesome of Ronald, Rudolph, and O'Kelly are still warbling away in their established, "mellow" mood, but it can become monotonous after a while. The amazing thing is that while all the songs here are by different composers, from Stevie Wonder to Phil Collins, the Isleys manage to make them sound alike. That takes some doing. *P.G.*

GRACE JONES: *Island Life*. Grace Jones (vocals); instrumental accom-



ISLAND RECORDS

Jones: the success of an image

paniment. *La Vie en rose*; *I Need a Man*; *Do or Die*; *Private Life*; *I've Seen That Face Before (Liber Tango)*; *Love Is the Drug*; and four others. ISLAND 90491-1 \$8.98, © 90491-4 \$8.98.

Performance: *Illusion*
Recording: *Okay*

Grace Jones typifies rock music's identity crisis in the video age, although I doubt if she herself suffers from it. The issue is, is rock really about *music* any more? Or is it just one component of a larger entertainment, neither more nor less important than photography or art direction, theatrical performance, set design, even costume and make-up art? As Glenn O'Brien's liner notes on "Island Life" attest, Grace Jones is a big star. But as a singer—as a *musician*—Jones has never been much more than a stunning woman with a bizarre haircut. Her success has far more to do with image than sound. In fact, Jones seems to have been a rather passive participant in her music career, which has been managed for her both in the studio and in the press.

"Island Life" is a retrospective of Jones's career, with material from both her "Disco Diva" period and her later work with some of Jamaica's top reggae session players. What is clear at every stage is the trendiness of her music and her severe limitations as a singer. I would go further and say that, aside from Jones's exotic looks, one could quickly coach a New Jersey housewife to do her breathy chanteuse or camp dominatrix act.

Jones was a top fashion model when she recorded her first album, "Portfolio," and you're aware of it through every painful note of *La Vie en rose* and *I Need a Man*. Yet thanks to the wonderful nostalgia of *La Vie* and the dead-

on beat of *Man*, these were enormous club hits. The music got better when she began recording with the Compass Point All Stars (Sly and Robbie and others), and Jones got better too. The hybrid reggae/disco fusion of *Love Is the Drug* and *Walkin' in the Rain* is tougher and more forceful—by "Warm Leatherette" we were taking Grace Jones seriously. But what all these tracks miss is her paramount quality—the eerie, almost scary geometry of Grace Jones's beauty. This is the video age, and this music would make a lot more sense on a videocassette. *M.P.*

FRANKIE MILLER: *Dancing in the Rain*. Frankie Miller (vocals, guitar); other musicians. *I'd Lie to You for Your Love*; *That's How Long My Love Is*; *Do It Till We Drop*; *How Many Tears Can You Hide*; and six others. MERCURY 826 647-1 \$8.98, © 826 647-4 \$8.98, © 826 647-2 no list price.

Performance: *Well-intentioned*
Recording: *Good*

As we used to say in the days before MTV, Frankie Miller has paid his dues. He's a likable enough blues- and r-&-b-influenced belter, but when you get down to it, he's only a journeyman, a Bob Seger without the vision. Here, playing up his natural vocal resemblance to Paul Rogers (a similarity heightened by having Rogers's old Bad Company bandmate Simon Kirke on drums), Miller blusters his way through a set of tunes whose roots are mostly mid-Seventies heavy metal. He performs with impressive professionalism, but why bother? True, *I'd Lie to You for Your Love*, a country hit for the Bellamy Brothers some years back, has flashes of wit, and the obligatory Motown cover, the Temptations' semi-obscure *Shakey Ground*, does work up a nice bluesy head of steam. But this is mostly the kind of by-the-book corporate rock that's made AOR the most obnoxious radio experience since Dr. Ruth Westheimer. *S.S.*

JUICE NEWTON: *Old Flame*. Juice Newton (vocals); vocal and instrumental accompaniment. *Cheap Love*; *You Make Me Want to Make You Mine*; *Hurt*; *Old Flame*; *Stuck in the Middle with You*; and five others. RCA AHL1-5493 \$8.98, © AHL1-5493 \$8.98.

Performance: *Juice-y Fruit*
Recording: *Good*

Well, judging from the mail, I really stepped in you-know-what last time I reviewed a Juice Newton album. But now that I have another one on my turntable, I have to say that I'm sorry—sorry I didn't say it earlier. With the exception of the title cut and *What Can I Do with My Heart*, Newton comes across on "Old Flame" the same way she usually does: as an emotionally sterile vocalist who does a better job of *acting* hurt in her accompanying videos than she sounds on her records.

Newton also continues to mire herself



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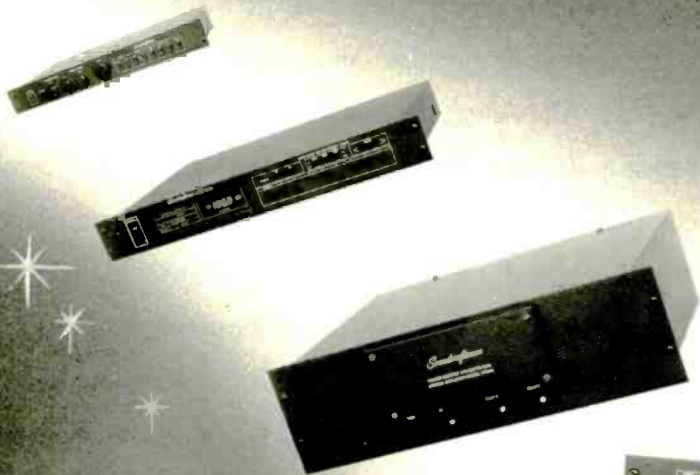
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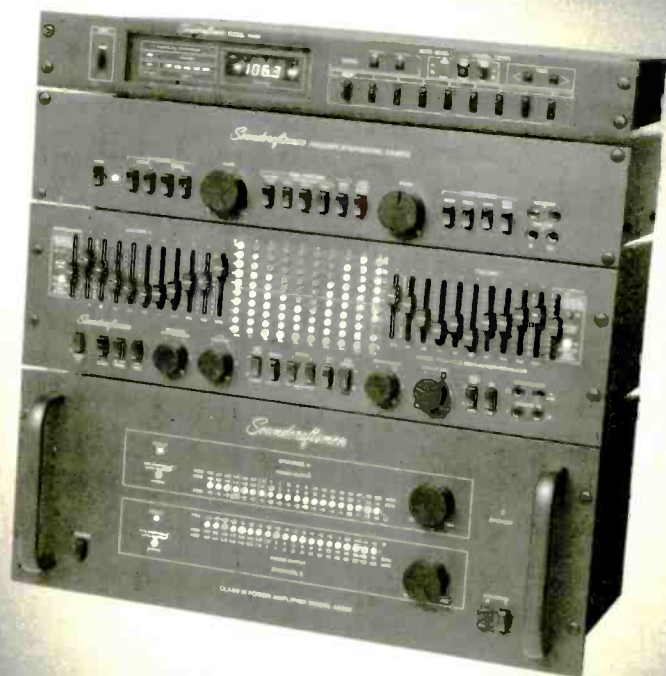
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ATLANTIC'S RHYTHM-AND-BLUES

FOR two richly rewarding decades, Victor's Bluebird label was the soil in which the seeds of rhythm-and-blues germinated, and when Sonny Boy Williamson, Arthur Crudup, Lil Green, and others gave way to a new generation, Atlantic Records provided fertile ground for the transplant. Significant r-&b recordings appeared on other small labels, but Atlantic had the edge. It was the label of Ray Charles, La Vern Baker, Clyde McPhatter, Ben E. King, Wilson Pickett, Otis Redding, and Aretha Franklin; it brought us the harmonizing of the Coasters, the Clovers, the Drifters, and the Spinners. In an era when the earthy sounds of r-&b bounced off barricades of stigma, Atlantic's r-&b artists often found that their music had the ears of white collegians—the very people who were said to frown on anything that might possibly climb a pop chart. The quiet crossover was in part due to the label's concurrent, tastefully conceived jazz releases, which lent it an air of respectability and helped establish a solid distributor base.



Roberta Flack

I have mentioned only a handful of the great artists who spun their magic on Atlantic and its subsidiary labels. There were many others, and sixty-five of them are represented in "Atlantic Rhythm and Blues," a seven-volume, fourteen-record set containing 186 tracks of music recorded between 1947 and 1974. This is not the first time Atlantic has tapped its vault for an album series devoted to this music—there was the eight-volume "History of Rhythm and Blues," which appeared in 1969—but the new release is certainly the company's most ambitious such project to date.

With informative, detailed notes by Robert Pruter and Peter Grendysa and

wonderful cover collages by Fred Otnes, the packaging is worthy of the treasures within. These start with some late-Forties tracks that have their roots in jazz. The opening selection in Volume One, *Lowe Groovin'*, is by Joe Morris, a former Lionel Hampton sideman who became an important breadwinner for Atlantic in its early days. The performance here features tenor saxophonist Johnny Griffin. Then there are tracks by guitarist Tiny Grimes, who cut himself a permanent niche in jazz history through a series of recordings with Art Tatum, and by Ruth Brown, fresh out of the bands of Lucky Millinder and Blanche Calloway. By the time we reach the end of Volume One, we have heard from a broad variety of artists—Professor Longhair, the Cardinals, Joe Turner, the Clovers, and Ray Charles, the man who came to personify "soul music."

Subsequent volumes take us into the Fifties, when vocal groups liked to name themselves after birds and black pop artists regularly found their material "covered" by pale imitators whose race was more acceptable to radio-station executives and promoters. As long as record companies continue to have "black music" departments, a form of racism is kept alive within the industry, but it was much worse when these recordings first appeared, and many of the artists heard here saw only a token amount of the income they generated. That began to change in the Sixties, a period represented in Volumes Four, Five, and Six by such memorable performers as Otis Redding, Sam and Dave, Wilson Pickett, and the incomparable Aretha Franklin.

The soul sounds of the Seventies occupy most of Volume Seven, which includes *Funky Nassau* by the short-lived and (sadly) aptly named Bahamian group Beginning of the End—a hint of things to come from the Caribbean. This seventh album also includes the smoother sounds of Roberta Flack and Donny Hathaway's *Where Is the Love?*, the social commentary of Les McCann and Eddie Harris's *Compared to What*, and the perennially up-to-date Aretha Franklin.

Atlantic could have carried the series into the Eighties but obviously decided to stop in the mid-Seventies, at the dawn of the disco era, when soul music plugged in and took on a somewhat artificial high-tech sheen. Atlantic did well in the disco era, and I suppose that it too will be covered in a retrospective collection someday, probably around the turn of the century. By that time, I hope we will no longer be putting music into narrow boxes labeled according to the color of an artist's skin.

This fourteen-record anthology is a wonderful blend of hits and near hits sung and played by people who have woven their artistry into the fabric of



Aretha Franklin

American music. You may not have heard of everyone represented here, but something in every track will undoubtedly either trigger your memory or give you a better understanding of the sounds that shaped the popular music of today.

Chris Albertson

ATLANTIC RHYTHM AND BLUES 1947-1974, Volumes 1-7. Ruth Brown: *So Long*. Professor Longhair: *Hey Little Girl*. Joe Turner: *The Chill Is On*. Ray Charles: *The Midnight Hour*. Clyde McPhatter: *A Lover's Question*. The Drifters: *Adorable*. Ben E. King: *Amor*. Otis Redding: *Mr. Pitiful*. Aretha Franklin: *A Natural Woman*. Roberta



Otis Redding

Flack: *Killing Me Softly with His Song*. Wilson Pickett: *I'm in Love*. Brook Benton: *Rainy Night in Georgia*. And 174 others. ATLANTIC 81293/99 seven two-record sets \$10.98 per set; 81620 one boxed fourteen-record set \$76.98.



The White Animals: Southern r-&b meets the Brits at CBGB's

in formula, resurrecting old rock hits and employing bland, predictable instrumental arrangements. You don't hear the term "bubblegum" rockers too much any more, but if you did, Juice Newton—who otherwise displays fine vocal control and a better-than-average range—could easily lead the pack. *A.N.*

LEON REDBONE: *Red to Blue*. Leon Redbone (guitar, vocals); vocal and instrumental accompaniment. *Diamonds Don't Mean a Thing; Lovesick Blues; Reaching for Someone and Not Finding Anyone There; Steal Away Blues;* and eight others. AUGUST AS 8888 \$8.98.

Performance: *Singular*
Recording: *Good*

When Leon Redbone first appeared back in the mid-Seventies, Warner Bros. marketed him as a novelty—an eccentric singer of blues and New Orleans jazz whose age and origin were unknown. The strategy made Redbone's first album a much bigger success than it would have been otherwise—and it all but doomed his long-term career prospects. Nothing is so ephemeral as a novelty act. It's been five years since Warner's ended its relationship with Redbone and probably that long since most of us have given a thought to the mysterious, goateed man in the ice-cream suit.

"Red to Blue" on August Records (distributed by that bastion of Americana, Rounder Records) represents considerably scaled-down commercial possibilities but shows no diminution of Redbone's essential charm. He still sounds like a Kentucky colonel who's managed to get a tuba and a banjo player into the tub with him. Even in the dead of winter, listening to Redbone yodel Hank Williams's *Lovesick Blues* or growl his own version of *Salty Dog* makes me feel like I'm floating in a hammock with a cool drink on a hot August day. Leon, where ya been? *M.P.*

DIANA ROSS: *Eaten Alive*. Diana Ross (vocals); vocal and instrumental accompaniment. *Eaten Alive; Oh*

Teacher; Experience; Chain Reaction; More and More; and five others. RCA AFL-5422 \$8.98, © AFK1-5422 \$8.98.

Performance: *Star-heavy*
Recording: *Good*

Here's an album that's easy to forget. Much of the hoopla it has generated rests on its being a collaboration with the Brothers Gibb, who wrote the songs, and Diana Ross's "special friend" Michael Jackson, who can be heard faintly in the background on the title track, which he co-wrote. Actually, Jackson's voice so closely resembles Ross's in pitch that it's hard to tell them apart.

The assortment of tempos here is carefully plotted, ranging from thunderous thumpers to *Chain Reaction*, which mimics the old Motown sound that brought Ross her initial fame. *More and More* provides an interesting change, with Ross cooing torchily against a subdued piano accompaniment. What is lacking throughout, however, is any depth of feeling. *P.G.*

PETE TOWNSHEND: *White City*. Pete Townshend (vocals, guitar, keyboards); other musicians. *Give Blood; Brilliant Blues; Face the Face; Hiding Out; Secondhand Love;* and four others. ATCO 90473-1 \$8.98, © 90473-4 \$8.98, © 9047-2 no list price.

Performance: *No visuals?*
Recording: *Excellent*

Pete Townshend can be a hell of a prose writer, as anybody who read the short story in the "Quadrophenia" album package can testify, but his efforts on the jacket of his new "White City," apparently a story-line synopsis of the long video of the same name, come off as a fairly muddled bit of self-referential surrealism. Without having seen the video, I can only guess what Pete is going on about here, but the music is rarely compelling enough to make me want to find out. Stylistically, it ranges all over the map, from Sixties soul to techno-pop, and it's impeccably played and produced (nice to see that Clem Burke, the great Blondie drummer and

noted Keith Moon fan is in there somewhere). But the music seems to exist in a weird kind of limbo without the visuals, sort of the opposite of MTV with the sound turned off. In short, a great album this ain't (probably), but it's a decent enough trailer for the video, which does make it some kind of a first. *S.S.*

LOUDON WAINWRIGHT III: *I'm Alright* (see Best of the Month, page 84)

WHITE ANIMALS. White Animals (vocals and instrumentals). *Help Yourself; Old Fashion Day; Caught Up in the Dread; She's So Different; I Can't Wait; Big Shot;* and four others. DREAD BEAT DBLP-1986 \$8.98, © DBC-1986 \$8.98 (from Dread Beat Records, P.O. Box 121356, Nashville, TN 37212).

Performance: *Futuristic retrograde*
Recording: *Sixties-style mix*

White Animals is a Nashville band that bears about as much resemblance to country music as Cyndi Lauper does to Kitty Wells. The idea here, the press release says, is to fuse a modern sound that "honors [the] passion and craftsmanship" of the Sixties with whatever eclectic influences any of the band members might have. In other words, you can hear whatever you want to in this—shades of the Zombies, of David Bowie, of the Beau Brummels, of Talking Heads, of the Kinks, and, on the down side, maybe even Herman's Hermits. You get it. Southern r-&b meets the British invasion at CBGB's.

It's a pretty infectious blend, even if the lyrics—more typical of Sixties music—don't have a heck of a lot to say. Produced in Memphis by Busta Jones (the Ramones, Brian Eno, Talking Heads), the album has that old-fashioned "wash" sound to it (not a lot of high end), which helps to create the mood they're after. All in all, neat stuff. *A.N.*

DON WILLIAMS: *New Moves*. Don Williams (vocals, guitar); instrumental accompaniment. *Heartbeat in the Darkness; I'll Never Be in Love Again; Shot Full of Love; Send Her Roses; The Light in Your Eyes;* and five others. CAPITOL/EMI ST-12440 \$8.98, © 4XT-12440 \$8.98.

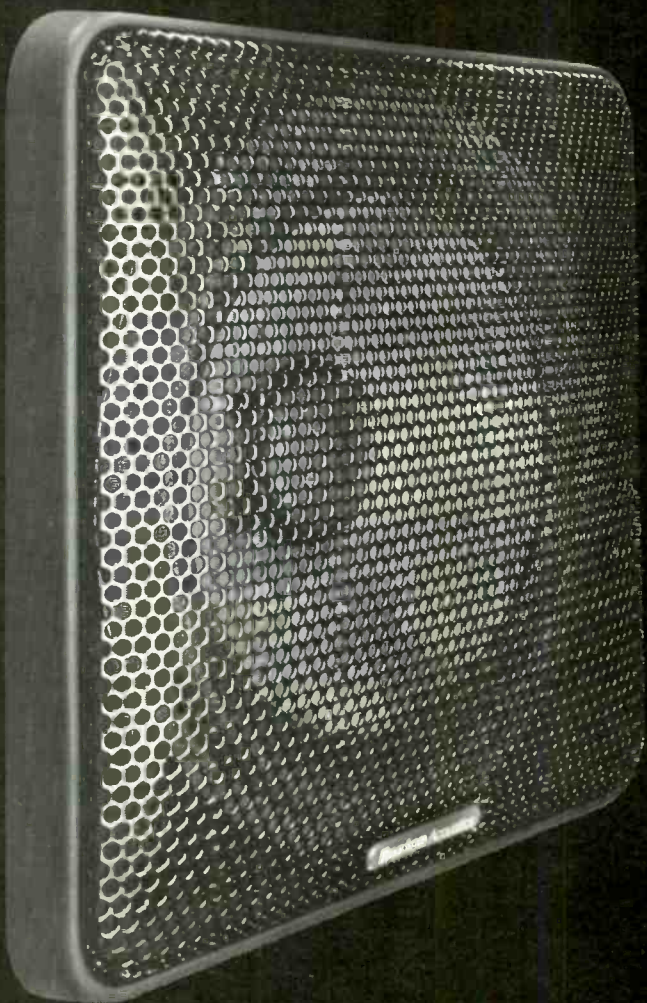
Performance: *Renewed vigor*
Recording: *Nice*

The title of Don Williams's current release refers to his change of record labels and, happily, not to his style. Williams is still about as laid-back as a performer can be and still be breathing, he still sings about old-fashioned virtues and true-heart romance, and his voice is still mellow as a cello. As with his last few albums for MCA, this one gently allows Williams to keep up with the times by adding the slightest pop instrumentation and the occasional Fifties-style rock tune while retaining his country-folk base. Good move, Don. *A.N.*

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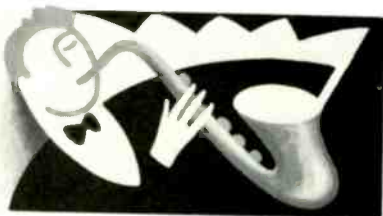
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JAZZ



JAKI BYARD: *Phantasies*. Diane Byard, Denyce Byard (vocals); Jaki Byard and the Apollo Stompers (instrumentals). *Lover Man; Medley—Black & Tan Fantasy/Prelude to a Kiss/Prelude No. 29/Do Nothing Till You Hear from Me*; and six others. SOUL NOTE/PSI SN 1075 \$9.98, © SNC 1075 \$9.98.

Performance: *Mostly fine*
Recording: *Very good*

Jaki Byard's Apollo Stompers form a fairly traditional big band, but his fertile musical imagination led me to expect more daring arrangements. "Phantasies" is nevertheless very pleasant—until you get to Ellington's *Do Nothing Till You Hear from Me*, part of an otherwise wonderful medley that is spoiled by a horrific vocal by Byard's daughter, Diane. Another daughter, Denyce, sings Carole King's *It's Too Late*,

but she also shows that the apple can indeed fall very far from the tree. Let's hope Byard's next album is an all-instrumental one. *C.A.*

JON FADDIS: *Legacy*. Jon Faddis (trumpet, flugelhorn); Harold Land (tenor saxophone); Kenny Barron (piano); Ray Brown (bass); Mel Lewis (drums). *West End Blues; Little Jazz; Night in Tunisia*; and five others. CONCORD JAZZ CJ-291 \$8.98, © CJ-291-C \$8.98.

Performance: *Superb*
Recording: *Very good*

Anyone who has followed the jazz scene closely over the past ten years can tell you that trumpeter Jon Faddis has never received his rightful share of attention. Largely buried as a studio musician, Faddis steps into the spotlight only occasionally, but when he does the result is often dazzling.

Dazzling aptly describes "Legacy," on which Faddis, saxophonist Harold Land, and a fine rhythm section led by pianist Kenny Barron pay tribute to such trumpet masters as Louis Armstrong, Roy Eldridge, and Dizzy Gillespie. From the opening track, a stunning mirror of Armstrong's celebrated 1928 introduction to *West End Blues*, to the beautiful rendition of Benny Golson's *Whisper Not* that ends the set, this is an fine sample of Faddis's artistry. *C.A.*

HERBIE MANN: *See Through Spirits*. Herbie Mann (flute, percussion); vocal and instrumental accompaniment. *Keep the Spirits Singing; Inner City Blues; Zigaboo*; and four others. ATLANTIC 81285-1 \$8.98, © 81285-4 \$8.98.

Performance: *Formula stuff*
Recording: *Very good*

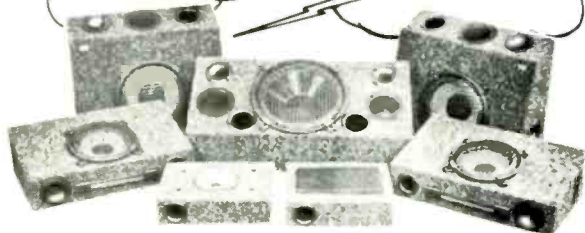
Herbie Mann's flute is heavily echoed on "See Through Spirits," a new Atlantic release in which the veteran jazz player bounces his way through an un-inspired program of elevator fare. Nearly half of these tunes were written by one Odonel Levy, who also sings and plays guitar and synthesizers on the album. Mann clearly takes a back seat on these tracks. Only on his own *Zigaboo* do we hear anything approaching the artistry that earned him his high reputation as a jazz musician. *C.A.*

SONNY ROLLINS: *The Solo Album*. Sonny Rollins (tenor saxophone). *Soloscope (Parts 1 and 2)*. MILESTONE M-9137 \$8.98, © M-5-9137 \$8.98, © FCD-621-9137 \$16.98.

Performance: *Resilient reed*
Recording: *Good remote*

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ords. Not here. "The Solo Album," a Milestone release, captures an unusual event that took place before a capacity audience in the Sculpture Garden of New York's Museum of Modern Art last summer. For a solid hour, Rollins took his saxophone through a complex musical maze, turning here and there to brush against a familiar tune and pausing only occasionally for breath. There are unquestionable flashes of brilliance here, but much of the set sounds like so much practicing. C.A.

DIANE SCHUUR: *Schuur Thing*. Diane Schuur (vocals); vocal and instrumental accompaniment. *Needle in a Haystack; Love Dance; By Design; Sure Thing; Take Me to the River*; and five others. GRP GRP-A-1022 \$8.98, © GRP-C-1022 \$8.98, © GRP-D-9531 no list price.

Performance: *Excellent*
Recording: *Very good*

You may have seen Diane Schuur lined up in an alleged jazz segment at this year's Grammy Awards telecast, but the six notes allotted her on the little screen hardly did her justice. Fortunately for her, and for us, the same does not apply to her new album, "Schuur Thing," on which José Feliciano joins her on two tracks. I am not saying that this is a great album—Schuur's voice deserves more compassionate accompaniment—but it does give her a chance to show off a considerable talent for handling a variety of material. After listening to her gentle treatment of *Sure Thing*, I think you will agree that she is a singer who understands what ballads are all about. This is Diane Schuur's second album, and I am very impressed. C.A.

GEORGE SEGAL: *A Touch of Ragtime*. George Segal (vocals, ukulele); Teresa Brewer (vocals); Hank Jones (piano); others. *Bennie Badoo; Cascades; Maple Leaf Rag; The Moving Picture Ball; Alexander's Ragtime Band; The Entertainer*; and six others. SIGNATURE BFW-40112, © BWT-40112, no list price.

Performance: *Light entertainment*
Recording: *Good*

When record producer Bob Thiele saw George Segal, the actor, play his banjo on the *Tonight* show several years ago, it gave him an idea that materialized in the form of recordings that also feature Thiele's wife, Teresa Brewer, a guest appearance by Harry Nilsson, and a number of impressive names from the ranks of jazz and studio musicians.

Now these recordings have been issued in "A Touch of Ragtime," which also contains a handful of ragtime classics performed by pianist Hank Jones with a large studio band. The Jones tracks seem to have been made with serious intent, but the Segal selections are strictly for fun—the kind of fun tourists don "straw" hats for in Dixieland steak-and-beer joints. If that's your scene, you'll love this set. C.A.

BEN WEBSTER: *At the Renaissance*. Ben Webster (tenor saxophone); Jimmy Rowles (piano); Jim Hall (guitar); Red Mitchell (bass); Frank Butler (drums). *Ole Miss Blues; Caravan; Stardust; Georgia on My Mind*. CONTEMPORARY C-7646 \$8.98.

Performance: *Mellow*
Recording: *Good remote*

BEN WEBSTER: *The Big Tenor—The Complete Ben Webster on EmArcy*. Ben Webster (tenor saxophone); Johnny Otis and His Orchestra, Jay McShann and His Orchestra, Jimmy Cobb's Orchestra, the Marshall Royal Quintet, Johnny Richards' Orchestra, other musicians. *One O'Clock Jump; You're My Thrill; Stardust; Trouble in Mind; Randall's Island; King's Riff; Old Folks*; and sixteen others. EMARCY 824 836-1 two discs \$10.98, © 824-836-4 two cassettes \$10.98.

Performance: *Potluck*
Recording: *Generally satisfying*

Born in 1909, Ben Webster left an indelible mark on the American music scene before he emigrated to Copenhagen, where he enjoyed a greater share of the spotlight than his homeland afforded him in an era of Beatlemania, psychedelic wall projections, and free-form jazz. When swing reigned supreme, Webster was one of its royalty, a tenor titan whose full, searing tone and cozy, cuddly style was rooted in Kansas City, developed in the bands of Blanche and Cab Calloway, Andy Kirk, and Fletcher Henderson, and finally blossomed in the fertile Duke Ellington Orchestra between 1935 and 1943.

Webster's style is abundantly preserved in recordings, some of which are now being released for the first time. A new Contemporary album, "Ben Webster at the Renaissance," was actually recorded in 1960 at a small club on Hollywood's Sunset Strip. The Renaissance was a perfect setting for intimate jazz but not so ideal for recording. The sound is overly dominated by Frank Butler's drums, the only weak feature of this quintet. Still, Webster is in fine form, pianist Jimmy Rowles and guitarist Jim Hall are excellent, and bassist Red Mitchell is even better.

"The Big Tenor" is a double album of tracks EmArcy recorded with various orchestras and groups between 1951 and 1953. It is a very mixed bag, with Webster both in and out of his proper milieu, and non-specialists will find the collection cluttered with too many sequences of alternate takes and even false starts for comfortable listening. A programmable turntable or cassette deck would serve one well in this case.

The set is filled with fine things, though, including Webster's rhythm-and-blues romps with the Johnny Otis band, his participation in cuts featuring vocals by Dinah Washington or the Ravens, and some delicate work with his own sextet. Half of this set would have made a superb single LP, but I can still recommend it as it stands. C.A.

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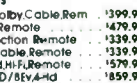


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VIDEO REVIEWS

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JIMMY BUFFETT: *Live by the Bay.* Jimmy Buffett and the Coral Reefer Band (vocals and instrumentals). *Door Number Three; We Are the People; Come Monday; Rag Top Day; Who's the Blonde Stranger;* and thirteen others. MCA 80332 VHS Hi-Fi and Beta Hi-Fi \$29.95.

Performance: *Slow gin fizz*
Recording: *Good remote*

As a songwriter, Jimmy Buffett has built himself a cult following with songs of whimsy, romance, and roguish deriding-do populated by pirates, pranksters, and philanderers. Translated into concert attendance, that means Buffett has a full house of fans who fantasize about being pirates, pranksters, and philanderers, and a good time is usually had by all.

"Live by the Bay" is a live concert recorded in Florida, Buffett's spiritual home, and amounts to a greatest-hits package. Unlike the way I remember a Buffett concert from some years back, this one starts off slowly, stays relatively low key, and runs, at eighty-seven minutes, about half an hour too long. To top it off, Buffett's between-song prattle hardly raises a chuckle, and the performances, like the production techniques, are little more than shipshape. If you are a genuine pirate, prankster, or philanderer, this will probably do little for you. The Walter Mittys of the drydock set may wish to sneak a peek, however. *A.N.*

JOE COCKER: *Mad Dogs and Englishmen.* Joe Cocker (vocals); vocal and instrumental accompaniment. *Delta Lady; The Letter; Honky Tonk Woman; Lawdy Miss Clawdy; Let It Be; With a Little Help from My Friends; Sticks and Stones; Something;* and eight others. PIONEER PA-85-133 LaserDisc \$29.95.

Performance: *Vibrant*
Recording: *Very good*

If you are over thirty, you undoubtedly remember Joe Cocker, his high-energy touring company, and his many hit records. If you are younger, perhaps you recall seeing Cocker on NBC's *Saturday Night Live* singing at the side of the late John Belushi, who expertly mimicked him. But even if Cocker isn't programmed into your memory bank, you might want to experience "Mad Dogs



BEATLES CLASSICS

A NEW video featuring the Beatles catches the adorable moptops in a 1965 British TV appearance where they seem to be lip-synching to live tracks recorded before the broadcast (Ringo's slubbed entrance on *I Wanna Be Your Man* is the giveaway). But this was a common practice of the period and, given the amount of noise the studio audience was generating, probably a sensible one. That consumer caveat aside, however, what's on view is a prime slice of Beatlemania in the raw, a twenty-minute time capsule that's compelling both as rock-and-roll and as never-to-be-duplicated social history: a crystallization, in glorious mono and living black and white, of pop's last innocent moment, a document of the Teen Scream before the Sixties burst wide open and nothing was ever the same again. There are also, of course, a lot of terrific songs and a

glimpse of four genuinely compelling personalities who make the interchangeable, manufactured faces that dominate today's music and video scenes look like the soulless manikins they mostly are. This is a wonderful package by any standard, and the price is certainly right.

Extra for trivia fans: those are the Animals making utter fools of themselves on the balcony overlooking the Fab Four. *Louis Meredith*

THE BEATLES: *Live on Ready Steady Go!* The Beatles (vocals and instrumentals). *Twist and Shout; Roll Over Beethoven; I Wanna Be Your Man; Long Tall Sally; Love Me Do; Please Please Me; From Me to You; She Loves You; I Wanna Hold Your Hand; Can't Buy Me Love; Shout.* SONY 97W50093 VHS Hi-Fi \$16.95, 97W00092 Beta Hi-Fi \$16.95.

and Englishmen," a two-hour documentary that captures a 1971 concert tour by Cocker and his group of performers, friends, and hangers-on. It is a vivid slice of life on the road during the colorful, psychedelic period when flower children equated drugs with love, "Stop the war in Vietnam" was the rallying cry, and anybody who was anybody in the booming rock business had to have a billboard on Sunset Strip and a guru in India.

With Rita Coolidge among the backup singers and Leon Russell up front with Cocker, the group performs big

numbers of that time, from Russell's *Delta Lady* and *Please Give Peace a Chance* to hits by Mick Jagger, Leonard Cohen, Titus Turner, Lloyd Price, and Lennon and McCartney. In between, we catch glimpses of backstage life in hotel rooms, tiring bus rides, hops in a chartered plane, interview sessions with dumb disc jockeys, talks with even dumber groupies, and private moments when the group relaxes and performs rituals that seem quaintly outdated in this day of high-tech egomania.

The camera work and editing on "Mad Dogs" is professional and well

paced, the transfer to LaserDisc is excellent in every respect, and the on-stage footage—though a bit grainy—is better than most of the recent concert material that has found its way into home video. I spent a good deal of time backstage at New York's Fillmore East and other rock palaces during the late Sixties and early Seventies, and I did my share of interviews in dressing rooms and hotel suites, so I can vouch for the flavor captured here. It's the real thing. C.A.

MOZART: Idomeneo. Richard Lewis (tenor), Idomeneo; Leo Goeke (tenor), Idamante; Bozena Betley (soprano), Ilia; Josephine Barstow (soprano), Electra. Gyndebourne Festival Chorus; London Philharmonic Orchestra, John Pritchard cond. VIDEO ARTS INTERNATIONAL 69025 VHS \$69.95, 29025 Beta \$69.95.

Performance: *Very good*
Recording: *Good*

Despite occasional fuzziness of sound, this tape of a 1974 Gyndebourne Festival performance offers a rewarding account of Mozart's *opera seria*, written when he was twenty-five years old. Visually it is uncommonly handsome, staged with a limited color palette, primarily rich blues, grays, and silver with accents of wine red. There is much pleasure for the eye here. There is satisfac-

tion, too, for the ear, especially in the singing of Bozena Betley, whose purity of tone is especially complementary to Ilia's line; her performance is further enhanced by her personal beauty. All members of the cast perform with the musical and theatrical polish that is today considered synonymous with "Glyndebourne." The festival's chorus and the London Philharmonic under John Pritchard's fine direction sing and play very well indeed. R.A.

ELVIS PRESLEY: One Night with You. Elvis Presley (vocals); instrumental accompaniment. *That's All Right; Heartbreak Hotel; Love Me; Blue Suede Shoes; Are You Lonesome Tonight; One Night with You; Memories*; and five others. MEDIA HOME ENTERTAINMENT M467 VHS and Beta \$19.95, PIONEER ARTISTS PA-85-146 LaserDisc (electronically rechanneled for stereo) \$29.95.

Performance: *Presley at his peak*
Recording: *1968 network TV*

"Elvis: One Night with You" is one of the many Presley specials that aired on cable TV last year as part of the celebration for what would have been the King's fiftieth birthday. All of the footage, however, comes from Presley's now-legendary 1968 Christmas Special (also known as the Comeback Special

and as the Singer Special, the latter derived from the sewing-machine company that sponsored it) on which the thirty-three-year-old Elvis wore his black-leather suit and generally ripped it up in a way he hadn't done in nearly a decade.

In its final form, the special contained two black-leather performance situations, one where Presley sat around with his cronies and reminisced between songs and one where he prowled the stage like a caged, sweaty tiger. In the editing, only parts of both performances made it into the broadcast.

This video release features the entire improvisational sequence, uncut and unedited, in fifty-three minutes. Without a doubt, the animated, strutting sequence was more musically and sexually exciting, but this one tells more about Presley the man—and Presley the frightened performer who hadn't set foot on a stage in seven years. The banter—with musicians Scotty Moore, D. J. Fontana, Charlie Hodge, and buddy Alan Fortas—often runs along the Cracker variety, and some of the shots are poorly composed and dated. But when Presley really cuts loose, he is nothing short of spellbinding—the very personification of raw, gritty rock-and-roll. On the whole, this is a magical performance, and a must-have for any video collection. A.N.

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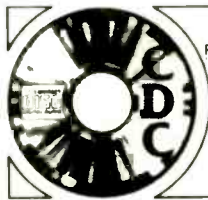
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NEW PRODUCTS

Sharp

Sharp's DX-620 Compact Disc player has an infrared remote control with a keypad for programming and direct access to desired tracks. Programming on the player itself is done with the skip/search controls. An entire disc or selected tracks can be programmed to repeat. Displays indicate mode (play, pause, and repeat), track number, and elapsed time of the current track. A headphone jack is included. Price: \$289.95. Sharp Electronics Corp., Dept. SR, 10 Sharp Plaza, Paramus, NJ 07652.

Circle 126 on reader service card



Soundstream

The Play Trim circuit in the TC-308 car stereo cassette tuner from Soundstream allows adjustment of playback equalization to correct for high-frequency errors before Dolby decoding, which is said to reduce Dolby mistracking. Along with Dolby B and Dolby C noise reduction, the cassette deck features autoreverse, motor-assisted loading, switchable 70- or 120- μ s equalization, and a music sensor that finds the start of the current or next selection. The quartz-PLL tuner features six FM and six AM presets, auto-scan tuning, and a switch that automatically selects the tuner while a tape is fast-winding. With an optional handle, the TC-308 can be removed from the dash and stowed in the trunk or elsewhere. Prices: TC-308, \$579; SH-30 handle, \$20. Soundstream Technologies, Dept. SR, 2907 W. 182nd St., Redondo Beach, CA 90278.

Circle 127 on reader service card



Hifonics

The Ceres from Hifonics is a three-band parametric equalizer designed to correct frequency-response inaccuracies in car stereo systems. Center frequencies can be set from 40 to 640 Hz for Band 1, from 100 to 3,000 Hz for Band 2, and from 500 to 16,000 Hz for Band 3. Each bandwidth is variable from 0.16 to 2 octaves, with a maximum boost or cut of 20 dB at the 0.16-octave bandwidth. A loop switch allows active crossovers to be inserted before the fader circuit for constant sub-bass level regardless of the fader setting.

Switching between tape/tuner and a Compact Disc player is automatic. The unit has volume and fader controls, and the input sensitivity can be varied for use with other components. Frequency



response is given as 5 to 50,000 Hz +0, -3 dB, signal-to-noise ratio as 85 dB (A-weighted), and total harmonic distortion as less than 0.02 percent at any

output. Price: \$400. Hifonics, Dept. SR, 845 Broad Avenue, Ridgefield, NJ 07657.

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NEW PRODUCTS

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Phase Linear

Four new car speakers from Phase Linear use graphite-composite cones in their low-frequency drivers for wider frequency response and lower distortion. The line includes the PL 3690, a 6 x 9-inch three-way; the PL 2650, a 6½-inch two-way; the PL 2450, a 4½-inch dual-cone; and the PL 1400 (shown), a 4-inch dual-cone. Three models have a polycarbonate dome tweeter, and there is a polycarbonate midrange in the PL 3690. The PL 2650 and PL 3690 can be bi-amplified. Maximum-power ratings for the PL 3690, 2650, 2450, and 1400 are 110, 80, 50, and 35 watts rms, respectively. Prices (per pair): PL 3690, \$200; PL 2650, \$130; PL 2450, \$85; PL 1400, \$65. Phase Linear Division of International



Jensen, Dept. SR, 4134 N. United Pkwy., Schiller Park, IL 60176.
Circle 129 on reader service card



Wharfedale

A hybrid of the Wharfedale Diamond and Model 708 speakers, the Model 504 compact speaker has a 110-mm woofer and a 19-mm aluminum-dome tweeter. The woofer's maximum power-handling capability is 100 watts. The drivers are housed in a cast-magnesium chassis, and Wharfedale's bayonet fixing method is used in the bass unit instead of T-nuts or screws. Recommended placement is a rigid mounting about 21 inches above the floor and about 6 inches from the back wall. Frequency response is given as 50 to 20,000 Hz. With grille, the Model 504 is 7 inches wide, 11 inches high, and 8 inches deep. Price: \$320 per pair. Wharfedale USA, Dept. SR, 700 Billings St., Suite E, Aurora, CO 80011.
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Magnavox

The Magnavox CD-9510 portable Compact Disc player weighs 2½ pounds with its optional battery pack and measures less than 5 x 1½ x 7½ inches. Ten tracks can be programmed for playback or repeat. With the supplied cables and a.c. adaptor, the player plugs into a stereo system for home use. Controls allow skipping to the previous or next track and scanning forward or backward. The display shows elapsed or remaining time in the track. Price: \$300; battery pack, carrying case, shoulder strap, and headphones, \$60. Magnavox, Dept. SR, Interstate 40 and Straw Plains Pike, P.O. Box 6950, Knoxville, TN 37914.
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Stereo Review February 1986, on the ESM-3

"a fine loudspeaker and an excellent value ... very smooth and quite flat, falling within $\pm 3\frac{1}{2}$ dB on-axis throughout the range above the 50 Hz band ... in the lab's 300 Hz pulse test the ESM-2 accepted without noticeable complaint the full output of the test amplifier ... (470 watts, peak into 8 ohms), for a calculated SPL (Sound Pressure Level) of 114 $\frac{3}{4}$ dB. Loud transients thus should be handled well ... bass sounds more extended than the response curves might suggest, with surprising heft at the very bottom ... Stereo imaging, too is very good ... Even if your budget can accommodate twice the ESM-2's price - you owe it to yourself to audition Energy's latest design"

High Fidelity January 1986, on the ESM-2

"exceptional overtone balance ... imaging was just about the best I've heard ... excellent dynamic range ... it sounds great ... no real compromises in its design ... anyone looking for a \$1,500.00 to \$2,000.00 system would be foolish not to carefully audition the Energy ESM-2 ... amazing at the price."

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CIRCLE NO. 47 ON READER SERVICE CARD



by *Christie Barter*
& *Steve Simels*

THE most star-studded rock affair in recent memory was the first awards ceremony of the Rock and Roll Hall of Fame. The institution's future location may be Cleveland, Ohio, but since an official home had not been chosen in time for the awards, the ceremonies were held at the Waldorf-Astoria Hotel in New York.

Among the inductees was **Chuck Berry**, whose award was presented by **Rolling Stone Keith Richards** (appropriate since Keith's been playing Chuck's licks almost as long as Chuck has). Other



Berry, Richards: first awards

is **Laredo's** recording of Tchaikovsky's *The Seasons*.

Also new is **Laredo's** recording of three Beethoven sonatas, including the *Appassionata*, on the Second Hearing label. Coming this summer, also from Second Hearing, is a collection of French music for flute and piano in which **Laredo** is joined by a flutist with whom she frequently tours, **Paula Robison**. Included are works by Poulenc, Ravel, Chaminade, and Lili Boulanger. (Second Hearing, by the way, is one of a small but growing number of labels releasing CD's only.)

In a June CD release from Denon, **Laredo** teams up with another pianist, **Jacques Rouvier**, for a recording of Ravel's music for two pianos and piano duet. □

NEXT to **Michael Jackson's** "Thriller," the most-nominated album in

Manhattan Transfer: first in Grammy nominations



the history of the Grammy Awards was **Manhattan Transfer's** "Vocalese," which was cited in a dozen categories this year. That's pretty good for a jazz album, even for an album that went to No. 1 on the country's jazz charts.

At awards time "Vocalese" picked up two Grammys, one for Best Jazz Vocal Performance, Duo or Group, and the other for Best Jazz Vocal Performance, Male. The latter was for the album's *Another Night in Tunisia* track, in which the group was joined by **Jon Hendricks** and **Bobby McFerrin**.

Another record was set, or improved upon, by conductor **Sir Georg Solti**, who has now won twenty-four Grammys, more than anyone else in the business by a good margin. Runners-up are **Henry Mancini**, with twenty Grammys, and **Vladimir Horowitz**, with eighteen. □

HARD to believe but true: It is now ten years since punk rock, in the guise of the infamous **Sex Pistols**, first made its spike-haired, safety-pinned assault on the sensibilities of anguished parents around the world. In recognition of this remarkable anniversary, we'd like to point out that ex-head-Pistol, **John Lydon**, aka **Johnny Rotten**, has a brand-new Elektra album titled "Album" (the cassette is titled "Cassette").

Lydon and the other surviving band members have

just been awarded close to £1 million in back royalties, plus the rights to their film *Great Rock and Roll Swindle*, which means an American video release may at last be in the cards. Watch, too, for **Embassy's** forthcoming feature *Sid and Nancy*, a bio-pic of the doomed romance between the late **Pistols** bassist **Sid Vicious** and the equally late so-



Ex-Pistol Lydon

cialist **Nancy Spungeon**. Chances are it will not be grated. □

ADOZEN rock acts have contributed to a charity release that will benefit the **T. J. Martell Foundation** for Leukemia and Cancer Research, named for **Tony Martell**, vice president of **CBS Associated Labels**. **Martell** established the foundation in memory of his son, who was stricken by leukemia some years ago.

Titled "Music for the Miracle," the album brings together twelve Top Ten hits, including several No. 1 singles, among them **Tears for Fears' Everybody Wants to Rule the World** and **REO Speedwagon's Can't Fight This Feeling**.

All of the artists are donating their royalties to the **Martell Foundation**, whose guidelines stipulate that 97 percent of the proceeds from the album will go for research. □

IN April, **Philips Records** released a benefit album by pianist **Alfred Brendel**. The



"First Lady" Laredo

inductee-presenter pairings included the **Everly Brothers** and **Neil Young**, **James Brown** and **Stevie Winwood**, and **Fats Domino** with fellow piano-man **Billy Joel**. Capping the evening was an impromptu jam session featuring all of the above plus **Jerry Lee Lewis**, **John Fogerty**, **Chubby Checker**, and **Julian Lennon**. The whole thing was video-taped, but at press time no plans had been announced for home-video release. □

WIDELY known as "America's first lady of the piano," **Ruth Laredo** has many firsts to her credit. She was the first pianist to record all the solo works of **Rachmaninoff** (**CBS Masterworks**) and the first in America to perform and record all the sonatas of **Scriabin**, recently reissued by **Nonesuch**. A new release from **Nonesuch**

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beneficiary of royalties from sales of the album "Alfred Brendel Live" is Amnesty International, the organization that monitors human rights around the world. Included in the set are works by Franz Liszt, Alban Berg, and Ferruccio Busoni. □

ONE of the best things about country-rock favorites Lone Justice is lead singer Maria McKee. The good news is that you can soon see more of her, and in the privacy of your own home, courtesy of Delilah Films, the same wonderful archivists who earlier brought us "The Compleat Beatles" and "Girl Groups."

McKee will be interviewed at some length in Delilah's forthcoming "Women in Rock," due later this year from MCA, and will be glimpsed performing as well. Also included in the program are such notables as ex-Go-Go Jane Wiedlin, new mom

DAVID REDFERN/RETNA



The Yardbirds: rock legends on Compact Disc

be said of the recorded works of Olivia Newton-John. But take heart: the folks at Rhino Records are getting ready to unleash the very first Yardbirds CD, an eighteen-song compilation aptly titled "The Best of the Yardbirds."

Rhino will also favor us with a CD version of an LP titled "Nuggets" that features garage-rock classics by the Beau Brummels, the Nazz, and (the pride of Bergenfield, New Jersey) the immortal Knickerbockers. □

CARNEGIE HALL, a symbol of achievement and excellence in American musical life, is currently undergoing a \$50-million renovation and restoration. Beginning May 18, the hall will close its doors for seven months in order to finish a major portion of the

Dine's "Carnegie Hall Heart"



basic construction work involved.

A generous gift toward defraying the costs of Carnegie's face-lift has been made by the artist Jim Dine, famous for his drawings and paintings of big Valentine-like hearts, and his exclusive American representatives, the Pace Gallery and Pace Editions in New York. Their gift was a specially created *Carnegie Hall Heart*, a five-color lithograph in a signed and numbered edition of 150.

A good number of Dine's *Carnegie Hall Hearts* were presented, appropriately, as part of a Valentine's Day benefit package requiring contributions of \$1,000 per couple, but some remain. Potential benefactors should write the Carnegie Hall Society at 881 Seventh Avenue, New York, NY 10019, or phone (212) 903-9650. □

THIS year's album of historic recordings produced by the New York Philharmonic for the WQXR Radiothon features composers conducting works by other composers. Aaron Copland, for instance, conducts Dvořák's Violin Concerto with John Corigliano as the soloist, and Leonard Bernstein conducts Copland's *Lincoln Portrait* with William Warfield as the narrator. The eight works

contained in the album were chosen from broadcast performances given between 1940 and 1976 and have never before been released.

The two-record or two-cassette package, "Composers Conduct," can be ordered by sending a check for \$20, payable to the New York Philharmonic, directly to the Philharmonic at Avery Fisher Hall, Lincoln Center, Broadway at 65th Street, New York, NY 10023. □

BEST known in the United States for his recordings, Austrian cellist Heinrich Schiff is now performing more frequently in this country with major orchestras. This month he is introducing a 1953 work by Hans Werner Henze titled *Ode to the Westwind* in performances with the Cleveland Orchestra in Cleveland and in New York City.

Toward the end of last year Schiff won three major record prizes in Europe—Belgium's



PHILIPS RECORDS

Cellist Heinrich Schiff

Caecilia Prize for Bach's Suites for Unaccompanied Cello (EMI), Holland's Edison Prize for the Shostakovich Cello Sonata (also EMI), and France's Grand Prix du Disque for the two Shostakovich Cello Concertos (Philips). The first two are not yet available in the United States, but we reviewed the third very favorably back in January.

Philips recently released on Compact Disc a coupling of Schiff's performances of the cello concertos by Dvořák and Elgar. The new CD is reviewed on page 101. □



Lone Justice's McKee

Pat Benatar, and the apparently ageless Tina Turner. □

FANS of Sixties rock legends the Yardbirds, from whose ranks emerged such estimable talents as Eric Clapton, Jeff Beck, and Jimmy Page, are probably aware that the band's legacy has been spottily served by Epic, their longtime American label. In fact, at this writing only one of the original albums by the group that practically invented heavy metal remains in the domestic catalog—a massive injustice when you consider that the same cannot

JEFF KATZ/WARNER BROS. RECORDS

PACE GALLERY

by Ralph Hodges



A Micro-Ounce of Prevention

YOU can still get an argument over the benefits of expensive audiophile speaker and patch cables no matter where you turn, but on the subject of audio mating connectors—plugs, jacks, and the rest—the opinion has always been unanimous: the best are poor and the worst are unspeakable. Furthermore, the situation deteriorates where the need is most critical. You can lavish solid-gold BNC-type hardware between your preamplifier and power amplifier and exult in contact security forever, but the volt or so of signal passing between those two components would survive much humbler connectors pretty well. At your phono cartridge, however, where fractions of millivolts must make a difficult passage, at best you're given bitsy clips of brass and wires with the gauge—but nowhere near the tensile strength—of dental floss.

It has always been good practice to spend some maintenance time on an audio system's connectors at least once a year, tightening them as needed, polishing them where pitting, corrosion, and tarnish appear, and perhaps zapping them with TV-

tuner contact cleaner. Even the abrasive action of repeatedly making and breaking connections helps—much to the benefit of those high-enders who swap their cartridges and preamps around twice a month. But there's no sidestepping the fact that once the maintenance has been performed, it's all downhill until the next time, with noise and distortion from low-level signal intermittency, blockage, and rectification effects growing worse daily.

Yet maybe, just maybe, some savior has arrived. Many months ago I was handed a small vial—well, a pseudo-hypodermic syringe—of a product called Tweek and was told to use it and have misgivings no more. According to the accompanying literature, the stuff within, styled a “contact enhancer,” was a nonconductive fluid that, applied in a thin coating, fills the microscopic gaps in a metal-to-metal contact and effectively multiplies the apparent contact area. Rubber cement would do precisely the same, I thought, so I initially regarded Tweek and its cutesy name with the same affection as I do record-treatment solutions that promise to banish scratches (as if they were not as much a part of the signal as the music).

My attitude changed dramatically when I was faced recently with the overhaul of a neighbor's mid-fi rack system that was so hopelessly “misconnected” anything was worth trying. I unlimbered the Tweek syringe, and the results went beyond pleasing—they were startling. Signal increases of 5 or 6 dB and more began turning up very suddenly, much to the risk of the test meter and the loudspeakers. Connections that had balked the ministrations of emery boards and boiling sulfuric acid (well, almost) became clean sounding with the application of a microdrop. It was almost as if Tweek had gain, and although the treatment didn't last beyond that evening—vibrations from moving the equipment back into place probably jarred the connections loose again—the listening was well-nigh impossibly good for the next few hours, all things considered.

According to Mike Wright, principal of the Dayton-Wright Group, which is responsible for the formulation but not its marketing for

audio applications, Tweek is not a nonconductor at all but rather a block polymer that behaves as an amorphous fluid semiconductor. In other words, it “turns on” (becomes conductive) with the application of a threshold voltage, and it can be adjusted chemically to exhibit some industrially useful properties.

In audiophile and similar applications, the material is claimed to increase electrical contact area by factors of twenty-five or more and to exert a detergent action that lifts up films of surface contamination and prevents them from reforming, yet it remains stable and inert. One critical Tweek treatment is reportedly still going strong after ten years without renewal; the substance itself took about that long to refine after its rather accidental discovery.

Disadvantages of using Tweek? So far I've discovered or heard of none, but Wright admits that its efficacy can be impaired if mechanical contact of connectors is not secure or if the connectors are of metals with highly dissimilar galvanic properties (gold with aluminum is cited as a particularly bad pairing). But these conditions would be at least equally problematic without Tweek treatment.

One frustration is that the substance's benefits are difficult to measure. I recently refurbished a transistorized multimeter with the stuff—switches, potentiometers, IC sockets, probe sockets, and everything else I could get at—and observed not one significant drop in the instrument's internal resistance throughout the process. The performance difference was a matter of consistency: time and again, after the treatment, the meter needle sought the correct value without twitches, dithers, coaxing, or afterthoughts, and it remained there.

Tweek is marketed to the audio market by Sumiko. A bottle with applicator brush costs \$15 and holds 7 cc (using too much causes no harm, but a very little goes a long way). If you don't like it, isopropyl alcohol takes it off. Obviously, you can't expect a 5- or 6-dB improvement in any well-maintained high-end system, but using Tweek can't hurt, and I'm now convinced that this unusual substance can make a worthwhile difference. □

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