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Matthew Polk's Magnificent Sounding New SDA 2A



SDA 2A
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Matthew Polk stands proudly alongside the latest version of his Audio Video Grand Prix Award Winning SDA 2A

The Magnificent Sound of Matthew Polk's Extraordinary New SDA 2A Puts the Competition to Shame!

*"It has the ability to make your
previous favorite speaker sound almost second rate"*

Stereo Review Magazine

Matthew Polk's magnificent sounding new 3rd generation SDA 2A incorporates many new advances pioneered in his top-of-the-line Signature Edition SRSs. It achieves stunningly life-like musical reproduction which would be remarkable at any price but is simply extraordinary at \$499. each. Stereo Review said, "listen at your own risk." Once you hear them you'll never be satisfied with anything else!

Polk's Revolutionary True Stereo SDA Breakthrough

The magnificent sounding new SDA 2A incorporates Polk's revolutionary True Stereo SDA technology. This patented, critically acclaimed, Audio Video Grand Prix Award winning breakthrough is the most important fundamental advance in loudspeaker technology since stereo itself. In fact, the design principles embodied in the SDAs make them the world's first and only True Stereo speakers.

Why do Polk SDAs always sound better than conventional speakers? When conventional loudspeakers are used to reproduce stereo both speakers are heard by both ears causing a form of acoustic distortion called interaural crosstalk which cuts down stereo separation, obscures detail and interferes with the proper reproduction and perception of imaging, and spaciousness. Polk SDAs are designed to eliminate interaural crosstalk so that each speaker is only heard by the one correct ear (i.e. left channel/left ear, right channel/right ear), like headphones. The result is dramatically improved stereo separation, detail and three-dimensional imaging. In order to accomplish this each SDA incorporates a separate set of drivers which radiates a special dimensional (difference) signal which cancels the undesirable interaural crosstalk coming from the wrong speaker to the wrong ear. High Fidelity called the results "Mind Boggling".

The Most Extraordinary Value in High End Audio Today

The new SDA 2As, like all the current SDAs, incorporate the latest 3rd generation SDA technology developed for Matthew Polk's Signature Edition SRS and SRS-2 including **1:** full complement sub-bass drive for deeper, fuller, tighter and more dynamic bass response; **2:** phase coherent time-compensated driver alignment for better focus, lower-coloration smoother, clearer, more coherent midrange and improved front-to-back depth and; **3:** bandwidth-optimized dimensional signal for smoother high-end and even better soundstage and image. The new SDA 2A is the finest sounding and most technologically advanced speaker ever produced at its extraordinarily modest price. It sounds dramatically better than speakers from other manufacturers that cost 4 times as much and more and is, at \$499 ea., truly the speaker of your dreams at a price you can afford.

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

Stereo Buyers Guide

The spectacular sonic benefits of SDA technology are dramatic and easily heard by virtually anyone. Reviewers, critical listeners and novices alike are overwhelmed by the magnitude of the sonic improvement achieved by Polk's SDA technology. Stereo Review said, "These speakers *always* sounded different from conventional speakers — and, in our view, better — as a result of their SDA design."

All Polk's SDAs, including the new 2As produce a huge lifelike three dimensional sonic image which will amaze you. You will hear for the first time instruments, ambience and subtle musical nuances which are present on your recordings but masked by the interaural crosstalk distortion produced by conventional speakers. Stereo Review said, "Spectacular...literally a new dimension in the sound...the result is

always better than would be achieved by conventional speakers". High Fidelity said, "Mind Boggling...Astounding ... Flabbergasting... we have yet to hear any stereo program that doesn't benefit". With SDAs every instrument, vocalist

"Mindboggling, Astounding, Flabbergasting"

High Fidelity Magazine

and sound becomes distinct, tangible and alive; allowing you to experience the spine tingling excitement, majesty and pleasure of live music in your own home.

Other Superb Sounding Polks From \$85. to \$1395. each

No matter what your budget is there is a superb sounding Polk speaker perfect for you. Polk's incredible sounding/affordably priced Monitor Series loudspeakers utilize the same basic components as the SDAs and begin as low as \$85. each. The breathtaking sonic benefits of Matthew Polk's revolutionary True Stereo SDA technology are available in 5 SDA models priced from \$395. to \$1395 ea.

"You owe it to yourself to audition them"

High Fidelity

The experts agree: Polk speakers sound better. Use the reader's service card or write to us for more information. Better yet, visit your nearest Polk dealer today. Your ears will thank you.

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The Speaker Specialists®

5601 Metro Drive, Baltimore, Md. 21215

Matthew Polk's New Generation of Revolutionary TRUE STEREO SDAs



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\$995.00 ea.



SDA CRS+
\$395.00 ea.



SDA 1B
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SDA 2A
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Digital Disc Ready

**Matthew Polk's revolutionary SDAs have been acclaimed around the world.
Australian HiFi called them "A stunning achievement."**

Prices are Manufacturer's Suggested Retail. Prices may vary.

"All Matthew Polk's Revolutionary SDAs Always Sound Better Than Conventional Speakers"

"Literally a New Dimension in the Sound"

Stereo Review Magazine

Stereo Review confirmed the unqualified sonic superiority of Matthew Polk's revolutionary SDA Technology when they wrote, "These speakers *always* sounded different from conventional speakers — and in our view better — as a result of their SDA design.

"They truly represent a breakthrough."

Rolling Stone Magazine

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

Why SDAs Always Sound Better

Without exaggeration, the design principals embodied in the SDAs make them the world's first true stereo speakers. The basic concept of speaker design was never modified to take into account the fundamental difference between a mono and stereo signal. The fundamental and basic concept of mono is that you have one signal (and speaker) meant to be heard by both ears at once. However, the fundamental and basic concept of stereo is that a much more lifelike three-dimensional sound is achieved by having 2 different signals, each played back through a separate speaker and each meant to be heard by only one ear apiece (L or R). So

quite simply, a mono loudspeaker is designed to be heard by two ears at once while true stereo loudspeakers should each be heard by only one ear apiece (like headphones). The revolutionary Polk SDAs are the first TRUE STEREO speakers engineered to accomplish this and fully realize the astonishingly lifelike three-dimensional imaging capabilities of the stereophonic sound medium.

"A stunning achievement"

Australian HIFI

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

*"Mindboggling,
Astounding,
Flabbergasting"*

High Fidelity Magazine

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

"Breathtaking... a new world of bi-fi listening"

Stereo Buyers' Guide

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

"You owe it to yourself to audition them."

High Fidelity Magazine

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

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HIGH FIDELITY

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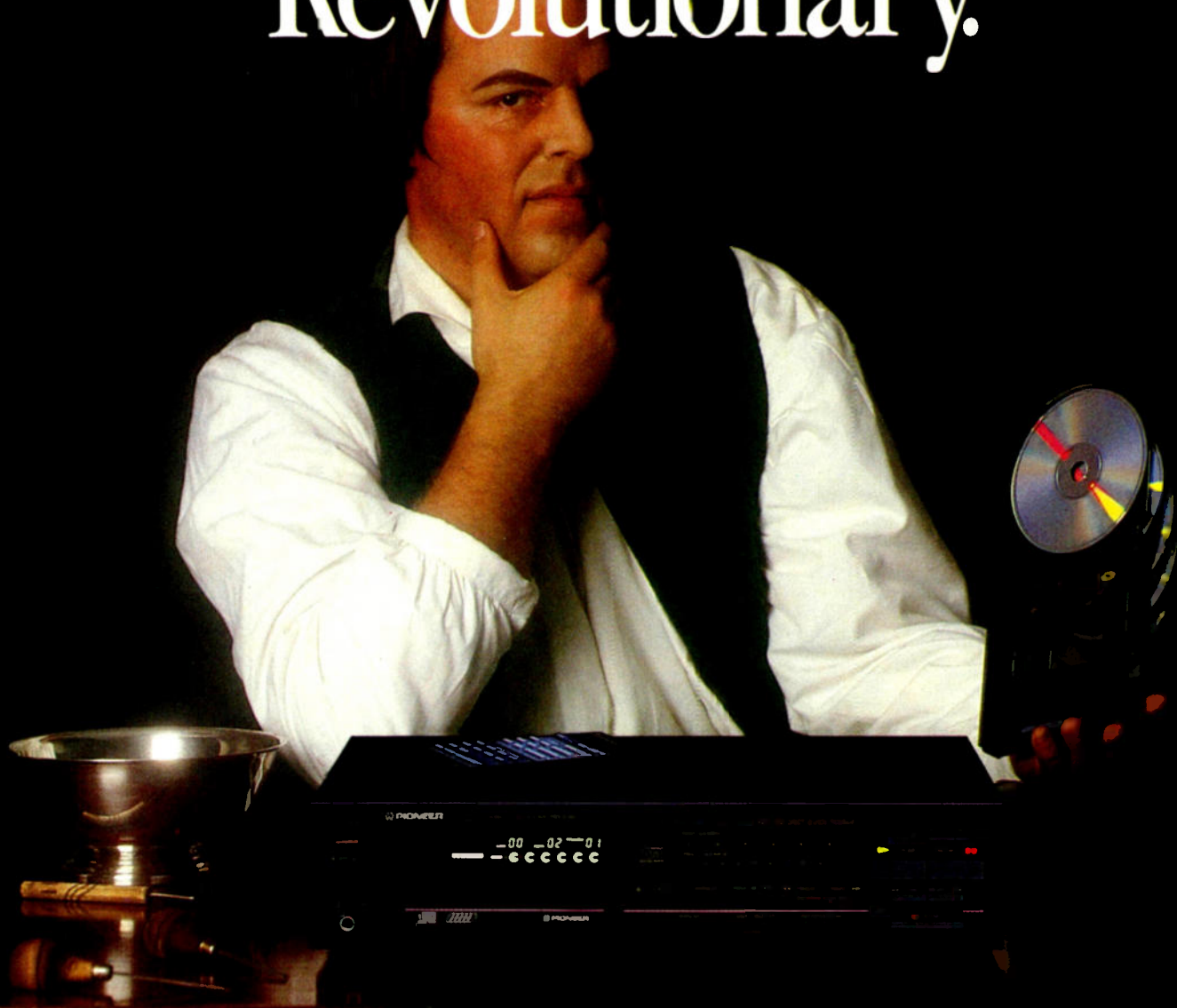


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F R O N T L I N E S

ROLAND GELATT DIED on December 3, 1986, and those of us whose association with HIGH FIDELITY goes back a long way, either as a reader or as a staff member, will feel that a bit of this magazine's history has gone with him. Roland's vision guided this publication



ROLAND GELATT
(1920 - 1986)

from 1954 to 1968—during most of those years, he served as its editor in chief—and he gave it a profile and an individuality that very much reflected his own: serious, thorough, intent, and imbued with an excitement about the unfolding possibilities of the Long Playing record and stereophonic sound.

He came to HIGH FIDELITY from *The Saturday Review*, which was then in its great days, and he insisted on the same exacting standards that he had been accustomed to there. His firm determination to make HIGH FIDELITY the magazine of record in its field meant that he had little patience with incompetence or sluggishness in those working with him. He was an intense man, and he could lose his temper or make difficult demands. But in my own ten-year association with him, first as classical-records editor and then as editor of MUSI-

CAL AMERICA (which HIGH FIDELITY purchased under his leadership), I never encountered anyone who didn't regard him with admiration—and perhaps a touch of awe.

Roland was born in Kansas City, Missouri, and was graduated from Swarthmore College.

He served in the Navy for four years and played "bad clarinet," he once told me, in a Navy band. He joined *The Saturday Review* within a year of his release from the service, and after his 14 years with HIGH FIDELITY, he went back to SR as managing editor. Eventually, he moved to London and joined the editorial board of Thames and Hudson—"I'm quite enmeshed and loving it," he wrote me several years ago. His own best-known book, *The Fabulous Phonograph* (Appleton-Century, New York), had by that time gone through three editions.

Roland's last day at HIGH FIDELITY is still quite vivid to me. I remember going into his office to tell him goodbye. "We owe you a lot," I said. I still feel that way.

Shirley Fleming
Editor

MUSICAL AMERICA

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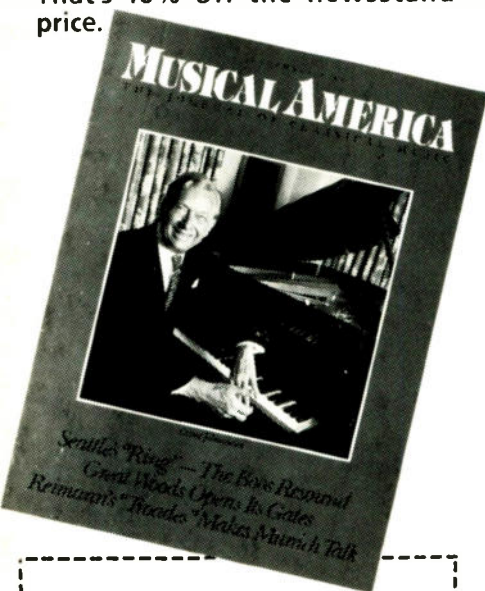
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Founded almost 90 years ago, Musical America is the oldest and most authoritative publication covering music and the performing arts. Published bi-monthly, "The Journal of Classical Music," as it is known, focuses on live performances and the careers of the performers. Its new expanded format also contains classical records and tape reviews and brief overviews of high fidelity gear from the music-lover's perspective, and features special focus issues such as Summer Festivals and New Talent. Written and edited by the top authorities in the field, it is a must for those serious about music.

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L E T T E R S

DSP NOISE

I WAS SO IMPRESSED BY YOUR REVIEW OF THE Yamaha DSP-1 (September 1986) that I bought one. It has given me unbelievable flexibility in both audio and video reproduction, and I am very pleased—except for one thing: The effect speakers emit a constant hiss. I have checked with four other owners, all of whom report the same problem. Even the factory rep admitted to me that it exists. It is very hard for me to understand why Yamaha would release this unit with such a basic flaw and even harder for me to understand why you did not report it in your evaluation. I definitely have lost a little trust in you.

R. Chris Pooser
Sacramento, Calif.

The data column in our test report indicates that the signal-to-noise ratio in the surround channels is approximately 24 dB worse than that in the main channels (fairly typical for this sort of device). It is nonetheless quite respectable, and we did not hear any noise from the unit in normal use. That you do suggests that you are sitting too close to one or more of the effect speakers (and that would be very close indeed) or that you have them turned up too loud. In other words, we don't think the DSP-1 is perceptibly noisy unless it is used improperly; if we had encountered audible hiss, we would have reported it.—Ed.

BUYING GUIDES

I AM COLLECTING INFORMATION ON SEVERAL high-end audio components. Recently I came upon one of your test reports in the advertising for one manufacturer's components and was impressed with the way the information was presented. Unfortunately, I seem to have missed the majority of reviews for this year's [1986] components, so I am finding it hard to make the kinds of comparisons I'd like. Do you publish a special issue or buying guide that reviews the components currently on the market?

Cynthia Grossman
Colmar, Pa.

What you're looking for is the latest issue of HIGH FIDELITY'S TEST REPORTS, a semiannual compendium of equipment reviews. If you can't find it at your local newsstand, you can order the latest edition directly by sending your request along with a check or money order for \$4.95 (in U.S. currency, made out to ABC Consumer Magazines, Inc.) to HIGH FIDELITY'S TEST REPORTS, 14th Edition, P.O. Box 11120, Church Street Station, New York, N.Y. 10249. (Note: The 15th Edition will be issued in mid-April.)—Ed.

MUSIC ON VIDEOTAPE

IN YOUR NOVEMBER 1986 "CURRENTS," I READ about music albums on videodisc. Why not do the same for us Hi-Fi VCR owners? I would gladly pay the price of a CD—or a few

dollars more—to get three or four music videos and the audio portion of an album in its entirety. The sound quality of a Hi-Fi VCR matches that of a Compact Disc player and far surpasses that of records or cassettes. So it seems only fair that VCR owners (who outnumber owners of videodisc players by at least ten to one) should also be able to obtain these audio-video albums.

Randy Kightlinger
Franklin, Pa.

JAZZ BOOKS: RUSSIA, FRANCIS DAVIS

Those readers who enjoyed Joe Blum's November 1986 review of Igor Bril and Alexei Kuznetsov and would like to know more about Russian jazz might want to pick up two books on the subject. Red and Hot: The Fate of Jazz in the Soviet Union, 1917-1980 (Oxford University Press, 1983; paperback now available from Limelight Editions) is the groundbreaking volume by S. Frederick Starr, and Russian Jazz: New Identity (Quartet Books, 1985) is a collection of essays edited by Leo Feigin. Meanwhile, East Wind plans to follow up its Bril and Kuznetsov recordings with an album of material recorded by the Soviet state label, Melodiya, at last summer's All-Union Jazz Festival in Tbilisi. For more information, contact East Wind, 3325 17th St. N.W., Washington, D.C. 20010.

And speaking of books on jazz, we'd like to plug a title by one of our own contributing editors. In the Moment: Jazz in the 1980s (Oxford) is Francis Davis's just-published collection of 26 artist profiles and critical evaluations he has written since 1981 for various newspapers and magazines. Regular readers of this magazine will no doubt notice those profiles that Francis originally published here: producer Giovanni Bonandri (from our December 1984 issue), violinists John Blake and Billy Bang (May '85), trombonist Craig Harris (October '85), tenor saxophonist Scott Hamilton and cornetist Warren Vaché (February '86), and singer Abbey Lincoln (May '86). Congratulations on your first book, Francis!—Ed.

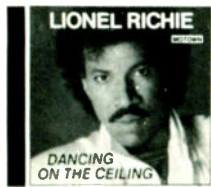
"SOUNDS COLLECTABLE"

I AM WRITING TO YOU IN THE HOPE THAT YOU can find a little space within the pages of your publication to mention what we are attempting here in Britain. Early in 1986, we started *Sounds Collectable*, a quarterly magazine that provides space to private record collectors so that they may get in touch with one another to exchange information and records. We are trying to build what we call "a service for collectors, by collectors."

Our main emphasis is on hard-to-get and deleted recordings ranging from 78s to early microgroove discs. We want to run the gamut from classical music (solo instrumental and orchestral) to, say, Hollywood musicals. We are not sponsored by any other organization and operate only in our spare time on a nonprofit basis. Anyone living anywhere in the world can join; sample copies of our

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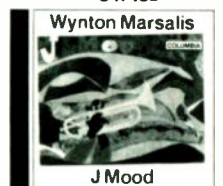


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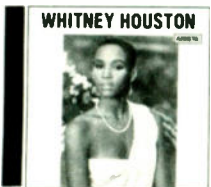
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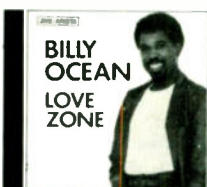
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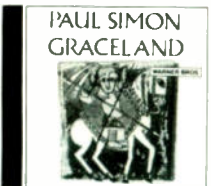
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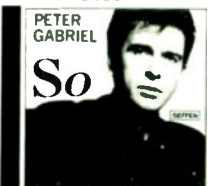
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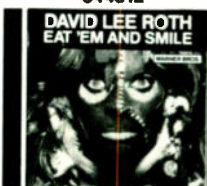
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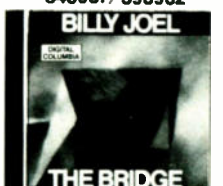
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343251. Bach: *Goldberg Variations*—Glenn Gould. (Digital—CBS Masterworks)
316604. Tchaikovsky: *1812 Overture; Marche Slave*; Beethoven: *Wellington's Victory*. Larin Maazel, Vienna Phil. (Digital—CBS Masterworks)

348458. Dvorák: *Concerto in B Minor For Cello And Orchestra, Op. 104. Ya-Ya Ma*. Cello. Larin Maazel, cand., Berlin Phil. (Digital—CBS Masterworks)
349373. Beethoven: *Symphony No. 9 "Choral"*. The Juilliard Chorus, New York Philharmonic. (CBS Masterworks)
339200. Stevie Wonder—*In Square Circle*. #1 album. (Tamla)

340323. Sade—*Promise*. #1 Smash. (Portrait)
339226. Gershwin: *Rhapsody in Blue; Second Rhapsody*; etc.—M. Tilson Thomas, Las Angeles Phil. (Digital—CBS Masterworks)
308049. Creedence Clearwater Revival *Featuring John Fogerty!* Chronicle. Greatest hits. (Fantasy)
333286. Phil Collins—*No Jacket Required*. (Atlantic)

343095. Philip Glass—*Songs From Liquid Days*. (CBS)
326629. Bruce Springsteen—*Born in the U.S.A.* (Columbia)
348649. The Pachelbel Canon And Other Digital Delights. The Taranta Chamber Orchestra. (Digital—Fantasy)
347492. Glenn Miller Orchestra—*In The Digital Mood*. (Digital—GRP)

246868. Jim Croce—*Photographs And Memories—His Greatest Hits*. (Sajal)
314443. Neil Diamond's 12 *Greatest Hits, Vol. 2*. (Columbia)
219477. Simon & Garfunkel's *Greatest Hits*. (Columbia)
263293. Bolling: *Suite For Flute & Jazz Piano—Rampal, Bolling*. (CBS Masterworks)

336222. Dire Straits—*Brothers In Arms*. (Warner Bros.)
345553. Branford Marsalis—*Romances for Saxophone*. (Digital—CBS Masterworks)
341305. Robert Palmer—*Riptide*. (Island)

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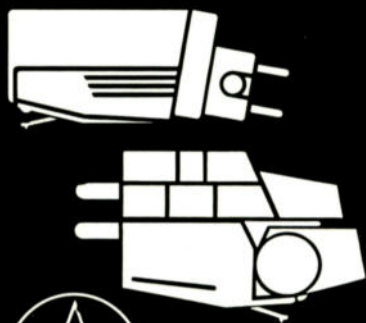
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EQUALIZER INFO

I WOULD LIKE TO SEE A STORY ON EQUALIZERS, preferably focusing on exactly what is happening when such a device is put to use and what types might be best suited for various applications.

W. Dean Briant
 Overland Park, Kan.

We ran what we humbly consider the best article ever written on the subject of equalization, "A Question of EQ," in our June 1983 issue. It contains the information you're looking for.—Ed.

AMPLIFIER SOUND

I WOULD LIKE TO COMMENT ON THE DEBATE concerning the differences in sound quality among amplifiers—that is, do all amplifiers sound alike?

In my judgment, either amplifiers do sound different from one another or some speakers require certain qualities (high current, for example) that will affect their sound. A three-way boom box with a 15-inch woofer selling for \$79.95 will sound about the same no matter what front end or electronics you use.

A case in point: I bought a pair of Thiel CS-2 loudspeakers and wanted to determine which amplifier I should buy for the best sound. My price range was \$600–\$700. My dealer set up a demo for me. He used a Meridian 207 Pro Compact Disc player and an Adcom GFP-555 preamplifier and switched between four amplifiers. I listened to an Adcom 545, an NAD 2200, a Carver 1.0, and a Bryston 2B. He did not use a switching unit but plugged the speaker cables in directly. Each amplifier gave a different sound, from mushy to open and clean.

Was it the amplifiers themselves or the way in which they interacted with a particular speaker? I don't know. I do know that my choice of amplifier was determined by what I heard in that demo—not by a salesman's pitch or by test reports, though both help and get you started in the right direction.

Stan Davis
 Buena Park, Calif.

Certainly you've gone about choosing your equipment in the right way: reading, listening, and finally making up your own mind. That's the only way you can be sure of getting what really will please you, as opposed to what someone else might think you should have. However, the argument is not about whether amplifiers ever sound different from each other (though it often is construed that way). Rather, it is about whether there are sonic differences between amplifiers that have "nontrivial" causes. (A trivial cause would be something like a frequency response discrepancy or one of the amplifiers clipping, which can be remedied without recourse to a major design change.) All of the evidence accumulated according to scientifically accepted procedures indicates that there are not, at least among units of reasonably high quality.

This is not the same as saying that all amplifiers sound the same. What it means is that any amplifier with low noise and distortion and flat frequency response into the load (within a tenth of a dB or so) over the audio band will sound just like any other amplifier meeting the same criteria so long as neither is driven into clipping. So a 200-watt amp may very well sound better than an otherwise identical 20-watt model simply because it is less often overloaded. Or if an amplifier's frequency response becomes slightly nonlinear when driving a certain loudspeaker, it may then sound different from another model that remains well behaved. This is not normally a problem, but it can happen if a speaker presents a particularly difficult load (which probably is the reason some loudspeakers have a reputation for being very revealing of differences between

amps).

Finally, any comparison should be conducted by means of instantaneous switching with levels matched to within a tenth of a dB and no one knowing which amp is which—a matched-level, double-blind evaluation. Only when all extraneous variables (including unconscious prejudice) have been eliminated can you be sure of obtaining valid results. For more on this subject, see "The Great Ego Crunchers: Equalized, Double-Blind Tests," in our March 1980 issue.—Ed.

THE BAD WITH THE GOOD

CONCERNING THE FOX MARKETING AD FOR THE MicroFox on page 27 of your September issue: You don't need a radar detector if you drive, only if you speed.

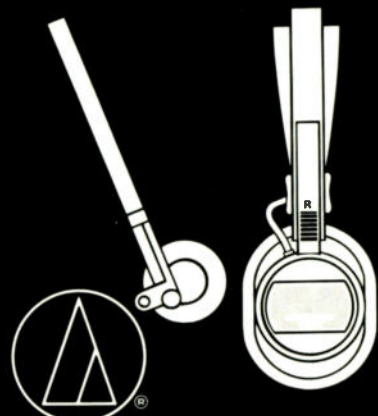
Greg Speed
 Arlington, Texas

THANK YOU FOR TIMOTHY HOLL'S JUNE 1986 article on loudspeaker placement. I found the information very helpful.

Suzan Marks
 Woodhaven, N.Y.

Letters should be addressed to The Editor, UNAT FIDELITY, 825 7th Ave., New York, N.Y. 10019. All letters are subject to editing for brevity and clarity.

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The Speaker Engineers



EDITED

BY

CHRISTOPHER

JESSE



Direct-Cueing CD Players

ONE OF THE QUESTIONS HOVERING OVER THE impending introduction of digital audio tape (DAT) is how it will affect the future of the Compact Disc. To protect against any serious self-inflicted wounds, manufacturers are making extra sure that the CD format maintains its vitality: A dozen or so new factories should be cranking out CDs by year's end, and hardware designers are redoubling their efforts to improve circuits and operating features.

Technics has pumped up its CD line with two new players capable of a variety of direct cueing functions similar to those of the company's SL-P1200 professional CD player. Home or amateur deejays, in particular, will find the SL-P720 and the SL-P520 suitable for spinning a night's worth of discs; and musicians who use digital sampling devices will appreciate the ability to precisely locate short segments of a specific sound on a disc for loading into their samplers.

Both new models use a cueing dial to control a high-speed transport that can locate the true (musical) beginning of any selection on a disc (Auto Cue) in less than one second and can direct the laser assembly during manual cueing. Rotating the cueing dial (which can be disabled to prevent unintentional movement) in either direction will move the pick-up according to the dial's speed setting: "Fast" will scan through about 30 seconds of material for each full rotation of the dial, and "slow" will scan through about one second of material. If the cueing dial is operated while a disc is playing, the scanning will be audible. If it is operated while the unit is in pause, only periodic blips of sound will be heard as the laser tracks in or out.

The SL-P720, which is designed for rugged environments, rests on a two-layer base

composed of Technics Non-Resonant Compound and aluminum. The rubberlike TNRC is essentially a mixture of materials whose different resonant frequencies help to absorb a wide range of vibrations. In addition, a section on the inside of the SL-P720's top panel is fitted with a rubber mat to dampen acoustic vibrations; Technics says it used computer analysis to determine the most effective location for the mat.

A double-oversampling digital filter is used in both the SL-P520 and the SL-P720, and separate power supply circuits are said to reduce the possibility of interference between the digital and analog sections. An unusually high level of signal integrity is said to be provided by a six-segment photo detector, which can more precisely read the information reflected off the disc by the unit's single-beam laser system.

Both players have a preset-editing function, a sort of countdown timer that enables you to specify, in minutes and seconds, how long a disc will play before the player enters the pause mode. Other features common to both units include: programming for as many as 20 selections; segment, disc, and program repeat; and auto-space. In addition, the SL-P720 has a programmable music scan feature that can preview a disc's contents by playing, in succession, up to 99 seconds from the beginning of each track. The SL-P720 also includes an automatic pause function that halts play after each track until you order it to continue. In conjunction with the Auto Cue feature, Auto Pause enables a deejay to program in advance a sequence of as many as 20 tunes that are precisely cued and ready for play at the touch of a button.

The wireless remote for each unit duplicates most of the front-panel controls and

includes a 0- to -12-dB level control. Suggested retail prices are \$550 for the SL-P720 and \$475 for the SL-P520. For more information, write Technics, 1 Panasonic Way, Secaucus, N.J. 07094.

CAR CD DECK/TUNER



MANY OF THE NEW IN-DASH COMPACT DISC players are being packaged with tuner sections and sold at lower prices in an attempt to strengthen their appeal. Pioneer has loaded its highly regarded Supertuner III circuitry into a separate hide-away box as part of the DEX-77 car CD player/tuner, one of three new components intended to be sold exclusively by installation specialists. The DEX-77 is a flat-face DIN-size player with electronic controls for volume and balance and a wired remote that operates volume, steps through the preset stations (18 FM, 6 AM), and skips forward or back through the CD tracks. The three-beam laser pickup is said to reduce mistracking caused by rough roads, but in the event of a sharp jolt, the Last-Address Memory function ensures that the tracking mechanism returns to where it left off. The tuner section automatically locates and sets into memory six each of the strongest FM and AM signals in the reception area. (Unfortunately, it can't decide whether you really want to program Dr. Ruth's radio show wherever you go—although you probably do.)

Other features include automatic scanning of preset stations and programmed CD

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tracks, random track play, and powered disc loading. And would-be thieves will find a pilfered DEX-77 unusable because of a built-in security system that disables the unit until the owner's four-digit code is entered. The DEX-77 costs \$850. Details are available from Pioneer Electronics, P.O. Box 1720, Long Beach, Calif. 90801-1720.

MAGNAVOX CAMCORDER



THE VIDEO ESCORT IS MAGNAVOX'S FIRST VHS-C camcorder, featuring HQ video circuitry, automatic focusing, and a switchable "shutter" speed of $\frac{1}{1000}$ second that, according to Magnavox, minimizes blur in both

normal and slow-motion playback of recorded action scenes. The image pickup device is a CCD (solid state), rather than a tube; and according to the company, its 7-lux light-sensitivity rating is the best available in any camcorder. Instead of using infrared focusing, the Video Escort analyzes the images picked up by the CCD and continuously determines whether any focusing adjustments are required by the $f/1.2$, 6:1 power zoom lens. In the autofocus mode, the entire picture is analyzed to generate the focus correction data; in the manual mode, you can choose from two narrower effective-focus areas (each outlined in the viewfinder) to, for example, pinpoint a particular subject in a crowd or facilitate the tracking of a moving subject. The $\frac{2}{3}$ -inch black-and-white electronic viewfinder also displays operational and warning indicators for recording-pause, white balance, light condition, and low battery power.

The Video Escort weighs 3.1 pounds (without battery) and, like other VHS-C camcorders, has two recording speeds: SP and SLP, for maximum recording times of 20 and 60 minutes, respectively, with a TC-20 tape. The HQ circuitry helps to maintain the video quality of recordings made at the

slower tape speed.

The retail price of \$1,900 includes an AC adapter, a one-hour rechargeable battery, an audio-video connecting cable, an RF adapter, a full-size VHS cassette adapter, and a shoulder strap. For more information, write Magnavox, NAP Consumer Electronics, P.O. Box 14810, Knoxville, Tenn. 37914-1810.

BIGGER ADVENT

MAINTAINING A DISAFFECTION WITH MODEL numbers, Advent calls its new three-way acoustic suspension loudspeaker the Maestro. Similar in appearance to the handsome Legacy model, the top-of-the-line Maestro has a solid-pecan top and base with beveled edges. A specially designed baffle construction is said to eliminate the effects of diffraction on the radiated sound. The driver complement includes a 10-inch woofer, a mica-filled dome midrange driver, and a 1-inch dome tweeter. Advent says these drivers yield greater power-handling capacity than is available from competing models. Retail price is \$700 per pair. More information is available from Advent, 4138 N. United Parkway, Schiller Park, Ill. 60176.

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NEW COMPONENTS IN SANSUI'S CAR AUDIO LINE include two amplifiers based on an exclusive isolated-ground design, originally developed for the company's high-end home models. The SM-X500 (\$280) is said to deliver 50 watts (17 dBW) per channel or 120 watts (20.8 dBW) when bridged for mono. The half-DIN-size SM-X300 (\$190) is a non-bridgeable model rated at 35 watts (15.4 dBW) per channel. According to Sansui, the amplifiers' X-Balanced circuitry enables them to deliver high current into low-impedance loads for better handling of the transient peaks found especially on Compact Discs. For more information, contact Sansui Electronics, 1250 Valley Brook Ave., Lyndhurst, N.J. 07071.

DISC AND TAPE STORAGE

MICROLAND FURNITURE NOW OFFERS THE discriminating organizer solid-oak rolltop boxes for storing audio cassettes and Compact Discs and a sliding-door model for videocassettes. The audio cassette box is available in single-row (holding 16 tapes) or double-row versions costing \$40 and \$60,

respectively. The CD model has a single row and sells for \$40. The videocassette cabinet, \$60, holds ten VHS or Beta tapes. Shipping and handling is \$6.95 (\$8.95 C.O.D.). All are available through Microland Furniture Co., 17 Madrone Ave., San Anselmo, Calif. 94960.

NAKAMICHI CD PLAYER



AFTER SUCCESSFULLY EXPANDING INTO THE moderate price range with its BX series of cassette decks, Nakamichi is doing the same with its line of Compact Disc players. The new OMS-2A (\$500) is the company's fifth player, and it shares some of the technology used in the OMS-4A and OMS-3A decks (the top-of-the-line OMS-7AII was tested in the December 1986 issue): namely, the Nakamichi Shunt-Connected Analog Deglitcher, which is said to remove the "noise spikes" that are generated during digital-to-analog conversion of the binary data. Nakamichi says that compared to the sample-and-hold

deglitcher used in most other players, its deglitcher provides a greater degree of low-level resolution (or, as the company would have it, "musical ambience"). A full 16-bit digital filter and a double-oversampling digital-to-analog converter (DAC) are employed, and the level of the most significant bit that enters the converter is hand-adjusted at the factory for minimum distortion. The three-beam laser pickup uses a single nonspherical lens that is said to eliminate some of the aberrations of multiple lens systems.

Operating features include a 15-slot memory for programmed play, skip search, audible cueing at two speeds, and repeat play. All front-panel controls except power and headphone-volume level are operable by the supplied wireless remote. The display panel can be switched to show either the track number, the elapsed time into a track, or the time remaining on a disc or in a programmed sequence of tracks. Upon loading a disc, the display briefly indicates the total number of tracks on the disc and the total playing time.

For more information, contact Nakamichi U.S.A. Corp., 19701 S. Vermont Ave., Torrance, Calif. 90502.

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ASPECTS OF CAMCORDER CHOICE

INFLAMMATORY RHETORIC PERVADES THE CAMCORDER market, often obscuring—as such verbiage usually does—the true issues behind the sensible choice of a unit. Since this column is devoted to *high fidelity* video, let's see if purist principles can offer some guidance through the haze of the camcorder battlefield.

High fidelity video, almost by definition, dictates that the camcorder to choose is the one with the best *picture* quality and, secondarily, the best *sound* quality. The video purist will make a selection based on image quality alone after comparing such aspects of camcorder performance as reproduced detail, geometric and color accuracy, picture noise, and how varied and varying light levels affect everything else. Considerations of format (Beta, VHS, VHS-C, or 8mm), price, or features just do not arise: Signal quality determines all.

Although this attitude represents a logical expression of basic principles, I find it a bit extreme. After all, if the world's best camcorder weighs more than 10 pounds, requires a separate, bulky battery pack, and costs more than \$5,000 dollars, it is scarcely suitable for young families wishing to "lens" baby's first steps and words (although this is a good description of a professional-grade camcorder). Then again, those first words and steps will never be repeated, nor will (in theory, at least) the "I do"s of a wedding and a host of other significant, recordable events. Therefore, it makes good sense to preserve those memories with the highest fidelity possible, within the limits of practicality.

Considerations of practicality, however, do not necessarily involve a compromise in quality—in fact, they may be crucial. As Robert Angus points out in "VHS-C vs. 8mm" (December 1986), a lighter and smaller camcorder, all other things being equal, may actually produce an inferior picture in use, as the unit may be more sensitive to inadvertent jarring and shaking during hand-held operation. Likewise, an ill-fitted or under-informative viewfinder may lead you to make inappropriate compensations to the image, in addition to promoting eyestrain and distracting you from getting that perfect picture. And the highest degree of image fidelity will be of no avail if the tape or the battery power runs out just as you get to the altar.

Practicality also involves that great, overemphasized bugaboo: selecting a camcorder format. To me, this is also a red herring, because I believe it doesn't matter which you choose! Consider yourself free to select the model—regardless of format—that provides the best recorded picture quality. Let's examine the possibilities.

If you simply want to watch the live tapes you have made, any format will suffice, since nearly every model can play back the tapes it makes. (In some cases, however, "self playback" may be possible only with a separate playback deck.) And because of the various mechanical and electrical alignment variations that

occur from machine to machine, a VCR of any type operates at its best when it plays back tapes it has made itself.

Furthermore, camcorder format is irrelevant if you are going to dub your priceless recordings of once-in-a-lifetime events (if only to minimize wear on the masters) and plan to watch or distribute only the copies. You can safely and easily dub between all home VCR and camcorder formats. And the dubs you make from a master tape—regardless of the format of the VCR on which you record the copy—will be at their best only if the master itself is of top-notch technical quality.

Selecting a camcorder of the same format as your home recorder can give you additional flexibility in making home-deck-to-camcorder and camcorder-to-home-deck dubs, assuming appropriate connections are available on both, the usual situation with high-end units. This capability is useful if you want to make a same-format backup copy of one of your home recordings, but sometimes it may provide the best picture only if the camcorder is *precisely* the same format as the home deck. For example, to dub a two-hour tape recorded at the VHS SP speed from home deck to camcorder, the camcorder must also be a full-size VHS (not VHS-C) model in order to have a full two hours of recording time at the high-quality SP speed.

A camcorder of a different format from your home deck costs you nothing in camcorder-to-home-deck copying capability, which is the same for all format combinations, assuming that the master is not longer than the dubbing deck's maximum recording time. It also grants you the ability to make format changes and to watch tapes recorded in a different format, both valuable capabilities if you want to trade copies with someone who uses another format.

Keeping in mind the basic purpose of a camcorder (that is, videography), the practicalities of format choice become significant only if you want to send your master tapes to someone else. In this case, however, you will be operating against the principles of video high fidelity, because you will end up watching either a dub (which is always inferior to the master) or nothing at all. Only if you are among those who don't already have a home deck and are looking to kill two birds with one stone is one camcorder format automatically eliminated from consideration: If you want to watch any prerecorded movies using a camcorder as the main home VCR, VHS-C drops out because there is no prerecorded software available or announced for it.

This examination of the various permutations of camcorder format as a subordinate consideration to high picture quality should make selection simpler. Except in very special cases, you should feel free to choose any format, as long as the model you pick gives the best picture quality. Sometimes the purist attitude can make life easier. ■

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Add theatrical excitement to your favorite movies and videos.



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Now your Discman™ can play to a larger audience.



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For those of you who have wanted to listen to *high quality* sound both in and out of the listening room, your wait is over. AR's new Powered Partners™ stereo loudspeakers are unlike *any* portable or transportable speakers to date. They feature an individual powerful amplifier, a 4" woofer and 1" tweeter in each impact-resistant, black crackle, cast aluminum enclosure. They also feature individual volume and tone controls, inputs for anything from an FM or cassette

Walkman™ or Stereo TV Receiver to the latest portable CD players. A battery pack, DC adaptor, and carrying case featuring Music Windows with Velcro™ closures, are optional touches of perfection.

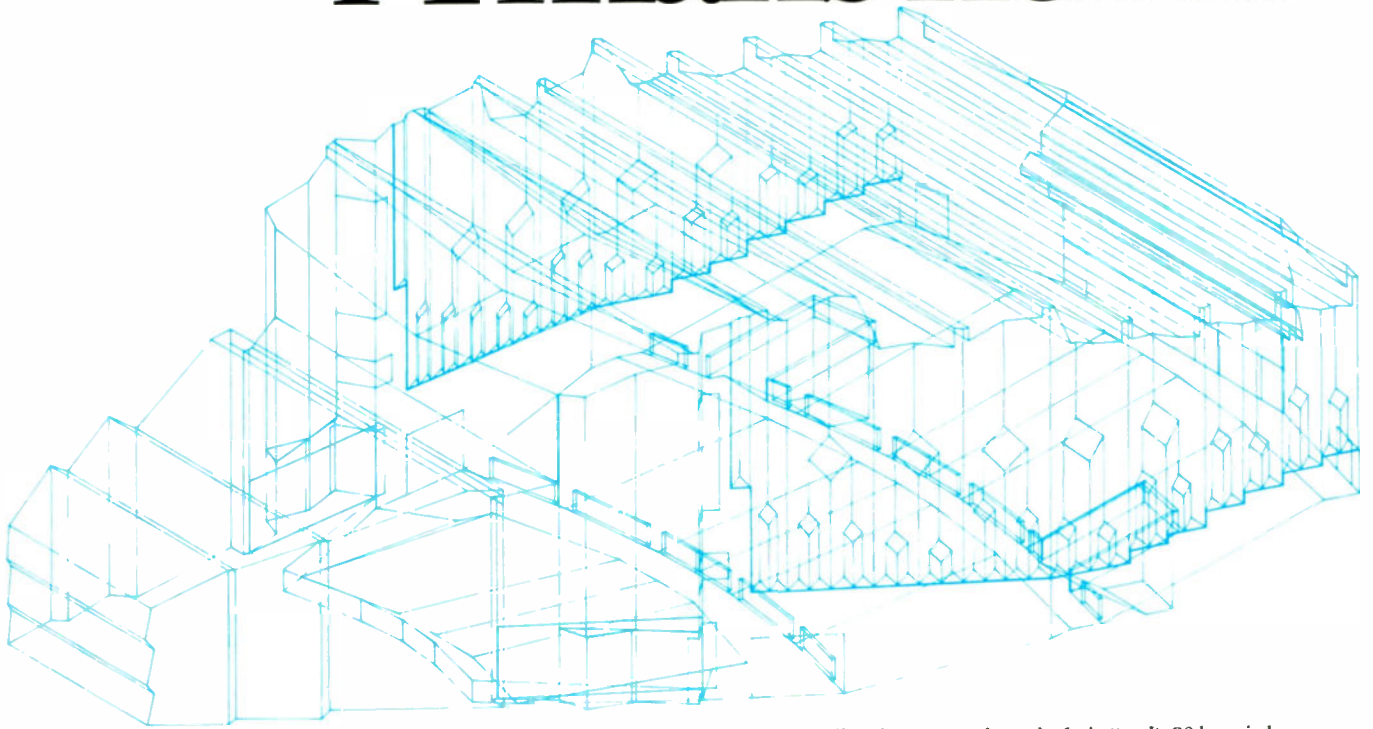
Simply put, the Powered Partners deliver the best sound you can carry. No surprise. They come from AR, the company that's been making speakers sound great for 32 years.

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A man's home is



The revolutionary Yamaha DSP-1 brings world-famous acoustical environments into your listening room at the push of a button. Its 30-key wireless remote control unit (below) features a two-line, 16-character backlit LCD that displays all program functions.

100

Imagine what
the next hundred years
will bring.

With the introduction of Yamaha's unique DSP-1 Digital Sound Field Processor, listening to recorded music at home is no longer the next best thing to being there.

Now it is being there. Quite literally.

The most significant advancement in acoustic realism since stereo, the new DSP-1 enables you to attend performances in the actual listening environments in which they were intended to be heard in the first place. Without even leaving your living room.

In twelve of the world's most famous sites, to be specific. Including three concert halls, a chamber, cathedral, church, outdoor stadium, jazz club, rock concert arena, warehouse loft, pavilion and disco.

Additionally, the DSP-1 offers a four-directional presence mode as well as three surround-sound systems: a large theater, a medium sized

theater and even digital delay Dolby® surround.

Previous analog "surround" processors simply produced the illusion of a sound field by altering the existing stereo signal.

The DSP-1, however, digitally reproduces the actual sound fields of the world's finest listening environments, without affecting the purity of the original source material.

Utilizing the Yamaha-developed four-microphone Single Point Quad sound field analysis technique, Yamaha engineers spent five years analyzing the acoustic architecture of the world's most noted performance facilities. Including echo patterns, reflective personalities and such data as timing, volume level and apparent source directionality.

This information was then programmed into the DSP-1's computer memory (ROM).

The frequency response and dynamic range characteristics from your stereo source material



It's his cathedral, church, disco, stadium

no longer his castle.

trigger the continuous release of this information, to precisely reproduce the acoustic personalities of selected performance environments.

The reproduction of this acoustic architecture in your home is made possible by the development of a proprietary Yamaha VLSI (very large scale integrated circuit), the YM-3804.

It calculates early sound reflections in real time based on the echo patterns stored in the DSP-1 memory—enabling accurate re-creations of these listening environments at the push of a button.

Each reflection is calculated using the very same sampling rate and quantization as compact discs (44.1 kHz, 16 bit linear), which produces an output with dynamic range of 94 dB and 0.006% THD—making audiophile quality digital sound field synthesis possible in your home for the very first time anywhere.

Every DSP-1 acoustic response pattern has several key response parameters you can actually alter to customize the size, shape and character of the home listening environment.

These include room size, liveness, initial delay time, high pass filter cutoff, low pass filter cutoff and reverberation time.

After modifying a program, you can then give it a name, and store it in one of the DSP-1's 16 RAM user memories.

In addition, it offers you 16 sound effector programs built in, including time-delay, stereo flange, tremolo, chorus, pitch change and auto panning. So the DSP-1 can also be utilized as a musical instrument effects device.

All its sound field modes and parameters

are controlled right from the palm of your hand, since the DSP-1 is operated by a 30-key wireless remote control. This allows you to select the performance environment and adjust parameters—even program them in the DSP-1's RAM memory, without sacrificing the perspective of your position. (Or getting you out of your favorite chair.)

Its large backlit LCD confirms all the mode selections and parameter readings as you make them. The remote control also lets you adjust the effect level and front/rear balance, and even give titles to those new modes you program.

The full benefits of Yamaha sound field synthesis are best experienced with four speakers, which are powered by the new Yamaha 4-channel M-35B power amplifier, in addition to the front stereo speaker pair, which are driven by your existing amplifier.

If desired, however, the front left and front right output may be combined with the existing main-channel speakers.

For our thorough White Paper on Yamaha digital sound field synthesis, please write us at the address shown below.

But mere words can never hope to convey the magnitude of this accomplishment. Visit an authorized Yamaha dealer today for a complete demonstration. And discover why stereo alone is now as outdated as living in a castle.

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



concert hall, jazz club, and theater.



B Y
R O B E R T
L O N G

WHAT'S IN A NAME BRAND?

YOU WOULDN'T BELIEVE SOME OF THE TAPE SAMPLES we've had submitted to us for testing over the years. I once received a small open reel on which there was a piece of tape not even long enough to measure a first down with (most companies wouldn't dream of sending less than 1,200 feet). As a first check, I put it on the deck and recorded a 1-kHz tone. The playback output level was fluctuating so violently that it was unmeasurable. There were more drop-outs than there was coating, as far as I could tell. Needless to say, we didn't bother testing any of that company's products for publication, and, as far as I know, it is no longer an active producer.

But many *worthy* producers have fared no better. Memorex and Kodak used to make very good open-reel audio tapes, but they couldn't get buyers to take them seriously, so they finally gave up. Kodak sold its factory to RCA, which at one time had had its own consumer tape brand—made I don't know where—and had planned to use the Kodak facility to manufacture cassettes for prerecording.

More recently, Kodak has returned to the consumer tape market, this time on the video side with Beta, VHS, and 8mm cassettes. Rumor assigns their origin to a major Japanese tape producer, and I see no reason to raise an eyebrow. That's by far the easiest way for a Kodak or a Polaroid or a Konica—to say nothing of a Kenwood or a Panasonic or even a Teac—to enter the blank magnetic-tape field, even if it plans to manufacture its own in due course. Remembering the failures of Kodak and Memorex open reels, other companies want to be sure they can sell their brand names before investing in their own tape production facilities.

Products made by one company under the brand name of another are known in the business as OEM products—OEM standing for "original equipment manufacturer." The OEM may also sell similar products under its own brand(s); this is the rule, in fact, for blank tape, though it isn't necessarily in other product categories. But when you suddenly see ads for what appear to be identical record cleaners or hair dryers or computer modems under a variety of brand names, you can be fairly sure that a single OEM is supplying these goods. What you can't be sure of is which brand name belongs to the supplier—or whether any of them does.

Conversely, it's possible that a look-alike product is the result of brand piracy. If you see tapes marked "Maxwell," "Sonny," "TBK," or "Scots," it's pretty obvious that somebody's trying to make you think you're buying a famous brand when you aren't. But sometimes the packaging of the look-alikes is so similar to brand-name tapes that it's almost impossible for even a forewarned recordist to tell the real from the fake—until recording begins. The quality of the magnetic coating and often of the tape slitting, if not the shell itself, usually is so poor in the forgeries that results are audibly below standard.

The major manufacturers have committed the

capital, done the research, and accumulated the know-how needed to deliver top-quality products. Others are simply making do with imprecise slitters, non-flat backing film, binders that don't hold very well, bottom-line magnetic particles, sloppy shell molding, nonrigid plastics, and the rest. And by failing in one or more of the technical prerequisites, they forfeit any opportunity for the sort of brand-name credibility and sales necessary to support the development of top-quality products.

Most of this is discussed with some regularity in the technical press. One point, however, is rarely addressed: the significance of the reference to bottom-line magnetic particles. One reason for the frequent similarity between competing formulations in the top brand lines is that those companies buy their magnetic particles from the same sources. Each powder may be further refined in some way by each tape manufacturer, but only six companies are responsible for supplying the bulk of the magnetic powders.

I wonder, for example, how many recordists know the name Pfizer in this connection? Yet—along with the pharmaceuticals for which it's famous—Pfizer makes ferric and ferricobalt powders. It currently produces 20 to 25 percent of the magnetic particles sold worldwide for audio and video tapes, even though there are some particle types it doesn't make at all. It is an important player in the game, yet its name is almost never mentioned in the box score.

Given the small circle of raw-materials suppliers, it's no wonder that competing tape manufacturers tend to come out with the same developments at about the same time. Just a couple of years ago, for example, TDK announced HX, the first Type 2 tape made from metal-alloy powder like that used in Type 4 tapes. Within a few months, several other manufacturers had similar tapes—and you can be sure that each didn't go the whole research-and-development route on its own.

This is not to say that the tape companies themselves—or, at least, the largest ones—haven't contributed important research. They have. Before Maxwell, TDK, and other companies found out how to tame cobalt's wayward behavior, for instance, it was doing as much mischief as good in tape coatings. And tapes of the same type from different manufacturers won't be the same simply because they're made from the powder of a common supplier. In addition to any further particle refinement, the powder must be processed into a slurry for even distribution over the surface of the backing tape. The adhesive that is added to keep the dried coating on the tape—as well as the number and nature of the coatings used—influences the tape's performance, as do any lubricants, the calendaring to smooth the recording surface, and so on.

So the differences between brands are real, but among major manufacturers and some of their OEM buyers, they're seldom huge—as they can be when you compare a major brand against the also-ran competition. ■

Digital Discrimination.

BECAUSE ALL CD'S ARE NOT CREATED EQUAL, THE NEW CARVER DTL-200 COMPACT DISC PLAYER IS INTRIGUINGLY DIFFERENT.

The Carver DTL-200 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.

The new remote control Carver DTL-200 represents the next logical evolutionary step towards marrying the awesome technology of digital playback with Bob Carver's commitment to the re-creation of the live performance. It embodies the latest digital/analog conversion circuitry with oversampling, sophisticated laser system and a wealth of operating features. And it possesses unique Carver circuitry that solves real-world sonic problems associated with commercial CDs.

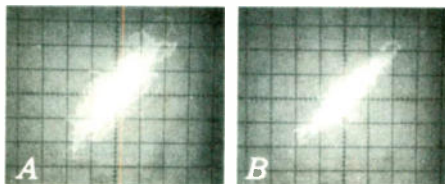
TIME DOMAIN CORRECTION. The Carver DTL-200 incorporates an important new computer logic innovation that monitors the incoming digital signal for imperfections and "glitches" caused in recording and production. Such errors are immune to conventional error-correction processes because they are actually data anomalies. Yet they can add overall harmonic distortion and cause audible changes in sound quality.

The DTL-200's Time Domain Correction circuit constantly performs a complex 25-bit digital calculation on passing data. This high-speed error correction algorithm, in conjunction with a 121-pole digital filter, terminates distortion-causing high harmonics as they occur in the bit stream. The result is frequency response within 1/1000 of a dB of the original, with significant reduction of distortion to less than 0.007%.

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 DTL-200 has the remarkable Digital Time Lens circuit to insure your listening enjoyment.

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 exten-

sive 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 400 Hz. 2) The amount of L-R signal (which carries the spatial 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. The difference is obvious in these two oscilloscope photos.



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 majority of even the most recently released CDs benefit significantly from the Digital Time Lens.

PACKED WITH USEFUL FEATURES. The Carver DTL-200 makes enjoying Compact Discs a simple exercise in button pushing from your favorite listening chair. You can program any combination of up to twelve tracks from a single CD, repeat a specific track or a whole Compact Disc for uninterrupted enjoyment.

Along with the ability to skip forward or backwards song-by-song, a touch of a key allows you to audibly review a disc backwards or forwards at many times normal speed. An A-B Specific Phrase Repeat lets you carefully analyze one section of a performance or simply provide a point of reference in a long, un-indexed symphonic movement.

All functions are displayed on an easy-to-read but subtle LCD display including programming sequence, current selection number, individual and total playing times plus indexing cues.

HEAR THE CARVER DIGITAL DIFFERENCE.

Just as all CD's are not created equal, neither are Compact Disc Players. Of all the models currently available, only the new DTL-200 (and DTL-50) have the innovative and exacting Bob Carver touches that can substantially enhance your enjoyment of the digital medium.

Audition the new DTL-200 today at your Carver dealer, using a variety of discs. You will be surprised at how audibly it can improve on what is already the best playback medium ever offered.

SPECIFICATIONS: Frequency Response: 5Hz-20kHz 0dB
+0.7dB Total Harmonic Distortion: 0.007% S/N: 100dB Channel Separation: 90dB • 1kHz Dynamic Range: 96dB Wow & Flutter: unmeasurable Programming: 12 track remote and manual



CARVER

PO Box 1237 Lynnwood WA 98046

POWERFUL.

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ACCURATE.

Distributed in Canada by **evolution technology**

Dynamically Different.

THE CARVER M-500t MAGNETIC FIELD POWER AMPLIFIER LEADS AN INDUSTRY TREND TOWARDS MORE USEFUL DYNAMIC POWER FOR MUSIC... AND YET STAYS WELL AHEAD OF ITS INSPIRED IMITATORS.

With its astonishingly high voltage/high output current and exclusive operation features, the M-500t sets standards yet unequalled in the audio community. A conservative FTC sine wave output of 251 watts per channel belies its incredible ability to satisfy peak musical transients demanding far more power. In fact, the M-500t provides more power, more current and more voltage than any comparably priced amplifier ever offered.

POWER EXPRESSED BY THE DEMANDS OF MUSIC. The Carver M-500t responds to musical transients with 600 to 1000 watts of dynamic power, depending on speaker impedance. The gulf between FTC and dynamic power ratings reflects Bob Carver's insistence that amplifier design should fit the problem at hand: The need to reproduce music with instantaneous, stunning impact.

The individual leading edge attack of each musical note lasts less than 1/1000 of a second, yet forms the keen edge of musical reality which must be present if true high fidelity is to be realized. It is especially necessary with the increased dynamic capabilities of Compact Discs and video Hi-Fi. In ordinary amplifier designs, the vast amounts of power required is provided by bulky, expensive power supplies and huge output transformers.

THE MAGNETIC FIELD AMPLIFIER SOLUTION. Rather than increase cost, size and heat output with massive storage circuits, Magnetic

Field Amplification delivers instantaneous high peak and long-term power from a six-pound, four-ounce Magnetic Field Coil. Shown below are the 40-pound toroid coils from a pair of \$7000 esoteric power amplifiers. In front of them is the M-500t's Magnetic Field Coil capable of delivering TWICE the output current (± 100 amperes at 10% regulation!) for exceptionally precise control of voice coil motion.



Thus Carver's remarkable, patented design not only lets you enjoy the stunning sonic benefits of simultaneous high current and voltage in a compact, cool-running component, but enables you to afford audiophile-level power as well.

POWER WITH FINESSE. While the M-500t isn't the only amplifier with aggressive output capabilities, it is one of the few that tempers brute power with sophisticated protection circuits beneficial to both the amplifier and your loudspeaker system. These include DC offset, short circuit and power interrupt systems, as well as two special computer-controlled speaker monitor circuits which protect against excessive high frequency tweeter input and overall voice coil thermal overload.

Output is continuously monitored through dual lighted infinite-resolution VU-ballistic meters

which can react to musical transients as brief as 1 millisecond.

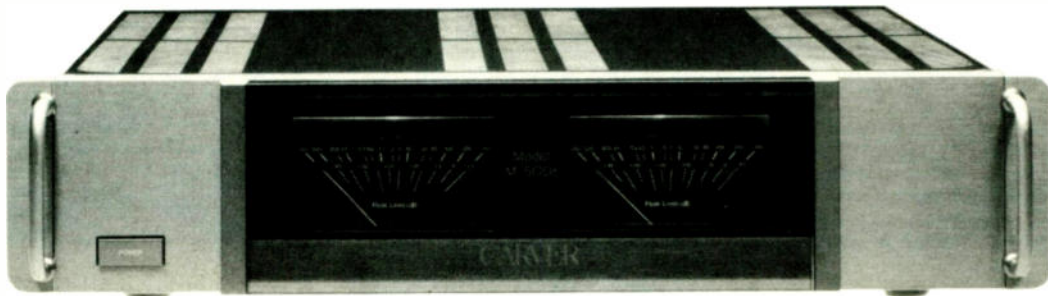
In addition, the M-500t's lack of external fan noise is complimented by internal circuitry with the best signal-to-noise ratio of any production amplifier: Better than 120dB. And, unlike any other amplifier in its price or power ranges, the M-500t is capable of handling problematic speaker loads as low as 1 ohm. It may also be used in a bridged mode as a 700 watt RMS per channel mono amplifier without any switching or modification.

MUSIC IS THE FINAL PROOF. Specifications aside, final judgment of any amplifier must be based on musicality.

Bob Carver has carefully designed the M-500t with a completely neutral signal path that is utterly transparent in sonic character, resulting in a total lack of listener fatigue caused by subtle colorations exhibited by many other amplifiers, regardless of their power rating. A veil will be lifted between you and your musical source as the most detailed nuances are revealed and delivered with proper impact.

We invite you to audition the M-500t at your nearest Carver dealer soon. Against any and all competition. We believe that you will be pleasantly surprised at just how affordable this much power, musicality and accuracy can be.

SPECIFICATIONS: POWER, 251 watts/channel into 8 ohms 20Hz to 20 kHz, both channels driven with no more than 0.15% THD. Instantaneous Peak power, 1000 watts into 2 ohms 950 watts into 4 ohms 600 watts into 8 ohms 1000 watts into 2 ohms 950 watts into 4 ohms 600 watts into 8 ohms Long Term Sustained RMS power, 500 into 2 ohms 450 into 4 ohms 300 into 8 ohms 1000 watts bridged mono into 4 ohms 900 watts bridged mono into 8 ohms Bridged Mono RMS Continuous Power, 700 watt; continuous into 8 ohms Noise, 120dB/1HF A-weighted Weight, 25 lbs



CARVER PO Box 1277 Lynnwood WA 98046

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In an issue with a decided emphasis on tape technology, it's only proper that our test reports feature cassette decks. From the bottom we have the B&O Beocord 5500, Akai's GX-8, and the Onkyo TA-2058.

Report preparation supervised by Michael Riggs, David Ranada, Christopher J. Esse, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise indicated) is supplied by Diversified Science Laboratories.





Once again, AR reshapes the future of high fidelity.

No longer do you need to live with components that look more at home in a power station than in your home. No longer need you sacrifice sound quality for some semblance of sound design.

AR, the company that revolutionized loudspeakers with the Acoustic Suspension design, now changes the face of stereo components forever. By combining world-class industrial and electronic design, AR has produced the first audio components as pleasing to the eye as they are to the ear.

The front fascias are gracefully angled, so controls fall readily to hand. Behind a hinged panel, infrequently-used controls are ready when you need them, out of sight when you don't.

AR has reexamined the factors that

really matter to sound quality. That's why AR amplifiers produce high current output for outstanding dynamic headroom. Four-times oversampling gives the AR Compact Disc player absolute phase linearity. And AR's unified remote control adds a final touch of elegance.

No one serious about stereo would buy equipment without listening. Now it's no longer necessary to buy without looking.

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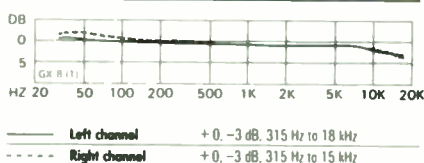
We speak from experience.



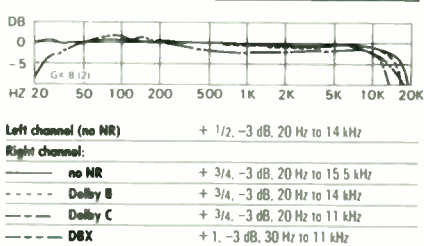
Akai GX-8 Cassette Deck



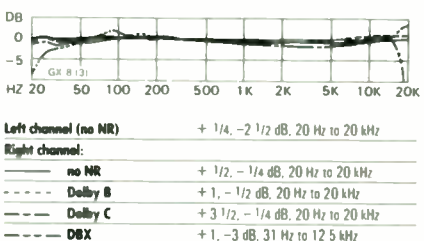
PLAYBACK RESPONSE (BASF test tape; -20 dB DIM)



RECORD/PLAY RESPONSE, TYPE 2 TAPE (-20 dB)



RECORD/PLAY RESPONSE, TYPE 4 TAPE (-20 dB)



DIMENSIONS: 17 1/4 BY 4 1/4 INCHES (FRONT), 13 INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. PRICE: \$570. WARRANTY: "LIMITED," ONE YEAR PARTS AND LABOR. MANUFACTURER: AKAI ELECTRIC COMPANY, LTD., JAPAN; U.S. DISTRIBUTOR: AKAI DIV., MITSUBISHI ELECTRIC SALES AMERICA, INC., 225 OLD NEW BRUNSWICK RD., PISCATAWAY, N.J. 08854

THE THREE-HEAD GX-8 IS, IN A SENSE, THE flagship model of Akai's current cassette deck line, having been designed specifically with the "digital ready" audiophile in mind. For that reason, it employs some esoteric technology while retaining an array of the convenience features most likely to be useful to the serious recordist.

Among the esoterica—designed, according to Akai, for their ability to replicate the subtle detail of digital recordings with ultimate faithfulness—are the most advanced of Akai's Super GX glass-and-crystal ferrite heads. They, and the wiring for internal connections, use what is described as linear-crystal oxygen-free copper, whose chemical and structural purity is said to promote utmost waveform purity. A newly developed Dolby IC (integrated circuit), intended specifically for three-head machines, is said to offer perceptibly better Dolby tracking than its predecessors.

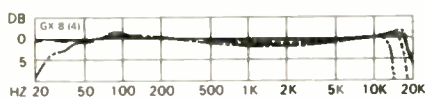
As for features, there are the inevitable timer modes, for playback as well as recording. Almost as inevitable in this class of deck is a system to seek out the next or previous four-second blank between selections (Akai calls it I.P.L.S. for Instant Program Locating System) and an AUTO MUTE to create appropriate blanks. There's also INTRO SCAN,

which samples the first ten seconds of each selection in order, and AUTO PLAY: If you press REWIND and PLAY simultaneously, the deck will begin playback automatically when it reaches the head of the tape. REC CANCEL interrupts a botched recording, rewinds to the point at which it began, and recues the tape in the recording-pause mode, ready for you to start over.

The tape counter offers three modes: regular operation (that is, using arbitrary "turns counting" numbers); elapsed time from the beginning of the tape or the last counter reset; and time remaining on the cassette side. For this last mode, the deck automatically determines the length of the tape in the transport. While this is going on, it flashes its options (C-90, C-60, C-46) in turn. When it has determined which best matches the cassette, it switches over to the time-remaining display, which (as the manual points out) can be less than absolutely accurate but is very useful nonetheless.

You can enter recording-pause at the press of a single button and then start recording by pressing PLAY. If playback already is in progress, you can push PLAY and RECORD simultaneously for a "flying start," with new material overwriting the old. When you start the transport in either recording or playback, monitoring automatically switches to tape, though this can be overridden manually. There are two level knobs: one that raises or lowers both channels together—and thus can be used for fades—and one that adjusts balance. There's also an output level adjustment that affects both the line jacks and the front-panel headphone jack.

RECORD/PLAY RESPONSE, TYPE 1 TAPE (-20 dB)

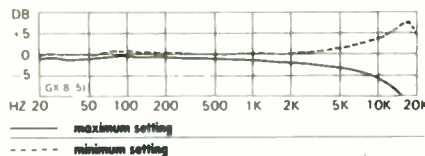


Left channel (no NR) +1 1/4, -3 dB, 20 Hz to 19.5 kHz

Right channel:

- no NR +1, -3 dB, 20 Hz to 19 kHz
- Dolby B +3/4, -3 dB, 20 Hz to 17 kHz
- Dolby C +2, -3 dB, 20 Hz to 19 kHz
- DBX +1 1/4, -3 dB, 32 Hz to 13 kHz

BIAS ADJUSTMENT RANGE (-20 dB; Type 1 tape)



MULTIPLY FILTER (defeatable)

-1 dB at 15 kHz, -47 3/4 dB at 19 kHz

S/N RATIO (re DIN 0 dB; R/P; A-weighted)

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	57 3/4 dB	55 1/2 dB	53 3/4 dB
Dolby B	65 1/4 dB	64 dB	62 3/4 dB
Dolby C	71 1/2 dB	70 dB	68 3/4 dB
DBX	77 dB	75 1/2 dB	76 3/4 dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	+1 dB (with 1.7% THD)
Type 4 tape	-1 dB (with 0.96% THD)
Type 1 tape	+1 dB (with 0.58% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	+4 dB (for +2.1 dB DIN)
Type 4 tape	+4 dB (for +4.1 dB DIN)
Type 1 tape	+4 dB (for +4.0 dB DIN)

DISTORTION (THD or -10 dB DIN; 50 Hz to 5 kHz)

Type 2 tape	≤ 0.69%
Type 4 tape	≤ 0.41%
Type 1 tape	≤ 0.40%

ERASURE (at 100 Hz)

	≥ 60 1/4 dB
--	-------------

CHANNEL SEPARATION (at 315 Hz)

	42 1/2 dB
--	-----------

INDICATOR "BALLISTICS"

Response time	2.2 msec
Decay time (normal display mode)	≈ 380 msec
Overshoot	0 dB

SPEED ACCURACY (105 to 127 VAC)

	0.3% fast
--	-----------

FLUTTER (ANSI weighted peak; R/P)

	± 0.09%
--	---------

SENSITIVITY (re DIN 0 dB; 315 Hz)

	130 mV
--	--------

INPUT OVERLOAD (at 1 kHz)

	> 10 volts
--	------------

INPUT IMPEDANCE

	50k ohms
--	----------

OUTPUT IMPEDANCE

	85 ohms
--	---------

MAXIMUM OUTPUT (from DIN 0 dB)

	0.62 volt
--	-----------

tuning knob permits variation of as much as 20 percent in either direction from its normal, center-detented setting.

According to the owner's manual (which is several cuts above average despite some Sesame Street touches that seem out of place for a serious deck), the reference tapes are TDK SA ferricobalt for Type 2 ("chrome"), TDK MA for Type 4 (metal), and Maxell UD for Type 1 ("normal" ferric). UD is obsolete in Maxell's U.S. line, so Diversified Science Laboratories used UDS-1 as the presumed current equivalent. And although Akai specifies C-60 lengths (which can provide somewhat better performance under some conditions), the tests followed our standard practice of using C-90s as the length most likely to be used by American recordists.

To adjust for any difference in bias requirement between UD and UDS-1 (or, for that matter, between different vintages of SA or MA), you might want to tweak the bias tuning away from the detent. Our standard practice is to do so when the deck provides a way of determining the optimum adjustment point. Like many other models we've tested, the GX-8 leaves that to the ear of the beholder, however. The manual tells you to rotate the knob until the tape sounds like the source, flipping the deck's monitor switch between the two while the recording is in progress. In such cases, the lab leaves the control at its "normal" setting, and it did so here. At home, this adjustment is best done with pink noise from a CD test disc or with FM interstation hiss (recorded at about -20 dB to prevent high-frequency saturation).

As the record/play response curves suggest, the detented setting may have supplied slightly less than optimum bias for the Type 1 tape and significantly more than is ideal for the lab's vintage (spring 1984) of the Type 2. Both curves could have been flattened somewhat by fine-tuning the bias. Thanks possibly to the new Dolby chips, noise reduction tracking is mostly excellent, and high-frequency headroom is better than average. (The 0-dB curve with the Type 4 tape is almost as extended as that shown at -20 dB with Type 2.)

Without an excellent azimuth match between the recording- and playback-head gaps, the extended high-frequency response shown for the Type 4 and Type 1 tapes could not have been achieved. But the azimuth agreement between our sample's playback head and the lab's BASF test tape was not equally good, and the top end of the playback-only response curve suffers somewhat as a result. This effect aside, the playback response is unusually flat, and it extends further down into the deep bass than usual.

The metering is divided into 16 steps (in addition to minus-infinity, which always is lit while the deck is on), calibrated from -40 to +12 and showing 1-dB steps in the range between -2 and +4 dB—all relative to the deck's own 0-dB calibration, which is fairly close to DIN 0 dB, depending on which tape

type you're using. The 0-dB calibration changes, presumably to compensate for differences in headroom; overload occurred at +4 dB on the meters with all three test tapes. This is a midrange measurement, however, and it doesn't address differences at the top end.

However, the metering evidently does account for at least some of those differences. The display includes a line of dots to suggest the useful dynamic range for the tape type actually inserted in the transport. These lines extend to +6 dB for Type 4, to +4 dB for Type 2, and to +2 dB for Type 1. These can be taken only as rough guidelines, however; the difference in recording equalization may permit a premium Type 1 ferric to outpoint a Type 2 ferricobalt at high frequencies even though the Type 2 may do better in the midrange, as it does (by 2 dB) here.

The gradation of the display (apart from the arbitrary and confusing insertion of a "0 VU" at about -3 dB, giving the scale two different zeroes—a point that bothered us when we tested the GX-9 a year ago) is well chosen, as are the meters' time constants. In addition to the normal decay shown in our data column, there's a peak-hold function that retains for about one second the top-most element lit by any passing signal reaching above -10 dB. All in all, we consider the metering to be distinctly better than average and one of the GX-8's highlights.

Mechanically, the deck also behaves very well—thanks, in particular, to its dual-capstan closed-loop drive. There actually are three motors. One opens and closes the transport door (when you press STOP/EJECT in the transport control group) and positions the headblock. Another powers the hub drives for takeup and braking. The third motor, controlled by a quartz-lock servo circuit, powers the two capstans. A slight disparity in their diameters creates the needed tape tension across the heads and helps isolate the "in use" part of the tape from sources of scrape flutter. The capstans' design gives them different mechanical resonances to prevent cumulative reinforcement effects and probably contributes to the low flutter figure measured by the lab.

In the main, the GX-8 is the most satisfyingly no-nonsense deck we've reviewed from Akai in some time. It should appeal in particular to precisely the sort of serious user the company says it was addressing in the design. For such purposes, we regret the absence of some form of aid to verify proper bias trimming, which would extend the range of tapes for which it could be quickly and accurately adjusted, and we see little point in the power door over the transport, which the instructions say can be broken if you try to work it manually. Otherwise, it is a very good performer in almost all respects, providing a well-integrated complement of features and controls and capable of making excellent tapes with any (or none) of three noise reduction systems. ■▶



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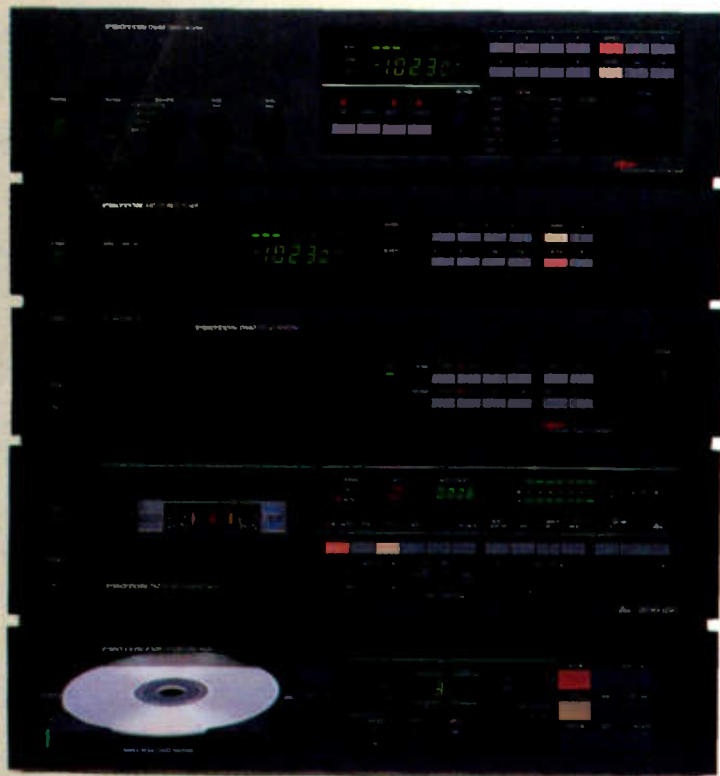
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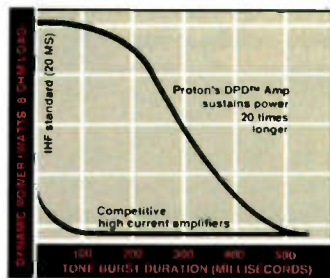
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Live music is the complex interaction of direct and reflected sound. Most speakers, however, are not designed with this in mind—which is why they sound more like speakers and less like music.

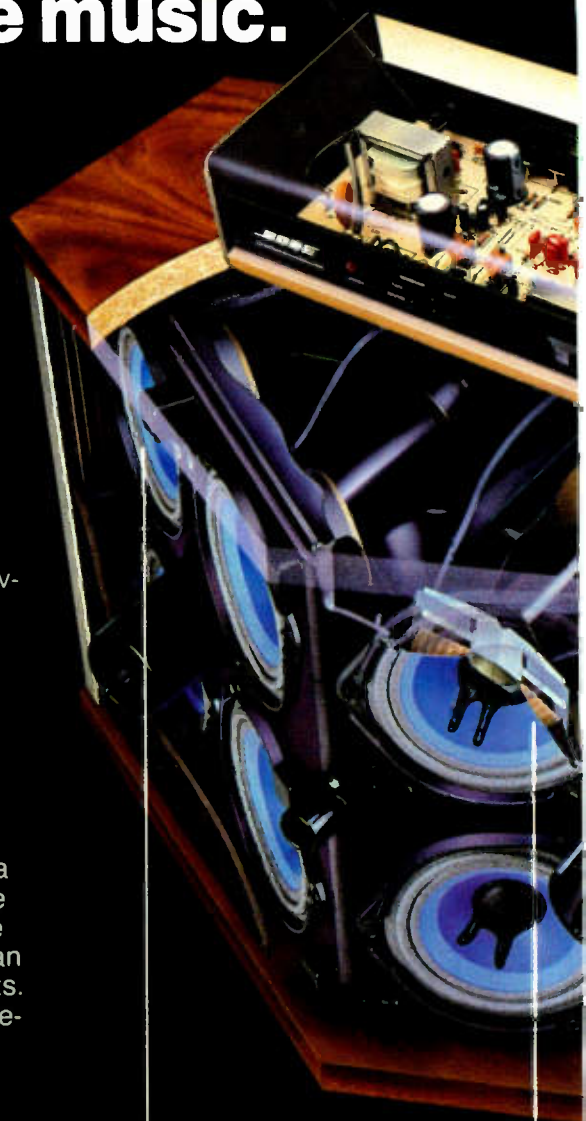
This was the conclusion reached years ago by a Massachusetts Institute of Technology research team led by Dr. Amar G. Bose. Through extensive research, his team discovered the secret of live music: that it is the precise balance of direct and reflected sound heard during live performances that makes live music sound live. Finally, they designed a product that could put this discovery to work in the living room: the Bose 901 Direct/Reflecting® system.

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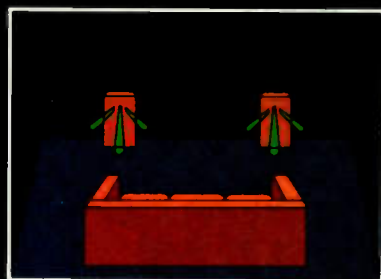
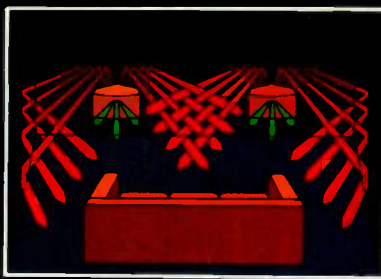
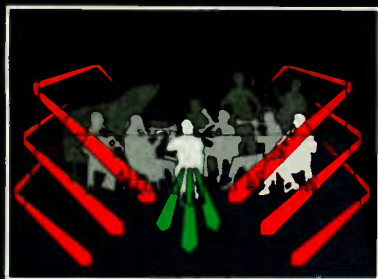


The Bose 901 system's Direct/Reflecting® speaker design turns your listening room into part of your stereo system. You'll hear full stereo throughout the listening environment—no matter where you sit or stand.



The 901 system's nine full-range HVC drivers are precisely arranged to re-create live music's natural balance of direct and reflected sound. Each driver is matched and tested by the Bose Syncom® II computer.

The Bose-built HVC driver is made out of some of the strongest advanced composite materials available. The heart of the driver is the Helical Voice Coil, which handles instantaneous peaks of up to 4,000 watts! Multiple HVC drivers give the 901 system unlimited power handling in home applications.



In the concert hall (above left), listeners hear a complex mixture of direct and reflected sounds, arriving from different directions and at different times. Bose Direct/Reflecting® speakers (center) are designed to reproduce music in much the same manner, allowing listeners to hear greater realism and impact. Conventional speakers (above right), on the other hand, reproduce primarily direct sound, causing listeners to miss many of the critical acoustic cues that make live music sound live.

ments over the original. The speaker's innovative audio technology turns your listening room into an essential part of your stereo system. The 901 system works by reflecting most of its sound, instead of aiming all the sound toward you like a conventional speaker. So, anything you listen to over a 901 system picks up a strong sense of concert hall realism, because the system is capable of reproducing the concert hall's natural balance of direct and reflected sound.

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There is an entire line of Bose speakers that incorporates much of the advanced technology developed for the 901 system. For more information and an all-product brochure, write Bose Corporation, Dept HF, 10 Speen Street, Framingham, MA 01701.

When you write for information, be sure to request a copy of Dr. Amar Bose's *Sound Recording and Reproduction*. This paper describes the research effort behind the original Bose 901 system.

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The Acoustic Matrix™ enclosure helps the 901 system control sound by precisely controlling air. Made up of 14 separate acoustic regions, it isolates the drivers and regulates internal air flow, resulting in increased bass and lower distortion.

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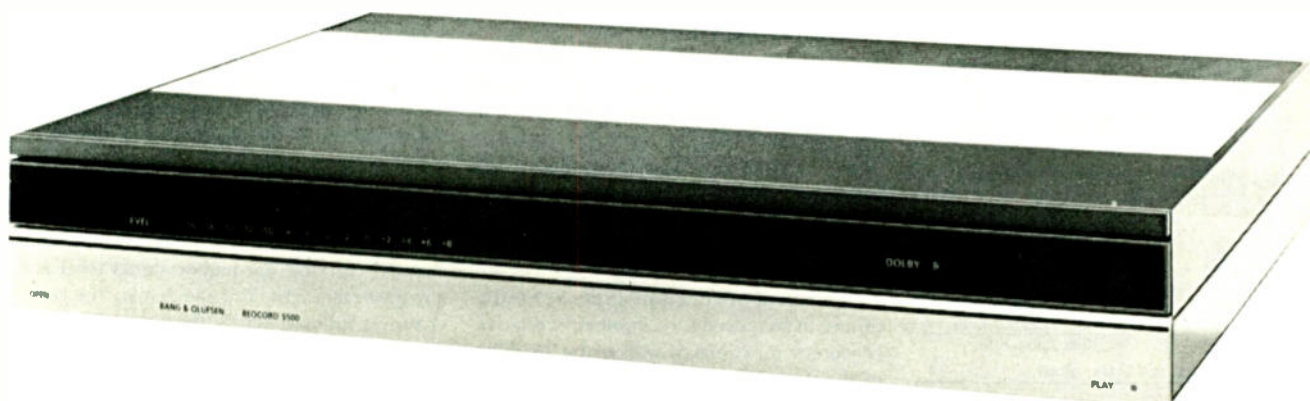
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B&O Beocord 5500 Cassette Deck



DIMENSIONS: 16½ BY 3 INCHES (FRONT), 13 INCHES DEEP PLUS CLEARANCE FOR DRAWER AT FRONT. **PRICE:** \$899. **WARRANTY:** "LIMITED," ONE YEAR PARTS AND LABOR. **MANUFACTURER:** BANG & OLUFSEN, DENMARK; U.S. DISTRIBUTOR: BANG & OLUFSEN OF AMERICA, INC., 1150 FEEHANVILLE DR., MT. PROSPECT, ILL. 60056.

SCANDINAVIAN HIGH FIDELITY COMPANIES have traditionally gone their own way, unperturbed by what "everyone" is doing, and Bang & Olufsen is by no means the least individualistic among them. By contrast to the Japanese companies that produce the large majority of high-performance components, B&O designs for a very different sort of user: one who places a high priority on good sound and on top-quality industrial design (as an art form, even, as witness the B&O collection owned by the Museum of Modern Art in New York), but who cares little for technology per se.

In fact, B&O's aim appears to be that of using technology to hide technology, on the premise that its customers don't want to have to think or fuss in order to enjoy music. It lets the equipment do the thinking and the fussing for them, which, paradoxically, makes for even greater technical sophistication of the innards than if more functions were left to the user.

The Beocord 5500 is designed primarily to function as part of the Beosystem 5500, rather than as a free-standing component deck, and therefore has DIN multipin connectors instead of the usual pin jacks. Diversified Science Laboratories made its measurements with the aid of adapters; for the listening tests, we used the deck with a Beomaster 5500 receiver and matching wireless remote control. In the latter setup, control is

not much more convenient via the Beomaster than with the controls on the Beocord itself (though the ability to run the deck from your easy chair is a definite plus), but most users will prefer the appearance and hookup logic of an integrated B&O system to what we'd call mix and mismatch.

The deck (like the matching receiver) is broad and low, with a display panel running across the upper half of the front panel and a venting grille along the back edge of the top panel. On the receiver, this grille is hinged to permit access to the input and output jacks, which include both DIN and pin options, with the cables feeding out through openings at the back. The deck, however, has an attached umbilical terminating in a seven-pin DIN connector, which carries both the audio signals and the control codes relayed by the receiver from the remote.

When you first address the deck, there are only two accessible controls. Pressing the lower right corner of the front panel begins playback of any tape that has been left in the transport. Pressing the lower left corner reveals that the front section of the deck is a powered drawer that slides out for access to the transport well and the other controls, most of which duplicate functions available on the 5500 remote. The main exception is a switch just to the left of the well, selecting input as **LINE** (the source connected to the umbilical), **AUX** (a separate line input, at the deck), or **MIKE**—the latter two feeding in at a five-pin DIN jack next to the switch. (The microphone input is mono, by the way, which is probably how most home recordists prefer to work on those rare occasions when they use a mike at all.)

The standard operating modes give bidirectional tape drive and automatic setting of bias, equalization, and recording level. The bias and EQ are adjusted solely on the basis of the keyway coding built into the cassette shell, but you can override the deck's other choices manually.

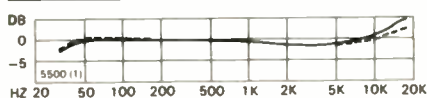
To change the transport mode, you step through a sequence that goes from automatic reverse from Side 1 to Side 2 (the default) to no reverse to reversing from 2 to 1 to no reverse to, finally, the original autoreverse setting. These options work in recording as well as playback. The turnaround loses only about one second of the music, since reversing takes place before the leader has arrived at the heads. You can switch directions manually at any point during playback by pressing **TURN**. This doesn't work during recording, which may avoid some accidents but also prevents you from choosing a graceful, quick turnover point in continuous music.

The transport status is indicated by two numbers (the one for the current side flashes) and an arrowhead that points to the number for the upcoming side when reversing is enabled. This rather unusual system has the advantage of maintaining the same reversing operation for recording and playback (thus avoiding confusion) while preventing the deck from automatically going back and starting to erase the first side of a tape when your recording reaches the end of the second side. The disadvantage for parties and such is that there is no continuous-reversing playback option, though there is one to play a tape (or just one side) twice in succession.

The deck indicates recording level in two

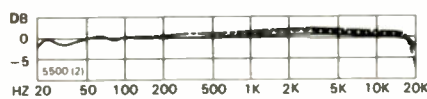
All data shown were measured in the forward transport direction and, where appropriate, with manual level adjustment

PLAYBACK RESPONSE (BASF test tape; -20 dB DIN)



Left channel +3, -1 1/2 dB, 315 Hz to 14 kHz
 Right channel +2 1/4, -1 3/4 dB, 315 Hz to 18 kHz

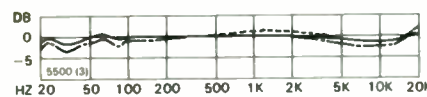
RECORD/PLAY RESPONSE, TYPE 2 TAPE (-20 dB)



Left channel (no NR) + 1/2, -2 dB, 20 Hz to 20 kHz

Right channel:
 no NR + 3/4, -3 dB, 20 Hz to 20 kHz
 Dolby B +1 3/4, -3 dB, 20 Hz to 20 kHz
 Dolby C +2, -3 dB, 20 Hz to 20 kHz

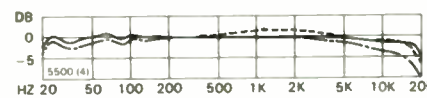
RECORD/PLAY RESPONSE, TYPE 4 TAPE (-20 dB)



Left channel (no NR) ±2 dB, 20 Hz to 20 kHz

Right channel:
 no NR + 1/4, -2 dB, 20 Hz to 20 kHz
 Dolby B +1 1/4, -2 dB, 20 Hz to 19 kHz
 Dolby C +2, -3 dB, 21 Hz to 20 kHz

RECORD/PLAY RESPONSE, TYPE 1 TAPE (-20 dB)



Left channel (no NR) + 1/2, -1/2 dB, 20 Hz to 20 kHz

Right channel:
 no NR +0, -3 dB, 20 Hz to 19 kHz
 Dolby B +1 1/2, -3 dB, 20 Hz to 17.5 kHz
 Dolby C +0, -3 dB, 21 Hz to 8 kHz

S/N RATIO (re DIN 0 dB; R/P; A-weighted)

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	56 3/4 dB	54 3/4 dB	51 1/4 dB
Dolby B	65 3/4 dB	64 dB	60 3/4 dB
Dolby C	70 dB	68 dB	65 dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	0 dB (with 1.6% THD)
Type 4 tape	0 dB (with 1.3% THD)
Type 1 tape	0 dB (with 0.82% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz; see text)

Type 2 tape	+2 dB (for +1.8 dB DIN)
Type 4 tape	+2 dB (for +2.3 dB DIN)
Type 1 tape	+2 dB (for +3.2 dB DIN)

DISTORTION (THD at -10 dB DIN; 50 Hz to 5 kHz)

Type 2 tape	≤ 1.2%
Type 4 tape	≤ 0.65%
Type 1 tape	≤ 0.66%

ERASURE (at 100 Hz)

Type 2 tape	74 dB
Type 4 tape	54 3/4 dB

CHANNEL SEPARATION (at 315 Hz)

	46 3/4 dB
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INDICATOR "BALLISTICS"

see text

SPEED ACCURACY (105 to 127 VAC)

0.6% slow

FLUTTER (ANSI weighted peak; R/P)

±0.47%

SENSITIVITY (re DIN 0 dB; 315 Hz)

line input	105 mV
micro input	see text

INPUT OVERLOAD (at 1 kHz; see text)

> 5 volts

INPUT IMPEDANCE (see text)

≈ 65k ohms

OUTPUT IMPEDANCE (see text)

≈ 1,100 ohms

OUTPUT LEVEL (from DIN 0 dB)

0.83 volt

ways: a display of instantaneous signal voltages, in the usual fashion, or a single-cursor display of the gain setting itself. The display has 15 2-dB steps, so there is a range of about 30 dB over which recording-level adjustments can be made. If you try to push above this range manually, nothing happens; and if you try to pull down below it, the signal simply gets cut off. Standard controls normally yield a greater range with finer gradations, but they have no significantly greater utility for most purposes.

Two characteristics of the automatic recording function are user-adjustable as well. One is the level at which the circuitry begins its search for the optimum, which can be reset by simultaneously pressing STOP and a button marked PPM (peak program meter, which we'll explain in due course), then tapping the manual up or down key until you reach the desired setting. You can also adjust the "ceiling" under which the automatic adjustment keeps the signal by pressing STOP and RECORDING LEVEL, then the up or down key.

This kind of coded multiple-key initiation is, in fact, used for a number of relatively esoteric functions. It adds to the flexibility of the deck without adding controls, and it makes accidental readjustment of these functions far less likely. On the other hand, recordists used to more conventional gear simply *must* study the owner's manual if they're to exploit the 5500's full potential. If you come at its intricacies with preconceptions (as we must admit we did at times), you're sure to get some confusing surprises.

One is that you can't make a recording stop instantaneously. If you want to piece together an LP side-break in continuous music (say, a Wagner opera)—which admittedly is a rare problem—you must stop the deck, recue to the end of what you've just recorded, go into the recording-pause mode, and continue from there with the additional music. When you press STOP, the deck continues recording, with no signal, for 3 1/2 seconds to create an interselection blank. You can alter the length of the blank by pressing the button a second time; the transport will stop when you release the button. But the fastest possible stop requires two quick taps and records a blank of the duration between them.

More troublesome, if you are using the 5500 outside of a Beosystem, is the want of output from the deck whenever it's recording, particularly during an operation like the cueing just described. Most decks will put out some signal—the source in a two-head deck, either it or the signal from the tape in a three-head model. The 5500 simply mutes, requiring you to switch the monitor back to SOURCE elsewhere in your system in order to pick up your cues. With the Beosystem remote, this process seems more logical than it may with non-B&O ancillaries. But again, it is the *presumption* of a different behavior pattern that most takes aback an unwarned operator.

Some of the novelty is welcome, howev-

er. We most admire the way the 5500 records a code to note which noise reduction option (Dolby B or C, or neither) was in use when you made the tape. The deck automatically switches to the appropriate choice when playing such a tape, though you can override its selection at any time simply by pressing the Dolby button to step through the three options.

There also is a seek function that works rather like that on a Compact Disc player: You tap RETURN or ADVANCE however many times you want, and the deck will skip the corresponding number of interselection blanks backward or forward on the tape. To aid in this process, you can press DISPLAY to convert the metering to a track number display. (And if you have the Beosystem remote, you can use its keypad section to select individual tracks by number.) You can also memorize an index spot (MEMO SET) on the tape and return to it at will (MEMO GO).

The meter display has only a single row of elements, which normally represents the channel carrying the higher signal level at any given moment. You can display the two channels independently (by holding down STOP while you touch the fast-wind and then the rewind button); but if the balance is incorrect, the Beocord gives you no way of adjusting it. The scale runs from -20 to +8 dB, in 2-dB increments all the way.

The PPM function strikes us as curious. It will display (indefinitely, unless you press again the recording button with which you started the tape) the maximum level encountered so far in a recording in progress—or, once the tape has stopped in recording-pause, in the previous recording. It thus will tell you whether the automatic level-setting system goofed (which it never did during our tests) or whether you did—but only after the fact. You can't use it to determine the maximum level in your source before you begin running the tape.

As in other B&O decks, the metering evidently comes after the recording EQ, so that it is more sensitive to extreme highs and lows than it is to the midrange—to a degree that is roughly reciprocal to typical tape overload curves. This has the very important advantage, particularly for inexperienced recordists, of displaying all signal components approximately as far below (or above) the meter's overload point as they are with respect to the tape's.

The actual meter behavior proved impossible to test by the lab's normal methods: using 5-kHz pulses, to which the display responded too erratically for quantification. Suffice it to say that (the peak hold aside) response is not sluggish; decay following a transient appears to be, if anything, a trifle brisker than usual. By no coincidence, surely, the 3-percent distortion levels fall right at the point on the meters where the factory presets the automatic-level ceiling: +2 dB, which also is +2 dB DIN. (Actually, that for the Type 1 tape is just about on the threshold of the +4-dB meter element, which

would light if the tone were sustained for a few seconds.)

Distortion at -10 dB, especially with the Type 2 tape, is somewhat higher than usual, but it is not seriously out of line for a cassette deck. Overload proved difficult to evaluate because of the deck's rather odd overall behavior in this respect. As input approaches 5 volts at the line input (and presumably the aux, which measures substantially the same), it creates typical signs of tape overload. Above about $5\frac{1}{2}$ volts, however, electronic overload is apparent, with spikes in the waveform driving distortion up sharply. But at normal input and recording levels, this shouldn't be a limiting factor.

These measurements and several others (notably, those for input and output impedances) were rendered more difficult and marginally less accurate than normal by the lack of any output during recording. All measurements had to be made by playing a tape, whose output voltage is never as rock-steady as that of a test oscillator. Microphone-input sensitivity, among the least precise of the measurements, comes in at approximately 78 microvolts.

None of these specifics represents worrisome performance. We're constrained to call attention to them only to make sure you understand that the deck's unusual design prevents the lab from maintaining its characteristic precision in all categories, thus to some extent compromising comparisons with other equipment we've tested.

All the data shown are for the forward direction of tape travel. Performance in the reverse direction is similar in all respects. The biggest difference is in flutter, which (at ± 0.27 percent in reverse) is about half that in the forward direction. The lab took manual level adjustment as the normal measurement mode, although automatic adjustment is the norm in actual use. (For instance, you must "lock" the deck in the manual mode before using the remote control if you want the manual adjustments at the remote to be more than temporary overrides of the auto-

matic level adjustment.)

To measure record/play performance, the lab used TDK SA as the chrome-compatible Type 2 ferricobalt, TDK MA as the Type 4 metal, and BASF LH-EI as the Type 1 ferric. It chose these formulations on the basis of B&O's suggestions, though these included a discontinued ferric to which the LH-EI seemed the closest available equivalent. (The owner's manual—which represents a beautifully unequivocal stroll through the deck's salient features—is poorly laid out as a reference and is essentially devoid of technical information; consequently, it has nothing to say on this crucial subject.)

The Type 2 tape proved to be a very good choice, yielding flat, extended response and excellent Dolby tracking. The latter also is well behaved with the Type 4 tape, though it seems to require a little more bias and a slightly different EQ for very flat response in the high treble. Still, the curves suffer more by comparison with those for the Type 2 tape than they do in relation to those for most other bidirectional decks. The Dolby tracking and high-frequency roll-off of the Type 1 curves seem to document that the current BASF formulation is not quite sensitive or bias-hungry enough for ideal results in the 5500; test tapes made with some other premium ferrics produced superior results by a slight but perceptible margin.

Surprisingly, considering that the deck incorporates the Dolby HX Pro headroom-extension system (which was developed by B&O and is licensed by Dolby Laboratories to other manufacturers), the high-frequency performance at 0 dB isn't outstanding. It is good, however, and perhaps exceeds what might be expected without HX Pro. The best tape in this respect is, naturally, the metal. Without noise reduction, hardly any compression is present out to 15 kHz; with Dolby C, performance is very similar to that shown in our graph (at -20 dB) right to 20 kHz.

Also surprising is the fact that no multiplex filter is in evidence when the Dolby

noise reduction is turned on, though Dolby Laboratories requires the filter of its licenses to prevent near-ultrasonics (most particularly, the stereo pilot tone of FM broadcasts) from compromising Dolby tracking. Remember, however, that the Beocord is conceived primarily as part of a system—one in which the tuner's pilot filter characteristics are known to the deck manufacturer. B&O thus can be sure of satisfying the spirit (if not the letter, as usually applied) of the Dolby rule. Most FM tuners these days do offer adequate pilot rejection, in fact, so no more than a routine spec check should be needed if you plan on using the deck in a mixed-brand system.

The playback response with the BASF test tape has a rising high-frequency characteristic that is mitigated to some extent by less than ideal azimuth match between the deck and the tape. Best match (and greatest rise, to $+4\frac{1}{4}$ dB) is in the forward direction on the left channel, though it is fairly similar (rising to $+3\frac{1}{2}$ dB) in the reverse direction; in the right channel, where the azimuth match is only fair, the rise reaches $+2\frac{1}{2}$ dB in the reverse direction and $+2\frac{1}{4}$ dB running forward.

By and large, then, the Beocord 5500's performance can stand comparison with that of most other decks on the market and, particularly, with other bidirectional models. But it differs so radically in concept and personality from its competitors as to make such comparisons almost nonsensical. It is superbly adept at producing good-quality recordings for users who haven't the time or inclination to master recording technology—thanks, in particular, to the automatic tape and noise reduction switching, the useful seek functions, and the excellent automatic level-setting system. And it has style, both visual and conceptual. These qualities may be compromised to some extent, however, if you use the Beocord apart from its siblings; if this is your kind of a recorder, you should seriously consider a full Beosystem 5500. ■

T E S T R E P O R T S

Onkyo TA-2058 Cassette Deck

DIMENSIONS: 17 $\frac{1}{4}$ BY 4 $\frac{3}{4}$ INCHES (FRONT), 13 $\frac{3}{4}$ INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. PRICE: \$500. WARRANTY: "LIMITED," TWO YEARS PARTS AND LABOR. MANUFACTURER: ONKYO CORP., JAPAN; U.S. DISTRIBUTOR: ONKYO U.S.A. CORP., 200 WILLIAMS DR., RAMSEY, N.J. 07446.

EVEN THOUGH IT ISN'T AT THE TOP OF THE Onkyo cassette deck line, the three-head TA-2058 is equipped with several top-drawer features. And although only one of those is highly unusual, the constellation results in a deck of uncommon utility and ease

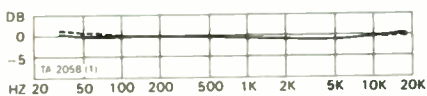
of use.

For example, the digital tape counter can be set to read either elapsed time (since the tape was put into record or play mode) or remaining time (the user having already selected with pushbuttons the basic length of the



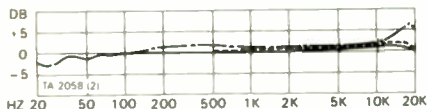
All data were taken with HX Pro on

PLAYBACK RESPONSE (BASF test tape; -20 dB DIN)



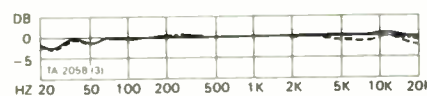
Left channel + 1/2, -1 1/4 dB, 315 Hz to 18 kHz
 Right channel: + 0, -1 1/4 dB, 315 Hz to 18 kHz

RECORD/PLAY RESPONSE, TYPE 2 TAPE (-20 dB)



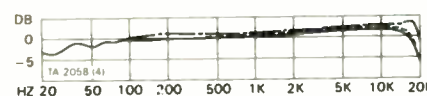
Left channel (no NR) + 3, -2 dB, 20 Hz to 20 kHz
 Right channel:
 no NR + 1 3/4, -2 dB, 20 Hz to 20 kHz
 Dolby B + 3, -2 dB, 20 Hz to 20 kHz
 Dolby C + 6 3/4, -2 dB, 20 Hz to 20 kHz

RECORD/PLAY RESPONSE, TYPE 4 TAPE (-20 dB)



Left channel (no NR) ± 2 dB, 20 Hz to 20 kHz
 Right channel:
 no NR + 1, -2 dB, 20 Hz to 20 kHz
 Dolby B + 0, -2 1/2 dB, 20 Hz to 20 kHz
 Dolby C + 1/2, -2 1/2 dB, 20 Hz to 20 kHz

RECORD/PLAY RESPONSE, TYPE 1 TAPE (-20 dB)



Left channel (no NR) + 3 1/4, -2 1/2 dB, 20 Hz to 20 kHz
 Right channel:
 no NR + 2, -3 dB, 20 Hz to 19 kHz
 Dolby B + 2 1/2, -3 dB, 20 Hz to 19 kHz
 Dolby C + 3 1/2, -2 1/2 dB, 20 Hz to 20 kHz

cassette: 46, 46L, 60, 90, or 120 minutes). The extraordinarily well written and organized manual (especially from a Japanese manufacturer) quite clearly explains the various minor caveats about depending on the counter for absolute accuracy.

Along with Dolby B and C noise reduction systems, the Dolby HX Pro headroom extension system is included. The latter, in an unusual though not unheard-of touch, is given a defeat switch, possibly to make a comparison of its benefits instantly audible while recording. Another switch defeats the deck's multiplex filter. Other features include two front-panel phone jack microphone inputs, a source/tape monitor switch, a dual-channel slider record-level control with separate channel balance knob, a fixed-level headphone jack, and a switch combining a typical timer-start record/playback feature with a rewind-to/stop-at-tape-counter-zero function. There is one fixed-level line output and a remote-control jack receiving commands from optional Onkyo accessories. The cassette-well door is removable for cleaning and demagnetization.

All the light-touch transport control buttons are clustered on the lower right of the front panel, with STOP and PLAY conveniently larger than the others. The record-standby mode is activated by pressing PAUSE while holding down RECORD; actual recording begins when PLAY is subsequently pressed. For "punch in" (flying-start) recordings, RECORD is pressed while holding down the PLAY button.

In the same front-panel area as the basic transport controls are the three buttons related to the TA-2058's automatic search/cue feature (called here the Auto Music Control System, or AMCS). Two buttons select in which direction the deck will fast wind until the next interselection blank comes up. Then the deck plays about the first ten seconds of the located piece and moves along to the next blank in the same direction. The process continues until the end of the tape, unless PLAY is pressed, which will revert the deck to normal playback. AUTO SPACE is used to place blanks in a recording for use by the

TA-2058's automatic cueing feature, among other things. While the default length of a blank is five seconds, shorter ones are made by pressing PLAY before the five seconds are up, longer ones by holding the AUTO SPACE key for as long as necessary.

One of the deck's two repeat modes also makes use of interselection blanks. The single-repeat function will play a specific segment, delimited by the requisite blanks, repeatedly up to five times. After the fifth repetition, playback will continue to the end of the cassette. A repeat-entire-side function is also provided, but this, too, has a five-cycle limit unless the repeat-reset button is pressed and the mode reactivated for another five times around.

The TA-2058's separate record and play heads are made of hard permalloy and are integrated into an assembly that fits into the central opening of a cassette. The erase head is of ferrite composition. All three heads and their mounting rise up into a cassette under power from their own DC motor. A second DC motor drives the tape hubs while a third—servo-controlled—drives the single capstan. Onkyo says that the capstan is unaffected by changes in power-line voltage, frequency, or instantaneous variations in tape load. Diversified Science Laboratories' tests back this up: No speed change was found as the line voltage changed from 105 to 127 volts. Speed accuracy is good, although the measured value of flutter represents only average performance for this class of cassette

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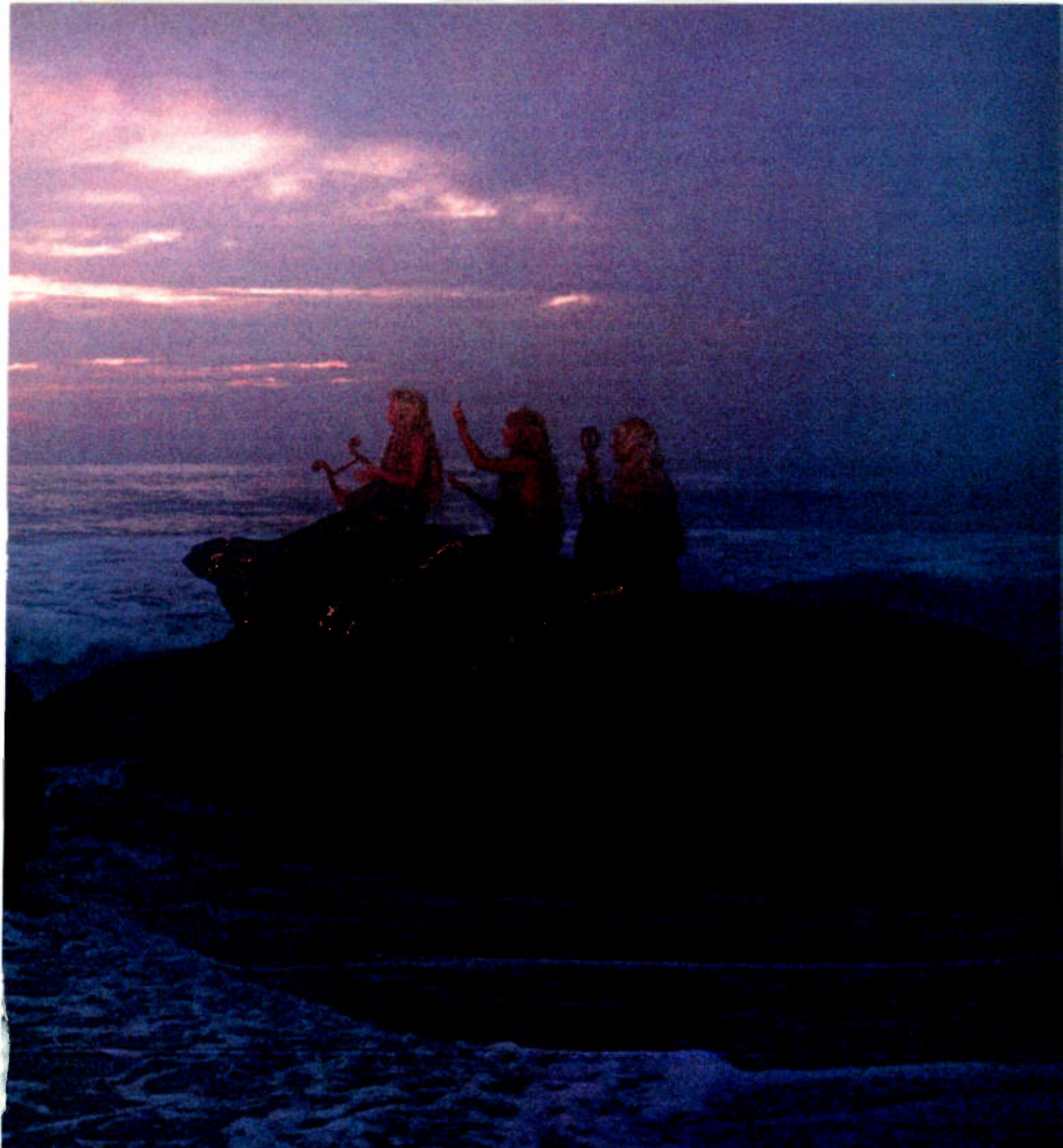


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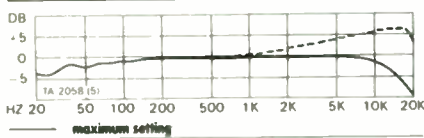
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BIAS ADJUSTMENT RANGE (-20 dB; Type 1 tape) *



MULTIPLEX FILTER (deactivatable)

+ 1/2 dB at 15 kHz, -34 1/2 dB at 19 kHz

S/N RATIO (re DIN 0 dB; R/P; A-weighted)

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	57 dB	56 dB	54 3/4 dB
Dolby B	66 dB	65 1/4 dB	64 dB
Dolby C	72 dB	72 dB	69 1/4 dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	0 dB (with 3.4% THD)
Type 4 tape	+ 2 dB (with 4.4% THD)
Type 1 tape	0 dB (with 0.61% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	0 dB (for -0.4 dB DIN)
Type 4 tape	0 dB (for -1.8 dB DIN)
Type 1 tape	> + 6 dB (for 4.4 dB DIN)

DISTORTION (THD; at -10 dB DIN; 50 Hz to 5 kHz)

Type 2 tape	≤ 0.90%
Type 4 tape	≤ 1.3%
Type 1 tape	≤ 0.41%

ERASURE (at 100 Hz)

	≥ 63 dB
--	---------

CHANNEL SEPARATION (at 315 Hz)

	48 dB
--	-------

INDICATOR "BALLISTICS"

Response time	11 msec
Decay time	≈ 400 msec
Overshoot	0 dB

SPEED ACCURACY (105 to 127 VAC)

	0.7% fast
--	-----------

FLUTTER (ANSI weighted peak; R/P)

	± 0.12%
--	---------

SENSITIVITY (re DIN 0 dB; 315 Hz)

line input	96 mV
mic/line input	1.15 mV

INPUT OVERLOAD (clipping at 1 kHz)

line input	> 10 volts
mic/line input	140 mV

INPUT IMPEDANCE

line input	60k ohms
mic/line input	31k ohms

OUTPUT IMPEDANCE

	1.140 ohms
--	------------

MAXIMUM OUTPUT (from DIN 0 dB)

	0.65 volt
--	-----------

*See text

A QUICK GUIDE TO TAPE TYPES

Our tape classifications, Types 1 through 4, are based on the International Electrotechnical Commission measurement standards.

TYPE 1 (IEC Type I) tapes are ferrics requiring "normal" bias and 120-microsecond playback equalization.

TYPE 2 (IEC Type II) tapes are intended for use with 70-microsecond playback EQ and higher recording bias. The first formulations of this sort used chromium dioxide; today they also include chrome-compatible coatings such as the ferrico-balls and a few metals.

TYPE 3 (IEC Type III) tapes are dual-layered ferrichromes, implying the 70-microsecond ("chrome") playback EQ. Approaches to their biasing and recording EQ vary somewhat from one deck manufacturer to another, when they are accommodated at all. Formulations of this type are no longer being made.

TYPE 4 (IEC Type IV) tapes are the metal-particle, or "alloy," tapes, requiring the highest bias of all and retaining the 70-microsecond EQ of Type 2.

deck.

The peak-reading meters are ten-segment LED displays. Each is calibrated from -20 to +6 dB. The manual recommends maximum indicated peak levels of +4 dB for metal tape and +2 for ferric and chrome tapes.

General deck-to-tape matching is automatic, controlled by the keyways at the back of the cassette shell (there are no manual bias or EQ controls). However, as the deck's most unusual feature, Onkyo's Automatic Accubias not only provides an automatic fine-tuning of the deck's bias level to the precise characteristics of the cassette inserted in the machine but also gives the choice of five different high-frequency responses to result once the match is completed. The preset knob at the bottom center of the front panel has calibrations and LED indicators labeled as -2, -1, 0, +1, and +2. After Accubias operation, the settings are said to give a high-frequency response that is tilted, respectively, -2 to -4 dB, -1 to -2 dB, 0 dB, +1 to +2 dB, and +2 to +4 dB, when measured at 12 kHz.

To match the deck to an inserted cassette, Dolby HX Pro is turned off, the PRESET is dialed to the desired response, the record-standby mode entered, and the Accubias start key pressed. When the process is complete, the Accubias indicator for the desired setting is lit and the tape rewound to where the Accubias operation was begun, the deck being automatically placed in record-standby. Settings are cancelled by a separate reset key, and the manual cautions against changing the preset knob setting after the adjustment has been made, unless you want to redo the process or cancel it altogether. We found that the Accubias settings will be retained if the cassette is removed but not if the deck is turned off. And if the basic tape type is changed, say from Type 4 to Type 1, the bias level reverts to an appropriate factory setting until the Accubias process is run again.

At first glance, it would seem that the preset-selector is a superfluous feature when automatic tape-matching is provided. After all, the main purpose of Auto Accubias should be to aid in making accurate, flat-response recordings. In practice, however, we found that the presets could have some benefit in certain cases. For example, the particular TA-2058 we tested had a very slightly rising record/playback high-frequency response with all three tapes we used (Maxell UDS-I for Type 1, Maxell XL-II for Type 2, and Maxell MX for Type 4), even after Accubias operation with PRESET dialed to 0. Running Auto Accubias with PRESET at -1 sometimes flattened the response a bit. (At other times, it resulted in a slightly rolled-off response.)

Deliberate response manipulation via bias adjustment can also give added zing to tapes to be used in specific applications (portable players, car decks, cheap home decks). Keep in mind, however, that any fre-

quency response deviations introduced by use of the PRESET could be exaggerated by the use of a noise reduction system (the Accubias operation bypasses any noise reduction switched on at the time) to not necessarily beneficial effect on the ultimate sound quality.

In general, record/play frequency response was very good with all three types of tape, but especially so with the Type 4 and Type 2 formulations, whose -20-dB curves extend quite flat to 20 kHz. Most of the deviations from flat response occur at the very low frequencies, but at least this area is not deliberately rolled off as with some other decks. Type 1 response at -20 dB suffered from an overall high-frequency response tilt upward and a high-frequency cutoff above about 16 kHz. Headroom improved tremendously, as it usually does, with Dolby HX Pro switched in: The metal tape actually made it out to 20 kHz at 0 dB, while the Type 1 high-level cutoff was moved from 7 kHz up to 10 kHz. With Type 2 and Dolby C, however, HX Pro introduced a high-frequency boost (+5 dB at 20 kHz) at low (-20 dB) recording levels. Dolby tracking was average for all but the metal tape, which was very good. Playback response from Diversified Science Laboratories' BASF test tape was very flat up to the tape's high-frequency limit of 16 kHz, but slight level instabilities in the very highest tones indicated only a fair to good azimuth match of the tape with the TA-2058's head.

Other measurements indicate overall good performance. We were surprised, however, at two results. First, the metal-tape erasure is just adequate (we'd recommend bulk erasure if you reuse metal tapes with this deck). Second, for Type 2 and Type 4 tapes, a 0-dB indication on the meters resulted in 3 percent third-harmonic distortion (the conventional indication of maximum recording level); but for Type 1, that distortion was not reached until the meters were "pegged" (at an indicated level of greater than +6 dB). Despite what the manual says, we'd recommend limiting the recording levels with this deck to no more than the indicated +2 dB for metal and chrome tapes. For Type 1, a maximum level of +4 dB to +6 dB will do.

We found the TA-2058 very easy to use. The subsidiary controls have smaller buttons and are sensibly clustered in the center portion of the front panel, while the essential operating functions (the transport buttons, record-level slider, and meters) are all grouped on the right. The only exception is the often-used source/tape monitor button, which is in the center and is a bit too hard to push compared to the transport controls. On the whole, however, the TA-2058 is much simpler to use than its second-from-the-top position in Onkyo's cassette line would imply. And that simplicity is accompanied by good performance and a selection of features that will enable a user to obtain even better sounding tapes. ■

HIGH FIDELITY routinely submits copies of test reports (after publication) to the manufacturers for review and comment. The following is culled from the responses.

KEF 107 LOUDSPEAKER (NOVEMBER 1986)

YOUR RECENT REVIEW OF OUR MODEL 107 loudspeaker shows measured performance data significantly different from what we would expect. We set out below the expected performance data, together with our comments.

Our specification states that the Model 107 is flat within ± 2 dB from 20 Hz to 20 kHz when measured at 2 meters on the reference axis under free-field conditions. These figures assume that the system is being fed via both inputs of the Kube with the extension frequency set to 18 Hz, contour to +1, and Q to 0.7. Our measurements for the system you tested, taken from our production computer database records, show that the response is within specified limits.

It is not our normal practice to publish frequency response data obtained under semi-reverberant conditions, since in our experience the results are dominated by the acoustic characteristics of the room rather than those of the loudspeaker. For purposes of comparison, however, we repeated your measurements with a pink-noise input at distances of 0.5, 1, and 1.5 meters on- and 15 degrees off-axis. In all cases, the measured responses, analyzed in one-octave bands, were extremely smooth and varied by no more than ± 2 dB from the mean level from 50 Hz to 20 kHz on axis and 50 Hz to 16 kHz off axis.

Neither the free-field nor the room measurements revealed any evidence of the reported peak at 500 Hz or the shelf below 300 Hz. We therefore conclude that the frequency response irregularities you report were indeed artifacts of the particular measuring room and conditions chosen, not of the loudspeaker.

The measured second and third harmonic distortion figures for the Model 107 at mean sound pressure levels of 90 and 100 dB are far lower than those you report. In particular, the figures at 63 Hz for an output of 100 dB SPL are 0.6 percent second harmonic, 0.6 percent third, which contrasts starkly with your reported figure of 59.5 percent (nearly 100 times higher). The maximum peak input level that can be applied to the Model 107 at 63 Hz before overload is 78 volts, equivalent to a continuous output of 760 watts into 4 ohms; at 300 Hz, the maximum peak input level is 60 volts, equivalent to 450 watts into 4 ohms. The Model 107 is intended for use with amplifiers capable of delivering as much as 300 watts into 4 ohms resistive, which is equivalent to a peak output volt-

age of 49 volts. At most frequencies, the overload margin is quite generous, in the interests of extended reliability.

You comment that during your listening tests you heard nothing out of the loudspeaker to indicate that it would yield the distortion figures you obtained in your measurements. We believe that the reason for this is that the distortions were not present during your listening tests and occurred during your measurements only because of electronic overload of the Kube, when it was fed too great a sinusoidal input. The Kube has been designed so that under normal conditions of use (connected in a tape monitor loop or between a preamp and power amplifier and fed normal recorded program material) it will rarely, if ever, overload.

The Model 107 is in many ways an unusual loudspeaker, particularly in its use of low-level active equalization to give flat response down to 20 Hz. It is therefore understandable that current measuring techniques, which have proved meaningful on more orthodox systems, have failed in this instance. Your expressed puzzlement at the Model 107's apparently poor measured performance did not stop you from liking its sound and saying so. It is a pity, therefore, that you did not check the facts with us before publishing, as we could have cleared up these obvious anomalies and so avoided the undoubted confusion that your review must have caused interested readers.

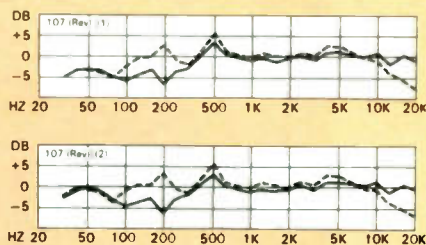
L. R. Fincham
Technical Director
KEF Electronics, Ltd.

In separate correspondence, we learned from KEF that both inputs of the Kube must be driven to obtain correct response. We have since verified this (low-frequency boost is increased), and as you can see from the two graphs shown here, bass response is indeed improved and more in keeping with what we heard. The first graph duplicates the Kube settings we used for our original test (extension frequency of 18 Hz, Q of 0.5, and contour of 0, or flat); the second uses KEF's specification settings (which move the Q up to 0.7 and the contour to +1). We are a little surprised that KEF specifies at something other than the center Q and contour settings, but the effect of the change is not large in measurement or listening.

The results obtained from loudspeaker response measurements depend to a great degree on the method employed, and we seldom have found anything like an exact match between our curves and those supplied by a manufacturer. We do not claim that our way is the only reasonable approach. In fact, we have gone to some lengths to explain its limitations (see particularly "Basically Speaking," June 1983). However, it is superior to the anechoic technique we used prior to 1980 and usually gives a reasonable correlation with

perceived balance.

Our ultimate judgment is based on what we hear, which in the case of the 107 is not drastically different from what the curves would imply (though the shelving at the low end might suggest more anemic bass reproduction than is the case). The 500-Hz peak probably is the result of interference from a reflection off the floor, which would not appear in a free-field measurement; we often find it in the responses of speakers whose drivers are mounted a couple of feet up. Although our test procedure is designed to eliminate the effects of room resonances, it leaves intact the effects of



proximity to room boundaries. For example, if we measure a speaker's response against a wall, it will show greater bass output than if the speaker is tested out in the middle of the room—which is just what you would hear.

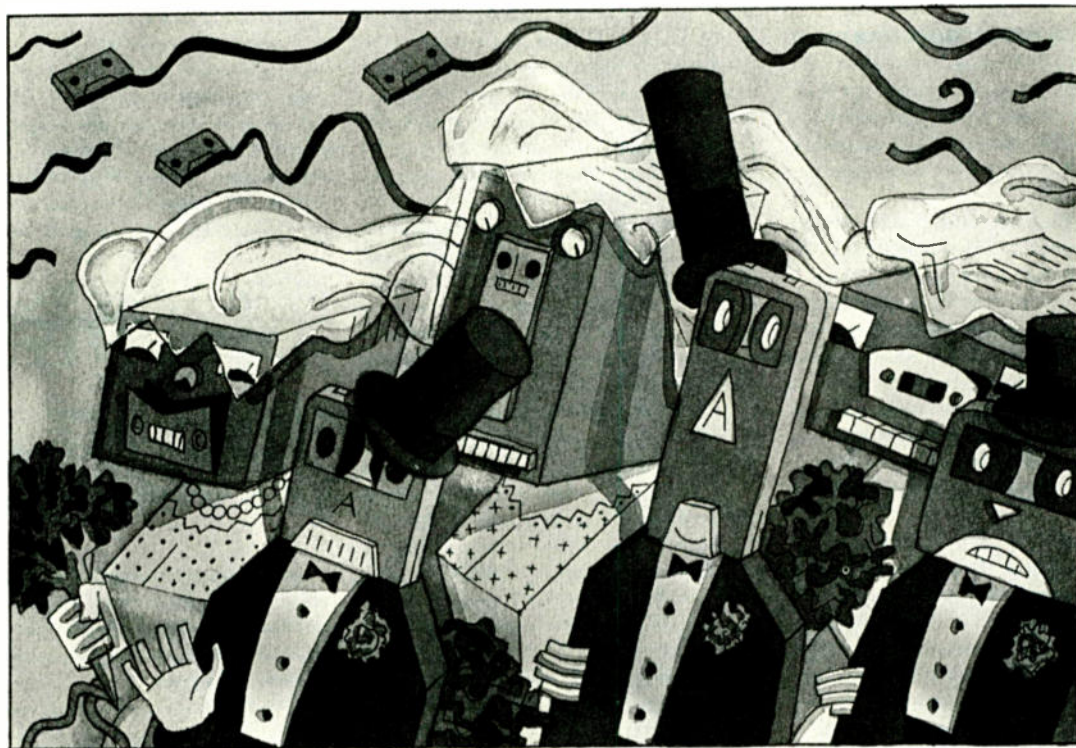
The 107 undoubtedly would produce more output in the bass if it were placed against a wall, but since KEF designed them to be used freestanding, that is the way we tested them. We tested the KEF 104/2 (November 1985) in the same fashion, except that the curves we published were the ones obtained with the speaker against a wall.

Our retest indicates that we were indeed overloading the Kube and that the 107 does exhibit quite low distortion even at low frequencies and high drive levels. We did not catch this error because we heard distortion on sine wave test signals (which probably also were overdriving the equalizer) and because we had not encountered such a problem in testing other equalized systems. One expects more distortion at low frequencies from such a design, just not as much more as we saw the first time around. The Kube overloads at just a fraction of a volt at low frequencies and at approximately 2.5 volts at midband, making it far easier to clip than is typical for this sort of device. KEF argues that its approach gives adequate headroom for normal musical program material and minimizes noise. Although we think the Kube's overload margin runs rather close to the edge, KEF probably is correct in its assessment for all but exceptional circumstances. At any rate, we deeply regret this mistake, particularly in light of how fine a speaker the KEF 107 truly is, and apologize to KEF and our readers for any confusion it may have caused.

On the other hand, we get the same results on our 300-Hz pulse test as before. The discrepancy between our figure and KEF's probably is, again, a consequence of differing measurement techniques.—Ed.

THE PERE

BY PETER W. MITCHELL



For top-quality cassette recordings, the tape's characteristics must match the deck's.

DURING THE QUARTER CENTURY SINCE THE cassette format was created by Philips, a host of improvements have been made, both to the machines and to the tapes they use; today's decks can do a remarkably fine job of reproducing virtually any sound. But to get the most accurate possible reproduction of the original sound, you'll have to pay close attention to the recording process and make sure that the deck and tape you're using are optimally matched.

Therefore, it helps to know at least the fundamentals of the recorder/tape relationship, starting with bias. To obtain low distortion and flat frequency response, a tape deck's circuits precondition the incoming signal before recording it and apply further corrections in playback. The most important preconditioning is provided by the bias signal, an ultrasonic tone (typically at a frequency of about 100 kHz) that is mixed with the audio signal as it is fed to the recording head. The bias actually is the same waveform that is fed to the erase head to wipe out old recordings, but it is used at a much lower level. Still, it is not small: The bias voltage is about ten times larger than the largest audio signals it accompanies through the record head.

Not surprisingly, bias causes some self-

erasure of the audio signal during the recording process, especially at high frequencies. To compensate for this and other losses, recording equalization is applied to boost the treble portion of the audio signal before recording. Furthermore, since the magnetic heads of a tape deck have a naturally sloping (rather than level) frequency response, a compensating opposite tilt is applied by playback equalization. As the word suggests, the goal of equalization (often called EQ) is to restore flat response so that all frequencies are treated equally by the overall record/playback cycle.

With the correct amounts of bias and equalization, the result should be an accurate re-creation of the original sound. And if the required bias and equalization were the same for all tapes (as Philips originally intended), life would be simple for the home recordist. But as cassettes have improved in quality, they have evolved away from uniform standards. Along came chromium dioxide, cobalt doping, pure-metal particles, and multilayer coatings as tape manufacturers have engaged in a continual round-robin of improvements that yield better potential performance while sacrificing perfect compatibility.

Most tape decks have switch settings to

match three classes of tape defined by the IEC (International Electrotechnical Commission): Type I ("normal bias" ferric oxide—120-microsecond playback equalization), Type II ("high bias" chromium dioxide, ferricobalt, or, recently, metal-particle—70-microsecond EQ), and Type IV (metal particle—70-microsecond EQ). (The missing IEC Type III, for dual-layer "ferrichrome" tapes, is now obsolete.) Sometimes the IEC designation is part of the product name, as in Maxell's XI-IIS (a Type II tape). On other cassettes, the correct switch settings are spelled out in small print ("Normal Position" or "120 microseconds," for example).

Whenever you put any tape into a deck, the first and most important step is to examine the tape package to see which IEC class it belongs to and set the machine's switches accordingly. Some decks do this adjustment automatically, using sensors that detect the extra cut-outs that are molded into the rear edges of high-bias and metal audio cassettes. And while some decks have separate switches for bias and equalization, most recent machines have simple tape selector knobs or

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DOT MATCH

buttons that set bias and equalization simultaneously.

Although setting the deck's switch to match the tape's IEC classification is the first step toward accurate reproduction, it is not the only one. When playing a tape, it is also important to know which noise reduction system, if any, was used on the recording. And since most tapes fit the IEC definitions only approximately, you may want to fine-tune the matching of the recorder to the particular tape you're using. We'll examine four aspects of recorder/tape matching: playback equalization, recording bias, bias fine-tuning, and tape sensitivity.

PLAYBACK EQUALIZATION

ALTHOUGH THERE ARE MANY VARIETIES OF cassette tape, there are only two standards for EQ. The original 120-microsecond equalization applies to all ferric tapes, while 70-microsecond EQ is normally used for "high-coercivity" tapes (Types II and IV). The actual meanings of these numbers are unimportant (they are the time constants of the electronic filter circuits that shape the playback response). Their practical significance is simple: They correspond to a 4-dB difference in treble response. High-bias tapes (chrome, ferricobalt, or metal) are more sensitive at high frequencies than Type I tapes and therefore would tend to produce exaggerated treble when used with 120-microsecond EQ, so 70-microsecond EQ is used to bring the boosted highs back down to their original level in playback. Since the equalization pulls down tape hiss along with high-frequency signals, this also improves the signal-to-noise ratio of Type II and IV tapes by several dB.

Ordinarily, your recorder's tape selector provides the appropriate equalization for the tape that you are using. But by deliberately missetting the switch in playback only, you can use the recorder's EQ circuits as a treble control. If a recording on Type II or IV tape sounds dull with the tape switch at its proper setting, switching to the Type I setting will boost the highs by 4 dB, which may be just enough to restore the desired brilliance (Fig. 1).

Incidentally, nearly all prerecorded music tapes, including many recorded on chrome tape, are intended for playback at the normal (Type I) setting. The few music tapes intended for 70-microsecond playback (that is, with the tape switch set for chrome or metal) are so identified, and, for self-setting decks, their tape-identification keyways

are molded according to the intended EQ. Duplicators compensate for the hot high ends of Type II tape in their recording EQ; for them, the principal advantage of using such formulations is improved high-frequency headroom.

RECORDING BIAS

COMPARED TO A NORMAL (TYPE I) TAPE, A TYPE II tape requires about 50 percent more bias energy for optimum performance, and metal-particle tapes require twice as much. The tape selector or bias switch on your recorder provides these large changes (and usually selects the corresponding recording equalization as well).

Although the main purpose of bias is to minimize distortion during recording, it also profoundly affects frequency response. If you record a Type I tape with the recorder set for high bias (chrome or equivalent), the excessive bias signal (a condition called overbiasing) produces large amounts of self-erasure and will severely roll off the treble, yielding dull sound. Conversely, a high-bias tape recorded with normal bias (an under-bias situation) will have exaggerated highs and may also sound harsh and distorted at high recorded levels.

BIAS FINE-TUNING

ALTHOUGH THE TAPE SELECTOR PROVIDES coarse adjustments of bias, audible differences remain among the many brands and grades of tape within each IEC class. Some of the best tape decks enable you to fine-tune the bias to obtain the flattest frequency response with the tape you've chosen to record on. In many high-price recorders, this fine-tuning is done automatically by a microprocessor circuit that records self-generated test tones, measures the response, adjusts the bias or recording EQ (preferably both) to obtain the flattest response, and then rewinds the tape so you can begin recording.

Computerized tape matching will provide flat response from enhanced Type I and Type II tapes. These formulations are designed to have a rising high end when used on decks set up for standard-grade tapes and sometimes have an "X" or "S" in their names (such as Maxell XI-IIS or TDK SA-X). Sometimes the cassette wrapper will even show this rise in a frequency response plot. But, though many listeners prefer the high-end boost, it is inaccurate; and, for rea-

sons to be covered later, the inaccuracy will be compounded by the use of any noise reduction system.

Another important use of a bias fine-tuning control is to get good response out of inexpensive Type I tapes. Most stereo decks are factory-calibrated to work best with the better formulations and therefore usually produce unacceptably dull sound with low-price tape. But by experimenting with reduced bias, you may find a setting that delivers remarkably good results with tapes costing only a dollar.

If your recorder has no bias fine-tuning control, you have two options. The first is to record on various brands of tape until you find the one that provides the most accurate response in your machine and adopt it for all serious recordings. HIGH FIDELITY's test reports, the machine's instruction manual, or a phone call to the manufacturer may help you make this choice. The other option is to choose a reputable brand of tape and pay a service shop to calibrate the recorder's internal adjustments to match that tape. In view of the high cost—and rarity—of skilled servicing, this probably should be considered as a last resort.

Precise matching of the recorder's bias to the tape becomes doubly important when noise reduction is used. Figure 2 shows why. A slight under- or overbiasing of the tape produces such a modest change in high-frequency response that it may be too small for the ear to notice. But Dolby noise reduction circuits function at their best when the playback signal is identical in level to the input signal that was recorded. If the noise reduction circuit sees a different signal in playback than it did during recording, it will "mistrack," producing a larger and more audible variation in high-frequency response. Figure 2 illustrates how a small rolloff due to overbiasing is transformed into a substantially broader and more obvious treble loss by mistracking of the noise reduction circuit. The cure for this problem is simple: Fine-tune the bias to obtain flat response from the tape, or choose blank tapes that correctly match your recorder's factory-set bias.

TAPE SENSITIVITY

TAPES VARY NOT ONLY IN FREQUENCY response but also in absolute sensitivity (the strength of magnetic field left on the tape compared to the field produced by the recording head). Thus, a signal recorded at 0 VU may play back slightly higher (at +2 VU) or lower (-2 VU) depending on the tape. By

itself, this would matter very little; you could easily compensate for any change in playback level with a small adjustment of the amplifier's volume control. But noise reduction again complicates the situation. Dolby noise reduction (Type B and especially Type C) requires fairly exact matching of recording and playback signal levels for flawless operation. If the playback signal is a few dB low, it will cause mistracking; again, the result is dull sound. If the playback level is too high, Dolby mistracking will brighten the sound.

The DBX noise reduction system is far less sensitive to level mismatches than either Dolby B or C. DBX will, however, mistrack (causing abnormal changes in musical dynamics) if the recorder's frequency response is excessively non-flat, especially at high frequencies.

A few of the best cassette decks are equipped with recording-calibration controls that enable you to fine-tune the signal levels within the machine to ensure consistently correct performance of the noise reduction circuits. If your deck lacks such controls, then the practical answer again is to choose a brand and grade of blank tape that complements the recorder's factory settings. In sum, the best tape is one that delivers accurate recordings on your machine, both with and without noise reduction.

RESTORING LOST HIGHS

THE MOST FREQUENT COMPLAINT ABOUT Dolby noise reduction is that it dulls the sound. We've seen how Dolby mistracking can be caused by overbiasing or by mismatched signal levels. The most common cause of these problems is the use of bargain-price Type I tapes on a deck that was factory-calibrated to deliver accurate response with higher-grade Type II tapes. Additional problems arise when a tape is played on a different machine than it was recorded on. Differences in head alignment and in equalization circuits often cause modest high-frequency rolloffs; and since these alter the playback signal before it reaches the Dolby decoding circuits, the consequent mistracking produces larger and more annoying treble losses.

Play Trim, a circuit that was jointly developed by Dolby Laboratories and NAD, corrects such problems by providing a user-adjustable high-frequency boost. Since this boost occurs before the playback signal reaches the Dolby circuit, it can prevent noise reduction mistracking and restore brilliant, wide-range sound. Dolby has made this circuit available to all Dolby licensees, so it may, one hopes, appear in many future cassette decks. Soundstream, for example, makes it available in a car cassette unit.

Meanwhile, you may be able to compensate for high-frequency losses with your present deck by other, very drastic means. One technique that often works well with

dull-sounding recordings on Type II tape, as mentioned earlier, is to set the tape selector at normal (Type I) for playback. This boosts the highs before Dolby decoding and may therefore reduce noise reduction mistracking.

With recordings made on ferric tape (especially on a bargain-price cassette), the usual solution is to switch the Dolby circuit on while recording but off during playback. Dolby noise reduction works by boosting the highs when recording and rolling off the highs to an equal degree in playback according to the midfrequency level of the signal,

the whole process providing overall flat response while quieting the tape hiss. Switching noise reduction off during playback sacrifices the benefit of the noise reduction; but it also lets you hear the highs that were boosted in recording, and that boost is more than enough to compensate for whatever treble losses are occurring in playback (Fig. 3). Although this technique is an extreme measure and produces good results only with Dolby B, it can transform a bad result into an acceptable one. But the best solution is to match the recorder and tape correctly in the first place, when the recording is made. ■

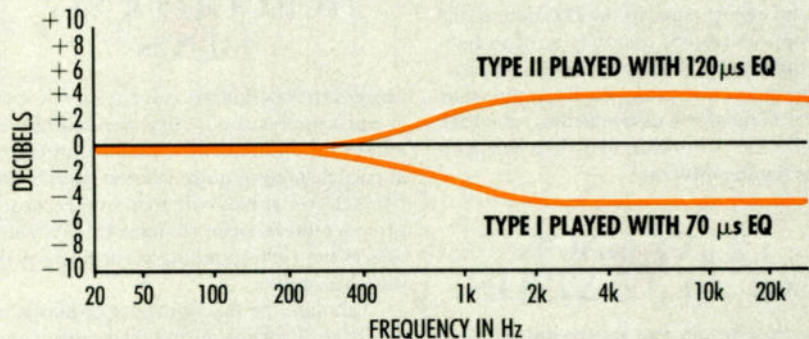


FIG. 1. THE DIFFERENCE BETWEEN 120-MICROSECOND AND 70-MICROSECOND EQ. AS THE UPPER CURVE SHOWS, THE TREBLE RANGE IS BOOSTED BY 4 dB WHEN A TYPE II (CHROME OR EQUIVALENT) OR TYPE IV (METAL) TAPE IS PLAYED BACK AT THE TYPE I (NORMAL) SETTING. THE LOWER CURVE SHOWS THE 4 dB TREBLE CUT PRODUCED BY PLAYING A TYPE I TAPE AT A TYPE II OR TYPE IV SETTING.

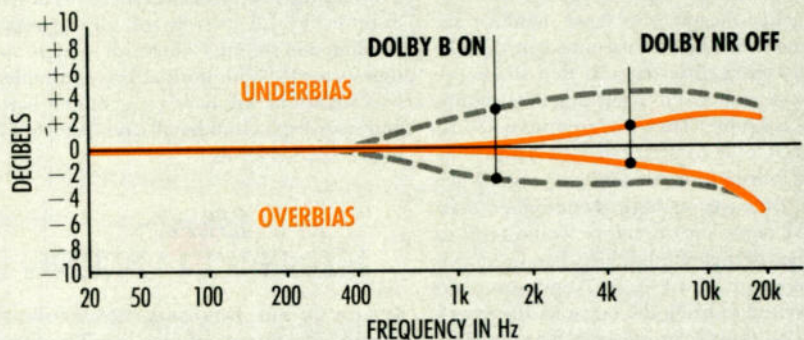


FIG. 2. THE EFFECT OF INCORRECT BIASING ON DOLBY TRACKING. THE SOLID LINES SHOW THE FREQUENCY RESPONSE ERROR PRODUCED BY MILD UNDER- AND OVERBIASING. THE DASHED LINES SHOW THE LARGER RESPONSE CHANGES PRODUCED BY THE RESULTANT MISTRACKING OF THE DOLBY B CIRCUIT WHEN IT IS SWITCHED ON.

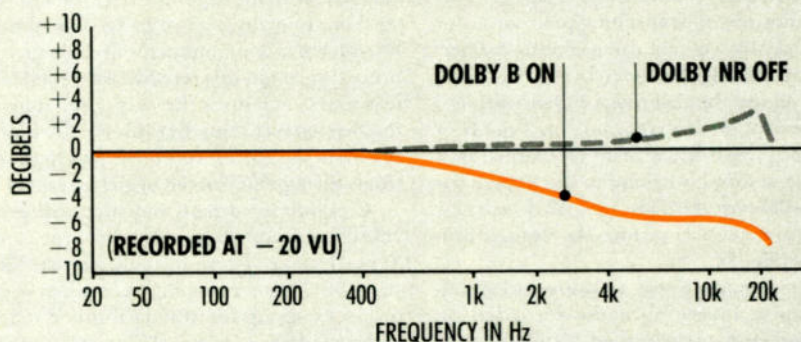


FIG. 3. FOR THIS GRAPH, PINK NOISE WAS RECORDED AT -20 VU ON A LOW-COST FERRIC TAPE, WITH DOLBY B, ON A RECORDER BIASED FOR PREMIUM-GRADE TAPES. THE LOWER CURVE SHOWS THE PLAYBACK WITH DOLBY B ON: OVERBIASING AND LOW TAPE SENSITIVITY HAVE PRODUCED A BROAD TREBLE LOSS. IN THE UPPER CURVE, WITH THE DOLBY NOISE REDUCTION SWITCHED OFF, THE HIGHS ARE APPROXIMATELY RESTORED.

BY DAVID RANADA



Video manufacturers hope that 8mm's technological advances will pull them out of the VCR doldrums.

TO MANY WHO, AS POTENTIAL CUSTOMERS, are looking over the video market, the 8mm VCR system is a curiosity: yet another diminutive techno-marvel conjured up out of nowhere with no seeming purpose other than to further confuse an already befuddled consumer. Manufacturers of 8mm equipment see it quite differently: The format's small size and advanced technical capabilities make it the home-VCR system with the most promising long-term future. To them, 8mm is the technological answer to a major marketing problem.

Despite the enormous quantity of goods sold and a still-growing public awareness, the VCR market is stagnating. Manufacturers and dealers find it harder to make profit selling VCRs, what with price wars among stores and among manufacturers from Japan and, recently, Taiwan and Korea. Furthermore, the phenomenal growth of the half-inch VCR market will not be sustained for very much longer. Predictions of a saturated

VCR market are, at least in the U.S., showing signs of coming true.

Consumer electronics manufacturers (including such VHS stalwarts as Hitachi and Matsushita) long ago foresaw this possibility and began casting about as early as the late 1970s for a product concept that could maintain profitability, not necessarily by the replacement of VHS or Beta machines, but by the creation of new markets for VCRs. They sought a way to widen the application of video technology beyond the homebound, bulky, time-shifting machines dominating the consumer VCR market. The smaller, lighter, technologically advanced 8mm video system was one answer. (And, much to the chagrin of 8mm's enthusiastic supporters, JVC's VHS-C compact VHS system was another.)

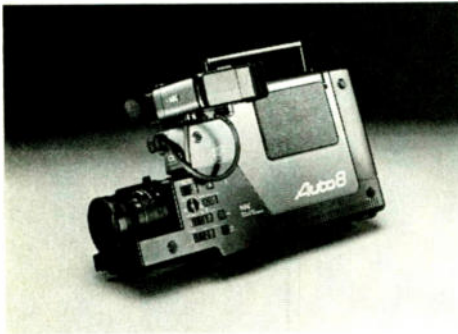
Why 8mm? Aside from the cinematic resonance of the dimension, smaller VCR mechanisms and tapes were seen as keys to the expansion of new video markets. Cam-

orders and their users would be the immediate beneficiaries of a drastic reduction of mechanism bulk and weight. And indeed, the camcorder market has more than doubled in the past year under the combined aegis of VHS-C and 8mm. Smaller and more portable, or "personal," VCRs are another product category opened up by 8mm's size. An 8mm car system has already been announced, and Sony has introduced in Japan its 10½-by-2½-by-7¼-inch EV-A1 compact 8mm home VCR with tuner-timer, which is intended for the affluent Japanese teenybopper market. Video equivalents of the Walkman-type portable audio cassette player, combining an 8mm video player with a miniature-screen LCD television, are currently under development at several manufacturers.

And that's just the beginning. Because it is the newest VCR system, the 8mm format represents the distillation of decades of VCR research and manufacturing experience. As



SONY'S CCD-V3 HANDYCAM CAMCORDER



THE NEC EM-340 CAMCORDER



KYOCERA'S KB-2010 CAMCORDER

such, the system contains several innovative features—besides small size—that serve variously to improve technical performance and to create new video capabilities. Not all are fully taken advantage of yet, but the 8mm standard—unlike those for Beta and VHS—provides considerable room for growth. A look at how audio and video signals are laid down on an 8mm tape will show how.

STAYING ON TRACK

ANYONE FAMILIAR WITH HOW SIGNALS ARE recorded on Beta or VHS machines will immediately notice that two things are missing from Fig. 1: It shows neither a longitudinal (stationary head) audio track nor a control track. And something has been added: a section of the tape where digital (PCM) audio is recorded. Figure 1, in fact, maps out most of the technological advances incorporated in the 8mm system.

There is no longitudinal audio track be-

cause all 8mm recorders record audio via a frequency modulation method similar to that used in the Beta Hi-Fi system: After frequency modulation, the audio signal is applied to the video heads, which record it on tape simultaneously with the video. With a bandwidth extending from 20 to 20,000 Hz, dynamic range of around 80 dB, and nearly unmeasurable wow and flutter, audio performance of the FM soundtrack can be very good. But—in what must be considered the only major technical fault of the 8mm standard—it is available only in mono. The 8mm frequency allocations contain no room for a second FM-audio channel (glance ahead to the top graph in Fig. 2).

The two longitudinal tracks set aside on an 8mm tape *could* be used for audio recording. But since the tape is moving at only 14.345 millimeters (0.565 inches) per second and the tracks are only 0.6 millimeter wide, performance would be miserable. These tracks could best be used for—and this hints at future applications—cueing and editing information or for subtitles and other text data.

Stereo sound is available, however, via 8mm's digital-audio facilities. On appropriately equipped decks, the system will record and play two channels of PCM-encoded audio. Sampling rate is 31.5 kHz, which limits the audio bandwidth to a maximum of about 15 kHz, and quantization resolution is only 8 bits (compared to 16 bits for the CD system). However, the 8mm PCM system incorporates both an analog noise reduction system and 10-to-8-bit digital companding to provide a dynamic range equivalent to that of a conventional 13-bit scheme (approximately 80 dB).

The performance of the 8mm stereo PCM system is not ultrahigh fidelity—in

some ways (such as bandwidth), it is inferior to 8mm's own mono FM soundtrack. Then again, 8mm VCRs were not meant to replace analog cassettes, and the sound quality provided is more than up to the frequency and dynamic-range demands of movie soundtracks. If you want convenient top-quality PCM recording, you'll have to wait for DAT (digital audio tape).

Since 8mm PCM is placed on an area of the tape apart from the picture, it can be recorded separately, which makes possible the overdubbing of high-quality audio onto an already-recorded image, something not possible with either Beta or VHS Hi-Fi. And some home 8mm decks can use the entire scanned area of the tape for stereo digital audio, providing as much as 24 hours of record/play time with a nominal 120-minute (at full SP speed) 8mm cassette.

Although it is the least salable innovation of the 8mm format, the lack of a control track is probably the most interesting, if for no other reason than that the control system used for 8mm was a European proposal (by Philips) and is even acknowledged as such by the Japanese. A control track on a half-inch VCR (and on most professional units as well) is a regular series of pulses recorded down the length of the tape. One pulse is recorded every time the spinning video heads make a full revolution. (See "Different Drums," p. 50, for more information about the rotating heads used in VCRs.) In playback, a half-inch VCR uses the pulses to synchronize the spinning of the video heads with the passing recorded video tracks so that each head passes directly over the proper track. The well-known tracking control of a VHS or Beta VCR is an electronic adjustment to compensate for any dimensional changes in the VCR or tape (due to varia-

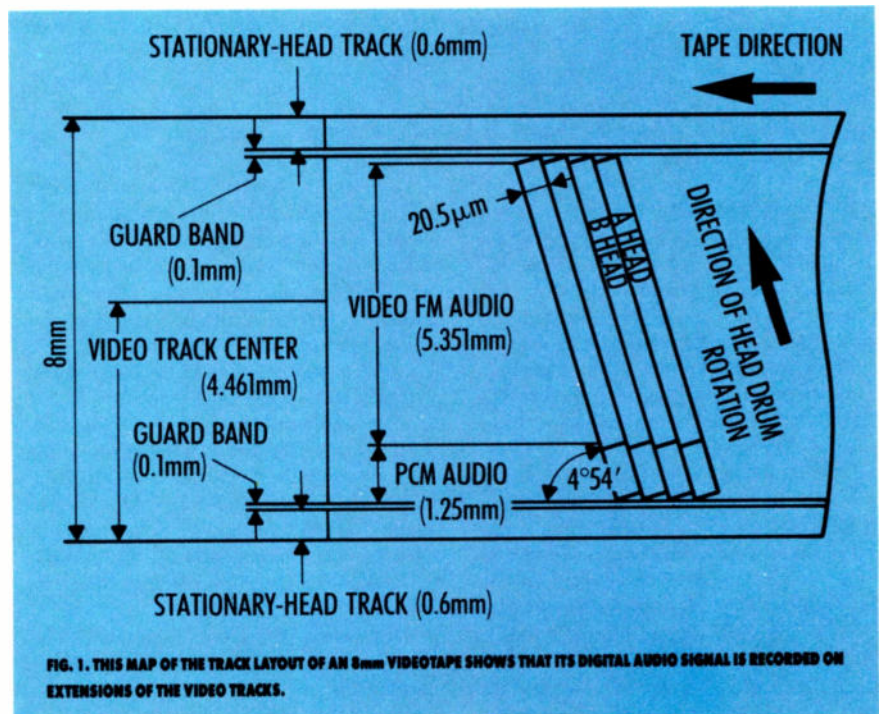


FIG. 1. THIS MAP OF THE TRACK LAYOUT OF AN 8mm VIDEOTAPE SHOWS THAT ITS DIGITAL AUDIO SIGNAL IS RECORDED ON EXTENSIONS OF THE VIDEO TRACKS.

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tions in temperature, humidity, deck alignment, or tape stretch). It applies varying amounts of delay to the control head pulses so that the heads always scan correctly.

Philips's very clever 8mm alternative (ATF, for Automatic Track Finding) records an array of four relatively low-frequency (102–165 kHz) pilot signals through the spinning video heads instead of on a separate control track. During recording, each rotation of the heads brings about a change of the recorded pilot frequency. Since, in playback, the video heads pick up more than one track at a time, proper alignment is obtained when the levels of the pilot tones from each track adjacent to the one being played are equal. This system makes a tracking control unnecessary because all the alignment information about a video track is contained within that track and its two neighbors. This also makes noise-free special effects possible without an extra video head (if ATF is used with video heads attached to electrically steerable mountings—another Philips proposal). Elimination of the stationary control head simplifies manufacturing and results in a less complicated tape path and mechanism.

What Fig. 1 cannot show is the last principal advance the 8mm format brings to home videotaping. Believe it or not, the 8mm system, in theory, can produce a better picture than either Super Beta or HQ VHS.

HIGH STANDARDS

THE STANDARDS DEFINING THE BETA AND VHS formats reflect the state of the art in home video recording at the time those systems were introduced. The main factors inhibiting further improvement of either half-inch system are precisely these standards, which have remained fixed despite substantial progress in video-head, videotape, and electronics technologies. Any movement away from the standards risks making recorders and recordings incompatible with each other, as has happened with the decidedly superior but only semi-Beta-compatible Super Beta system. The VHS camp has been loath to introduce any technical improvements that require changing any of the fundamental aspects of VHS recording.

Some of these characteristics are illustrated in Fig. 2, which shows the frequency spectrum recorded on a videocassette for the HQ VHS Hi-Fi, Super Beta Hi-Fi, and 8mm systems. Of particular interest are the frequency ranges of the luminance band, measured out at the top of each graph. The width of that range in megahertz multiplied by 80 defines the maximum possible video resolution (as measured in "lines") of each system. Under test, a typical VCR will have even less resolution than "permitted" by these standards. VHS has the narrowest luminance bandwidth (2.92 MHz, implying a maximum theoretical resolution of 2.92×80

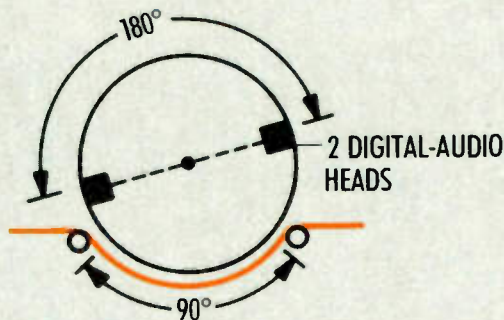
DIFFERENT DRUMS

DRUMS SHOWN ACTUAL SIZE

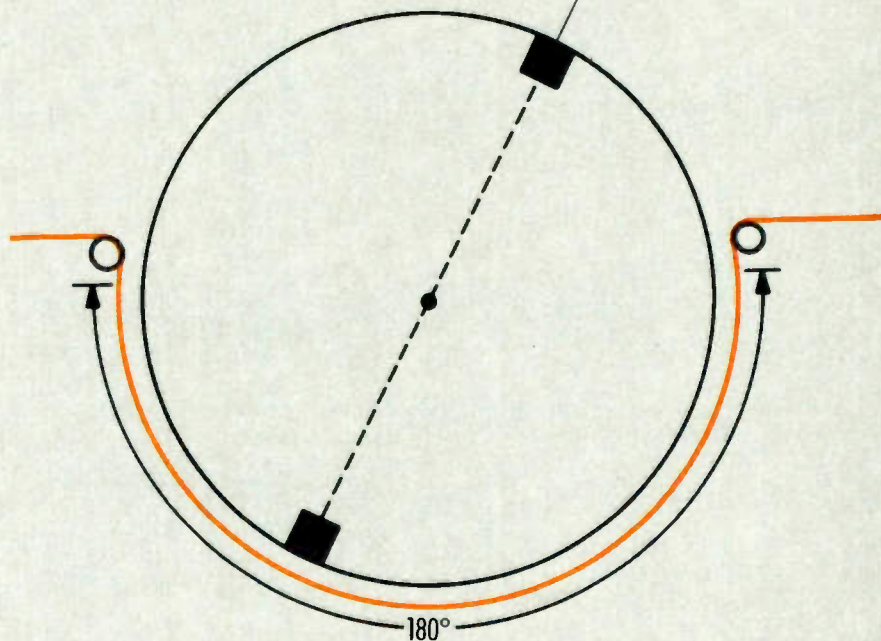
AT THE HEART OF EVERY VIDEOCASSETTE recorder is its head drum, a cylinder that is precision-machined out of aluminum and on which the video heads are mounted. The videotape is wrapped around the rapidly spinning drum so that the video heads trace parallel slanted tracks down the length of the videotape. Despite the relatively slow speed of the tape, the rotation of the drum provides a high tape-to-head speed and the concomitant wide frequency response necessary for recording video.

The head drum is one of the principal determinants of how large a videocassette system must be, as can be seen from the accompanying life-size diagrams of the various head drums for the consumer videocas-

RDAT



2 VIDEO/FM-AUDIO HEADS



BETA HI-FI

sette formats (and, for comparison, rotary-head digital audio tape, or RDAT). Also depicted, in color, is the extent to which the videotape is wrapped around the drum for each system. The two earliest formats, full-size Beta and VHS, have rather large head drums, which accounts for much of the bulk and weight of full-size Beta and VHS camcorders. Note that VHS Hi-Fi requires two extra spinning heads to record its FM-audio soundtracks. Beta Hi-Fi feeds FM audio through the two video heads already in the drum. (For noise-free special effects, such as scanning, slow motion, and freeze frame, all the systems require at least one extra head beyond those shown.)

An increase in the "wrap angle" and a juggling of various other geometric param-

eters produce the two miniaturized versions of full-size half-inch VCRs: Betamovie and VHS-C. Of particular interest is Betamovie's clever use of only one head (albeit with two gaps). VHS-C requires four heads to record video (full-size VHS requires only two). From the looks of it, adding Hi-Fi capability to VHS-C (which would eliminate VHS-C's principal technical drawback compared to present-day 8mm systems) would probably require a drum with eight heads (four video, four FM-audio)—an expensive proposition.

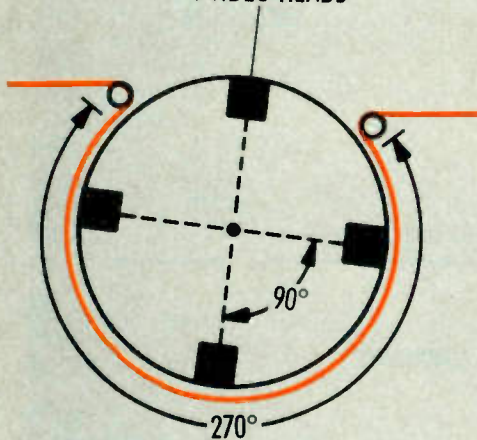
Two different wrap angles are provided for in the 8mm system. The one of 221 degrees is for 8mm units with digital-audio capability (the digital-audio information being recorded on an extension of each

video track). For 8mm machines with FM audio only, the slightly simpler 180-degree wrap can be used because 8mm's FM-audio signals are fed through the two video heads. It is theoretically possible to further shrink 8mm-machine bulk by use of the Betamovie small-drum/single-head configuration.

Because digital-audio signals can be stored in memory circuits and played back from them essentially at leisure, the two heads of an RDAT deck don't have to be in constant contact with the tape; hence, the unusual 90-degree wrap. Different wrap angles and corresponding head-drum diameters are also possible with RDAT and could be used in specialized digital-audio applications. ■

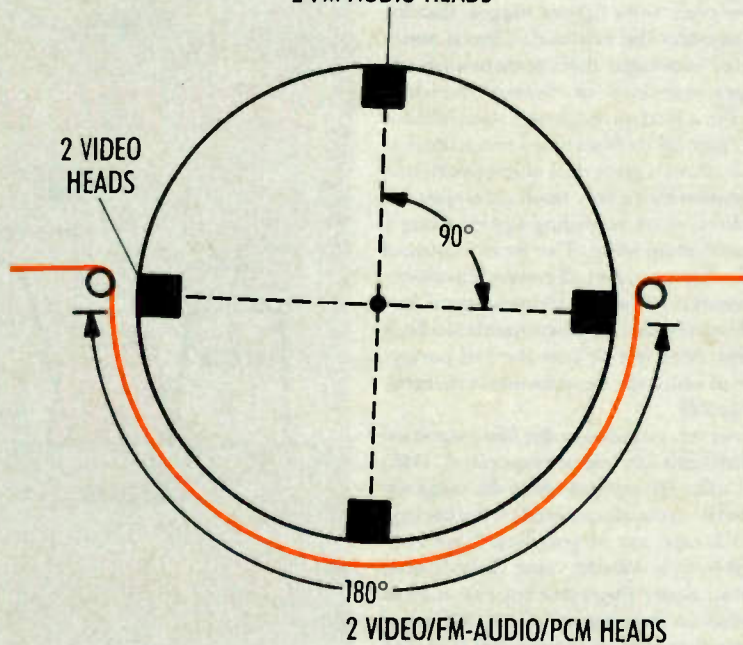
VHS-C

4 VIDEO HEADS

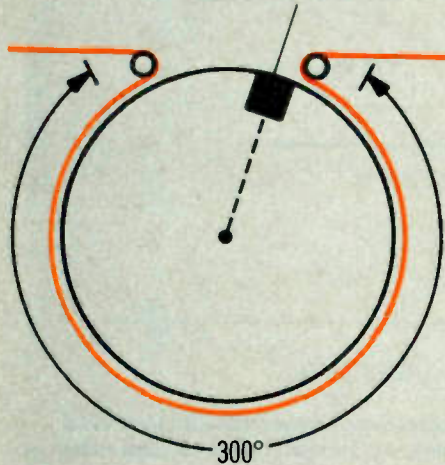


VHS HI-FI

2 FM-AUDIO HEADS

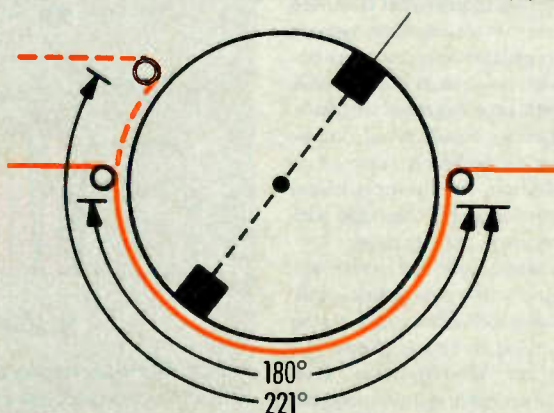


1 DOUBLE VIDEO HEAD



BETAMOVIE

2 VIDEO/FM-AUDIO/PCM HEADS



8mm

= 234 lines). Super Beta is next (3.24 MHz, 259 lines). Surprisingly, given the performance of present-day 8mm machines, the 8mm format has the widest luminance bandwidth allocation (3.33 MHz, 266 lines), although it also falls short of the 4.2-MHz/336-line resolution that the NTSC television system is capable of delivering.

Recent tests of 8mm machines have shown them capable of resolution approximately equal to that of VHS units and inferior to that of Super Beta. In contrast to the half-inch systems, which are about as good as they can get within the confines of their standards, 8mm VCRs do not yet perform as well as they could. One explanation is video-head technology, but the main reason is tape quality.

SHOWING ITS METTLE

THE MOST IMPORTANT TECHNICAL INNOVATION leading directly to the 8mm format was the development of metal-particle (MP) audio cassette tape. Sales figures suggest that for most listeners the expense of metal audio cassettes outweighs their performance advantages over ferric or chrome-equivalent tapes. But a pure-metal formulation is absolutely essential to 8mm video recording because it allows a great deal of information to be crammed into a very small area—just the thing for a video recording system using a tape only 8mm wide. The 8mm standard specifies MP tape, and all currently available 8mm tapes are of nearly identical metal-particle formulations. Unfortunately, today's MP tape does not deliver the full performance of which the 8mm format is theoretically capable.

However, included in the 8mm standard are provisions for "metal evaporated" (ME) tape. Unlike MP tape, in which the magnetic material is essentially painted on the backing film, ME tape has its magnetic layer condensed from a metallic vapor directly onto the film. Since there are no extraneous chemicals in the magnetic layer, ME tapes offer another step up in potential recorded information density. With the 8mm system, the visual result is greater resolution and obviously lower video noise than is obtainable with MP tapes. ME tape together with suitably optimized video heads would make 8mm picture quality definitely superior to HQ VHS. In addition, the thinness of the metal coating permits a very thin tape with an attendant increase in playing time.

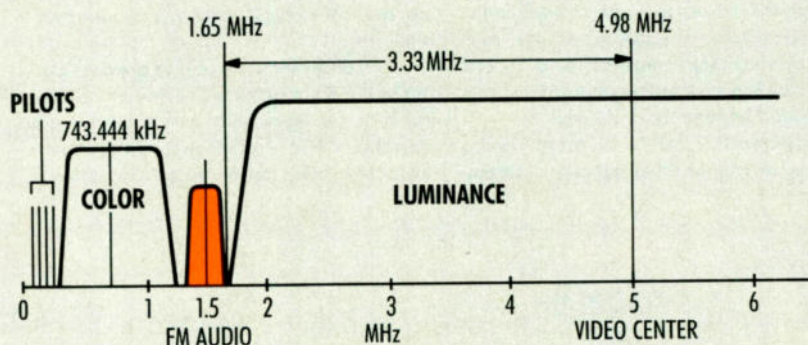
But there is a catch: Nobody can yet make ME tapes in commercially practicable quantities because the production-engineering problems are proving to be too great. The few "laboratory" or "development" samples produced are available only to manufacturers of 8mm VCRs.

So the 8mm system is stymied. For manufacturers of 8mm equipment—and, one presumes, their dealers and retailers—it is de-

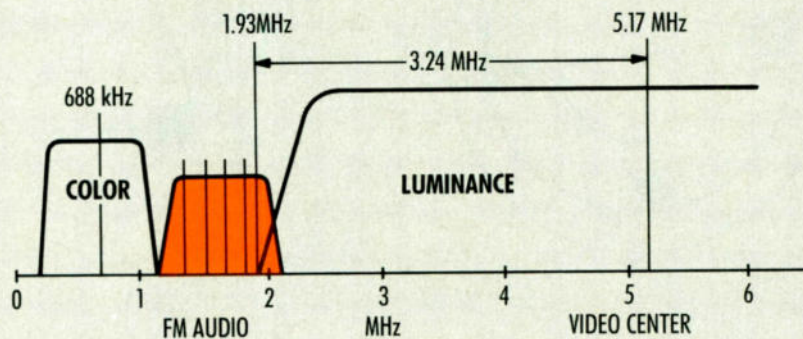
sirable that the system gain acceptance as widely and as rapidly as possible. But its growth is being hindered by the overwhelming presence of VHS and VHS-C, the rarity of prerecorded software, and consumer (and manufacturer) confusion as to just what the rightful place of 8mm should be. The 8mm system has an edge over the half-inch systems by virtue of some technological re-

finements and a greater potential for growth in versatility and—with ME tape—picture quality. Unfortunately, superior picture quality, which would be an incontestable selling point in 8mm's favor, is not now available. We can only hope that it comes soon, before all of the potential market niches foreseen by the system's developers turn out to be high-tech cul-de-sacs. ■

8mm



SUPER BETA HI-FI



VHS HI-FI

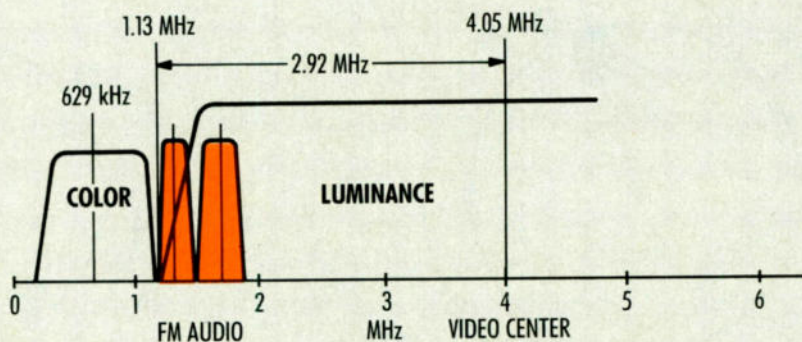


FIG. 2. THE FREQUENCY SPECTRA OF THE HOME VCR SYSTEMS ALLOW GRAPHIC COMPARISONS OF THEIR THEORETICAL RESOLUTION PERFORMANCE. WITH A 3.33 MHz LUMINANCE BANDWIDTH, THE 8mm SYSTEM IS CAPABLE OF HIGHER RESOLUTION THAN EITHER SUPER BETA OR VHS, AT LEAST IN THEORY. (TO OBTAIN A RESOLUTION FIGURE MEASURED IN "LINES," MULTIPLY THE LUMINANCE BANDWIDTH IN MEGAHERTZ BY 80.) FOUR LOW-FREQUENCY PILOT TONES ARE USED TO KEEP AN 8mm VCR'S SPINNING VIDEO HEADS ALIGNED ON THE CORRECT TRACKS.



EDITED

BY

KEN

RICHARDSON

BLUES FOR TV JAZZ

FOR BETTER OR WORSE, I AM A member of that first generation to take television for granted, as a source of both entertainment and information. And so ever since I began listening to jazz, in 1962 at the age of thirteen, I've been looking for it on TV. Because I'd realized almost from the start that an interest in jazz was considered by the mainstream culture a mild eccentricity, akin to an interest in UFOs, it didn't surprise me that my sightings in the '60s were so rare. Aside from Steve Allen's late-night variety show—which supplied inde-

delible memories of Oscar Peterson, Bill Evans, Cannonball Adderley with Charles Lloyd, and Miles Davis—there was only the odd PBS presentation to stumble upon. A dire situation, so dire that by the beginning of the '70s, a group of musicians including Archie Shepp, Lee Morgan, and Roland Kirk felt compelled to descend on the then "live" *Ed Sullivan Show* in order to stage a protest/jam. My feelings were ambivalent: These guys were too eminent to be reduced to the dirty work of barricade storming; still, if barricades *had* to be stormed. . . . No matter. The '70s were, if anything, worse. One would have thought that at least fusion, which has always been shameless in its pursuit of commercial viability, would have made some inroads, but no.

Come the '80s, and things have changed. For the first time since the late '40s, TV is undergoing a metamorphosis: Cable and home taping are reshaping it toward an end that people are still being paid to guess at. Until the dust settles, we can agree that there are more channels available, with the result that smaller audiences are being targeted. And sure enough, jazz is being televised more often.

But there's a catch. Concurrent with this increase in TV access has been the emergence of a new generation of neo-classical jazz artists. This allows the medium to indulge its conservative instincts and still be "bold": Each time Wynton Marsalis is on (and he's ubiquitous), TV presents us with something old and new simultaneously. Aside from Marsalis and his peers, a slew of mainstream postboppers are getting exposure. Fine. But where are David Murray, James Newton, and Billy Bang? Or for that matter, Ornette Coleman, Cecil Taylor, and Anthony Braxton? Why won't the new, expanded TV acknowledge the avant-garde and its quarter-century tradition? Will storming the Regis Philbin show help? One suspects that isn't the answer.

Richard C. Walls

IF WINTER COMES . . .

LAST NIGHT, WITH DECEMBER JUST around the corner and the rain lashing at the windowpanes, I poured myself a glass of claret, sat back on the sofa, and listened to the first act of Cimarosa's *Il matrimonio segreto*—and decided there was nothing better in the world. Until I put on a bit of the final act of *Don Giovanni* and remembered there *was* something better in the world. Not that Cimarosa isn't fit to keep company with Mozart; indeed, if you read Stendhal's *Life of Rossini*, you'll see him put almost, if not quite, on the same plane. But *Don Giovanni*, which enters its third century on the stage this year, has yet to be bettered (again, you can take Stendhal's word for it if you don't want mine), except perhaps by a couple of operas Mozart himself was subsequently to compose.

The recording I was listening to happened to be the new one from Deutsche Grammophon, featuring Samuel Ramey in the title role, with the Berlin Philharmonic conducted by Herbert von Karajan. It is Karajan's first recording of the work, and it is one of the most sensitive and sensuously beautiful treatments of the piece I have heard committed to disc. There is a great deal of good singing, and the characters of Anna and Ottavio emerge, for once, with an appealing humanity. But the most striking aspect of the interpretation is the way in which the individual numbers of the score are spun out and woven into a truly ravishing symphonic fabric, for which a measure of credit is due the Berlin Philharmonic for its exquisitely refined playing.

It was with much the same object in mind, I imagine, that Riccardo Muti approached Richard Wagner's *Der fliegende Holländer* in the concert performances he gave of it with the Philadelphia Orchestra this past October. I can only think that Wagner would have been impressed to hear his revolutionary score getting the spots played off of it, as the Philadelphians did, and sung, if not to perfection, at least up to something like festival standards. It was a performance that, by the beginning of the third act, had succeeded in making one forget the dry-as-dust acoustics of the Academy of Music—and what a third act it was, with the Westminster Choir acquitting itself brilliantly. My hat is off to Muti for balancing the Teutonic power of Wagner's scoring with the Franco-Italianate trappings of his grand-opera style. Perhaps EMI will be willing to record this account when Muti takes it to La Scala. Until then, W. C. Fields notwithstanding, I'm going to Philadelphia more often.

Ted Libbey



EDITED

BY

TED

LIBBEY

CLAS

A walk back in time is one way for avid young collectors to

PARADOXICALLY, IT IS THE very surfeit of current record releases that most handicaps serious young collectors today. Not only is the wealth of choices bewildering (and difficult for even the well-financed buyer to keep up with), but the strong promotional pressure on new product tends to obscure the value of less well advertised reissues. Veteran collectors have the enormous advantage of having been able to hear, even buy, almost everything of real worth that appeared in their younger days, with the additional advantage of having first encountered the medium's triumphs when they were new. Recently, however, in response to market demands fueled by the development of portable cassette players and the Compact Disc, manufacturers have been capitalizing on the sales potential of hit recordings drawn from their past catalogs, giving young collectors a chance to catch up with their elders.

An example is the latest of the many

Walkman-audience specials: Pantheon's Price-Less series, which lives up to the double implication of its trade name by offering real masterpieces at bargain prices. Nominally \$3.98 each, these cassettes sell at discount for only \$2.98 (four for \$10). At such rock-bottom prices, there are no such niceties as digital remastering, chromium tape, or even notes, but the choice of repertory is appetizing and the technical qualities are surprisingly good.

That opinion is based on my first two samplings from the line, both of double-play length: The first includes the two Brahms piano concertos in nearly definitive accounts by Wilhelm Backhaus and the Vienna Philharmonic under Karl Böhm and Carl Schuricht, respectively (Price-Less C 89193); the second includes three Richard Strauss tone poems in authoritative readings by the composer's good friend and eloquent exponent Clemens Krauss, also with the Vienna Philharmonic (Price-Less C 7840X). Both are available from Outlet Book Co., 225 Park

Ave. S., New York, N.Y. 10003.

Until this rehearing of the Backhaus Brahms First, I had forgotten how dominant his reading had been. Backhaus was the first to record the work, with the BBC Symphony under Adrian Boult for HMV/Victor in 1934. His interpretation made such a powerful impression that—in tandem with his second account of the work the following year (the present one, made for English Decca)—it served as the paradigm for the music. The present account of Piano Concerto No. 2, which Backhaus made with Schuricht in 1954 (his second recording of the work, superseding one with the Saxon State Symphony under Böhm, made for HMV c. 1940), never was quite as influential, probably because it had such formidable early competitors as the 1930 Schnabel/Boult/HMV, the 1930 Rubinstein/Coates/HMV, and the 1941 Horowitz/Toscanini/Victor versions. Nonetheless, it remains one of the great interpretations. And it will be a joy as well as an educational experience for every

THROUGH THE

BY R. D.



STICIL

discover the giants of the past and keep up with their elders.

young Brahmsian today to hear these model performances in their fine cassette reissues, each free from the ancient handicap of a side-break.

The great Strauss tone poems have come to be associated so closely with Fritz Reiner, George Szell, and other star conductors that few young listeners are likely to realize how important a role was played in their popularization—both in concert and on record—by the composer's friend Clemens Krauss, whom we are most likely to remember for his no less vital role as an interpreter of the music of Johann Strauss and his family. Although Krauss was best known in his own day as a conductor of Richard Strauss's operas (and as the librettist of *Capriccio*), his readings of the tone poems are unique, both for the freshness of their approach and for their insights into the composer's intentions.

The present three examples (*Also sprach Zarathustra*, *Don Juan*, and *Till Eulenspiegel*, all from 1950 with the Vienna Philharmonic,

originally for English Decca) are also of special *sonic* interest in that they vividly represent the deservedly famous technical achievements of the Decca *ffrr* (full frequency range recording) technology, which did so much to alert record listeners, toward the end of the 78-rpm era, to the advantages of high fidelity recording and reproduction. Up to that time, no versions of these works had coped as effectively with the thunders of *Zarathustra*, the hanging-scene snare drum of *Till Eulenspiegel*, or the horn exultations and oboe song of *Don Juan*.

Another aptly named reissue series, RCA Gold Seal Legendary Performers, is mid-priced at \$5.98 each, but it proffers the technical attraction of digital remastering. The series already boasts numerous past masterpieces involving conductors Arturo Toscanini, Leopold Stokowski, Fritz Reiner, Pierre Monteux, and Eugene Ormandy, among others, and soloists Vladimir Horowitz, William Kapell, Jascha Heifetz, Gregor Piatigorsky, and Benny Goodman, to name

the most prominent. The sole example to come my way lately (RCA AGK 1-5286) reminds me that Toscanini, for all his fame as an exponent of Beethoven, also was an outstanding Brahms conductor. His Victor mono series of the four symphonies with the NBC Symphony Orchestra, recorded in 1951 and 1952, had the great aural appeal of Carnegie Hall (not Studio 8H) acoustics. The best of the series surely was this mighty Fourth, whose breadth and nobility were superbly encompassed by the conductor. The jacket of the original LP (Victor LM 1713) bears a sticker touting the New Orthophonic recording technology—one of the many attempts to compete with Decca/London's *ffrr* sonics. It was an effective recording, now made even cleaner and more powerful by digital remastering.

Technological enhancements are even more evident on the justly famed premium-priced In Sync and Conductart/In Sync state-of-the-art chromium cassettes with real-time processing. Some of the best of

THE HOURGLASS

DARRELL



Barton Wible's miraculous Conductart resuscitations are in the In Sync collection of Madeleine Grey recordings, including her incomparably piquant rendering of Canteloube's *Chants d'Auvergne* with an orchestra under Elie Cohen, recorded in 1932 (Conductart/In Sync C 4143). I had first encountered and been mesmerized by Grey's Auvergne songs in Columbia's black-label French lists of 1931 and 1933 (they appeared on three 78-rpm shellac discs) and later added my voice to the more influential one of Irving Kolodin, then recordings editor of *Saturday Review*, in demanding more widely available reissues.

In addition to the spicily orchestrated Canteloube arrangements, the present tape also includes Grey's incomparable readings of Ravel's *Chansons hébraïques* and *Chansons madécasses*, recorded by Polydor in 1932 and never, as far as I know, reissued in LP format. In the former set, Grey's charismatic singing is accompanied by Ravel himself, and the composer leads the little flute/cello/piano ensemble that the latter score calls for. This Madagascar song set was cited by Ravel as the best to date of any recorded performances of his works. And it contains an extraordinary pioneering example—in the second song, *Aoua!*—of black-power pacans. For those unfamiliar with the astonishing artistic personality of Madeleine Grey, this tape will be a revelation of one of the most remarkable singers of all time.

Another great artist who has gone unappreciated by young listeners was the tragically short-lived cellist Emanuel Feuermann (1902–1942). Feuermann labored under the double handicap of being overshadowed by Pablo Casals and being the victim of recording-studio inhibitions that never allowed him to sound his best on commercial records. How much freer and more authoritative he could be in live performances is demonstrated by a pair of recent releases (In Sync C 4162/63). In Sync president E. Alan Silver learned from Feuermann's daughter of the existence of some acetate-disc recordings of 1940–41 concert appearances with Leon Barzin's National Orchestral Association in Carnegie Hall. This was a celebrated New York organization for training potential professional orchestral players. Under Barzin, it was capable of quite remarkable proficiency—as demonstrated here whenever its youthful enthusiasm does not lead it into some tonal coarseness in the otherwise effective tutti.

Feuermann is more spontaneously outspoken, more magisterially dramatic, and even more barbarically sumptuous in this version of Ernest Bloch's *Schelomo* Rhapsody than in his near-definitive 1940 Philadelphia Orchestra/Victor recording with Stokowski. More surprisingly, Tom Owen's digital remastering of the original acetate is even more vivid than the spectacular Victor studio recording of less than a year earlier. And the present version of the mighty Dvořák Concerto in B minor not only supersedes

Feuermann's earlier one with the Berlin State Opera Orchestra under Michael Taube (recorded c. 1932 for Odeon and American Columbia) but now comes accompanied by Dvořák's less consequential trial runs for that masterpiece: the Op. 68 *Silent Woods* and the Op. 94 Rondo.

Filling out the four tape sides are a lightweight, cliché-ridden cello concerto by the very minor Czech composer Josef Reicha (1752–1795), which at the time Feuermann played it was receiving its first—and probably last—American performance, and the once popular, now faded cello concerto by Eugène d'Albert best known for his opera *Tiefland*.

My only possible complaint about this historically and artistically significant release is over the inclusion of too-long stretches of applause after each selection, by what Edwin Hale would have described as an "enthusiastic and bronchial audience," whose coughs mar even the arresting opening of *Schelomo*.

*The famed virtuosos
continue to prove
how magisterial
their talents were.*

"Very deep is the well of the past!" Thomas Mann warns in the opening of *Joseph and His Brothers* (Knopf, 1934). But paradoxically, it also is shallow, since it is constantly overtaking the present. The milestone events of our own day immediately become those of the near past. A notable recent example is Horowitz's well-covered (on both TV and record) recital in the Great Hall of the Moscow Conservatory on April 20, 1986. Deutsche Grammophon has vividly documented this event (Deutsche Grammophon 419 499-4), valuable for its permanent "fixing" of the extraordinary virtuosity that the Russian-American star has preserved into his eighties. Here are further examples of his Domenico Scarlatti, his non-Mozartean Mozart, his superb Rachmaninoff and Scriabin, as well as his Chopin, Schumann, and Liszt. But nothing is more dazzling than the sheer bravura of Moszkowski's *Étincelles*, except perhaps for Rachmaninoff's elaborations on a tune by his father, *Polka de V. R.*

NOTHING THAT WE HAVE SURVEYED SO FAR—whatever its value in resurrecting the vital musical past—has been as apt for peripatetic listening as some of my earlier recommendations in this series, which began in 1983 with "Going Walkabout" and has continued in every February issue of HIGH FIDELITY since then. One of the categories that has proved to be nearly ideal for "Walk on Ayre"

listening is that of the Straussian (and other Viennese) dance repertory whose ear- and toe-tickling appeals never seem more captivating than when they are heard in this most intimate and personal of all media of musical experience. My last citation (February 1985), however, was a Josef Strauss waltz-and-polka collection, in commenting on which I had to apologize for the once supreme Willi Boskovsky's evident loss of both interest and infectious enthusiasm. Fortunately, Boskovsky and his Johann Strauss Orchestra of Vienna seem to have had a change of heart and a revival of their earlier zest, for their 1985 release (Angel EMI 4DS 38146) of "journalist"-oriented waltzes and polkas by Johann II and Josef reveals both the old idiomatic expertise and the spice of unfamiliar materials. These qualities also characterize the current *Greetings from Austria* (Angel EMI 4DS 38322), in which the only really familiar selection is one of Boskovsky's best versions of *Tales from the Vienna Woods*, here with the vital zither part again included, this time with soloist Rudi Knabl—a worthy successor to the late Anton Karas of *The Third Man* fame.

Also included here are such infrequently heard works as Johann II's dramatic *Cagliostro in Vienna* and poetic *The Queen's Lace Handkerchief* overtures and the even more poetically evocative *Viennese Ladies* waltz. And the polkas (Johann II's proudly high-stepping *Greetings from Austria*, sprightly *From the Banks of the Danube*, and high-speed *Express*; Eduard Strauss's haunting *Alpine Rose*; and Josef's exuberant *Off on Holiday*) are all new—at least to my ears. Boskovsky and his forces have seldom played more intoxicatingly or been more vividly (digitally) recorded. My only quibbles are over the scanty notes by the always authoritative Andrew Lamb and the failure of the labeling to include the original German titles, especially for the less familiar works.

Explorations of the less familiar Viennese repertory were once a feature of England's enterprising Viennese Light Music Society, which after several quiescent years and the death of its driving spirit and secretary, Reginald Woolard, now has metamorphosed, I'm delighted to learn, into The Society of Old Vienna. Under the direction of Woolard's widow, it has resumed its ambitious aim of "recording all the neglected works" of the Strauss family and their Viennese colleagues.

Tightening its belt nowadays by substituting solo piano for orchestral versions, the Society is lucky to have so skilled and idiomatic a pianist as Otto Schulz, who has had access to jealously preserved piano scores in Vienna and Berlin archives. His *Resurrected Gems of Vienna's Golden Years*, Volume I, features the music of one of the most unjustifiably neglected minor masters of this incomparable realm of dance and march music: the Austrian army bandmaster Joseph Gungl (1810–1889). Schulz demonstrates that Gungl can be a real spellbinder in his waltzes

(CONTINUED ON PAGE 80)

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CARTER'S MELODIC "IN SLEEP, IN THUNDER" BELIES HIS REPUTATION FOR FIERCE COMPLEXITY.

(CONTINUED FROM PAGE 61)

Both works are superbly performed by the virtuosic new-music ensembles that commissioned and premiered them: *Triple Duo* by Peter Maxwell Davies's Fires of London and *In Sleep, In Thunder* by Oliver Knussen's London Sinfonietta. Tenor Martyn Hill is marvelously eloquent, and the Nonesuch/Wergo engineering has a crystalline, piercing clarity. *K. Robert Schwarz*

CRUMB:**A Haunted Landscape*.****SCHUMAN:****Three Colloquies for Horn and Orchestra†.**

Myers†; New York Philharmonic*†, Weisberg*, Mehta†, Elizabeth Ostrow, prod. New World NW 326 (D).

I HAVE TO CONFESS A BITTER DISAPPOINTMENT in George Crumb's *A Haunted Landscape*, a work that got favorable, even enthusiastic, reviews when it appeared. As with other recent pieces by the composer, the material seems to grow ever slighter and slenderer, the aesthetics increasingly retrospective. Little seems to be left of the outstanding personality who produced the great Lorca cycles, *Black Angels*, and *Makrokosmos I and II* in the late 1960s and early '70s, during a period that appears now to have been the climax of Crumb's creativity. The new orchestral piece relies heavily on quotations, and the mysterious harmonies in the aforementioned works have by now yielded to far more common ones. The very skillful and refined scoring of the work fails to compensate for the loss of genuine invention.

William Schuman's *Three Colloquies* is an altogether different proposition—and a far more substantial one. Although general opinion has it that Schuman's creative powers have been on the decline in recent years, this hardly seems the case with *Three Colloquies*, which captivates the listener's attention from the very striking, bell-like chords that open the work. Schuman, whose writing for brass has always been outstanding, here conjures up all of the horn's magical, poetical qualities; in fact, this piece, far more than Crumb's, deserves to be called *A Haunted Landscape*. It is more a poem (in the sense of Chausson's *Poème* for violin) than a genuine concerto, and thus the horn is never called upon for pyrotechnics for their own sake,

even though its part is rewarding and, at the same time, very difficult. The piece's three interlinked sections add up to a convincing whole of genuine symphonic breadth and solidity, perfectly timed and balanced as the music reluctantly draws to its nostalgic close. The nostalgia remains unresolved, as the soloist lingers between B natural and B flat, never reaching the A of the long-held F-major chord in the divided strings: a lovely, wistful epilogue to a lovely piece of music. Both the performances and the quality of the recording are of that superlative quality to which New World's invaluable Anthology of American Music has accustomed us.

*Harry Halbreich***FINZI:****Concerto for Cello and Orchestra, in A minor, Op. 40*.****LEIGHTON:****Suite for Cello, Oboe, and Strings "Veris gratia," Op. 9†.**

Wallfisch*, Caird*†; Royal Liverpool Philharmonic Orchestra, Handley, Brian Couzens, prod. Chandos CD 8471. © ABTD 1182. Ⓜ ABRD 1182.

CELLO LOVERS, BEWARE! IN A FEW DECADES during the first half of this century, the British invaded the supposedly slim cello concerto literature, to the immense benefit of us all. Consider: the Elgar, the Walton, the Delius, and, not so well known but hardly inferior in quality, the Bridge (so gloomy, so beautiful), the Moeran, and, perhaps the greatest of them all, the Finzi.

Such essentially lyric masters of small forms as Gerald Finzi and Edvard Grieg are generally not thought capable of producing successful large-scale works. Sometimes that proves to be the case: Witness the Grieg Symphony in C minor. But witness also Grieg's Piano Concerto in A minor and the present cello concerto as proof of the opposite. What contrasts Finzi presents here! The concerto's first movement is dark and extremely impassioned; it is followed by a long, slow movement whose poetry has few if any parallels in modern cello literature; that in turn leads to a jolly finale in the best Elgar/Vaughan Williams fashion, yet with Finzi's distinctive voice.

Several years back, Yo-Yo Ma was persuaded to record this concerto, with fine re-

sults. One wonders why he has found no opportunity to play it in this country (with the likes of André Previn, for instance). Raphael Wallfisch's performance here with Vernon Handley (who also was the conductor when Ma recorded the work) is altogether tougher, yet equally poetic. Since the Chandos sound is better and another work is thrown in, the present CD gets the nod over the former Lyrita LP (still in print, but unlikely to ever appear on CD).

Earlier, I suggested that the Finzi concerto is a masterpiece of 20th-century British cello music. That is too modest a claim. The Finzi is one of the masterworks for the cello . . . period. (The suite by Kenneth Leighton that occupies the remainder of this well-filled CD is less eventful, yet no less attractive for that.) That said, I await Wallfisch's forthcoming disc of the Moeran concerto with great anticipation. *Thomas L. Dixon*

LIFCHITZ:**Consorte*; Exceptional String Quartet†; Rhythmic Soundscape No. 1†; Winter Counterpoint*.**

Trampler*, Dutton*, Gottlieb*, Lifchitz*;
 ☉ Times Square Boss†, Bronx Arts Ensemble*. Eve Beglarian and Carter Harman, prods. Composers Recordings CRI SD 516 (A).

THOUGH PROLIFIC AND HIGHLY REGARDED in the East Coast academic community, the 38-year-old Mexican-born composer Max Lifchitz is represented on only one previous American recording, an Opus One release (on the jacket of which his name is misspelled). His debut on the CRI label is a welcome one, for it demonstrates both the breadth of his recent activity and the consistency of his severe but certainly not unappealing aesthetic.

The earliest piece recorded here is the 1970 *Consorte*, a seven-minute duo for viola and viola d'amore built on multicolored reiterations of a mere handful of pitches. All of the other works date from 1977–1979, and they are longer and generally busier than *Consorte*, as well as much more varied in texture and gestural content. But they, too, feature an economy of atonal materials deftly crafted into compositions of compelling and commanding force. *Winter Counterpoint* (1979) is the boldest of the lot, a package of intimate but heated instrumental conversations that calm down only in the last of five movements. Similar energies, at least, are conveyed in *Rhythmic Soundscape No. 1* (1978) for percussion and piano. The neat structure of *Exceptional String Quartet* (1977) would be just as apparent were the work scored for the standard ensemble; it only gains in effectiveness with its terse and often ominous statements realized by a foursome of double-bass players.

Rhythmic Soundscape No. 1 is recorded at a level considerably lower than that given the other pieces. Otherwise, the disc easily meets CRI's current norm, with very clean pressings and thoroughly virtuosic performances. *James Wierzbicki*

Danacord's First CD

BRAMMS:

*Alto Rhapsody**; *Von ewiger Liebe*;
Wir wandelten.

BEETHOVEN:

*Symphony No. 5, in C minor**

● Ferrier*†, Spurr†; Danish Radio Orchestra and Male Chorus, Busch*; Vienna Philharmonic Orchestra, Furtwängler*. Jesper Buhl, prod. Danacord DACOCD 301. © DACO 114. (Distributed by Qualiton Imports, 39-28 Crescent St., Long Island City, N.Y. 11101.)

DANACORD'S FIRST COMPACT DISC IS AN auspicious entry into the list for producer Jesper Buhl. It brings together two extremely worthy finds, dug up by Buhl from various sources, including amateurs' home tapings of broadcast performances. The first item—Brahms's *Alto Rhapsody*, with Kathleen Ferrier as the soloist and Fritz Busch conducting the Danish Radio Orchestra and Male Chorus—comes from a broadcast concert of October 6, 1949. It is a deeply felt and quite beautiful performance. Ferrier's velvety singing does not, however, have the depth of tone that Kerstin Thorborg or Margarete Klose achieved in this music, but if you are a devotee of Ferrier's art, this disc is an absolute must. Busch, who built this orchestra with Nikolai Malko, is faultless. Added are two Brahms encores, both with Phillis Spurr accompanying Ferrier at the piano: *Von ewiger Liebe* and *Wir wandelten*. Neither selection is presented in its entirety, because of the broadcast, but each one is gorgeous.

What the world really doesn't need is another recording of Beethoven's Fifth Symphony, but the second part of this CD offers a performance of it by the Vienna Philharmonic, led by Wilhelm Furtwängler (on tour in Copenhagen), broadcast October 1, 1950. The freedom of the reading is amazing. It is not manic, as some late Furtwängler readings were, but serene, with wonderful solo work from the Viennese players.

The sound on this CD does not match the quality of today's digital recordings, but the digital remastering is nothing short of remarkable, as is also the case with Danacord's 12½-record anthology of early Lauritz Melchior—still only on vinyl, but soon to be issued on CD.

Bert Wechsler

MEYERBEER:

Le Pardon de Ploërmel ("Dinorah").

● Cook, Smith, Jones, Oliver, Earle, Caley, Du Plessis; Geoffrey Mitchell Choir, Philharmonia Orchestra, Judd. Patric Schmid, prod. Opera Rara OR 5 (A, 3). (25 Compton Terrace, Canonbury, London N1, England.)

MEYERBEER'S *DINORAH* HAS SOMEWHAT unjustly faded into near oblivion. It concerns a goatherd and his betrothed, whose pet goat, unfortunately, is on stage with her for much of the opera. Hoël, the goatherd, is prevented from attending his wedding, and poor Dinorah goes mad, spending most of the opera in that condition. All ends happily in this work, which received its premiere at the Opéra-Comique in 1859 and boasts a li-

bretto by Jules Barbier and Michel Carré (the same men who provided the book for Gounod's *Faust*).

The heroine's fabulous "Shadow Song" has never fallen out of favor with great coloraturas—Patti, Galli-Curci, Callas, and Sutherland are just four who have kept it alive. *Dinorah*, however, is not merely a one-aria opera. There are plenty of good melodies for the baritone in the part of Hoël, as well as a fascinating trio, and the chorus, even during the overture, has some interesting work. Make no mistake: This is not a forgotten masterpiece, but it is vastly enjoyable on its own terms.

Opera Rara's performance is first-rate. Philadelphia-born, Munich-based Deborah

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Naumanen*, Hynninen*†; Helsinki University Male Choir*†, Estonian State Academic Male Choir*†, Helsinki Philharmonic Orchestra, Berglund. Angel EMI CDC 47496, Dec.

TCHAIKOVSKY:

Iolanta, Op. 69.

Vishnevskaya, Gedda, Grönroos, Petkov, Krause; Orchestre de Paris, Rostropovich. Erato ECD 88147, Jan.

RECITALS AND MISCELLANY

VARIOUS PERFORMERS:

100 Years of Italian Opera, Volume One (1800-1810).

Various artists; Geoffrey Mitchell Choir, Philharmonia Orchestra, Parry. Opera Rara ORH 101, Dec.

Cook sings the title role with a bright, forward tone, always perfectly in tune. Her first-act lullaby is as pretty as her "Shadow Song" is thrilling, and she ends the latter on a spectacular high F that seems to fly away into the oncoming operatic thunderstorm. Christian du Plessis sings Hoël (a favorite role of Giuseppe de Luca) with a slightly woolier tone than I would prefer, but he handles his fiendishly difficult first-act aria quite nicely. As the superstitious, comic bagpiper Corentin, tenor Alexander Oliver copes well with the role's high, soft passages, losing only a bit of elegance when his middle range is tested. In the smaller roles of a goatherd and a goatgirl, Della Jones and Marilyn Hill Smith add to the general good spirits of the recording.

James Judd leads the Philharmonia Orchestra superbly in this complicated score, and the recorded sound is excellent, with a fine balance between the orchestra and singers. In short: an interesting rarity with plenty of bonuses. Libretto and illustrated booklet are included.

Robert Levine

ORFF:

Choral Works.

Carl Orff Choir, Gross. Wergo WER 4006-50.

⊙

Cantatas to texts by Franz Werfel (3): Veni creator spiritus; Der gute Mensch; Fremde sind wir. Choral Movements to texts by Bertolt Brecht for Mixed Chorus, Three Pianos, and Percussion (2): Von der Freundlichkeit der Welt; Vom Frühjahr, Öltank und vom Fliegen. Aus "Sirmio": Trio Catulli carmina; Lugete o Veneres (Catullus); Sunt lacrimae rerum (Vergil). Laudes creaturarum (St. Francis of Assisi).

THIS COLLECTION OF EARLY CARL ORFF choruses, some of them dating from his *Carmina burana* period, reinforces my long-standing suspicion that the hard-line musical minimalists, particularly Steve Reich and Philip Glass, derive their patrimony fundamentally from Orff and György Ligeti. No composer in history ever got so much mileage out of repetitive *ostinato* devices as Orff; add to that the slow, gradual, sometimes almost imperceptible harmonic iridescence and coruscation originated by Ligeti and *voilà*: minimalism.

Either you like Orff or you don't. In my own case, I have rarely walked out on any musical performance, but about 35 years ago Orff's *Antigone* drove me, fuming, out of the Bavarian State Opera: I had reached the point where if he subjected me to just one more *basso ostinato*, I thought I might commit murder. The works here, none longer than 11:51, tax the listener's patience considerably less.

The chorus, based in the little Bavarian town of Marktobendorf, shows what a gifted, dedicated choral conductor (in this case Arthur Gross) can accomplish in 20 years of hard work with eager amateurs. Whether they sing German, Latin, or St. Francis's original 13th-century Umbrian dialect, they display extraordinary diction, but unfortu-

nately that does not make up for this album's only real flaw: The leaflet describes the works fully and well, but provides no actual texts either in the original or in translation.

Paul Moor

TOWER:

Amazon*; Noon Dance†; Platinum Spirals*†; Wings*.

Collage†, Smirnoff†, Flax†; Da Capo Chamber Players*. Robert Cabbage and Peter Storkerson, prods. Composers Recordings CRI SD 517 (A).



JANE WIERZBICKI

TOWER: ATONAL ABSTRACTIONIST

JOAN TOWER LIKES TO DEAL WITH IMAGES, and in her liner notes, she lets us know that these pieces were inspired (at least in part) by her private reflections on, respectively, an unevenly flowing river, the similarity of chamber music players to dancing partners, the malleability of a certain precious metal, and the flight pattern of a large bird. The titles are only minimally useful to the listener, though. I suspect I'm not the only one who hears just as much (or as little) "water music" in the 1982 *Noon Dance* as in the 1977 *Amazon* or who finds just as many (or as few) avian allusions in the 1976 *Platinum Spirals* as in the 1981 *Wings*.

The point is, Tower is not at all the referentialist composer her titles suggest she might be. She's an atonal abstractionist through and through, and while her music indeed covers a wide range of expressive territory, almost all her work takes the form of extended constructions based on the logical development of just a few germinal motifs. And—perhaps because she's served as pianist for the Da Capo Chamber Players since the group's founding 17 years ago—she's also a composer who knows how to get the most out of the instruments for which she writes: *Platinum Spirals* and *Wings* come across as enormously gratifying solo pieces for violinist Joel Smirnoff and clarinetist Laura Flax, and the works for ensemble offer all the participants a chance to shine with more than a little brilliance.

The recording of *Platinum Spirals* has lots of surface and background noise, but everything else gets fine treatment from the CRI engineers.

James Wierzbicki



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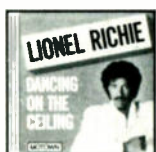
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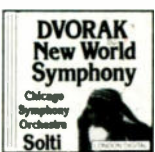
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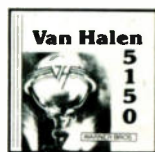
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BACK

*Trumpeter Booker Little: artistry in the shadows,
recordings out of print*

A CASE OF NEGLECT

BY STEVE FUTTERMAN

JAZZ'S WELL OF GENIUS WAS OVERFLOWING DURING THE LATE FIFTIES and early Sixties. An offhand list includes names like Miles Davis, John Coltrane, Charles Mingus, Ornette Coleman, and Cecil Taylor. Booker Little deserves that same immediate recognition, but for now I'm not holding my breath. To assess him, you'd have to hear his records, and they just can't be found. This brilliant trumpeter, composer, and arranger remains a vinyl phantom: Rarely is more than one of the four recordings he made as a leader in print at any time (his masterpiece, *Out Front*, hasn't surfaced since 1980), and most of his important work as a sideman is likewise unavailable. More than 25 years after his death, Little has his champions among jazz historians and cognoscenti, but cult status should never be mistaken for honor.

Little died in 1961 at twenty-three. His professional career spanned less than four years, but the authority, character, and emotional power of his playing and writing point to a precocious maturity. During an era and at an age when other young trumpeters were still coming to grips with either the athletic vibrancy of Clifford Brown or the stark lyricism of Miles Davis, Little developed a combination of their styles and then used his own experimental leanings to take the amalgam one step further. In his writing, he found common ground for both the newer formal changes brewing throughout the contemporary jazz scene and the legacy of

orchestral diversity established by Duke Ellington.

Although Little was working in a period of fervent innovation, it's understandable why he was overlooked in his own time. Unlike Brown or Davis, he spawned no stylistic school of trumpet playing. His was a private language, from the quiriness of his tone, pitch, and phrasing to the melancholy he drew upon to produce his heartrending melodies. Little's music was instantly affecting, his imagination and ideas mysterious and idiosyncratic. In an era when choosing one side or the other of the New Thing/Mainstream fence determined your identity as a musician, Little was a straddler. While jazz was in the throes of liberation, he held tight to the conventions of harmony and composition, all the while never turning his back on Ornette Coleman's stricture-loos-



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ening expressionism. No wonder Little found a musical soulmate in the equally uncategorizable Eric Dolphy, whose own reputation was established through his association with Coltrane, Coleman, and Mingus. Today, Dolphy is considered a visionary, while Little—the more precise soloist and the more highly crafted composer—is still odd man out.



BORN IN MEMPHIS IN 1938, BOOKER LITTLE grew up with such straight-ahead players as George Coleman, Phineas Newborn, Hank Crawford, and Frank Strozier—none of whom would later display his broad musical interests or lyrical bent. Moving north in 1955 to attend the Chicago Conservatory, he was befriended by Sonny Rollins, who was on the first of his recuperative "retire-

these same techniques into an obsessive, self-conscious inner voice. If Kafka's Joseph K. had played trumpet, he'd have sounded like this. Little's remaining years only turned this anxiety into an expression of profound sorrow.

In 1959, he took a leave of absence from Roach's band to work in New York. With Miles Davis's just-released *Kind of Blue* wel-

ments" from the New York scene. On hand when the tenorist was introduced to Clifford Brown, Little met not only his trumpet-playing idol but also drummer Max Roach, who would hire him three years later.

Roach's quintet, which substituted tuba for piano, was an unheralded proto-modernist unit whose experimentation provided the blueprints for Little's more fully developed later work. The tension of his early playing, which can be heard on Roach's *Conversations* (Milestone 47061), lies in the disparity between what he's trying to say and how he says it. Using the same hard bop vocabulary as many Brown-influenced trumpeters, Little elicits an entirely opposing emotional mood. Where Freddie Hubbard and Lee Morgan employed high-speed runs and wide-open tones to make joyous and funky proclamations, he translated

coming modality to jazz and with the other new kid in town, Ornette Coleman, shaking things up at the Five Spot, Little couldn't have picked a better year to soak in fresh sounds. Studying Davis, whose spare introspections were closer in spirit to his muted nature than were Brown's revelries, opened up a new route for Little. If he used this freelance year to search for a personal voice, by the end of the year, he had found it. His coming of age, at twenty-two, is announced on 1960's *Booker Little*—his only recording as bandleader still listed in the SCHWANN catalog (Bainbridge 1041). Where prolix technique once dominated, there is now a mastery of economy and space; Little's tight, confined sound has spread into a gorgeously full tone. Notes have a new depth, as if he were paying attention to their singular beauty rather than their collective weight. Confidence and invention mark his playing for others throughout 1960; a good example is his forward-thinking work with Dolphy on *Far Cry* (Prestige 7747).

By 1961, Little was suffering from uremia. The physical pain, which according to Roach and others was weathered with great courage and privacy, permeates the trumpeter's final work. Not that any technical failings can be detected—on the contrary, his skills were never sharper—but his expressiveness becomes so acute as to be devastating. The brooding, minor-key direction of his playing and writing locks in during this last year as he experiments with dissonance, discordant harmonies, and varying rhythms.

Dolphy's *Great Concert* (Prestige 34002) is probably Little's best-known recording. The two fronted an adventurous quintet that balanced the free-form impulses of the period with more traditional bop playing, a still influential concept. But Little's masterwork, one that can stand with the greatest recordings of that decade, is *Out Front*. His detailed writing is challenging and cliché-free, prompting fiery yet thoughtful playing from the band members, Dolphy and Roach among them. A powerful sadness makes *Out Front* a most moving jazz statement.

Form equaled by feeling: If *Out Front* isn't fulfilled promise, I'd be scared to hear the real thing. Little's death was tragic; the eradication of his legacy is disgraceful and insulting. ■



HITCHCOCK: MASTER OF THE TWISTED AND EERIE, LURKING IN A WORLD OF UPBEAT POP

BACKBEAT

ROBYN HITCHCOCK AND THE EGYPTIANS: *Element of Light.*

Robyn Hitchcock and Andy Metcalfe, prods. Relativity/Glass Fish EMC 8130-1. ☐

THIS CATCHY BATCH OF MELODIES MAY BE Robyn Hitchcock's most polished work to date, but that's not to say he has compromised any of his weirdness: Lyrics remain characteristically witty, oblique, and often downright twisted. And while this is by no means the British guitarist's strongest album, it's a good introduction for the uninitiated.

Element of Light contains all the elements of Hitchcock that have kept cultists following this widely underrated artist since his emergence as leader of the Soft Boys in 1977. Though he seems generally less obsessed with the dark side of things, Hitchcock again explores his two favorite themes: death ("Lady Waters and the Hooded One") and sea creatures ("Bass"). He is still master of the eerie ballad ("Raymond Chandler Evening") as well as the upbeat pop tune ("If You Were a Priest"). Best of all, the album gives us two of Hitchcock's most impassioned songs ever: "The President," a powerful jab at a certain American political figure, and "Airscape," a beautiful bit of im-

pressionism and paradox.

As Egyptians, former Soft Boys Andy Metcalfe (on bass) and Morris Windsor (on drums) have never sounded better. Hitchcock may be no virtuoso in his tough/tender guitar playing, but he effectively uses his instrument to create a variety of moods, easing from sinister to rambunctious with a touch of Eastern intrigue. And in his charmingly ragged vocals, he recalls Ray Davies and Syd Barrett, yet he also turns in a stunningly Lennonesque performance on "Somewhere Apart."

Inevitable comparisons with late-Sixties psychedelic pop are valid, but Robyn Hitchcock has come a long way from that Beatles-Byrds heritage. Now more than ever, he is refreshingly original. *Andrew Nash*

ELVIS COSTELLO AND THE ATTRACTIONS: *Blood & Chocolate.*

Nick Lowe with Colin Fairley, prods. Columbia FC 40518. ☐

ELVIS COSTELLO'S EARLY-1986 RETURN TO form, the folksy *King of America*, was the sound of a man clearing his throat after several years worth of forgettable, overproduced records. T-Bone Burnett, his coproducer on that project, retaught Costello the

value of simplicity and directness. Now, on a record that follows *King of America* by a mere nine months, Costello's reunion with his original producer, Nick Lowe, has led him to another rediscovery: the glorious art of the pop-song hook. Bashing out the 11 selections on *Blood & Chocolate* with his long-standing band, the Attractions (yet another reunion), the once and future Declan MacManus recaptures and then updates the skewed wall-of-sound pop of his 1978-79 heyday.

Judging from *Blood & Chocolate*, Costello's temporary vacation from the Attractions has done him good. Granted, he's still mining the same old themes—revenge, contempt, guilt, unrequited love—and still singing them in the strangled, choking tone that has become his trademark. Yet "I Hope You're Happy Now" and the entire second side (save for the drab "Poor Napoleon") reach out and grab your lapels unlike anything he has done since 1981's *Trust*. In "I Want You," a terrifying account of betrayal and longing, he merges the Attractions' choppy sound with Burnett's starkness. And anyone doubting Costello's continued relevance is directed to a trilogy on the second side: the majestic "Blue Chair," the more meditative "Battered Old Bird," and "Crimes of Paris," a charmer brightened by some harmony vocals from his wife, Cait O'Riordan.

Of course, Costello remains an erratic little bugger. Throughout *Blood & Chocolate*, the instruments blend into one another to create a rushed, underrehearsed jumble of guitars, drums, and organs; as a result, the Attractions often sound muffled. Also, skip the lyric sheet: You'll probably choke on opaque lines like "Japanese God-Jesus robots telling teenage fortunes" from the wordy, overlong single, "Tokyo Storm Warning." But how many other ten-year music-biz veterans can release two albums within a year and make them both count? At a time when even Lou Reed is pandering to the masses, it's oddly reassuring to know that Elvis Costello's aim is still true.

David Browne






ASHFORD AND SIMPSON:

Real Love.

Nickolas Ashford and Valerie Simpson, prods. Capitol ST 12469.  

NICKOLAS ASHFORD AND VALERIE SIMPSON have enjoyed substantial success as composers, producers, and performers, but they didn't achieve superstardom until 1984's "Solid" catapulted them into the ranks of celebrity television appearances and gossip column inclusions. After 20 years as a team, including the last 13 as a married couple, Ashford and Simpson anticipate each other's vocal maneuvers so seamlessly, it's a tribute to their skills that their work hasn't become calculated or rote. The eight selections on *Real Love* have a joyous, celebratory air in keeping with "Solid"'s upbeat mood, yet there's enough lyric versatility and shad-

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ing of themes to ensure that fans don't take them for granted.

Leadoff single "Count Your Blessings" has a sweeping opening refrain and the trademark alternation of leads. But its rather cheery message sounds tough because of Simpson's gospel-tinged vocal and Ashford's answering admonition. From the introspective qualities of "What Becomes of Love" to the haunting, teasing inflections of "Nobody Walks in L.A." and the exclamatory performance of the title track, the duo continually find ways to energize their material and retain your interest.

Although these tracks are heavily synthesized and the solos aren't always distinctive, the sometimes aggressive, other times soothing delivery of Ashford and Simpson keeps things moving. There's not one selection as arresting or catchy as "Solid," but there's no real bomb either, and in these days of formularized sessions and crossover mania, that's a significant achievement.

Ron Wynn

DUMPTRUCK:

Positively.

Don Dixon, prod. Big Time 6004-1.  (Distributed by RCA.)

IN A U.S. INDIE SCENE RIFE WITH BANDS IN love with the ephemeral, Dumptruck is a rarity: a plainspoken Boston quartet whose elegant guitars circle small meditations on loss and regret. On *Positively*, the second and stronger of its albums, the band has learned to dramatize its pervasively dark monologues so that they take on a majesty all the more bracing when posed against the narrators' melancholy. Guitarists/songwriters Seth Tiven and Kirk Swan intertwine rippling leads that both sing and cry, egged on by the supple shove of the rhythm section. In place of the wispy folk-rockisms that dominated the debut *D Is For Dumptruck*, the new songs head toward the parched, antiraveup territory of early Neil Young and Crazy Horse and, more often than not, claim it as their own.

Aside from the awkward final rumination of Swan's "Ethics," the record earns its fatal-

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borderline rhythms—part prebop, part bebop—Getz indulges himself in some of the earthiest, most full-throttle playing of his career.

The Armstrong set may not have the same kick, but it does have its own brand of dead-serious swing. This is primarily a vocal session, Armstrong's trumpet shining sparingly on brief introductions and connective solos. The all-standards repertoire oozes coziness, but Armstrong never lets ease substitute for concentrated intensity. Between his agelessly hip rhythmic phrasing and Peterson's amorphous style, they find a common groove that never becomes forced or unnatural. A luscious, unhurried "You Go to My Head" tells the whole beautiful story. Armstrong and Getz could scale the peaks, but here the boys in the band help get them to the top.

Steve Futterman

JAMES NEWTON:

Water Mystery.

James Newton, prod. Gramavision 18-8407-1. 

FOR SEVERAL YEARS NOW, FLUTIST JAMES Newton has been developing a woodwind quintet that creates real jazz chamber music, relying on indigenous Afro-American structures rather than the quasi-European fuguettes and rondos that characterize so much of Third Stream. His first such effort, 1980's *The Mystery School*, was largely successful: Working within well-defined limits, the young Newton recast the backstreet moods we normally associate with brass into the more languid tones of bassoon and oboe. *Water Mystery* is a more ambitious project, operating on three levels. The quintet functions as the core, but it is incorporated at points into a ten-piece jazz orchestra complete with rhythm section; to complicate things further, Newton has introduced an Oriental strain by adding a Koto player and a harpist.

It's a lot to reckon with. Beginning with a fairly straightforward version of the haunting Duke Ellington-Billy Strayhorn ballad "Star Crossed Lovers," the LP segues into "Lone Hill," a long, meditative piece involving the Koto and harp. The Japanese instrumentalists provide a thoughtful counterpoint for Newton's perennial probing, inserting a few blue notes of their own while interlacing effectively with the winds. Then the open mood and subtle gestures collapse into a conventional 4/4 piece, "The Grips," which contains an impressive clarinet solo by John Carter—the most impressive I've heard since Eric Dolphy played with Charles Mingus.

Side 2 is equally demanding, not in difficulty but in density. Each cut is a discrete piece of music containing its own world of textures and spaces. Indeed, "Dance Steps," a tribute to George Russell, could someday become a concert in itself.

Whatever was intended, I don't hear this as a "concept album." For best results, play one cut at a time.

Joe Blum

IN Short ORDER

POP AND JAZZ MINI-REVIEWS

THE COUNT BASIE ORCHESTRA:

① **Long Live the Chief.** Denon CD 1018.

IT'S DIFFICULT TO EXPLAIN MY FINAL dissatisfaction with this disc, except to say that the music here, though well played with good writing and solid solos, doesn't break any new ground. Led by the conservative Frank Foster, a fine tenor saxophonist who wrote "Shiny Stockings," the current Count Basie Orchestra sounds bright and energetic on its new Compact Disc: Certainly the band has never been recorded so well. There are remakes of hits ("Lil' Darlin'," "April in Paris," "Shiny Stockings"), but the original versions are better. More useful, the orchestra plays some blues and several tunes by bandmembers, including Dennis Wilson's uptempo "Hey! I See You Over There," Dennis Mackrel's appealing "Bus Dust," and a revival of Freddie Green's "Corner Pocket." And it's good to see a group dedicated to keeping Basie's kind of swing alive. But to keep any kind of jazz alive, you have to take it somewhere. So this CD is for big band junkies only.

Michael Ullman

HUEY LEWIS AND THE NEWS:

① **Fare!** Chrysalis OV 41534.

WITH THEIR STRONG LEAD VOCALS, UNIFORMLY excellent musicianship, and overall versatility, Huey Lewis and the News could well be the Doobie Brothers of the '80s if they didn't try so hard to watch the middle of the road: When they fall away from it, they really cook up a storm. I'm less impressed by the ersatz doo-wop and cutesy songs like "Hip to Be Square" (who knows what *those* words mean anymore) than I am by the mellow-tough soul ballads and bluesy rockers. Although Lewis and folks can't raise the dead (and some of these tunes are), on a track like "Whole Lotta Lovin'" they can breathe magic into those classic themes that keep the party going.

Joe Blum

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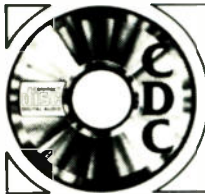
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Dutoit, Charles: *Montreal's Magnificent Maestro*. David Patrick Stearns. Feb.
 E., Sheila: *Romancing the Throne*. Pamela Bloom. Jan.
 Gil, Gilberto: *Gilberto Gil, Fellow Man*. Pamela Bloom. Oct.
 Haitink, Bernard: *Bernard Haitink, for the Record*. (Interview.) May.
 Hamilton, Scott, and Warren Vaché: *Swing Shift*. Francis Davis. Feb.
 Hüsker Dü: *Music to Our Ears*. Georgia Christgau. Medley. April.
 Ibrahim, Abdullah, and Sathima Bea Benjamin: *Outside South Africa. Glaring In*. Francis Davis. Nov.
 James, Etta: *Etta James: Back to the Future*. Georgia Christgau. Medley. Aug.
 Khrennikov, Tikhon: *Tikhon Khrennikov, the Czar of Soviet Music*. (Interview.) Joel W. Spiegelman. March. *A Reply to Tikhon Khrennikov*. Paul Moor. Aug.
 Lincoln, Abbey: *Leading Lady*. Francis Davis. May.
 Rubbra: *A Eulogy for Edmund Rubbra*. Theodore W. Libbey, Jr. Medley. Aug.
 Weissenberg, Alexis: *Weissenberg Moves to Deutsche Grammophon*. Thomas L. Dixon. Medley. Feb.
 Wilson, Teddy: *Teddy Wilson, 1912-1986*. Steve Futterman. Nov.

Featured Reviews

Adams: *Harmonielehre*. K. Robert Schwarz. April.
 Big Audio Dynamite: *This Is Big Audio Dynamite*. RJ Smith. March.
 Bril, Igor: *Before the Sun Sets*. Joe Blum. Nov.
 Clannad: *Macalla*. Leslie Berman. July.
 Clash: *Cut the Crap*. RJ Smith. March.
 Denny, Sandy: *Who Knows Where the Time Goes?* Leslie Berman. Oct.
 Donizetti: *Gabriella di Vergy (1838); Scenes from "Gabriella di Vergy" (1826)*. Various artists; New Philharmonia Orchestra, Francis. Robert Levine. July.
 Donizetti: *Maria Padilla*. Various artists; New Philharmonia Orchestra, Francis. Robert Levine. July.
 Donizetti: *L'go, Conte di Parigi*. Various artists; New Philharmonia Orchestra, Francis. Robert Levine. July.
 Gimme Shelter. John Piccarella. Feb.
 Glass: *Mishima*. K. Robert Schwarz. April.
 Glass: *Songs from Liquid Days*. K. Robert Schwarz and Mark Moses. Nov.
 Jesus and Mary Chain: *Psychocandy*. RJ Smith. May.
 Johnson, Linton Kwesi: *In Concert with the Dub Band*. Mark Moses. April.
 Kuznetsov, Alexei: *Blue Coral*. Joe Blum. Nov.
 Mahler: *Symphony No. 5*. Philharmonia Orchestra, Sinopoli. Harry Halbreich. June.
 Marsalis, Wynton: *Black Codes (From the Underground)*. Richard C. Walls. Jan.
 Microdisney: *The Clock Comes Down the Stairs*. Leslie Berman. July.
 Monterey Pop. John Piccarella. Feb.
 Mozart: *Concertos for Piano and Orchestra (25). After Sonatas by J. C. Bach (3); Rondos (2). Perahia; English Chamber Orchestra, Perahia. Thomas Hathaway. Aug.*
 Mozart: *Così fan tutte. (Recording "Così" in "Authentic" Sound.)* R. D. Darrell. April.
 Out of the Blue: *O.T.B.* Richard C. Walls. Jan.
 Pogues: *Poguetry in Motion*. Leslie Berman. July.
 Reich: *The Desert Music*. K. Robert Schwarz. April.
 Rossini: *Tancredi*. Horne, Cuperli, Palacio; Teatro La Fenice Orchestra and Chorus, Weikert. Thomas Hathaway. Nov.
 Ruefex: *Flowers for All Occasions*. Leslie Berman. July.
 Run-D.M.C.: *Raising Hell*. Havelock Nelson. Aug.
 Schroeter (cadenzas by Mozart): *Concerto in C, Op. 3, No. 3*. Perahia; English Chamber Orchestra, Perahia. Thomas Hathaway. Aug.
 Simon, Paul: *Graceland*. Hank Bordowitz. Dec.
 Steel Pulse: *Babylon the Bandit*. Mark Moses. April.
 Strauss, R.: *Guntram*. Tokody, Solvom-Nagy, Gáti; Hungarian State Orchestra, Queler. Bill Zakariasen. March.

Various Artists: *Antología del Son de México (Anthology of Mexican Songs)*. John Morthland. Sept.
 Various Artists: *100 Years of Italian Opera, Volume One (1800-1810)*. Robert Levine. Dec.
 Various Artists: *Red Wave: 4 Underground Bands from the U.S.S.R.* John Morthland. Nov.
 Verdi: *Don Carlos*. Raimondi, Domingo, Nucci, Ricciarelli; La Scala Orchestra and Chorus, Abbado. Harry Halbreich. Jan.
 Verdi: *Rigoletto*. Gruberova, Fassbaender, Schicoff, Bruson; Accademia di Santa Cecilia Orchestra and Chorus. Gregory Sandow. Feb.
 Weill, Kurt: *Lost in the Stars: The Music of Kurt Weill*. Various artists. Mark Moses. June.
 Whodini: *Back in Black*. Havelock Nelson. Aug.
 Woodstock I; *Woodstock II*. John Piccarella. Feb.

Recording and Recordings

Auteurs of Soul. (Producers Jimmy Jam and Terry Lewis.) Barry Walters. Sept.
 City Heat. Havelock Nelson. The 12-Inch Report. Sept.
 Country's Future Days. John Morthland. March.
 EMI Looks to Opera. (A chat with Peter Alward.) Theodore W. Libbey, Jr. Medley. May.
 Endangered Species. (American orchestras and the recording industry.) David Rubin. Nov.
 A Hardware Leader Goes Soft. (Denon.) Theodore W. Libbey, Jr. Medley. March.
 Homespun Japanese Talent. Michael Gray. Notes From Underground (Japan). Jan.
 House of Horrors. (Horror-film soundtracks.) Noah André Trudeau. Nov.
 In Short Order. (17 pop and jazz mini-reviews.) Various writers. Dec.
 Lost Highway. (Country music.) RJ Smith. July.
 19th Annual High Fidelity/International Record Critics Awards. Theodore W. Libbey, Jr. Oct.
 Oldies but (Mostly) Goodies. (Film and TV soundtracks.) Noah André Trudeau. May.
 Personal Listening Enters a Golden Age. (Outstanding cassette releases.) R. D. Darrell. Feb.
 Preview 1987. (Forthcoming LP and cassette releases.) Sept.
 Preview 1987. (Forthcoming CD releases.) Oct.
 Previewing the LP Preview. Theodore W. Libbey, Jr. Medley. Sept.
 The Record of Singing, Vol. 3 (1926-1939). (More than 200 singers in a 13-album set.) Bill Zakariasen. May.
 Recording American Exports. (Recording American orchestras abroad.) Theodore W. Libbey, Jr. Medley. Jan.
 The Recording Behemoth of Tverskoy Boulevard. (Melodiya, Soviet record company.) Harlow Robinson. June.
 A Salute to Salerni and Other News from Hungaroton. Bálint András Varga. Notes from Underground (Hungary). March.
 Sermon, Narrative, and . . . (Heinrich Schiff and James Conlon reveal recording plans.) Theodore W. Libbey, Jr. Medley. June.
 "South Pacific" Takes Shape in the North Atlantic. Edward Greenfield. July.
 Steven Epstein at Work. Christopher Greenleaf. Jan.
 Summer Clearance. (Rick Nelson, Marvin Gaye, the Ramones, Rick James.) Georgia Christgau. Medley. Sept.
 Summer Soundtrack Special. (Recent film scores and classic reissues.) Noah André Trudeau. Sept.
 Sun City S.O.S. (Antiapartheid single.) Georgia Christgau. Medley. Jan.
 Unadulterated Berry. (Chuck Berry: Rock 'n' Roll Rarities.) Georgia Christgau. Medley. July.
 Wadland, Peter (producer of *Così fan tutte* recording). (Interview.) David Ranada. April.

Video Article

Thriller Video. (Motown 25.) Georgia Christgau. Medley. Feb.

Miscellaneous

Fans vs. Critics. Ken Richardson. Medley. Nov.
 Laughing Lily. (Lily Tomlin.) Georgia Christgau. Medley. March.
 Sweet Little Rock 'n' Roller. (Pretty in Pink music.) Georgia Christgau. Medley. June.

(CONTINUED FROM PAGE 73) prove to be capable extensions of their instructor, who leads them through compositions that range from absurdly minimalist to frenetic and fraught with Frippertronics. Nothing goes on long enough to become pretentious, and even the uninteresting pieces at least *sound* great. The advantage of the Compact Disc over the already intense LP is the elimination of printthrough during the quietest moments. The Crafty Guitarists rise (less successfully) to another challenge on one side of *The Lady or the Tiger?*, which features Fripp's wife, Toyah Wilcox, reading two of Frank R. Stockton's renowned parables. Guaranteed to induce sleep, Wilcox's recitation is as soothing as Fripp's oozing guitar background. *Andrew Nash*

TOM HARRELL:

⊙ **Play of Light.** Blackhawk BKH 50901-1.
TOM HARRELL IS A WARM, LYRICAL TRUMPETER currently with the Phil Woods Quintet. Some, along with Woods, think of him as nearly a genius. I don't hear genius on *Play of Light*, but it is a brilliant set, with hard-driving solos by tenor saxophonist Ricky Ford, bassist Eddie Gomez, and the late pianist Albert Dailey. Harrell shines throughout, but especially on the ballad "Everything Happens to Me," a beautifully contained, balanced performance. The music is uplifting, full of the play of light—and shadow—that Harrell promised. *Michael Ullman*

CHAKA KHAN:

⊙ **Destiny.** Warner Bros. 25425-1.
AT HER BEST, CHAKA KHAN CHILLS. SHE'S A true soul belter, exploring anxieties, pain, and pride. The current album, supervised by ten sets of producers, doesn't try to forge a pop identity distinct from Khan's r&b self; instead, it combines her sweeping emotion-

ality with stoopid-busy funk-rock tracks complete with jazzy pianos and saxes. Never mind that every technological gadget known to mankind is used here. Chaka still soars. An all-Scritti Politti album would have been an even bigger mind scramble, though: I can't stop screaming the hook to "Love of a Lifetime." Would somebody please tell this record to leave me alone? *Havelock Nelson*

GEORGE CLINTON AND PARLIAMENT/FUNKADELIC:

⊙ **The Mothership Connection Live** from Houston. Capitol MLP 15021.

THIS UNANNOTATED QUICKIE EP BACKS ONE side of soundtrack to a live video of Parliament/Funkadelic with three excerpts from maestro George Clinton's subsequent solo career, and it's hard to tell which side is more mercenary. The old live segments are a sketchy, rushed run-through of P-Funk's '70s history, capturing neither the band's walloping bottom nor its free-associative instrumental mania. As for the studio cuts, they're best heard in the context of Clinton's *Computer Games* and *Some of My Best Jokes Are Friends*, two of the most inventive r&b LPs of the '80s. Seek them out instead of this hodgepodge. *Mark Moses*

MILES DAVIS:

⊙ **Tutu.** Warner Bros. 25490-1.
THOSE WHO COMPLAIN THAT A WEAKENED Miles Davis hasn't played enough on his own albums since returning to the fray about five years ago aren't gonna be able to lodge that claim here. This is basically Davis blowing long and loose—here's the catch—over programmed drums (and a few other instruments) courtesy of coproducer Marcus Miller, with brief appearances by miscellaneous other sidemen. That kind of context isn't going to please a lot of people. But so

what if this isn't the most original Davis around? So what if it is, in fact, a regurgitation of Miles styles from *Sketches of Spain* to *Bitches Brew* to *On the Corner*? If he breaks new ground again in the future, this will be seen as the point where he summed himself up before moving on. If he doesn't, this will indeed be perceived as the point where he threw in the towel and admitted he could find nothing new to play. In other words, the jury will have to remain out—but for now, it's a pleasure just to hear Davis blowing so strong and so true. *John Morthland*

BOBBY McFERRIN:

⊙ **Spontaneous Inventions.** Blue Note BT 85110.
GRAMMY-AWARD VOCALIST BOBBY McFERRIN IS to jazz what Anna Russell is to opera: a consummate technician who, despite the dreary rules, can't help having fun on stage. McFerrin has learned to scat a melody and a bass line simultaneously while effecting a hundred different vocal timbres, including those of half the symphony orchestra. But it is his proclivity to pull the rug out from under his audience that has made his onstage improvisations and very alive albums so full of mirth. On his third LP, the unrehearsed duets with saxist Wayne Shorter and comedian Robin Williams prove McFerrin's art is no fake. His scat arrangement of "Another Night in Tunisia" for the Manhattan Transfer is pure funk *orientale*: peppy and precise yet full of languor. And the solo "Mañana Iguana" and "Thinkin' About Your Body" are vintage McFerrin. What the singer doesn't—or can't—yet do is gut-wrench: no Billie Holiday blues here, not even one emotion darker than pea green. But the deification of vocal play alone is winning. *Spontaneous Inventions* is a smiling nod for the unlimited shenanigans of the human spirit. *Pamela Bloom*

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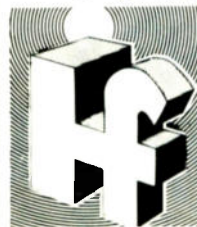
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(CONTINUED FROM PAGE 56)

(particularly the great *Immortellen*), one who was also capable of delectable quirkiness in his polkas, especially the prancing *Die Annlope*. (Available from The Society of Old Vienna, Fairfield, Toynton St. Peter, Spilsby, Lincolnshire, England.)

A REMARKABLE SMITHSONIAN INSTITUTION collection entitled *Virtuosi* (RC 032) draws upon a number of milestone EMIs and Victors, mostly from the 1930s (though some date from as early as 1926 or as late as 1953), all monos, and most of them originally 78-rpm issues. The collection has been perceptively selected and annotated by Richard Freed, who also supplies the additional discographies, which give special attention to commercial releases still in print. The handsome, illustrated 60-page booklet that accompanies the set also includes the provocative scholarly essays "The Virtuoso in History" and "Performance Practice and Interpretation" by Peter Eliot Stone. The remasterings by Steven Smolian are as good as any I've ever encountered, and while a couple of artists (Vladimir Horowitz, for one) are perhaps inadequately represented, there may well be only one selection that no longer sounds like a real masterpiece (although it once did): the Yehudi Menuhin/Georges Enesco/Pierre Monteux performance of the Bach Double Violin Concerto. Elsewhere, everything is a genuine milestone in recorded music history, with particular interest attaching to the Feuermann/Stokowski/Victor *Schelomo*, for which we now possess the live Barzin/In Sync alternative discussed above. For young connoisseurs who envy their elders' familiarity with the original releases of Dennis Brain's Mozart Horn Concertos, Pablo Casals's unaccompanied Bach Cello Sonatas, Sergei Rachmaninoff's Schumann *Carnaval*, Joseph Szigeti's Prokofiev First Violin Concerto, Fritz Kreisler's Mendelssohn Violin Concerto, et al., here at last is a chance to catch up! A good many of the present interpretations still are considered to be nearly definitive—certainly those that have shaped the aesthetic standards of several generations of record collectors.

Moreover, the Dolby B cassette processing is consistently excellent, and only the softest passages in a few examples ever remind us of the original 78-rpm surface noise. Even the earliest example here—the Fritz Kreisler/Leo Blech (not Landon Ronald) account of Mendelssohn's Violin Concerto in E minor—is an aural as well as executant delight.

What surprises me most is how well these historic performances stand up in comparison with later versions. The famed virtuosos continue to prove how truly magisterial their talents were. They all seem to have one thing in common: completely assured authority, manifest from the very first notes they play, no matter what the music may be. There were indeed giants in those days, and any listener who doesn't recognize them is musically the poorer.

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