$1.95 AUGUST 1984 U.K.£1.25

HIGH FIDELITY

02587

FEATURING NEW TECHNOLOGIES

TAPE!

BUYI ESTED

NEW DEO DECKS

SSETTES!

0 71486 02581

H I G H F I D E L I T Y V I D E O

ONLY NEC OFFERS THE BEST OF BOTH FORMATS.

Whether you're watching the movie that won the Academy Award's "Best Picture" or want to make your own video movie with the best picture possible, NEC has the video cassette recorder that's exactly right for you.

Now, you've probably heard pretty convincing arguments for the superiority of VHS versus Beta and vice versa.

THE NEC VC-N833EU VHS VIDEO CASSETTE RECORDER. *Add Dolby stereo to a high performance four-head, CATV-ready VCR and double your recording pleasure.*

THE NEC VC-N895EU VHS HI-FI VCR. *This state-of-the-art VCR's features include true hi-fi audio; a 139 channel, CATV-ready PLL Quartz tuner; 14 day, 8 event programmable timer; 4 heads for clear special effects; stereo recording and playback with Dolby Noise Reduction; segment recording; variable speed control; automatic editing system; picture sharpness control; electronic tape counter and full function infrared wireless remote control.*

The Paramount Home Video Videocassettes pictured are $39.95 each suggested retail price and are supplied courtesy of Paramount Home Video.

That's because each format has its respective strengths.

While VHS decks play longer, which saves tape costs; Beta video cassettes are smaller and employ a faster writing speed, making Beta the favorite of serious field and home video recordists.

This is why NEC became the only VCR manufacturer to offer both formats under its own name in the United States. This includes the very finest Beta and VHS models in each category.

THE NEC BM-11EU BETAMOVIE. *NEC put it all together with an integrated Color Video Camera/Video Cassette Recorder that only weighs 5.5 lbs. including its battery.*

THE NEC VC-N40EU BETA SLIMLINE VIDEO CASSETTE RECORDER. *Whatever the recording speed, it produces the best possible VCR picture available.*

Suddenly, the answer to the question, "Which VCR is best?" becomes very simple.

NEC.

NEC

THE ONES TO WATCH.

NEC Corporation, Tokyo, Japan

THE NEC VC-739E BETA HI-FI VCR. *The VCR with the picture that sounds as good as it looks. It features studio quality hi-fi audio; a 134 channel, CATV-ready PLL Quartz tuner; 21 day, 8 event programmable timer; 4 heads for clear, special effects; three slow motion speeds; picture sharpness control; segment recording; electronic tape counter and full function intrared wireless remote control.*

NEC Home Electronics (U.S.A.) Inc., 1401 Estes Avenue, Elk Grove Village, Illinois 60007, (312) 228-5900

For the best possible sound, all you need is the Basics.

Kenwood Basic components.

They give you all the audio technology you need. Whether you're looking for full-size components, or record-jacket size components like our HD (High Density) series.

Both offer you pure sound and high power at easy-to-handle prices.

Both provide perfectly matched components that provide the ultimate in individual performance, too.

And both give you patented features that are uniquely Kenwood.

For example, Sigma Drive, the ingenious amp-to-speaker negative feedback device that insures sonic clarity.

Or, Dynamic Linear Drive (DLD): super-efficient, dual-output amplifier technology that produces power, purity and a dynamic range wide enough for Kenwood's amazing full and jacket-size CD players.

Look into the remarkable, digital-ready Basic components.

Whatever size you choose, you'll find everything you need for the best possible sound.

KENWOOD

Shaping the future of sound.

HIGH FIDELITY™

VOLUME 34 NUMBER 8 AUGUST 1984

AUDIO

Entertainment '85 *by Peter Dobbin* **10**
A sneak preview of the next generation of audio and video components

Basically Speaking *by Michael Riggs* **16**
How conventional analog, AFM, and digital recording techniques differ

CrossTalk *by Robert Long* **18**
Noisy controls; Making a good match; Video with stereo; Steamed about radiators

The Autophile *by Gary Stock* **20**
Safe driving depends on smart listening habits.

***New Equipment Reports**
Teac V-900X cassette deck **23**
Tandberg TCD-3014 cassette deck **26**
Pioneer CT-A9 cassette deck **33**
Nakamichi RX-505 cassette deck **35**
Sony TC-K666ES cassette deck **37**

***Tape vs. LP—A Special Report**
Have Cassettes Caught Up? *by Sam Sutherland* **39**
Why Chrome Cassettes with Ferric EQ? *by Robert Long* **40**
A Critical Comment *by Crispin Cioe* **42**

NEW TECHNOLOGIES

Digital Audio on a Shoestring *by Ralph Hodges* **43**
Is low-cost delta modulation a viable alternative to PCM?

***Super Stereo VCRs** *Compiled by Frank Lovece* **47**
A fold-out buying guide to more than 25 Beta and VHS Hi-Fi decks

Video Lab Tests
Sanyo AVT-100 TV tuner/switcher **50**
Surround Sound M-360 Dolby Stereo decoder **53**

Music Reviews
Popular Video: "Gospel," including Shirley Caesar and the Rev. James Cleveland **55**
Popular Compact Disc: Van Morrison, live on import; Neil Young's "Harvest" **55**
Classical Compact Disc: Beethoven's *Hammerklavier*; Hungarian "pop"; two Mozart discs **56**

CLASSICAL MUSIC

Submitted for Your Approval *Reviewed by Noah André Trudeau* **58**
Exploring the dimension of music on four LPs devoted to *Twilight Zone* TV soundtracks

Bloch-busters *Reviewed by Harry Halbreich* **60**
The composer's chamber music is championed in three exceptional new recordings.

Reviews: *Hausmusik* by Brahms; Ligeti's *Nouvelles Aventures*; The latest early music on Angel Reflexe **60**

Critics' Choice **61**

The Tape Deck *by R. D. Darrell* **71**
Revelations, revaluations, and revulsions

BACKBEAT/Popular Music

Afro-Pop Rocks America *Reviewed by Carol Cooper* **72**
A tour of the latest African dance records

Pop Reviews: Rubén Blades; Cameo; Jermaine Jackson; John Cougar Mellencamp **74**

Jazz Reviews: Chris Connor; Branford Marsalis; World Saxophone Quartet **80**

Basie Basics *by John S. Wilson* **82**
An appreciation of the Count and his band

DEPARTMENTS

About This Issue **7**
Letters **7**
Reader-Action Page **86**
Advertising Index **86**
***Cover Story**

Publisher
Steven I. Rosenbaum
Editor-in-Chief/Associate Publisher
William Tynan
Editor, Musical America
Shirley Fleming
Senior Editor
Michael Riggs
Managing Editor
Peter Dobbin
Art Director
Skip Johnston
Copy Editor
Ken Richardson

Technical Department
Technical Editor: **Michael Riggs**
Electronics Features Editor: **Peter Dobbin**
Assistant Editors: **Lida A. Silverman,** (Special Projects), **Randy Brozen** (Administration)
Consulting Technical Editors: **Edward J. Foster, Robert Long**
Contributing Editors: **Paul D. Lehrman, Gary Stock**

Music Department
Classical Music Editor: **Theodore W. Libbey, Jr.**
Popular Music Editor: **Georgia Christgau**
Assistant Editors: **Mildred Camacho-Castillo, Susan E. Fingerhut**
Contributing Editors: **Robert E. Benson, Crispin Cioe, Mitchell Cohen, R. D. Darrell, The Rev. Thomas L. Dixon, Edward Greenfield, Paul Hume, John Morthland, George Movshon, Steven X. Rea, Thomas W. Russell III, James Wierzbicki, John S. Wilson**

Assistant to the Publisher: **Randi Goldman**
Assistant to the Editor-in-Chief: **Janet Wolf**
Technical Art: **Roy Lindstrom, Nina Wallace**

Production
Director of Production: **Kathleen Davis**
Advertising Production Manager: **Janet Cermak**
Associate Production Editor: **Susan E. Fingerhut**
Production Assistant: **Paula Ballan**

Circulation
Vice President, Circulation
Stephen J. Bernard
Circulation Director/V.P., Newsstand Marketing
Dominic Mustello
Circulation Director/Subscriptions
Lillian Gmitruk
Circulation Subscription Staff: **Mary Beth Colucci, Barbara Donlon, Timothy Farrell, William Johnson, Gene Sittenfeld**
Customer Service: **Mary Losi**

HIGH FIDELITY and **HIGH FIDELITY/MUSICAL AMERICA** are published monthly by ABC Leisure Magazines, Inc., a division of ABC Publishing, Inc., and a subsidiary of American Broadcasting Companies, Inc. ABC Publishing, Inc.: Robert G. Burton, President; ABC Leisure Magazines, Inc.: Ronald Stuart, President; Steven I. Rosenbaum, Vice President, High Fidelity Group; Herbert Keppler, Senior Vice President, Photographic Publishing Division; Roger Canavan, Controller; Ernest G. Scarfone, Vice President, Graphics and Production; Stephen Bernard, Vice President, Circulation; Dominic Mustello, Vice President, Newsstand Marketing. Member Audit Bureau of Circulation. Indexed in Reader's Guide to Periodical Literature. Current and back copies of HIGH FIDELITY and HIGH FIDELITY/MUSICAL AMERICA are available on microfilm from University Microfilms, Ann Arbor, Mich. 48106. Microfiche copies (1973 forward) are available through Bell & Howell Micro Photo Division, Old Mansfield Road, Wooster, Ohio 44691.

Advertising Offices

New York: ABC Leisure Magazines, Inc., 825 7th Ave., 7th Floor, New York, N.Y. 10019. Tel.: (212) 265-8360. James A. Casella, Advertising Director; Richard J. Marino, Associate Director of Advertising; Michael H. Goldberg, Eastern Advertising Manager; James R. McCallum, Record Advertising Manager; Cecelia M. Giunta, Classified Advertising Manager; Kathleen Davis, Director of Production; Janet Cermak, Advertising Production Manager.

Midwest: High Fidelity, Hitchcock Building, Wheaton, Ill. 60187. Tel.: (312) 653-8020. Starr Lane, Midwest Advertising Manager.

Los Angeles: ABC Leisure Magazines, Inc., 2020 Avenue of the Stars, Suite 245, Century City, Calif. 90067. Tel.: (213) 557-6482. Rita Weitzen, Western Advertising Manager.

Editorial correspondence should be addressed to The Editor, HIGH FIDELITY, 825 7th Ave., New York, N.Y. 10019. Editorial contributions will be welcomed, and payment for articles accepted will be arranged prior to publication. Submissions must be accompanied by return postage and will be handled with reasonable care; however, the publisher assumes no responsibility for return of unsolicited photographs or manuscripts.

HIGH FIDELITY (ISSN 0018-1455) is published monthly at 825 7th Ave., New York, N.Y. 10019, by ABC Leisure Magazines, Inc., a subsidiary of American Broadcasting Companies, Inc.

Second-class postage paid at New York, New York, and at additional mailing offices. Authorized as second-class mail by the Post Office Department, Ottawa, and for payment of postage in cash. Yearly subscription in U.S.A. and Possessions $13.95; elsewhere $19.95. Single copies $1.95. Subscribers: Send subscriptions, inquiries, and address changes to HIGH FIDELITY, P.O. Box 10759, Des Moines, Iowa 50340. Change of address: Give old and new addresses, including ZIP code. Enclose address label from last issue and allow five weeks for change to become effective. **POSTMASTER: send change of address to HIGH FIDELITY, P.O. Box 10759, Des Moines, IA 50345.**

Will your next AM/FM Receiver also give you Stereoplex™ television sound? Only if it's Technics.

Now Technics brings you stereo receivers that are so technologically advanced, they give you more than dramatically clean AM. More than brilliant FM. Now Technics receivers also tune in television sound. And electronically expand it into Stereoplex television sound.

So with Technics Stereoplex receivers, ordinary TV shows now sound extraordinary. Special effects now sound truly spectacular. And there's more.

Every new Technics Stereoplex receiver contains two microprocessors. The first controls Technics innovative Computer-Drive circuitry. To actually stop distortion before it starts. For music of astonishing clarity.

The second microprocessor controls and monitors the quartz synthesis tuner. The most accurate tuning system in the world. For locked-in, drift-free reception.

In addition, there's an input to connect a Compact Disc player, a VCR or a video monitor.

The new Technics stereo receivers. More than AM. More than FM. Even more than television sound. Because they're more than ordinary stereo receivers. They're Technics.

Technics
The science of sound

Casio introduces the 16-pound recording studio.

The Casio KX-101.

Casio's new computerized audio system does more than just double on keyboards. It lets you record your own hits.

For Casio has packed a complete audio entertainment center into 16 portable pounds of state-of-the-art wizardry.

The KX-101 is the only sound system around that gives you an AM/FM stereo radio. Detachable speakers. A cassette player and recorder. A three-channel keyboard. And a mini recording studio.

So you can not only tune into some beautiful music—you can make your own. The 37-key keyboard has monophonic and polyphonic channels that let you record melodies, chords, and accompaniment—then dump them onto a cassette tape for storage.

And the computerized tape recorder's nine different automatic scanning functions allow you to program and play back your tapes in a variety of ways.

Sound too good to be true? Just check out the new Casio KX-101. And discover the lightweight virtuoso that projects the most sound per pound.

CASIO®

Where miracles never cease

Casio, Inc. Electronic Musical Instrument Division: 15 Gardner Road, Fairfield, N.J. 07006 New Jersey (201) 575-7400, Los Angeles (213) 803-3411.

About This Issue

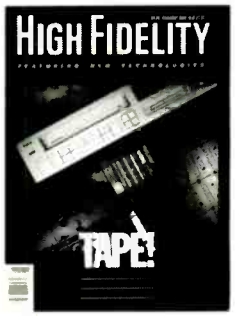
TAPE—A MARVELOUS invention that has freed us to enjoy music wherever and whenever we want. Over the past 15 years, the evolution of the Compact Cassette has made entertainment on tape a way of life. This month's coverage focuses not only on new developments with audio cassettes, but also on the latest in high fidelity sound on videocassettes.

First, a look at what traditionally has been the weak pillar of the audio-tape revolution—prerecorded music cassettes. Except for products of a handful of labels that took special care in duplication, the quality of most releases, especially pop, has been mediocre. In a special multipart report, you'll read about how major record companies are making significant strides in improving their cassette releases, the marketing forces behind this new thrust for quality, why chrome tape is receiving increased attention as a preferred recording medium, and whether the effort has been worth it.

Next we tackle the newest high-fidelity recording medium, the Hi-Fi videocassette recorder formats. Beta Hi-Fi has been available for more than a year; VHS Hi-Fi decks were first introduced a few months ago. This fall, the trickle of decks is swelling to a torrent, and we've listed more than two dozen representative models in a special fold-out buyer's guide detailing basic features and prices (where available). But as we point out in the accompanying article, the VHS decks are machines in search of something to play—at least for the moment. Beta Hi-Fi releases are presently much more common than their VHS Hi-Fi counterparts.

Also in this issue are tests of five new audio cassette decks, a comparison of the three basic methods now used in home audio recording, and a look at an up-and-coming method of digital recording that is competing head-on with PCM in professional applications.

Our classical music feature explores another dimension in sound—a collection of soundtracks from Rod Serling's *Twilight Zone* television series. The four albums available include the early works of many composers who went on to write scores for films. And readers of our MUSICAL AMERICA edition are sure to enjoy a not-so-reverent look at Glenn Gould.



COVER DESIGN: Skip Johnston

Cover Photo: Grant Roberts

ON THE COVER: Teac V-900X cassette deck and RCA VKT-550 VHS Hi-Fi videocassette recorder

Finally, BACKBEAT examines contemporary African pop records and stars such as Nigeria's King Sunny Adé, whose recent American tours were sold-out events.

Next month we'll have a complete rundown on the new audio and video components introduced at the recent Summer Consumer Electronics Show in Chicago. A sneak preview of some models appears this month in "Entertainment '85."—W.T.

Letters

Disputed Tests

I disagree with a minor point in your January review of the Akai CD-D1 Compact Disc player, in which you state that it is not possible to remove a disc from the unit without grabbing the playing surface. We use this model on the air, and none of our announcers has had any trouble grasping discs by the edges to remove them. It never even occurred to me to handle them any other way. Otherwise, the review is quite accurate; the CD-D1 is a nice piece of equipment.

Jefferson M. DeMarco
KBOQ-FM
Marina, Calif.

I was shocked when I read your lab results on the Thorens TD-147 turntable [January]. I own a TD-147, and I can assure you that its tonearm's effective mass is not 18½ grams. The specification sheet that came with the turntable gives the effective mass (without cartridge) as 7½ grams—an 11-gram difference from the figure you report. I have called several prominent audio stores that carry the Thorens line, and they all have said that you made a gross error. Because of this mistake, you also recommend the wrong cartridge compliances for use with this tonearm.

In your January 1981 issue, there is a review of the Thorens TD-126 Mk. IIIC turntable, which uses the same tonearm. Yet this report does not say anything about the arm's effective mass being high. It does say that the VTF [vertical tracking force] gauge is "respectably accurate," whereas the TD-147 review calls it "not very accurate." We have two conflicting reports on the same arm from the same magazine. I think the boys in the lab were asleep when they tested the TD-147.

Sam Casanzio
Rochester, N.Y.

The VTF gauge on our sample of the TD-147 showed much greater error than did the gauge on our sample of the TD-126. We don't know why. There may simply have been some inconsistency in manufacture, or perhaps one of the units we received was atypical in this regard. At the time of the TD-126 review, we were not measuring effective mass, which is why it is not mentioned in the report.

Effective mass is difficult to measure, and the results one gets depend to a considerable extent on the test method. For this reason, our figures often differ from manufacturers' ratings. Sometimes we get a lower number, sometimes a higher one, but rarely the same one. This also is true of cartridge compliance, which is measured in about as many different ways as there are manufacturers. Our measurements of effective mass and compliance are internally consistent (which means that they can be compared to one another and used for matching of cartridges we have tested to arms we have tested), but we would discourage comparisons with manufacturers' specifications or with the results of tests published elsewhere. Audio dealers are not normally set up to perform such tests at all, so the information they provide is most likely to be whatever they are told by the makers of the turntables, tonearms, and cartridges that they carry.—Ed.

I am trying to compare the selectivity and resistance to multipath distortion of the Carver TX-11 and Tandberg TPT-3001A tuners. In your July 1983 review of the Tandberg, you report a capture ratio of 2 dB, but you do not tell which IF bandwidth setting this applies to, and you do not list the AM suppression at all. In the case of the Carver [test report, January 1983], you provide no alternate-channel selectivity rating for the narrow IF setting, explaining that Carver was making changes that would affect this characteristic. I hope, however, that you can give me some idea

of how the TX-11 performs in this regard. Also, you supply no adjacent-channel selectivity figures for the Carver.
Mike Brandenburg
Vienna, Va.

The Tandberg TPT-3001A's capture ratio was 2 dB at the "normal" IF bandwidth setting, 4 dB in narrow, and 1½ dB in wide; the corresponding AM suppression figures were 62¾ dB, 64½ dB, and 63½ dB. The Carver TX-11's adjacent-channel selectivity was 3¼ dB at the wide IF bandwidth setting. Because our sample of the Carver tuner had atypical IF bandwidth characteristics in the narrow mode, we cannot comment on the performance of current units in this respect.—Ed.

A Missing Aria?

Opinion is opinion, and every reviewer is entitled to his, but when Will Crutchfield is given only two pages to cover more than 30 Fonit-Cetra "Martini & Rossi" recordings [April], it is not permissible for factual errors to creep in, especially if the error is due to either extreme carelessness or (dare I say it?) critical dishonesty.

Regarding LMR 5027, Crutchfield states that he did not derive much pleasure from hearing Teresa Stitch-Randall dodge all the hard parts of *"Martern aller Arten"* and that "she never recorded it commercially and now we know why." That she did not record the aria commercially is true, but we still don't know why, because—as Crutchfield will be more than a little embarrassed to learn—although the aria is listed on the LP cover and even in the liner notes, it does not appear anywhere on the disc. Therefore, I must interpret his comments to mean one of the following: His copy of the LP is an entirely different pressing from the one I hold before me (unlikely), he does not know the aria well enough to realize it is not there (also unlikely, since he covers it as sung by both Gencer and Callas in the same article), or he reviewed the record without listening to it.
Joe Pearce
Brooklyn, N.Y.

Will Crutchfield replies: *Sorry, not embarrassed at all. I don't know what's wrong with Mr. Pearce's copy of LMR 5027, but mine has* "Martern aller Arten" *right there on Side 1, Band 2, where it's supposed to be. I'm looking at it as I sit here, and I've just listened again. As I said in the review, Stitch-Randall ducks some of the difficulties. To be specific, she edits out one high D, doesn't quite get to another, cuts the others, and omits the long-sustained high C as well. I'll be glad to play my copy for Mr. Pearce if he thinks he'd like it; meanwhile, I hope he'll now find it easier to believe that critics write in good faith, and to read them that way.*

More Switcher Salvation

Concerning your April "Retsoff's Remedies" column on video switchers, we would like to point out that our SSV-440 provides switching for four inputs and four outputs and should meet most videophile needs. It also can switch the audio and video signals independently for audio dubs, simulcasts, and so forth. Our SSV-560 has additional inputs and outputs for both audio and video processors, as well as an extra set of outputs for monitoring.
John G. Lombard
Director of Marketing, Viditek International
9134 Independence Ave.
Chatsworth, Calif. 91311

Miscues

A most sincere "thank you" for Crispin Cioe's article ["The Sheer Need to Sing," May]. However, I never worked with Charlie Parker—only sat in a few times. I wasn't a student of his, either, unless memorizing all his solos from records qualifies me as such. Again—thank you HIGH FIDELITY and Crispin.
Sheila Jordan
New York, N.Y.

The error resulted from editing Cioe's question. And yes, we do think memorizing Parker's solos note for note from records qualifies you as his student—one of the best.—Ed.

Ira Mayer states in the NEW TECHNOLOGIES review of Sheena Easton's Video 45 [May] that her "pop fluff is too much Australian white bread for [him]." That may be so, but Ms. Easton is *Scottish*, not Australian.
Joseph O. Tabarlet
Baton Rouge, La.

Mr. Tabarlet is correct.—Ed.

George Movshon, in his admirable review of Massenet's *Manon* [April] has surely misidentified Des Grieux's dream aria as *"Ah, fuyez, douce image,"* which appears in the St. Sulpice Scene. However, no fault can be found in his overall praise for Alfredo Kraus's "vocal subtleties" throughout the opera recording.
Robert G. Condiff
Philadelphia, Pa.

George Movshon replies: *I confess! Mr. Condiff is quite right. For the record, Kraus sings* both *of the arias beautifully.*

Mono Misunderstanding

I believe that your advice in "CrossTalk" [May] regarding the use of a mono switch to cancel vertical stylus information is incorrect. Switching to mono combines the vertical and horizontal signals and cancels only the out-of-phase components. If the vertical signal were canceled, you would hear nothing from many stereo discs played back in mono. You can easily demonstrate what actually happens by playing a test disc that is recorded on just one channel (vertical information only) with your preamp switched to mono: The signal will still be audible.
Thomas E. Dimock
Ventura, Calif.

A signal that is recorded on only one channel is cut into one groove wall but not the other. Thus, it is modulated at 45 degrees, with equal vertical and horizontal components. A mono signal is the sum of the left- and right-channel signals (L+R); on a phonograph record, this is a purely horizontal modulation. Vertical modulation represents the difference between the two channels (L–R). When these are combined, the result is stereo, with separate left- and right-channel outputs. Suppressing the difference signal (with a mono switch, for example) eliminates all signal components that are not in phase between chan-

nels. Removing the L+R portion of the signal leaves only those components that are out of phase between channels. Even stereo records contain more in-phase than out-of-phase information and thus more horizontal modulation than vertical. For more on this subject, see "Basically Speaking," March and June 1982.—Ed.

Trading Post

A number of readers have asked for the address of Keith Monks (Audio) Ltd. The company's director informs us that it currently has no U.S. distributors, although it plans to again soon. Meanwhile, queries can be addressed to 26-28 Reading Road South, Fleet, Aldershot, Hampshire, England.—Ed.

In your October 1981 issue, you printed a short description of the New England Electronics Exchange. The only reference you gave at the time was a reader-service number, which has long since expired. Can you tell me the company's current address?
K. M. Petersen
Brookline, Mass.

The New England Electronics Exchange is a clearing house for used audio and video equipment. Subscribers receive a monthly pamphlet containing equipment listings and a news column by Peter Mitchell. For more information, write 138 Arlington St., Boston, Mass. 02116, or call (617) 491-3000 (weekdays only).—Ed.

A few years ago, you ran an article in which you mentioned Orion's *Audio Trade-In Guide*, or "Blue Book." Where can I obtain a copy of this?
Y. Y. Chinn
New York, N.Y.

The Orion Audio Trade-In Guide *lists suggested values for an enormous variety of equipment. It is published annually by Orion Publishing Corp., 1012 Pacific St., Suite A-1, San Luis Obispo, Calif. 93401; telephone (805) 544-3851.—Ed.*

Face-lifts for Old Discs

I read with interest the letter you received from Jack Burke of Chicago ["CrossTalk," April] on the question of equalizing old LPs. I am now marketing an equalizer designed specifically for that purpose. I originally developed the unit for my own use, having found it virtually impossible to obtain accurate re-equalizations using a graphic equalizer.
Mike Stosich
Esoteric Sound
4813 Wallbank Ave.
Downers Grove, Ill. 60515

In the December 1983 "CrossTalk," you mention two devices for suppressing the clicks and pops often produced by old or worn records. Could you please tell me where I can get more information on them?
Robert R. Millspaw
Baton Rouge, La.

For information on the SAE Model 5000A, write to SAE, 701 E. Macy St., Los Angeles, Calif. 90012. The Burwen TNE-7000 is a product of KLH Research & Development Corp., 7 Powder Horn Dr., Warren, N.J. 07060.—Ed.

Computer-Aided Speaker Design

We enjoyed "Loudspeakers & Computers: The Quiet Revolution" [November 1983]. Since it appeared, we have made some significant changes in instrumentation, which might interest your readers.

To replace the Cromemco System III described in your article, we have bought a DEC PDP-11/24 minicomputer with floating-point hardware. The floating-point option enables the computer to perform a multiply operation in just 10 microseconds. This, together with an improved Fast Fourier Transform algorithm, reduces the time required to perform a 1,872-point FFT from 115 to 3 seconds.

Serving as a front end for the PDP-11 is an IBM PC with analog-to-digital (A/D) and digital-to-analog (D/A) converters. It acts as an intelligent data-acquisition system, converting measurements to digital form and transmitting them to the PDP-11 for processing.
Matt Richards
Research & Development
Polk Audio, Inc.
Baltimore, Md.

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

Entertainment 85

S C E S

A sneak peek at the products and technologies to be introduced at the Consumer Electronics Show

In early June, the place to be is the Summer Consumer Electronics Show, the annual trade event where manufacturers parade their latest breakthroughs, hoping to spark the imagination of a buying public that thrives on newness and innovation. Yet, judging from the preshow product introductions, which we used to prepare this report, "newness" may not be the issue this year. Rather, manufacturers seem intent on solidifying recent advances with products aimed at bringing high technology to the widest possible audience. Components that simplify the integration of audio and video systems, stereo TV receivers, portable and car CD players, and a speaker system that transforms a personal-portable into a high-quality home stereo system are all part of the popularization process. We'll have more to say on this topic next month when we begin our in-depth coverage of all the significant products introduced at the SCES.

— **Peter Dobbin**

YAMAHA CD-2

SCOTT 939-DA

MARANTZ CD-54

CD Players Proliferate. Compact Disc players are quickly becoming a must-have item for the music lover seeking the ultimate in high fidelity playback. And this year the choice of models promises to be astounding. One of the most imaginative of the new crop is the SL-P15 from Technics. The first consumer model equipped with a changer (multidisc players were first introduced in sing-along *karaoke* machines in Japan), it can handle as many as 51 discs. The $1,500 machine also includes a pitch control and a wireless remote. JVC's XL-V2 ($750) uses a digital filter and a redesigned analog low-pass filter to keep phase shift to a minimum. With 12-selection programmability and a two-speed audible search function, it is said to be capable of accessing any selection on a disc in less than two seconds. Onkyo's first CD player, the DX-100 ($650), has track and index number search functions. Yamaha follows up its successful CD-X1 model (test report, May) with the remote-controllable CD-2 ($695). Offering a 12-selection memory, indexing, and audible search, the CD-2 can even be ordered to leave a three-second blank between tracks so that tape copies of CDs will respond to the music-search circuits of cassette decks. Marantz has built its CD-54 ($650) to fit comfortably into mid-size component systems. Just 12½ inches wide, the unit has 24-selection memory and

DIGITAL DYNAMITE FROM TDK.

TDK enters the digital recording era with a BANG! Introducing our exclusive HX-S metal-particle formulation for Type II (High-Bias) recordings. It delivers everything promised by metal tape—on any cassette deck with a Type II switch.

High frequency saturation ceases to be a problem since TDK HX-S is capable of an MOL of + 4 dB at 10 kHz.

HX-S also delivers exceptional high-end response. Plus a wider dynamic range. With further improvements in overall sensitivity of up to 1.5 dB.

These superior recording characteristics make HX-S perfect for dubbing high-powered, treble-intensive digital source material with optimum results.

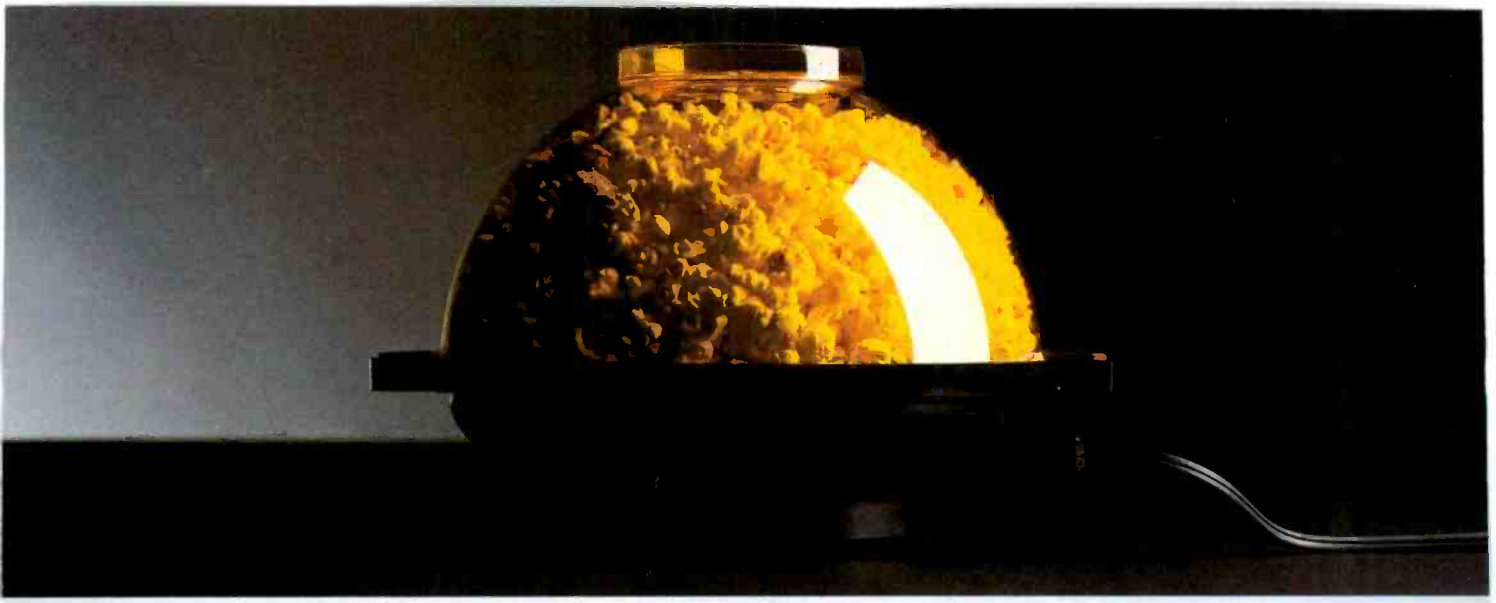
And TDK makes sure the performance never fizzles, with our specially engineered, trouble-free Laboratory Standard cassette mechanism for durability and reliability. Plus the assurance of our Lifetime Warranty.

So before you try any other cassette, pick up TDK HX-S, the first metal particle formulation for Type II (High-Bias) and digitally-sourced recordings.

It's absolutely digital dynamite!

TDK®

THE MACHINE FOR YOUR MACHINE.



PERHAPS THE ONLY PIECE OF HOME ENTERTAINMENT EQUIPMENT THAT CAN'T BE CONTROLLED BY THE SX-V90 RECEIVER.

One look at the diagram to the right should convince you that the SX-V90 audio receiver isn't merely an audio receiver.

In fact, it might just be the most revolutionary piece of equipment in the entire home entertainment revolution.

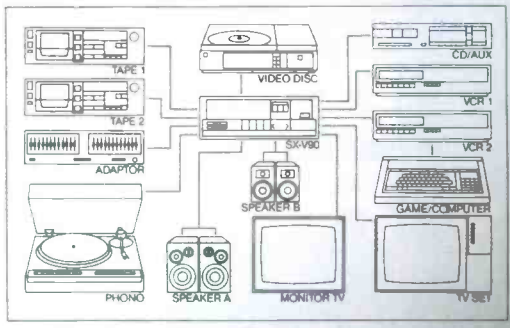
Because it serves as a control center for more pieces of audio and video equipment than any other competitive product of its type.

Through the SX-V90, you can channel two VCRs (of any format), one TV monitor, one regular TV, one video disc, one compact disc, two cassette decks, two turntables, and one video game or one computer.

But not only does the SX-V90 have the best connections in the business, it also has ingenuity. Because as well as reproducing video sourced signals (such as MTV), it creates simulated-stereo imaging from any mono signal (such as regular TV).

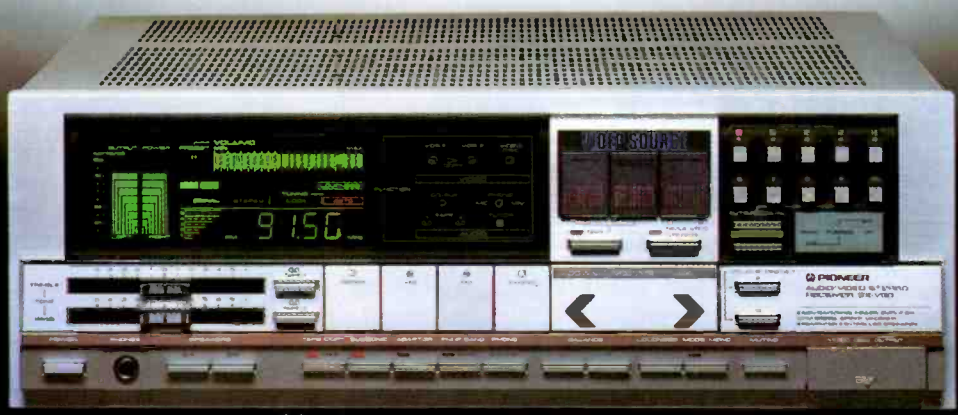
In short, it turns your television into a stereo.

As for the quality of the stereo, with its advanced DDD tuner technology, and 125 watts of power per channel minimum (at 8 ohms, from 20-20,000 Hz with no more than 0.005% THD), the SX-V90 ranks at the top of audio receivers.



Which is a very important point.

Because there's no sense in investing in a control center, only to have it sound like it has a built-in popcorn popper.



PIONEER®

Because the music matters.

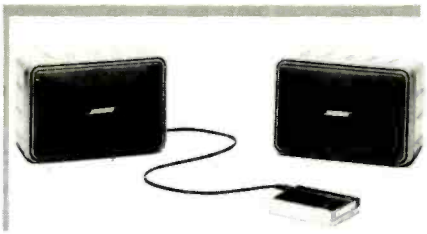
comes with a remote control. The 939-DA ($600) is H. H. Scott's first player. A full-featured design, it has 23-track programmability. Luxman, too, is entering with a CD player, the DX-103 ($1,000). Equipped with 16-selection programmable memory and an "intro scan" function that plays the first ten seconds of each track, the remote-controlled unit uses Luxman's proprietary Duo-Beta circuitry for low distortion of the analog output. And finally, Sansui bows in with the low-cost ($500) PC-V300.

JVC R-X530VB

TECHNICS SA-350

SANSUI S-X1130

Receivers Redefined. In preparation for its role in integrated entertainment systems, the audio receiver is evolving into an incredibly complex and multifunctional device. The Sansui S-X1130 ($950), for instance, goes beyond all the usual receiver functions by enabling you to switch among three video sources, perform video dubbing, and enhance the quality of your dubs with a variable sharpness control and fader. A noise filter and stereo-synthesizer circuit help improve below-par television sound, and there's even a TV antenna input. The S-X1130 is also equipped with a behemoth power amp section, rated at 130 watts (21 dBW) per channel. JVC's R-X530VB ($370) has three video inputs (one VCR and two play-only sources), a dubbing switch, and a control to route FM simulcasts to your videocassette recorder. Its power amp section is rated at 55 watts (17¼ dBW) per channel, and its tuner offers 20 station presets (ten AM and ten FM). Technics thinks that an audio receiver ought to be able to receive television sound directly and therefore includes a TV-band tuner in its SA-350 ($270). The 40-watt (16 dBW) unit is also capable of demodulating stereo TV broadcasts with the addition of an optional multiplex decoder.



Power to the Portables. The people from Bose arrived at our office several weeks ago to demonstrate a pair of powered loudspeakers that they claimed would enable you to use your personal-portable tape player or radio as the heart of a home stereo system. "You've got to hear it to believe it," they said as they went about setting up the equipment. And boy, were they right. The RM-1 RoomMate system ($260) uses two full-range drivers (one per speaker), an active equalization network, distortion limiting circuitry, and a small stereo power amp to create truly room-filling sound from the headphone output of a personal-portable. We were particularly impressed by the prodigious low-frequency output. The two speaker/electronics enclosures weigh a total of about 10 pounds and, because they must be AC powered, are not intended for outdoor use. But if you need to put some sound in the bedroom or are heading off to college this fall and want an inexpensive stereo system, the RoomMate seems a likely candidate. Specially designed mounting brackets that enable you to swivel the speakers are also available ($20).

A Smaller Dimension of Speaker. Sized to fit on shelves or stands, Polk Audio's Compact Reference System ($800 per pair) incorporates the same image-expanding technology found in the manufacturer's floor-standing SDA-1A and SDA-2 loudspeakers (test report, June 1984). Each of the new system's speakers houses two tweeters, two 6½-inch woofers, and a rear-mounted passive radiator. Like its larger siblings, the Compact Reference System's two cabinets must be linked by a cable, which shuttles an interaural cancellation signal to the "extra" drivers in each enclosure.

Analog Excellence. In this increasingly digital world, it's interesting to note that some companies are still committed to LP playback. Indeed, the people at Linn Sondek have been among the most vociferous proponents of vinyl records, arguing that a well-designed turntable/tonearm/pickup system and a well-made LP can achieve the sonic quality of Compact Disc playback. (Well, to be absolutely candid about it, Linn maintains that such an analog system sounds *better* than a digital one, but demonstrations they've conducted at past Consumer Electronics Shows have failed to convince us.) The company has come up with a new, no-compromise phono pickup this year, and if you have $725 budgeted for a cartridge, you might want to hear it for yourself. Dubbed the Karma AL-22621, it is a low-output moving-coil design housed in a solid piece of milled aluminum. In comparison to earlier Linn cartridges, the new Karma is said to have a significantly lower moving mass. It weighs in at six grams, and Linn claims it is suitable for use with the company's own Ittok LVII tonearm and a "handful of other high-quality tonearms."

RCA Leads in Stereo TV. The giant of the television industry, RCA has decided to incorporate multiplex (stereo TV) decoders in eighteen of its new Full Spectrum ColorTrak 2000 monitor/receivers, which bodes well for the future of multichannel TV sound. These new models are also said to be the first consumer sets capable of processing the full NTSC color signal, for as much as three times greater color resolution than in conventional units. Full Spectrum receivers also include a video noise reduction circuit that dynamically decreases noise and interference in dark picture areas while maintaining full detail sharpness in bright areas, automatic circuits that monitor and adjust the output of the set's three electron guns so as to maintain accurate color balance throughout the life of the picture tube, a comb filter to eliminate cross-color distortions in finely detailed areas, and horizontal and vertical peaking circuits that intensify tonal gradations at the intersections of black and white images, thereby allowing picture details to stand out from background images. Models in the Full Spectrum series range in price from $1,100 to $1,600 for direct-view sets; the rear-projection PKC-500R (pictured here) costs $3,000.

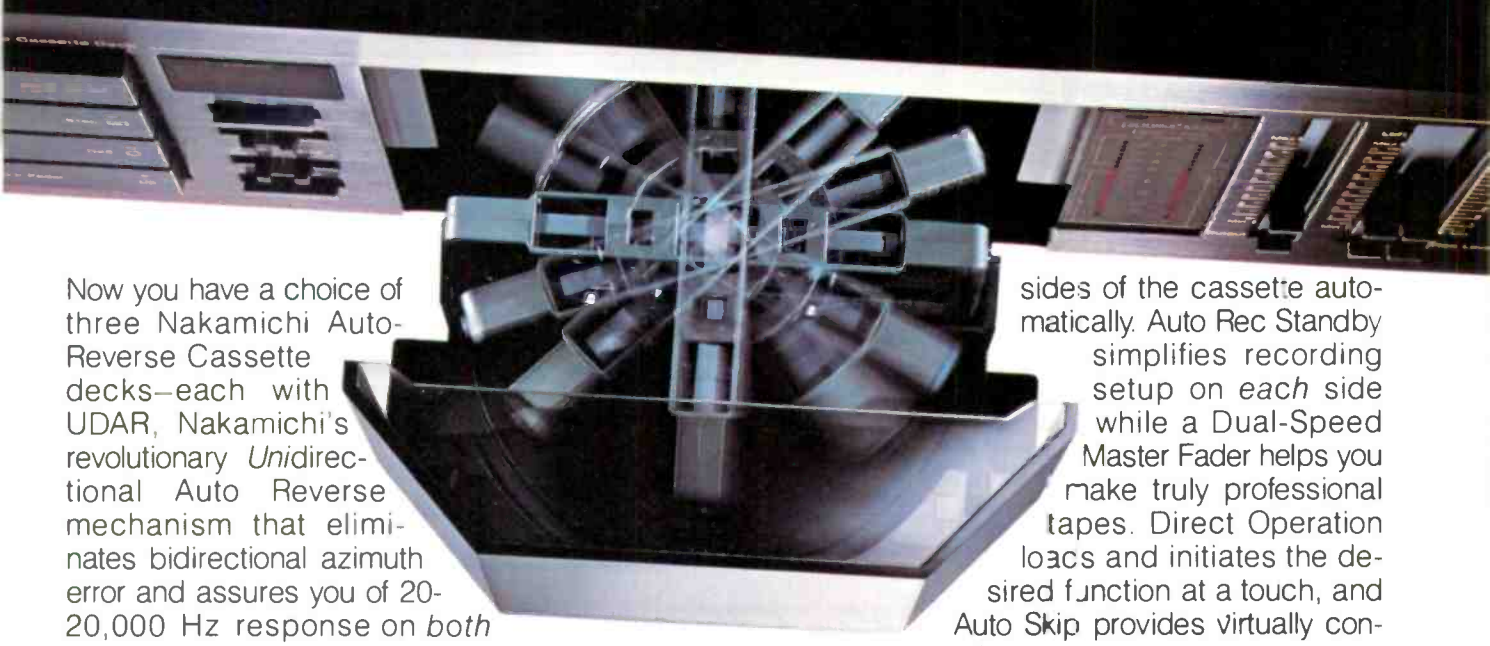
RHC module—smaller than a dime

Radio Chips. At a special pre-SCES press conference, Panasonic announced the development of a new type of component packaging that enables an integrated circuit (IC) and its peripheral components and circuitry to be encapsulated in a single, high-density module. The first application of this technology resulted in a radio high-density circuit (RHC) said to replace a handful of components. Panasonic uses just four RHCs in its new RF-H25 portable AM/stereo-FM radio ($100). The device has built-in NiCad batteries, weighs 1⅓ ounces, and comes complete with a recharging stand. Panasonic says RHCs will appear in a variety of portable and car stereo products.

Exotic Metal. Though we're all familiar enough with tape formulations containing pure iron and oxides of iron and chromium, JVC's Dynarec Hi-Fi videocassettes are surprising for their use of a metal more commonly found in jet aircraft—titanium. The company claims that the titanium oxide in its new formulation makes the tape particularly appropriate for the new Hi-Fi videocassette recorders, where dropouts and dust spots can cause audible problems. Titanium oxide, says JVC, has antistatic properties that help prevent dust accumulation on the tape surface; furthermore, the company claims that the tape is exceptionally durable, allowing repeated playback without shedding. The Dynarec cassettes will be available only in the VHS format.

Car EQ to Taste. Jensen includes a three-position equalization control in two of its new round car speakers, the 4½-inch P/EQ-1 ($135 per pair) and the 6½-inch P/EQ-2 ($155 per pair). According to Jensen, this adjustability enables you to achieve a more natural sound balance in a car's difficult acoustic environment. The speakers' shallowness permits them to be mounted in doors and side panels, where a bit of high-frequency boost can make a big improvement. And you need not fear damaging these speakers with high-powered amps: Jensen rates them at a maximum power-handling capability of 100 watts, and special overload protection circuitry is always on guard to shield them from excessive input levels.

To Nakamichi, Convenience without performance is unthinkable.



Now you have a choice of three Nakamichi Auto-Reverse Cassette decks—each with UDAR, Nakamichi's revolutionary *Uni*directional Auto Reverse mechanism that eliminates bidirectional azimuth error and assures you of 20-20,000 Hz response on *both* sides of the cassette.

UDAR is simple, fast, and reliable. It automates the steps you perform on a conventional one-way deck. At the end of each side, UDAR disengages the cassette, flips it, reloads, and resumes operation *in under 2 seconds*. Tape plays in the *same* direction on Side A *and* on Side B so performance is everything you've come to expect from traditional Nakamichi decks—and more!

Every RX-Series deck records and plays *both* sides of the cassette automatically. Auto Rec Standby simplifies recording setup on *each* side while a Dual-Speed Master Fader helps you make truly professional tapes. Direct Operation loads and initiates the desired function at a touch, and Auto Skip provides virtually continuous playback!

UDAR—the revolutionary auto-reverse recording and playback system—only from Nakamichi. Check out the RX Series now at your local Nakamichi dealer. One audition will convince you there's no longer a reason to sacrifice unidirectional performance for auto-reverse convenience!

19701 South Vermont Ave., Torrance, CA 90502 In Canada: W. Carsen Co., Ltd. 25 Scarsdale Road, Don Mills, Ontario M3B 3G7

Nakamichi

RX-505
The world's first *Discrete 3-Head* Auto-Reverse Cassette Recorder. Quite simply, the best!

RX-303
The RX-505's only rival. Record/Playback Auto Reverse in a 2-Head Dual-Capstan configuration.

RX-202
The origin of the UDAR revolution. The basic *Uni*directional Auto-Reverse deck that outperforms the pack.

Basically Speaking

Audio and video concepts and terms explained by Michael Riggs

Three Types of Tape Recording

UNTIL A FEW YEARS AGO, all audio tape recorders worked the same way. The first crack in the monolith was pulse code modulation, or PCM—a method of digitally encoding music as a series of electrical (or magnetic) pulses. Shortly thereafter came audio frequency modulation, or AFM, which was developed for the purpose of putting high fidelity stereo soundtracks on videocassettes. Each of these recording techniques has its own set of strengths and weaknesses.

Conventional analog audio tape recorders—the cassette and open-reel decks with which nearly everyone is familiar—work by running the signal to be recorded through a coil in a magnetic head. This creates a fluctuating magnetic field in the vicinity of the head. The tape on which the recording is made consists of a thin plastic substrate coated with an even thinner layer of a magnetically permeable material, such as iron, iron oxide, or chromium dioxide, that has been ground into a very fine powder and mixed with a binder to secure it to the backing. As the tape is pulled across the recording head, these particles become magnetized. The greater the signal current in the coil, the greater the magnetic field emitted by the head, and thus, the stronger the magnetization of the tape. Consequently, the instantaneous amplitude of the audio signal coming in through the tape deck's inputs is mirrored in the strength of the magnetic field left on the tape. In playback, the tape is pulled across a similar head, so that its magnetic field induces a corresponding current in the head coil. This signal should be virtually an exact replica of the original input from which the tape was recorded.

Several factors interfere with the achievement of this goal. One is that the signal to be recorded must be conditioned in certain ways to compensate for nonlinearities in the heads and the tape. This takes the form of an ultrasonic tone added to the signal to reduce distortion, and of equalization applied to obtain flatter frequency response and lower noise. If these are not adjusted properly for the particular tape being used, the fidelity of the recording will be degraded. Another problem is that the tape's signal-handling capacity is limited. If you try to record it above its saturation level, large amounts of distortion will result. But if you reduce the input to allow the tape to accommodate the loudest peaks in the music, you run the risk of having the softest parts buried in hiss. This difficulty is especially acute with cassettes, because of the very narrow tape they use and the slow recording speed.

Fortunately, it is possible to mitigate the problem with a noise reduction system, such as Dolby or DBX. These operate by reducing the difference between the loudest and the softest sounds, to fit the music onto the tape above the noise floor but below the overload level. This is called compression. On playback, the signal is expanded back to its original dynamic range. The benefits of noise reduction are enormous, and it is doubtful that the Compact Cassette would ever have been accepted as a music recording medium had it not been for the development of Dolby B. But such systems can sometimes cause audible side effects, especially if the recorder's frequency response is not very flat.

The most recent alternative to the recording method described above is AFM, as exemplified by the Beta and VHS Hi-Fi systems now incorporated in many videocassette recorders. (For a listing of current Hi-Fi models, see "Super Stereo VCRs," page 47.) "AFM" stands for "audio frequency modulation." Conventional recording is an AM (amplitude modulation) technique: An increase in the level of the input is reflected as an increase in the amplitude of the recorded signal. FM is a little more abstract. Any change in the amplitude of the input is recorded as a change in the *frequency* of a signal that is maintained at a fixed level. This signal is called the carrier, and its frequency when there is no input is the carrier frequency. (FM radio stations are designated by their carrier frequencies—89.7 MHz, 89.9 MHz, etc.) The amount of the change in frequency is called the deviation. In current AFM recording systems, the maximum deviation is ±150 kHz. The maximum deviation is the primary determinant of the system's dynamic range.

One of AFM's big advantages is that the recorded sound quality is essentially independent of the characteristics of the tape. As long as the signal is recorded with sufficient strength and there are not too many dropouts, frequency response, signal-to-noise (S/N) ratio, and distortion are determined entirely by the design of the recording system. Thus, it is not too surprising that Beta and VHS Hi-Fi are capable of excellent performance. Indeed, conventional flutter is essentially nonexistent, because pitch is determined by the rate of change of the frequency of the recorded signal, rather than by the rate of change of its amplitude (which is affected by the tape speed).

The tape-speed variations that would create flutter in a conventional tape recorder do still express themselves, but as noise. This is because these speed fluctuations appear as random changes in the frequency

AUDIO SYSTEMS COMPARED

	ANALOG		DIGITAL
	COMPACT CASSETTE	AFM	PCM
Frequency Response (–20 dB)	±3 dB, 30 Hz to 18 kHz	+0, –3 dB, 20 Hz to 18 kHz	±½ dB, 20 Hz to 20 kHz
Dynamic Range	approx. 60 to 95 dB*	approx. 80 dB	approx. 80 to 95 dB**
Distortion (THD at 1 kHz, –10 dB)	less than 0.5%	less than 0.2%	less than 0.05%
Flutter	±0.03% to ±0.3%	less than ±0.01%	less than ±0.01%
Overload Characteristics	soft	soft	hard
Noise Reduction Required?	yes	yes	no
Typical Maximum Playing Time	1½ hours	4½ to 6 hours	2 to 3 hours

*Depends on noise reduction system.
**Depends on the amount of dither used and on the length of the digital word (14 or 16 bits).

This chart compares analog cassette, audio frequency modulation (Beta and VHS Hi-Fi), and pulse code modulation recording with respect to some basic performance and convenience characteristics. Videocassettes are used for AFM and PCM.

of the recorded signal, which when demodulated appear as small random variations in the amplitude of the output. Consequently, the maximum signal-to-noise ratio of a straight AFM system is about 55 to 60 dB. For this reason, both Beta and VHS Hi-Fi incorporate noise reduction systems similar in concept and function to those in ordinary cassette decks. And although they seem to work effectively and unobtrusively under most conditions, a few critical listeners have noted mild audible hiss pumping (rising and falling of noise with the recorded signal) on some especially difficult material. The effect, if it exists, is small, however. A more serious problem is the way an AFM system behaves when it encounters a severe dropout (a gap in the tape's magnetic coating). This can cause it to lose lock with the FM carrier and revert momentarily to the low-fi (often mono) edge-track recording—a disconcerting effect, at best. High-quality, low-dropout tape is a must.

Of the three systems, PCM is the performance champion.

But overall, the performance of AFM recorders is superior to that of ordinary audio cassette decks, and their maximum recording time is even greater than that of conventional open-reel recorders running large spools at low speeds. The principal drawbacks to AFM for audio-only recording are the size and price of videocassettes. For portable and mobile use, especially, the old-reliable Compact Cassette is still the medium of choice.

The third consumer tape recording system is the most radical. Both of the others are based on analog techniques: The recorded signal in some way resembles the input. PCM, or pulse code modulation, is a digital process in which the signal that winds up on the tape is utterly different from the original. It works by taking a series of samples of the input, determining the amplitude of each sample, and converting that amplitude into a binary digital code 14 to 16 bits long. A 14-bit word can represent more than 16,000 discrete intervals, and a 16-bit word can manage more than 64,000. These codes are stored on tape as a series of pulses. On playback, they are read off the tape and converted back into a series of analog voltages that form the output from the recorder. Continuity is maintained by a circuit that holds each individual voltage until the next one comes along.

It might seem that this would still be unsatisfactory, since the output would have a stepwise character to it, instead of being a smooth replica of the input. This would indeed be a problem if the sampling frequency were low enough for the transitions from step to step to be audible. But PCM simply won't work unless samples are taken at a rate at least twice that of the highest frequency of interest. So for audio recording, the input is band-limited to 20 kHz by a very steep low-pass filter and the sampling rate is set at 44 kHz or higher. The transitions between samples are thus at a frequency well above the range of human hearing and therefore inaudible. Plus, to prevent damage to amplifiers and speakers, there is another steep filter to eliminate the sampling frequency from the output on playback, and this serves to smooth the waveform into an exact replica of the original.

Of the three systems I have discussed, PCM is the performance champion. Even a 14-bit system gives a signal-to-noise ratio that is very high (without noise reduction), and 16-bit systems are about 12 dB better. Distortion at normal recording levels is very low, and frequency response is virtually dead flat across the entire audio band. And as with AFM, there is no flutter. Its most serious drawback is the way it behaves when overloaded. If the input signal is allowed to exceed the system's maximum, muting or very harsh distortion will occur. This means that you must set recording levels very carefully. And it is important that the tape used have as few dropouts as possible.

At present, home PCM recorders consist of a PCM processor that feeds the video input of a VCR, which has enough bandwidth to accommodate a bit stream running at more than a megahertz. Thus, PCM shares the practical limitations of AFM recording, and since it usually is advisable to use a VCR's highest speed for PCM recording, the maximum recording time typically is about a third that of AFM and only 30 to 40 percent greater than that available on both sides of a C-90 Compact Cassette. These factors, plus the expense of the hardware, make PCM recording attractive mainly to very serious recordists, especially those who tape live performances.

This might change, however. The development of PCM recorders using tape cartridges approximately the same size as a standard audio cassette already is well advanced. Such machines could be on the market within the next few years, and in time they could challenge conventional high-end cassette decks in both price and convenience. That would not put an end to the analog cassette deck, which would still prevail in the low and middle reaches of the market, but it probably would dispose of the relatively clunky processor/VCR combinations that now constitute the only digital alternative. Only time will tell. **HF**

CrossTalk

Practical answers to your audio and video questions by Robert Long

Noisy Controls

When I adjust the volume of my JVC RS-7 receiver, it causes a crackling sound from the speakers unless I make the change very slowly. What could be wrong?—Greg Keesler, Spartanburg, S.C.

It sounds as though you have some dust in the volume-control potentiometer. Cleaning it out would be a quick job for a repairman, or if you want to do it yourself, you can get aerosol cans of solvent for the purpose in radio parts stores.

Sensitive Question

The tape outputs of my Yamaha CR-2040 receiver are rated to deliver only 120 millivolts [mV]. I know that an attached cassette deck's line-input sensitivity should be lower than this figure, but how much lower? Would a difference of 10 millivolts be enough?—A. V. McLaren, Sardis, B.C., Canada

Unfortunately, specifications for tape-output levels are not standardized enough to permit the mathematical confidence you're looking for. And actual values will depend on whether we're talking about the tuner section, a phono input (which, in turn, will depend on the cartridge output), or whatever. Ideally, maximum signal levels at "line-level" outputs (including those for a tape recorder) should fall somewhere around 1,000 millivolts (1 volt), and deck input sensitivity should be low enough that these levels will require you to adjust recording level controls down into their optimum operating range. This often means that the sensitivity works out to about 120 millivolts, and Yamaha's spec is intended to mean just that: It suggests that you choose a deck with an input sensitivity figure no lower than 120 millivolts. Some companies give the actual peak output of their tape jacks, in which case deck sensitivity ratings should be much more than 10 millivolts lower for good matching.

Level Best?

I play a Magnavox FD-2000SL Compact Disc player through a Sansui 3900Z receiver, which, at 40 watts per channel, is sufficient for me: I don't listen at loud levels and have a small listening room. The speakers are Boston Acoustics A-150s. On some CDs I get horrible distortion on loud climaxes. Because the distortion is unaffected by the volume setting of the receiver, it appears the CD player's output is overloading the receiver's input stage.

I don't understand how makers of CD players could fail to mention the possibility of overload if this is so. Most decks, like mine, have no output level control and put out a maximum of 2 volts. Even HIGH FIDELITY has never mentioned this as a possible problem. The overload level of the receiver's aux input is not specified, so I wrote to Sansui to find out what it is. The reply makes no sense to me, but I suspect that whoever wrote it misunderstood the question. What can I do, short of getting another player or receiver?—Alan Klein, Cincinnati, Ohio

You are correct that most CD players (including the FD-2000SL) have maximum outputs of about 2 volts. And with digital recordings, the maximum is an absolute: A properly functioning CD player cannot put out more than that. Conversely, the overload points of aux inputs normally are well above 2 volts. We began testing specifically for this only relatively recently, and we haven't tested the 3900Z, but we regularly find that input overload is above 10 volts—and therefore no limitation in any practical sense. If you have a tape deck connected to the Sansui, you might try disconnecting it or turning it on while you're listening to CDs to make sure that it isn't loading down the signal path. (Only a few receivers have buffer amps in the tape outputs to prevent this.) But outright malfunction of the player or the receiver is the likeliest cause of the distortion you describe.

Stereo Video

I've been looking for a VCR with stereo sound to play through my Bose Spatial Control receiver and four Bose 901 speakers. What sort of a deck and what sort of hookup would I need?—Sean F. Berthiaumer, Blue Anchor, N.J.

Any VCR with the "Hi-Fi" designation—that is, Beta Hi-Fi or VHS Hi-Fi—will have a stereo soundtrack. Some non-Hi-Fi stereo VHS decks have been made, but aside from the stereo, the sound quality available from them is no better than that of standard mono units. The deck's audio outputs should be connected to one of your receiver's aux or tape inputs. If you plan on recording from simulcasts, you'll also need to connect one pair of the receiver's tape outputs to the VCR's audio inputs. Make sure before you buy, however, that the VCR has simulcast switching that enables you to substitute the signal at the direct audio inputs for the audio from the VCR's TV tuner.

Boxed Out

For years I've been searching for empty boxes in which to preserve my cherished open-reel recordings. Do you know of a source?—P. J. Cantrell, Jacksonville, Fla.

I buy mine from an outfit called Boynton Studios (Melody Pine Farm, Morris, N.Y. 13808), but I'm sure there are lots of other suppliers. Companies offering bulk open-reel tapes or empty reels in "High Fidelity Classified" probably will have something to offer if you write to them.

Steamed About Radiators

When I took the back off one of the speakers that came with my Sanyo portable, I noticed that the passive radiator has no magnet and isn't wired in with the woofer and tweeter. Is this the way it should be, or did Sanyo install these bogus speakers to make the stereo look better to consumers who don't know what they're buying?—Dan Ingling, Vincentown, N.J.

You weren't had. Passive radiators are so called because unlike regular, active drivers, they aren't "electric motors." Their diaphragms are instead driven by the backwave from the woofer, allowing a controlled release of bass energy that otherwise would be absorbed within the enclosure or radiated by a tuned port. (A passive radiator is really a substitute for such a port.) A passive radiator's moving mass is adjusted to make its resonant frequency lower than that of the woofer, so that its output effectively extends the system's bass response.

We regret that the volume of reader mail is too great for us to answer all questions individually.

AUDIOPHILE FILE™ XL-S

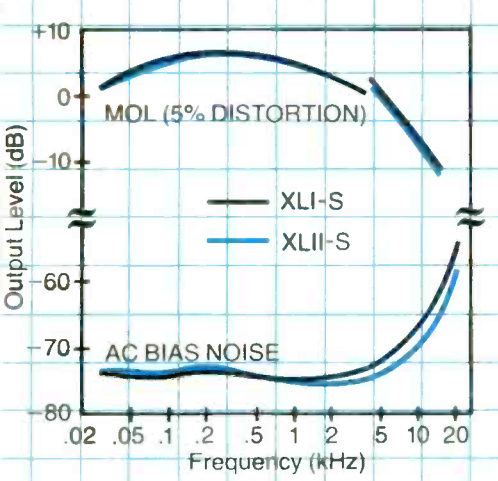
COMPACT DISC COMPATIBLE

Maxell introduces the new XL-S audio cassettes; a series of ferric oxide tapes which deliver a level of performance that can capture the sound nuances found on Compact Discs more faithfully than other ferric oxide cassettes on the market.

There are a number of areas where this achievement is apparent.

GREATER DYNAMIC RANGE.

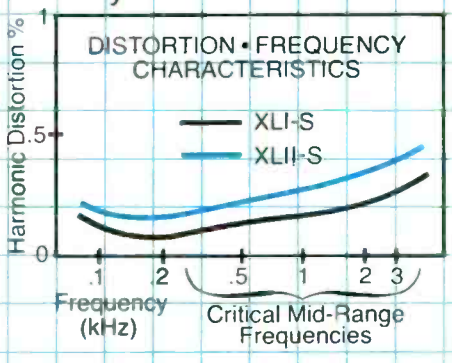
Through a new formulation of our magnetic particles, we were able to reduce the perceived residual AC bias noise level by 1 dB in the critical 2 kHz to 10 kHz mid-frequency range. And simultaneously increase sensitivity and maximum output levels by as much as 2 dB.



As a result, the dynamic range of each tape has been significantly expanded. So you get a better signal to noise ratio and a fuller impact of the dynamic transients exclusively inherent to digital CD recordings.

LOWER DISTORTION.

The newly formulated particles also contribute considerably to XL-S's low output fluctuation, as well as its virtual distortion-free reproduction, especially in the critical mid-range frequencies. This, in turn, accounts for our XL-S tape's enhanced sound clarity.

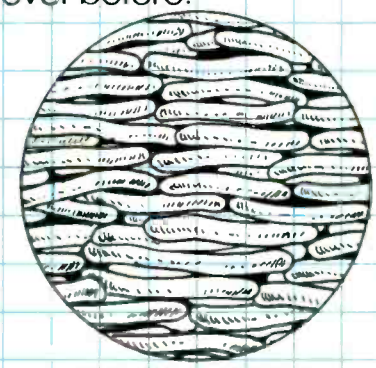


IMPROVED MAGNETIC PARTICLES.

Our refined particle crystallization process is the basis for all of these accomplishments. Maxell engineers are now able to produce a more compact needle-shaped Epitaxial magnetic particle of extremely high uniformity.

This allows us to create a greater ratio of total surface area to unit weight of magnetic particles.

As a result, our XL-S tapes now have the ability to record more information per unit area than ever before.



PACKING DENSITY OF UNIFORM PARTICLES

Which is why Maxell high bias XLII-S and normal bias XLI-S are unsurpassed at reproducing the sound qualities found on today's finest recordings. Regardless of whether your frame of reference is analog or digital audio discs.

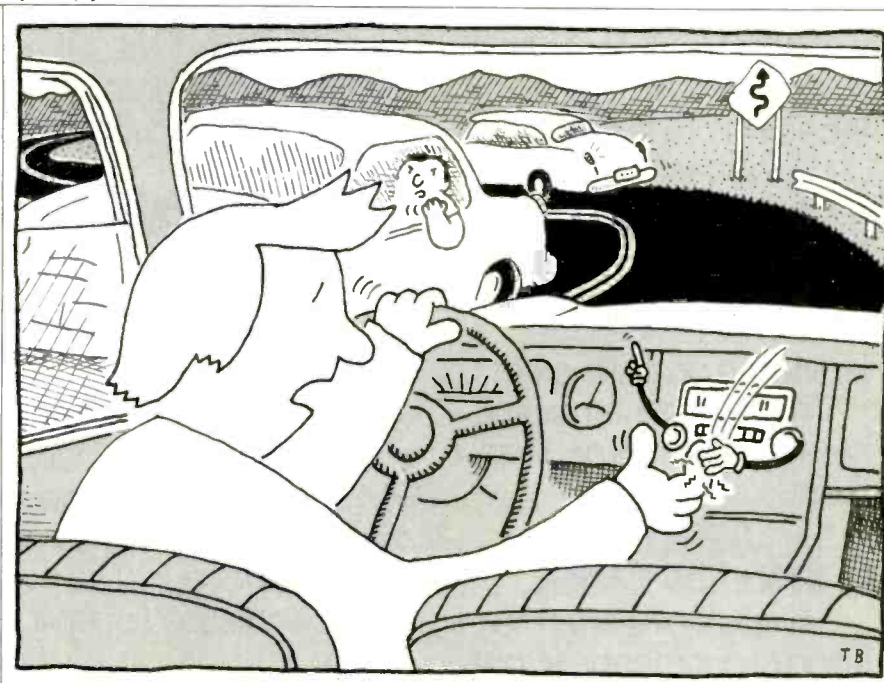
For technical specifications on the XL-S series, write to: Audiophile File, Maxell Corp. of America, 60 Oxford Drive, Moonachie, New Jersey 07074.

IT'S WORTH IT.

The Autophile

Going on the road with stereo by Gary Stock

Safe Listening



TOM BLOOM

WHEN THEY TEACH YOU how to drive cars fast, the instruction is exacting—to the point that you begin to wonder whether there's any action you can take that has not been dictated beforehand. They tell you how to hold your head, where to put your feet, how to grip the wheel, and where to shuttle your eyeballs. After 20 or so hours of practice and endless moments of feeling awkward, it finally begins to come naturally. But the experience certainly points out that there's more to operating an automobile than what you were taught in Driver Ed. Indeed, after a few hours of race car instruction, you wonder how you ever survived your first night out with Dad's Buick.

A similar lack of knowledge applies to driving while listening to music. In fact, I can imagine myself developing an extra-credit course on the subject for the National Academy for Professional Driving (whose instruction I've alluded to above). I call the course Stereophonic Driving, there's no tuition, and you're all invited to sign up. Attention, class, let's begin:

Lesson 1: Check It Before You Wreck It. Most cars have precious little instrumentation to monitor their innards, and Mr. Goodwrench at the local gas station doesn't even check your oil anymore. So it's up to you to be sure that your car is in good shape before you pull onto the freeway every day. One of the most intelligent approaches is to leave the music system silent for the first five minutes of your excursion and use that time to listen for the kinds of noises healthy iron shouldn't make—whines, chattering, clunks, and the like. It's amazing how often the first sign of an impending mechanical foul-up is delivered aurally, so don't deafen yourself to it. Your instructor speaks from experience. Back in my beardless youth, I blew a tired Vega engine into Vehicular Valhalla because I was too busy cranking up its $50 stereo system to hear a wheezing that quickly became a death rattle.

Lesson 2: No Driver Is an Island. Or more specifically, it's illegal, dangerous, and downright dumb for a driver to render himself a sonic island via headphones (miniature or not), headrest speakers, or excessive volume. In most states, you can be ticketed for wearing headphones while driving. If your state doesn't have a law specifically forbidding the use of headphones, don't think that you're home free: The police can always pull you over for unsafe operation of a motor vehicle. And though it's unlikely that the gendarmerie will cite you for playing a conventional sound system too loud, the tractor-trailer behind you that has lost its brakes may issue you a ticket payable at the morgue if you can't hear its frantic horn. Ask yourself as you reach for that volume control: "If something unusual happens, is *Karma Chameleon* really the last song I ever want to hear?"

Lesson 3: The Right Time for Tuning. Professional drivers know that you can't drive and twiddle knobs at the same time. On the endurance course at Le Mans, the standard drill taught to the drivers who run the 24-hour race is to look at instruments and make adjustments only once per lap—on the long Mulsanne Straight. The rest of the time the pros don't even *think* about their two-way radios, engine gauges, suspension adjustment knobs, or turbo-boost dials. So if you want to stay out of the weeds, do it the racer's way: Wait for a reasonable stretch of straightaway, find yourself a spot free of traffic, and then adjust the sound system to your liking while keeping at least one eye on the road. If you haven't memorized which knobs do which things, wait for a stoplight or pull over to the side of the road before you try to figure out the panel markings.

Lesson 4: Stay Organized. Despite ten years or so of effort, manufacturers have still not invented anything approaching a perfect cassette storage system for the car. We've been treated to scores of nice tries, ranging from sun-visor holsters to attaché cases, but all fall short in one regard or another. Net result: a distinct need to preplan and identify your musical meanderings with a precision approaching that of your geographic preparations.

If your trip will be short, pick a single cassette before you start. For longer trips, map out a sequence of music that will get you to the first rest stop, and place the cassettes within fairly easy reach—a binnacle in the center console or a map pocket in the door are good locations. And if at all possible, enlist the aid of a copilot to handle all of the musical chores.

There's also a right way to read the label on a cassette while you're driving. Bring the cassette up to eye level and extend it so that the lettering is clear with a minimum amount of refocusing. Never try to read a cassette by looking down! One more thought: The next time you mark your tapes, bear in mind the visibility constraints that apply in the car and label them concisely, with large block letters. Save all the lengthy recording information for the housing liner.

And there you have it—everything you need to know for driving while listening, in four easy lessons. Only the diplomas cost extra. Now, gentlemen, start your engines. **HF**

4 out of 5 Sony car stereo owners would go down the same road again.

It seems there is one road that most Sony owners would gladly travel again. The road to a Sony car stereo.

In a recent survey, an overwhelming majority of Sony car stereo owners contacted gave Sony the ultimate testimonial. They said they would be more than willing to buy a Sony again*. As one Sony owner, Ronald Dokken of Minneapolis, Minnesota, volunteered, "When there's a car stereo that sounds as good and works as well as a Sony, why would you want another one?"

In fact, most Sony car stereo owners when asked went so far as to say that they would keep their car stereos longer than they'd keep their cars. Or, in the words of Valerie Roussel of New Orleans, Louisiana: "My car was in the shop for a few weeks. I missed my car stereo a lot more than my car." And Mark Share of Tempe, Arizona, added, "I have two cars and two kinds of car stereos. I find myself driving the car with the better sounding one—the Sony."

Which is not at all surprising, considering the fact that Sony car stereos are not just engineered to perform reliably. They are also engineered to deliver brilliant high-fidelity stereo sound. Because they take advantage of the same experience and innovative technology that goes into Sony's home stereos.

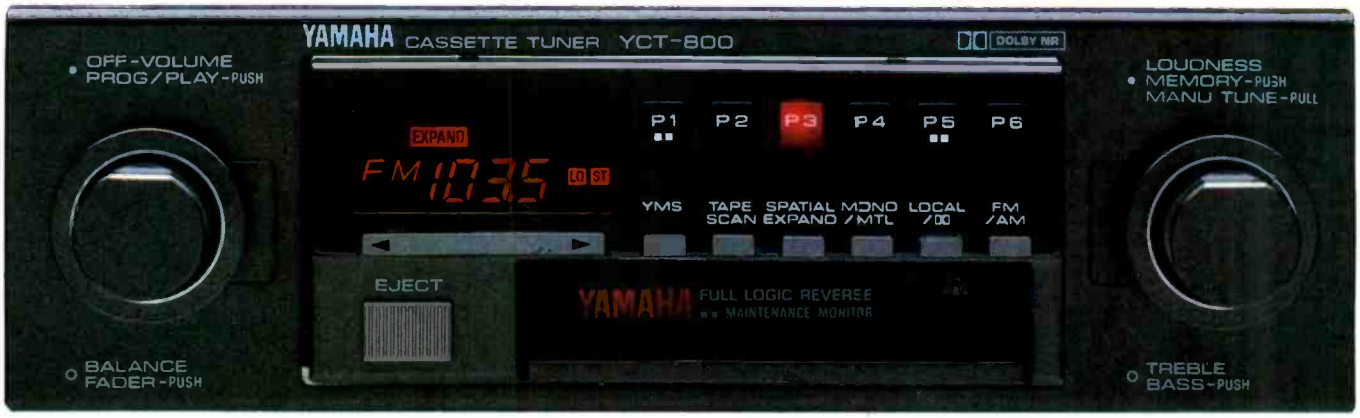
So if you're in the market for a car stereo, it makes sense to go down the same road that 4 out of 5 Sony owners would travel.

Buy the Sony.

SONY.
THE ONE AND ONLY.

*In an independent survey of 200 recent Sony car stereo purchasers who sent in warranty cards, 85% said they'd buy a Sony again.

INTRODUCING THE YAMAHA OF CAR AUDIO.



Yamaha is known for making some of the best home audio components the world has ever heard. Now Yamaha leaves home. With some of the best car audio components the world has ever heard.

ALL THE LINE IS TOP-OF-THE-LINE.

There are no "weak" links in the Yamaha car audio chain. All the cassette/tuners, all the cassette receivers, all the power amps, all the speakers, and the graphic equalizer—every component gives you standard-setting sonic excellence.

But Yamaha also knows that conditions are rougher on the road than they are at home. So we engineered our car audio systems to be roadworthy as well as noteworthy.

FLAT-OUT SUPERIOR ENGINEERING.

An example is the cassette transport mechanism. It's the first bottom-loading, fully motorized, full logic, completely microprocessor-controlled transport ever. So tape handling is precise, smooth, safe and reliable. Even when road conditions aren't.

The YPA-800 power amp is fully digital for excellent sound under the not-so-excellent conditions of voltage variations, impedance variations, and temperature variations that are part of life on the road.

Many of the high performance speaker systems use exotic materials like pure titanium carbide in the tweeters and carbon fiber in the woofers. For unrivaled accuracy.

There's even a cassette maintenance monitor in every in-dash unit to tell you when your system needs a "cleanup."

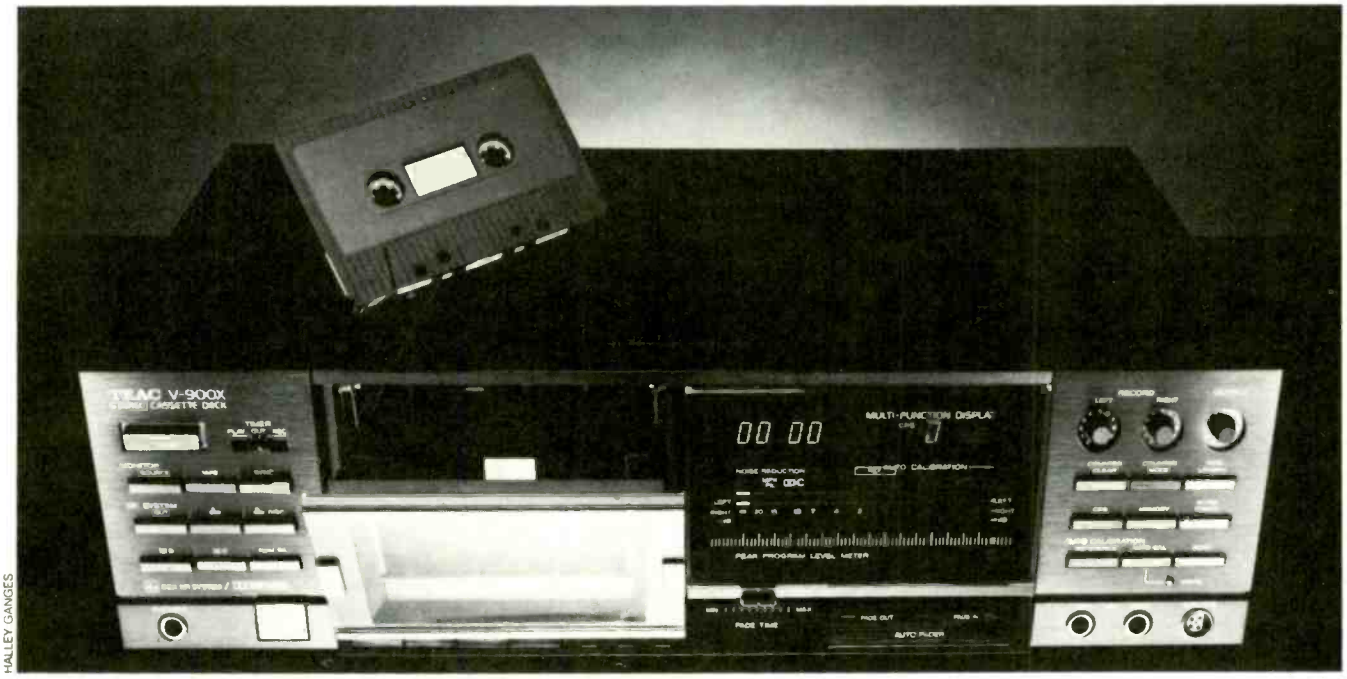
All because there's no limit to how far Yamaha will go to bring you great sound. Wherever you go.

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

YAMAHA

New Equipment Reports

Preparation supervised by Michael Riggs, Peter Dobbin, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise noted) supplied by Diversified Science Laboratories.

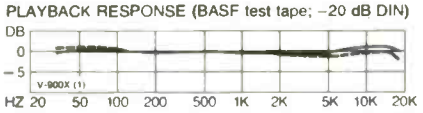


HALLEY GANGES

Teac's Posh Performer

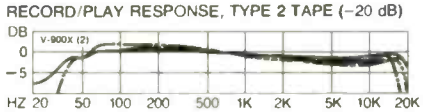
Teac V-900X cassette deck, with Dolby B and C and DBX noise reduction and automatic tape-matching adjustment. Dimensions: 17 by 4½ inches (front panel), 13 inches deep plus clearance for connections. Price: $725; optional RC-203 wired remote control, $50. Warranty: "limited," one year parts and labor in noncommercial use. Manufacturer: Teac Corp., Japan; U.S. distributor: Teac Corp. of America, 7733 Telegraph Rd., Montebello, Calif. 90640.

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



——— L ch +1, −½ dB, 315 Hz to 18 kHz
- - - - - R ch +0, −2½ dB, 315 Hz to 18 kHz

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



——— L ch +½, −3 dB, 34 Hz to 18.5 kHz
——— R ch +½, −3 dB, 34 Hz to 19 kHz
with Dolby B noise reduction
- - - - - R ch +½, −3 dB, 34 Hz to 17 kHz
with Dolby C noise reduction
— . — R ch +1, −3¾ dB, 32 Hz to 19.5 kHz
with DBX noise reduction
— .. — R ch +2¾, −3 dB, 40 Hz to 15 kHz

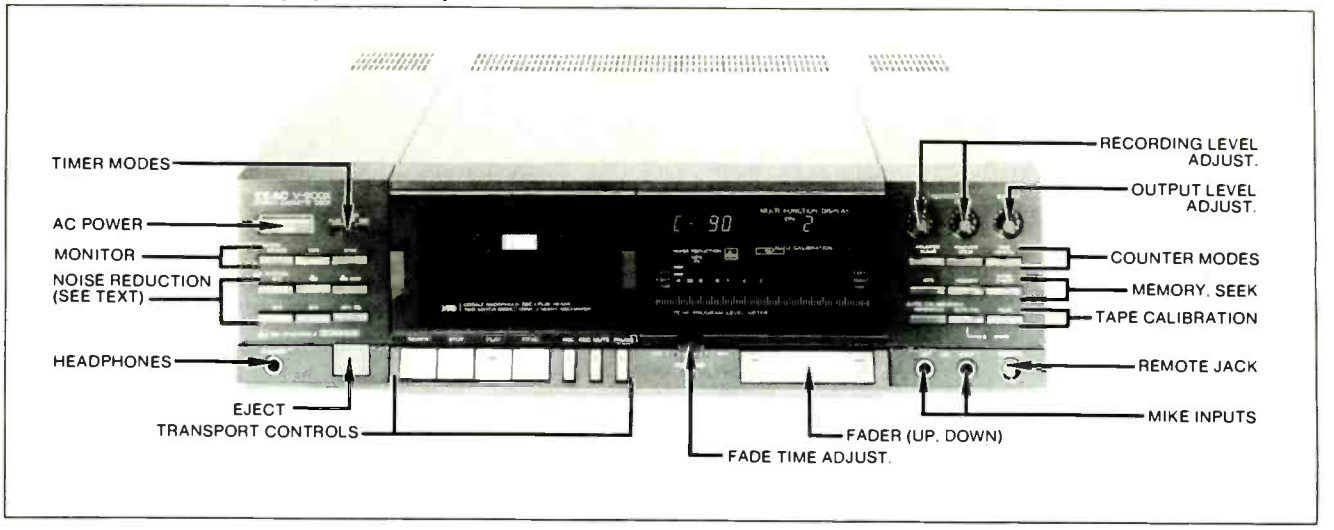
THE LAST TIME we tested a Teac cassette deck, it was the Z-6000 (May 1983), a model bristling with controls and aimed primarily at advanced recordists. We say that because, in particular, its tape-matching controls (which include a bank of 18 screwdriver adjustments) are extremely flexible for custom tweaking but might prove excessively complex for the neophyte. The V-900X, at barely half the price, is layed out similarly and includes many of the same features, but it is far easier to understand and use—which is to say that it may create significantly better tapes for casual users.

The banks of controls at each end are logically arranged and somewhat more complex than the necessarily sketchy designations in the photograph may suggest. For instance, there are three buttons in the monitor group: SOURCE, TAPE, and SYNC. The last automatically switches the output to the source when the recording mode is selected and the transport stopped, and to the tape under all other circumstances. It thus automatically gives you off-the-tape monitoring while recording actually is in progress, but enables you to override its choice with SOURCE for A/B comparisons.

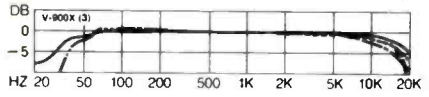
The noise reduction group includes five options: none, Dolby B, Dolby C, DBX, and DBX disc—the last set up so it can both copy and monitor the decoded signal from DBX-encoded discs. (If you want the tape encoded as well, you can turn off the noise reduction, but the monitored signal then remains encoded; only in subsequent playback with the DBX option will you hear the result correctly decoded.) In addition, there's a multiplex filter that's independent of the other five buttons.

The counter group, at the top of the left bank, consists of CLEAR (which resets the display to zero), MODE (which chooses conventional counter numbers, remaining time on the cassette, or elapsed time), and TAPE LENGTH (which helps calibrate the time-remaining function). The counter display tells you what is going on. When you turn on the deck, it comes on at "0000" in the counter mode. Press MODE once, and it shows "C-90," meaning that you are in the time-remaining mode and set for a C-90 tape.

The other options are "C-60" (actually covering all standard-hub cassettes with the same tape thickness—including C-30s) and "C-46L" (for C-45s and similar lengths with large hubs). Only when you begin recording or playback and the built-in logic has an opportunity to assess tape motion does the display switch over to the actual time remaining. If you step on to the elapsed-time mode, it will count upward for all functions involving normal transport speed and hold its reading unchanged during all others, which can be useful when

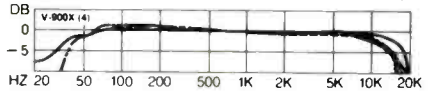


RECORD/PLAY RESPONSE, TYPE 4 TAPE (–20 dB)



L ch +0, –3 dB, 36 Hz to 15.5 kHz
R ch +0, –3 dB, 35 Hz to 17 kHz
with Dolby B noise reduction
R ch +0, –3 dB, 35 Hz to 14 kHz
with Dolby C noise reduction
R ch +½, –3 dB, 35 Hz to 12 kHz
with DBX noise reduction
R ch +¾, –3 dB, 43 Hz to 14 kHz

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



L ch +¼, –3 dB, 34 Hz to 15 kHz
R ch +¼, –3 dB, 34 Hz to 16 kHz
with Dolby B noise reduction
R ch +¼, –3 dB, 34 Hz to 12.5 kHz
with Dolby C noise reduction
R ch +1, –3 dB, 34 Hz to 11 kHz
with DBX noise reduction
R ch +1¼, –3 dB, 40 Hz to 12.5 kHz

MULTIPLEX FILTER (defeatable)
–½ dB at 15 kHz; –35¾ dB at 19 kHz

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	56½ dB	55 dB	53¾ dB
with Dolby B noise reduction	65 dB	63¾ dB	62½ dB
with Dolby C noise reduction	71¼ dB	70¼ dB	67½ dB
with DBX noise reduction	83 dB	81¾ dB	81½ dB

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	55 dB	52¾ dB	51¾ dB
with Dolby B noise reduction	65 dB	63 dB	62 dB
with Dolby C noise reduction	73½ dB	71¾ dB	70¾ dB
with DBX noise reduction	81 dB	79½ dB	79¼ dB

you're assembling bits and pieces.

The next three buttons include a SEEK (used with the fast-wind controls to skip a given number of selections forward or back on the tape, the number determined by how many times you tap this button) and MEMORY (which triggers both a conventional memory-stop function and repeat functions for portions of the tape or a whole cassette side). The third—INTRO CHECK—plays about ten seconds of each selection and then skips to the next.

The bottom group on this side is for tape matching. The basic type (1, 2, or 4) is selected automatically by the deck, using the keyways built into the cassette shell. Some early chrome and metal tapes, as well as ferrichromes (for which the deck makes no specific provision), will be treated as though they were ferrics. This means that all such tapes will be recorded or played with 120-microsecond equalization and perhaps with incorrect bias. When we tried a ferrichrome, it behaved respectably with Dolby C or DBX. With less noise reduction, the EQ made the hiss slightly more audible than it would have been at the 70-microsecond ferrichrome norm.

For each of the other three tape types, reference settings for bias, sensitivity, and recording EQ are available by pushing the first button in the tape-matching group. A table (as usual, not quite up to date) in the exhaustive five-language owner's manual lists tapes appropriate for these settings. For others—or even when you want to be sure of spot-on adjustment with a listed tape—you can activate the automatic calibration system by pressing the center button. The entire procedure takes about 15 seconds and automatically puts the tape back at its starting point and the deck into RECORDING/PAUSE. Settings for one tape of each of the three standard types can be memorized by pressing the tiny WRITE button just below the three main buttons. You can recall memorized settings (which Teac says are retained for several days, even with the deck unplugged) by pushing READ.

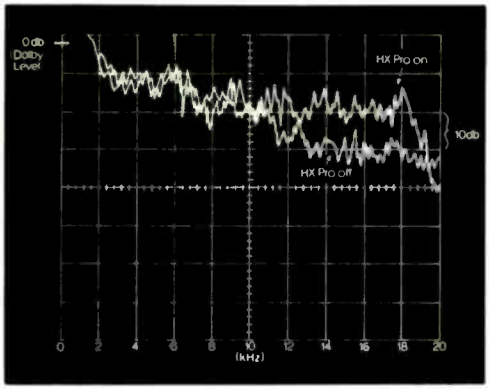
The two recording-level adjustments at the top of the panel are used to set "full" level and balance; fades are accomplished by means of a rocker panel below the metering. Fade speed is controlled by means of a slider to the left of the rocker. It can be set for fade times from about one to six seconds, though the only calibration is a series of index lines between "min" and "max." After you have set your levels in RECORDING/PAUSE, pressing FADE IN on the rocker will start recording with the level all the way down and fade it up to your settings in the preordained time. Pressing FADE OUT drops the level back down in the same time (unless you have readjusted the speed control, which you can do in mid-fade if events are moving faster than you had anticipated) and adds a four-second mute before returning the deck to RECORDING/PAUSE. The muting button also lays down a four-second blank, though you can cut it shorter with the PAUSE or continue it indefinitely by pressing MUTE again within the four seconds.

The metering is a little Spartan by some standards, with rather coarse (2-dB) minimum steps in the critical region around 0 dB (extending 4 dB on either side) and a range beginning only at –20 but extending to +10 dB. The meter 0 dB corresponds roughly to DIN 0 (at least for Type 1 and Type 2 tapes), though the meter resolution makes the figures slightly equivocal. Thus, the metering tells you what you really need to know, but no more.

Teac suggested testing with two Maxell premium formulations—XL-IIS Type 2 ("chrome") ferricobalt and XL-IS Type 1 ferric—plus Teac's own MDX Type 4 metal. (The last is, incidentally, among the recently introduced tapes not listed in the manual.) In each case, Diversified Science Laboratories used the automatic tape-matching system to calibrate the deck for it. Response curves with MDX are extremely flat and, in the 0-dB test (not shown), demonstrate excellent high-frequency headroom. Response is not as extended as we might have expected, however, rolling off a

Dolby® HX Pro

Dolby HX Pro™ headroom extension is a program-adaptive bias technique which can significantly improve the quality of cassette recordings. High-level frequencies can be recorded more accurately, without sacrificing signal-to-noise ratio, while such side effects of tape saturation as distortion are reduced. For both the home recordist and the duplicator of pre-recorded cassettes, Dolby HX Pro improves the performance of good conventional tapes to match that of costlier, more exotic formulations, and even the more expensive tapes benefit from Dolby HX Pro.



Spectral analysis of two high-speed (32 times) cassette recordings of the same selection of rock music show the highest levels accumulated over time at each frequency. Both recordings were made on conventional iron oxide tape of the type favored for commercial cassette duplicating; in this example, the high-frequency headroom improvement provided by Dolby HX Pro is as much as 10 dB.

The problem of self-bias

Even when a cassette deck is adjusted for the nominally optimum bias for a given tape, performance is nevertheless compromised under some signal conditions. In particular, music which is rich in high frequencies has what's called a self-biasing effect. The musical high frequencies act in and of themselves as recording bias on the tape, effectively adding to the external bias supplied by the recorder's bias oscillator. The net result under such signal conditions is momentarily too much effective bias, which leads to the familiar symptoms of tape saturation. The highest frequencies don't get recorded at all, and considerable IM distortion is generated at lower frequencies.

How Dolby HX Pro deals with the problem

Dolby HX Pro uses a special circuit which constantly monitors the total effective bias — a combination of bias from the recorder's oscillator and self-bias contributed by the musical signal — while the recording is being made. If it senses the total bias increasing beyond the optimum level as a result of high frequencies in the music, it instantly compensates for the increase by lowering the bias from the recorder's oscillator, thus keeping the total effective bias constant. Even on music with a great deal of high-frequency energy, the tape remains optimally biased, and so tape saturation and its side effects are significantly reduced. The improvement in high-frequency headroom can be 6 dB or more, depending on the particular tape formulation. No decoding is necessary to realize the benefits of Dolby HX Pro.

Improve both the cassettes you make and those you buy

Dolby HX Pro technology, developed by Bang & Olufsen with the assistance of Dolby Laboratories, is provided along with Dolby noise reduction in home cassette deck models from Aiwa, B&O and Harmon-Kardon. Just as important, Dolby HX Pro can be applied to high-speed cassette duplication, where its ability to improve good conventional tape formulations is economically, as well as sonically, significant. Commercial duplicating facilities are now equipped, and the first pre-recorded cassettes made with Dolby HX Pro (as well as Dolby noise reduction) are available from the following labels: Capitol, Liberty, EMI/America, Angel, Warner Brothers, Electra/Asylum, and Atlantic.

For further information, including a complete technical explanation of Dolby HX Pro, contact Dolby Laboratories at the address below.

DOLBY HX PRO

Dolby Laboratories Licensing Corp., 731 Sansome Street, San Francisco, CA 94111, 415-392-0300.

INDICATOR READINGS FOR DIN 0 DB (315 Hz)	
Type 2 tape	0 dB (with 0.87% THD)
Type 4 tape	+2 dB (with 0.57% THD)
Type 1 tape	0 dB (with 0.62% THD)
INDICATOR READINGS FOR 3% DISTORTION (315 Hz)	
Type 2 tape	+4 dB (for +4¾ dB DIN)
Type 4 tape	+8½ dB (for +7½ dB DIN)
Type 1 tape	+7 dB (for +5¼ dB DIN)
DISTORTION (THD at −10 dB DIN; 50 Hz to 5 kHz)	
Type 2 tape	≤ 0.50%
Type 4 tape	≤ 0.48%
Type 1 tape	≤ 0.62%
ERASURE (at 100 Hz)	≥ 69½ dB
CHANNEL SEPARATION (at 315 Hz)	51½ dB
INDICATOR "BALLISTICS"	
Response time	2.6 msec
Decay time	=600 msec
Overshoot	0 dB
SPEED ACCURACY	0.7% fast, 105 to 127 VAC
FLUTTER (ANSI weighted peak; R/P)	±0.11%
SENSITIVITY (re DIN 0 dB; 315 Hz)	
line input	70 mV
mike input	0.40 mV
INPUT OVERLOAD (at 1 kHz)	
line input	>10 volts
mike input	36 mV
INPUT IMPEDANCE	
line input	97k ohms
mike input	10k ohms
OUTPUT IMPEDANCE	3,200 ohms
MAX. OUTPUT (from DIN 0 dB)	0.62 volt

little more sharply at the top end than with the Type 2 tape. The latter has a slightly sway-backed profile (which can result when a superpremium tape is used in a deck whose recording equalization was designed with lesser formulations in mind), though the Type 1 tape shows only the faintest suggestion of such a sag.

All of the response characteristics are good, however—particularly in avoiding the midrange prominence that often emerges with Dolby C. The narrowed bandwidth with DBX results partly from its inherent band-limiting, partly from the way response errors are exaggerated by compander systems in swept-tone testing. Also notable is the high end of the playback response, whose flatness suggests azimuth very close to that of the lab's BASF test tape. (Teac's own test tapes in the past have been among those that differed appreciably from BASF's.)

The distortion figures also are encouraging. Atypically, there is more second than third harmonic present at most frequencies, which suggests that the electronics, rather than the tape, are the limiting factor. If that is so, the limitation clearly is not confining. The noise figures are particularly interesting. The CCIR weighting and Dolby companders both concentrate on the frequency band where the ear is most sensitive, centered on about 6 kHz. The CCIR weighting therefore shows off the Dolby action to best effect. DBX, being broader in coverage, appears to better advantage with the relatively broad band of the A-weighting. But the disparities are too small to be of any real significance. It's enough to know that each step—off, Dolby B, Dolby C, and DBX—nets you approximately 10 dB less noise than the last.

Input and output levels, sensitivities, and impedances should pose no problems with typical ancillary equipment, and the mike-input headroom is more generous than average for a cassette deck. But serious recordists will still prefer to use a mike preamp/mixer feeding the line inputs, and many models these days cut cost by omitting mike inputs altogether. The V-900X saves a little by omitting the mixing and separate line and mike level controls of earlier models; when you plug a mike into one of the jacks, it disconnects the line feed for that channel and substitutes its own output. Thus, Teac affords you mike inputs for standby or occasional use at minimum expense—a plus by comparison to typical competitors.

It is, perhaps, this way of thinking about and designing a tape deck that constitutes the real quality of the V-900X. Its elements fit into a consistent, unified scheme that works very well. For anyone interested in making top-quality recordings at home with a minimum of unnecessary fuss and bother, this deck is a strong contender.

Luxury and Performance From Tandberg

Tandberg TCD-3014 cassette deck, with Dolby B and C noise reduction. Dimensions: 17 by 6½ inches (front panel), 13¾ inches deep plus clearance for controls and connections. Price: $1,395; optional infrared wireless remote control, $150. Warranty: "limited," 90 days parts and labor, automatically extended to three years on return of warranty registration card. Manufacturer: Tandberg A/S, Norway; U.S. distributor: Tandberg of America, Inc., P.O. Box 58, Armonk, N.Y. 10504.

AS RUGGED AS THE FJORDS of Norway is the individualism of Tandberg. No recordist could mistake the TCD-3014 for a deck from any other company, and every recordist should be aware of Tandberg's long history of technical innovation. In recent years, this Scandinavian company has aimed increasingly at producing equipment (including electronics as well as tape gear) with top performance at prices that, although hardly modest, aren't all that heady. And for a no-holds-barred model—one that is designed to attract professional users as well as perfectionist audiophiles—the 3014's $1,400 price tag is actually restrained by today's standards.

Using the TCD-3014 affords a number of surprises, particularly because of the way its control buttons can be operated in tandem—both simultaneously and sequentially—to perform far more functions than a perusal of their markings suggests. For example, the counter is in its normal arbitrary-numbers mode when you turn on the deck, but you can switch it to a real-time indicator that keeps an accurate tally even during fast-winds by pressing STOP and SET together (repeating the process switches it back). In the standard mode, pressing SET with the memory switch at OFF resets the counter to zero; with the memory switch at STOP, it instead adds a blinking dot to the left of center in the display, indicating that a memory-stop position has been programmed. If you then play part of the tape, switch the memory to REPEAT, and press SET again, a second indicator to the right of center will begin blinking. The deck is then set up to repeat the section between the first index point and the second. You can rewind the tape to the beginning and start play from there simply by holding in STOP and simultaneously pressing PLAY, or you can make the deck skip forward or back any given number of selections (assuming there are pauses of at least three seconds between them, according to the surprisingly simple owner's manual) by holding in STOP and pressing WIND or REWIND the appropriate number of times.

Operation of the recording controls is a little unconventional. To prevent accidental erasure, you must set the "recording preset" before starting. But even if the preset is on, you can't record until you press STOP, at which point the recording pilot begins to blink. Then you can begin recording simply by pressing RECORDING. Flying starts and stops are possible. (That is, you can go directly from playback to recording or vice versa without stopping the transport as long as the recording preset is on.) To create a

FOREVER IS A LONG TIME

Presenting High Bias II and the Ultimate Tape Guarantee.

Memorex presents High Bias II, a tape so extraordinary, we're going to guarantee it forever.

We'll guarantee life-like sound.

Extraordinarily flat frequency response at zero dB recording levels, combined with remarkably low noise levels, means music is captured live. Then Permapass,™ our unique oxide-bonding process, locks each oxide particle—each musical detail—onto the tape. So music stays live. Not just the 1st play. Or the 1000th. But forever.

We'll guarantee the cassette.

We've engineered every facet of our transport mechanism to protect the tape. Our waved-wafer improves tape-wind. Silicone-treated rollers insure precise alignment and smooth, safe tape movement. To protect the tape and mechanism, we've surrounded them with a remarkable cassette housing made rigid and strong by a mold design unique to Memorex.

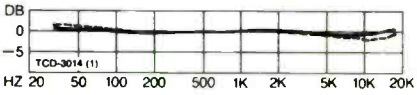
We'll guarantee them forever.

If you ever become dissatisfied with Memorex High Bias II, for any reason, simply mail the tape back and we'll replace it free.

YOU'LL FOREVER WONDER,

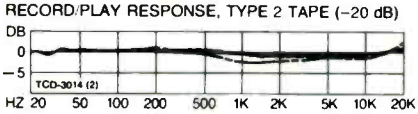
IS IT LIVE, OR IS IT MEMOREX.

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



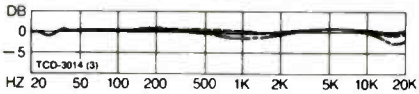
——— L ch +¾, −½ dB, 315 Hz to 18 kHz
- - - - - R ch +¼, −1¾ dB, 315 Hz to 18 kHz

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



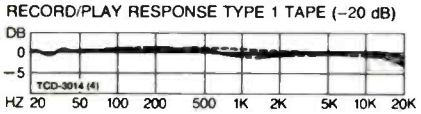
L ch +¼, −1 dB, 20 Hz to 20 kHz
——— R ch +1¼, −¾ dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +1, −1¼ dB, 20 Hz to 20 kHz
with Dolby C noise reduction
—·— R ch +2½, −2¾ dB, 20 Hz to 20 kHz

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



L ch ±½ dB, 20 Hz to 20 kHz
——— R ch +¾, −½ dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch ±1 dB, 20 Hz to 20 kHz
with Dolby C noise reduction
—·— R ch +¾, −2¾ dB, 20 Hz to 20 kHz

RECORD/PLAY RESPONSE TYPE 1 TAPE (−20 dB)



L ch +¼, −1¼ dB, 20 Hz to 20 kHz
——— R ch +½, −1 dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +1¼, −3 dB, 20 Hz to 20 kHz
with Dolby C noise reduction
—·— R ch +1¼, −3 dB, 20 Hz to 20 kHz

MULTIPLEX FILTER (defeatable)
−¾ dB at 15 kHz; −17 dB at 19 kHz

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	54¾ dB	53¼ dB	51¼ dB
with Dolby B noise reduction	63¼ dB	61¼ dB	60¾ dB
with Dolby C noise reduction	69 dB	68¼ dB	66 dB

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	54¾ dB	52 dB	51½ dB
with Dolby B noise reduction	64½ dB	61¾ dB	61¼ dB
with Dolby C noise reduction	72¾ dB	70¾ dB	70¾ dB

INDICATOR READINGS FOR DIN 0 dB (315 Hz)

Type 2 tape	0 dB (with 1.27% THD)
Type 4 tape	−4 dB* (with 1.34% THD)
Type 1 tape	0 dB (with 0.41% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	+3¾ dB (for +3 dB DIN)
Type 4 tape	0 dB* (for +3 dB DIN)
Type 1 tape	+4½ dB (for +5 dB DIN)

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

Type 2 tape	≦ 0.89%
Type 4 tape	≦ 0.50%
Type 1 tape	≦ 0.66%

ERASURE (at 100 Hz)

Type 2 tape	67½ dB
Type 4 tape	54 dB

CHANNEL SEPARATION (at 315 Hz) 42¾ dB

INDICATOR "BALLISTICS"

Response time	≈1.8 msec
Decay time	≈1,800 msec
Overshoot	<¼ dB

blank between selections, press RECORDING and STOP simultaneously. There is no PAUSE, as such, since STOP gives essentially the same result.

These options are not as confusing as they sound—at least, once you get used to them. Admittedly, they require more time than average to master, because there are no front-panel prompts to remind you what to do. And a half-understood command can easily misfire. In the early stages of testing, in both the lab and the listening room, we found some of the controls quite frustrating for just this reason. But familiarity breeds virtuosity in this case—and with it comes a kind of tape handling that is unique in our cassette experience. For instance, you can shuttle the tape back and forth for cueing by using WIND and REWIND together, much as you might on a professional open-reel machine.

To achieve this remarkable flexibility, Tandberg uses an eight-bit microprocessor together with an EPROM (erasable programmable read-only memory) that can be reprogrammed by Tandberg to provide newly developed functions. This on-board brain also keeps track of hub rotation speeds and figures elapsed time, as well as taking care of housekeeping tasks such as removing slack from the tape before beginning any function.

Recording levels are set with what may be the best system going. One knob preadjusts balance, and the master fader has an outer element that marks "full" level with a detent. The master knob can be faded quickly and easily to the detent without disturbing the position of the marker, and it can be turned past the marker (impossible in most systems of this type) if you find you want to push the level a little without disturbing the basic calibration of the fader. The size, feel, and frictioning of the elements are delicately balanced so that everything works together superbly.

Tandberg uses analog level meters (at least partly because of their minute resolution when they are switched for use in tape matching), equalized to increase sensitivity slightly in the very deep bass and considerably more at frequencies above 2 kHz, more or less complementing the overload curves of typical tapes. Thus, if your signal is, say, 3 dB above overload at *any* frequency, it should register at about +3 dB on the meters. To allow for the significantly greater headroom of metal tapes, the meters have a separate calibration scale for them, offset 4 dB to the right of the corresponding calibrations on the upper scale that serves the other tape types.

Meter ballistics approach the signal-response characteristics of the by-now more familiar segmented "bar graph" displays, with a fast attack time, very little overshoot on sharp transients, and a slow decay so you can see the peaks before they're gone. But their side-by-side placement, very narrow pointers, and busy background calibration design all conspire to make them considerably harder to read, particularly for assessing stereo balance.

Noise reduction switching (Dolby B, Dolby C, or off) is on the front panel, but the multiplex filter switch is on the back. The manual suggests that you need not engage the filter to record from FM unless your tuner has no pilot filtering. Most of today's tuners should have enough built-in pilot attenuation that the 19-kHz residual won't appreciably affect Dolby tracking, though Dolby Laboratories has traditionally encouraged users and licensees to keep in all the filtering they could get. And a multiplex filter does inhibit intermodulation between the signal and any ultrasonic products that may be present from whatever source.

The back panel has two outputs, one fixed, the other connected through the front-panel output level control. Tandberg recommends that you use the fixed output in typical systems, reserving the variable output to adjust volume in setups where the deck must feed a power amp directly. Another reason for doing so is that the level control also adjusts the headphone volume; system connection via the fixed output keeps headphone and speaker monitoring levels independent of each other, forestalling any unpleasant surprises.

Also on the back panel is a playback EQ switch for either automatic setting (based on the cassette-shell keyways) or 70 microseconds. The latter is for old metal or chrome tapes lacking the necessary keyways. Recording EQ always is set automatically. The tape-type switch, which selects only the group of tape-matching controls you can adjust, has settings for Types 1, 2, and 4—ferric, chrome or ferricobalt, and metal tapes, respectively. (There is no provision for Type 3 ferrichromes.) Flanking each of these switch positions are two pairs (for left and right channels) of screwdriver controls: One pair adjusts sensitivity (Dolby tracking, here labeled "record current"), and the other bias. Below this control group is a knob to adjust the azimuth of the recording head. The monitor/test switch, in addition to providing tape/source/off switching, controls the oscillators used for tape-matching and azimuth calibration.

Tandberg suggests that the head azimuth be tweaked before each recording so that highs will be captured as accurately as possible, given the skew properties of the particular cassette in use. The tape adjustments are not intended for regular use, however. They are set at the factory for three Maxell tapes (XL-IS Type 1 ferric, XL-IIS Type 2 chrome-compatible ferricobalt, and MX Type 4 metal), and Tandberg suggests that you use these tapes. If you prefer others, you can make appropriate adjustments, but the process is rather cumbersome if you have to recalibrate frequently for a mix of tapes of the same type.

NOT JUST ANOTHER PRETTY FACEPLATE.

There are a lot of people putting their names on the front of cassette decks these days.

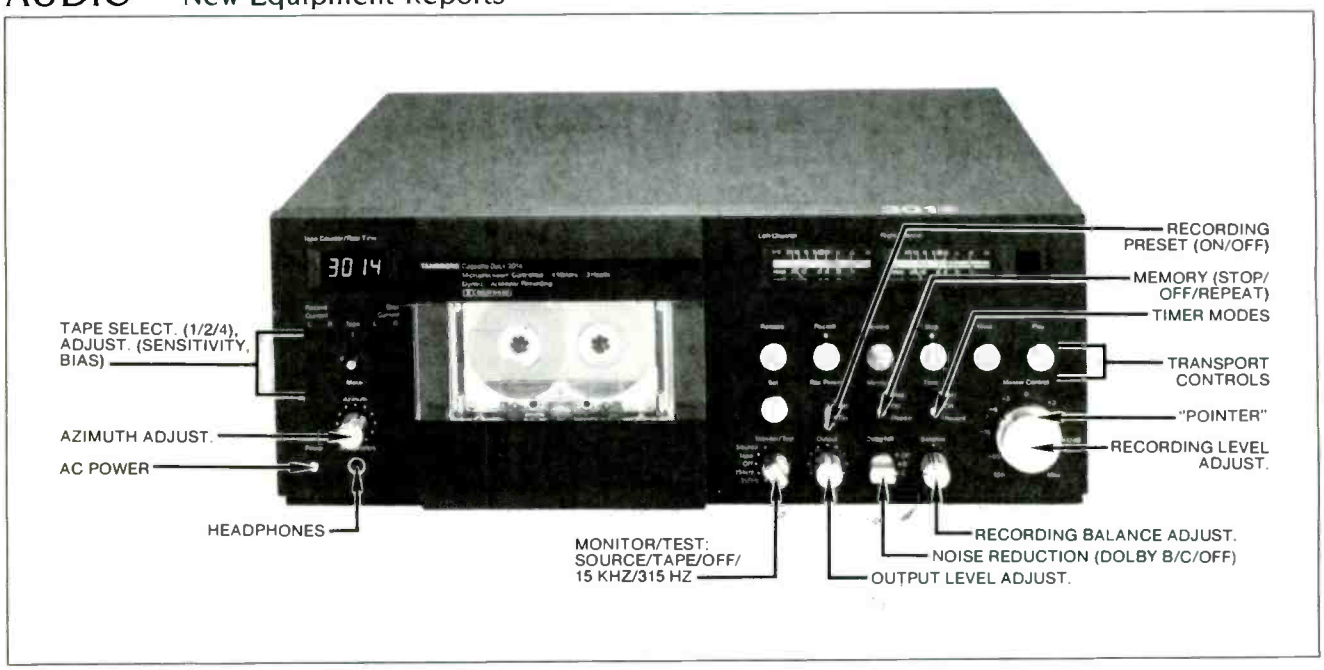
But, quite frankly, it's much easier building faceplates than it is building cassette decks. So when it comes to buying one for your system consider this: Teac has been building cassette decks ever since there was a cassette.

And because we also make professional recording equipment, you can expect to find more professional features included on a Teac for your home.

In fact, we were among the first to offer cassette decks featuring built-in dbx* and Dolby noise reduction,** direct-drive motors, auto reverse, cobalt-amorphous heads, and programmable search and memory systems, to name a few.

So ask yourself this: Do you want a row of matching faceplates, or do you want a cassette deck that can't be matched?

TEAC MADE IN JAPAN BY FANATICS.



SPEED ACCURACY	0.5% slow, 105 to 127 VAC
FLUTTER (ANSI weighted peak; R/P)	±0.085%
SENSITIVITY (re DIN 0 dB; 315 Hz)	
low sensitivity setting	84 mV
high sensitivity setting	8.6 mV
INPUT OVERLOAD (at 1 kHz)	
low sensitivity setting	5.3 volts
high sensitivity setting	0.57 volt
INPUT IMPEDANCE	165k ohms
OUTPUT IMPEDANCE	
fixed output	560 ohms
variable output	100 ohms
OUTPUT (from DIN 0 dB)	
fixed output	0.68 volt
variable output (at max.)	4.2 volts

*On "metal" scale—see text

You're better off standardizing on one tape of each type.

Diversified Science Laboratories used the three recommended tapes in its testing but did readjust the sensitivity and bias (as well as the azimuth) for each. In the process, it confirmed that not all generations of a given tape are the same: The XL-IIS for which the deck had been adjusted was noticeably different from the current production we regularly use in testing. But compensating for such changes is an important reason for having the adjustments in the first place.

Response is very fine with all three. Given that frequency sweeps exaggerate departures from flat response with compander noise reduction systems (such as Dolby and DBX), the curves represent excellent performance at normal recording levels. Although they are not shown here, the lab's high-level curves (at DIN 0 dB) also are very good, because of Tandberg's Dyneq (dynamic equalization) system. Dyneq alters the recording pre-emphasis according to the signal's high-frequency content to prevent tape saturation and the consequent treble rolloff.

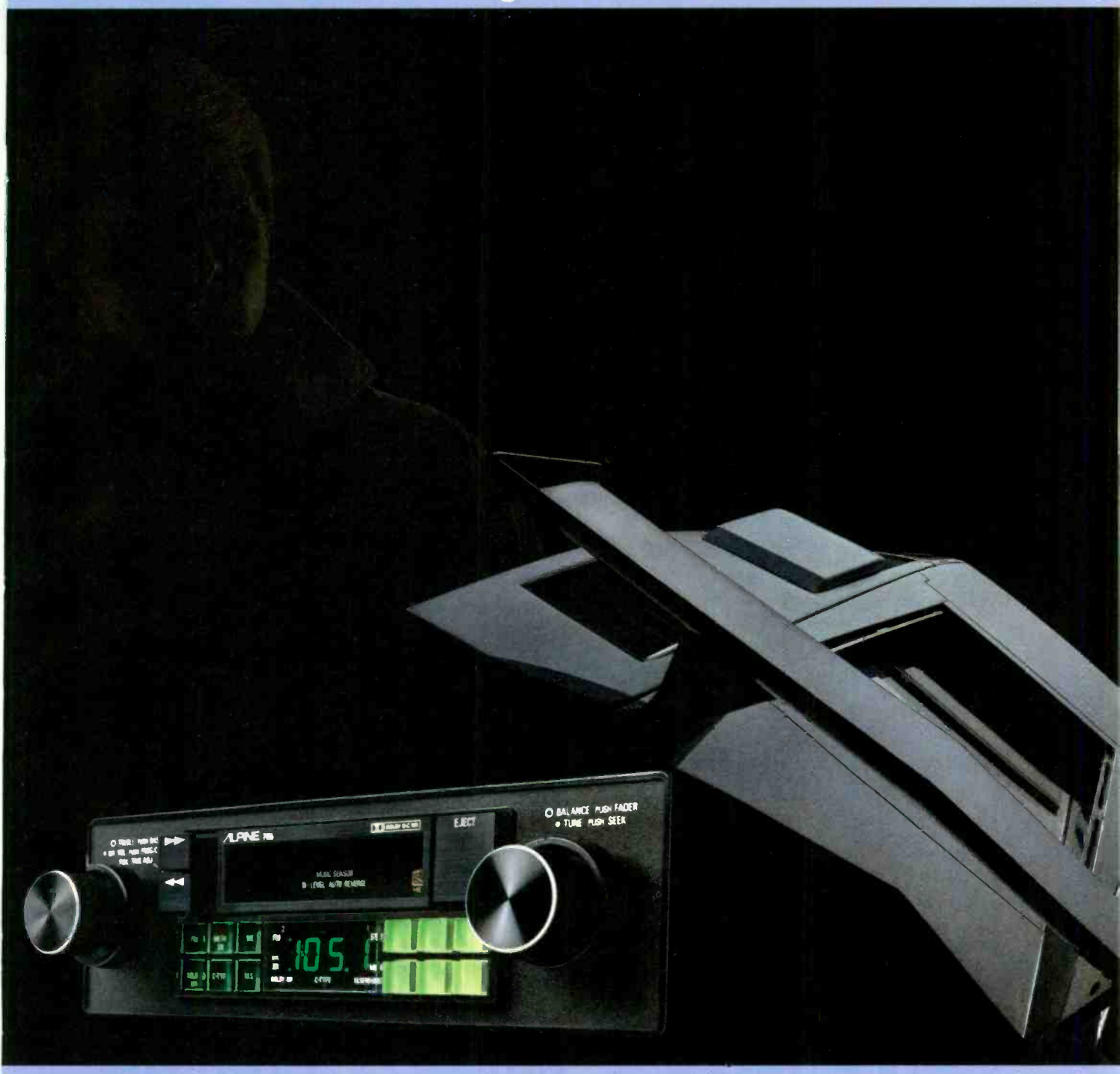
Spectral distribution of the noise appears to be somewhat atypical: Both weighting systems (the CCIR scheme originally proposed by the EIA and used in our reports in recent years, and the A-weighting of the final EIA standard, to which we are converting) produce very similar numbers without noise reduction. (Usually the A-weighting yields more prepossessing numbers here.) But with Dolby C, where CCIR usually looks about 2 dB better than A, its advantage is about twice that. These facts are of less consequence, however, than the basically good tenor of the numbers, by whichever weighting standard.

Perhaps because of Tandberg's Actilinear recording circuitry, headroom (above DIN 0 dB) is ample at 5 dB with Type 1 and 3 dB with both Type 2 and Type 4 tapes. It is thus no coincidence that our previous erasure measurement technique (which started with a test tone recorded at overload) gives results about 3 dB poorer than the new one (which records the tone at DIN 0 dB). Considering the pains Tandberg has taken to minimize flutter (including the use of dissimilar drive parts for the two capstans of the closed-loop system), we had hoped for more spectacular results in this test, but the figure is certainly respectable.

Input and output impedances are beyond reproach. There are two input sensitivities, chosen at screwdriver adjustments on the back panel. For regular pin connections between components (the only type for which jacks are provided, at least on the 3014s delivered in this country), the LOW setting, meaning the higher voltage figure, is the appropriate one. The overload ceiling at either setting is not as generous as in some equipment, but it shouldn't be a problem in any normal hookup.

Between its individuality and its not inconsiderable price, the TCD-3014 is not a model for everyone. But it is an important contender for any recordist who wants a truly perfectionist cassette deck. The more we work with it, the more we agree that it has "professional" properties—something often claimed for consumer tape gear but very seldom delivered. Among other things, this suggests that the 3014 isn't for the casual user. But Tandberg's design repays devoted enthusiasm with exceptional responsiveness. And from the TCD-3014's aluminum headblock to its glued-in (instead of press-fit) bearings, the company appears to have taken unusual care that this responsiveness will continue beyond the call of normal duty.

L a m b o r g h i n i h a s



The Alpine 7165.
One of the newest members of the Alpine car audio family. Reflecting the perfect marriage of high-tech and high-fashion, the 7165 proudly continues our tradition of quality and performance in car audio systems you've come to expect from Alpine. Hear it for yourself. At your local authorized Alpine audio specialist. For the one nearest you call toll free. 1-800-ALPINE-1.

Touch

ALPINE
car audio systems

Alpine Electronics of America, Inc., 19145 Gramercy Place, Torrance, CA 90501

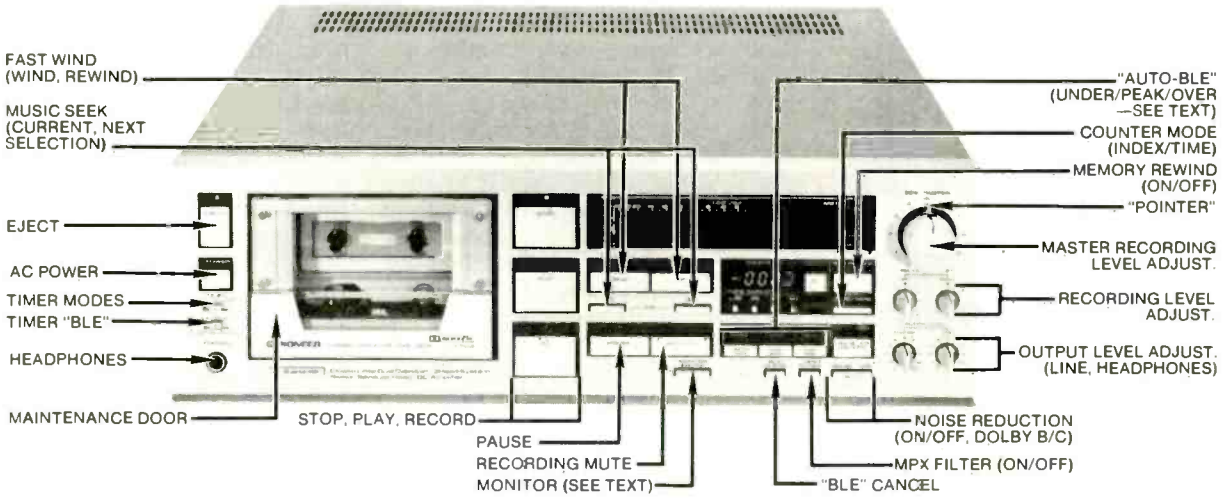
HEAR ALL OF THE MUSIC AND NONE OF THE TAPE

SWITCH TO BASF CHROME AUDIO TAPE

THE WORLD'S QUIETEST TAPE

If you won't settle for anything less than pure music, accept nothing less than BASF Pure Chrome audio tape. Unlike ferric oxide tapes, BASF Pure Chrome is made of perfectly shaped chromium dioxide particles. And the exclusive Chrome formulation delivers the lowest background noise of any tape in the world, as well as outstanding sensitivity in the critical high frequency range. And this extraordinary tape is designed especially for the Type II Chrome Bias position. So make sure you're hearing all of the music and none of the tape. Make the switch today to the world's quietest tape. BASF Chrome.

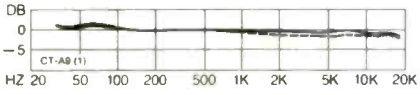
BASF
Chrome Audio & Video Tapes



The Real Thing, From Pioneer

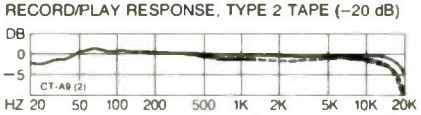
Pioneer CT-A9 cassette deck, with Dolby B and C noise reduction and automatic tape-matching adjustment. Dimensions: 16½ by 4¾ inches (front panel), 14 inches deep plus clearance for controls and connections. Price: $800. Warranty: "limited," two years parts and labor. Manufacturer: Pioneer Electronic Corp., Japan; U.S. distributor: Pioneer Electronics (USA), Inc., P.O. Box 1760, Long Beach, Calif. 90801.

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



——— L ch +0, −1¾ dB, 315 Hz to 18 kHz
- - - - - R ch +0, −2¼ dB, 315 Hz to 18 kHz

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



——— L ch +½, −3 dB, 20 Hz to 18 kHz
——— R ch +¼, −3 dB, 20 Hz to 18 kHz
with Dolby B noise reduction
- - - - - R ch +¼, −3 dB, 20 Hz to 15 kHz
with Dolby C noise reduction
— · — R ch +¼, −3 dB, 20 Hz to 14.5 kHz

IN RECENT YEARS we have commented on the provocative ways in which Pioneer seemed to be rethinking the standard consumer cassette deck. It was first, in our experience, with some convenience features that have since been adopted by competitors, and its front-panel organization was for a time radically different from that of any other brand. At first glance, the CT-A9 looks stolid and conventional compared to the models we have seen from this company over the last few years, but in performance and construction it is a Corvette among dune buggies.

This perception begins the instant you load a tape. The flip-out door (which itself has a flip-out panel at the bottom to facilitate head maintenance) and the parts behind it have a reassuringly solid look. And when the cassette drops into the holder, the door closes automatically, responding to a microprocessor-based logic system that is more sophisticated than most and that makes the deck one of the very quietest in operation.

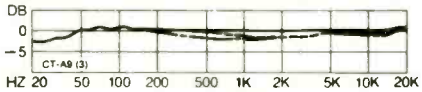
The drive itself (called Reference Master Mechanism by Pioneer) is designed around dual capstans of different diameters with matching pinch rollers, to supply closed-loop tensioning without the cumulative resonances and flutter reinforcement that are inherent when the two sides of the drive train are identical. The heads use Pioneer's ribbon sendust technology and are independent, though the recording and playback heads are mounted in a single housing.

A number of features are automatic. The monitor is set for tape playback when you turn on the deck. When you press the recording button (putting the deck into RECORDING/PAUSE), it switches to SOURCE, reverting to TAPE as soon as you actually start recording. At any point, you can switch to the other monitor mode at the press of its button; lighting indicators at the top of the display panel (but difficult to see if the deck is too far below eye level) tell you which signal you're hearing.

Tape switching also is automatic, relying on the keyways at the back of the cassette to determine tape type. If you want to play or rerecord early chrome or metal cassettes lacking the appropriate keyways—or ferrichromes, for which no provision is made—the deck will treat them as if they were ferrics. Equalization therefore will be "wrong" for these tapes (unless you purposely record them with the ferric EQ), and recording bias at the factory setting will be too low for all but the ferrichromes. None of this will matter to most users, but you should be aware of the contingencies if you already have a sizable cassette collection.

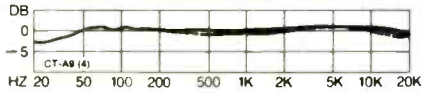
The most important of the CT-A9's automatic features is its tape-matching system—a new three-mode version of Pioneer's BLE (for Bias/Level/Equalization adjustment). The three options are for "peak bias" (a middle-of-the-road setting), "over" (recommended for classics and for minimizing midrange distortion at some

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



L ch +1, −3 dB, 20 Hz to 20 kHz
——— R ch +½, −3 dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +½, −3 dB, 20 Hz to 20 kHz
with Dolby C noise reduction
— · — R ch +1½, −3 dB, 20 Hz to 20 kHz

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



L ch +1, −3 dB, 25 Hz to 20 kHz
——— R ch +1, −3 dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +½, −3 dB, 20 Hz to 20 kHz
with Dolby C noise reduction
— · — R ch +½, −3 dB, 20 Hz to 20 kHz

MULTIPLEX FILTER (defeatable)
−½ dB at 15 kHz; −33¼ dB at 19 kHz

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	57½ dB	56 dB	54¾ dB
with Dolby B noise reduction	66¼ dB	65 dB	64 dB
with Dolby C noise reduction	73 dB	72 dB	69¾ dB

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	55½ dB	53¾ dB	52½ dB
with Dolby B noise reduction	65½ dB	63¾ dB	62¾ dB
with Dolby C noise reduction	74 dB	73 dB	72 dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	+5 dB (with 2.18% THD)
Type 4 tape	+5 dB (with 1.35% THD)
Type 1 tape	+5 dB (with 1.02% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	+7 dB (for +1½ dB DIN)
Type 4 tape	+9 dB (for +3 dB DIN)
Type 1 tape	+8 dB (for +2½ dB DIN)

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

Type 2 tape	≦ 0.67%
Type 4 tape	≦ 0.50%
Type 1 tape	≦ 0.38%

ERASURE (at 100 Hz)	≧ 72½ dB
CHANNEL SEPARATION (at 315 Hz)	52½ dB

INDICATOR "BALLISTICS"

Response time	4.4 msec
Decay time	≈1,200 msec
Overshoot	0 dB

SPEED ACCURACY	0.5% fast, 105 to 127 VAC
FLUTTER (ANSI weighted peak; R/P)	±0.029%
SENSITIVITY (re DIN 0 dB; 315 Hz)	88 mV
INPUT OVERLOAD (at 1 kHz)	>10 volts
INPUT IMPEDANCE	100k ohms
OUTPUT IMPEDANCE	≦ 6,600 ohms
MAX. OUTPUT (from DIN 0 dB)	1.15 volts

expense in high-frequency headroom), and "under" (for the zingiest highs on music demanding extra high-frequency headroom at the cost of some increase in midrange distortion). Before you start recording, you must decide which of the three options you want and press the appropriate "Auto-BLE" button. The deck fast-winds into the tape, records and evaluates a series of test tones, sets bias, sensitivity, and recording equalization accordingly, and rewinds the tape to the point at which you started. It all happens very rapidly (in only about ten seconds), so there should be little reason not to use the feature. However, the factory settings that apply when you turn on the machine should be fine for many tapes (particularly premium formulations), and you can revert to them at the touch of a button if you're in doubt about the properties of the last tape for which you ran the BLE.

Because the BLE memory is canceled every time you turn off the deck, Pioneer has included a second tape-matching switch for recording with a timer. This switch offers the same three options; when the timer turns on the deck, it first goes through the Auto-BLE routine, including the rewind and recue, and then begins recording. There is no OFF on this switch, so the deck always will attempt to optimize itself for the tape in timer recording. Only if the tape you've chosen turns out to be beyond the BLE's range will the machine revert to its factory settings.

Diversified Science Laboratories tested the CT-A9 with Maxell UDXL-II ferricobalt as the Type 2 "chrome," MX as the Type 4 metal, and UDXL-I as the Type 1 ferric. In each case, the "peak" option of the Auto-BLE was employed to fine-tune the deck, though results with these particular tapes probably would have been quite similar at the factory settings. (Habitual use of the automatic matching system probably is a good idea with such a deck, no matter what tapes you use.) As you can see from the accompanying graphs and data, response is very flat and extended under these circumstances.

When the lab tried the "over" and "under" options of the Auto-BLE, the results remained very good, with some small reservations. The very slight tendency toward sway-backed response (the exceedingly shallow depressions visible in the 2-kHz region) was marginally increased in the "over" setting, which also shaved a little off the top end of the response. The "under" setting generally yielded the flattest curves with the most extended high end—though the small peak near 19 kHz in the Type 4 response is somewhat exaggerated, and the resulting loss in midrange headroom discourages regular use.

Of particular note among the remaining data are the extremely low wow and flutter and the excellent erasure. (Results in the latter test are identical for both the old and new EIA methods, incidentally.) Output impedance (which can drop into the 4,000-ohm range, depending on the setting of the output level control) is on the high side, but it should present no practical matching problems with typical preamps and receivers, whose tape-jack input impedances usually are 50,000 (50k) ohms or more. The A-weighted noise figures don't demonstrate the full subjective noise reduction of the Dolby circuits the way the CCIR figures do, but that is an expected by-product of the testing method.

The metering has a wide dynamic range: from −40 to +14 dB relative to the marked 0 dB—which, as the data show, is placed 5 dB below DIN 0. More important, the bar-graph indicators can resolve 1-dB differences from −10 up, which provides a clear picture of signal levels over an exceptionally broad "critical range." There is no peak hold as such; the metering responds quickly and decays fairly slowly, giving you a fair chance to read peaks before they are gone. For Type 2 and 1 tapes, an "overload" region is shown above +5 dB (DIN 0 dB); when you insert a Type 4 tape, the indicators automatically drop the bottom 2 dB of this range, suggesting "safe" recording to +7 (DIN +2). The data show that these suggestions leave a little headroom before actual 3-percent midrange distortion is reached.

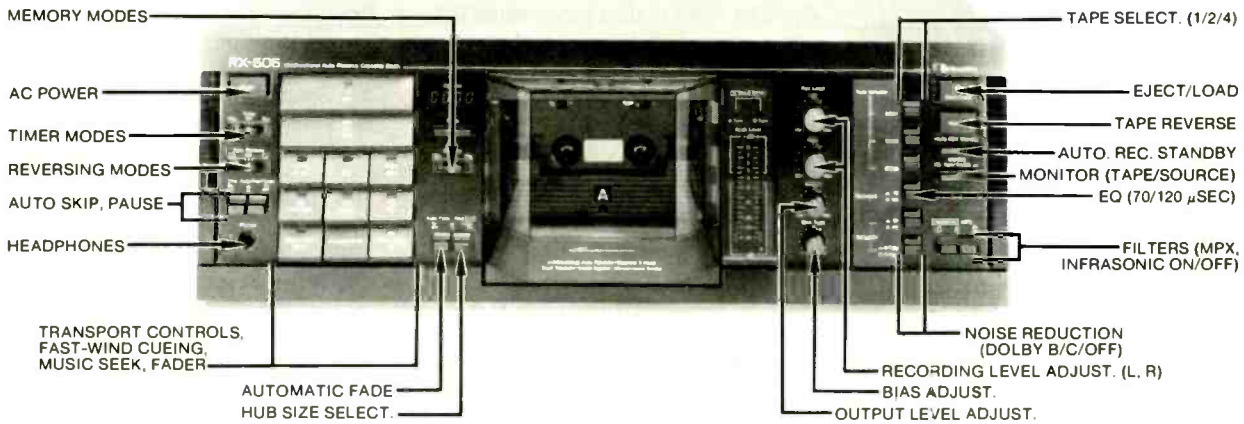
The level-setting system involves a pair of level controls, one for each channel, plus a master fader on which an outer pointer is used to preset the fade point. Once balance and approximate level (to get the master somewhere near the middle of its range) have been set on the individual controls, they are left as-is. The master and the pointer are then fine-tuned for precise level and the master backed off to maximum attenuation, ready for fade-in—which will restore it to the pointer setting. The pointer is very loosely clutched, however, and can easily be knocked away from its setting—our only out-and-out complaint about the CT-A9 (and a minor one, at that).

Among the CT-A9's strictly convenience features are seek controls (which fast-wind either forward to the beginning of the next selection or back to the beginning of the current one and start playing it automatically) and a timer/counter option, in which the remaining time on the tape can be displayed in place of the usual arbitrary numbers. To make this feature work, Pioneer gives you pushbuttons for tape size: C-90, C-60, C-45 with standard hubs, and C-45 with large hubs.

At fast-wind speeds, the timings are only approximate, but they're close enough to be useful. When you stop the wind and resume play, the readout hesitates for a moment before locking onto a more exact reading. If you use C-30s, the standard C-45 setting will give you reasonable approximations of remaining time as you approach the end of the side. (Like most other manufacturers, Pioneer discourages the use of

C-120s and C-180s.)

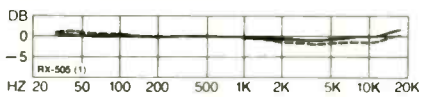
All in all, the CT-A9 is a significant achievement in bringing new technology to the casual recordist as well as the dyed-in-the-wool hobbyist. The latter should be better served by it than by any past Pioneer model, while the former should derive far more enjoyment from it than from the fussy "semipro" models beloved of serious audiophiles. There aren't many models that offer so much to both groups at once, or that do it all so well.



Nakamichi RX-505: Beyond Convenience

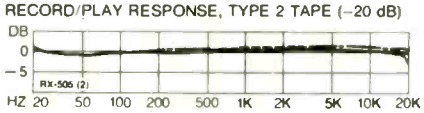
Nakamichi RX-505 unidirectional automatic-reverse cassette deck, with Dolby B and C noise reduction. Dimensions: 17¾ by 5¾ inches (front panel), 12 inches deep plus clearance for cassette holder and connections. Price: $1,090. Warranty: "limited," one year parts and labor. Manufacturer: Nakamichi Corp., Japan; U.S. distributor: Nakamichi U.S.A. Corp., 19701 S. Vermont Ave., Torrance, Calif. 90502.

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



——— L ch +1½, −¾ dB, 315 Hz to 18 kHz
- - - - - R ch +0, −1¾ dB, 315 Hz to 18 kHz

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



——— L ch +1, −1¼ dB, 20 Hz to 20 kHz
——— R ch +1¼, −¾ dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +1½, −2 dB, 20 Hz to 20 kHz
with Dolby C noise reduction
— · — R ch +1¾, −¾ dB, 20 Hz to 20 kHz

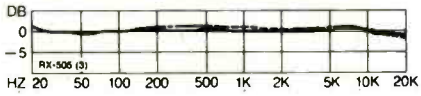
THE PARADOX of what Nakamichi calls "unidirectional auto-reverse" is explained at some length in our report on the RX-202 cassette deck (February). In brief, the system uses the same heads, head positions, and drive for both sides of the cassette, simply flipping it over and reinserting it into the transport at the end of Side 1. The purpose is to achieve exactly the same recording and playback azimuth on both sides of the tape. The 202 paired that relatively sophisticated transport concept with simple electronics by Nakamichi standards: no source/tape monitor, no bias adjustment. The RX-505 includes these features, plus closed-loop dual-capstan drive and some convenience wrinkles that are beyond the scope of the more moderately priced 202.

Among them, SKIP and "AUTO REC PAUSE" both are triggered by a blank in which the signal remains below−30 dB for 45 seconds or so (if these features are on). In playback, where such blanks frequently occur at the ends of cassette sides, the SKIP will fast-wind the tape to the beginning of the next selection; if that selection is on the other side of the tape, the 505 will flip the cassette and continue its high-speed search. If such a blank occurs while you're recording, AUTO REC PAUSE will stop the tape, rewind to the beginning of the blank, lay down four seconds of silence, and then automatically put the deck into RECORDING/PAUSE.

There also is an automatic fader for unattended recordings that continue onto Side 2. At the end of Side 1, it fades out the signal; after tape reverse, the signal fades back in. Because some tape lengths in some brands use oversize hubs, whose rotation therefore would misinform the sensing system about the tape remaining on them, there is a switch (LARGE/STANDARD) to accommodate both types. And a manual SEEK, used in conjunction with the fast-wind controls, cues to the beginning of either the next selection or the current one.

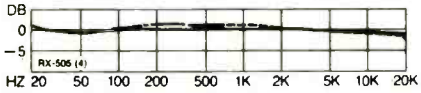
Instead of the 202's paired recording-level sliders, the 505 has two rotary controls in a group of four knobs. In both models, these recording controls are conceived as maximum-level adjustments, with manual fades handled by pushbuttons in the transport control bank: A tap fades the signal in or out in about two seconds, while sustained pressure does the job in half the time. The 505's remaining rotary controls are for output level and for fine-tuning the bias above or below the factory settings, at a center detent, for Nakamichi's branded tapes and similar formulations. This control is uncalibrated and without any instrument assistance: You are asked to compare SOURCE with TAPE at the monitor switch and adjust bias by ear if you detect a brightness difference. The response variation it affords for Type 2 tape is about the same as that shown in our data for the Type 1 formulation. Its range is smaller for Type 4 tapes because of their greater coercivity, but the similarity of most metal formulations makes a wider latitude less necessary than

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



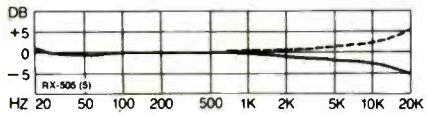
L ch +1¼, –1 dB, 20 Hz to 20 kHz
R ch +1¼, –¾ dB, 20 Hz to 20 kHz
with Dolby B noise reduction
R ch +1, –1½ dB, 20 Hz to 20 kHz
with Dolby C noise reduction
R ch +1½, –¾ dB, 20 Hz to 20 kHz

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



L ch +¾, –1 dB, 20 Hz to 20 kHz
R ch +1¼, –1 dB, 20 Hz to 20 kHz
with Dolby B noise reduction
R ch +1¼, –2¼ dB, 20 Hz to 20 kHz
with Dolby C noise reduction
R ch +1½, –1¼ dB, 20 Hz to 20 kHz

BIAS ADJUSTMENT RANGE, TYPE 1 TAPE (–20 dB)



maximum bias setting
minimum bias setting

MULTIPLEX FILTER (defeatable)
–¾ dB at 15 kHz; –33¾ dB at 19 kHz

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	56¾ dB	57 dB	53½ dB
with Dolby B noise reduction	65¾ dB	66 dB	63 dB
with Dolby C noise reduction	72¾ dB	73¾ dB	69¾ dB

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	55 dB	55 dB	51½ dB
with Dolby B noise reduction	65 dB	65½ dB	61¾ dB
with Dolby C noise reduction	74½ dB	74½ dB	71½ dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	+5 dB (with 1.52% THD)
Type 4 tape	+5 dB (with 0.49% THD)
Type 1 tape	+3 dB (with 0.49% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	+8 dB (for +2½ dB DIN)
Type 4 tape	>+10 dB (for +7¾ dB DIN)
Type 1 tape	+8 dB (for +4¼ dB DIN)

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

Type 2 tape	≤ 0.98%
Type 4 tape	≤ 0.39%
Type 1 tape	≤ 0.38%

ERASURE (at 100 Hz)	≥ 68 dB*
CHANNEL SEPARATION (at 315 Hz)	47½ dB

INDICATOR "BALLISTICS"

Response time	3.2 msec
Decay time	≈1,000 msec
Overshoot	0 dB

SPEED ACCURACY	0.5% fast, 105 to 127 VAC
FLUTTER (ANSI weighted peak; R/P)	±0.10%
SENSITIVITY (re DIN 0 dB; 315 Hz)	84 mV
INPUT OVERLOAD (at 1 kHz)	>10 volts
INPUT IMPEDANCE	58k ohms
OUTPUT IMPEDANCE	2,150 ohms
MAX. OUTPUT (from DIN 0 dB)	1.55 volts

*See text.

for the more variegated ferric and chrome formulations.

One feature we're particularly glad to find repeated in the 505 is "AUTO REC STANDBY." One press on this button rewinds to the beginning of the tape, records in MUTE over the leader and a short distance into the tape itself, and leaves the deck in RECORDING/PAUSE, ready to begin recording on cue. (You can go directly from Side 1 to PAUSE on Side 2 by pressing the button twice.) And for adventurous recordists, the ability to record with a nonstandard equalization—traditional on Nakamichi decks by virtue of their independent EQ and bias/sensitivity switching for the three standard tape types—will offer welcome opportunities to experiment. (See "Why Chrome Cassettes with Ferric EQ?" on page 40.)

The black-on-black EQ switch itself unfortunately represents a not unfamiliar Achilles' heel of Nakamichi design: Because there is no confirming indicator—as there is for the noise reduction switching, for example—you have to peer at it or even push it a couple of times to be sure which position it's in. Surrounded by so much excellence, the ease with which this switch can be left in the wrong position is dismaying, particularly since the problem might so easily have been avoided. Perhaps this is no more than a quibble; admittedly, we would be less astonished by it in a brand that has not set such exceedingly high standards for itself and therefore for its reviewers.

Diversified Science Laboratories measured the RX-505 with Nakamichi's own tapes: SX as the Type 2 ("chrome") ferricobalt, ZX as the Type 4 metal, and EX-II as the Type 1 ferric. The performance is excellent all around. Especially fine is the headroom with metal tape. At high frequencies, it almost rivals that of decks with the Dolby HX Pro circuit; in the midrange, it is outstanding. There is so much headroom here, in fact, that the proposed EIA erasure measurement standard (which we have been using) would have compromised the appearance of our test results here had it not been rewritten recently.

The old version of the proposed standard called for recording a 100-Hz tone to overload (defined as 5 percent distortion) on the deck under test, recording the tape with no input signal to erase the test tone, and measuring the level of the residual signal. With metal tape on the 505, the test tone starts out at about 8 dB above DIN 0 dB—a whopping level, and unrealistically high for most home recording. Erasure then reduces the test tone by about 65 dB, which is very good, but still leaves the residual at just 57½ dB below DIN 0—the reportable figure, and not very encouraging. The old version of the proposed standard thus would have penalized the deck for its superb headroom. The new version, which we begin using with this issue, puts the test tone at DIN 0 to start with, so that the level of the residual also is the degree of erasure (–68 dB DIN, for a 68-dB reduction, in this

Test Procedure Update

BEGINNING WITH THIS ISSUE, we are changing the way we measure erasure and signal-to-noise (S/N) ratio to bring our procedures into conformance with the revised version of the proposed EIA tape recorder testing standard. (See "Sound Views," July and August 1982, for complete details on the original version.)

For erasure, the earlier proposal—which we have been following for the last two years—called for recording the tape with a 100-Hz tone to overload (defined as 5 percent distortion) on the deck under test, rerecording the tape with no input signal to erase the test tone, and measuring the level of the residual signal. The figure reported is the difference between the residual and DIN 0 dB.

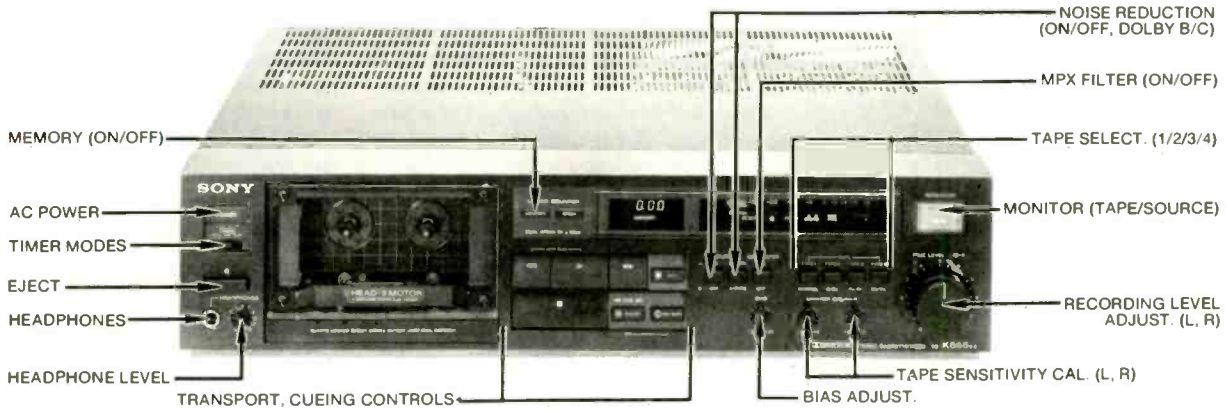
The problem with this method is that it tends to penalize decks with exceptionally good midrange headroom, because the test signal can be recorded to an unusually high level before overload is reached, making it harder to erase. Under the new procedure, this bias is eliminated by recording the test tone only to DIN 0 dB. The results are, we feel, both fairer and more realistic.

For our noise measurements, we are switching from the CCIR/ARM-weighting sanctioned by the original version of the proposed EIA standard to the A-weighting used previously and now restored by the revised proposal. The former concentrates on a relatively narrow frequency band centered on about 6 kHz (where the ear is most sensitive), with a gradual, 6-dB-per-octave rolloff below and a relatively steep slope above. (Tape noise is called "hiss" because we perceive mainly its high-frequency content; it actually is spread across the entire spectrum.) A-weighting includes a broader range of frequencies, reaching downward, in particular, from the CCIR band and rolling off with a somewhat different slope.

With the kinds of noise encountered in audio, the resulting measurements usually are no more than about 2 dB apart, so the difference is not dramatic. The A-weighting doesn't quite document the subjective "10-dB" improvement afforded by Dolby B noise reduction or the "20 dB" of Dolby C (CCIR comes much closer), but it is in that ball park. And because A-weighting is so widely used in other audio noise measurements, the figures we get for tape decks are now more directly comparable to those obtained for other types of components. For your convenience in making comparisons with past reports, we are including noise measurements made with both weighting curves in our data columns this time around. In future, we will list only the A-weighted numbers.

case). This is fairer and more realistic.

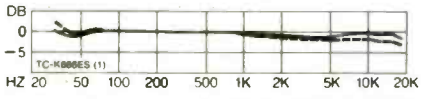
Beyond this, little need be said about the RX-505's measurements. If you compare them with those for other decks, past and present, you'll be hard put to find any instance where you can do better in any respect. This uniformity of excellence adds credibility to Nakamichi's claim for its unique transport system, which gives bidirectional operation with a single set of discrete, fixed heads. The performance really is comparable in every way to that of very fine nonreversing decks and more than a little better than that of most other monitor-head reversing models we've tested. The RX-505 is, in short, a winner.



Simple Elegance, From Sony

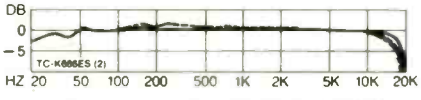
Sony TC-K666ES cassette deck, with Dolby B and C noise reduction. Dimensions: 17 by 3¾ inches (front panel), 10½ inches deep plus clearance for controls and connections. Price: $650. Warranty: "limited," three years parts and labor. Manufacturer: Sony Corp., Japan; U.S. distributor: Sony Consumer Products Co., Sony Dr., Park Ridge, N.J. 07656.

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



——— L ch +0, −1¾ dB, 315 Hz to 18 kHz
- - - - - R ch +0, −3¼ dB, 315 Hz to 18 kHz

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



——— L ch +¾, −3 dB, 20 Hz to 18.5 kHz
——— R ch +¼, −3 dB, 20 Hz to 17 kHz
with Dolby B noise reduction
- - - - - R ch +½, −3 dB, 20 Hz to 15.5 kHz
with Dolby C noise reduction
— · — R ch +1½, −3 dB, 20 Hz to 14.5 kHz

ALTHOUGH BEST KNOWN today as one of the prime developers of the digital Compact Disc system, Sony first made its name among American audiophiles by manufacturing high fidelity tape recorders—a craft it has been honing ever since. As the top cassette deck in the company's premium ES series of components, the TC-K666ES incorporates many of the technological innovations that have emerged from those years of experience and research. For example, it is a three-head machine with separate recording and playback heads, individually adjusted for precise azimuth alignment and mounted on a single block for stability. The heads themselves are of Sony's new Laser Amorphous type, with cores made of a special alloy welded by a laser. Among the advantages claimed for this design are unusually wide dynamic range (necessary to take full advantage of metal tapes) and extended high-frequency response.

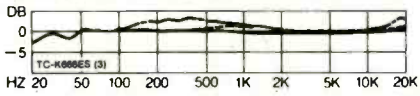
The transport uses a closed-loop dual-capstan drive with electronic back-tension control for consistently good tape-to-head contact and low flutter. Three motors are employed: two for the reels and one for the capstans. The capstan motor is quartz-locked to ensure speed accuracy, and the transport chassis is diecast in aluminum and zinc alloy to minimize the amount of vibration reaching the tape. All recording and playback electronics are direct-coupled and use Sony's own low-distortion Dolby chips.

Although not as "loaded" as some of Sony's more convenience-oriented (as opposed to performance-oriented) decks, it has most of the features you are likely to find really useful, including some rather unusual ones. The novelties are mainly in the operation of the transport controls (which, by the way, are layed out in a very logical fashion, with the frequently used functions on large keys and those less in demand on smaller ones, all with illuminating indicators). For example, a second tap on either of the fast-wind keys almost doubles winding speed, reducing the time required to shuttle from one end of a C-90 to the other from 80 seconds to about 50. You can return to the lower speed at any time by pressing the key again, and the drive slows down automatically near the end of the wind to prevent tape damage.

Pressing either of the fast-wind keys and the PAUSE at the same time causes the indicator lights on the wind keys to start flashing, signaling that the deck has entered the cueing mode. Now if you press REWIND or FAST FORWARD, the tape will spool in the desired direction at a speed between that of a regular fast-wind and that of normal playback, but with the heads engaged, so that you can hear whatever has been recorded at an accelerated pace. This can be very useful for finding a particular section of a recording or for skipping over parts you don't want to hear without overshooting those that you do.

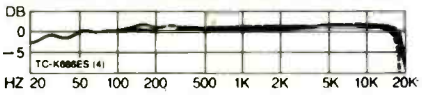
Another handy trick is what Sony calls

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



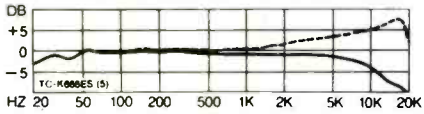
L ch +2¼, –2½ dB, 20 Hz to 20 kHz
——— R ch +¾, –2½ dB, 20 Hz to 20 kHz
with Dolby B noise reduction
- - - - - R ch +1¼, –2½ dB, 20 Hz to 20 kHz
with Dolby C noise reduction
— · — R ch +3, –2½ dB, 20 Hz to 20 kHz

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



L ch +1½, –3 dB, 20 Hz to 18.5 kHz
——— R ch +1¼, –3 dB, 20 Hz to 18 kHz
with Dolby B noise reduction
- - - - - R ch +1½, –3 dB, 20 Hz to 16.5 kHz
with Dolby C noise reduction
— · — R ch +1¾, –3 dB, 20 Hz to 18 kHz

BIAS ADJUSTMENT RANGE, TYPE 1 TAPE (–20 dB)



——— maximum bias setting
- - - - - minimum bias setting

MULTIPLEX FILTER (defeatable)
–¼ dB at 15 kHz; –31 dB at 19 kHz

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	56 dB	56 dB	53 dB
with Dolby B noise reduction	64 dB	64 dB	62 dB
with Dolby C noise reduction	70½ dB	70¼ dB	67¾ dB

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

	Type 2 tape	Type 4 tape	Type 1 tape
without noise reduction	55 dB	55¾ dB	52¾ dB
with Dolby B noise reduction	65 dB	65½ dB	62¾ dB
with Dolby C noise reduction	73¾ dB	73¾ dB	71¾ dB

INDICATOR READINGS FOR DIN 0 DB (315 Hz)

Type 2 tape	–2 dB (with 1.06% THD)
Type 4 tape	–2 dB (with 0.38% THD)
Type 1 tape	–2 dB (with 0.41% THD)

INDICATOR READINGS FOR 3% DISTORTION (315 Hz)

Type 2 tape	+4 dB (for +3¾ dB DIN)
Type 4 tape	+6 dB (for +8 dB DIN)
Type 1 tape	+4 dB (for +4¾ dB DIN)

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

Type 2 tape	≦ 0.68%
Type 4 tape	≦ 0.35%
Type 1 tape	≦ 0.44%

ERASURE (at 100 Hz)	≧ 63 dB*
CHANNEL SEPARATION (at 315 Hz)	45½ dB

INDICATOR "BALLISTICS"

Response time	0.8 msec
Decay time	≈400 msec*
Overshoot	0 dB

SPEED ACCURACY	0.2% fast, 105 to 127 VAC
FLUTTER (ANSI weighted peak; R/P)	±0.044%
SENSITIVITY (re DIN 0 dB; 315 Hz)	105 mV
INPUT OVERLOAD (at 1 kHz)	> 10 volts
INPUT IMPEDANCE	47k ohms
OUTPUT IMPEDANCE	4,100 ohms
OUTPUT LEVEL (from DIN 0 dB)	0.77 volt

*See text.

Auto Play: Press PLAY and REWIND simultaneously, and the tape will fast-wind back to the beginning and start playing from there. This function also can be used in conjunction with the TC-K666ES's memory feature, which enables you to "mark" a particular point on a tape by resetting the counter to zero and pressing MEMORY. Thereafter, as long as MEMORY is engaged, pressing REWIND and PLAY together when the counter reads higher than zero will run the tape back to the indexed position and start playback from there. Or you can press REWIND alone, and the transport will simply stop when it gets to zero. The counter reads minutes and seconds, rather than arbitrary numbers, and Sony's clear, thorough manual explains how to set it up to show either elapsed time or time remaining. The manual also notes that it is designed for C-60s and therefore will be slightly less accurate with other tape lengths. Nonetheless, its readings are always more useful than those of a standard turns counter. And when you are approaching the end of a tape during recording, the counter display flashes in warning.

Source/tape switching is what one might call "semiautomatic": When you start recording, it goes automatically to source, and when you start playback, it automatically switches to tape, but you always can override the machine's choice manually. The recording-level indicators are of the fluorescent bar-graph type, calibrated over a generous range, from below –40 to +8 dB. Their resolution is rather coarse, however, with a minimum gradation of 2 dB per segment from –4 to +8. The action is very good, with quick response and a slow decay for easy reading, plus a one-second peak-hold cursor.

A line of red dots below the right-channel meter shows what level Sony recommends as the maximum for the tape type in use: +2 dB for Type 1 ferrics and Type 2 chromes and ferricobalts, +4 for Type 3 ferrichromes, and +6 for Type 4 metals. Diversified Science Laboratories' measurements suggest that the indicated level is just a tad (2 dB) conservative for the Type 1 and 2 tapes it used for testing (Sony AHF and UCX-S, respectively) and right on the money for the Type 4 (Sony Metal-ES). Because Type 3 tape never gained much popularity—and has continually lost ground from its peak—we no longer test with it; the TC-K666ES is one of the few remaining decks that makes explicit provision for such formulations.

Also below the meters are lighting indicators that show whether Dolby B or C noise reduction is engaged, whether the multiplex filter is on, and the tape type that has been selected. The noise reduction and tape-type switching are below them, and the bias and sensitivity (Dolby recording calibration) controls are still further down, near the bottom of the front panel. The detented center positions of these controls are the correct settings for the Sony tapes for which the deck was adjusted at the factory. For other tapes, some adjustment of the front-panel controls probably will be necessary to obtain flattest response and accurate Dolby tracking. (The manual includes a table of alternative formulations, although it is, like most others of its kind, slightly out of date here and there.)

The effect of the bias control on frequency response at its extreme settings is plotted for the Type 1 tape in the data column. As you can see, the range available is fairly great, and the change as the control is turned one way or the other is clearly audible. For Type 4 tape, the effect is less pronounced, but the differences among metal formulations are also smaller. The sensitivity control has a range of +3, –3¾ dB, which should be more than adequate. Our one reservation about this system (or the deck as a whole, for that matter) is that no test oscillators are provided to aid in setting these controls. Sony suggests doing it by ear, switching back and forth from source to tape while recording music; when the sound is the same for both, the adjustments are correct. This works reasonably well for setting the bias, but we're less certain of getting the sensitivity right using a dynamic source such as music as a test signal. Still, it's probably better to have the controls than not, and including instrumentation for the calibration procedure would add to the price. But your best bet is to stick with the Sony tapes as much as possible.

Frequency response with those tapes is mainly quite smooth and flat, although the Type 1 and 2 tapes show a mild (approximately 1-dB) hump centered on about 5 kHz. And a small degree of Dolby mistracking (especially with C) is evident in the midrange on the Type 4 tape. The playback-only response rolls off just a little at the top, indicating a slight azimuth disagreement between the head and the BASF test tape. (The disparity is somewhat greater in the right channel than in the left, perhaps because of some anomaly in the way the tapes skews passing the head.)

The TC-K666ES's output impedance is slightly higher than we like to see, but not by enough to cause any matching problems with typical preamps and receivers. The only other particularly notable points in the data are the flutter figure, which is very low, and the erasure measurement. The number reported is by the new EIA method; the old technique would have given a result about 7 dB worse for Type 4 tape, simply because of the excellent midrange headroom available with metal on this deck.

Overall, the TC-K666ES is a fine performer—something that is immediately suggested by its behavior and styling, from the smooth action of its sophisticated tape transport to the gold-plated input and output jacks on the back panel. Plus, it's a very easy machine to use. We'd say that's a pretty hard combination to beat.

HAVE CASSETTES CAUGHT UP?

BY

SAM SUTHERLAND

COMMERCIALLY RECORDED CASSETTES ARE UNDERGOING A SONIC FACELIFT AS RECORD LABELS REFINE THEIR WARES.

CASSETTE RECORDISTS can be excused for remaining skeptical at the news that major American record companies are now striving to upgrade the quality of their tapes. After all, for more than a decade the mainstream music trade was content to churn out such poor-quality cassettes that consumers had to make a choice between convenience (tape) and sound quality (records) when selecting a music format.

Nonetheless, today's music cassettes really are changing for the better. Just consider these recent developments. A&M Records, after issuing selected albums by Supertramp, the Police, Joe Jackson, and other top acts on BASF chrome tape, has committed to chrome for all future releases. Agfa-Gevaert, which supplied Atco Records with its Magnetite premium ferric tape for Yes's highly successful comeback album, "90125," is talking with other labels about similar production assignments. And A&M, Capitol, and the Warner-Elektra-Atlantic family are now using Dolby HX Professional headroom-extension processing for all of their cassettes.

A&M's move to chrome, which began in 1982 with the release of Supertramp's "Famous Last Words," is part of an overall in-house quality-control effort that has also generated LP pressings on high-grade vinyl. Using chromium dioxide tape will add about five or six cents per cassette, but the label will absorb the extra cost. And the company hopes the adoption of chrome formulations by other major record companies will eventually lower the cost of blank tape.

Commercial chrome music cassettes can be played back accurately even on decks lacking switchable EQ. To ensure this compatibility, A&M and others duplicate chrome cassettes with the standard 120-microsecond ferric equalization. This has the additional benefit of increasing high-frequency headroom, albeit at the expense of some additional noise. (For more insight into the tradeoffs involved, see "Why Chrome Cassettes with Ferric EQ?")

A&M is also one of the many labels that have recently revamped their high-speed duplication systems. New models from major suppliers such as ElectroSound and Cetec Gauss incorporate on-line monitoring for continuous quality control. At the

STEVEN KUPINSKI

speeds that these duplicating machines operate (as high as 64:1), use of Dolby HX Pro processing is perhaps the most significant improvement of all. It affords a substantial increase in high-frequency headroom without requiring any complementary decoding cycle in playback.

Some of the most impressive cassettes, however, have been created not through any single enhancement technique, but rather through a procedure that entails fine-tuning every aspect of tape production, from mastering on. Among the most aggressive—and candid—of the major duplicators, Capitol has stressed the importance of this procedure since the inception of its quality-conscious XDR cassette program. According to Paul West, national quality-control manager, the original XDR project was conceived in 1975 for the Angel classical line. That program, involving research into tape formulations, plastics and shell design, master-tape production, and other nuts-and-bolts basics, has continued to yield discoveries that are incorporated into Capitol's products.

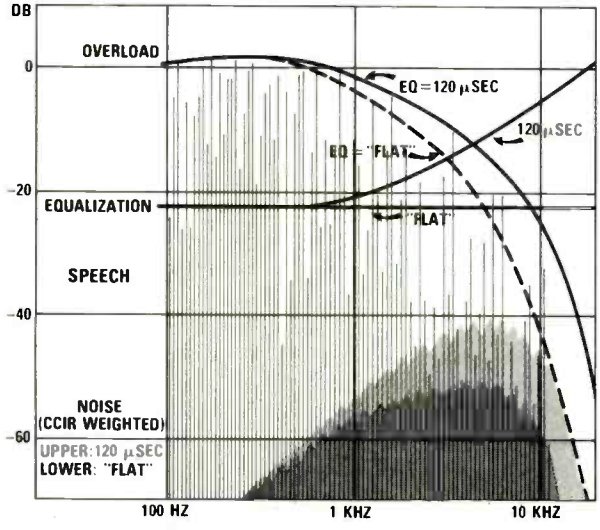
A tour of the company's Hollywood tape-mastering facility confirmed the claims made by West and Sandy Richman, the XDR program administrator. For XDR designation, a cassette must be derived from a digital copy of the original master tape, rather than from a second-generation analog tape copy. That digital copy is then transferred to Capitol's customized 1-inch duplication mastering format—double the width of conventional running masters, giving each track a quarter inch of tape for an improvement of about 3 dB in signal-to-noise ratio.

Even more impressive is the company's ambitious computerized quality checking. Each duplication master is encoded with a sequence of tones at the head of the tape. Heard as a soft, ascending series of blips at the beginning of each manufactured cassette, the tones enable tape-mastering engineers and quality-control personnel to quickly gauge the frequency response (from 63 Hz to 16 kHz) of the duplication master and the finished cassettes. The system uses hardware and software designed and built by Capitol and is said to yield tapes with essentially flat response (±1 dB) to 12.5 kHz. Above that point, frequency response is still spec'd within 3 dB to 16 kHz. Capitol uses its own ferric tape developed by its Capitol Magnetic Products division, and duplicates at 32:1 for classical music and 64:1 for pop and rock releases.

Though A&M and Capitol are the most outspoken about their efforts to improve cassettes, other major duplicators also appear to be making revisions. CBS Records remains secretive about any specific cassette program, but it's believed that this titan of the music industry has already upgraded its master standard to a 1-inch format similar to Capitol's. WEA Manufacturing, the tape-duplication and record-pressing satellite of Warner Communications, is likewise believed to be reevaluating cassette duplication

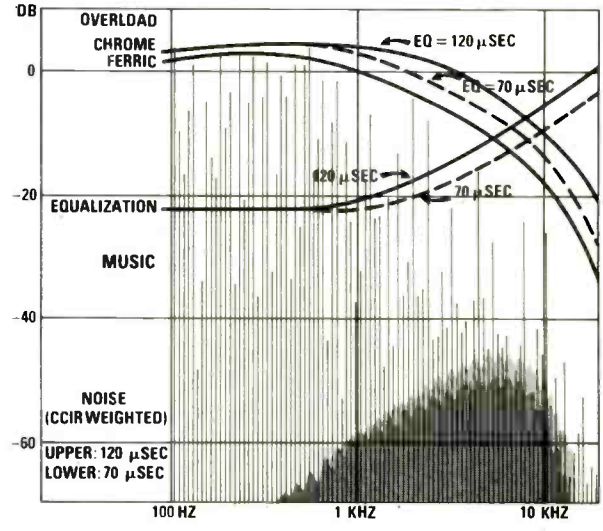
WHY CHROME CASSETTES WITH FERRIC EQ?

IN THE BEGINNING



IN DEVELOPING the Compact Cassette, Philips chose 120-microsecond high-frequency playback EQ (equalization)—represented here as the curve rising away from the nominally flat straight line (though with conventional heads, "flat" response actually involves a steady rolloff of 6 dB per octave). The intent was to keep highs at a level low enough during recording to avoid tape overload (the upper lines) with speech. This EQ made tape hiss (the dark patch toward the bottom) more audible than it would have been with "Flat" EQ, but it prevented serious distortion of sibilants on the ferric tapes of the time.

CROLYN ARRIVES



DU PONT'S CROLYN chromium dioxide tape made dramatic strides in headroom (overload margin), particularly at high frequencies, increasing dynamic range without significantly lowering inherent noise levels. Crolyn proponents therefore suggested using 70 microseconds instead of 120, thus moving the "knee" of the EQ curve a bit higher in frequency and boosting hiss about 4 dB less (or attenuating it 4 dB more, depending on your point of view). This change in EQ entailed some loss of headroom relative to that available with "standard" EQ—but not relative to ferrics, which chrome still outperformed.

techniques. The company was the first to publicize the enhancements provided by the Dolby HX Pro system and has experimented with Agfa's Magnetite 12 compound not only for commercial runs of the Yes recording, but also for promotional cassettes used internally or supplied to reviewers.

THE SCENARIO FOR CHANGE

Considered in a historical perspective, the moves being made to improve prerecorded cassettes represent a radical about-face by record companies. In my conversations with key executives over the years, I've heard the same arguments repeated time after time about why it was impractical to upgrade mass-produced music cassettes. The basic contention was simple—namely, that slower duplicating speeds and premium tape formulations were financially prohibitive. And when chided by critics for not even investigating improved high-speed duplication techniques, record companies could always play their trump card—playback head misalignment. Because few consumers were even aware of the importance of head alignment to high frequency response—and fewer still could adjust their own decks to match the azimuth angle of the recording machine's head—playback errors would scuttle any refinements the duplicators could try.

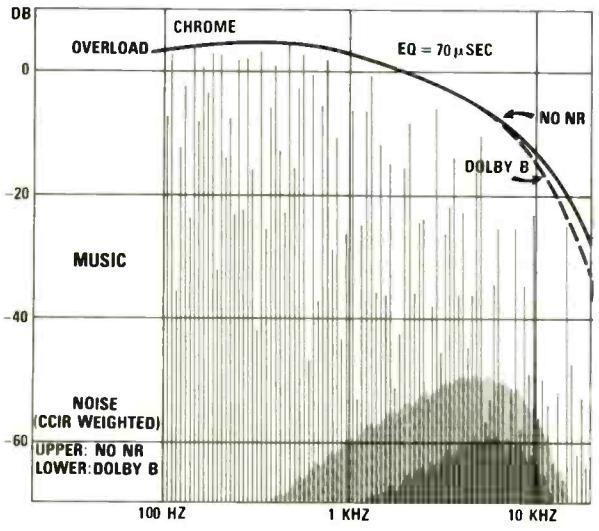
Why, then, are record companies so earnest about change now? It's significant that only two weeks before A&M's unveiling of its all-chrome line, the Recording Industry Association of America (RIAA) released 1983 U.S. market statistics showing that the cassette has finally surpassed the LP as the industry's dominant music medium. According to the RIAA, a 30 percent rise in cassette shipments to 236.8 million pieces in 1983 yielded a 13 percent edge over combined LP and 12-inch EP products. That rise in popularity has, in fact, made the cassette more cost-effective than the LP. A recent *Billboard* magazine analysis (March 31) of tape and disc manufacturing, packaging, and shipping costs concludes that a typical cassette can be brought into stores at a saving of 14 to 20 cents over its LP counterpart.

That the prerecorded cassette should gain in popularity despite overall low quality, however, would seem to argue for the status quo rather than the need for change. But record company executives realize that much of the boost in tape sales can be credited to the boom in portable tape players last year—a boom that is already showing signs of leveling off. To keep sales of music cassettes growing, therefore, means making them equally attractive for home use, where in sonic comparison to LPs and CDs they come in a very poor third. Such improvements would also forestall the return of the other claimed nemesis of cassette marketers—home taping. Though many personal-portable users may not own home cassette decks, it's only a matter of time before they invest in recorders and start rolling their own. **HF**

ANSWER

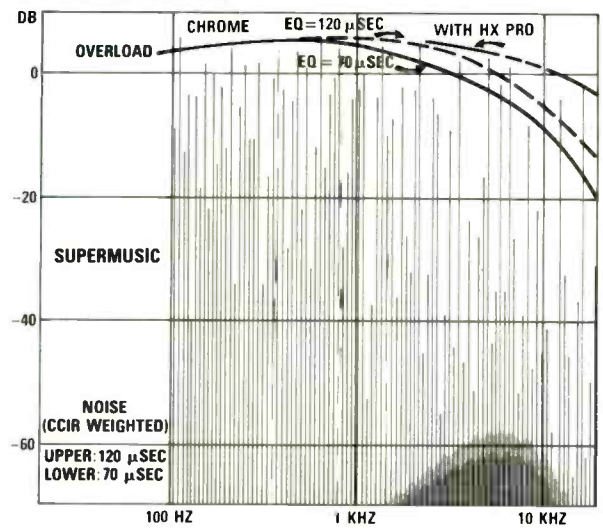
EXTRA HIGH-FREQUENCY HEADROOM, especially important with today's synthesizer-rich pop music. There are tradeoffs, however, and consulting technical editor Robert Long tells the full story in graphs depicting the progress of the cassette from a dictation medium to its position as the most popular source of recorded music.

CHROME PLUS DOLBY



DOLBY B noise reduction, which soon was to become standard, reduced audible hiss by more (about 10 dB) than the EQ change. In view of this (and the slight headroom loss in the extreme highs occasioned by the B circuit's boost during recording), some engineers wished that chrome's full high-frequency headroom had been retained. But the usefulness of extra headroom depended on the nature of the signal, and most users at the time found hiss, rather than unclear highs, to be the cassette's audible limiting factor.

FULL CIRCLE



THE ADVENT of synthesizer rock and of digital and audiophile records has focused attention once again on the compromise between EQ and headroom—particularly in prerecorded tapes, which have especially limited high-frequency headroom. Without sufficient headroom (or reduced recording levels and, consequently, more audible hiss), the transients and sheen of brass, bells, cannon shots, screaming synthesizers, and frenzied drumming are dulled. Returning to Philips's original 120-microsecond EQ helps; at very high frequencies, the Dolby HX Pro headroom extension system helps still more.

A CRITICAL COMMENT

TAPE VS. LP

PETER MAZEL/RETNA

GO-GO'S: They depend on a certain amount of distortion to sound good.

Last year marked a major shift in the way Americans consume recorded music: For the first time, prerecorded cassettes outsold LPs—by more than 10 percent. So it's no big surprise that the major record companies have started releasing better-quality tapes. And yet, if the big question now facing the home listener is whether to buy the LP or cassette version of an album, the truth is there are still no easy answers.

I recently compared the LP and upgraded cassette versions of three pop albums that span a fairly wide stylistic range: The Go-Go's' hard-rocking "Talk Show," Joe Jackson's horn-driven, anthemic "Body and Soul," and guitarist Steve Tibbetts's latest jazz-flecked, acoustic mood-music offering, "Safe Journey." For variety, I conducted my comparison using both the state-of-the-art equipment in HIGH FIDELITY's listening room and the more modest component system in my home.

"Talk Show" is a turning point for the Go-Go's quintet: It's tougher and lacks the pom-pom aura that still lingered on "Vacation." In time-honored hard-rock tradition, producer Martin Rushent's mix features Gina Schock's muscular, constantly improving drum work and Charlotte Caffey's flaming guitar leads. This gives the band an exhilarating thrust and trajectory that matches its deepening lyric concerns. On *You Thought*, Belinda Carlisle asks, "What's goin' wrong/When everything you've ever loved/Has come and gone?" Nowadays the Go-Go's play with the kind of rock and roll authority that knows the only answer is never to stop questioning.

Perhaps because this music is harder-edged, the LP (which is pressed on high-quality vinyl) sounds significantly better than the cassette. The production emphasizes a crisp, crackling snare-drum sound, stinging keyboards, and guitars, all of which sound excellent on the record. With the cassette, I could achieve the same intensity of, say, the snare only by boosting the volume, which ended up making treble distortion almost unpleasant, especially on the guitars. In other words, "Talk Show" depends on crashing cymbals and a certain amount of guitar-amp fuzz, and the LP version seems to keep these elements in a balanced perspective without losing their crunch. The cassette forces you to sacrifice either volume or high-frequency sound quality.

Joe Jackson's "Body and Soul" is an evocative and stylish mixture of Latin and classic Motown, overlaid with a kind of English jazzman's sensibility reminiscent of Georgie Fame—another British fingerpopper, who flourished in the '60s. Departing from conventional modern-day technique, Jackson (with the help of coproducer David Kershenbaum) recorded himself live in a large New York City studio, accompanied by his crack band—complete with energetic horns and sassy backup vocals.

The sonic emphasis is on high-quality reproduction of "live," mostly acoustic instruments. And yet, while distortion isn't a factor on the "Body and Soul" cassette, at comparable volumes individual instruments, especially bass and piano, sound less boomy on the LP version, with richer overtones. And Jackson's throaty vocal style is even grittier and has more character on vinyl.

Steve Tibbetts, a Minnesota-based guitarist, makes pleasantly dreamy, textural music featuring droning bass lines, tabla drums, and assorted percussion. The patented production preferences of ECM Records honcho Manfred Eicher are well known by now: Surround each very well recorded instrument with plenty of deep space.

The "Safe Journey" cassette is made with Dolby HX Pro headroom extension (the other cassettes mentioned use chromium dioxide tape, whereas this one doesn't), and to my ears it compares the most favorably of the three titles to its LP counterpart. Tibbetts's music is subdued, distortion-free, and basically uncluttered, and the recording's depth of image and thick slabs of floating guitar harmonics, especially on the acoustic *Running*, project quite nicely on cassette (although during very quiet passages, a dollop of tape hiss is almost inevitable). Still, there are subtleties of string resonance on both guitar and bass that are simply more pleasing and obvious on the LP.

Certainly for personal-portable use, these cassettes offer improved listening over most homemade efforts. (On my own system, I was unable to make a tape copy of any of the LPs that sounded as good as its prerecorded cassette counterpart.) Yet when all is said and done, the cassette listening experience—as satisfying as it can be—still doesn't match up to the overall quality of the vinyl one.

—CRISPIN CIOE

THE GO-GO'S:
Talk Show.
Martin Rushent, producer. LP: IRS SP 70041. Cassette: CS 70041.

JOE JACKSON:
Body and Soul.
David Kershenbaum & Joe Jackson, producers. LP: A&M SP 50000. Cassette: CS 50000.

STEVE TIBBETTS:
Safe Journey.
Manfred Eicher, producer. LP: ECM 25002-1. Cassette: 25002-4.

DIGITAL AUDIO
On a Shoestring

BY

RALPH HODGES

PROMISING THE PERFORMANCE OF PCM SYSTEMS AT A FRACTION OF THEIR COST, DELTA MODULATION ARRIVES.

IF YOU'RE EVEN faintly familiar with the Compact Disc system, then you've doubtless heard the term "pulse code modulation," or "PCM." CDs, in fact, earn their status as digital discs from the PCM information they carry in their microscopic pits. But PCM is not the only method for digitally encoding audio information. Another, much older technique is making a comeback. Its name is "delta modulation," and thanks to work by DBX and Dolby Labs, it promises to make digital technology far more affordable and therefore available for a greater range of applications than is now possible with PCM.

The specifics of PCM technology have already been explained at length in these pages (see "On Location with a Digital Deck," August 1982, and "Inside the Compact Disc System," July 1983). So let's recap its basic principles with a simple analogy. Think of a man taking a walk across a park. If we were to record his trip using a PCM technique, we'd have to know his exact location at split-second intervals, then assign a code to describe each position. If we could "sample" his progress frequently enough and the code we were using were capable of pinpoint accuracy, we'd have enough data to reconstruct his path in great detail. With PCM audio, the path is analogous to a waveform, and the code used to describe its peregrinations is composed of a series of 16-digit binary "words," each describing the instantaneous amplitude of the wave.

How often we must sample the waveform in order to collect enough data to reconstruct it is a function of its speed, or frequency. For a man taking a leisurely stroll, determining his position once every second might be sufficient. Music, however, is made up of a wide range of frequencies, the fastest of which may complete a full cycle 20,000 times a second. To get enough data to reconstruct a sound, we must sample it at least twice during each cycle. For audio, that translates into a rate of at least 40,000 times per second, or 40 kHz.

The outcome of a PCM sampling process is a lot of numbers. Using a 16-bit digital code and a sampling rate of 40 kHz (the actual rates used in audio recording today are from 44.056 to 50 kHz), we must deal with a stream of data running at a theoretical minimum of 640,000 bits per second—1,280,000 for stereo. For just one minute of stereo recording, we have to find a place to store more than 75 million bits of data. And because there's always the possibility that some data will get lost in the process, we must pack in enough redundancy (extra check bits) to ensure a high probability of accurate retrieval.

Delta modulation is also a digital process, but instead of assigning long 16-bit words to each sample, the processor uses single-digit binary

DBX'S TWO-CHANNEL professional delta-modulation processor

Ralph Hodges, a San Francisco–based writer, has been covering audio for many years.

words. This is possible because delta-modulation processors analyze the change in level between successive samples, not their absolute values. And if the sampling rate is high enough, the differences between samples should be so small that the processor need use only a fixed step size to describe them. The code, therefore, can be as basic as 1 and 0—the former for an increase in level, the latter for a decrease.

But even 640,000 samples per second (the rate used by DBX in its Model 700 delta-modulation processor) is not sufficient to capture the full dynamic range and bandwidth of music, and increasing the rate would make storing the data more expensive. So it becomes necessary to do one of two things: precondition the audio so that it fits the characteristics of the processor, or make the delta modulator flexible enough to accommodate the audio. Interestingly, DBX and Dolby have taken fundamentally different tacks.

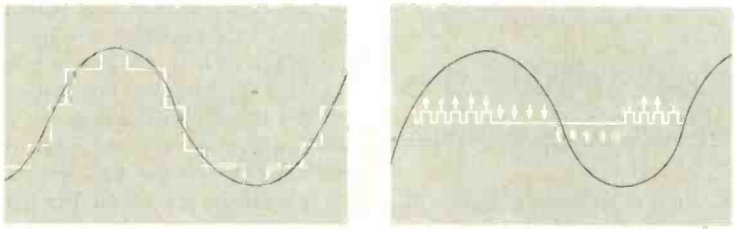
DBX makes the music fit the processor by using, not surprisingly, an analog companion system looped around the recording/playback chain. Because this drastically compresses the audio signal before it enters the digital encoder, the delta modulator is never asked to analyze a change in level greater than its circuits can handle. And with an equivalent amount of expansion applied in playback, the processor's dynamic range is increased from about 55 dB to 100 dB. Another circuit, which DBX calls a linear prediction filter, adds an additional 10 dB to the signal-to-noise (S/N) ratio.

Dolby Labs also conditions the audio signal before it is encoded, but its system can be run at a lower sampling rate (200 to 300 kHz) and therefore must use digital circuits capable of adapting to rapid changes in the amplitude of the audio signal. Based on information extracted from the audio signal, an adaptive delta modulator (ADM) constantly seeks the step size between successive samples that will best describe the signal. On the decoding end, the audio is reconstructed under the governance of two control signals that presumably know everything the encoder did.

But why bother with another digital encoding process when PCM already has gained a strong foothold? As usual, the answer is related to cost: Delta-modulation processors are far less complex and do not demand the incredibly high manufacturing tolerances of PCM devices. By way of example, a 16-bit analog-to-digital (A/D) converter must be capable of resolving 2^{16} (65,536) discrete signal levels, which translates to an accuracy of 99.9985 percent. A chip capable of such performance is expensive. In contrast, Dolby says that its ADM will function quite nicely with circuit tolerances of 5 percent (95 percent accuracy). Also, delta-modulation processors don't need the steep (and costly) antialiasing filters that are necessary to prevent distortion in PCM processors.

TWO PATHS TO DIGITAL

PULSE CODE MODULATION **DELTA MODULATION**



IN PCM (left), a multidigit code is used to represent the instantaneous amplitude of the audio signal. In delta modulation, the signal is encoded with single-bit (on/off) words that describe the changes in signal level—1 for increases, 0 for decreases.

THE FUTURE FOR DELTA MODULATION

At present, DBX is gearing its delta-modulation efforts to professional recordists. Aside from the Model 700 (which at $4,600 is roughly one-fourth the price of a comparable two-track PCM processor), the company is working with other manufacturers to develop multitrack delta-modulation recorders. Also in the planning stages are transcoder circuits that will enable delta-modulation recordings to be transferred directly to PCM (for use as Compact Disc masters). Even analog LPs have not been forgotten. DBX reports that it has successfully applied delta modulation to a delay line for disc mastering, which enables the cutting lathe's control computer to preview the signal without degrading the signal to the cutter head.

For its adaptive delta-modulation technology, Dolby Labs is pursuing the satellite broadcasting industry. ADM, says Dolby, would allow the transmission of 50 percent more simultaneous programs than PCM, with less strain on the satellite's electrical system.

The ADM encoder, with its complex control signals, is not very easy or cheap to build, but Dolby thinks this is not a big stumbling block for broadcasters. What's especially nice about the system is that the decoder is inherently quite simple—a couple of ICs is all it takes. The consumer, therefore, would have to pay only about as much as current Dolby tape noise-reduction costs to equip a satellite receiver with digital audio capability. With such an inexpensive decoder, Dolby ADM might even have an application in the retransmission of stereo TV broadcasts by cable operators. Dolby is exploring that option with cable companies who cannot carry the recently approved multiplex stereo broadcasts because of distortion and noise in the cable.

The most important consideration for music lovers, though, must be the sound quality of delta-modulation systems. At demonstrations conducted by DBX at recording studios around the country, many professional recording engineers deemed the Model 700 processor the sonic equal of PCM systems. And that's good news, because some of the next generation of CDs may, in fact, be 16-bit PCM copies of delta-modulation recordings: the best of both digital worlds. **HF**

Why this is the tape that sets the standard.

JVC sets the standard for all VHS videotapes, no matter who makes them.

That's the way it has been ever since JVC engineers originated the format for VHS videocassette recorders.

That's why we feel a special responsibility for manufacturing our own brand of VHS videotape at the highest possible quality level.

For our HG and Super HG videotapes, the process begins with a polyester-base film. Using a new binding system, we coat the film with super-fine magnetic particles, which improves the packing density of the coating. Our own unique dispersion process makes the coating more uniform and sharply reduces the occurrence of drop-out.

The result is videotape that provides a continuously stable picture, with clear, pure colors.

Compared with JVC's own reference tape, our new HG tape has a 2.3 dB higher color S/N ratio; with our new Super HG tape, the improvement is 4.0 dB.

All three grades of JVC videotape, including our Standard formulation, benefit greatly from JVC's extensive pioneering research in VHS tape-to-head dynamics.

So no matter which grade of videotape you prefer, now you know how to pick the brand that sets the standard for all the others.

JVC® JVC JVC JVC JVC JVC JVC JVC

JVC COMPANY OF AMERICA, Magnetic Tape Division, 41 Slater Drive, Elmwood Park, NJ 07407 JVC CANADA INC., Scarborough, Ont.

We rest our case.

Aiwa introduces the smallest, lightest Beta hi-fi portable video in the world*

Aiwa's new Beta hi-fi portable certainly is small, but when it comes to performance and features, it's definitely in the big time.

For breakthrough sound quality, a single connection to Aiwa's full-featured Beta hi-fi amplifier unleashes this little portable's state of the art audio technology. It actually outperforms open reel audio decks!

To match this audio technology Aiwa offers brilliant picture quality and outstanding special effects. There's 2X speed playback with sound, auto program location, insert editing and a 15X or 25X normal speed multi-search feature. And that's not all.

Unlike conventional portable VCRs that require a separate tuner for playback, the Aiwa AV-50M video deck has its programmable tuner/timer built-in for *true* portability. It can go from room to room, from house to house. Not just for recording (that's just half the story), but playback too (that's all the fun!). What's more it's already equipped to receive stereo TV broadcasts as soon as they hit the airwaves.

The Aiwa Beta hi-fi video portable is also the perfect match for Aiwa's critically acclaimed S.P.A.N. audio systems. Same convenient size! Same advanced styling.

Aiwa's new Beta hi-fi video system...a really fresh idea. For your nearest Aiwa Beta hi-fi video system dealer call:

800-633-2252 ext. 300

*Weight and size comparison does not include AC powered SV-50M Beta hi-fi amplifier/adapter.

AIWA
SIMPLY ADVANCED

Aiwa America Inc. 35 Oxford Drive, Moonachie, New Jersey 07074. In Canada, Shriro (Canada) Ltd.

SUPER STEREO VCRs

COMPILED BY

FRANK LOVECE

The facts and figures you'll need to select one of the new breed of Hi-Fi VCRs

THIS GUIDE TO Hi-Fi VCRs has special significance for HIGH FIDELITY readers. Though many of you have become confirmed videophiles, until recently it has been impossible to make video recordings with high fidelity soundtracks. The breakthrough was audio frequency-modulation (AFM) recording, which gives both Beta and VHS Hi-Fi recorders performance surpassing that of most audio-only decks. (For a comparison of the performance capabilities of standard analog, AFM, and digital recording, see "Basically Speaking," page 16.)

Though most of these models offer the same functions as other top VCRs, the inclusion of Hi-Fi recording poses some special considerations. For instance, because AFM involves the recording of audio and video signals on the same diagonal tracks, you cannot overdub a new Hi-Fi soundtrack on a pretaped program. Attempting to do that will erase the original recording. But if you're willing to forgo AFM for your overdubbing, you can use the conventional fixed edge-track heads included on Hi-Fi decks—heads that give the added capability of playing back tapes made on standard decks. (However, not all Hi-Fi recorders are equipped with *stereo* edge-track recording capability.)

AFM recording also makes stringent demands on videotape. In tests by Diversified Science Laboratories, it was discovered that if the AFM circuits in some Hi-Fi VCRs encounter a section of tape with many dropouts, they can lose their lock on the FM carriers. In such instances, the VCR either switches automatically to playback of the low-fi edge tracks or just starts "spitting," the way car tuners usually do when entering a weak-signal area. Tape manufacturers are aware of the problem, and companies such as TDK, Maxell, and JVC are promoting some of their products as "Hi-Fi" tapes, meaning that extra care has been taken to ensure a low dropout rate. Whether you decide to use these tapes or to experiment a bit with less expensive blanks, you should not go into an important recording session with a garden-variety or "no-name" tape.

The results you get with AFM recording should be identical at all of a VCR's speeds. Consequently, it is now possible to make ultralong stereo recordings—eight hours on VHS and five on Beta. This is a boon to music lovers who have found the recording time available from ordinary cassette decks inadequate for unattended recording of very long broadcasts, as well as to those who want uninterrupted background music for parties. And to capture FM simulcasts of televised concerts and operas, most Hi-Fi VCRs are equipped with switching that replaces the mono TV audio with the stereo signal from your FM tuner.

What this means is that if you have been putting off assembling an integrated audio-video component system, you now have more reason than ever to quit stalling. (Feeding a high-fidelity stereo soundtrack through a 2-watt mono amplifier and a cheap 3-inch speaker doesn't make much sense.) In fact, you'd be well advised to cast an appraising eye on the quality, switching flexibility, and location of your current audio and video setups before you even begin to shop for a Hi-Fi VCR. Is it possible to combine the two and yet maintain a natural viewing angle for TV watching? Does your present stereo receiver or preamp have open high-level inputs and switching for the audio from a Hi-Fi VCR? If your answer to these questions is "no," then you'll either have to invest in a second audio system (amplifier or receiver, and speakers) to complement the VCR, or upgrade your current audio system.

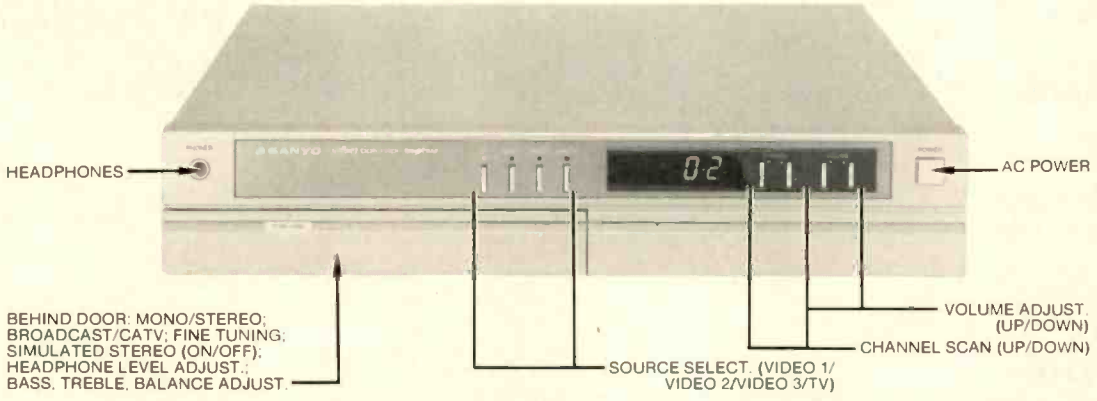
Unfortunately, none of the Hi-Fi VCRs described in the accompanying charts are capable of receiving multichannel TV sound. The FCC's decision to allow broadcasters to use the Zenith/DBX multiplex system simply came too late for manufacturers to incorporate the necessary decoding circuits in their VCRs. Some, however, have "stereo-out" jacks, which will enable you to use an outboard decoder. To record a stereo TV broadcast on a Hi-Fi VCR that lacks such decoding capability will take some finagling. You could, for instance, route the tuner output of a stereo-ready monitor/receiver to the VCR. If you plan on using the VCR with a cable-TV feed, the situation should not concern you at all. Most cable companies will not be able to retransmit the stereo multiplex signal (too much noise and distortion on the cable) and therefore will probably split it off and assign it to an FM frequency, which you would then receive with your FM tuner as a simulcast.

Also unfortunate is the scarcity of VHS movies with Hi-Fi soundtracks. Duplicators were late receiving their encoding equipment, which has combined with early production snags to make VHS Hi-Fi movies a rare commodity. Suppliers promise that the situation will be rectified soon; meanwhile, all you'll find in stereo are longitudinally recorded soundtracks. Beta Hi-Fi films and concerts, introduced more than a year ago, are readily available.—**Peter Dobbin**

VIDEO EQUIPMENT REPORTS

SANYO AVT-100 TV TUNER/SWITCHER

Sanyo AVT-100 television tuner and switchbox, with wireless remote control. Dimensions: 17¼ by 3½ inches (front panel), 13½ inches deep plus clearance for connections. Price: $400. Warranty: "limited," two years parts and labor. Manufacturer: Sanyo Electric Co., Ltd., Japan; U.S. distributor: Sanyo Electric, Inc., 1200 W. Artesia Blvd., Compton, Calif. 90220.



Laboratory data for HIGH FIDELITY'S video-equipment reports are supplied by Diversified Science Laboratories. Preparation is supervised by Michael Riggs, Peter Dobbin, and Edward J. Foster. All reports should be construed as applying to the specific samples tested. HIGH FIDELITY and Diversified Science Laboratories assume no responsibility for product performance or quality.

AT FIRST GLANCE, the Sanyo AVT-100 Video Control System seems to be a straightforward TV tuner and audio-video switcher, but a closer inspection reveals some unusual twists. The tuner covers the standard VHF and UHF bands, and pressing the CATV switch (behind a flip-down door on the front panel) readies it for cable reception. The cable hookup is to a standard 75-ohm coax F connector; VHF and UHF antenna leads attach to two sets of 300-ohm screw terminals—or, at least, so the manual seems to suggest. However, when using the 300-ohm VHF antenna hookup, you must connect a length of coax that dangles loosely from the rear of the system to the F connector, which suggests that the signal is passed through an internal matching transformer and then back out through the attached cable to the 75-ohm "CATV" input.

That would mean you could hook a 75-ohm coaxial VHF lead-in directly to the F connector, bypassing the matching balun and the attendant signal loss. The manual fails to make this clear, however, which is all the more unfortunate since the suggested system wiring connects your antenna to your VCR and the VCR's RF output to the AVT-100. VCR RF outputs are normally designed for 75-ohm coax, so, were you to follow the Sanyo manual to the letter, you'd need a 75-to-300-ohm balun to mate the VCR to the AVT-100, which would then route

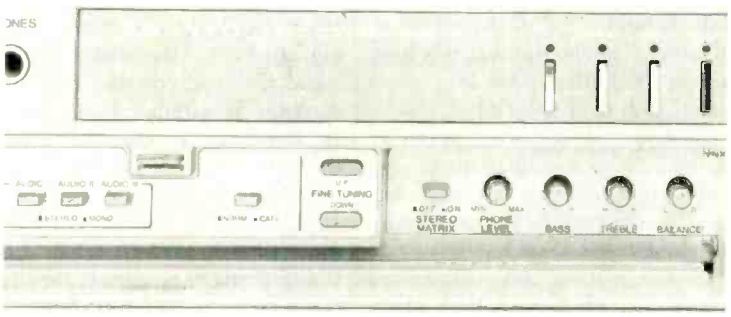
the signal through a 300-to-75-ohm balun.

The AVT-100 has two sets of audio-video outputs. One (MONITOR TV OUT) sports stereo audio outputs, while the other (TV OUT) is mono only. The system's bass, treble, balance, volume, and synthetic-stereo circuits affect only the MONITOR TV audio. TV OUT is permanently wired to the AVT-100's tuner—which makes its purpose somewhat enigmatic. Sanyo suggests that a VCR be connected here to record TV broadcasts, but that would mean that the VCR could not be used to record anything else without repatching the system. Perhaps it's best to consider the TV outputs as a way to drive a second (remote) monitor, which presumably would have its own audio controls.

The AVT-100's three-input audio-video switcher also is unusual. It selects signals only for the MONITOR TV output. And the only way you can dub a direct-video source onto a VCR is to have the former connected to the Video 1 inputs and the latter to the Video 1 outputs. (Video 1 is the only direct audio-video connection with outputs as well as inputs.) Aside from its restrictiveness (changing recording sources requires repatching), there is no harm in this arrangement: It's just counterintuitive. Copying is unaffected by the selector switch setting, although Diversified Science Laboratories reports a measurable loss in video frequency response and chroma level if you choose to view Video 1 as you copy. The loss is small, however, and likely to go unnoticed.

Sanyo's TV tuner is also out of the ordinary. Front-panel up/down bars enable you to scan the channels sequentially in either direction, but there is no way to skip over those that aren't used in your area. Fortunately, the scan is quite rapid and stops only on active channels. A pair of fine-tuning buttons behind the door enable you to tweak a channel for best reception, but the settings aren't memorized: If you select another station and then return to the first, you have to readjust the fine-tuning. The AVT-100 does memorize the channel being viewed when the power is switched off and returns to it when you turn the system back on.

We found that the AVT-100 tuned accurately to the channels in our area, so there was no need to use the fine-tuning buttons. And in addition to sequential-scan tuning, the wireless remote control gives you direct access to any channel by punching up its number on a ten-key numeric pad. The remote also enables you to scan channels sequentially in either direction, adjust the volume, control the audio MUTE, and turn the system on and off. The MUTE affects not only the MONITOR TV audio, but also that at TV OUT and the headphone jack, so if you are recording a broadcast from TV OUT

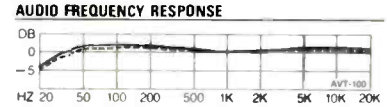


SECONDARY CONTROLS are behind a flip-down door at the bottom left of the front panel. Included are separate stereo/mono switches for each of the direct audio inputs, a broadcast/cable switch, a pair of up/down fine-tuning buttons, a switch for the synthetic-stereo circuit, a volume control for the headphone output (independent of the level control for the main outputs), and bass, treble, and balance knobs.

TV TUNER SECTION

Except where noted otherwise, all measurements were taken at the "Monitor TV" (main) outputs.

AUDIO FREQUENCY RESPONSE



AVT-100
——— Monitor TV Out +2, −3 dB, 23 Hz to 20 kHz
- - - - - TV Out +1, −3 dB, 27 Hz to 20 kHz

AUDIO S/N RATIO (A-weighted)	
best case (no video signal)	50 dB
worst case (multiburst)	23½ dB
RESIDUAL HORIZONTAL-SCAN COMPONENT (15.7 kHz)	−52 dB

MAXIMUM AUDIO OUTPUT	
Monitor TV Out	0.6 volt
TV Out	0.5 volt
AUDIO OUTPUT IMPEDANCE	
Monitor TV Out	1,100 ohms
TV Out	1,000 ohms
VIDEO FREQUENCY RESPONSE	
at 500 kHz	−¼ dB
at 1.5 MHz	+ ½ dB
at 2.0 MHz	+ 1 dB
at 3.0 MHz	−2½ dB
at 3.58 MHz	−7½ dB
at 4.2 MHz	−23½ dB
LUMINANCE LEVEL	22% high
GRAY-SCALE NONLINEARITY (worst case)	≈33%
CHROMA DIFFERENTIAL GAIN	≈73%
CHROMA DIFFERENTIAL PHASE	≈±4°

CHROMA ERROR

	level	phase
red	−4½ dB	+2°
magenta	−4¾ dB	+2°
blue	−4½ dB	+1°
cyan	−5½ dB	+3°
green	−5 dB	+2°
yellow	−6¼ dB	0°
median error	−5⅜ dB	+1½°
uncorrectable error	±⅞ dB	±1½°

SWITCHING SECTION

VIDEO FREQUENCY RESPONSE (to Monitor TV Out)	Video 1	Video 2
at 500 kHz	−¼ dB	flat
at 1.5 MHz	−1¼ dB	−¼ dB
at 2.0 MHz	−2 dB	−¼ dB
at 3.0 MHz	−3 dB	−¾ dB
at 3.58 MHz	−3½ dB	−1 dB
at 4.2 MHz	−4¼ dB	−1¼ dB

VIDEO FREQUENCY RESPONSE (Video 1 loop)	not viewing*	viewing*
at 500 kHz	−¼ dB	−¼ dB
at 1.5 MHz	−½ dB	−1 dB
at 2.0 MHz	−¾ dB	−1¾ dB
at 3.0 MHz	−1¼ dB	−2¾ dB
at 3.58 MHz	−1¼ dB	−3¼ dB
at 4.2 MHz	−1½ dB	−3½ dB

LUMINANCE GAIN	
Video 1 to Monitor TV Out	−¼ dB
Video 2 to Monitor TV Out	0 dB
Video 1, input to output (viewing)*	0 dB
Video 1, input to output (not viewing)*	+¼ dB
GRAY-SCALE NONLINEARITY	none
CHROMA GAIN	
to Monitor TV Out	−2¼ dB
Video 1, input to output (viewing)*	−1¾ dB
Video 1, input to output (not viewing)*	−½ dB
CHROMA DIFFERENTIAL GAIN	none
CHROMA DIFFERENTIAL PHASE	±0°
CHROMA PHASE ERROR	0°

*These measurements were taken at the Video 1 output from a test signal fed to the Video 1 input. "Viewing" indicates that the Video 1 input also is being fed to the Monitor TV output; "not viewing" indicates that it is not. (The Monitor TV output, as Sanyo calls it, is comparable to the main output on a preamp, whereas the TV output is like a tape output.)

COLOR CONSISTENCY is mixed. Differential phase, which indicates how much hues vary with changes in scene brightness, is quite low, but differential gain (the degree to which color saturation varies with changes in brightness) is rather high and spans the entire upper half of the luminance scale. The latter is shown by the radial spread of the color vectors (white dots), the former by their angular spread. Ideally, they would form just one small blob at the intersection of the nine-o'clock axis with the circumference of the grid.

(or someone is watching the broadcast on a remote monitor) and you hit MUTE, you'll kill the sound being recorded or viewed. The only output safe from accidental muting is Video 1.

The remote's timer enables you to preset turn-off 30, 60, or 90 minutes in advance. Press TIMER once for a 30-minute countdown, twice for 60 minutes, and three times for 90 minutes. Pressing a fourth time clears the timer. When this function is activated, the channel number disappears from the display and is replaced by the time remaining to turn-off. Pressing any other button on the remote causes the channel number to reappear for five seconds.

DSL's bench tests indicate that the tuner performs fairly well, overall. Video response peaks up slightly at 1.5 and 2 MHz, which helps compensate—at least partially—for a substantial rolloff at the upper end of the NTSC band. Chroma differential phase is low, but there is substantial chroma differential gain over half the brightness range. And indeed, in our viewing tests, hues remained quite stable as scene brightness changed, but the colors washed out (lost saturation) in the highlights.

GRAY-SCALE LINEARITY also is off the mark to a greater than average degree, an effect that is most noticeable in black-and-white pictures. Luminance level is somewhat high, and chroma level is low, but by median amounts that can be corrected with the brightness and color controls on a good monitor. The amount of uncorrectable chroma phase (hue) error is quite low, but the uncorrectable chroma level (color saturation) error is greater than we're accustomed to seeing. With the AVT-100, expect yellows to be noticeably weaker than reds and blues. (Many monitors also are weak in yellow, which compounds the problem.)

Most video switchers are essentially "transparent" and pass the video signal along to the monitor undistorted. DSL always checks performance in this regard, but it's seldom worthy of comment. But this switcher does induce a measureable loss in chroma level and video bandwidth, so your monitor will not display quite the picture quality that, say, a good laserdisc can deliver. In all other respects, however, its performance is fine.

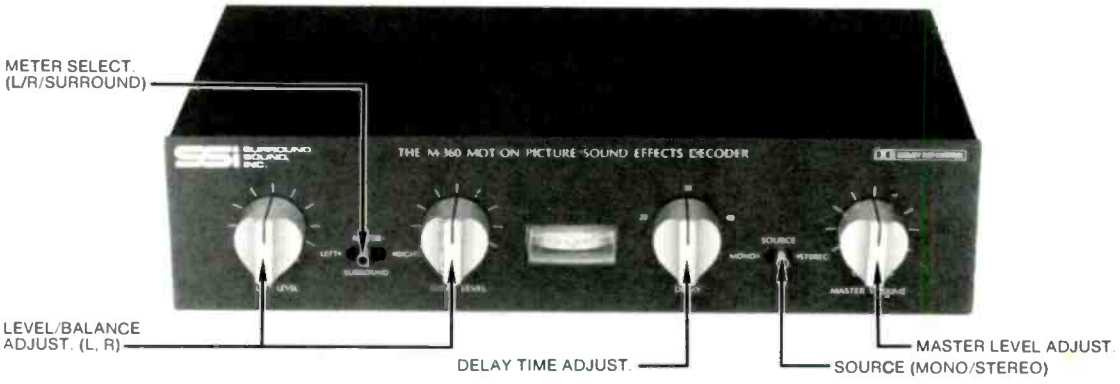
The loss in high-frequency response (at the MONITOR TV output) is noticeably less from the Video 2 input than from Video 1, so Video 2 would be the better choice for your highest quality source. This precludes dubbing from that source, however. (DSL did not check Video 3, but we suspect the problem with the Video 1 input has to do with its connection to its own output. Performance from Video 3 should therefore be quite similar to that from Video 2.) In the recording loop (from Video 1 input to Video 1 output), transfer is close to perfect, provided you've selected a different source for viewing. When viewing and copying simultaneously, there's a measurable loss in response and chroma level, although the difference is not extreme.

The tuner's audio performance is much more impressive than its video performance. Measured at TV OUT, where the tone controls are inoperative, response is within +1, −3 dB, from 27 Hz to beyond 15 kHz. At MONITOR TV OUT, the tolerance is a trifle wider (+2, −3 dB), probably because of a slight boost from the bass control. (The tone controls have no center detents, so it's difficult to be certain they're set for flat response.) The BASS has a maximum range of +10½, −14 dB at 50 Hz, below which its response shelves; the TREBLE has an almost identical range of +10, −13½ dB at 15 kHz.

Under ideal conditions (no luminance), the audio signal-to-noise (S/N) ratio is very respectable for a TV tuner. Under worst-case conditions, it deteriorates considerably, but this is unlikely to occur on normal broadcasts. The horizontal-scan component is well suppressed, and output level and impedance are suitable for typical stereo preamps and integrated amplifiers. Sanyo's synthetic-stereo circuit generates the pseudostereo effect in the best way, via complementary comb filters that redistribute energy between left and right channels as a function of frequency. Sanyo's implementation divides the spectrum into very small increments, which imparts a very spacious effect, but one that can have a somewhat hollow character. As with all such psychoacoustic tricks, "good" is in the ears of the listener, so we suggest you try it out for yourself. **HF**

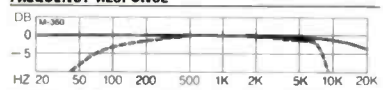
SURROUND SOUND M-360 DOLBY STEREO DECODER

SSI M-360 Dolby MP motion-picture sound-effects decoder. Dimensions: 12¼ by 3¼ inches (front panel), 6½ inches deep plus clearance for controls and connections. Price: $350. Warranty: "limited," one year parts and labor. Manufacturer: Surround Sound, Inc., 14025 Panay Way, Marina del Rey, Calif. 90291.



PROCESSOR SECTION

FREQUENCY RESPONSE



front +0, −3 dB, 20 Hz to 16 kHz
surround +0, −3 dB, 100 Hz to 7.2 kHz

OUTPUT AT CLIPPING (at 1 kHz; front output)	4.0 volts
MAXIMUM INPUT LEVEL (at 1 kHz)	>10 volts
SENSITIVITY (for meter 0 dB)	100 mV
S/N RATIO (re 0.5 volt; A-weighted)	
front output	89 dB
surround output	78 dB
TOTAL HARMONIC DISTORTION*	
front output	≤0.011%
surround output	≤4.02%
INPUT IMPEDANCE	190k ohms
OUTPUT IMPEDANCE	≤1,750 ohms
DELAY TIME (surround output)	16–54 msec

*Measured from 20 Hz to 20 kHz at the front output, from 40 Hz to 10 kHz at the surround output.

HIDDEN IN THE soundtracks of many videodiscs and stereo videocassettes is a lot more enjoyment than you may have thought. Today's high-budget Hollywood epics often are made in Dolby Stereo surround-sound, and the 35mm prints of these movies are released with the surround information encoded into the front channels in the Dolby MP Matrix format. When the movies are transferred to videodisc or cassette, the matrixed surround-sound usually goes along for the ride. (See "A New Dimension for Video Sound," November 1983.) What you need in order to dig out the surround information is a decoder, such as the SSI M-360, and some extra speakers at the back of the room.

The M-360 is designed to be plugged into a tape-monitor or external-processor loop or connected to the main output of a preamplifier. The front-channel stereo signals are routed through the M-360's left and right input level controls (used with the meter to calibrate the processor), buffer amplifiers, and master volume control before being passed back to the system for normal reproduction. The surround-sound information is contained in the L−R (left-minus-right) difference signal, which the M-360 picks off and processes.

The difference signal is delayed, filtered, Dolby decoded, and passed through the master volume control before appearing at the surround line-output jack, so that the master VOLUME adjusts front and rear levels simultaneously. If you have an extra power amp or integrated amplifier available, it can be used to drive the back-channel speakers. If not, you can use the M-360's own power amp. Bass, treble, and volume controls for it are on the rear panel; once you have them adjusted to taste, you needn't touch them again.

SSI suggests that you use a pair of speakers placed behind and flanking the viewing area. They needn't be particularly good: The surround-sound information extends only from about 100 Hz to 7 kHz. A pair of 8-ohm speakers can be connected in parallel to the M-360's speaker output terminals; 4-ohm speakers should be wired in series to present a safe load. In a very

POWER AMP SECTION

RATED POWER	
8-ohm load	10 dBW (10 watts)
4-ohm load	13 dBW (20 watts)
OUTPUT AT CLIPPING (at 1 kHz)	
8-ohm load	9¼ dBW (8½ watts)
4-ohm load	10½ dBW (11¼ watts)
DYNAMIC POWER	
8-ohm load	10 dBW
4-ohm load	12 dBW
DYNAMIC HEADROOM (re rated power)	
8-ohm load	0 dB
4-ohm load	−1 dB
S/N RATIO (re 0 dBW into 8 ohms; A-weighted)	67½ dB
DAMPING FACTOR (at 1 kHz; re 8 ohms)	100

long room, SSI suggests two sets of back speakers, one pair flanking the viewing area, the other set in the far corners. Unless they're 16-ohm units, they should be connected in series/parallel to ensure at least a 4-ohm load on the M-360's power amp. The manual shows the appropriate wiring.

Once you have the system up and operating—which isn't as complicated as it might sound—you control the listening level with the master VOLUME and adjust the delay time for best effect. The suggested procedure is to advance the delay control until you hear a distinct echo and then back off until the echo just disappears. The M-360 also can be used to enhance mono soundtracks. With the mode switch in mono, the L+R signal is phase-shifted and filtered before being passed through the delay line and subsequent processing circuitry. In this mode, the delay is adjusted to produce the effect you like best.

Diversified Science Laboratories measured the M-360's behavior at both the front and surround outputs—the former to find out what, if anything, it does to normal front-channel sound, the latter to determine processor performance. With the exception of a slight high-end rolloff, front-channel signals emerge unscathed. Distortion is negligibly low, signal-to-noise ratio adequately high, and maximum output more than adequate, and the input level control can be set to prevent overload on any signal it might encounter.

Because the surround output is derived from the difference signal, DSL measured it by driving one input and thus producing maximum surround effect. The resulting output is confined mainly to the region between 100 Hz and 7 kHz, below which response falls off at 12 dB per octave. Above, it plunges at a rate approaching 48 dB per octave. Presumably, this bandwidth corresponds to Dolby specifications. A-weighted noise is negligible considering the residual hiss on most video soundtracks and the fact that the level of the back channels will be well below that of the front pair.

By high fidelity standards, distortion in the surround output seems perilously high (reaching 4 percent at 4 kHz) and contains numerous harmonics. It probably is introduced by the delay line, which is adjustable from 16 to 54 milliseconds (corresponding to path length differences of approximately 15 to 50 feet). However, we would caution against placing too much emphasis on this distortion: A signal processor is supposed to "do something" to a signal and often strays from strictly high fidelity performance in some regard to achieve a sonic benefit that outweighs the shortcomings. Furthermore, the test conditions were designed to stress the system to its utmost—maximum surround effect at an input level 12 dB above meter zero.

The capabilities of the M-360's internal power amplifier are modest, but since the maximum surround output level (that is, with one channel driven) is about 8 dB below front-channel output, even this low-power unit can keep up with 18 dBW of total front-channel power (assuming front and back speakers of equal sensitivity), and that's more than 60 watts of main-channel sound.

Frequency response to the rear speakers is essentially the same as to the surround line-level output, but you can tailor it with the back-panel bass and treble controls. Unfortunately, these have no indications for flat settings, but the physical center of rotation seems to correspond to that condition reasonably well. The BASS provides about 6¼ dB of boost or 9 dB of cut at 100 Hz, while the TREBLE affords as much as 7½ dB of boost or 10½ dB of cut at 6 kHz.

We installed the M-360 in our audio-video system and connected a pair of small 8-ohm speakers in parallel to the unit's power amp; our source material consisted primarily of laserdiscs. To say that the M-360 made an improvement would be a massive understatement. Tanks rumbled across the walls of our living room as Patton directed traffic. Howitzer shells launched on-screen exploded in the next room while aircraft droned overhead. And, most impressive, center-front dialogue stayed on the screen, where it belongs. (Nothing is quite as disconcerting as watching a mouth move and hearing the voice come from a different direction.) *Rocky III* was a bit less impressive—fists making a smaller impact than artillery—but the effect was dramatic, nonetheless. In short, run, don't walk, to your dealer for a demonstration of the SSI M-360. **HF**

REVIEWS

Pop and classical music releases on videodisc, videocassette, and digital Compact Disc

POPULAR VIDEO

GOSPEL.

David Lelvick & Frederick Ritzenberg, producers. MONTEREY HOME VIDEO 134-257, Beta and VHS, $49.95 (Distributed by Family Home Entertainment.)

"Gospel" offers an opportunity to witness the electrifying communion that is a gospel music program. But because it offers little more than concert and audience footage, it may only preach to the already converted.

For one who has seen "Say Amen, Somebody," the documentary that preceded "Gospel" into theaters by several months last year, comparisons are inevitable. In addition to ample performance footage, "Amen" featured interviews with some of the principals (including the Rev. Thomas A. Dorsey, gospel's top songwriter) and semicandid scenes in cars, living rooms, and convention halls. Those scenes gave the uninitiated a valuable context in which to view the performances. "Gospel" is strictly a concert video, an edited show in which each act does three or four songs. And because building a set precisely is even more crucial in this music than in most idioms, the video feels anticlimactic in places. When the lead singer for the Mighty Clouds of Joy leaps into the crowd at the end of their performance, for example, the move looks contrived, staged for the cameras, even though it is a common occurrence in gospel programs.

Show-bizzy in their white suits and open shirts, the Clouds represent the younger, more pop-oriented end of the spectrum, though when they appear before a crowd like this, they stick to a backing rhythm section and leave out the horns they've used on recent pop recordings. The video tries to emphasize that gospel can be as contemporary as secular music; for example, the Clark Sisters ("We come to let you know that Jesus is the baaadest man in town") sing religious puns on drug addiction and hookers while bobbing like the cast of *Dreamgirls*. You are hit over the head with this issue during the Walter Hawkins Family's set, which cuts frequently to the congas and cornrows onstage, as if to stress, THIS IS MODERN.

Yet it's a modernist who provides one of the most galvanizing performances. Shirley Caesar, also relatively young and until recently considered a purist, starts in a frenzied sweat and escalates from there, showing off some jazzy scat phrasing on the secular *No Charge* (during which a member of her entourage re-enacts the Crucifixion, a vignette that has been in her show some 15 years now and that for some reason is always done during one of her songs about mother). Then she soars away effortlessly on a closing jump-tempo number.

The Rev. James Cleveland wraps things up with the Southern California Community Choir. After the youngsters who preceded him, Cleveland seems at first like a model of restraint, the canny old pro who knows less is more. He even sneaks around the film editors as his burly voice builds slowly, in gradations almost imperceptible, to the stunning climax. "Gospel" delivers on its promise at moments such as this; it could have used a few more of them. —*JOHN MORTHLAND*

POPULAR COMPACT DISC

WARREN BERNHARDT TRIO '83.

Warren Bernhardt & Tom Jung, producers. DIGITAL MUSICAL PRODUCTS, INC. CD 441 (fully digital Compact Disc)

FLIM & THE BB'S: Tricycle.

Flim & the BB's & Tom Jung, producers. DIGITAL MUSICAL PRODUCTS, INC. CD 443 (fully digital Compact Disc).

Engineer/producer Tom Jung honed his skills at Minneapolis's Sound 80 studio, the home of 3M's first prototype digital recorders, where he became an early believer. This ambitious label venture is an exclusively digital line.

Jung's basic production scheme involves recording live to two tracks, using Mitsubishi's X-80 digital recorder; each program runs close to a full hour. Both ploys give this tiny label an edge in competing against other CD releases.

Both of these efforts stand up as lucid, spacious, and well-detailed works. The conservative fusion of Flim & the BB's is aimed toward the broadest audience. Reportedly an early guinea pig for 3M digital gear, the group offers a worthwhile test for the format's advantages. Sudden dynamic shifts, rich electronic textures, and intricate percussion work all highlight its tonal brilliance, stereo separation, and noise-free character. On tracks such as *Thunder and Birdies*, *Sam's Samba*, and the title track, Flim and the BB's compare favorably with any number of similarly melodic pop/jazz outfits.

More substantial is the impressionistic chamber jazz offered by veteran pianist Warren Bernhardt, backed by the expert bassist Eddie Gomez and drummer Peter

MIGHTY CLOUDS OF JOY: Are they genuine, or just "Gospel" to go?

Erskine. A journeyman who has played with several jazz/pop stylists, Bernhardt draws here from a muse familiar to fans of Bill Evans, to whom the album is dedicated. Whether he is celebrating his mentor's harmonic delicacy and tonal richness by reverently interpreting one of Evans's introspective pieces (*My Bells*), translating a Weather Report ballad to acoustic piano (Joe Zawinul's *A Remark You Made*), or exploring originals, Bernhardt is a deft, emotive player.

—*SAM SUTHERLAND*

VAN MORRISON:
Live at the Grand Opera House Belfast.

Van Morrison, producer. MERCURY 818 336-2 (analog recording, digital Compact Disc).

Thanks to an unkind twist of fate, Van Morrison's first live album in nearly a decade is not presently scheduled for U.S. release, yet imported Compact Disc versions have begun popping up. The stunning "Live at the Grand Opera House Belfast," a textbook example of performance recording techniques, is a mesmerizing summation of the artist's evolving and deeply spiritual European pop.

Morrison has dispensed his stage art sparingly on record, even though he's almost always great in concert. This set sidesteps his mid-Seventies material, focusing instead on the stylized mysticism that has informed his work since 1979's "Into the Music." More compact than the sprawling "Too Late to Stop Now," these 52 minutes provide Morrison with ample time to build mystery and atmosphere; coincidentally, the playing time also underscores the appropriateness of its CD issue. Production quality is superb, with his 11-piece band, including three backing vocalists.

Morrison reprises these familiar songs with unflagging energy and a sense of discovery. The arrangements are essentially unchanged, but his mercurial vocal persona and thoroughbred players frequently take them at a brisker pace. New listeners may be in for a genuine revelation. While rooted in the pastoral art-rock of two decades ago, Morrison's latest work has been suffused with a hypnotic combination of influences. This material ranges from cool, post-bop jazz and classic romantic ballads to Celtic traditional music and American r&b. —*S.S.*

NEIL YOUNG:
Harvest.

Elliot Mazer, Neil Young, Jack Nitzsche, & Henry Lewy, producers. REPRISE 2277-2 (analog recording, digital Compact Disc). LP: 2277-1.

With its spare, country-inflected arrangements reinforcing the underlying wistfulness of the songs themselves, this 1972 album remains Neil Young's most well-known and accessible work. Consequently, it identified him with the pop mainstream, as Young has lamented ever since. Commercial acceptance doesn't guarantee an appropriate technical subject for Compact Disc, however, and this recording doubtless posed some problems in making the switch to the digital format.

Since much of its character rests with the comparatively rustic style and uncluttered, intimate production finish, there's little sonic drama on "Harvest." Coproducer Elliot Mazer, who supervised the preparation of the digital sub-master needed for CD manufacturing, admits that the analog master tape is burdened with

YOUNG: much-lamented success

hiss. While some may be detected at high volume, fans familiar with either the conventional LP release or the subsequent Nautilus half-speed etching won't complain; this new version still triumphs. It also offers a cleaner, better-defined stereo image and boasts improved presence to the vocals. At the same time, the recording's considerable acoustic ambience—often a casualty in analog/digital transfers—is preserved intact.

There are instances where the added clarity reveals slight flaws in the master. On two orchestrated tracks produced by Jack Nitzsche, for example, the violins suffer from a rather grainy character. But instrumental details are otherwise captured beautifully, the lean, atmospheric playing of the Stray Gators shining throughout. Cleaner sonics buttress Young's harmonica lines, Ben Keith's mournful pedal steel accents, and Tim Drummond's terse bass.

Thus, "Harvest" offers heartening proof that careful preparation of original analog recordings by their creators is very worthwhile. This CD not only does justice to the original; it yields audible improvements that will repay the home listener. And with such a classic, the format's durability will be an obvious additional benefit. —*S.S.*

For additional reviews of Pop and Jazz recordings, see BACKBEAT.

CLASSICAL COMPACT DISC

BEETHOVEN:
Sonata No. 29, Op. 106 ("Hammerklavier").

Emil Gilels, piano. (Hanno Rinke, prod.) DEUTSCHE GRAMMOPHON CD 410 527-2 (fully digital Compact Disc). LP: 410 527-1.

The emotional center of this performance is clearly the third movement—an Adagio weighty, probing, austere. The slower movements in Beethoven's later sonatas might in general be said to welcome Emil Gilels's favored techniques here: the improvisatory degree of rubato he brings, the generally heavy tempos, and particularly the meditative pauses he uses on weighted chords as if to interrogate them, to pluck out the heart of their mystery. Expressive, too, are those moments when Beethoven will move from a series of sixteenth notes to requoting himself, but in triplets, a sweetening of the rhythm Gilels audibly savors.

True, there are times when the constant search for profundity, like some metaphysical treasure hunt, finally results in a flattening out of the pianist's effects, making them less rather than more expressive; true, too, that occasionally the already solemn tempos slow down so, you wonder if all motion will actually cease. But the Adagio can stand these things as surely as the last movement justifies Gilels in bringing eagerly to our ears Beethoven's gnawingly dissonant trills.

The real problem is the pianist's treatment of the first movement. Here the recent standard is surely Pollini. Gilels is much slower, more ponderous, giving greater emphasis to the movement's lyrical elements. His fluid approach anesthetizes too much of the real emotional life of the movement, that happily jagged energy sounded in the opening seven chords. Pollini manages to be just as lyrical where it counts, without losing pulse and impetus. The Italian pianist's tenderness is one of touch, with a particularly expressive left hand; the Russian resorts to a more severe distention of line, and his rapid alternations in tempo fragment further a work already bursting at the seams.

EBET ROBERTS

The effect is a Cubist view of Beethoven, surely a valid approach to the craggy final fugue, but perhaps less appropriate to the buoyant energies of the opening. Still, an impressive reading that more than once burns through to the heart of this cranky, magisterial work.

—THOMAS W. RUSSELL III

DANSES ANCIENNES DE HONGRIE ET DE TRANSYLVANIE.

Clemencic Consort, Rene Clemencic, dir. HARMONIA MUNDI (France) HM 90.1003 [analog recording, digital Compact Disc] LP: HM 1003. Cassette: 40.1003

From the country that brought you Bartók and paprika, this peppery collection is guaranteed to put spice in your life.

Right from the opening cut, the rhythmic vitality and gamy coloring of these works are infectious, and at least as performed by the Clemencic Consort, rhythm and color are what these pieces are clearly about. Several do include a central lyrical section, often exquisitely played on one or another viol, but only (as on a typical rock cut) after an unmistakable rhythmic pulse has been established. The plaintive nasality and the improvisatory, fantasia-like play with tempos of other selections recall the region's historic links with the Near East.

Even more appealing than the insistent rhythmic impetus of so many of these works is the pungent variety of their individual colors. Instruments most of us know only from the reference books or from old David Munrow demo albums come alive here, conjuring up a whole world of their peasant proprietors: the cornemuse, an old sheep's bladder turned into a bagpipe; the dulcimer-like cimbalon, and some enchantingly buzzy portable organs; the cornetto, that odd wooden hybrid with a trumpet-like mouthpiece but air holes to stop it like an oboe, giving a near-vocal (like a boy soprano) sound so old you could imagine David calling his sheep with it. To these are added such a wealth of instruments to clang and bang as to make a modern percussionist green with envy. (If you've never heard early kettledrums, these will raise the hair on the back of your neck.)

Credit belongs not just to anonymous early Magyars: The peppy, robust performances by the French-based Clemencic Consort make most early-instrument ensembles sound dusty, mincing, and precious. The CD sound is livable, but on a good front end the LP is just that degree more sharply edged (particularly on attacks), with a rounder but more precise sense of ambience (demonstration quality, really) that makes it, at a lower price, the purchase of choice. In either version, this sonic roller coaster serves as a human equivalent to Puppy Uppers. Being a peasant has never sounded more fun.

—T.W.R. III

MOZART: Opera Arias.

Lucia Popp, soprano; Munich Radio Orchestra, Leonard Slatkin, cond. [Theodor Holzinger and Gerd Berg, prods.] EMI CDC 7 47019 2 [fully digital Compact Disc]. LP: DS 38023; rev'd. 6/84.

Il Rè Pastore: L'amerò sarò costante. Le Nozze di Figaro: Voi, che sapete; Giunse alfin il momento . . . Deh vieni, non tardar; Porgi, amor qualche ristoro. Die Entführung aus dem Serail: Welcher Kummer herrscht in meiner Seele . . . Traurigkeit ward mir zum Lose. Idomeneo: Solitude amiche . . . Zeffiretti lusinghieri. Don Giovanni: In quali eccessi . . . Mi tradì; Crudele? . . . Non mi dir, bell' idol mio. Così fan tutte: Come scoglio. La Clemenza di Tito: Non più di fiori.

Lucia Popp began her operatic career with Mozart in Vienna in 1963. Since then she has sung every major role that is suited to her voice. In this recording she takes on not only familiar arias of Susanna, Cherubino, and the Countess, but famous arias of Donna Elvira and Donna Anna—though not the latter's "*Or sai che l'onore.*" To these she adds scenes from *Idomeneo* and *La Clemenza di Tito*, the exquisite aria with violin solo obbligato in *Il Re Pastore*, and, for more fireworks, Fiordiligi's testing "*Come scoglio.*"

Popp's voice is one kind of ideal in Mozart: clear in texture, squarely in the center of the pitch, agile to any degree necessary, and capable of a range of colors that suit the varying requirements of Constanze's lament or Donna Elvira's outburst. She rarely fails to meet the tough tests of these well-known scenes, and indeed she usually sounds as if they were not difficult at all, which is the product of true vocal discipline. There is a touch more elasticity possible in the rondo from *Il Re Pastore* (a quality that Elisabeth Rethberg disclosed in it long ago), but this is a beautiful account, with lovely playing from the solo violin, who is sadly not identified.

Leonard Slatkin, who has been active in recent Mostly Mozart Festivals around this country, draws support from the Munich Radio Orchestra that is at once sympathetic to every nuance in Popp's singing and well tuned to Mozart, both in style and balance. Nowhere is this balance more appreciated than in the beauty of the woodwinds, notably clarinet and bassoon in Elvira's "*Mi tradì.*" The pizzicatos underlying "*Voi, che sapete*" are another distinct joy. The presence and open ambience of the CD contribute further to one's satisfaction with the recording.

It would have been good of EMI to provide texts rather than brief synopses, and violinists who play that obbligato as elegantly as this Munich musician should have their names in print.

—PAUL HUME

MOZART: Sinfonia Concertante, in E flat, K. 364/320d; Concerto for Violin and Orchestra, No. 2, in D, K. 211.

Iona Brown, violin and cond.; Josef Suk, viola; Academy of St. Martin-in-the-Fields. [Chris Hazell, prod.] ARGO 411 613-2 [fully digital Compact Disc].

When Neville Marriner left the Academy of St. Martin-in-the-Fields in the late '70s and turned the directorship over to its principal violinist, Iona Brown, some surprised murmurings of "Iona *Who*?" were forgivable, at least on this side of the Atlantic. But in music as in politics, that dour question sometimes precedes a resounding answer, and no one who has followed the fortunes of St. Martin since 1978 is in doubt at this point about the identity and abilities of the once-unheralded Miss Brown. She has, however, stayed close to the St. Martin hearthside and made little attempt so far to strike out into an independent solo career. She didn't even make it into *The New Grove*. But as is clear in this recording—a continuation of her traversal of the Mozart violin concertos (Brown's performances of Nos. 1 and 5, and her earlier recording of the *Sinfonia Concertante*, were reviewed in July)—she is a patrician violinist with a fine sense of Classical style and an instinct for getting to the heart of Mozart's music without exaggerations, virtuosic flourishes, or any hints of soloistic ego.

The Sinfonia Concertante—probably the only recording of it in history in which the violist has a bigger reputation than the violinist—is resilient, alert, and beautifully paced, with a sheer cleanness of execution that comes through glowingly in the lucid, three-dimensional CD sound. You hear the horns well balanced in the first movement, and you are even aware of the cutting edge of the oboes in the third. But most of all you are riveted by happily matched soloists engaged in a more or less perfect pas de deux—the violin fine-toned and full of tensile strength, the viola in Josef Suk's masterly hands pleasantly nasal and always well focused. The two instruments carry on a dialogue of real import in the slow movement and are trim and taut in the finale. In its unpressured directness, the collaboration is akin to one of my long-standing favorites, that of Henryk Szeryng and Bruno Giuranna with the New Philharmonia under Alexander Gibson. The Isaac Stern/Pinchas Zukerman version (with the English Chamber Orchestra under Daniel Barenboim) is by comparison ever so slightly glutinous.

On her own, Brown delivers a fine-spun, poised performance of the K. 211 Violin Concerto. Again, it is appealing for its unencumbered freshness, treating the work in a Classical context without pre-Romantic overtones. The orchestra is set rather far back in the recorded ambience, and only once could I have wished it a little more to the fore—to emphasize the unexpected sidestepped cadence in the slow movement. But the St. Martin ensemble and its violinist/conductor are on splendidly cordial terms, and they have made a recording to cherish.

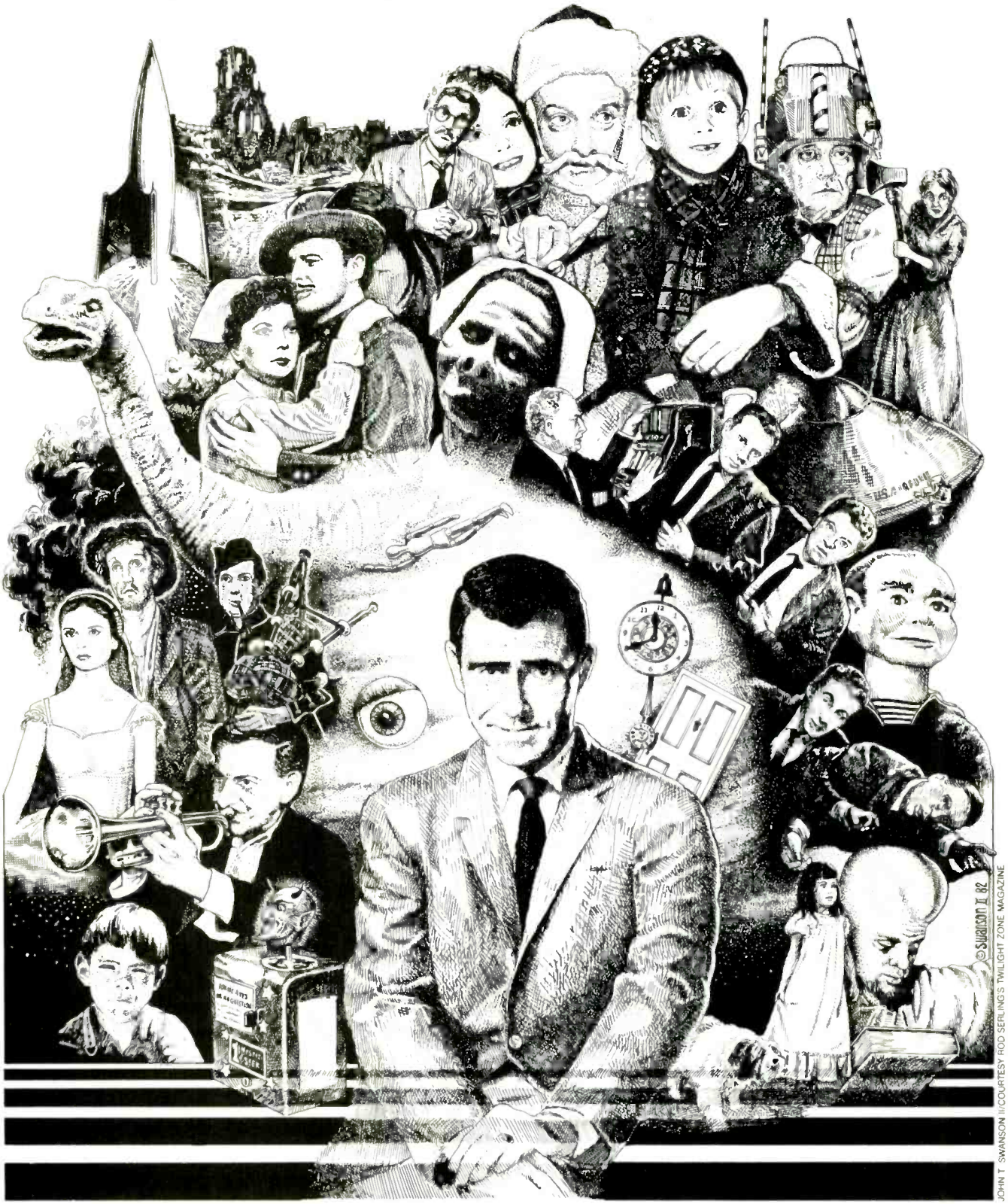
—SHIRLEY FLEMING

For additional reviews of classical recordings, see Classical Reviews.

Submitted for Your Approval

A pioneering West Coast label brings the music of Rod Serling's *The Twilight Zone* back to life.

Reviewed by Noah André Trudeau



JOHN T. SWANSON II/COURTESY ROD SERLING'S TWILIGHT ZONE MAGAZINE

"There is a fifth dimension beyond that which is known to man. . . . This is the dimension of imagination. It is an area we call the Twilight Zone."

FROM OCTOBER 2, 1959, to September 5, 1965, Rod Serling's *The Twilight Zone* befuddled and entertained television audiences. Since then, thanks to syndicated reruns, the series has become legend. The heroes of its success are most often held to be Serling, a stable of impish writers including Charles Beaumont and Richard Matheson, and a pool of young acting talent destined for greater things. Now, thanks to the initiative of the West Coast record label with the double-barreled moniker of Varèse Sarabande, one more group can be added to that list: a cadre of gifted film-music composers.

Last year, the label released Vol. 1 in its series of discs devoted to the title music and episode scores from *The Twilight Zone*. Vol. 4 has just hit the racks, and a fifth installment is promised. Make no mistake: This series is a major event. Considering the magnitude of its importance to the genre it celebrates, I can only compare it to London's first issuing of the *Ring* cycle.

Television scores have never fared well on disc. Too often the victims of over-arrangement and rearrangement, and limited usually to popular title cues, they rarely appear in anything like "authentic" form. But that word is definitely applicable here. Each *Twilight Zone* album begins and ends with title music selections—some used on the show and some not (more about that below). Between are four or more suites, each expertly patched together from the various cues written and recorded for a specific episode.

Since several composers are represented throughout the Varèse Sarabande series, it makes sense to talk about them individually, rather than to review the albums in turn. Two masters of film music dominate the records: Bernard Herrmann and Jerry Goldsmith. Herrmann was already well established (with such credits as *Citizen Kane*) when he scored his episodes; the music for them is like a peek into an old master's bag of tricks. Goldsmith was really just coming into his own, and the recorded segments are fascinating more for what they promise than for what they are themselves.

Herrmann's music appears on all four volumes. Trivia fans should take note of Vol. 2: It contains a little-known main-title theme he wrote for the show, which was actually used from the premiere episode until July 1, 1960. Just about everything that gives meaning to the word "Herrmannesque" can be heard on these records—the almost brutal ostinatos, the undulating, melodyless passages, the low pedal tones set against jagged chords, the muted brass punctuation, and the unusual instrumental combinations. In almost every case, however, Herrmann has displayed these devices to better advantage in his movie scores, and what is presented here does not really add in any way to one's appreciation of his art.

When Goldsmith came to compose for *The Twilight Zone*, his greatest film scores still lay ahead—*The Blue Max*, *Patton*, *The Wind and the Lion*, *The Omen*. But already he was a master of his materials. The five Goldsmith *Twilight Zone* suites included here are not only captivating for their neo-classic/contemporary handling of small ensembles and unusual instruments, they are also remarkable for the insights they give into the workings of a composer who continues to be a giant in the film industry.

Listening to his suites is like coming across the youthful sketchbooks of a major composer. The "great" music isn't there yet, but the potential clearly is. Goldsmith's handling of his *Twilight Zone* assignments was always adroit, at turns clever, and flashing with moments of genius. His best score, included in Vol. 1, is a tour de force written for an episode with Agnes Moorehead that was virtually without dialogue: "The Invaders."

Make no mistake: This series is a major event.

Nathan Van Cleave was unknown to me before these albums were released. John Vonde, whose fact-filled annotations accompany each record, makes a strong pitch for him as "a composer of rare and unique talent." Indeed, Van Cleave did score more episodes than any other *Twilight Zone* contributor—twelve, to be exact. Four of these appear here, and I wish I could say, "Hats off! A genius"—but "skillful" is the word that kept coming to mind as I listened to them. From this evidence, Van Cleave was no hack, but he wasn't a talent of the first rank either.

The remaining suites can be dealt with simply. Veteran Franz Waxman offers music that seems a pale reflection of *Sunset Boulevard* (his Academy Award-winning film score). Fred Steiner comes off well with two suites: one juxtaposing contemporary (c. 1960) music with 1860s folk tunes to good effect, the other a more straightforward dramatic score, equally impressive. Other selections by Nathan Scott, Leonard Rosenman, and René Garriguenc leave no strong impression.

The dramatic demands of the particular episodes often resulted in the use of unexpected instruments—a harmonica here, a banjo there. The rule of thumb then was maximum effect from minimum resources, and for the most part the composers used what they had quite successfully. From a purely chamber-music point of view, there are some intriguing pieces to be found here.

But what about the bongo/electric guitar main-title music most associated with *The Twilight Zone*? Have no fear, it's here as well, on Vol. 1. The big surprise is the name of its composer—Marius Constant, who was not then, and is not now, a member of the Hollywood community. There must be a story of how this conductor/composer came from outside the in-crowd to pen one of the best-known television themes of all time. Based on what little else of Constant's music I've heard, this title score is a departure from his style. (Now that the word is out, Constant may come to rue this theme much as his countryman Paul Dukas came to regret *The Sorcerer's Apprentice*.) Also included on some volumes are main and end titles never used—one set by Constant, another by Herrmann. Small beer, but interesting as curios.

The sound quality throughout is incredible. Bravo to "Risty," whose sequencing sense is excellent and whose editing is near perfect. Vol. 4 is the only one tending to shrillness in places and, curiously, the only one so far in stereo. Packaging, notes, and pressings are uniformly excellent.

This is an awesome achievement. No film music buff will want to be without the entire set. For the casual listener, I would recommend Vols. 1 and 2 without reservation. Content quality begins to diminish with Vols. 3 and 4, and most listeners will probably find the novelty wearing off.

Even so, Varèse Sarabande has restored a vital sixth dimension to Rod Serling's five—the dimension of music. **HF**

THE TWILIGHT ZONE, VOLS. 1–4.

Various artists. [Compiled by Scot Holton and Risty.] VARÈSE SARABANDE STV 81171, 81178, 81185, 81192. Cassette: CTV 81171, 81178, 81185, 81192. (13006 Saticoy St., North Hollywood, Calif. 91605.)

Vol. 1. CONSTANT: Main and End Titles. GOLDSMITH: The Invaders. HERRMANN: Walking Distance. VAN CLEAVE: Perchance to Dream. WAXMAN: The Sixteen-Millimeter Shrine.

Vol. 2. GOLDSMITH: The Big Tall Wish. HERRMANN: Main and End Titles; Where Is Everybody? SCOTT: A Stop at Willoughby. STEINER: 100 Yards Over the Rim.

Vol. 3. CONSTANT: Alternate Main and End Titles. GOLDSMITH: Back There. HERRMANN: The Lonely. ROSENMAN: And When the Sky Was Opened. VAN CLEAVE: A World of Difference.

Vol. 4. GARRIGUENC: Jazz Theme. GOLDSMITH: Jazz Theme; Nervous Man in a Four-Dollar Room. HERRMANN: Alternate Main and End Titles. STEINER: King Nine Will Not Return. VAN CLEAVE: Elegy; Two.

Noah André Trudeau is a music producer for National Public Radio and collects film scores and Americana.

Reviews

The Pro Arte Quartet: performances of Bloch's music marked by breadth and intensity of vision, thrillingly recorded

Bloch-busters

Reviewed by Harry Halbreich

BLOCH: Sonatas for Violin and Piano: No. 1; No. 2 ("Poème mystique").

Yukiko Kamei, violin; Irma Vallecillo, piano. [Herschel Burke Gilbert, prod.] LAUREL LR 121 (distributed by Consortium Recordings, 2451 Nichols Canyon, Los Angeles, Calif. 90046).

BLOCH: String Quartet No. 1.

Pro Arte Quartet. [Herschel Burke Gilbert, prod.] LAUREL LR 120.

BLOCH: String Quartet No. 2; Prelude; Night; Two Pieces for String Quartet.

Pro Arte Quartet. [Herschel Burke Gilbert, prod.] LAUREL LR 126. Cassette: LR 126C. CD: LR 126D.

AFTER MANY YEARS of neglect, the music of Ernest Bloch is now enjoying a long-overdue renaissance. A handful of small independent labels are restoring his most important works to the catalog, and it is fitting that this should concern above all his chamber music, which in the long run is likely to prove the most valuable and lasting part of his output. The five String Quartets and the two Violin Sonatas are now available, some in alternative versions. With the two Quintets also in the catalog (Laurel Records again)—the second of which has never been recorded before—we may be able, before 1984 is over, to assess the universality of Bloch's impressive achievement in the field of chamber music.

For additional reviews of classical music on Compact Disc and videodisc, see NEW TECHNOLOGIES.

To the best of my knowledge, this is only the second time the Violin Sonatas have been paired on one record, the old Raphael Druian/John Simms offering on Mercury having been deleted many years ago. Written in 1920 and 1924, respectively, these sonatas are roughly contemporary with Bartók's. The better-known First is one of Bloch's toughest and most uncompromising scores, its three movements lasting a full 30 minutes. The opening Agitato, the lengthiest of the three, begins in a mood of unrelieved tension and black frenzy; its relentless hammering ultimately gives way to intense (and very "Jewish") yearning, but not to any sense of repose, and the protracted, modified recapitulation culminates in a burst of anger. The slow movement withdraws into the lofty remoteness of "Tibetan calm" (Bloch's own words), a motion not unlike that taken in the slightly later First Quintet. The last movement goes through more struggle and barbaric outburst before reaching its catharsis in a slow, quiet epilogue similar to what we meet in many a major work of this composer.

Like Bartók's First Sonata, this is not a pleasing or comfortable piece of music, but a tremendously thrilling if somewhat exhausting one. The performance here, by Yukiko Kamei, is dedicated and valiant, even though it does not quite meet the piece's excruciating demands in its tensest moments the way Isaac Stern's celebrated CBS recording or Hyman Bress's hallucinating Folkways account (both still available) did in their day.

Critics' Choice

The most noteworthy releases reviewed recently

BARBER: Concerto for Cello and Orchestra. SHOSTAKOVICH: Concerto for Cello and Orchestra. Wallfisch; English Chamber Orchestra, Simon. CHANDOS ABRD 1085, June.

BUSONI: Fantasia contrappuntistica for Two Pianos. BEETHOVEN: Grosse Fuge for Piano, Four Hands, Op. 134. MOZART: Fantasia for a Musical Clock, K. 608. Jacobs, Oppens. NONESUCH 79061-1, July.

CHAUSSON: Songs. Norman, Dalberto; Monte Carlo Philharmonic, Jordan. ERATO NUM 75059, June.

CHOPIN: Mazurkas, Waltzes, and Polonaises. Moravec. VOX CUM LAUDE D-VCL 9059, July.

GRIEG: Lyric Pieces; Holberg Suite. Katsaris. TELDEC 6.42925, May.

HAYDN: Symphonies: No. 91, in E flat, Hob. I:91; No. 92, in G, Hob. I:92. Concertgebouw Orchestra, Davis. PHILIPS 410 390-1, July.

HAYDN, M.: Symphonies: No. 19 in C, No. 23 in D*; No. 21 in C, No. 37 in B flat, No. 41 in F†. Bournemouth Sinfonietta, Farberman. TURNABOUT D-TV 34902*; D-TV 34903†, June.

JOSQUIN DES PREZ: Motets and Chansons. Hilliard Ensemble, Hillier. ANGEL S 38040, June.

LUTOSLAWSKI: Variations on a Theme by Paganini. RACHMANINOFF: Suite No. 2, Op. 17. RAVEL: La Valse (arr. two pianos). Argerich, Freire. PHILIPS 6514 369, July.

MONTEVERDI: Venetian vesper music from "Selva morale et spirituale." Kirkby, Covey-Crump, Rogers, Thomas; Taverner Consort, Choir, and Players, Parrott. ANGEL S 38030, June.

MOZART: Concertos for Violin and Orchestra: No. 1, in B flat, K. 207; No. 5, in A, K. 219. Brown; Academy of St. Martin-in-the-Fields. LONDON JUBILEE 411 707-1, July.

MOZART: Requiem. Price, Schmidt, Araiza, Adam; Leipzig Radio Chorus; Dresden State Orchestra, Schreier. PHILIPS 6514 320, May.

PENDERECKI: Te Deum; Lacrimosa. Gadulanka, Podles, Ochman, Hiolski; Polish Radio Chorus and Orchestra, Penderecki. EMI/ANGEL DS 38060, May.

STRAUSS: Songs. Norman; Leipzig Gewandhaus Orchestra, Masur. PHILIPS 6514 322, June.

WAGNER: Tristan und Isolde. Behrens, Hofmann; Bavarian Radio Symphony and Chorus, Bernstein. PHILIPS 6769 091 (5), May.

The lesser-known and less frequently recorded Second Sonata (*Poème mystique*) is a huge single span of music (about 23 minutes) in Bloch's most ecstatically rhapsodizing and visionary mood. Its soaring melodic lines, predominantly in the violin's highest register, and its more relaxed lyricism suit Kamei and pianist Irma Vallecillo far better than the First Sonata does. Admittedly, *Poème mystique* is not an unflawed masterpiece—it has its weak patches, such as the Hebraic or Gregorian quotations backed by rather perfunctory keyboard tremolos. But it abounds in stretches of the highest inspiration, and in as beautiful a performance as this one (there are hardly any alternatives in the catalog today) it rather unexpectedly comes as the true revelation and climax of this album.

The Pro Arte Quartet, now in its 73rd year of uninterrupted concert activities, is very likely the oldest string quartet still in existence, and if we are to judge by the ensemble's two outstanding records under review here, it still fully lives up to its glorious traditions. These are what I hope are the first installments in a complete series of Bloch's quartets, including for the first time the shorter pieces. Between the appearances of the two LPs under review here, a three-record set of the five Quartets by the Portland String Quartet was released on Arabesque (with comprehensive program notes by the composer's daughter, Suzanne), so that within a few months we now find exciting competition instead of an aching void! The Portland's set is the first to encompass all five works, the celebrated Griller ensemble's traversal from the 1950s stopping short of No. 5, which only the Fine Arts Quartet had recorded. Impressive as it is, the Portland's achievement has to yield to the Pro Arte's, which benefits also from better recorded sound and more spacious, less dry acoustics. In the two Quartets available for comparison—Bloch's crowning achievements in the medium—the Pro Arte players choose slower tempos (though I'd rather call them broader) and reach climaxes of truly blazing intensity and awesome grandeur.

Quartet No. 1, possibly the most monumental of its kind, with a playing time just under one hour (César Franck would stand a close second), is a synthesis as impressive as any of its composer's *Weltanschauung* at the time of his arrival in this country, at age thirty-six. Its gigantic span goes through an astounding variety of moods, from the intense yearning of the opening, through the satanic frenzy of the second movement and the pastoral repose of the third, to the supreme consummation of a monumental finale, ending in hard-won peace. The Second Quartet, completed almost 30 years later, reproduces a fairly similar scheme in a much more concentrated form. The first movement shrinks to a terse, enigmatic Prelude of introductory character; the last, on the other hand, builds to a mighty Passacaglia and Fugue (using twelve-tone rows in a tonal syntax) worthy of comparison with Beethoven's *Grosse Fuge* itself, though it finds a resolution of its tensions in the most beautiful of all of Bloch's slow epilogues. The quartet's slow third movement also remains unmatched in Bloch's output.

In both works, the Pro Arte players recapture the breadth and intensity of vision of the historic performances of the Grillers, but their intonation is even more immaculate, their epic sweep even more overwhelming, and of course the quality of the recorded sound greatly enhances what is one of the most thrilling listening experiences I have had in a long time. With all the praise the Portlanders deserve for their adventurousness, they are no match for this.

The fill-ups for the Second Quartet are most welcome recording premieres. *Prelude* (subtitled *Recueillement*, though this is not mentioned on the sleeve) and *Night* are two short slow movements from 1925, the first an austere study in modal neo-Renaissance counterpoint, the second a more exotic and atmospheric piece said to be inspired by Robert Flaherty's documentary film *Nanook of the North*. Even more interesting are the *Two Pieces*—begun in 1938, possibly as sketches for the Second Quartet (to which they are very similar in style and mood), and later rejected. Not completed until 1951, they are in effect a slow Prelude and a fast/brilliant Scherzo, two very striking short movements whose neglect is wholly unaccountable.

One hopes that the Pro Arte will soon complete the series, including two as-yet-unrecorded sets of short pieces, *In the Mountains* and *Paysages* (*Landscapes*). Meanwhile, these two discs are potential award-winners!

BACH: The Well-Tempered Clavier, Bk. I.

Daniel Chorzempa, harpsichord, clavichord, and organ. PHILIPS 6769 106 (digital recording; two discs). Cassettes (2): 7654 106.

In his provocative liner-note essay, Peter Williams posits that the 1722 first volume of Bach's *Well-Tempered Clavier* might not have been written in order to be *played* on a single keyboard instrument adjusted to any one specific tuning system, but simply in order to demonstrate how effective—and, presumably, affective—music *might* be constructed in all 24 of the theoretically possible keys. He suggests that, like *The Art of Fugue*, the *WTC* might be designed less for performance than for contemplation, a sort of spiritual/intellectual exercise intended to improve not so much the fingers as the minds of "the musical youth desirous of learning" that Bach mentions on the title page.

It's an interesting speculation, but it remains that the preludes and fugues contained in the *WTC* are immanently playable, as Daniel Chorzempa splendidly demonstrates in these tour de force performances on three instruments roughly contemporary with the music. Scholars of 18th-century temperaments might quibble with the fact that the 1716 Fleischer harpsichord, the

COURTESY PHONOGRAM INTERNATIONAL

Chorzempa: WTC *on period instruments*

1742 Hass clavichord, and the 1732 anonymous Dutch cabinet organ are uniformly tuned (at c′ = 462) to the so-called "sechstel comma" system devised in 1786 by the Italian theorist Alessandro Barca; it contains "pure" thirds in the keys of C, F, and G, and we have it on the authority of F. W. Marpurg (in his 1776 *Versuch über die musikalische Temperatur*) that Bach preferred arrangements in which all the thirds, including those of the most basic keys, were tuned slightly larger than pure. But even the experts—dare we call them purists?—would agree that Chorzempa's playing is thoroughly in line with what is commonly regarded as "correct" early-18th-century practice: The ornaments are deftly and lightly applied, the tempos are appropriate to the moods suggested by the tonalities themselves, and the fingerings are articulate in a way that allows the individual contrapuntal lines to be unambiguously shaped by agogic accents and varied amounts of spacing between notes. More important than the authenticity of the performances is their appealing musicality: These are sensitive, intelligent, and lively interpretations, of the sort that reminds us that while the *WTC* may indeed be music for contemplation, it is also music for listening.

The variety of effect and affect that results from moving systematically through the gamut of keys on instruments that are well-tempered but not at all equal-tempered is amplified by the employment of the three different instruments. Chorzempa uses the clavichord for the prelude-and-fugue pairs in C, C sharp, D minor, E flat minor, E minor, F sharp, F sharp minor, G minor, A flat, and G sharp minor; the harpsichord for those in C minor, D, E flat, E, F, G, A, B flat, and B; the organ for those in C sharp minor, F minor, A minor, B flat minor, and B minor. The major keys assigned to the harpsichord seem especially brilliant on the heels of music in remote tonalities played on the soft-spoken clavichord. The organ is used exclusively for pieces in minor keys, all of which nevertheless conclude with a major triad, and the relatively luminous sonority of those Picardy thirds is amply sustained by the wind instrument on the final cuts of three of the four sides.

A caveat on the jacket's back cover suggests that to get the balances right and to "eliminate incidental acoustic noises," listeners should set the volume level so that the clavichord is just barely audible; playing it any louder makes the otherwise delicate instrument sound clunky indeed, and grossly exaggerates the rumble that on my review copy was limited to Side 3.

JAMES WIERZBICKI

BRAHMS: Liebeslieder Waltzes (18), Op. 52; Neue Liebeslieder Waltzes (15), Op. 65; Three Quartets, Op. 64.

Edith Mathis, soprano; Brigitte Fassbaender, alto; Peter Schreier, tenor; Dietrich Fischer-Dieskau, baritone; Karl Engel and Wolfgang Sawallisch, pianos. [Cord Garben, prod.] DEUTSCHE GRAMMOPHON 2532 094 (digital recording). Cassette: 3302 094.

BRAHMS: Sixteen Waltzes, Op. 39; Variations on a Theme by Schumann in E flat, Op. 23; Souvenir de Russie.

SPECIAL PRE-PUBLICATION OFFER

Announcing The 1985 International Directory of the Performing Arts

Musical America is pleased to announce that its 25th Annual Directory Issue will soon be available.

You are invited to reserve your copy now at a special pre-publication price of $40 which is 20% off the $50 cover price.

As the authoritative reference source for international listings in music and dance, publication of this Directory is eagerly awaited each year among professionals in the performing arts.

In one comprehensive 600-page volume, you will find the 1985 listings for:

Music. Over 600 orchestras, chamber ensembles, opera companies and choral groups are listed with important information on their repertoires, artists and concert halls.

Dance. From Alvin Ailey to Zorongo Flamenco, over 600 dance companies are listed: ballet theatre, comedy, children's dance, folk and mime. Includes regional and national companies throughout the U.S. and Canada.

About the cover. Every year, Musical America selects a musician of extraordinary accomplishment as its Musician of the Year. This year's recipient will be honored on the cover of the 1985 edition and will be profiled inside the directory.

Performing Arts Series and Festivals. A survey of popular and classical music, theatre and dance series sponsored by communities, societies and universities.

Music Schools, Contests, Foundations and Awards. From small music schools to music departments at major universities. In addition, over 100 International music competitions are accompanied by information on requirements for entry.

Plus complete international listings for: Music publications. Professional services and organizations. Artist managers. Music publishers. And performance schedules for North American concert halls.

Each listing will also provide you with an address, phone number and the names of key people to contact.

To reserve your copy of the 1985 International Directory of the Performing Arts at the special pre-publication price of $40, please return the form with your check before **September 30, 1984.** Your Directory will be sent on or about December 15.

SPECIAL PRE-PUBLICATION OFFER

MUSICAL AMERICA
25TH ANNUAL DIRECTORY ISSUE

825 Seventh Avenue, New York, NY 10019

Reserve my copy of the 1985 International Directory of the Performing Arts at the pre-publication price of $40 – a 20% saving off the full cover price.

I enclose $ _____ for _____ Directory (Directories). (Price includes postage and handling on U.S. orders. Outside the U.S. add $10 for surface mail, $20 for Air Mail.)

DMAA

☐ Check enclosed

Charge:

☐ Master Card ☐ VISA

Acct. no. _____ Exp. date. _____

Payment in U.S. Currency Only
(Payment must accompany order)

Name _____

Address _____

City _____ State _____ Zip _____

(If foreign)

Province _____ Country _____

LEDERER/COURTESY POLYDOR

The Kontarsky brothers—partners with an almost preternatural sense of ensemble

Alfons Kontarsky and Aloys Kontarsky, piano [Werner Mayer, prod.] DEUTSCHE GRAMMOPHON 410 714-1 (digital recording). Cassette: 410 714-4.

Consider for a moment the pernicious side effects of technology's advance upon at least two aspects of musical culture that used to enrich and embellish humankind's quality of life, both of them casualties of the invention of the telegraph and its marvelous, pestilential progeny, the telephone, radio, and television. One of those victims—authentic, unadulterated folk music—has virtually died out, for when song started coming out of loudspeakers, ordinary folk stopped singing to one another. To find *true* folk music today, except in a few crannies of the planet left unpolluted by civilization, you have to turn to archives and transcriptions. The second casualty, which has also almost disappeared (and for similar reasons), is what the Germans call *Hausmusik*—chamber music performed at home, usually by a few amateurs. These two Deutsche Grammophon discs of *Hausmusik* by a great composer sound an echo of a past, gracious way of musical life now consigned to history, and to me they provide enormous pleasure.

Brahms composed his two sets of *Love-Song Waltzes* to superficial poems collected by Georg Friedrich Daumer, a writer whom the Peters edition of the music, printed in Leipzig, regards so casually that it credits his surname only. Daumer's anthology, which had appeared under the title *Polydora*, consisted of his translations of Russian, Polish, and Hungarian dance-songs. One may charitably call these texts naive, in the sense that the Germans apply that adjective to what we call primitive painters. Brahms's enormous art transformed them into delicious, deceptively artless little masterpieces. Ideally, they should sound as if four singers and two pianists (at one piano) had spontaneously gotten together to perform them impromptu, purely for their own enjoyment. Too often the pieces sound so portentous that their ingenuous, innocent charm gets perverted and crushed.

I have such a special love for these waltzes that over the decades I have shelled out a goodly amount of money in my quest for the ideal recording. Robert Shaw's came close, greatly abetted by the superb pianism of Lilian Kallir and Claude Frank, but I personally take exception to Shaw's doing them not with a vocal quartet but with a four-part chorus. This new version from DG will probably stand for a long time as the closest thing to a definitive account liable to come our way. I still have a few minor nits I could pick, but they fade into inconsequentiality before this performance's charm and artistry.

Watch the end of the second collection (*New Love-Song Waltzes*) like a hawk, though; after only a brief hiatus, the performers launch right into a totally different work, *Three Quartets*, Op. 64. It is a rare, rewarding curiosity, with the polyglot Herr Daumer turning up again in No. 3 (translating this time from the Turkish). DG provides its customary flawless trilingual text sheet, and I urge you to follow it, for even the sillier parts augment the music's meaning and one's own enjoyment. Hats off to all six brilliant interpreters.

The two pianists at one keyboard on the second disk, the Kontarsky brothers, bring an almost preternatural sense of ensemble to their task, possible perhaps only when the two partners have literally grown up from childhood making music together. They infuse the music, particularly the waltzes, with the rhythmic flexibility and rubato that are cornerstones of quintessential Romantic interpretation, and unfailingly the two of them do it, as one would express it in German, *ein Herz und eine Seele*, as one heart and one soul. Anyone who knows these waltzes only as sight-read by two unacquainted, impetuous amateurs (after, as often as not, a bibulous dinner party) will find this elegant, suave performance a special treat.

The *Variations on a Theme by Schumann* have elegiac psychological overtones that lend it special distinction, even though the work does not rank with Brahms's formidable variations on themes by Handel, Haydn, and Paganini. Brahms based his *hommage* on what poor, schizophrenic Schumann called his "last musical idea," which he believed he had received from angels; Schumann himself completed five variations on it before he jumped into the Rhine, hoping to die. This understandably somber work comes vibrantly alive, thanks to the Kontarskys' artistry, and they bring a special poignancy to the tenth and last variation, which Brahms apparently intended as a sort of funeral march for his mad, beloved mentor.

For collectors of musicological rarities (or should I say "trivia"?), the *Souvenir of Russia* represents a bit of a find. August Cranz, a Hamburg publisher, brought it out no later than 1852 as the Opus 151 (!) of a pseudonymous G. W. Marks, but solid evidence points to the teenager Brahms (born 1833) as its true composer. Constantin Floros's jacket notes charitably call it a *Gelegenheitsarbeit*; I myself would translate that as a *pièce d'occasion*, but the French text on the jacket looks down on the work as a *travail de circonstance*. Perhaps the English comes closest to the mark by labeling it, forthrightly, a potboiler. It has six brief movements, each frothier than its predecessor, incorporating Russian and Bohemian tunes, and if you don't expect heavy-duty Brahms you'll get quite a kick out of this vivacious performance.

DG included both these discs in the blockbuster set it brought out to commemorate last year's 150th anniversary of Brahms's birth. Both make welcome individual additions to the current catalog.

PAUL MOOR

BRAHMS: Songs and Romances.

Musica Sacra, Richard Westenburg, cond. [John Pfeiffer, prod.] RCA RED SEAL ARC 1-4916 (digital recording). Cassette: ARK 1-4916.

Four Songs, Op. 17; Six Songs and Romances, Op. 93a; Tafellied, Op. 93b; Twelve Songs and Romances, Op. 44; Ave Maria, Op. 12.

Of the recent avalanche of Brahms anniversary recordings, this disc is ideal for even the most Brahms-weary. Richard Westenburg's selection of lesser-known choral works offers the convenience of not having to wade through Deutsche Grammophon's monolithic complete Brahms set, plus sub-

Please Call And Reserve If You Plan To Buy And Pick Up At Store • Quantities Are Limited And Subject To Availability

Use your convenient Mastercard, Visa, American Express, Diners Club. Ask about details on COD orders. Money orders accepted. Allow 4 weeks clearance on personal checks

CLOSED SATURDAY
OPEN SUNDAYS
10 A.M.-8 P.M.

LABELLE
CAMERA & STEREO OF MAINE

Prices In Effect July 20-August 20, 1984

IN MAINE
155 MAIN STREET
BIDDEFORD, ME. 04005
1-207-283-1401

IN NEW YORK
224 WEST JERICHO TURNPIKE
SYOSSET, L.I., N.Y. 11791
1-516-496-2235

Send all mail order checks to 155 Main Street, Biddeford, Me. 04005

Send $1 For Our Catalog | FOR MAIL ORDERS **CALL TOLL FREE 1-800-341-0783** In Maine, Alaska and Hawaii, Call 1-207-283-1401 | Call for shipping and handling charges

Open Mon. Thru Fri. And Sunday, 10 A.M.-8 P.M. EST • Closed Saturday

Maine and New York residents add local sale tax • All Merchandise Is New And Guaranteed • Please Call And Reserve If You Plan To Buy And Pick Up At Store

Use Order Form Below • Please Do Not Call For Catalog

SONY

WM-10 smallest, lightest cassette in the world, with Dolby. **$79.95**

WM-8	$49.95
WM-R2	$129.95
WM-7	$99.95
WM-F1	$77.95

SONY

WM-D6 Professional Walkman stereo cassette recorder. **$239.95**

WM-F2	$129.95
WM-F5	$117.95
WM-F10	$109.95
SRF-5	$59.95
PRO-D6C	$259.95

Call For Other Models & Prices

STEREOS TO-GO

AIWA

HS-J02 am-fm cassette, auto reverse, more. **$119.95**

HS-J300	$129.95
HS-J11	$159.95
HRS-01	$49.95
SC-A3	$39.95
SC-A5	$59.95

TOSHIBA

KT-S3 lightweight stereo cassette with fm stereo.

$49.95

KT-AS1	$99.95
KT-R1	$79.95
KT-VS2	$79.95
KT-RS1	$119.95

SANYO

MG-41 compact am-fm cassette stereo with case & headphones.

$49.95

MG-32	$59.95
MG-15	$49.95
MG-16D	$59.95
MG-36D	$69.95
MG-100	$99.95

AM/FM CASSETTE CAR STEREOS

PIONEER

KE-A880

In dash, auto reverse cassette with new Supertuner III & 2 way high power, low total power, 18 preset stations, auto reverse, music search. Dolby, fader, seek & scan. **$269.95**

KE-A330	$149.95	KP-A500	$149.95
KE-A430	$179.95	KP-A700	$169.95
KE-A630	$219.95	KP-A750	$199.95
KP-A400	$139.95	KPA-600	$164.95
KP-A450	$149.95	KE-7200	$229.95

CONCORD

HPL-516

Am-fm cassette, Dolby, 25w per channel, direct input or DBX decoder, flex fader control. **$239.95**

HPL-122R	$249.95	HPL-101	$139.95
HPL-525	$309.95	HPL-502	$189.95
HPA-51	$179.95	HPL-532	CALL
HPA-71	$159.95	HPL-520	CALL
HPA-26	$89.95	HPQ-90	$89.95
HPQ-89	$79.95		

BLAUPUNKT

TUCSON

Am-fm digital stereo, push button tuner, auto reverse, Dolby, fader. **$339.95**

Aspen	$219.95	Seattle	$189.95
New York	$549.95	Houston	$439.95
Washington	$439.95	BPA-430	$219.95
Richmond	$219.95	BPA-260	$219.95
Manhattan	$219.95	BEA-155	$129.95
Sacramento	$279.95	BPA-415	$89.95

SANYO

FTX-180

High power, 15w per channel, Dolby B & C, digital quartz, fader, auto reverse. **$239.95**

FTC-70	$149.95	FTC-120	$189.95
FTC-46	$129.95	FTX-140	$209.95
FTC-68	$139.95	FTX-160	$219.95
FTV-100	$159.95	PA-6100	$119.95
FTC-1	$49.95	EQZ-6210	$68.95
FTC-38	$89.95		

PANASONIC

CQS-788

Am-fm stereo with electronic tuning cassette player, 3 way balance control, fader, daily priority stations, metal tape, more. **$219.95**

CQS-768	$219.95		
CQS-763	$209.95	CQS-747	$189.95
CQS-958	$319.95	CQS-717	$164.95
CQS-903	$279.95	CQS-668	$129.95
CQS-818	$229.95	CY-SG100	$149.95
CQS-760	$209.95	CQS-793	$199.95

Clarion

8500R

Am-fm cassette, digital elect. tuning, auto reverse, auto program control, 12w, 4 way balance, controls, sep. base & treble. **$179.95**

4350R	$89.95	6900RT	$169.95
5100R	$119.95	6950RT	$169.95
6300R	$129.95	7500R	$189.95
6100R	$129.95	8550R	$179.95
6700RT	$159.95	200 EQB2	$99.95
8100R	$159.95	300 EQB3	$129.95

JENSEN

RE-520

Am-fm, digital scan tuner, Dolby, auto reverse, auto tape search, sep. base & treble, fader. **$219.95**

ATZ-100	$219.95	RE-518	$209.95
ATZ-200	$249.95	R-408	$179.95
ATZ-300	$279.95	R-708	$179.95
ATZ-400	$309.95	R-220	$129.95
ATZ-500	$339.95	EQA-5000	$89.95
		A35Amp	$49.95

MITSUBISHI CAR AUDIO

RX-735

Electronic am-fm cassette stereo, quartz tuning, 12 preset stations, auto seek & scan, auto reverse, auto program switch, 16w, fader. **$209.95**

RX-707	$154.95	RX-755	$169.95
RX-726	$129.95	CZ-757	$249.95
RX-723	$ 99.95	CZ-727	$159.95
RX-909	$209.95	CV-23	$ 89.95
RX-737	$239.95	CV-251	$99.95
RX-733	$199.95	CV-231	$119.95

CAR SPEAKERS

PIONEER

TS-6907	$89.95 pr.		
TS-6906	$79.95 pr.	TS-1044K	$49.95 pr.
TS-6905	$69.95 pr.	TS-108	$39.95 pr.
TS-6904	$49.95 pr.	TS-M2	$32.95 pr.
TS-1655K	$79.95 pr.	TS-T3	$34.50 pr.
TS-1633K	$59.95 pr.	TS-X7	$69.95 pr.

JENSEN

J3033	$79.95 pr.	J3003	$49.95 pr.
J2020	$69.95 pr.	J1242	$84.95 pr.
J3013	$69.95 pr.	J1065	$59.95 pr.
J2037	$69.95 pr.	J1401	$69.95 pr.
J2094	$34.95 pr.	J1405	$44.95 pr.

CALL FOR CLARION, ADS, SANYO, INFINITY, KENWOOD, VISONICS, PHILLIPS, PANASONIC AND MORE

RADAR DETECTORS

Z-70	WHISTLER $79.95
Q-1200	$119.95
Q-2000	$199.95
Spectrum	$229.95
Spectrum Remote	$229.95

INTERCEPT FUZZBUSTER
Radar Detector Het Model 2
$219.95 $169.95

CALL FOR OTHER MODELS AND PRICES

BLANK TAPES

MAXELL		TDK	
UDXL-II-C60	$1.89	SA-C90	$2.29
UDXL-II-C90	$2.29	SAX-C90	$2.99
UDXL-IIS-C90	$2.99	T120	$6.95
MX-90 Metal	$4.99	T-120EHG	$8.95
T120	$6.95	L750	$6.95
T120-HGX	$8.95	L750-HXG	$8.95

MINIMUM 10 TAPES

RECEIVERS

Technics SA-450	$219.95	Pioneer SX-50	$239.95
Technics SA-210	$129.95	Pioneer SX-60	$329.95
Akai AAR-22	$169.95	JVC RX-300	$229.95
Akai AAR-32	$229.95	JVC RX-400	$329.95

Call for Prices On Other Famous Brands and Models

HI-FI ACCESSORIES

COMPACT DISCS

Technics SLP-7	$399.95
Technics SLF-8	CALL
Hitachi DA-3500	$399.95
Sansui PC-V1000	CALL
Mitsubishi DP103	$474.95

CALL FOR BEST PRICES ON VIDEO RECORDERS

WE CARRY A FULL LINE OF VIDEO TRIPODS, CASES, LIGHTS, TAPE, FILTERS, LENSES AND BATTERY PACKS. CALL US FOR COMPLETE INFORMATION

CASSETTE DECKS

Teac	CALL	Technics RSB-68R	$229.95
Akai GX-7	$269.95	Technics RSB-50	$169.95
Akai HX-1	$99.95	JVC KDV-300J	$169.95
Akai GXF-31	$189.95	JVC KDV-400J	$229.95

Call for Prices On Other Famous Brands and Models

TURNTABLES

PIONEER

PL-S50

Quartz lock, direct drive, fully automatic. **$89.95**

PL-S30	$74.95		
PL-S40	$82.95	PL-44F	$169.95
PL-S70	$109.95	PL-88F	$269.95
PL-707	$189.95	PL-L800	$259.95

AKAI

APM-7S

Linear tracking, direct drive, fully automatic. **$129.95**

AP-B1	$59.95	APM-5S	$119.95
AP-D2	$74.95	AP-Q310	$99.95
AP-D3	$88.95	AP-Q41	$149.95

JVC

L-L1

Linear tracking, fully automatic. **$109.95**

L-A100	$69.95		
QL-A200	$79.95	L-E33	$124.95
QL-F300	$94.95	QL-L2	$139.95
L-E22	$99.95	QL-F55	$309.95

Technics

SL-Q300

Fully automatic, quartz direct drive. **$86.95**

SL-6	$139.95	SL-M1	CALL
SL-V5	$139.95	SL-BL3	$109.95
SL-DL5	$179.95		
SL-1200MKII	$289.95		

Technics

SL-5

Fully automatic, direct drive, linear tracking. **$109.95**

SL-B100	$56.95	SL-Q200	$76.95
SL-B200	$66.95	SL-QX200	$119.95
SL-B300	$76.95	SL-QX300	$134.95

CALL FOR NEW MODELS

SHURE

DT-15P	$39.95
DT-25P	$59.95
DT-35P	$79.95
V-15V-MR	$149.95

SHURE
NEW DT-35P
HIGH QUALITY
P-MOUNT
SPECIAL
$79.95

CARTRIDGES

audio-technica

HR-101EU	$39.95
HR-201EU	$59.95
HR-301EU	$74.95
LS-580LT	$129.95

stanton
PRO-96
EXCELLENT
P-MOUNT
CARTRIDGE
SPECIAL
$89.95

PICKERING

XP-1	$15.95
XP-10	$39.95
XP-15	$64.95
XP-25	$109.95

SEND $1 FOR YOUR COMPLETE 290 PAGE LABELLE CATALOG.

Name
Address
City
State Zip

30 day return policy: All returns must be phoned in for prior authorization. All products must be returned in original factory packaging, clean and unscratched. Do not write, tape, or deface manufacturers original cartons. Please include blank warranty cards.

REG WILSON/COURTESY EMI

The Hilliard Ensemble: rapture-inducing performances of Dunstable's motets

tly shaded performances and the natural sonics that seem to have eluded the DG team. What often sound like incidental chips off the master's workbench—in the journeyman-like DG performances by the Chorus of the North German Radio under Günter Jena—emerge as minor masterpieces in Westenburg's alert, lovingly shaped interpretations.

Many of these works were written for specific occasions; some also probably served as laboratories for later, more ambitious works. In most of the settings, the composer's sophisticated compositional arsenal is placed entirely at the service of direct, simple expression, colored by a strong identification for folk poetry and folk song. These pieces show Brahms at his sunniest and most charming, in much the same fashion as his first Serenade.

The only grandstanding from Brahms is heard in the bewitchingly contrapuntal departures he makes from traditional harmonies—with effects so radiant that one could hardly call them perverse. From the haiku-like songs of Opus 44 to the miniature epic that is his "*Ave Maria*," this is also, perhaps, Brahms's most "populist" music.

Like many who come to speak their second language more meticulously than their first, the Musica Sacra singers find magical effects in words that the North German Radio Chorus takes for granted. Brahms didn't mind interrupting the flow of the most rigidly strophic song to add touches of conversational declamation, which Westenburg's forces bring to life but the German chorus occasionally bungles. Generally, the range of color, articulation, and sheer inspiration of the Musica Sacra performances would be remarkable whatever the recorded competition.

My favorite group on the disc is the Opus 17 songs, in which the full-bodied women's section of Musica Sacra sings with an infectious sense of intoxication, blending beautifully with the unorthodox accompaniment of harp and two horns. The recording benefits from resourceful production and engineering. While there *is* a bit of distortion on the fortissimos, that is much preferable to the more distant miking and murkier sound of the DG set.

DAVID PATRICK STEARNS

BRITTEN: The Turn of the Screw.

CAST:	
Governess	Helen Donath (s)
Miss Jessel	Heather Harper (s)
Mrs. Grose	Ava June (s)
Flora	Lillian Watson (s)
Miles	Michael Ginn (s)
Quint	Robert Tear (t)
Narrator	Philip Langridge (t)

Members of the Orchestra of the Royal Opera House Covent Garden, Colin Davis, cond. PHILIPS 410 426-1 (digital recording; two discs). Cassettes (2): 410 426-4.

It's a mystery that so few of Benjamin Britten's operas should be available on commercial discs in this country. His 16 theatrical works surely constitute the mid-20th century's most significant contribution to the literature, yet until recently only *Billy Budd*, *Peter Grimes*, and the valedictory *Death in Venice* could be conveniently obtained. This Covent Garden production of *The Turn of the Screw* (in circulation since 1982 as the soundtrack for a film by the Unitel company) is a welcome addition to the recorded repertoire, and one hopes it won't be too long before such worthy works as *The Rape of Lucretia*, *Gloriana*, and *Owen Wingrave* are similarly served by state-of-the-art recording technology.

While this is not an overtly "theatrical" recording—the characters tend to stay put in the center of the stereo field, and the disembodied voices of Quint and Miss Jessel are coated with only a modicum of ghostly echo—the opera's theatrical elements are nevertheless chillingly communicated. Diction has a consistent clarity, and all the literary nuances of Myfanwy Piper's libretto can be appreciated without referring to the printed text.

The musical nuances Britten so craftily wove into the interludes for 13-piece chamber ensemble can be projected rather easily, of course, but not those contained in the vocal lines. In that department, the cast is thoroughly excellent. Lillian Watson's voice sounds altogether too grown up to portray effectively an eight-year-old-girl, but the way in which she colors it is certainly convincing, and through the entire opera its exasperating calmness serves as the perfect dramatic foil for the tinges of hysteria that creep into Helen Donath's performance as the governess.

This is an absolutely riveting recording, in every way powerful enough to send shivers up a listener's spine.

JAMES WIERZBICKI

DUNSTABLE: Motets.

The Hilliard Ensemble; Paul Hillier, dir. [Gerd Berg, prod.] ANGEL S 38082 (digital recording). Cassette: 4XS 38082.

Veni Sancte Spiritus (4 vv.); Alma Redemptoris; Credo super "Da gaudiorum premia"; Agnus Dei; Salve scema sanctitatis; Gaude virgo salutata; Quam pulcra es; Salve Regina misericordie; Preco preheminencie.

The liner note essay that accompanies this superb recording is one of the most fascinating I've encountered. After dispensing the sketchy facts of Dunstable's career, author Paul Hillier moves into a discussion of numerology in medieval art and then explores relationships between mathematical symbolism in Oriental music and the mathematically rooted aesthetics of such varied modern composers as Cage, Xenakis, Stockhausen, and Reich. With such theoretical and philosophical linkages to be observed, Hillier says, "the music of John Dunstable becomes something more than mere 'early music.' " He compares both the structure and the content of Dunstable's pan-consonant motets with the essential ingredients of Steve Reich's c. 1970 "process music," and he suggests that, as is the case with Reich's early works in the "minimalist" style, a primary function of Dunstable's vocal music is to lull its listeners into a state of ecstasy.

As performed by the seven-member all-male Hilliard Ensemble, Dunstable's motets are indeed rapture-inducing. The intervals are pure, the sonorities unblemished by vibrato, the crescendos and diminuendos as smooth as glass. The only recent

disc I'm aware of that equals the gorgeous sonics and musical sublimity of this one is the Josquin album that was included in the initial batch of Angel's new Reflexe releases, and that gem, too, featured this highly polished British vocal group.

JAMES WIERZBICKI

FAURÉ: Ballade in F sharp, Op. 19; Fantaisie for Piano and Orchestra, Op. 111. RAVEL: Concerto for Piano and Orchestra, in G.

Daniel Varsano, piano; Philharmonia Orchestra, Andrew Davis, cond. [Simon Lawman, prod.] PRO ARTE PAD 173 (digital recording). Cassette: PCD 173.

Davis (l.) and Varsano deliver satisfying Fauré, Ravel without the Spanish flavoring.

If you are in search of both Fauré works, grab this disc and be confident that your needs will be met by performances that express almost everything the composer put into these delicate scores. To be sure, there is more passion hidden within these supremely lovely works than is displayed in Daniel Varsano's overly chaste and prim accounts, but my guess is that most collectors will be satisfied, especially when the fine sound and refined orchestral contribution are added in. And, to be fair, Varsano does know something of what Fauré is trying to convey.

However, he appears to know next to nothing about the Ravel Concerto. In more than 30 years of listening to almost every commercial recording of this fabulous work, I have seldom heard a performance as unaware as this one is of the spice, Spanish flavoring, pianistic brilliance, and magic that fill this masterpiece to overflowing. One pities any student or music lover encountering it for the first time in such a dull rendition. Almost every other recorded account offers more insight into the score's myriad colors. My choice would be Bernstein, Argerich, Michelangeli, or Weissenberg—and if an essentially poetic performance is desired, then either Aldo Ciccolini or Abbey Simon, both of whom have forgotten more about Ravel's genius and heart than Varsano has apparently ever learned.

THOMAS L. DIXON

Conductor Bátiz in razzle-dazzle Grofé

GROFÉ: Grand Canyon Suite; Mississippi Suite.

Royal Philharmonic Orchestra, Enrique Bátiz, cond. [Brian Culverhouse, prod.] ANGEL DS 38081 (digital recording). Cassette: 4XS 38081.

One wonders if Jerome Kern might not have found the inspiration for his song *Ol' Man River* (still the biggest hit from the 1927 musical *Show Boat*) in the opening section of Ferde Grofé's *Mississippi Suite*. Or perhaps there's just something about contemplating America's grandest waterway that causes composers to come up with precisely that sort of major-minor chord progression, precisely that sort of ascending melody sounded out in sustained notes in the low register.

In any case, Grofé's *Mississippi Suite* dates from 1925, one year after he scored George Gershwin's *Rhapsody in Blue* for the Paul Whiteman Orchestra and six years before he finished a full decade of work on the ever popular *Grand Canyon Suite*. It's a solid piece, not quite as expansive as the tone poem inspired by the Arizona hole in the ground but a genuine showpiece for orchestra nonetheless, and generously flavored with allusions to folk tunes and vintage New Orleans jazz. Both of these musical travelogues get razzle-dazzle treatment from Enrique Bátiz and the Royal Philharmonic Orchestra, and the digital sonics are appropriately brilliant. JAMES WIERZBICKI

LIGETI: Chamber Concerto; Ramifications; Aventures*; Nouvelles Aventures*.

Mary Thomas, soprano*; Jane Manning, alto*; William Pearson, bass*; Ensemble Intercontemporain, Pierre Boulez, cond. [Rudolph Werner, prod.] DEUTSCHE GRAMMOPHON 410 651-1 (digital recording). Cassette: 410 651-4.

Throughout the 1960s, György Ligeti's music seemed remarkably compelling. To those of us who came of age, musically speaking, during that decade, his works were like a breath of fresh air, blowing off the layer of dust that years of stale, dutiful, post-Webern compositions had deposited on new music. Here was a composer beholden to no single technique or dogma, a composer who was determined to expand the boundaries of what we accepted as "sonority." Though today Ligeti's works seem less central to the course of new music than they once did, no one who admires the more coloristic, evocative aspects of the "new Romanticism" should forget that he was pursuing those tendencies 20 years ago.

Ligeti's music, especially during the early 1960s, was fascinated with the sound mass, with vast complex chaotic clusters and subtly shifting densities. The orchestral work *Atmosphères* (1961) fits into this category. Gradually, during the later '60s, Ligeti refined his style. He developed a technique that he described as "micropolyphony"—where instrumental parts are "interwoven and crowded together into a dense polyphonic texture," but are still identifiable as independent lines. The two purely instrumental works on this disc belong to this point in his career.

The major work is the *Chamber Concerto* (1969–70), a four-movement piece for 13 virtuoso performers. Immediately at its opening, we note similarities to Ligeti's earlier music: The writing is densely contrapuntal, and the individual lines are so close together and so rhythmically complex that at first the ear perceives only an eerie mass of sound. But the differences are equally apparent: The overall texture is lighter, and upon several hearings even the densest sections begin to stand out as a compendium of independent parts, rather than just chordal clusters. Most remarkable of all is the third movement, which Ligeti characterizes as "resembling some quaint, half-broken precision tool starting up." Here we find a series of layered rhythmic patterns, obsessively repeated—mechanical, avoiding melodic implications, almost minimalistic in Ligeti's treatment. *Ramifications* (1967–69), a work for 12 solo strings, fills out Side 1 of this disc and is closer to the sonic world of *Atmosphères*: Rather than the linear clarity of the *Chamber Concerto*, we hear shadowy, indistinct, static masses of sound.

Side 2 is occupied entirely by *Aventures* and *Nouvelles Aventures* (1962–65), which reveal a different side of Ligeti's musical personality. These quasitheater pieces, written for three singers and seven instrumentalists, utilize a wide variety of "texts," ranging from grunts and screams to actual language fragments. The singers must engage in every possible form of vocal activity (sighing, laughing, hissing, moaning) and employ every possible type of delivery (from operatic vibrato to brutal shrieking). What this has in common with

ALAN WOOD/COURTESY ANGEL/EMI RECORDS

Rattle: sympathetic, but not stimulating

Ligeti's instrumental music is neither the micropolyphony nor the sound mass; it is the desire to expand musical sonority, in this case vocal technique. Other works of the 1960s shared this tendency—Luciano Berio's *Circles* and Peter Maxwell Davies's *Eight Songs for a Mad King*, to name just two—and were musically more compelling as well. The two *Aventures* seem faded in a way that *Circles* never does: One can admire the virtuosity of compositional execution as well as the conceptual premise, but the musical substance itself is mighty thin. A semistaged presentation might make one forget this aspect, but on record there is no escaping it.

This in no way detracts from the remarkable virtuosity of these performances. Soprano Mary Thomas, alto Jane Manning, and bass William Pearson scream and growl their way through this music with dramatic flair and total commitment. The Ensemble Intercontemporain, under Pierre Boulez's direction, is equally impressive, and never more so than in the *Chamber Concerto*. This is an intense, precise, driven reading, emphasizing the leaner contrapuntal aspects instead of the more evocative ones. (It is interesting to compare this performance with that of the London Sinfonietta under David Atherton [Decca Headline 12; 1976], which stresses the poetic, sensual, cloudier details that Boulez downplays.) Unfortunately, Deutsche Grammophon's pressing is plagued by surface noise, especially intrusive in the subtle, softer sections. Nevertheless, it is good to have a new Ligeti release in front of us once more—if

only to remind all lovers of new music what a debt we owe him. K. ROBERT SCHWARZ

RACHMANINOFF: Symphonic Dances, Op. 45; Vocalise, Op. 34, No. 14.

The City of Birmingham Symphony Orchestra, Simon Rattle, cond. [John Willan, prod.] EMI/ANGEL DS 38019 (digital recording). Cassette: 4xs 38019.

Considering this recording only by itself, one might build a persuasive case for buying it. The sound is excellent, the orchestra plays unusually well for a second-line British group, and Simon Rattle displays a strong sympathy for the idiom as well as a capacity for managing the many twists and curves in this score—one that, like others in the Rachmaninoff catalog, is only just beginning to come into its own in the concert hall. It is Slavic music, exceptionally beautiful music, and worth hearing more often than it is even now. By a slight extension, one might dare to call it Rachmaninoff's Fourth Symphony.

What then is the matter with this performance?

Nothing much, really, until one turns to other performances for comparison. Try Eugene Ormandy's (on Odyssey), Yevgeny Svetlanov's (on Melodiya), or Kiril Kondrashin's (on Quintessence, better-sounding than it was when on Melodiya/Angel some years ago). Try any of them. Sample the Kondrashin, for instance, since it is so easily available. What you find immediately is a much higher level of inspiration, more passion, more sense of pulse and movement, more rubato, more freedom, more of just about everything that this score cries out for but does not receive in Rattle's otherwise sympathetic hands.

If this music seems suited for the end of a hard day, when a soothing drink is called for but raising one's blood pressure is not, then Rattle (or André Previn, for that matter) will do the job. However, if stimulation is what is sought—and stimulation is very clearly indicated throughout the score—then save money, buy the cheaper and better Kondrashin, sit back, and prepare to be moved and jolted.

Rattle manages the gorgeous *Vocalise* beautifully. THOMAS L. DIXON

SZYMANOWSKI: Concerto for Violin and Orchestra, No. 2, Op. 61; Sonata for Violin and Piano, in D minor, Op. 9*.

Fredell Lack, violin; Albert Hirsh, piano*; Berlin Symphony Orchestra, Siegfried Köhler, cond. [Heinz Jansen, prod.] VOX CUM LAUDE VCL 9061 (digital recording). Cassette: VCS 9061. (Distributed by Moss Music Group, 48 W. 38th St., New York, N.Y. 10018.)

At last the music of Karol Szymanowski is coming into its own, and in recordings that sound better than the Polish Muza issues of decades back. The best news, at least to this reviewer, is that no work in the entire Szymanowski catalog is more deserving of exposure than his neglected Second Violin Concerto. Despite the claims of many critics, I have always found this concerto to be more appealing and more likely to establish itself in the mainstream repertoire than the First.

One would like to be able to offer a warmer welcome to this latest recording. There is nothing at all seriously wrong or lacking in the performance of either the soloist or the orchestra, yet they simply do not reach the heights of inspiration the work calls for. The same is unhappily true of Fredell Lack's performance of the Sonata. To be sure, she does her best, but in no way does she come as close to virtually owning the Sonata (or the Concerto, for that matter) as does Charles Treger on two old Muza discs. However, because those records may be quite difficult to locate, what with the miserable Polish import situation these days, this new release must certainly be recommended, with whatever qualifications.

Collectors with access to large shops should be aware of performances of both Szymanowski concertos by the magnificent Polish violinist Konstanty Kulka, available on an EMI/Electrola import. That disc can be suggested with absolutely no qualifications. There was yet a third version of the Second Concerto, by Henryk Szeryng on Deutsche Grammophon. Beware, however, if that recording is ever reissued, since the

performance is erratic and not at all up to Szeryng's normal standard.

For anyone in search of the First Concerto alone, there is a brand-new Soviet Melodiya disc available through Victor Kamkin, Inc. [149 Fifth Avenue, New York, N.Y. 10010], magnificently played by the world's most underrated great violinist, Igor Oistrakh. This performance, fully the equal of his father's (once obtainable on Artia), is coupled with Tikhon Khrennikov's extremely diverting and brash Violin Concerto No. 2. This is definitely a disc worth searching for.

One final suggestion for anyone just entering the world of Szymanowski. The BBC has recently published, in its excellent Music Guide series of paperbacks, a fine monograph on the composer and his works, a little book that will tell all but the most engaged scholar much that he needs to know before listening. THOMAS L. DIXON

Recitals and Miscellany

RENAISSANCE MUSIC IN NAPLES.

Hespèrion XX, Jordi Savall, dir. [Gerd Berg and Christfried Bickenbach, prods.] ANGEL S 38083 (digital recording).

ANON.: Zappay. ANON.: Viva, viva rey Ferrando. ANON.: Amor que t'o fat hio. ANON.: Puls Fortuna. ANON.: Dindirindin. ANON.: Ay luna que reluzes. DE CABEZÓN: Diferencias sobre el canto del cavallero. CORNAGO: Donde estás que no te veo. CORNAGO/OCKEGHEM: Qu'es mi vida preguntais. CORNAZANO: Figlie Guilielmin. GHIZEGHEM: De tous biens plaine. GOMBERT: Dezilde al cavallero. NOLA: O dio se vede chiaro; Cingarissimo venit's giocare. ORTIZ: Salve Regina/Fantasia 1 & 2. ORTIZ/TORRE: Il Re di Spagna. PESARO: Collinetto. VALENTE: Gallarda napolitana. WILLAERT: Vecchie letrose.

The repertoire on this tantalizing recital disc ranges chronologically from 1442, the year in which Alfonso the Great of Aragon routed warring Italian factions and set himself up as king of Naples, to 1556, the year in which Henry II of France, with the help of Pope Paul IV, temporarily put a dent in what would amount to almost 300 years of Neapolitan rule by the Spaniards. Even during the years of upheaval the parade of internationally renowned composers who attended the Naples court hardly ceased; at least for a while, Naples was as cosmopolitan a center as any city in Renaissance Europe, and it was only late in the 16th century that its music began to take on specifically Italian characteristics.

Appropriately, the Hespèrion XX ensemble intermixes its sprightly dance tunes with Spanish cancións, Italian canzonas, and Franco-Flemish chansons, all more easily distinguishable by the language of their texts than by their melodic or rhythmic content. Soprano Montserrat Figueras does the singing; only three of the instrumentalists are identified (viol player Jordi Savall, lutenist Hopkinson Smith, and recorder player/percussionist Lorenzo Alpert), but the group has at least twice that many members, all of whom seem to be virtuosos capable of infusing this music with color and pizzazz. The sonics are as spectacular as the music. JAMES WIERZBICKI

COURTESY ELECTROLA/EMI

A mellow respite, from lutenist Bailes

16th & 17th CENTURY FOLK SONGS AND DANCES FOR LUTE.

Anthony Bailes, lute. [Gerd Berg, prod.] ANGEL S 38084 (digital recording). Cassette: 4XS 38084.

CAPIROLA: La Villanella; Balletto; Ricercar X; Padoana alla francese II; O mia cieca e dura sorte; Che farala che dirala; Balletto. GORDON: Whip my toudie; Hench me Malie Gray & I long for the wedding; Gallua Tom. HOLBORNE: Piece without title; Wanton (Playfellow No. 2); Countess of Pembroke's Paradise (Pavan No. 15); Heigh Ho Holiday (Gailliard No. 13). KAPSBERGER: Toccata III; Corrente XII; Gagliarda XII. VALLET: Prélude; Bourrée I and II; Pavanne en forme de Complainte; Mal Simmes Bal Anlois; Carillon de Village.

These pieces were designed primarily for amateurs, and except for some of the items in the Capirola collection they tend not to be terribly flashy. As befits their homely origins, the emphasis is on simple tunefulness and rhythmic straightforwardness, modest qualities that take on an engaging elegance when handled by a musician of Anthony Bailes's sensibilities. He plays three different instruments, all fitted with gut bass strings; his plucking, too, is on the soft and gentle side, with most of the notes sounded not with the nails but with the fingertips.

Compared to the other installments in Angel's new Reflexe series, this one is strikingly low-keyed, a mellow respite in what is probably beginning to strike record collectors as an embarrassment of sonic riches. JAMES WIERZBICKI

The Tape Deck

Critiques of new cassette and open-reel releases by R. D. Darrell

Revelations . . .

IF RARER IN MUSICAL than in religious life, miraculous epiphanies—such as the Angel of the Lord appearing to Moses in a burning bush or heaven's light reaching Saul on the road to Damascus—can be no less momentous. Without warning, one is suddenly converted to entirely new beliefs, or at least to the recognition of earlier error.

The most arresting musical enlightenment I've yet experienced is the full realization, in unheralded tapings of Carl Philipp Emanuel Bach's *Hamburg* Concertos, of the extraordinary originality and personality of a composer I'd long taken for granted or even denigrated for his role in changing the course of music history. His and his contemporaries' revolt against the polyphonic intricacies of the High Baroque was of course a natural and perhaps inevitable one. But I'd had difficulty in finding true progress or greatness in the rococo style until Mozart came along.

That position first became untenable when I encountered period-instrument versions of C.P.E.'s eight Orchestral Symphonies from Oiseau-Lyre and 18 fortepiano Fantasias from Spectrum in 1982. But it's only now, in the Bob van Asperen/Melante '81 Orchestra period-instrument set of the six *Hamburg* Harpsichord Concertos, W. 43, that I begin to realize the inexhaustible quirky humor, imaginativeness—and, yes, sheer orneriness—of this often strikingly "modern"-sounding music (Angel/Reflexe digital/ferric prestige-box 4X2S 3929). Van Asperen, hitherto known mainly as a continuo-harpsichordist in Gustav Leonhardt's ensemble and other Dutch old-music groups, comes into his own here as both soloist and conductor; the blazing starlight, however, is that from a creative genius incalculably stranger as well as stronger than ever thought to be. [See review, June.]

One of my earliest comparable revelations was of the young Purcell's stature as a magisterial contrapuntalist, rather than theater-music master, in his 15 Fantasias for Viols—by which I was originally entranced more than a half-century ago in the pioneering Mangeot/National Gramophonic Society 78s. The new London Baroque Players set (Angel/Reflexe 4XS 38079) is not a period-instrument first, but it surely is the most unflinchingly severe presentation: lower pitched and often grittily harsh (perhaps unnecessarily so) to present-day ears. But this gravely eloquent, poignantly intense music still must be ranked far up in the High Baroque's Himalayas. [See review, June.]

This particular example of periodthenticity may be too specialized as well as too aurally demanding for listeners not yet converted to such radically changed musical experiences. The full rewards of these new-to-us but very old-and-different timbres and styles are seldom realized in any single manifestation. More often it happens only gradually, in a few works at a time and over a period of years. Nevertheless, there's exceptionally varied and persuasive advocacy in a Christopher Hogwood/Academy of Ancient Music anthology (Oiseau-Lyre 410 183-4). This ranges from enticing Purcell theater music and Handel *Water Music* excerpts through a complete Vivaldi Concerto (*Alla Rustica*, R. 151) and C. P. E. Bach Symphony (W. 174) to two entries from Hogwood's superb Mozart Symphony series (No. 32, and the No. 35 *Haffner* in its original scoring).

Ignaz Holzbauer (1711–1783) was a discovery to me, and I hope many others, back in August (Spectrum SC 209's Notturni and Quintet). Now we have confirmation in his delectable Sinfonia in E flat, one of four reminders of the Mannheim School's significance (Deutsche Grammophon/Archive 3310 470). The others are enjoyable if less distinctive works by Johann Stamitz, Christian Cannabich, and Franz Xaver Richter—all deftly played by the Camerata Bern under Thomas Fueri. I'd have preferred period instruments, but at least the soloists include Heinz Holliger and Aurele Nicolet!

. . . **Revaluations** . . . Short of startling new revelations, but still powerfully mind-bending, are the latest examples of evidence for reconsiderations of composers often underestimated or even disdained. Muzio Clementi, for instance, has been proved by Horowitz to be much more than a dry-as-dust pedagogue; there is less sensational testimony to his creative gifts in Maria Luisa Faini's perceptive and frequently bravura performances of three piano sonatas (Spectrum SC 276), two of which seem to be the only available domestic recordings (Op. 26, No. 1, and Op. 34, No. 1).

The case of Richard Strauss is of course completely different, but few of his admirers or detractors are familiar with such unexpectedly conventional, even Mendelssohnian, student works as the five Opus 3 Pieces and the Opus 5 Sonata for Piano—now so lovingly exhumed in Glenn Gould's last recording (CBS Masterworks digital/chrome IM 38695).

Then there are the nongrandiloquent or crudely depictive sides of Saint-Saëns and the noncerebral one of D'Indy, freshly revealed for many of us in novel yet consistently engaging piano quartets: the former's Opus 41, a richly mature and individual work of often exceptional contrapuntal craftsmanship, and the latter's youthful, poetically evocative Opus 7. Both works are spirited, if not as Gallically idiomatic as might be wished, in performances by the Cantilena Chamber Players (Pro Arte digital/chrome PCD 164). Even more novel are the first recordings I've encountered of piano quintets by those near-namesake Swiss and Czech "originals," Frank Martin and Bohuslav Martinů (Spectrum SC 271). The Zurich Piano Quintet, led by pianist and Martin-biographer Bernhard Billeter, illuminates the composer's already distinctive talents in a 1920 student work. And it wrestles bravely with the severe demands and intensities of the first (1932) of Martinů's two Piano Quintets.

. . . **and Revulsions.** Conversions may be reversible. A recent disillusionment of my own is with sheerly virtuoso fiddlers—a bias unfair to the unjustly under-appreciated Steven Staryk, whose eight Paganini Caprices and First Concerto have been recorded, the latter in an electrifying live performance with the NDR Symphony under Hermann Michael (Orion OC 665). Orion, incidentally, proffers a variety of appetizing programs in a new, free, all-cassette brochure (P.O. Box 4087, Malibu, Calif. 90265).

My antipathy to symphonic pipe organs is older and deeper (stemming from compulsory church attendance as a child?). The more potently realistic their recording/playback, the stronger my revulsion. Thus, I can commend only to less prejudiced listeners the state-of-the-art audio technology heard in Direct-to-Tape's digitally recorded Norman MacKenzie/Trinity Cathedral (Trenton, N.J.) recital featuring works by Gigout, Grigny, Soler, and Duruflé (DTR 8215). I flinched from it in its X-encoded open-reel edition, but it's also available in a wide range of cassette and reel formats and encodings ($13 each, plus $2 shipping, from Direct-to-Tape, 14 Station Ave., Haddon Heights, N.J. 08035). **HF**

Afro-Pop Rocks America

A tour of the best African dance music on record

MARK MAREK

by Carol Cooper

OKAY. I'LL ADMIT IT. When I heard my first Ghanaian "highlife" records in the early '70s, I wasn't impressed. The tinny recordings of horn-and-bongo jug bands had neither the slick polish of concurrent soul, salsa, or calypso, nor the kind of exoticism that captures my attention with sheer outrageous attitude. But I was curious enough to keep listening, and since then I have come to appreciate not only Ghanaian pop, but a multiplicity of ever evolving styles from the African continent.

What we Westerners know as the rhythm section—piano, drums, bass guitar—is the interchangeable nucleus of all African pop. Horns, reeds, and guitars, which we usually use for their melodic and harmonic properties, are also used as rhythm instruments, exchanging and replicating each other in a living tapestry of sound and beat. Stevie Wonder repeats the clean riffs of an electric guitar on the clavinet or mini-moog the same way African

Carol Cooper, a writer who lives in New York City, is a regular contributor to the Village Voice *and England's* The Face.

musicians turn a guitar into a finger piano, let a talking drum take over the melody from a bass or xylophone, and so on, until all the polyphonic and polyrhythmic capabilities are exhausted.

Longtime fan and collector John Storm Roberts has put together four albums of regional African music with copious liner notes—an excellent introduction to the history of contemporary African sounds. In compiling his tapes, he has focused on urban dance and other social musics, which differentiates his collections from ethnographic and folkloric ones.

"The Sound of Kinshasa," named after the capital of Zaïre (ex-Belgian Congo), contains vintage pop hits that trace the seminal Congolese-Afro-Cuban connection. When the guitar first became popular in the Belgian Congo, dance records from Cuba and Martinique provided the structural pattern for a new synthesis. Among Roberts's more important observations is that because African languages are tonal, exact meanings of lyrics would be lost unless the Westernized melodies of imported rumbas and beguines underwent a substantial sea change. Sung in Lingala, Zaïrian rumbas soon took on a distinctly African character, especially in the lead guitar tuning, which shifts between the timbre of the human voice and traditional Cuban horns.

Roberts's concentration on the guitar as pivotal in the creation of today's African pop led him to East Africa, as demonstrated on "The Nairobi Sound." By the early '60s, both the acoustic and the electric guitar were in use in Nairobi as Kenya was in the throes of pre-independence. The alien sound of imported Congolese hits seemed to prompt local invention, and soon a surprisingly lyrical and often political solo ballad style was heard in the back alleys and after-hours clubs of the city. Tunes like *Malaika* were highly accessible and familiar to the Western ear. That one, covered by Miriam Makeba in the U.S., exemplifies the wide range of modern song—reflecting every aspect of the ongoing clash of cultures—that people in the capitols of independent Africa were listening to.

"Songs the Swahili Sing" speaks most eloquently to the clash and eventual merging of peoples. The Afro-Arab populations of Zanzibar, Somalia, and other East African countries are a very visible and pervasive presence in black Africa. Somewhat notorious as a trading people—one of whose earlier commodities was slaves—the Afro-Arabs retain the strict musical structures of their Islamic legacy in long and expository rhymed verse, ululations, and instrumentation you'd expect to find in India or Iran. This *tarabu* party style incorporates black African choral and rhythmic improvisation without losing its own unique features. Over the years, all sorts of foreign instruments have entered the *tarabu*, from violins to the accordion, always strengthening and amplifying the form.

"Africa Dances" is the compilation that shows off all of Roberts's preferred urban dance forms to their best advantage. Collectors on a budget can make do with this one purchase, as it points up instructive comparisons between Ghanaian, Zaïrian, and Nigerian variations, while offering samples of more idiosyncratic Ethiopian, South African, and Kenyan jams.

Discography

Compiled by Mildred Camacho-Castillo

The Sound of Kinshasa: Guitar Classics from Zaïre. Original Music OMA 102; 1982. (R.D. #1, Box 190, Lasher Rd., Tivoli, N.Y. 12583.)

The Nairobi Sound: Acoustic and Electric Guitar Music of Kenya. Original Music OMA 101; 1982.

Songs the Swahili Sing: Classics from the Kenya Coast. Original Music OMA 103; 1983.

Africa Dances. Authentic Music ARM 601; 1973. (Distributed by Original Music.)

King Sunny Adé and His African Beats: Juju Music. Island/Mango MLPS 9712; 1982. **Synchro System.** Island/Mango MLPS 9737; 1983.

Sound d'Afrique Vol. 1 & Vol. 2. Island/Mango MLPS 9697 & MLPS 9754; 1981 & 1982.

Tabu Ley Rochereau: Tabu Ley. Shanachie 43017 1984. (Dalebrook Park, Ho-Ho-Kus, N.J. 07423.)

Fela Anikulapo Kuti: Unknown Soldier. Uno Melodic UM 0002; 1982. (390 Riverside Dr., No. 1C, N.Y., N.Y. 10025.)

Zulu Jive: Umbaqanga Urban and Rural Zulu Beats from South Africa. Carthage CGLP 4410; 1983. (611 Broadway, Suite 415, N.Y., N.Y. 10012.)

Juluka: Scatterlings. Warner Bros. 23898-1; 1983.

Izimpande: African Image. Gramavision GR 8306; 1984. (260 W. Broadway, N.Y., N.Y. 10013.)

Bonga and Racines: De L'Angola au Bresil. Playa Sound PS 601; 1983. (Distributed by International Book & Record Distributors, 40-11 24th St., Long Island City, N.Y. 11101.)

O Canto Livre de Angola. RCA (Brasil) 103.0584; 1983. (Distributed by International Book & Record Distributors.)

Saka Acquaye and His African Ensemble from Ghana: Voices of Africa: Highlife and Other Popular Music. Nonesuch H 72026; 1979.

Africa: Ancient Ceremonies, Dance Music, & Songs of Ghana. Nonesuch H 72082; 1979.

If Roberts's scholarly introduction to Afro-pop seems too erudite, Island/Mango Records' jump into the market exhibits the same savvy calculation they used to launch Bob Marley's internationalist brand of reggae. Whatever you may think of King Sunny Adé as a pop symbol, he is a fine musician leading one of the tightest, most exciting dance bands in the world.

Nigerian "juju" music is said to be the crossing of highlife instrumentation with cult music from Yoruba religion, a glorious pantheistic animism holding that everything in creation has a soul that sings. Adé has caused great excitement not only because he is one of the few major African stars who tour here, but because his thunderous banks of talking drums and polyphonic lead guitar arrangements frame a music that represents a side of Africa—the positive, progressive side—that we see too little of. And yes, it is profoundly African in spite of being influenced by everything from James Brown to Hawaiian luaus.

Unlike fellow Nigerian Sonny Okosun, who has experimented with reggae and English lyrics to the point of becoming (for me, anyway) a major crossover contender, Adé is determined to make it in America on his own terms—terms that are supported by his 40-plus LPs now circulating through Europe and Africa. Both "Juju Music" and "Synchro System" [see review, October '83] are good introductions to Adé's subtly compelling orthodoxy, though the former is a sexier blend of polyrhythm and melody.

For those who still prefer sampler records to cults of personality, two of the finest collections I've heard from French-speaking Africa are "Sound d'Afrique," Vols. 1 and 2. Here you get the modern Congolese influence, modified by the respective preferences of Mali, Cameroon, Senegal, and the Ivory Coast. Only the best bands are represented, and the production quality is top drawer. No more tinny pops and crackles from makeshift 2-track live recordings. Now you can hear where Afro-rumba differs from Caribbean and Nuyorican (New York Puerto Rican) salsa much more immediately than with Roberts's "Sound of Kinshasa." Francophone Africa has also launched a touring avatar in the form of Tabu Ley Rochereau. This Zaïrian singer-bandleader has recently taken to working with M'Bilia Bel, and their duets have been compared—not unfavorably—to both Marvin Gaye and Tammi Terrell, and George Jones and Tammy Wynette. In one performance Tabu Ley's Orchestre Afrisa International rendered note-for-note Cuban hits from the '30s and '40s, slammed into a hip-grinding reggae, and then slid into what sounded exactly like a Haitian merengue.

Their horn players are more subdued than equivalent Latin sections, yet compared to Adé's intentional lack of horns, Tabu Ley's orchestration sounds like Gabriel at the gates. A pattern emerges when you compare further the "with or without horns" methodologies of various regional African forms. Congolese bands can take or leave a horn section, Ghanaian dance bands prefer to keep them, while Nigerians following Adé's lead seem to be phasing them out. A notable exception is Fela Anikulapo Kuti, whose dynamic, politically aggressive "Afro-beat" style relies heavily on the masculine emphasis of hard bop and funky

(Continued on page 85)

Reviews

CAROLINE GREYSHOCK/COURTESY ELEKTRA RECORDS

Discovering Rubén Blades

Rubén Blades y Seis del Solar: Buscando America
Rubén Blades, producer
Elektra 60352-1

Don't listen to Rubén Blades in bed unless you want to break your box spring. His exuberant, neo-Afro-Cuban beat, jazzed with vibes and equipped with all the Latin appliances—tumbadoras (barrel drums), bongos, timbales, maracas, and claves—could drag even Henry Kissinger out to the streets to shake it. Fueled by his diesel-strength sextet, Seis del Solar (Six from the Tenement), Blades can gear-shift between duple and triple time with a dizzying speed that shoots his musical energy forward and up like a hydrant exploding on a hot summer day.

But given the first English translation to grace one of his 15 or so all-Spanish albums, the searing *realismo* of "Buscando America," his debut on a mainstream label, appears at first to undermine his musical delirium. Even though cross-equatorial politics have obviously spiked his libretto, Blades seems to be searching for an America that transcends North, South, and Central. Creating tight, brutally vivid vignettes, he draws sharp-edged characters—and then intimately inhabits them, speak-singing their tragedies, both petty and heroic. With eyes hungry for "*justicia*" he peers into the shadows of everyday lives: in *Decisiones*, the cowardice of a young boy as he nervously awaits his girl friend's menstrual period, the deadly bravado of a drunk who runs a red light, the careless machismo of a neighborhood adulterer. The powerful *Desapariciones* (*Disappearances*) documents the fate of the "vanished ones," where the crime is political but the concern remains personal. The victims, all ordinary folk, have names and faces—a mother, a husband, a son: "August, a nice boy, white pants, striped shirt/It happened two days ago." Even the song's final plea, though desperate and angry, is fully a poet's—from the heart, not the holster: "Every time our thoughts bring them back/how can we talk to the disappeared ones? With our emotions/from our insides."

In *Todos Vuelven* (*Everyone Returns*) by Cesar Miró, Blades the *sonero* takes a step north toward melodic expansionism, all the while maintaining roots in his Caribbean mélange of multitracked pings, clacks, and clangs. Pumped by majestic synthesized chordings, the tropical fairyland intro to the title cut finally breaks open, like a wood clearing, to perhaps his most romantic melody to date. Blades's Latin vocal timbre, immediate and slightly nasal, softens and hardens as he moves here through despair, anger, sadness, and ultimately triumphant hope, searching for the America he fears he won't find. In the final image, Blades has got America (his? ours?) kidnapped and gagged, a victim of her own cowardice. But the instrumental interludes, emblazoned by the daring virtuosity of pianist Oscar Hernández's Keith Jarrett-like cascades and the fierce percussive rips of Louie Rivera, Ralph Irizarry, and Eddie Montalvo, take a long stride toward the business of our liberation.

For additional reviews of Pop and Jazz music on videocassette and Compact Disc, see NEW TECHNOLOGIES.

Though headed for Harvard Law in September (at the age of thirty-five, Blades is already an accomplished journalist, fiction writer, and Panamanian lawyer), Rubén has too much *pique* in his musicality to ever settle back into dreary intellectualism. Newly aimed at the ("pan") American urban dweller, "Buscando America" crosses over the border in style and with integrity intact. Fusing *lírica profunda* with infectious beat, Blades pushes us to think and dance at the same time—a tall but delicious order, particularly for unsuspecting gringos. Still, he needn't worry whether he'll ever find America's tortured body. Propelled by the ebullience of "Buscando America," we should be able to find Rubén Blades first. PAMELA BLOOM

Solomon Burke: Soul Alive!
Solomon Burke, producer
Rounder 2042/2043 (two discs)

It's ironic that during the soul revival of a few years ago, the artist who stood out among Sam and Dave, James Brown, and Wilson Pickett was Solomon Burke, the 300-or-so-pound Bishop of Soul who never, despite his vast talents, had quite the reputation of the others. So it's fitting that among the few albums to come out of that boomlet, this live twofer is by far the most involving.

Recorded in a Washington, D.C., club in 1981, "Soul Alive!" stands next to the better live soul releases of any era; Burke plays off his fans like the preacher he also is, exhorting them, soothing them, leading them through extended sermonettes (a.k.a. "monologues") with unimpeachable verve, humor, and conviction. When a voice from the crowd sighs, "I waited all night for this," Burke ripostes with "Lord, all we need is a waterbed now!" At the end of the set, he provides a bridge between two medleys by delivering a long admonition on the uses and abuses of the word "love," dropping from his customary tenor to a stirring bass on key phrases spelling out his own brand of sexual healing.

Given his powers as an improviser, the sheer strength of his voice, and the shading and coloration he brings to songs, Burke is most effective on the ballads that dominate the second disc. *Just a Matter of Time* builds to a fervent monologue about independent women; then he eases out on Joe Tex's *Hold What You've Got*, the country *He'll Have to Go*, and a climactic *Cry to Me*, which he phrases exquisitely. The band bears down with him on *Send Me Some Lovin'* as a prelude to the set-ending medley of *Having a Party* and *Amen*. Burke is such a gifted improviser, so at home on a stage, that the closer he sticks to a song's original form, no matter how definitively he does so, the less interesting he turns out to be—and that goes for the new versions here of his own Sixties hits, as well as for the numerous covers.

Even more surprising, for a soul revival show, is the band, which is a lot stronger than the usual pickup hacks. The Realtones ebb and flow beneath Burke's cries and caresses; drummer Bobby Kent is occasionally a little too splashy, but usually keeps a rock-solid beat among all the improvising, while guitarist Marc Ribot can play flashy lines that still stay out of Burke's way. The three-man horn section punctuates Burke's sighs and grunts, or just lets him ease into smooth, stairstep progressions.

But the band remains strictly background, which is how it should be when you're supporting Solomon Burke. Every time the Bishop gets hold of a chestnut like *What Am I Living For* or *I Can't Stop Loving You* and starts working it, his country soul can give you goosebumps. Still.
JOHN MORTHLAND

Cameo: She's Strange
Larry Blackmon, producer
Atlanta Artists 814 984-1 M-1
(Polygram Special Imports, 810 7th Ave., New York, N.Y. 10019)

"She's Strange" is what can happen when it all clicks into place. Cameo, a group that has been around for a while, has seemed only likable, proficient, and persistent until now. But this album, the band's tenth since

John Cougar Mellencamp: Uh-Huh
Little Bastard & Don Gehman, producers. Polygram RVL 7504

"Some people say I'm obnoxious and lazy/ That I'm uneducated and my opinion means nothin'," John Cougar Mellencamp declares on *Crumblin' Down*, which opens "Uh-Huh." "But," he adds, "I'm a real good dancer." He's right: He *is* a real good dancer, which he demonstrated repeatedly during his recent tour and specifically in New York City. And that has got to count for something in these days of the stylized skank. About what you would expect, though, from a guy who gives special thanks on his record sleeve to "the Rolling Stones for never takin' the livin' room off the records when we were kids."

But a more pertinent question remains: Is Mellencamp "for real"? That may seem a critic's trivial pursuit now that *Authority Song* has become the third Top Ten single from "Uh-Huh," but to the unconverted it could mean the difference between a guilty pleasure and the serious business of rock and roll. To begin with, Mellencamp has a lot of cool credits to his name: He co-wrote "Uh-Huh" 's *Jackie O* with John Prine; he not only produced Mitch Ryder's commercial comeback LP, but suggested he cover Prince's *When You Were Mine*; and in concert he performs personal favorites by Bob Dylan, Richard Thompson, Lee Dorsey, the Animals, the Left Banke, even John Cale's arrangement of *Heartbreak Hotel*.

Aside from his good taste, though, in concert it was more the medium than the message that comprised Mellencamp's charm. His work used to resemble vintage Bob Seger ("Nothin' Matters and What If It Did," "American Fool"); it now recalls "Exile on Main Street"-period Stones, and

EBET ROBERTS

Cool as Cougar or Mellencamp

he plays those simple and durable riffs with a fan's love and a bar-band leader's precision. His '82 anti-anthem *Jack and Diane* may have felt too casually fatalistic, but it was hard to be unmoved by its blend of intimacy and immediacy, the result of a carefully sustained tension between acoustic and electric guitars—a coffeehouse ballad with Madison Square Garden style. *Pink Houses*, the biggest hit from "Uh-Huh," is equally irresistible: that garage ambience, the tambourine in the first verse, those handclaps in the second, the backup girls in the chorus, that guitar!

Pink Houses also clears up any doubts about his credibility, making palpable something that *Jack and Diane* merely hinted at: the elegiac mood that Mellencamp sees as the spirit of the economically depressed Midwest. This mood is a combination of bravado and frustration, nostalgia and loss, a where's-our-future? foreboding that would encourage two teens like Jack and Diane to "hold onto sixteen" for as long as they can because the day is rapidly approaching when "the thrill of living" will be gone. Or at least they'll be out of work.

Although Mellencamp is too eager for a good time to come off as obsessive as Bruce Springsteen, like the Boss he is focusing more intensely on the subjects he knows best: his home, its history, himself. Success hasn't turned him into a commodity; it has helped him relax and act naturally. On "Uh-Huh" he's ironic *(Jackie O)*, self-deprecating *(Play Guitar)*, and tender *(Golden Gates)*, not to mention cocky as hell *(Crumblin' Down)*. As if to prove that he means what he says, Mellencamp has released a sweet, made-for-late-at-night acoustic version of *Pink Houses* as the B-side of the *Authority Song* single, which serves as a fitting postscript to the invigorating "Uh-Huh" and his utterly disarming live set. In New York, he dedicated the song to "everyone who lost their job when the industrial revolution ended." There's something else to add to Mellencamp's list of cool credits: He cares. MICHAEL HILL

1977, takes twisty, unexpected turns; it has zing. You can play name-that-influence with its grab bag of styles (Earth, Wind & Fire, Rick James, Ohio Players, Chi-Lites . . .), but Cameo's busy having its own fun, tossing ideas around and connecting them in new ways.

The title cut and first hit is a virtual textbook of developments in black music over the past decade or so, but it's a textbook with amusing illustrations and odd transitions. It starts with a synthesizer riff reminiscent of Ennio Morricone's themes for Westerns and moves into rap, smooth harmony, funky improvisation, and bizarre lyrics ("She's my Twilight Zone/My Al Capone/She's my Rolling Stones/And my Eva Peron"), all pinned together with an insistent bass line and periodic guitar twangs.

That's the strategy; Cameo may not be startlingly original, but it borrows everything for a reason, and the results are surprising. Producer-bassist-drummer-arranger Larry Blackmon, along with the rest of the band (they co-write the songs, and all four sing), keeps the tracks busy, weaving the elements together with cocky finesse.

The group stalls only twice. On the well-meant but uninspired *Tribute to Bob Marley* they aren't comfortable enough with reggae to get loose, and the straight-ahead boogie *Groove with You* falls flat. But *Love You Anyway* has a jazzy melody that keeps building on itself, plus a lively scat-guitar duet; *Hangin' Downtown* is a melancholy mood piece with its roots in street-corner soul singing; and the latest hit, *Talkin' Out the Side of Your Neck*, doesn't avoid naming names (as for many black groups, our President is simply "Ronnie Reagan" to Cameo, who sound appropriately ticked off). It also features jagged hard rock guitar by Charlie Singleton. And when the group really doesn't have much to say, it does an end-run and chants in French: *Léve-Toi!*

Though Cameo has a keen commercial eye, "She's Strange" also demonstrates a refreshing lack of musical caution—they'll throw in anything for a kick. For such relatively old-time chartbusters, that risk has paid off. MITCHELL COHEN

Ferron: Shadows on a Dime
Ferron, producer
Lucy LR 004 (Box 67, Saturna Island, British Columbia, Canada VON 2 YO)

Since the release in 1980 of "Testimony," Canadian-born Ferron has taken folk and feminist audiences by storm. Though "Shadows on a Dime" cost a mere $50,000, this was sufficient to place the performer in her musical prime, for she does not need much orchestration. She is, as some have said, a minimalist whose impact is strongest when she straps an acoustic guitar 'round her shoulder and, with a growling voice, belts out her tough and tawdry songs.

This no-nonsense production aims at a success based primarily on Ferron's hard-driving lyrics; she is clearly more interested in rhythm than in melody, and the long,

PRESENTING

THE ALL-NEW 11th EDITION OF THE SCHWANN ARTIST ISSUE

Locate over 25,000 classical recordings according to orchestra, trio, quartet, conductor, soloist, vocalist, choral group or operatic company.

The all-new 11th Edition of the Schwann Artist Issue will soon be ready.

You can order your copy now, before it is published, and save 20% off the cover price.

This is the first new Artist Issue in three years. Completely revised and updated, it includes 300 pages—over 25,000 listings—that help you quickly locate virtually any classical recording by:

Orchestra - categorized by conductor.

Conductor - their recordings with various orchestras and choral groups.

Quartets and Trios.

Soloists - listed according to instrument.

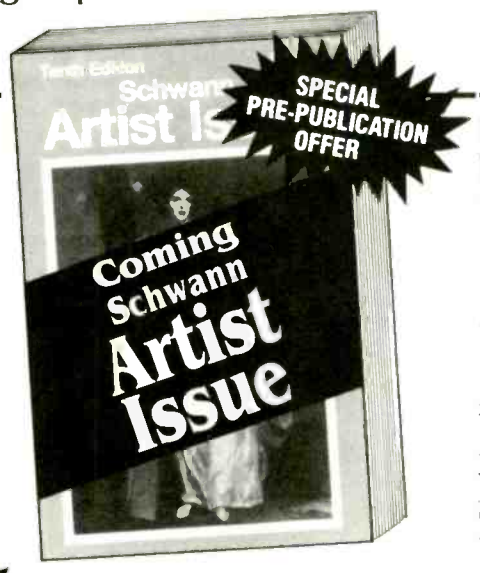
Operatic and Choral Groups - including soloists for each recording.

Vocalists - and their recordings by composer.

The Schwann Artist Issue is comprehensive and easy to use. And it is the *only* classical recording directory of its kind.

To order your copy at the special pre-publication price of only $5.55 plus $1 for postage and handling, return the coupon today.

Copies will be mailed by October 30, 1984.



Reserve my copy of the new Schwann Artist Issue at pre-publication savings.
I enclose just $5.55 (plus $1 for postage and handling) a copy—a 20% savings off the cover price.

SMAA

Number of copies_____.

Amount enclosed $_____.
(Payment must accompany order. Payment in U.S. Currency only.)

Name

Address

City State Zip
(If foreign)
Province Country

SCHWANN ARTIST ISSUE Dept. 11, Single Copy Sales, 825 Seventh Ave., New York, NY 10019

SIRETNA

Are British charttoppers the Smiths really foul, or are their critics?

winding lines of her poetry work well with 4/4 time and few musical frills. Electric guitar, bass, and drums predominate, reminiscent of early Jackson Browne, though the singer has cited Bruce Cockburn, Neil Young, Gordon Lightfoot, and early Joni Mitchell as influences.

Ferron says these songwriters "talked about emotional travel," a key to her own interests. She works mainly with the big concepts—the relation of self to society, of love to philosophy, of hardship to good fortune—shying away from autobiographical overexposure. Although Ferron did not hear Bob Dylan until she was in her twenties, her lyrics are strongly allied with his, adding a powerful feminist sting that Dylan could not quite muster and a chunk of healthy self-satire. In *Proud Crowd/Pride Cried* she manages to wax poetic and stay reflective without getting corny. And she can sing of nostalgia without slipping into misty-eyed folk music: "You move forward fast by holding back/You gauge your steps and you don't look slack/Me I'm looking backward down the track/To see us dreamers in our prime. . . ."

Ferron is taking up the slack on the folk and feminist circuits, bringing to those arenas an edgy level-headedness with great urgency and poise. "Shadows on a Dime" proves that "Testimony" was no fluke. Ferron has started that long climb upward with one big leap. LAURA KOPLEWITZ

Jermaine Jackson
Jermaine Jackson, producer
Arista AL 88203

"Jermaine Jackson" will not be a thriller-diller on the charts, reaching the quintuple-billion mark. You will not be hearing its songs on the radio, *all the time*, a year from now. What makes it so nice, though, is that in the shadow of little brother's mega-success, big brother has fashioned his own modest, mature, unflashy persona.

Jackson follows the-path-of-most-resistance to success, which is better than nice. Not only is the album varied to the edge of unwieldiness, but it's loaded with collaborations: There's a tune with Michael, *Tell Me I'm Not Dreaming (Too Good to Be True)*, and one with the rest of the family, *The Great Escape from the Planet of the Ant Men* (true!). Musicians as unalike as Ray Parker, Jr., Ronnie Foster, and Michael Sembello do piecework. And yet the many team-ups speak to, and rarely stray from, the character Jackson's presenting—a pro both in the studio and in love, a guy whose craftsmanship and sweet talk may be familiar, but who ends up winning you over anyhow.

The Great Escape is plenty silly, and the only tune that doesn't tell us something about Jackson: "Outside my cage there's an army of ants/Brought me a mate today" is, whatever else, not from the heart. On the rest of the record, disclosures are natural enough: He wants the world to know that he appreciates his mom (*Oh Mother*), and that while he enjoys the pleasant things in life (check out the finery on the album cover), he knows when to drop the pleasantries and get lusty (*Dynamite*). No revelations here, but unassailable satisfaction. With the sound of the recent Willie Nelson/Julio Iglesias team-up still all too present, "Jermaine Jackson" helps make the world safe again for collaborations. And it does more: It shows how much they can tell you about one regular guy. RJ SMITH

Van Dyke Parks: Jump!
Steve Goldman, producer
Warner Bros. 23829

The American folklore tales of Uncle Remus, first published in 1880, are the

basis for "Jump!" The Joel Chandler Harris stories about the adventures of Br'er Rabbit, Br'er Fox, et al., are an ideal vehicle for Van Dyke Parks's hooky-playing spirit and his opulently orchestrated whimsy. The openhearted charm of *Come Along*, *Opportunity for Two*, and *Hominy Grove*, among other tracks, echoes musical theater, cartoons, Dixieland jazz, Stephen Foster, Aaron Copland, and Hoagy Carmichael.

But the only place Parks has ever called home is on the periphery of the rock scene, and I mean the way-out-of-the-outside: 1968's brilliant "Song Cycle," his best-known LP, opened with the sound of a coin being dropped into a mechanical music box—and got weirder from there. The more accessible, evocatively antique nature of "Jump!" is most closely related to the scores that two of his friends, Harry Nilsson and Randy Newman, wrote for *Popeye* and *Ragtime*, respectively. Parks was the arranger-conductor of *Popeye* and coproduced Newman's eponymous LP debut, also in 1968. Another influence is children's music: Parks works on the cable-TV series *Faerie Tale Theatre*.

His voice, slender as a straw, is appropriate for "Jump!"; on "Song Cycle," combined with his tendency toward lyrical labyrinths, it came across as coyly evasive. While he still indulges in clever wordplay ("a delightful and debonaire hare on a night dat is right for some devil-may-care" is how he describes Br'er Rabbit on the way to a party at Miss Meadows's), Parks and chief colyricist Martin Fydor Kibbee generally stay within the boundaries that Harris drew a century ago, capturing his verbal rhythms and the Southern-black dialect of the Remus character without overdoing it.

"Jump!" strays from its pastoral path on Side 2 when Kathy Dalton sings two rather citified numbers, *After the Ball* and *Invitation to Sin*, and there are places where the LP tips over into mere cuteness. But most of Parks's first release in almost a decade is lively and affectionate, creating a summery innocence without getting treacly or patronizing. MITCHELL COHEN

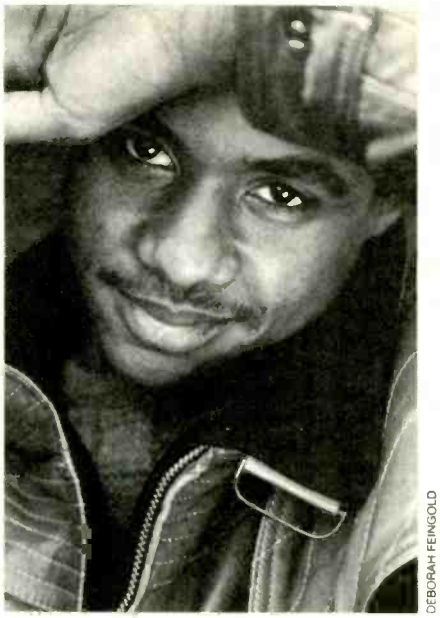
The Smiths
John Porter, producer
Rough Trade/Sire 25065-1

Judging by reactions to an appallingly foul debut by the Smiths (voted 1983's Best New Band by readers of Britain's pop music weekly, *New Musical Express*), the rock press's stock may be plummeting to an all-time low. How else can one explain English critics quoting Nietzsche to summarize the sexual politics of a record that promotes pederasty (sample lyric: "I once had a child/It saved my life . . . There never need be longing in your eyes/As long as the hand that rocks the cradle is mine")? How else to understand *Creem* magazine citing one of the songs as condoning child

molesting, then rendering a final judgment on "The Smiths" as ambiguous as the ambisexual lyrics this quartet generally deals in?

Forget the music, a watered-down cop of the R.E.M./Echo and the Bunnymen style of jangly, "new psychedelic" guitar/bass/drums. Ignore singer/songwriter Morrissey's canny self-promotion—he uses just one name, presumably stolen from filmmaker Paul Morrissey, a scene from whose *Andy Warhol's Flesh* graces the album cover. Neglect the fact that Morrissey can't carry a tune. Skip the simple charms of the acclaimed single, *This Charming Man*, which only proves no British band to be above plundering the Motown catalog for a surging bass line when necessity so dictates. Instead, focus on a quotation from *Reel Around the Fountain*. "Fifteen minutes with you," the singer tells us, recalling the particularly apt Warholian dictum about stardom and the quarter hour, "well, I wouldn't say no." When it comes to the Smiths, I would.

WAYNE KING



DEBORAH FEINGOLD

Branford Marsalis: soul brother

Jazz

Chris Connor:
Love Being Here with You
Bernard Brightman, producer
Stash ST 232 (P.O. Box 390, Brooklyn, N.Y. 11215)

Jazz singer Chris Connor recorded frequently in the decade after she left Stan Kenton's band in 1953; she made four LPs for Atlantic in 1957 alone. But virtually all of those albums are unavailable, and recently she has been much less active. So "Love Being Here with You" is a pleasure to have, although it's a little uneven.

Known for what vibist Eddie Costa once called "her diffuse, velvety tones" and for her subtle sense of rhythm, Connor has a limited vocal range—she doesn't go too high, she can't shout, and her intonation is not always perfect. She's at her best when most unpredictable. On uptempo numbers, for example, she stops short, then seems to jam a whole phrase into half a bar. She can use her most fuzzy, intimate sound on ballads while dancing daringly around the beat, or float carelessly over an active Latin rhythm. Connor is inventive, but never idiosyncratic, affected, or portentous: She pays attention to melody as well as lyrics.

There are several well-known songs here, including *The Thrill Is Gone*, which Connor has previously recorded for Bethlehem. On the earlier album, she gave an intense, smoky reading; on this version, she breezes along at a brisk tempo that seems at odds with the song's tale of ennui. But this allows her some delightful play with phrasing: "Now," she sings, and pauses dramatically, only to spurt out "our love affair is through" in what seems almost like a celebration. Her voice takes on a sudden brassiness on *Rio* as she accents each syllable heavily, one word to a beat. And Connor is at the top of her game on her throaty performance of *Like Someone in Love*, aided by guitarist Bucky Pizzarelli's tasteful but appealing accompaniment.

Elsewhere, the quartet led by pianist Russ Kassoff sounds pedestrian; his solos on uptempo numbers in particular are technically skillful but glib. (Unfortunately, she has no horn to play off: Her conversations with the likes of Al Cohn have been among the highlights of previous albums.) Yet the singer handles the players' predictability with style. Taking *I Love Being Here with You* at an easy, loping tempo, Connor sounds confident and good-natured. She seems glad to be working again.

MICHAEL ULLMAN

Branford Marsalis: Scenes in the City
Thomas Mowrey, producer
Columbia PC 38951

Jazz fans have little affection for cool perfectionism, especially in young players. But disappointment is premature and a little unfair in the case of the Marsalis brothers. Awed by their professionalism and virtuosity, some listeners may be reacting belatedly to the contained quality of much of their playing on record. Trumpeter Wynton and saxophonist Branford, still in their twenties, are more fiery and adventurous live. But Wynton's "Think of One," in particular, is a solid achievement with real attractions—among them the trumpeter's solo on his rollicking stop-and-go arrangement of the title cut, and Branford's gutsy tenor on *Later*.

Branford's "Scenes in the City" is a

little more unbuttoned than the sessions led by his brother, but probably not wild enough for those who see him as "the soulful Marsalis." It has several languid performances and one real embarrassment, the title cut—a remake, thankfully shortened, of Charles Mingus's 1957 narrative set to music (part of an otherwise fine Mingus album recently reissued by Affinity). The narrative is spoken by a hip, depressed black man, a jazz lover whose joys and sorrows find expression in his favorite music. Mingus's original has dated, despite the relatively good-humored speaking voice of Melvin Stewart. Marsalis's sulky narrator, Wendell Pierce, drains from the piece its fragile life.

The strongest track is the opener, *No Backstage Pass*, a fast-paced blues played by Branford with bassist Ron Carter and drummer Marvin Smith. It begins as an open-ended conversation between Marsalis and Carter, with Smith brushing his cymbals in out-of-tempo accompaniment. Gradually the background firms up until Carter is walking briskly under Marsalis's increasingly involved and intense tenor solo. In general, Marsalis sounds more distinctive on tenor than on soprano; nevertheless the uptempo *Waiting for Tain*, played on soprano, is a tighter, more sustained piece than the tenor feature, *No Sidestepping*, which features some inconsequential piano playing by Mulgrew Miller.

This album may not be everything that we might desire from a Marsalis, but it would be an astonishing debut by any other twenty-year-old saxophonist. That's one price of early fame. MICHAEL ULLMAN

World Saxophone Quartet: Live in Zurich
World Saxophone Quartet Productions
Black Saint BSR 0077
(Polygram Special Imports, 810 7th Ave., New York, N.Y. 10019)

On "Live in Zurich" the World Saxophone Quartet comes on like gangbusters: loud, proud, and swinging. A live Quartet performance is a startling experience even for those used to being struck dumb by the group's studio recordings. Four saxophones, no rhythm section, and it *still* sounds like Ellington's band is on stage. As led by Albert Ayler, of course.

Recorded in 1981 (a year after the monumental "Revue" was made), "Zurich" breaks no new ground. The Quartet has a patented sound: Dense horn charts pull and tear without overpowering; the music is hard and loud, yet creamy. But the physical force of this performance adds another whole dimension of wonder. David Murray, Oliver Lake, Hamiet Bluiett, and Julius Hemphill always play with unquestionable precision; on this recording their strutting swagger is downright kinetic. These funky virtuosos get you excited with-

(Continued on page 85)

William (Count) Basie, 1904-1984

Basie Basics

by John S. Wilson

COUNT BASIE DIED on April 25, 1984, one month short of the tenth anniversary of the death of Duke Ellington. This seems an appropriate connection for the two most stalwart pillars of big band jazz.

The fact that they arrived at this joint distinction is odd because the men and their music had little in common. Ellington epitomized the term "big band." He had a flamboyant personality, and his music was "big" not only in its range and spaciousness and color; his ideas, typified by his "extended works," were large-scale. Basie, on the other hand, exemplified simplicity. The pianist in him boiled everything down to its essence, and the composer in him stuck primarily to basic 12-bar blues.

Basie's genius can be seen partly in the way he took a busy piano style—the stride that he learned from Fats Waller—and refined it until it sounded almost childishly easy, though it retained all the essentials. This genius also allowed him to build and sustain a repertoire based on the 12-bar blues and to use this combination of blues and style as the center of compelling performances for half a century.

Ellington drew out and developed the musical personalities of his sidemen, which he then expressed in his writing. Basie simply set the stage and let his soloists take off on their own. The Count and his early rhythm section—the classic combination of Freddie Green on guitar, Walter Page on bass, and Jo Jones on drums—merely gave them the most supple and swinging support any jazz musicians ever had. "(Basie) seems instinctively to be able to strike the precise chord, indeed the one note, necessary to thrust the soloist or even the whole band forward," the late Nat Shapiro wrote. "His dry, rugged, and intensely rhythmic punctuation can be as effective as a blinding stab of brass or a sensuous slur by the reed section."

Although his 50 years as bandleader are usually viewed as one continuous, developing process, there were actually two very different Basie bands. The first, which grew out of his regular gig at the Club Reno in Kansas City, was a loose and hungry group of unknowns fighting for survival. They played a lot of head arrangements, which prompted instinctive and vital contributions from such stellar musicians as Lester Young, Herschel Evans (and Buddy Tate after Evans's death), Buck Clayton, Sweets Edison, Dickie Wells, and Benny Morton, as well as the four members of the rhythm section (including the scarcely heard but definitely felt Green). Even when many personnel changes occurred during World War II, the ensemble retained much of its creativity.

Basie broke up this band in 1950 and, after leading a septet for two years, formed another one—which, superficially, was the same. But there was a big difference. This second incarnation was the creature of arrangers—initially Neal Hefti, Ernie Wilkins, Frank Foster, and others—who developed a polished, homogenized version of the kind of playing that the earlier group of musicians had generated from within. The colorful subtleties those players could draw, even in the band's most exuberantly swinging moments, were now missing. The new soloists tended to sound more anonymous, particularly after '40s holdover Joe Newman and the rising Thad Jones moved on.

It became a predictable and, frequently, a monotonous band. But both qualities could always be alleviated by the mere flick of Basie's finger. In fact, although Basie led the second band for more than 30 years until his death, the only valid connection between the two groups was his piano playing. Whenever he gently picked out a solo or rolled out the red carpet for one of the band's massive entrances, his imprint was still recognizable. The only one who could give an identity to the slick, smooth, colorless machine was the Count himself, with the quiet assistance of Green.

For the current band, which continues to perform, artistic success does not seem a likely prospect. Sidemen are not trained to carry on roles that give it identity, as the Ellington players are. Nor did the Count leave a huge and varied library of originals and arrangements, as the Duke did. But most importantly, without Basie, there is no Basie band. **HF**

High Fidelity Classified

MAIL TO: 825 7th Ave., 6th Floor, New York, N.Y. 10019. Phone: 1-800-ABC-MAGS. In New York call: (212) 265-8360 **GENERAL:** all copy subject to publisher approval. Users of P.O. Box MUST supply permanent address and telephone number before ad can run. **CLOSING DATE:** 1st of second month preceding cover date.**15 Word minimum** No charge for Zip Code. **CLASSIFIED RATES:** regular type, per word: 1x—$2.75; 3x—$2.65; 6x—$2.55; 12x—$2.45. Words in caps—15¢ extra each. **IMPERIAL type, per word: 1x—$3.75; 3x—$3.65; 6x—$3.55; 12x—$3.45. Words in caps—15¢ extra each.** Minimum 15 words. Box numbers: $3.00 additional per insertion to cover cost of handling and postage. Display, per inch: 1x—$350; 3x—$340; 6x—$330; 12x—$315. **PAYMENT WITH ORDER:** Send check, M.O., MASTERCARD or VISA No. and expiration date to: Classified Dept., HIGH FIDELITY, 825 7th Ave., 6th Floor, New York, NY 10019.

For Sale

1-800-431-3232
specializing only in cartridges +styli +mics +headphones"
audiofon
B&O • audio-technica • AKG • Ortofon
Dynavector • Grace • PICKERING • Stanton
ADC • SIGNET • SHURE • Sennheiser
We quote pro advice +lowest price
24 Hr. Shipment on all our equipment
COD's are Okay, call us, don't delay
P.O. Box 37, Brooklyn, NY 11204 (212) 438-6400

See ad on page 80

CALL US! KRELL, AUDIO PRO, VSP LABS, HAFLER, NAD, CARVER, AMBER, DENON, TANDBERG, ADS, KEF, BOSTON ACOUSTICS, DCM, CONRAD-JOHNSON, GRACE, DBX, PS AUDIO, OHM ACOUSTICS, GRADO, DYNAVECTOR, INFINITY, NITTY GRITTY, MONSTER ALPHA, AUTOMOTIVE, CONCORD, KENWOOD, ZAPCO, LINEAR POWER, UNGO BOX, CRIMESTOPPERS SECURITY, MORE! FRIENDLY, EXPERT CONSULTATION. FAST, FREE SHIPPING! MC/VISA. REFERENCE AUDIO SYSTEMS, 18214 DALTON AVENUE, GARDENA, CA 90248 (213) 398-4205.

CAUTION! NAKAMICHI BUYERS!! Nakamichi goods not designed for sale in the United States are being sold by unauthorized dealers. NAKAMICHI U.S.A. CANNOT BEAR ANY RESPONSIBILITY FOR SALES OR WARRANTY SERVICING OF UNITS NOT COVERED BY OUR APPLICABLE WARRANTY. For the name of your nearest authorized Nakamichi dealer, call 1+800/421-2313. In California, call 1+800/223-1521.

HARMAN/KARDON, NAKAMICHI, CROWN, CARVER, HAFLER, THORENS, TANDBERG, REVOX, NAD, LUXMAN, DCM, DBX, ELECTRO-VOICE, VANDERSTEIN, AND OTHER QUALITY COMPONENTS, BEST PRICES - PROFESSIONAL SERVICE, EAST (904) 262-4000; WEST (818) 840-0878.

Quality Tapes

Below Wholesale Specials!

TDK SA 90	1.95	MAXELL UDXL II 90	2.15
TDK SA 60	1.85	MAXELL UDXL II 60	1.85
TDK SAX 90	2.75	MAXELL XL II S 90	2.79
TDK SAX 60	2.49	MAXELL MX 90	4.69
TDK MA 90	4.19	MAXELL UD 90	1.95
TDK MA 60	3.89	MAXELL UD 60	1.85
TDK MAR 90	5.99	MAXELL LN 90	1.25
TDK MAR 60	4.79	MAXELL LN 60	1.05
TDK ADX 90	2.55	MAXELL UD 35-90	4.95
TDK AD 90	1.79	MAXELL XL I 35-90B	6.39
TDK AD 60	1.45	MAXELL T-120	5.99
TDK D 90	1.05	MAXELL T-120 HGX	7.95
TDK D 60	.95	SONY UCXS 90	2.25
TDK LX 35-90	5.15	SONY UCX 90	1.99
TDK LX 35-90B	5.85	SONY LNX 90	1.05
TDK HD-01 DEMAG	12.75	SONY LNX 60	.85
TDK T-120 OR L-750	5.99	SONY L-500	4.99
TDK T-120 OR L-750 EX HG	7.95	SONY L-750	5.99
DISCWASHER DISCKIT	32.95	SONY L-750 HG	7.95
DISCWASHER SYSTEM	8.79	SONY T-120	5.99
DISCWASHER DISCSET	16.49	FUJI FR METAL 90	3.69
DISCWASHER 16 oz. FLUID	9.99	FUJI FR II 90	2.19

CALL NOW! 212-434-3417 or order by mail!
Add $3.50 shipping on orders up to $70. Over $70 add 5% of total order. Double above if parcel post. Outside USA write. MC/VISA add handling, 3%

QUALITY TAPES
864 East 7th Street, Dept. HF8, Brooklyn, NY 11230

SHAMEFULLY LOW PRICES: Nakamichi, Quad, Grace, ETC. Serious Buyers Only. VISA/MC, COD. AudioWorkShop 1-206/323-4987, 1-206/323-2676

COMPACT DIGITAL DISCS & PLAYERS, HAFLER, MITSUBISHI, FRIED, ADCOM, NAKAMICHI, KLIPSCH, ACOUSTAT, SAE, CARVER, PROTON, more. Immediate, FREE shipping! READ BROTHERS STEREO, 593-C King Street, Charleston, South Carolina 29403. (803) 723-7276.

CALL TOLL FREE 1-800-826-0520 FOR ACOUSTAT DAHLQUIST NAD HAFLER DENON dbx 3D PROTON TANDBERG BELLES ORACLE M&K GRADO NITTY GRITTY AUDIOQUEST AUDIOCONTROL SNELL B&W DCM THORENS VSP STAX SOTA GRACE ASTATIC DYNAVECTOR. THE SOUND SELLER, 1706 MAIN ST., MARINETTE, WI 54143 (715) 735-9002.

ALL HIGH-END JAPANESE STEREO EQUIPMENT DISCOUNTED TREMENDOUSLY. NAKAMICHI DRAGON, RX-505, 1000ZXL, SONY 701ES; MICRO, DYNAVECTOR, GRACE, GOLDBUG, DENON. WE LIST OVER 150 CARTRIDGES, TONEARMS. CALL! FULL CATALOG $3. JAPANESE STEREO, 930 NORTH LACIENEGA BOULEVARD, LOS ANGELES 90069. (213) 652-3337.

BANG & OLUFSEN FULL LINE, ADS, B&W AND BOSE SPEAKERS AND OTHER QUALITY PRODUCTS AT REASONABLE PRICES. SOUNDCREST, INC. (717) 774-2618

FACTORY ORIGINAL DIAMOND NEEDLES & PHONO CARTRIDGES. MOST POPULAR LINES AT DISCOUNT PRICES. FOR FREE CATALOG SEND SELF ADDRESSED STAMPED ENVELOPE. LYLE CARTRIDGES, BOX 69H, BROOKLYN, NY 11218. CALL TOLL FREE (800) 221-0906, N.Y. (718) 871-3303. VISA/MC.

SAVE 50% BUILD YOUR OWN SPEAKER SYSTEM. Write McGee Radio Electronics. 1901 McGee Street, Kansas City, Missouri 61408.

LOWEST POSSIBLE PRICES ANYWHERE! FULL WARRANTY-FAST DELIVERY AUDIO-VIDEO-CAR STEREO-COMPUTERS-SOFTWARE VIDEO GAME-TELEPHONE-MORE!! ELECTRIFIED DISCOUNTERS 996 ORANGE AVE., WEST HAVEN, CT 06516-MC/VISA 203-937-0106

PACIFIC RIM MARKETING CORPORATION

P.O. BOX 1173 - EVERETT, WASHINGTON 98206

"SUPER HIGH GRADE"
PACIFIC RIM GOLD STANDARD
VHS VIDEO TAPE
T-120 / SHG
IN DUST FREE PLASTIC
"BOOK-STYLE" CASE
AT NO ADDITIONAL CHARGE!
* $8.95 EACH

"BAG-O-GOLD"
10 PIECE
VIDEO DUBBING KIT
PROFESSIONAL QUALITY
75 OHM, LOW-CAPACITANCE
CABLES WITH GOLD-PLATED
CONTACTS AND ADAPTERS
* $24.95 EACH

ALL ORDERS SHIPPED FREE IN U.S.A.
"EVERYTHING FOR THE VIDEOPHILE"
* WASHINGTON RESIDENTS ADD 7.8% SALES TAX
SATISFACTION GUARANTEED • DEALER INQUIRIES INVITED

ESCAPE AUDIO MADNESS. We have the highend equipment you want at prices you can afford. Call before paying too much. Catalog $1. Audio Advisor, Inc. (616) 451-3868. Box 6202, Grand Rapids, MI 49506 Amex, MC, Visa.

PEOPLE WHO KNOW STEREO BUY THEIR SOUND DIRECT. Now you can buy the finest in High Fidelity components, including esoterics and autosound at unheard of prices. DIRECT SOUND MARKETING provides sensible expert advice, in-house service facilities and factory fresh components on an in-stock basis. Discover America's best kept audio secret. Send for our free catalog to DIRECT SOUND MARKETING Dept H, 3095 Bolling Way, Atlanta, Ga 30305 or call 404-233-9500. M/C, Visa, AMEX accepted. Sales tax charged to Georgia residents only.

EXCEPTIONAL AUDIO REPRODUCTION SYSTEMS . . . REASONABLY PRICED!! E.A.R.S, P.O. BOX 658-H, WEST COVINA, CA 91790. 818/961-6158, EVENINGS, WEEKENDS. STAMP BRINGS MONTHLY SPECIALS. MC/VISA.

Tapes & Records

OPEN REEL TAPE-MOSTLY AMPEX 641/671, used once, unspliced, unboxed. 7" 1800' or 2400' Reels; 25 for $39.00. Sample: $2.00. Ten 3600' 10½" Reels: $32.00. Sample: $3.50. New, High-Bias cassettes; Sample: $1.00. AUDIO TAPES BOX 9584-J ALEXANDRIA VA 22304 (703) 370-5555 VISA/MC

"SOUNDTRACKS, SHOW, NOSTALGIA & JAZZ—FREE Catalog & Offering List—A-1 Record Finders, P.O. Box 75071-H, L.A. CAL. 90075."

ORGAN AND CHORAL RECORDS. For free catalog write Gothic Records, PO Box 1576-A Tustin, Calif. 92681.

LIVE OPERA TAPES, CASSETTES, DISCS. Incredible Selection. Free Catalogue. Live Opera, Box 3141, Steinway Station, L.I.C., NY 11103

SEARCHING FOR OUT-OF-PRINTS? Try for Discontinued Records, 444 South Victory, Burbank, California 91502 (213) 849-4791.

FREE ALBUMS

. . . IN EXCHANGE FOR YOUR OPINION.
We need Record Raters. Your opportunity to build a substantial album collection. Small membership fee. Write EARS, Dept. HF, Box 10245, Milwaukee, WI 53210.

SHOW ALBUMS—Rare, out-of-print lps. 64-page list $1.00. Broadway-Hollywood Recordings, Georgetown, CT. 06829.

OPEN REEL TAPES from Studio masters. Catalogue $1.00. Barclay-Crocker, 313-H Mill Street, Poughkeepsie, NY 12601.

1930-1962 RADIO PROGRAMS. $1.00 HOUR! Informative 275 page catalog $1.25. AM Treasures, Box 192HF, Babylon, N.Y. 11702.

FREE RECORD CATALOG. New releases at discount prices and huge selection of classical, soundtrack, popular and jazz special values. Rose Records, Dept. H, 214 S. Wabash, Chicago, IL 60604

RARE CLASSICAL AND JAZZ. 150,000 LP's. The Record Collector, 1158 N. Highland, Los Angeles, CA 90038 (213) 467-2875.

TOSCANINI, great conductors, instrumentalists. LIVE CONCERTS. Reels, cassettes. Free lists, request artists. CRAA, BOX 1112HF, El Cerrito, CA. 94530.

1,000,000 SOUNDTRACKS/BROADWAY/VIDEOTAPES! Catalogue—$1.00. RTSHG, Box 1829, Novato, California 94948. Soundtrack Valueguide: $5.50.

JAZZ RECORDS, BOOKS & VIDEOTAPES-DOMESTIC & IMPORTS-DISCOUNT PRICES. FREE LISTS! JAZZLAND, BOX 366, DAYTON, OH 45401.

COMPACT DIGITAL DISCS exclusively-in stock-classical, opera, jazz, film-catalog $1.00, refundable with order-Ethel Enterprises, P.O. Box 3301, Dept. HF, Falls Church, VA 22043.

DIGITAL COMPACT DISCLUB. Members get SUPER LOW PRICES (Hardware, Too), Super Selection, TRADE-IN PRIVILEGES, Free 900 Title Quarterly Catalog. Send $1.00 For Details (Refundable On Membership). Digital Disclub-H, P.O. Box 645, Carmel, Indiana 46032

PROTECT YOUR LP's.
Poly, Paper, Cardboard Jackets.
Low Prices. Free Catalog. Record House, Hillburn, NY 10931

TAPE WORLD TOLL FREE 1-800-245-6000

TDK MAR-90	6.29	MAXELL TDK T-120 L 750 Hs Grade	8.59
TDK MA 90	4.29	MAXELL TDK T-120 L 750	6.59
TDK SAX-90	2.99	MAXELL XLI or IIS 90	2.89
TDK ADX-90	2.59	MAXELL UDXLI or II 90	2.29
TDK SA 90	2.09	MAXELL UDXL I or II 60	2.19
TDK SA 60	1.89	MAXELL UD 90	1.99
TDK AD 90	1.89	MAXELL LN 90	1.29
TDK AD 60	1.49	MAXELL XL I 35 90R	6.49
TDK D 90	1.10	MAXELL UD 35 90	4.99
TDK D 60	99	SONY UCXS 90	2.49

WE WILL BEAT ANY COMPETITOR'S PRICE OF THE TOTAL ORDER, INCLUDING ALL SHIPPING AND HANDLING CHARGES BY 1%
3.75 Shipping any size order in US VISA MC no extra charge COD Add 1.65 Maximum COD order 40.00 PA add Sales Tax All orders shipped within 48 hours M F 8 30-5 00
323 Brown Avenue Box 361 Butler, PA 16001 412-283-8621

COMPACT DISCS! FREE CATALOG—Over 1300 Listings—Same Day Shipping. Laury's Records, 9800 North Milwaukee Avenue, Des Plaines, IL 60016. (312) 296-0420.

OLDIES BUT GOODIES. Records and Tapes. Discount Catalog $1.00. GOODTIMES CO., Box 363, Hawthorne, CA 90251

COMPACT DISCS! $14.99-$15.99 Send $2.00 (Refundable w/order) For Complete Current Catalog - OZ Records, 5246H Memorial Drive, Stone Mountain, GA 30083, (404) 292-5452.

OPERA-HISTORICAL PERFORMANCES ON DISC. Most comprehensive selection anywhere. Send $1.00 for catalog-refundable. LYRIC, 162 B. Cabot, West Babylon, NY 11704.

FREE COMPACT DISK catalogue. Wholesale prices. Huge selection of Classical, Jazz, Rock, and Country.—DIGITAL AUDIO WAREHOUSE, 3909 Rusty Dell, Fort Worth, TX 76111

COMPACT DISCS-15% DISCOUNT.
All domestic titles available. For free catalogue or to place order, call (301) 731-0099, or write to: Washington CD, PO Box 44005, Washington DC 20026. MasterCard and Visa accepted.

DISCONTINUED RECORDS, CLASSICAL, POPULAR, All Speeds, Free Lists. Fred Steinmetz, One Seaview Avenue, Massapequa, NY 11758.

HUGE 73 PAGE CATALOGUE!
Every Available Title! Immediate Service. Low Prices. $2.00. National Music Sales, 23115 (H), Ostronic, Woodland Hills, CA 91367

COMPACT DISCS. Large stocks; Prompt Air Service; Overseas Specialists; Export Prices; Free Lists. Europadisc, King Street, Sudbury, Suffolk, U.K.

Instruction

BE A RECORDING ENGINEER! New Classes quarterly. INSTITUTE OF AUDIO/VIDEO ENGINEERING. (213) 666-3003, 1831 Hyperion Dept. C, Hollywood, CA 90027.

LEARN RECORDING ENGINEERING. Top pro instructors. Check with us before deciding. Free brochure. JTM Workshop. (814) 797-5883. Knox, PA 16232

Business Opportunities

YOUR OWN RADIO STATION! AM, FM, licensed, unlicensed, low cost transmitters! Free information. BROADCASTING, Box 130-D8, Paradise, CA 95969.

ELECTRONIC REPRESENTATIVES NEEDED!!
Lowest Possible Prices!! Over 100 Brands! Audio-Video-Car Stereo-Computers. Electronic Experts, 1000 Orange Ave., West Haven, CT 06516

Inventions Wanted

Inventions, ideas, new products wanted for presentation to industry and exhibition at national technology exposition. Call 1-800-528-6050. Arizona 1-800-352-0458. X831

Equipment for Sale

HIGH PERFORMANCE AUDIO PLUS CAR STEREO AT A LOW, LOW PRICE. Featuring: ADS, Advent, Aiwa, Alphasonik, Alpine, Amber, AR, Audio Control, Audio Source, Blaupunkt, Bose, Boston, Celestion, Clarion-Audia, Concord, DBX, Denon, Dual, Dynavector, Energy, Grace, Grado, Grundig, Harman-Kardon, Hitachi, JBL, Kenwood, Kyocera, Mitsubishi, Monster-Alpha, Onkyo, Phase Linear, Pioneer, Proton, Pyramid, Robertson Audio, SAE, Sherwood, Signet, Soundcraftsmen, Sound Dynamics, Sony, Tandberg, Thorens, Vampire Wire, Wharfedale, Walker, others. Providing: professional advice, personal service, "no rush" showroom, prompt shipments, free delivery and set up trade-ins, extended warranty. RETAIL-MAIL ORDER-EXPORT. Call 12 Noon to 7PM E.S.T., or write today (regarding specific make and models), HAROLD MINTO, PERFORMANCE AUDIO/VIDEO LTD. 365 South Bayview Avenue, Dept. HF, Freeport, LI., NY 11520. (516) 378-4389. Financing, MC/VISA, AMEX. NO SALES TAX CHARGED TO OUT OF STATE RESIDENTS.

Discover THE SOURCE. Our international buying group offers you a wide range of quality audio gear at astonishing prices! THE SOURCE newsletter contains industry news, new products, equipment reviews and a confidential price list for our exclusive members. Choose from Aiwa, Alpine, Amber, B&W, Denon, Grace, Harman Kardon, Kenwood, Mission, Nakamichi, Quad, Revox, Rogers, Spica, Sumo, Walker, Yamaha and much more. For more information call or write to: THE SOURCE, 745 Alexander Road, Princeton, NJ 08540. 1-609-987-1111.

Indoor Circularly Polarized FM-Stereo Antenna . . . $32.95 MAXTENNA, Dept. HF, P.O. Box 3101, Quincy, IL 62305

Miscellaneous

TERMPAPER catalog—306 pages—15,278 academic topics! Rush $2.00. RESEARCH, 11322 Idaho, #206HR, Los Angeles, 90025. (213) 477-8226.

VIDEO MOVIES. EVERYTHING IMAGINABLE! VHS-Beta-Disc. Giant catalog Directory $3.00 (refundable). Tower, Dunkirk, MD 20754-0213

National Consumer Music magazine interested in obtaining classical and opera photographs. Rush reply to: Photo Research Department, High Fidelity, 825 Seventh Avenue, New York, N.Y. 10019.

BACKBEAT REVIEWS

(Continued from page 81)

out ever losing their own self-control.

The writing, all but one tune by Hemphill, is alive with charging tempos and tricky dynamics, remarkably avoiding any traces of restrictive formalism. In the Quartet's multileveled sound, textures are thick with oozing chords, but you can always hear how each individual horn is blending. Unaccompanied solos are discouraged—there's only one on "Live in Zurich"—as stepping out immediately upsets the collective balance. Although Murray gives his best space-age Ben Webster attack on *My First Winter*, it throws off the equilibrium.

Playing together, the four create tones that seem to ripen in the air. There is no more gorgeous sound in jazz today. The World Saxophone Quartet may have started off as an oddity, but by now it has nothing left to prove. These guys sound so cocky that they might as well be blowing not to an audience but to the walls of Jericho. The nervy, beautiful music of "Live in Zurich" captures a classic group at its peak.

STEVE FUTTERMAN

FRANS SCHELLEKENS/PRETNA

Murray, Hemphill, Lake, and Bluiett of the World Saxophone Quartet: no solos

AFRICAN POP

(Continued from page 73)

horn phrases. Adé adds his own restrictions to the ones already imposed by the juju praise-song format: His relentless optimism resists the brash militancy of Afro-beat conventions, and encourages those who would duplicate his international success to do the same. The horn question is just one of those cases where political differences are expressed in the musical realm.

My memories of exquisite South African vocal music have often made me long for the return of Miriam Makeba. Her recordings and performances were suppressed in this country as a result of her political activities against the racist regime in her native South Africa. Since the '60s, exiles like Hugh Masakela, Letta Mbulu, and Makeba have struggled to launch careers founded on township jazz and political protest, with limited success. Now, white explorers are coming out of the townships with collections like "Zulu Jive" that present not political, but everyday "*umbaquanga*" songs from Zululand.

The complex choral harmonies of the Bantu peoples of Angola, Mozambique, Zimbabwe, Namibia, and South Africa rival anything similar out of Europe's folk or ecclesiastical traditions. On "Zulu Jive" electric rhythm guitar and accordions follow a lively doubletime beat on many tunes, and even the instrumentals carry a harmonic depth (created by a bass guitar crooning beneath the melody) that might ordinarily be filled by the human voice. The presence of accordions can be attributed to Portuguese, English, and Dutch sailors, who also introduced South Africans to penny whistles. The Europeans' Gregorian and Lutheran hymns blended in quite nicely too; so did mainstream American jazz, imported in the '50s and '60s.

If "Zulu Jive" is a nice re-introduction to South African pop, then two other albums by multiracial South African popsters must be discussed just to put that LP in the proper perspective. Juluka's "Scatterlings" [see review, October '83] attaches English lyrics and pop-soul melodies to traditional rhythms in an effort to reflect a wish for racial harmony. Detractors claim that Johnny Clegg, the band's Afrikaner leader, is exploiting tribal elements in his music, as well as his Zulu partner, Sipho Mchunu. The songs get a very lush, new-wavish treatment (even more than Malcolm McLaren's blatant cooptations *Soweto* and *Zulus on a Time Bomb* from last year's "Duck Rock"), but I don't believe Clegg's intentions were counterrevolutionary, only perhaps a bit juvenile. A better conceived and executed effort by another black and white South African team, the collective called Izimpande, is "African Image." Again you get disco and jazz reworkings of traditional music, but this time folk material stays in its original language, and the vocal arrangements are more ambitious.

Portuguese-speaking African nations, meaning primarily Angola and Mozambique, haven't been inundating the West with product, partially for economic reasons and partially because as Communist governments their relationship with potential importers is not as good as it could be. But as you might expect, their songs have affinities both to the Cuban-tinged Congolese dance bands and to the rich pop traditions of Cape Verde and Brazil.

"De L'Angola Au Bresil" features Angolan expatriate Bonga's group Racines playing Angolan songs with Brazilian instruments: cavaquinho (a kind of bass ukelele), surdo (a resonant bass carnival drum), berimbau, (a one-stringed rhythm instrument), triangle, and cuica (a friction drum). Part original material and part solo vocal pieces from Angola's mystery religions, the songs share a delicacy of attack and exposition that is quintessential to both Brazilian and Angolan culture.

It seems only fitting to end this tour with Ghanaian recordings, because the current African Invasion appears noticeably short of them. The Nonesuch label's Explorer series deserves credit for keeping an impressive variety in stock, many of considerable interest as links between fully developed contemporary forms and their ethnic origins. "Voices of Africa," from Saka Acquaye and His African Ensemble, puts my early ambivalence toward Ghanaian highlife to rest. They are a surprisingly nifty dance hall band that sports vibes and a double bass, as well as sax, trumpet, flute, guitar, and mellophone. The horn lines, sharp blasts of royal fanfare, take off from a conga drum rhythm section that is allowed to solo several times in the course of one piece. These drum breaks and intermittent trumpet fills (especially prominent in *Sugar Soup* and *Saturday Night*) differentiate most highlife from more densely orchestrated and arranged sister forms like juju and Afro-beat. Several all-percussion-and-vocal tracks strip the jazzy elements from a strictly ceremonial backbeat.

On "Africa: Ancient Ceremonies, Dance Music, and Songs of Ghana" the context is even more ethnographic, as vocal technique and general compositional conventions go. You can hear how the gonje, or one-stringed lute, prefigured the retooled talking drum and electric guitar, even how its lines were adapted from finger piano and balaphon songs. My personal favorite is *Marilli*, which, when it was first played for me, sounded like anything but what it actually is: a little girl vibrating her tongue and palate so as to produce two or three distinct tones at once.

It is African music's constant ability to surprise and delight that attracts our attention, and I'm betting that those same qualities will hold it. It remains to be seen whether the current boom in domestically available African records is sustained the way reggae was—by constant touring, and the absorption of the form into American pop. But the opportunity and inspiration are there, as even this small selection of records so tantalizingly suggests. **HF**

READER-ACTION PAGE

Many manufacturers who advertise in HIGH FIDELITY offer additional literature on their products free of charge to our readers. For more information on specific products advertised in this issue, drop a postcard, care of Dept. HF-884 unless otherwise noted, to the addresses listed below. If an address does not appear, literature is available through the company's dealers only

Aiwa America, Inc.,
35 Oxford Drive, Moonachie, New Jersey, 07074, Att: Dept. HF 884

Alpine/Luxman,
19145 Gramercy Pl., Torrance, CA. 90509, Att: Dept. HF 884

Audiofon
P O Box 37, Brooklyn, N.Y. 11204 Dept. HF 884

Audio-Technica U.S. Inc.,
1221 Commerce Drive, Stow, OH. 44224, Att: Dept. HF 884

Audio Video Center Inc.,
4128 South Florida Ave., Lakeland, FL. 33803, Att: Dept. HF 884

BASF,
Crosby Drive, Bedford, MA 07130, Att: Dept. HF 884

BES,
345 Fisher Ave., Costa Mesa, CA. 92626, Att: Dept. HF 884

Carver Corporation,
P.O. Box 664, Woodinville, WA 98072, Attn: Dept. HF 884

Casio,
15 Gardner Rd., Fairfield, N.J. 07006, Attn: Dept. HF 884

Discwasher,
1407 North Providence Rd., P.O. Box 6021, Columbia, MO. 65205, 314-449-0941, Att: Dept. HF 884

Illbruck usa,
3800 Washington Avenue North, Minneapolis, Minnesota, 55412, Att: Russ Leighton, Att: Dept. HF 884 (612) 521-3555

Illinois Audio
12 East Delaware Pl., Chicago, Illinois 60611, 800-621-8042, Att: Dept. HF 884

J&R Music World,
23 Park Row, New York, N.Y. 10038, Customer Service Dept. HF 884

Kenwood,
1315 East Watsoncenter Rd., Carson, CA. 90745, Att: Dept. HF 884

LaBelle Camera & Stereo of Maine,
155 Main St., Biddeford, MA. 04005, 800-341-0783, In ME, HI, Alaska 207-283-1401, Att: Dept. HF 884

McIntosh Laboratory Inc.,
East Side Street, P.O. Box 96, Binghamton, NY 13904, Att: Fred, Dept. HF 884

Nakamichi USA Corp.,
1101 Colorado Ave., Santa Monica, CA 90401, Att: Dept. HF 884

NEC Home Electronics (USA) Inc.,
1401 Estes Avenue, Elk Grove Village III, 60007, Att: Dept. HF 884

Polk Audio Inc.,
1915 Annapolis Rd., Baltimore, MD 21230, 301-837-4300, Att: Dept. HF 884

Sansui Electronics Corp.,
Home Audio Division, Lyndhurst, N.J. 07071, Att: Dept. HF 884

Sony Corp. Of America,
Sony Drive, Park Ridge, New Jersey, 07656, Att: Dept. HF 884

Sound Reproduction,
7. Industrial Rd., Fairfield, N.J. 07006, Att: Dept. HF 884

Stereo Corporation of America,
1629 Flatbush Ave., Brooklyn, NY 11210, 212-338-8555, Att: Dept. HF 884

TDK Electronics Corp.,
12 Harbor Park Dr., Port Washington, NY 10050, Att: Dept. HF 884

TEAC Corporation of America,
7733 Telegraph Rd., Montebello, CA 90640, Att: Dept HF 884

Wisconsin Discount Stereo,
2417 W. Badger Rd., Madison, WI 53713, 800-356-9514, Att: Dept. HF 884

Yamaha Electronics Corp. USA,
6660 Orangethorpe Ave., Buena Park, CA. 90620, Att: Dept. HF 884

Advertising Index

Page No.	
46	Aiwa America, Inc.
13	Allsop Electronics
31	Alpine/Luxman
80	Audiofon
8	Audio-Technica U.S., Inc.
79	Audio Video Center
32	BASF
81	BES
4	Carver Corp.
6	Casio
Cover IV	Discwasher, Inc.
25	Dolby Laboratories
78	Illbruck usa
75	Illinois Audio
62	J&R Music World
45	JVC Co. of America
2	Kenwood Electronics
65	LaBelle Camera & Stereo
19	Maxell Corp.
81	McIntosh Laboratories
27	Memtek
15	Nakamichi U.S.A. Corp.
Cover II, 1	NEC Home Electronics, Inc.
12	Pioneer Electronics U.S.A., Inc.
9	Polk Audio
Cover III	Sansui Electronics Corp.
21	Sony Corp. of America
78	Sound Reproduction
69	Stereo Corp. of America
11	TDK Electronics Corp.
29	Teac Corp. of America
5	Technics
79	Wisconsin Discount
22	Yamaha

Advertising Offices

New York: ABC Leisure Magazines, Inc., 825 7th Ave., 7th Floor, New York, N.Y. 10019. Tel: (212) 265-8360. James A. Casella, Advertising Director; Richard J. Marino, National Accounts Manager; Michael Goldberg, Eastern Advertising Manager; James R. McCallum, Record Advertising Manager; Cecelia M. Giunta, Classified Advertising Manager; Kathleen Davis, Director of Production; Janet Cemak, Advertising Production Manager.

Midwest: High Fidelity, Hitchcock Building, Wheaten, Ill. 60187. Tel: (312) 653-8020. Starr Lane, Midwest Advertising Manager.

Los Angeles: ABC Leisure Magazines, Inc., 2020 Avenue of the Stars, Suite 245, Century City, Calif. 90067. Tel: (213) 557-6482. Rita Weitzen, Western Advertising Manager.

National Reps: Kathleen Charla, Kathleen G. Charla Associates, 21000 W. Fourteen Mile Road, Birmingham, Mich. 48010. Tel: (313) 642-3482. Bill Good, Sr., Good Magazines, Inc. 50 East 42nd Street, New York, N.Y. 10017. Tel: (212) 682-0385. Peter McCann, The McCann Group, 333 N. Michigan Ave., Chicago, Ill. 60601. Tel: (312) 782-4492.

Tokyo: Japan Advertising Communications, Inc., New Ginza Bldg., 7-3-13 Ginza, Chuo-ku, Tokyo 104, Japan. Tel: (03) 571-8748. Shigeru Kobayashi, President.

Sansui has developed an amazing new receiver; we call it the S-X1050. You'll call it incredible. That's because no other 35 watt* stereo receiver can match the Sansui S-X1050 for great sound, beauty and value.

Achieving more than any other receiver in its range, the S-X1050 incorporates a 5-band graphic equalizer. It's a built-in exclusive for a receiver at this level, that gives you complete tonal versatility for tailoring sound and attaining flat frequency response.

The Sansui S-X1050 also features Quartz PLL synthesizer tuning that assures you of drift-free reception. Clean bass response is provided by our DC servo circuitry, and our 5-LED power display lets you see what's happening—even in daylight.

We put all this overachievement under easy control with velvet-touch slides, tabs and push-buttons, to make the S-X1050 as pleasurable to operate as it is to listen to. For instance, simul-switching lets you go instantly from one source to another at the touch of a tab. And when you want to lock in your favorite music stations, you can at the touch of a button with 12 presets (6FM, 6AM).

All this, plus playing two pairs of speakers simultaneously, slide volume control and a 2-deck connection for tape 1 to 2 dubbing make the S-X1050 a most incredible unit.

Our S-X1030 25 watt* receiver is another Sansui achiever with many of the great features of our S-X1050 unit.

So achieve a new level of sound quality, convenience and value with Sansui's S-X1050. We know you'll be overwhelmed.
SANSUI ELECTRONICS CORPORATION, Lyndhurst, NJ 07071; Carson, CA 90746, Sansui Electric Co., Ltd. Tokyo, Japan

OVERACHIEVER.

Putting More Pleasure in Sound.

Sansui

*S-X1050—35 watts, 0.02% THD; S-X1030—25 watts, 0.05% THD. Minimum RMS, both channels driven into 8 ohms, from 20-20 kHz.

Your tape player deserves Discwasher® care as much as your records do.

For well over a decade, Discwasher has provided the music world with superior record care accessories and is most often considered the world leader in record care technology.

Don't settle for less when it comes to caring for your cassette players.

Discwasher Brand tape care accessories offer a high technology maintenance program for home, car or portable tape players.

The Discwasher® Perfect Path™ Cassette Head Cleaner safely removes dust and oxides from tape heads and from along the tape path with a single pass of its unique fiber matrix tape. Through its regular use, Perfect Path will preserve the fidelity and longevity of your player.

The Discwasher® C.P.R.™ Capstan-Pinch Roller Cleaner is the only cassette cleaner specifically engineered to properly maintain a cassette player's critical capstan-pinch roller assembly. This scientifically safe system cleans away contamination that can cause jammed cassettes and "eaten" tapes.

The Discwasher® D'MAG™ Cassette Deck Demagnetizer demagnetizes not only tape heads but capstans, tape guides and other steel portions of a cassette player as well. The unique use of high energy samarium cobalt magnets eliminates the need for batteries or power cords.

When it comes to maintaining the quality sound of your cassette player, trust Discwasher. After all, we've never let you down before!

To learn more, write Discwasher for your free copy of "Guide to Tape Care."

discwasher

1407 North Providence Road, P.O. Box 6021, Dept. HF, Columbia, Missouri 65205 USA A DIVISION OF JENSEN an ESMARK Company