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AUDIO • VIDEO • TEST REPORTS • MUSIC

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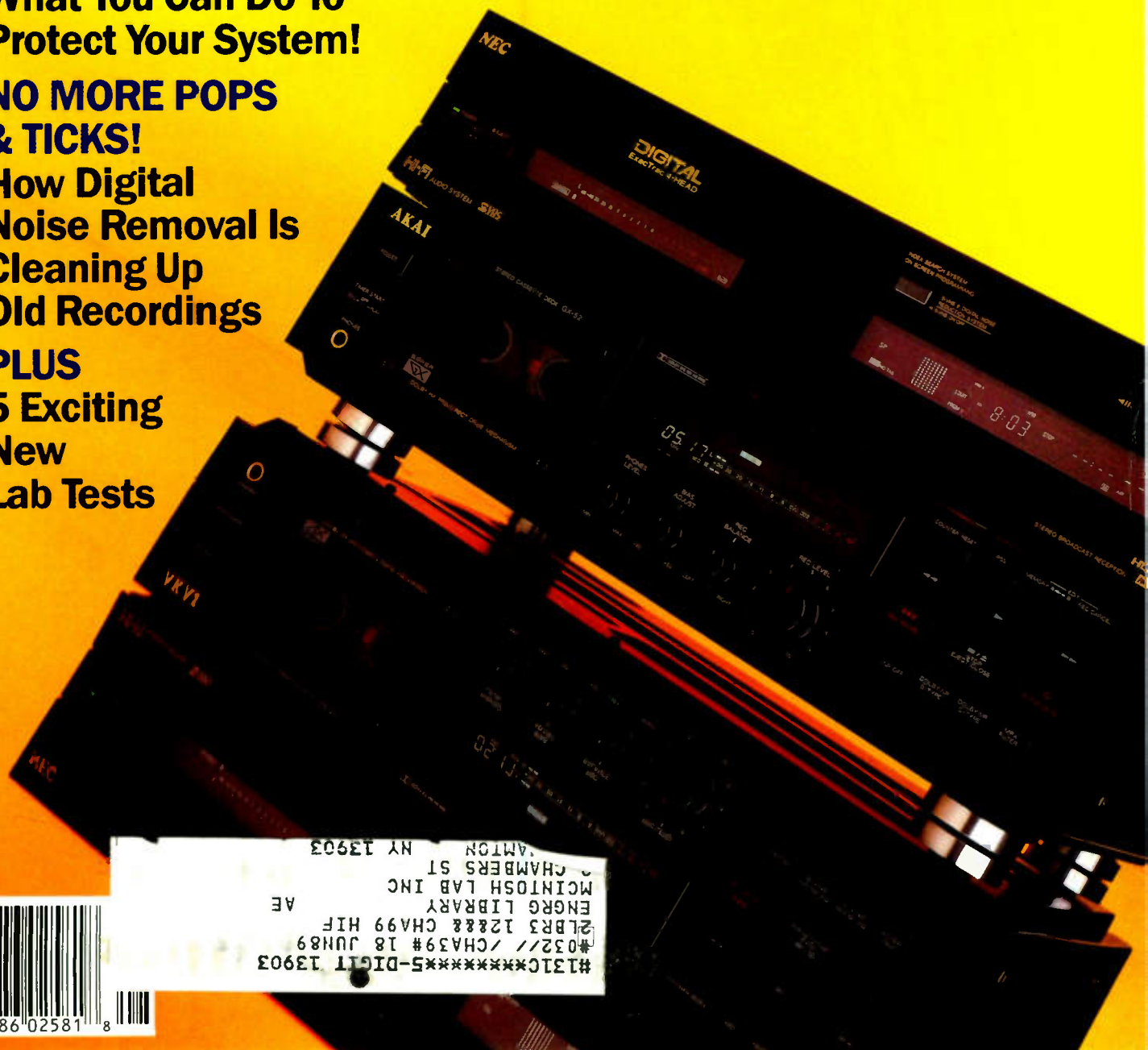
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Although recognized as a true breakthrough, most critics agree that CD technology has not fully translated into increased musical performance. Two aspects of conventional CD player design are responsible for this: integrated circuits (IC's) in the analog section and excessively steep analog filters. While desirable from a pure cost consideration, analog IC's have very narrow bandwidth and require huge amounts of negative feedback which creates, among other things, the TIM (Transient InterModulation) distortion responsible for the harsh, metallic sound that is a common complaint of the CD format.

The other widely recognized criticism of the CD format is a lack of spatial perspective ("depth") in the sound field. This is the result of the very steep filters (typically 60dB/octave or more) required in conventional CD circuit design.

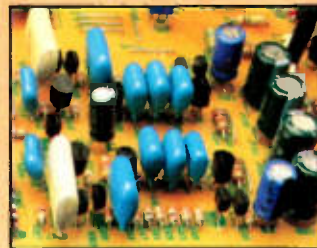
Harman Kardon both addresses and solves these problems in the HD200, HD400 and HD800. Our analog section is constructed entirely of precision discrete components (no IC's) and has Ultrawide-bandwidth of 0-250kHz and no negative feedback

at all. This all discrete circuit is completely free of the harshness of TIM and does not require the steep filters which destroy spatial perspective. The result is the clear, clean, stunning musical realism lacking in other CD players.

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Harman Kardon's CD players are equally advanced when it comes to convenience. The HD400 and HD800 feature wireless remote control with 10-key random access programming. All models incorporate 36-track program memory, track/index search and audible two-speed cue/review, as well as a multifunction front panel display.

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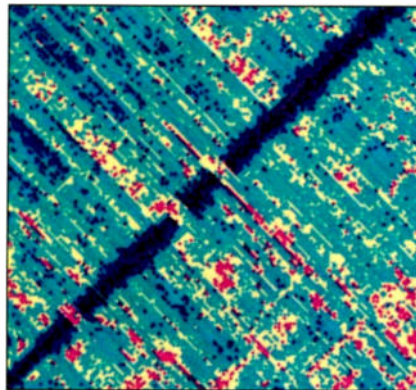
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On the cover: the NEC DS-8000U S-VHS VCR (top) and the Akai GX-52 cassette deck (bottom).



Cover design: Joanne Goodfellow
Cover photo: Tony Pettinato

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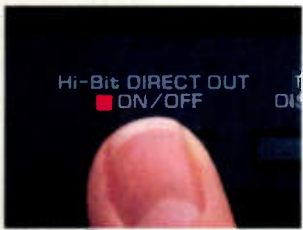


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No matter how small it may be.



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Bright Lights, Big City

By Michael Riggs

In May I visited Japan for the first time since the dollar stepped on a banana peel, prepared for sticker shock (and not disappointed). A quick tour of Tokyo's famed Akihabara section—where multistory electronics supermarkets coexist with a raft of smaller shops and back-alley stalls at which you can buy parts of every description (by the scoopful, you might think, from a glimpse of the bins of resistors and other small components)—revealed no bargains. DAT decks were there in abundance, at extravagant prices. But more on that later.

The real reason for my trip was to visit JVC's audio division. Perhaps because JVC is so well known as the inventor of the VHS system of video recording, and of VHS Hi-Fi and the new Super VHS format, people sometimes tend to forget that the company also makes audio gear. Perhaps it was just that fact that prompted the home office to invite a few journalists over from the United States and Europe for a tour of the facilities and some previews of coming attractions. Although the main spotlight was on JVC's new K2 digital interface (which is supposed to prevent any noise riding on a digital signal from degrading the final analog output), I thought that was the least interesting of several new developments. The most ingenious, to my mind, is a new amplifier using what JVC calls its Digital Pure-A circuit. As you might guess from the name, it is a Class A amplifier—but with a twist.

Like a number of previous designs, this amp uses a dual-voltage power supply. Only when the input signal is large does the supply switch to its high-voltage mode. At low signal levels, the supply operates at a lower voltage in order to conserve power and minimize heat. The latter is especially significant in this amp because it is designed to run in a traditional Class A configuration, which maintains a constant, relatively high bias across the output transistors to completely eliminate crossover distortion, even when the amplifier is operating at full output. (A conventional Class AB amplifier moves from Class A operation to the more efficient Class B mode at high outputs.) This is wasteful, but clean.

In the JVC scheme, however, the amplifier is working in a low-power mode most of the time, so the amount of wasted heat and power is correspondingly small. Only when signal conditions threaten overload does the unit turn into a high-power amplifier. And it's still Class A, because the bias gets cranked up along with the power-supply voltage.

So far, so good. But the most interesting part is that the Digital Pure-A system is engaged only when the amplifier is getting a digital input (from the digital output jack of a CD player, for example). Otherwise, it runs as a more conventional high-power amplifier using JVC's Dynamic Super A "sliding bias" system, which varies the bias constantly according to the level of the analog input signal to maintain efficient Class A operation. That's be-

cause the heart of Digital Pure-A is a prediction circuit that would not be practical without a digital input.

When the input is digital, the signal is split into two paths. The first goes into a digital memory buffer that delays it by about 150 milliseconds before it reaches the digital-to-analog (D/A) converter. The second goes directly to a control circuit that determines from the bit stream exactly when more power will be required than the amp's low-voltage mode can handle. Because of the delay in the path to the D/A converter (which feeds into the amplifier's audio circuit), the controller has time to think the situation over and tell the power supply exactly when to shift into overdrive—and exactly when to shift back out. It never has to guess, which means that it never moves too soon or too late; it is as efficient as it can be. And so we see yet another useful innovation made possible by digital encoding of audio signals.

In fact, virtually everything JVC showed us (apart from new speakers, which were designed with the aid of computers) was based on digital technology. The other standout was a new surround-sound processor based on digital signal processing. Except for the Lexicon CP-1 (which, as our review next month will explain, proceeds from somewhat different premises), the JVC unit is the first true competitor to Yamaha's groundbreaking designs. (See last month's review of the Yamaha DSP-3000.) We got only a brief demonstration, but its ability to re-create the sensation of being in a variety of realistic acoustic spaces was stunning. And JVC is looking to bring it in for less than \$1,000.

What about DAT? JVC has machines now—and is working on a new generation—but if you want one, you may have to go to Akihabara. We roughed up the company management a little on this issue, but even after the defeat of Copy Code (see "La commedia è finita," page 41), they are reluctant to move. JVC's president indicated that the company considers a negotiated settlement with the record industry a prerequisite to an American launch. To which we said, "Lotsa luck."

At the beginning of our morning in Akihabara, we met with the president of Laox, which is the district's largest retailer, with numerous stores all over the rest of Japan as well. When I asked him how DAT was doing, he replied that in the entire month of April his company had sold only 78 decks. Even in its home market, where they have been available for more than a year, DAT machines are far from becoming a mass-market item. The problem, he said, is price. And this, I think, explains the reluctance of the manufacturers to storm the gates of the American market. Why risk getting slapped with restrictive trade legislation for the sake of marketing a product that currently has little prospect of bringing in much revenue? When will America have DAT? At this point, your guess is as good as mine. My crystal ball's in the shop. □

NO NOISE AVAILABILITY

The "Currents" column in your July 1987 issue carries a brief discussion of a complex new digital noise-reduction system called No Noise. Would this system have improved the Frank Sinatra CD reissues reviewed in the BACKBEAT section of your August 1987 issue, which are criticized as being "moderately hissy AAD transfers"? And is this system available to the public for use in cleaning up the hiss, clicks, and pops endemic to old recordings? That this new process may (or may not) be used on rereleases isn't much help to those of us desperately seeking some magical (read "digital") way to clean up what is left of our precious recordings. My collection goes back to the 1930s.

Even if the No Noise system isn't now generally available, wouldn't some enterprising company see it as a great product for the record-playing public? DBX had ways of processing sound commercially, yet it managed to work its technology into circuits priced in a range accessible to individuals.

Ted Earley
Monrovia, Calif.

I have read in your magazine about a digital noise-reduction process called No Noise. Several months ago I bought a new audio system, including a CD player, and have been stocking up on my favorite oldies. But after having my ears pampered by the silent sound of digital, I find the hiss on some of these reissued recordings quite objectionable. Nonetheless, I have accepted it as the best that can be done. But if they come out later with the hiss scrubbed out by No Noise, I'll certainly want to replace them, at a loss of several hundred dollars.

Anyway, what should I do now? Should I stop buying CD reissues of pre-digital recordings until No Noise versions start coming out? Is there some company selling No Noise versions right now, or is it something the major record labels will be using in the future? If the latter, when? How will I know which record companies are using the process and which aren't? If I order discs by mail, will I be able to specify No Noise versions?

Please help. Many people must be facing this dilemma, especially those of us who grew up in the 1960s.

Ernest Swallow
Ocean Park, P.R.

There really is no simple answer to these questions, except that there will be no consumer version of No Noise in the foreseeable future. (The system is very complex

and runs on a high-speed minicomputer.) Some No Noised recordings already have been released, but the extent to which the process will be adopted by the record industry is yet to be seen. Labels will base their decisions on whether to use the system on a number of things, including cost, perceived benefit to the recording being reissued, and the extent to which the process generates undesirable side effects. This last is a particularly tricky question: Some producers feel that No Noise does more harm than good on certain types of material. For more on No Noise, see this month's "Bits & Pieces."—Ed.

ORIGINS OF CAR AUDIO

In "Front Lines" [May], Michael Riggs brings up the question of who invented the car radio. The first car radio, as we know it, was designed by Bill Lear for an outfit called the Galvin Manufacturing Company. (There were car radios before that, but they required "B" batteries under the floorboard.) He called it the Motorola, as in Victrola or Mazola. [We wonder if Lear wasn't thinking of "motor," as in "motor car," together with Victrola.—Ed.] Later, Galvin took Motorola as the name of all of its products and finally the name of the company.

I can't take autosound very seriously; one is too busy playing bumper tag to appreciate anything except traffic reports. By the way, almost everything on a car, including bumpers, started out as an after-market accessory.

Gilbert A. Johnson
Woodinville, Wash.

THE CANADA FILES

The combination of technical expertise and writing skill is a rare gift. Thousands of electronics engineers and technicians "know the stuff," but pitifully few can explain it. When I get snowed by technical information, I refer to David Ranada's articles, which I keep on file.

Edward V. Mace
Tucson, Ariz.

TOO MUCH DYNAMIC RANGE

I am really sold on Compact Discs—for the same reasons, I am sure, that everyone else is. They exhibit no background noise, and their dynamic range is beyond that of all other media. There is no question that they are the answer to recorded music. But I wish that manufacturers of CDs would realize that we know these things. There is no reason for them to record long periods of silence and very soft, low-volume music so that we can hear that there is no hiss or



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ADVERTISING OFFICES
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Midwest: HIGH FIDELITY, 580 Waters Edge, Lombard, Ill. 60148. Tel: (312) 691-1165/7. Starr Lane, Midwest Advertising Director.
Los Angeles: ABC Consumer Magazines, Inc., 2049 Century Park East, Suite 3050, Los Angeles, Calif. 90067. Tel: (213) 284-8118. Howard Berman, National Sales Manager.

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L E T T E R S

scratch. Why don't they record CDs the way they did LPs, at about the same level throughout? I try to make cassette copies to play in my car, but they are practically useless: I just can't hear the low parts over the road noise. I can hardly hear them in my home over ordinary house noises, such as air conditioning.

If you have any way to get word to CD manufacturers, please tell them to record at a constant volume so that we can hear all the music.

Penn Dawson
Clearwater, Fla.

What's bothering you is a manifestation of one of the Compact Disc's greatest benefits: very wide dynamic range. The dynamic range of a recording medium is the difference between the softest and the loudest sounds that it can resolve (more than 90 dB for CDs); the dynamic range of a piece of music is the difference between the loudest and the softest passages it contains (which varies widely, according to the type of music, from a minimum of 10 or 20 dB to a maximum that approaches the limit of what can fit on a CD). A truly high fidelity recording will seek to capture the full dynamic range of the music as it is performed, and for some pieces, that will mean alternations between very high and very low levels—the very thing that is annoying you.

We agree, however, that under some listening conditions (especially in a car), wide dynamic range can be too much of a good thing, making it impossible to set a comfortable listening level without having to strain to hear the soft parts or being overwhelmed by the loud ones. The best solution is a switchable compressor circuit built into the player, so that you can squeeze the dynamic range of your CDs into the dynamic range of your listening environment. Sony's first car CD changer had such a circuit. The best bet for your purposes, however, is the DBX DX-5, which includes a sophisticated variable compressor—the only one we know of in a home CD player.—Ed.

REISSUES WITH SOMETHING MISSING

I have a question about the process of reissuing "digitally remastered" versions of recordings. Last year, I purchased the remastered cassette version of Verdi's *Don Carlos* conducted by Carlo Maria Giulini with Plácido Domingo and Montserrat Caballé (Angel EMI 4AVC 34060); I also own the original LP recording of this performance, which I like very much. In comparing the digitally remastered version with the original, I was dismayed to hear that the cannon booms in Act One, which

announce the peace settlement between France and Spain and punctuate the duet between Carlos and Elisabetta, have been deleted. Why?

Can you imagine how Soliti's recording of the *Ring* would have sounded had its special effects been edited away?

Ron W. Flowers
Scott City, Mo.

When it came to anvils and the like, naked indeed. Getting back to *Don Carlo*, we're puzzled that you don't hear the cannon shots on your cassette version of this splendid recording: On the Compact Disc release, which presumably was prepared using the same digital remastering, all six of them are clearly there.—Ed.

(Continued on page 12)

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AUGUST 1988 7

Amazing.



How it works.

A brief conversation with Bob Carver:

Q. How can The Amazing Loudspeaker put out so much powerful, extended bass?

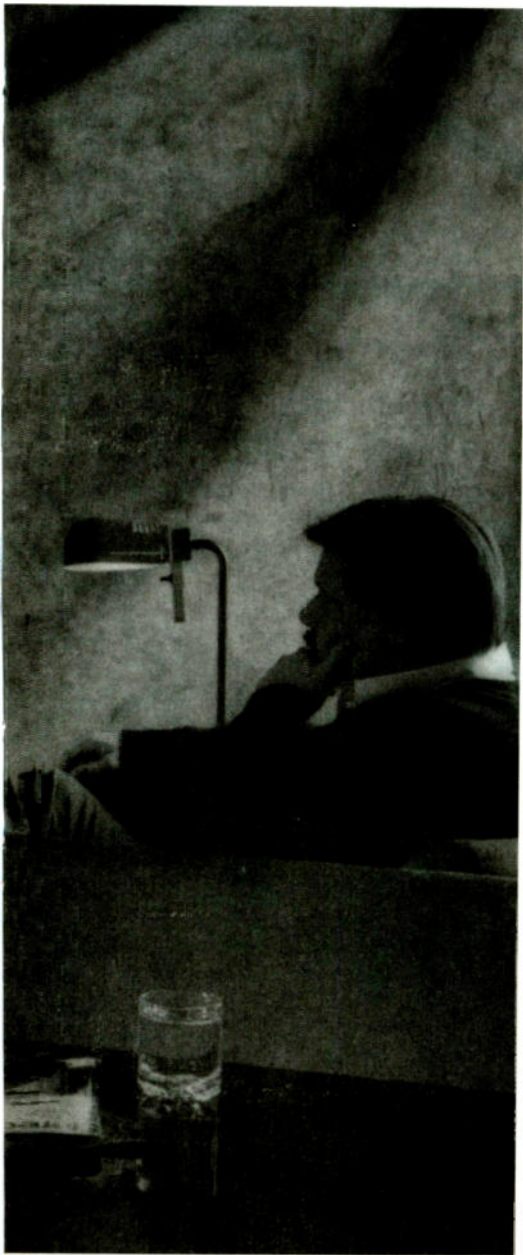
A. Brute force. A total of 8 subwoofers, each with 4 times the excursion of regular bass drivers for a total displacement (area times excursion) of almost 2000 cubic inches. The low frequency 3dB point is 18Hz!

Q. Why use a ribbon driver?

A. Because the sound of a ribbon is nothing short of glorious! Free of individual driver anomalies and crossover problems, the Amazing Loudspeaker's extended line source driver delivers a majestic sonic image that literally floods in 3-dimensional acoustic space. Simultaneously, it reproduces an amazing amount of musical detail that's simply unmatched by any point source driver.

POWERFUL

Distributed in Canada by: evolution
technology



This is not a typical speaker ad. Because The Amazing Loudspeaker is anything but a typical speaker.

This isn't even a typical Carver ad.

True, the Amazing Loudspeaker breaks so many conventional speaker rules — and succeeds so spectacularly at it — that we're tempted to fill this ad with a litany of hertz, watts and exotic buzz words the way our competitors' ads do.

"Its overall sound is spectacular, its bass performance surpasses that of almost any other speaker one might name."

STEREO REVIEW

Because there's bound to be quite a story behind a speaker that's 5½ feet tall and yet just 1½ inches thick. Especially when Bob Carver has a hand (or rather two hands, both feet and a year or so of lab time) in its creation.

But ingenious design is only our means to an end. The beginning of a dramatic awakening that will re-define for you the very essence of music.

"The image is as wide, deep and multi-layered as I have ever heard. Only Infinity's \$35,000 Reference Standard impressed me more."

Henry Hunt
Hi Fidelity Editor
HOUSTON POST

The Amazing Loudspeaker can etch a sonic image so detailed you can almost see rosin drift from a bow onto the polished surface of a violin.

It can brighten your listening room with the sheen of a #4 A drumstick on a Zildjian hi-hat cymbal. Or darken it with the smokey midnight growl of a battered baritone sax.

"It solves certain design problems and achieves certain sonic results with a simplicity and flair that can only be called, well, amazing."

Peter Aczel
THE AUDIO CRITIC

It can stun your senses and rearrange your furniture with thunderous salvos of tight, perfectly controlled low bass.

It can meticulously separate every instrument and vocal on a dense, multi-track mix and project each in sharp relief at precise points across the sound field.

In short, the Carver Amazing Loudspeaker restores what time and reading too many speaker ads often takes away.

Sheer wonder.

We have merely touched on the highlights of this truly amazing loudspeaker. We'd be happy to send you more information including reprints of several great reviews.

"It's price is ridiculously low for what it does and... what comparable products cost."

Julian Hirsch
STEREO REVIEW

However, if your immediate interest is the sensation of a listening room melting away to reveal the crystalline clarity of pure music, you need only visit your nearest Carver dealer.

Your amazement will begin when you discover just how affordable the Carver Amazing Loudspeaker really is.

CARVER
ACCURATE

MUSICAL

P.O. Box 1237, Lynnwood, WA 98046

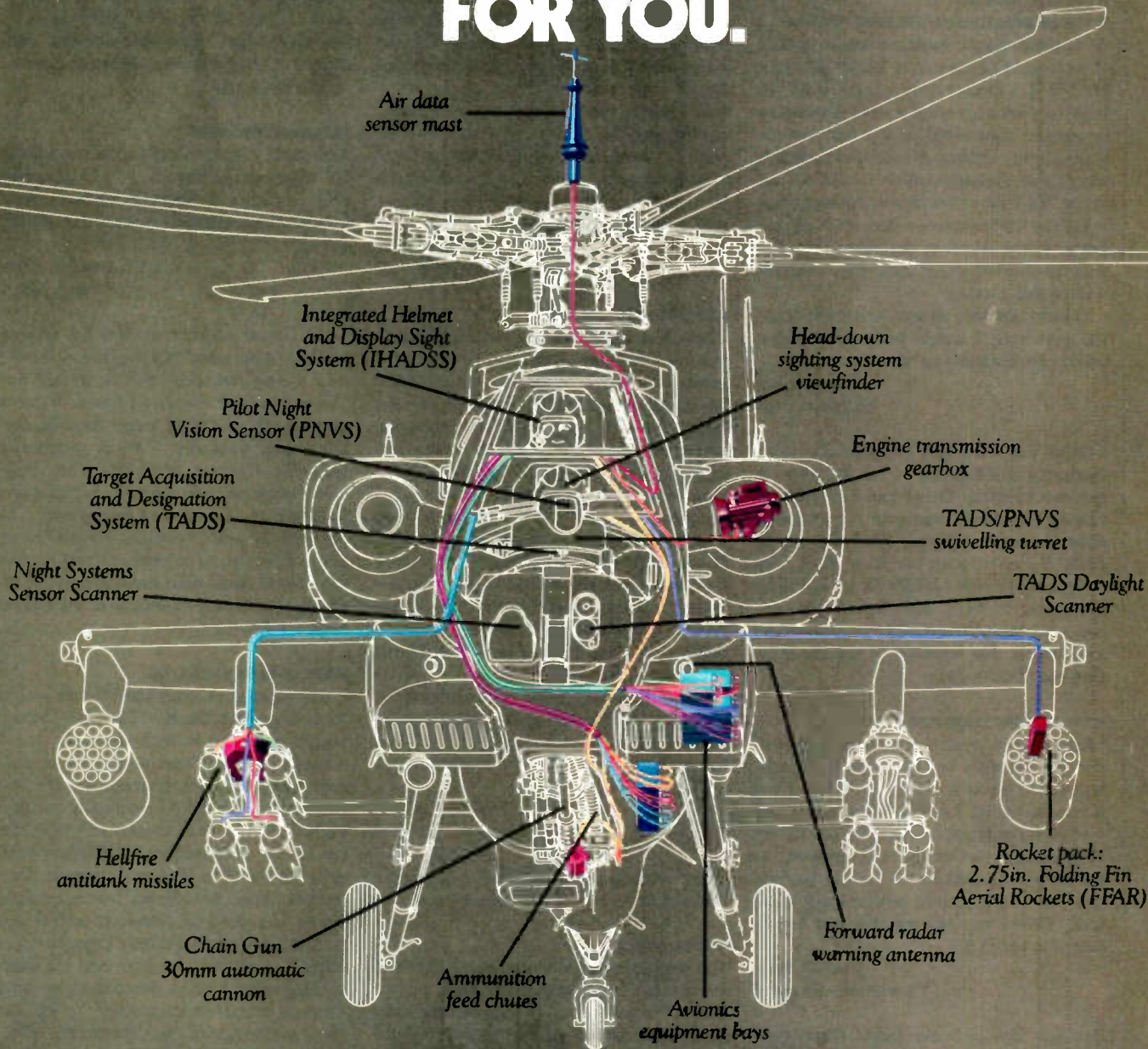
Q. But aren't ribbon drivers inefficient?

A. Not when designed with enough magnetic field strength. Each Amazing Loudspeaker ribbon uses 30 feet of high energy magnets in a special focused field gap. At 82dB efficiency, that's almost twice as efficient as any other ribbon that goes down to 100Hz. Our M-1.0t power amplifier yields peak SPL's exceeding 106dB; up to 110dB with an M 1.5t! More than ample to deliver a symphonic orchestra's sonic power, fifth row center.

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So talk to your Army recruiter. Or call 1-800-USA-ARMY. And find out how you can get under the skin of an Apache.

Once you've seen what's inside, you'll be glad it's on your side.

ARMY. BE ALL YOU CAN BE.

(Continued from page 7)

NO LP OF STOKOWSKI/STRAUSS "DEATH"

After reading your most interesting article "The Good Old Days Are Back" [December 1987], I thought you might be able to help me with a question no one seems able to answer. Stokowski and (I believe) the Philadelphia Orchestra recorded Strauss's *Death and Transfiguration* for RCA Victor on 78s. In my view, it was the best reading of the work ever recorded, and I am eager to know whether the recording was ever transferred to LP and, if so, whether it is available today.

I have not been able to locate the original anywhere. I would be grateful if you could provide some information.

Joseph Gale
Millburn, N.J.

Clough and Cuming's The World's Encyclopaedia of Recorded Music lists two 78-rpm recordings of *Death and Transfiguration* by Stokowski, one with the Philadelphia Orchestra (Victor 8288/90; set M 217), the other with the New York City Symphony (Victor 11-8826/8; set M 1006). According to RCA, the Philadelphia account was never issued on LP, and there are no plans at the moment to reissue it on Compact Disc.—Ed.

HOW ARE YOU FIXED FOR BLADES?

I have always loved the movie *Blade Runner* and recently bought what I thought was the original soundtrack. When I got home, however, I noticed that the music was performed not by Vangelis but by the New American Orchestra. I returned to the shop and asked for the real soundtrack but was told it cannot be obtained in the U.K. Could you tell me if it can be obtained in the U.S.?

Ronald Jones
Liverpool, England

Schwann lists only one *Blade Runner* album available in America, and it is the same one you purchased overseas. As far as we can tell, there is no evidence that a recording of the original soundtrack, as realized by Vangelis, was ever produced.—Ed.

ENCYCLOPEDIA DISHARMONY ILLUSTRATED

I enjoyed David Browne's guide to rock reference books, "You Can Look It Up!" [March]. I would like to point out, however, that *The Harmony Illustrated Encyclopedia of Rock* contains historical errors that are more serious than suspect discographies and lineup listings. For example, in its discussion of Heart, the book makes the astonishing assertion that Ann and

Nancy Wilson "began playing Seattle bars when women's role in rock was strictly limited to vocals." What about Carole King and Carol Kaye? Similarly, the book's description of Fanny as the "first major all-girl rock group" is questionable, considering the band never had a Top 20 record. Fanny certainly deserves its footnote in musical history, but I think nearly all would agree that the first major all-girl rock group was the Go-Go's.

Stewart Tick
Bluefield, W. Va.

AUDIOPHILIA

I have a very serious and potentially dangerous problem—a mental problem. It seems I am never satisfied. I find myself buying stereo equipment, and after about a month I desire new and, I think, superior equipment. Moreover, I am afraid that my monthly desires are attributable to your magazine. With each review that I read, I become more greedy. For instance, in your March issue you reviewed the Harman Kardon TU-920 Active Tracking tuner. I had never heard of that type of tuner before, but now I won't settle for anything else. In other words, I want to get one. I don't think that I'll ever be satisfied with the components I have.

Now to my question: Is this behavior normal? My friends think that my problem is unique. It would be comforting to know that others suffer from this wretched disease.

Brian Van Pelt
Northfield, Ohio

Congratulations, Brian: You're an audiophile. And no, you are not alone.—Ed.

GIZMO MADNESS

Reading your fine lamentation on the state of the art in gizmo madness ["Front Lines," March], I noted with double irony your sentiments on being able to find "components that suit your needs and style." The Holy Grail that would fill a ten-year personal "dry hole" would consist of the addresses of some manufacturers who offer an AM or FM radio smaller than a classic Zippo cigarette lighter. Some men are chosen by cosmic fate to lead us, others by gizmo madness, and I am hereby appealing to you—in your kindness and wit—as one of the illuminati presiding over the court of last resort.

Rod Goertzen
Moncks Corner, S.C.

Gosh, Rod. Panasonic makes a radio that is approximately the size of a credit card, only

a little thicker. Unfortunately, it is larger than a Zippo in the other dimensions. If you're interested, though, Panasonic's address is One Panasonic Way, Secaucus, N.J. 07094.—Ed.

JAPANESE SPEAKERS

Although you frequently publish reports on Japanese electronics, you hardly ever print anything on Japanese speakers. Why is this? Are Japanese speakers not of high quality?

Harold L. Aryee
Lowell, Mass.

Many Japanese loudspeakers are of high quality, in the sense that they are well-built and nicely finished, but most are not "voiced" to suit American tastes. Western ears usually find them rather forward, strident, and bass-shy. This is gradually changing, however. More and more Japanese companies are bringing out speakers balanced to fit American preferences. The obstacle of price remains, nevertheless. Shipping costs and currency exchange rates combine to make most good Japanese loudspeakers relatively expensive in the United States.—Ed.

FIRST IN-WALL SPEAKERS

I was pleased to read your recent article "Loudspeaker Design Trends" [May], which included in-wall speakers; but I want to point out one inaccuracy in your otherwise fine piece. Sonance was the first company in the field—producing our first high-fidelity in-wall speakers in 1981, for use in our own custom installation business. At the 1985 Winter Consumer Electronics Show, we offered Sonance speakers to U.S. high-end dealers, and at this time Sonance was the only company specifically pursuing the high-end architectural speaker market. Since then, we have devoted ourselves exclusively to the design, manufacture, and marketing of in-wall loudspeakers and other architectural audio products. Sonance is the largest manufacturer in the field.

Although our design goals are to offer speakers that are acoustically transparent and that seem to disappear into the architecture, we had also hoped to be more visible within the industry than we apparently made ourselves to your writer.

Scott Struthers
President
Sonance
San Juan Capistrano, Calif.

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

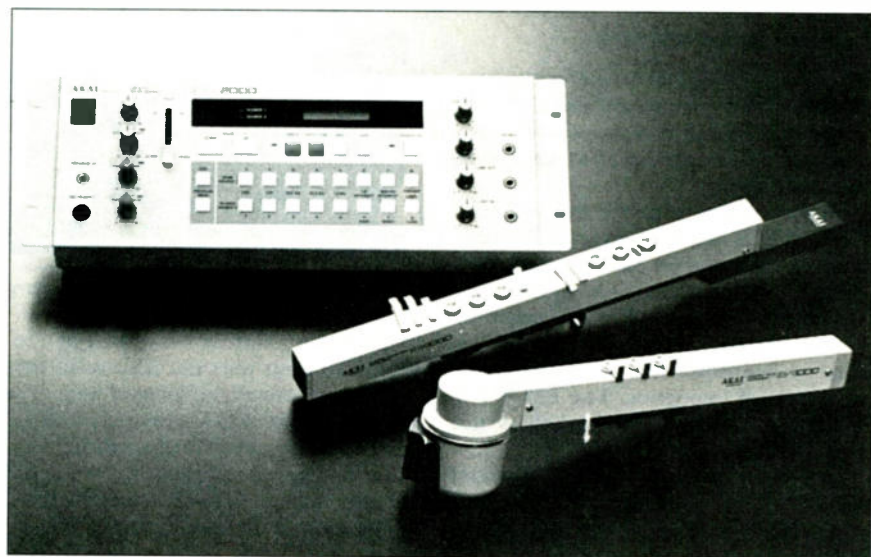
Not for Listeners Only

Last March under this heading I discussed the multitrack cassette recorder/mixer, an indispensable tool for recording musicians of any stature. Prior to that, in October 1987, the topic was the home studio: keyboards, digital samplers, and the significance of the Musical Instrument Digital Interface (MIDI) standard. I also had promised to talk about how MIDI is bringing the power of the electronic keyboard to players of other instruments. So here goes.

As you recall, MIDI connections are commonly used to link a master keyboard to one or more outboard sound modules. But those sound modules can be driven by any device that feeds them MIDI data. In principle, the electronic pulses generated by one's brain could be translated into MIDI data to control an attached sound device. Crazy? Maybe. But in the May issue of *Mix* magazine, Stephen St. Croix reported that at least one group has in fact developed a working system of this sort after eight years (predating MIDI) of hardware and software development. Direct brain-to-MIDI interface, it's called.

On a less cerebral front, Yamaha has developed the WX-7 Wind MIDI Controller (\$995), a device designed to give saxophone and other reed-instrument players entry to the electronic music world—without abandoning their instrument's expressiveness. The WX-7 has keys that correspond to those on a saxophone, plus others that operate special functions. It can be connected to any MIDI sound source, although it is particularly suited to Yamaha's affordable TX-81Z sound module (\$495). Breath pressure controls volume, vibrato, and tone of the driven sound. Pitch bending is effected by pressure from your lower lip, and the sensitivity of the mouthpiece is adjustable. In addition, two drain plugs adjust wind flow, adding to the ability to set up the instrument to match your style. Other features include an auxiliary pitch-bend rocker switch, an octave transposition key for a total range of 7½ octaves, and two trill keys for half-tone or whole-tone trills. You can even send a held note to one sound source while you are playing a lead line into another.

As far as I know, Akai was first to offer wind-driven controllers and has two models: the EW1-1000 Electronic Wind Instrument and the EVI-1000 Electronic Valve Instrument. Each sells for \$2,099, including the matching EWV-2000 Sound Module, a programmable analog synthe-



Top: Akai's EVI-1000 and EW1-1000 MIDI electronic instruments (foreground), and matching EWV-2000 MIDI sound module. Bottom: Yamaha WX-7

sizer specifically tailored for the two controllers. Again, lip and breath pressure are the main parameters, although as opposed to the Yamaha, there is no flow of air through either Akai device. On the EVI, which is patterned after a trumpet, you actually bite down on the lip sensor to control the amount of glide between notes. Both the EVI and EW1 can be set to generate four-note chords through the sound module. Interestingly, the connection between either controller and the supplied sound module is not MIDI; Akai chose to use an analog control system that it feels provides better resolution of the musical "data," and therefore increased expressiveness. However, the sound module can transmit MIDI performance data to other sound modules.

How good are these new instruments? Well, judging by reviews in *Electronic Musician* magazine, very good. *EM* says that the Akai EW1 "has the potential to change the face of recorded music" and that the Yamaha WX-7 enables a woodwind player "to create expressive music in ways that are associated with (if not unique to) wind instruments." Such praise for first-generation models bodes well for the continuing

refinement of MIDI-based controllers, including the growing ranks of guitar-to-MIDI controllers.

If you'd like to get a taste of wind-driven electronic music, Casio offers the DH-100 Digital Horn. It looks somewhat like a toy soprano sax but uses breath pressure to control the dynamics of six built-in sounds, which are reproduced through an integral speaker or a connected audio system. It also has a MIDI output jack for driving outboard sound devices or recording the music pattern into a sequencer. And it runs on batteries or off an optional AC adapter. Naturally, at only \$170, the DH-100 is not aimed directly at the pro market, although it illustrates again Casio's ability to develop music-making products that have no business costing so little.

Information on the products discussed above can be obtained by writing to the manufacturers at the following addresses: Yamaha Music Corp., U.S.A., Dept. HF, P.O. Box 6600, Buena Park, Calif. 90622; Akai Professional, Dept. HF, P.O. Box 2344, Fort Worth, Texas 76113; Casio, Inc., Dept. HF, P.O. Box 7000, Dover, N.J. 07801.

Christopher J. Esse ▶

Laser Innovations

Movies on Laserdisc can offer the best combination of picture and sound quality commercially available, yet there is one annoyance: having to get up at some point to flip the disc.

Pioneer has now solved this problem. The LD-W1 Laserdisc player (\$1,700) can hold two discs and play all four sides, thus eliminating any need to swap or turn over a disc during playback. The laser assembly in the back end of the extra-deep player rises up and down and rotates to get to each side of two discs. The LD-W1 is strictly for 12- and 8-inch Laserdiscs, not for CD-Vs or audio CDs.

An 8-bit digital field-memory provides special effects such as still-frame and strobe (both with sound continuing), the former otherwise not possible on CLV discs. Other features include 20-step chapter programming, nine-step multispeed play, six repeat modes, frame-by-frame steps in either direction, and time search accurate to within one second. The remote operates all of these functions and has a jog-shuttle dial for variable-speed scanning and slow-motion control.

Another significant development appears in Pioneer's latest in-dash car CD player, the DEH-66 (\$800). Somehow the company has managed to squeeze into one DIN-size chassis not only a CD mechanism and a Supertuner III tuner, but a



Pioneer DEH-66: First car CD player with integral amp

"high-power" amp as well (rated by Pioneer at 20 watts per side). This is the first car CD player with an integral amp. The DEH-66 also provides preamp outputs for an outboard back-channel amplifier. Features include electronic controls for the volume, balance, fader, and tone controls, whose settings are displayed numerically on the large LCD panel; a random-play mode and audible cueing; 18 FM and 6 AM presets with Pioneer's Best Station Memory function (automatic storing of the six strongest stations on either band); and the "Secret Code" anti-theft system. Pioneer Electronics, P.O. Box 1720, Long Beach, Calif. 90801.

Videophile Alert

Sony has introduced a wide range of decidedly high-end video products. On the optical-disc front is the MDP-200 (\$950), which plays all varieties of CDs and video-

discs. To wit: 12- and 8-inch Laserdiscs, CD-Vs, regular audio CDs, and the new 3-inch CDs (no adapter necessary). The audio section features dual 16-bit digital-to-analog converters with four-times-oversampling digital filters. A typical (that is, large) assortment of operating and programming features is provided for both audio and video playback, as is a comprehensive remote control.

Next is the EDV-9500 ED Beta VCR (\$3,300), aimed at a group Sony calls "prosumers." ED (Extended Definition) Beta, a wider-bandwidth version of Super Beta, is said to yield more than 500 lines of horizontal resolution (should the source contain that amount of detail). Like Super VHS, ED Beta recordings must be made on a special tape (in this case, a metal-particle formulation), although the machines can make and play back Super Beta recordings as well. Input and output connections include separate Y/C (S-Video) jacks that minimize crosstalk between the color and brightness components of a video signal.

The 9500's extensive list of editing features includes dual flying erase heads, eight-segment assemble editing, index-point marking, and three control ports that permit interoperability with compatible decks during editing. In addition, the deck has an 8-bit digital memory for an assortment of clean special effects. Other features, including Beta Hi-Fi, are what you would expect in a high-end VCR.

While word has it that a high-band 8mm system is forthcoming (maybe in less than a year), Sony continues to embellish its 8mm offerings. In this case, improved audio is the obvious goal, represented by the PCM digital stereo recording capability in the new CCD-V220 8mm camcorder (\$2,500). The digital audio signals are recorded separately from the video so that a soundtrack can be added at a later time. The CCD-V220 also records the standard AFM mono soundtrack (which is embedded in the video signal). An auxiliary mike on the side of the camera facing the user

(Continued on page 80)

SOUND INVESTMENTS

If you own vibration sensitive equipment like CD players, turntables, VCR's or videodisc players you can greatly improve your systems sound quality with AQ's Sorbothane Big Feet and CD Feet. They are simply amazing in their ability to eliminate unwanted vibration.

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Answers to Readers' Questions

By Larry Klein

Getting Started

As someone just getting started in hi-fi, I'm sure I represent a large number of HIGH FIDELITY's readers. My problem is that I don't really understand a lot of what you and the other technical writers are talking about each month. Everyone starts as a beginner—have pity on us!

Thomas Walecka
Philadelphia, Pa.

I know exactly what you are talking about since I have yet to find a technical explanation of, say, a 16-valve overhead-cam engine in any monthly car magazine. The truth of the matter is that *no* special-interest monthly publication such as ours can be entirely satisfactory to a novice. Monthly magazines aimed at a wide audience cannot continuously provide beginners with all the basic information they need to fully understand a field. If we were to try, half the magazine would consist of technical definitions, and the other half would consist of ultra-basic articles that all started: "The electrons revolve around the atomic nucleus . . ."

Most of our articles are written with the assumption that the reader has some basic understanding of hi-fi technology and practices. Our goal is to broaden and enhance that understanding, and to introduce, as clearly as possible, new concepts and technology as they come on the scene. Basic information can best be found in *books* aimed specifically at newcomers, not in monthly magazines.

Check the catalogs of TAB Books (Blue Ridge Summit, Pa. 17214) and Howard W. Sams (4300 West 62nd St., Indianapolis, Ind. 46268); both have an excellent assortment of basic and advanced books on audio.

Overloud Rock

Perhaps this is not your sort of question, but why do so many rock groups play so loud in concert?

Bill Shawn
Long Island City, N. Y.

When I lived in New York City and heard a lot of live music, I had frequent occasion to ask myself the same question. Perhaps it is necessary to make the point here that I'm not a fuddy-duddy tut-tutting the sonic antics of "our youth." At home, I listen mostly to rock and at fairly high volume—at least when my wife will let me. In the late '60s I attended several concerts a month at what was then the Fillmore East, and with few exceptions all of the groups played at what I considered loud but appropriate levels.

Today's groups, some of which consistently produce well over 110 decibels, are doing a great disservice to themselves, their audience, and their music. Even brief exposure to such high sound levels can cause a hearing impairment called "threshold shift." This may be temporary or—after

prolonged exposure to such levels—permanent. It could well be that some groups play as loud as they do only because they are not aware that they *are* that loud. Their collective thresholds have shifted—or, to put it in more common language, they have already been partially deafened and need the volume in order to hear themselves. (For much more information on hearing loss and hearing protection, see last month's issue.)

Power Upgrade

I have a 30-watt-per-channel receiver that generally sounds good, but I suspect that it is clipping when played at high volumes. I am considering trading up to a 60-watt-per-channel unit and wonder what sort of improvement that will make.

Arnold Collardo
New York, N. Y.

Not much. You should know that, all other things being equal, if you double the available power (as measured in watts) from your amplifier, you'll gain only 3 dB more signal headroom before signal clipping (overload) occurs. Of course, every little bit of additional power helps, but if you are changing your equipment specifically to obtain greater power reserve, it makes more sense to trade up to at least *three* times your present power, rather than doubling it.

When comparing amplifiers of equivalent cost and continuous-power ratings, it's a good idea to choose one with a high dynamic headroom rating; say, 3 to 6 dB. Such amplifiers can provide two to four times their continuous-power rating for brief musical peaks—which is precisely when you need more power.

As to whether your present amplifier is clipping, that would depend on your preferred listening levels, the type of music you like, the size and acoustics of your listening room, and the efficiency of your speakers. If you have access to an oscilloscope, you can visually monitor the musical output waveforms being sent to your speakers for indications of clipping. Clipping will appear as bright spots at the tops and bottoms of the highest waveforms. There are more definitive ways to spot clipping with a scope, but I've not the space to describe them here.

Perhaps you can borrow a high-powered amplifier to substitute for your present one to see if you hear a difference at the levels at which you normally listen. If there is a difference to be heard, it will show up as a more "open" quality with greater detail during the very loud passages. There should also be a greater sense of dynamics in the music. Your listening tests should be done with music that has a wide dynamic range (lots of loud *and* soft passages) rather than with hard rock or similarly compressed, consistently loud material.

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



Sonic Solutions' Digital Denoising

By David Ranada

In the time since HIGH FIDELITY broke the story of Sonic Solutions' No Noise digital noise-removal process for studio master tapes ("Currents," January 1987), quite a few No Noise-processed CDs have appeared. Sonic Solutions has also become more talkative about its techniques. These developments have made possible an explanation of why the process seems to be so effective.

The denoising part of No Noise processing can be likened to a multiband expander, similar in concept to certain home analog components. But the concept has been extended far beyond what would be practical with analog circuit techniques: Here, "multi" means division of the audio spectrum into more than 2,000 frequency bands. This makes No Noise, as computer types put it, very "computation intensive." Denoising just one second of music requires more than 53 million computational operations. Such complex processing cannot run in "real time"; denoising of a typical CD takes overnight. This complexity also precludes a real-time consumer device incorporating the process, at least for the next several years.

The basic frequency analysis and signal resynthesis are performed by Fourier-transform techniques similar to those used in speaker impulse-response testing. Between the Fourier transform and its inverse lies the key to the system's denoising abilities: a set of processes that estimate when noise will and will not be audible. These are psychoacoustically based computer algorithms that predict the ear's response to noise. Specifically, the process incorporates knowledge on how louder sounds mask softer ones depending on the frequencies and levels involved. For every instant in the music, the system looks forward and backward in time over psychoacoustically significant intervals (several milliseconds) to determine what is noise and whether its removal would damage the music or not.

To calibrate the process so that it "knows" what should be considered noise, a "signature" is used. This is a sample of "pure noise," taken, perhaps, from a pause in the music. A signature could contain not only tape or microphone hiss or disc rumble, but other continuous noises such as hum, buzz, and air-conditioner rumble. During the denoising process, as the level in one of the analyzed frequency bands falls and approaches the level of the noise signature at that frequency, the computer decides that the content is probably noise and it is more likely to expand the band downward in level, thus reducing the noise in the final signal.

Sonic Solutions' denoising process is not a set-and-forget operation. There are several operator adjustments that can be made to increase or decrease the effects of the system on the noise and the music. Although none of the processed discs I have heard suffer from the major sonic problems endemic to analog noise-removal techniques

(noise "pumping," or "breathing," and changes to the reverberant "tails" of musical transients), the system can be set so as to produce these effects as well as to remove high frequencies to a greater or lesser degree. Sonic Solutions says its settings are ultimately determined by its customers, and that it attempts always to work with the producers of the program material in order to find settings that do no musical damage.

Declicking is the second primary service performed by Sonic Solutions. Like denoising, it is performed digitally and is largely an automated process. Analog click removal has traditionally meant many hours at a splicing block removing thin slivers of master tape, the result being a click-free master that is somewhat shorter than the original. The Sonic Solutions declicking process preserves program length by filling the gaps left by the removed clicks with a musical waveform synthesized from the waveforms before and after the click. This doesn't always produce a good-sounding result, but the system is smart enough to realize when its guesses are likely to be audibly disturbing, and it marks those clicks over which it cannot interpolate successfully. The parameters of the click removal/refilling process are then manually varied by the system operator until the click is filled in successfully.

Recent noteworthy processed CDs include the Beatles' *Abbey Road* (on which, I have been told, a few if not all tracks were processed), an Andrews Sisters disc (MCA MCAD 41044), a series of jazz classics on Bluebird (many originally from 78s; see our Duke Ellington review in this issue), and the initial discs of Philips' *Legendary Classics* series. At the press conference introducing the *Legendary Classics*, Philips gave out a demo disc containing excerpts of music before and after processing.

As the Philips disc shows, when properly used, No Noise processing works so well that it cannot be blamed for any remaining sonic deficiencies of the final CDs. There have been reports that No Noise alters the music by removing high frequencies along with the noise. However, the degree to which music is altered by No Noise is dependent on its settings. It could be that some producers want more noise removed and are willing to put up with an occasional slight dulling of whatever highs are in the original music.

It could also be that Sonic Solutions is reliving the "missing highs" syndrome that Ray Dolby had to endure when he started to promote his analog noise-reduction systems. Hiss and other high-frequency noises can easily be mistaken by the ear for true musical high frequencies—and their removal as alterations to the music. It has taken the advent of low-noise digital recording to prove Dolby correct: A good Dolby-A analog master recording is often a good match for a digital master—high frequencies and all. For some of No Noise's critics, it seems that reality takes a little getting used to. □



A Biased View of UnEQalization

By Robert Long

Some time ago, a reader wrote to *HIGH FIDELITY* asking why his cassettes, copied from a collection of open-reel tapes, sounded hissier than the originals. Of course, the dubbing operation itself adds noise, but what's unusual this time is that the tapes seemed noisier with Dolby C noise reduction turned *on*. Such a problem can't be solved definitively without firsthand experimentation with the equipment, tapes, and program material, but I can make an informed guess as to what has happened: a type of deck/tape mismatch of fairly recent origin.

These days, some premium Type 1 (nominally, ferric) and Type 2 (chrome or ferricobalt chrome-equivalent) formulations aren't what they purport to be: Their pigments (the magnetic particles that do the work) are toned-down versions of those from the next rung up the coercivity ladder. Pure metal-particle pigments used in Type 4 tapes have been modified for Type 2 bias levels. Similarly, ferricobalt Type 2 pigments have been modified to accept the lower bias levels of ferric Type 1 tapes. There are some souped-up versions of Type 2 and Type 1 tapes that do *not* use pigments from the rung above. These cassettes tend to have slowly rising high frequency responses.

The intent with the toned-down pigment types is to take some properties of the upper rung to create a super-tape at the lower one. High-frequency headroom, in particular, can be increased by this method, and the metal-particle Type 2 tapes really do excel in this respect. But these tapes—and, to a much less noticeable extent, the ferricobalt Type 1 types—don't really emulate their models precisely. Depending on the deck's recording-equalization and bias adjustments, they can come up with a bump in the frequency response curve between 5 and 10 kHz, right where the ear is most sensitive to noise. This effect tends to be exaggerated by Dolby C. If this is what is happening in our correspondent's deck, it would, indeed, exaggerate tape hiss in the copy as he described.

The sleeper here is the recording equalization. The term seems to confuse many amateur recordists. Even knowledgeable (but careless) experts sometimes talk of "120-microsecond recording EQ" when they should say "the recording preemphasis that will yield a tape with flat frequency response when subjected on playback to 120-microsecond high-frequency de-emphasis." You can see why it's easy to become careless. But the important point of this mouthful is that if a new tape's playback response no longer is flat—and the bump in the high-end is often proudly displayed on a cassette's cellophane wrapper—the recording EQ is also supposed to change so that flat response is restored. Unfortunately, very few decks—and no recent models I can think of—have user adjustments for recording EQ. In most cases, optimizing a deck for the new formulations would mean taking it to a ser-

vice technician and, well, hoping for the best.

The reason that recording-EQ controls can't be relied on to help much in this case is that they (or, at least, the ones I'm familiar with) weren't designed to cope with bumps in the treble. They were intended to give a relatively subtle, perfectionist rise or slope to the response that results from the interaction between tape formulation and bias level.

Let's say you start with a deck/tape marriage that was made in heaven. (Tokyo will do in this case.) Then a "hotter" tape formulation—one with higher coercivity and, perhaps, greater sensitivity—comes along. A higher-coercivity tape requires increased bias if frequency response is not to rise at high frequencies. Given a full range of deck adjustments (for bias, recording EQ, and sensitivity—the latter a.k.a. Dolby tracking or reference recording level), you would crank up the bias until the midtreble is as flat as you can get it and then touch up the very top end with the recording-EQ control. Decks with only manual or automatic bias trimming (and no recording-EQ controls) generally cannot be adjusted to provide flat response with the Type 2 and Type 1 super-tapes. Adjusting the bias can take down the bump in the treble response, but may also leave you with a high-treble rolloff. Setting the bias adjustment by ear with such tapes can be an exercise in frustration, since the output will always sound different from the input.

For the real perfectionist, having both bias and recording-EQ controls offers the additional option of shading the settings to favor one parameter or another. Let's say that you are recording a jazz trumpeter, and you're worried about having enough high-frequency headroom to grab the transients cleanly. You can back off a little on the bias and partially tame the resulting high-end rise by reducing the EQ. But essentially such fine points are accessible only to recordists with a lot of time, patience, and test gear (or a pink-noise CD and a really good set of ears), in addition to a deck that offers the necessary controls. The rest of us just muck along with rules of thumb, taking what we get.

Tape manufacturers will tell you that this dilemma is the price we must pay for progress. They have a point. Tapes are getting better and have been doing so consistently for decades—but only if you keep buying new equipment that is engineered for the new tapes. Unfortunately, most of us can't afford new decks every year, and furthermore, almost all the decks we have tested recently are factory set for older, non-souped-up formulations. The tape companies cannot afford to stand still—nor should we want them to. It is the equipment manufacturers who have some catching up to do. Only when that happens will today's improvement that sounds worse become the basis for tomorrow's status quo that sounds better, if you see what I mean. □



Armed and Safe: Security Systems

By Christopher J. Esse

Many years ago at this time I would return with my parents to their hometown of Walnut Grove, Minnesota (you remember, of *Little House on the Prairie* renown). One thing that still stands out in my mind is that people in this tiny farm community left the keys in their cars. And they still do; but the demand for '72 Impalas has waned some since. Unfortunately, there aren't too many places left in this Great Country where you can safely say, "My keys are in the car." In fact, more and more of us are facing the grim need for a vehicle security system.

I'll admit that my car is not equipped with an alarm system. No, wait! I mean, it is. I was just kidding. You don't think I'd leave a good chunk of my life's savings (the rest of which is safely invested in a Houston savings and loan) out there dangling from a stick, do you? Nowadays, when you drive something suitably tempting, it's not safe *anywhere*. The nation's network of chop shops may have a standing order for your fenders.

Car security systems are ultimately designed to keep someone from taking your car. Ideally, the perpetrator will be discouraged before he even tries to break in. The latest FBI statistics count a total of 1,224,137 vehicles stolen nationwide in 1986, up 11 percent since 1985 and 25 percent since 1977. This means, on average, that about 35 vehicles will have been stolen by the time you finish reading this column, unless you take pause now to check your driveway. That's *stolen*; it's hard to say how many cars have simply had their interiors savaged. Still, security systems are pretty much a luxury item, far more so than is a good car audio system. And the return on your investment may be calculable only by those who failed to steal your vehicle or parts thereof.

Protecting your car radio alone suggests buying a removable model or fitting a Bensi Box. That wards off radio hunters who would otherwise smash your window or jimmy your door, no matter how inexpensive the offering; crack does not breed choosy shoppers. I am not convinced that radios with built-in security codes (that disable the unit) effectively deter a thief, who might plan to sell the goods to an unsuspecting fence. The best of both worlds would be to have a vehicle security system in addition to a removable radio (and a transportable cellular telephone, if you're really cool).

When you go shopping for a security system, you'll be faced with a growing choice of brands with imposing numbers of features. That can also be said of shopping for car audio products; however, it's possible to differentiate audio products based on performance, feel, and appearance. Plus, many car audio manufacturers have proven reputations as makers of home audio equipment. The performance of security products, when you get right down to it, can't be reliably predicted in advance: You need to count on the recommendations of dealers

and friends. Besides, you'll find that the various brands of security systems tend to be more alike than different in features and options, if not in operation.

Installation plays a particularly important role in the performance of a security system. Dealers charge more per hour for security installations than for audio installations, because more areas of the vehicle are involved, as is more checking of the system along the way. A poor installation can, at worst, result in a system that doesn't work at all; at best, it can mean a preponderance of "false alarms" that will eventually erode your confidence in the system. You should find out as much as possible about a dealer's reputation for installing security systems. He should be able to show you a sample installation; you can get references from others who have used his services.

The above thoughts are largely shared by the Vehicle Security Association (VSA), which represents the interests of security-product manufacturers in much the same manner as the Electronic Industries Association (EIA) represents makers of consumer electronics products. In speaking with VSA Secretary-Treasurer Antonio Arenas, who is himself a dealer, I learned that the VSA is working on a testing program to certify installers of security products. False alarms and more drastic failures are no longer as readily attributable to product deficiencies, therefore the next step is to ensure that installation skills keep pace with the improved reliability of today's equipment.

Security products have progressed from basic hood locks (which prevent engine parts from being lifted *while* you're idling on the Cross Bronx Expressway) to today's computer-based sensors that can even tell whether someone suspicious is eyeing your car. Well, that's an exaggeration, but it is true that advances in microelectronics have made just about any level of detection possible. The question arises, then: "How much protection is enough?" That is entirely up to you, and takes into account the value of the car and its contents, your budget, where you live, and what you personally think will do the job. You'll find that a good dealer/installer will be able to construct a system based on your specific needs and that later upgrades are often a simple matter.

You can expect basic systems—some of which are designed for you to install—to offer protection of all entry points (doors, hood, trunk) and a passive arming mode that automatically activates the system after you lock the last door. Most also supply a remote control that can, at minimum, arm or disarm the system from outside the car. Without a remote, the system will give you a certain period of time—"entrance delay"—in which to disarm the system after you enter the vehicle. Other common features are a "valet" mode (which neutralizes the system for valet parking and servicing) and a "panic" mode (which enables you to instantly activate the alarm). Be-

yond this, it is difficult to categorize a typical system, because all tend to offer a long list of options.

Probably the most popular option is an ignition-kill device that prevents the vehicle from being started when the system is armed. Among other options to consider is a motion detector to protect your car from being violently entered, jacked up, or even towed away. Apparently, some motion detectors work against window smashers as well, although there are now devices dedicated to detecting the sound of glass being broken. The latter are a wise addition, because setting the sensitivity of a catch-all motion detector high enough to detect the impact from a careful glass-breaker could mean that someone merely brushing up against your car also sets off the siren. Manufacturers make a big point of how their sensors are immune to false alarms. Again, it's best if you can have the system demonstrated in order to verify its integrity.

Remote pagers are becoming popular. These "beep" you when the alarm has been set off, as long as you're within range of the transmitter. Many companies offer optional range extenders, complete with a power antenna that rises when the system is armed. Remotes can also be used to activate power locks on the doors and trunk, turn on interior lights, flash headlights, or even start the car before you get there (to heat or cool the car in advance).

Systems typically come with a siren—much louder than a car horn, as you're undoubtedly aware—and offer an option for flashing lights. The duration of the alarm's cycle is often adjustable; don't buy a system whose siren must be shut off manually (if there are any still around), as it could reward you with a dead battery. At least one company lets you program the sound of the siren call. Another sells a Bomb Scanner that searches for dead electrical circuits to which an explosive device may be

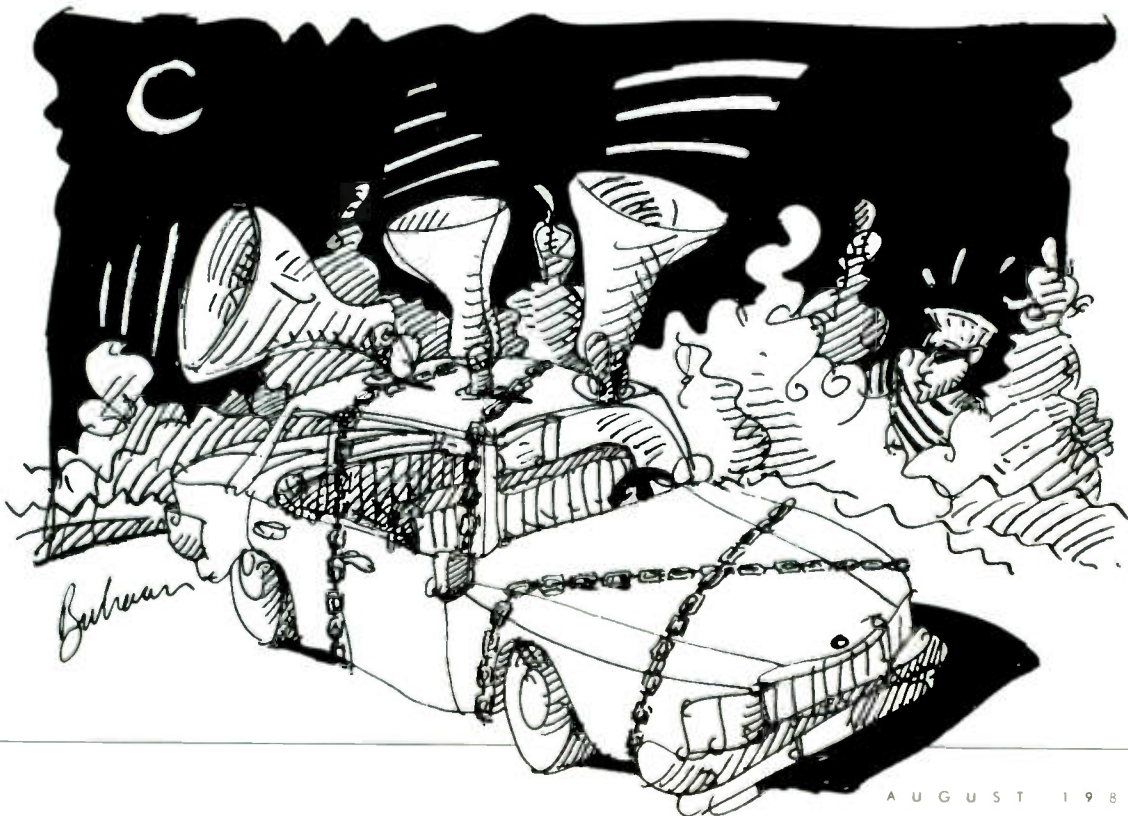
wired. Suffice it to say that, short of tear gas and rubber bullets, you can have your way with vehicle security.

And, thanks to the efforts of the VSA, five states—Michigan, Massachusetts, New York, Illinois, and Kentucky—now mandate that insurance companies provide premium discounts for vehicles with qualified security systems installed. In addition, Texas *permits* such discounts, and California is currently being lobbied. Should the Golden Gate state fall in line, the VSA expects the remaining states to follow.

I lied: I don't have a security system and probably wouldn't think of getting one unless my car were stolen. Besides, my driver James has been with the family for 30 years and has yet to lose a car. But seriously, few products are as annoying and yet as compelling as a security system. One of the problems is that people are often nowhere near their armed cars, so that if the siren goes off, accidentally or not, it just runs through its deafening cycle to the considerable discomfort of others. On the other hand, Mr. Arenas of the VSA related a story about a man whose alarm kept going off in his own driveway. After putting up with this for a few nights, he decided that the defective system should be shut down. The next morning, his car was gone.

One thief, it appears, has learned to work a siren to his advantage. But most of them tend to pass over cars with blinking LEDs that warn of a security system. So that leaves you and me. □

To receive the VSA's free brochure, entitled "How to Protect Yourself Against Automobile Theft," send a self-addressed, stamped business-size (no. 10) envelope to: Vehicle Security Association, 5100 Forbes Blvd., Lanham, Md. 20706.



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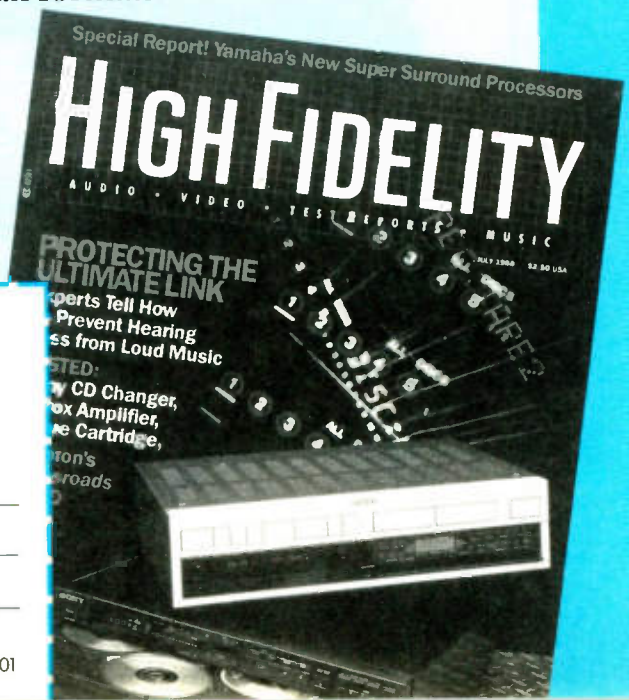
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Report preparation supervised by Michael Riggs, David Ranada, Christopher J. Esse, Robert Long, and Edward J. Foster. Laboratory data (unless otherwise indicated) is supplied by Diversified Science Laboratories.

Test Reports

When we reviewed the NEC DX-5000U last December, I was very impressed with the performance of its digital noise reduction (NR) system for video signals. But I pointed out that the sampling rate used for converting the video data limited the video bandwidth, and hence the horizontal resolution, to 2.7 MHz (about 216

lines). Little did I realize how quickly the system could be improved. In less than a year, NEC has doubled the bandwidth of its NR system and incorporated it into its new top-of-the-line S-VHS Hi-Fi VCR, the DS-8000U. Field-averaging video NR was impressive in the DX-5000U, but it is even more dramatic in the DS-8000U.

What's marvelous about NEC's field-averaging approach to NR is that it provides a very noticeable reduction in video noise without affecting horizontal resolution. (A field consists of every other line of a video frame. There are two fields to every frame, and 30 frames are shown every second.) Unlike line-averaging NR systems—in which each scan line of the picture is stored and averaged with the next—NEC's field-averaging

approach digitizes and stores an entire video field in a random-access memory. When the previous field is averaged with the current field, "coherent" picture information can be as much as double in level (increase by as much as 6 dB) while noise, being random and "incoherent," can increase by no more than 3 dB. This results in an improvement in the

signal-to-noise (S/N) ratio of as much as 3 dB, depending upon the "weight" given the previous frame relative to the current frame. By keeping the process going (averaging the third field with the average of the first two, and so forth), the video S/N ratio continues to improve.

The fly in this continuous-processing ointment is image blur. When subsequent fields are averaged, changes in true picture information are reduced in level along with the noise. The faster the image changes and the more NR you're after, the more the blur. One can reduce the amount of NR to reduce blurring by controlling the fraction of the old information that is added to the new (the "K factor," NEC calls it) and by limiting the level of the recirculated signal.

In the DS-8000U the K factor is

NEC DS-8000U S-VHS Hi-Fi Videocassette Recorder



TONY PETTINATO

Dimensions: 17 by 4 inches (front), 14 $\frac{3}{8}$ inches deep plus clearance for connections.

AC Convenience Outlets: One unswitched (400 watts maximum).

Price: \$1,499.

Warranty: "Limited," two years parts, one year video heads, 90 days labor.

Manufacturer: NEC Corp., Japan.

U.S. Distributor: NEC Home Electronics (U.S.A.), Inc., 1255 Michael Dr., Wood Dale, Ill. 60191.

Test Reports

Akai GX-52 Cassette Deck

ing to 1.5 percent at 50 Hz (at the -10-dB recording level). Flutter is below reporting limits at both speeds.

Mono edge-track audio performance is quite good, too. Of course, flutter is much higher than in VHS Hi-Fi, especially at the EP speed, as is distortion. For the format, the frequency response is reasonably flat and the A-weighted noise reasonably low. DSL's reference level for edge-track recording—the point of 3-dB compression—produces an output level about equal to a reference-level VHS Hi-Fi recording, so there's no drastic change in level as you switch from one to the other. As usual, a very "tight" automatic level control is used to prevent overload on the edge track, the recording-level controls being inoperative for that mode.

My hat is off to NEC. Frankly, I didn't think they would be able to apply field-averaging digital NR to an S-VHS VCR this quickly. Although the DS-8000U's video resolution isn't up to its "straight" S-VHS competition, in color clarity it beats any other home VCR I've yet seen. Even with only Level I of video NR, not only is there an appreciable reduction in snow, but large color areas (especially the reds and blues) are noticeably less blotchy than normal—all with negligible picture blur. If you need more video noise reduction, you can have it at the expense of some blur in fast-moving scenes. But if you're like me, I think you'll find Level-I performance so impressive that you will seldom use anything else. A fine achievement.

Edward J. Foster

An anyone who has used a recent component deck from Akai should feel quite at home with the GX-52. It follows the established pattern, but without the technological

adapter, if you choose.

A proprietary feature of Akai decks in recent years is the motor-assisted cassette door. To open it, you press STOP/EJECT; to close it, you press that



TONY PETINATO

Dimensions: 16 $\frac{3}{4}$ by 4 $\frac{1}{4}$ inches (front), 13 inches deep plus clearance for controls and connections.

Price: \$549; prices for RC-32 wired remote control and RC-92 wireless remote control options not yet available.

Warranty: "Limited," one year parts and labor.

Manufacturer: Akai Electric Company, Ltd., Japan.

U.S. Distributor: Akai Div., Mitsubishi Electric Sales America, Inc., 225 Old New Brunswick Rd., Piscataway, N.J. 08854.

flourishes of Akai's top-line models or the insistence on convenience features of the most elaborate. That is, the GX-52 provides much of the performance and much of the convenience without demanding a top-line price. For instance, no remote comes with the deck, but you can add (via a multipin back-panel jack) either a wired or a wireless handset

key again or any of the operating controls. You can thus go directly from an open door into fast-wind or play, which is kind of neat. Still, as someone used to doing such things manually, I catch myself reaching for the door to close it (which the owner's manual says may damage the deck).

More obviously useful are the timer

switch; the recording-cancel panic button, which recues the tape to the point at which recording began; the IPSS, Akai's blank-seeking random-access feature, which can be stepped to skip multiple selections; auto-mute to create the four-second blanks IPSS requires; and A-B memory playback of a user-selected segment of the tape. The multiplex filter can be switched at the front panel.

Unique to Akai, as far as I know, is a selective erase feature called "edit." You use the A-B memory button to mark the beginning and end of the passage you want to erase. Then, instead of pressing REWIND (which would initiate repeated playback of the A-B section), you press REC CANCEL. The deck rewinds, erases the marked segment, and stops.

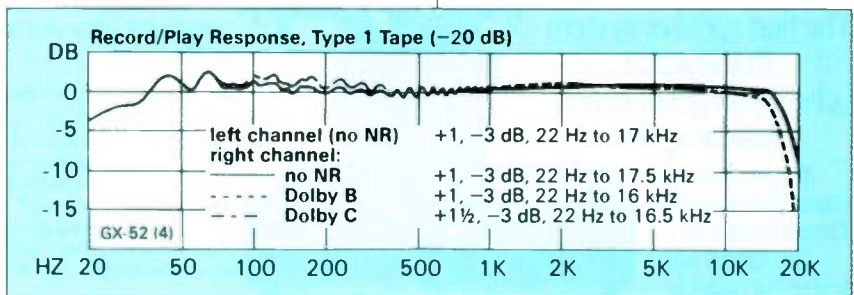
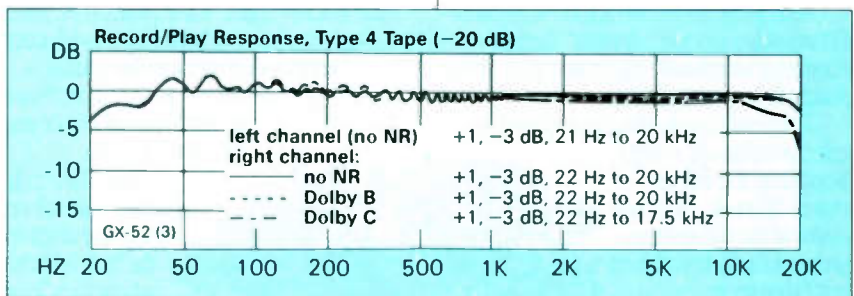
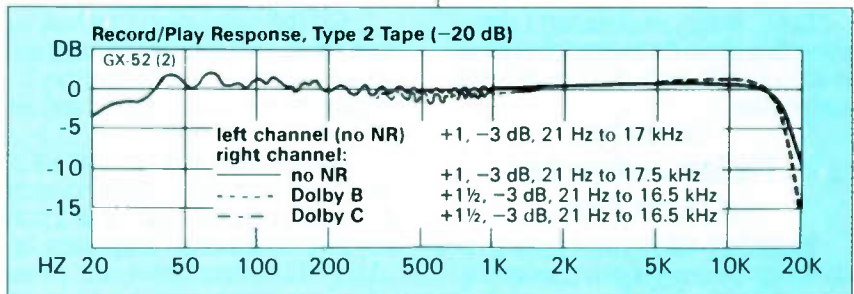
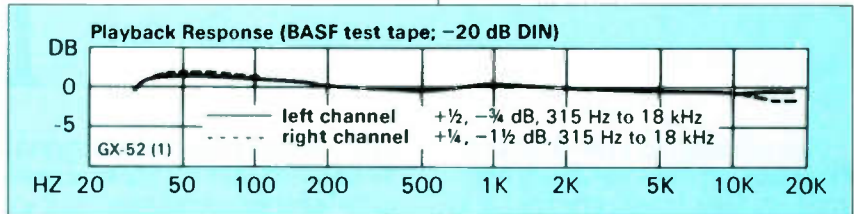
If you are in doubt about your cues, you can check them without committing yourself by pressing the play button, which triggers a single replay of the A-B section. If the cues must be superaccurate, you can play the tape at half-speed by keeping the play button pressed for more than one second. The sound is appalling, but it does help you zero in on a specific syllable or a specific transient.

Initially, I worried that a careless stab at the A-B button in marking the end of a passage to be repeated might inadvertently trigger its erasure, because A-B and REC CANCEL are next to each other, but I was unable to make this happen. A fixed guard between the buttons helps prevent misadventure, but the deck's logic interlocks and control timings seem to have something to do with it as well. All told, Akai's edit function strikes me as one of the most interesting cassette-deck features of recent years, at least for the sort of serious recordists who are likely to make use of it.

If you want to make live recordings, or if you just want to listen without assembling a whole stereo system, there's a headphone jack with its own level control. And there is a bias-trim control. But both bias matching and the monitoring of live recordings are compromised to some extent by the lack of monitoring in the GX-52. Presumably to make the edit feature more accurate, Akai has placed the erase head next to a double-gap record-plus-play head in the main cassette record-plus-play head in the main cassette recording opening. This doubtless contributes to the accuracy of the edit feature, but—perhaps because of inductive interference between recording and playback elements, due to their tight spacing—the recording and playback gaps cannot be used simultaneously. So although the GX-52 is technically a three-head deck, you can neither monitor off the tape during recording nor evaluate your bias set-

ting while you're exercising the control—two capabilities normally associated with three-head machines.

Also presumably a by-product of the tight head spacing and the extra-small record/play head group are the contour-effect "head bumps" that appear in the frequency-response traces and extend



unusually high in frequency. This is one respect in which cassette-deck performance has improved visibly (if not always audibly) over the years, as manufacturers have learned how to shape pole pieces and head surfaces to wean the moving tape away from them more deftly. The smaller the heads, the greater the required deftness. I can't honestly say that I hear anything untoward that is attributable to the exaggerated contour ef-

(Continued on page 28)

"If I Had It To Do All Of This Is Ho

"The technology for a new generation of loudspeaker systems was already here," says Henry Kloss. I was just the first one to put it together right."

"Right," in this case, meaning a stereo system that allows the integration of speakers into a room in a way that's never before been possible.

Ensemble. The last loudspeaker of Henry Kloss.

Ensemble combines two bass units, two mid- to high-frequency units and something you won't find in any hi-fi store on earth.

Your living room. Which now, because of Ensemble's unique "system" design—becomes a seamlessly integrated part of the sound propagation process.

The result is a system that gives you perfectly balanced energy throughout the full ten octaves of music. And one which, at the same time, can be virtually invisible in your living room.

The first speaker system that doesn't cheat you out of either bass or space.

The fundamental octaves that so much of music is built on...

The almost sub-audible but palpable sounds generated by the big pipes of the organ, the bottom of the acoustic or electric bass, the low notes of the synth...

The frequencies completely ignored in the so-called "mini-speakers" now in vogue...

Ensemble provides them. With two dedicated, acoustic-suspension loudspeakers whose jobs are solely to reproduce the bottom two octaves of musical significance.

It is by design, not afterthought, that Ensemble comes with two, not one, bass units.

Because the human ear can't easily localize bass sound below about 150 Hz,

there is no need in a home music system for the bass to emanate from the same source as the higher frequencies. (And many acoustical reasons why it shouldn't.)

So to take advantage of this basic but vastly overlooked fact, the bass units are built small enough to be placed where they'll produce the best sound, without visually overpowering your room.

They are a compact 12" x 21" x 4.5". Yet they generate the low-frequency energy that would ordinarily require either a pair of very large conventional loudspeakers, or adding on a massive "subwoofer." Moreover, using two separate easily placed bass units dramatically reduces the creation of standing waves—the bane of pure hi-fi reproduction.

Without detriment to the sound, Ensemble's bass units can be placed beneath the couch, on top of the bookshelf, or under the potted plant.

And the result is a happy coincidence: Where the units sound the best is likely where they'll look the best. Even if that means not being able to see them at all.

There is a wager you can make, if you don't mind taking money from house guests.

Place Ensemble's satellites where they're visible.

Then hide one of the bass units under the sofa, and put the other on the floor with a plant on it. When your friends arrive, bet them to point out where the bass is coming from. They'll point to the satellites. Every time.

As for the other 8 octaves of music.

The rest of the sound spectrum, from a nominal crossover of 140 Hz, is reproduced by a stereo pair of two-way satellite units. Each incorporates a low-frequency driver, crossing over at 2,700 Hz to a direct-radiator tweeter that goes beyond audibility.

They are small enough (4" x 5" x 8" high) to set the sound stage (or so-called "imaging") wherever you want it.

Finished in scratch-proof, gunmetal grey Nextel, they will look good for a lifetime.



What Henry Kloss tells his friends:

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

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

Overcoming the fear of paying too little.

This is more difficult than it may sound. Because the Ensemble System sells for an introductory price of only \$499.

And it can be jarring to accept the notion that a product actually outperforms others costing several times more. But think back on Henry Kloss' track record with AR, KLH, and Advent, the best selling high-performance speakers of their decades... Our commercial success will come not from excessive prices



...ver Again... And I Do... ...w I'd Do It."

Henry Kloss. Member of the Audio Hall of Fame. The creator of Acoustic Research in the 1950's, KLH in the 1960's, and Advent in the 1970's—the dominant speakers of their decades—now brings you Ensemble: the best-sounding speaker system of this era.



on a small number of sales, but from selling a lot of systems to a lot of people. You, perhaps, among them.

The second thing you must overcome is the misdirected notion that you must go to a dealer showroom and listen to the speakers.

Because the fact is, the *only* way to appreciate the astonishing sound reproduction of this unconventional system is to audition it in your own room environment. Therefore, we sell only factory-direct. Either by phone, by mail, or by our front door, to make it as easy as possible to get the speakers to your front door.

They come with a straightforward 30-day money-back return policy.



The Ensemble Stereo System: 2 bass units, 2 satellites, 100 feet of wire, mounting units, intelligent documentation, and a warm body. (Your Cambridge SoundWorks audio expert.)

Speaking directly to the people who make the speaker.

To our knowledge, no other hi-fi manufacturer invites you to call and talk about the system. ("Hello, Mr. Sony?" No way.)

We welcome you.

In fact, the easiest way to buy Ensemble is to call us with your credit card in hand, and speak with someone who will be happy to walk you through, talk you through, everything you might ever want to know about the system.

From why or why not to buy Ensemble, to questions about installation, room

placement and other related audio equipment.

To get literature, to chat—or to order—the toll-free number is 1-800-252-4434. (In Canada, 1-800-525-4434.) Fax # (617) 332-9229.

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(Continued from page 25)

fect of the GX-52 (the response wiggles are too tightly spaced in frequency to be heard as such), but smoother response traces would inspire more confidence in the deck's audible excellence.

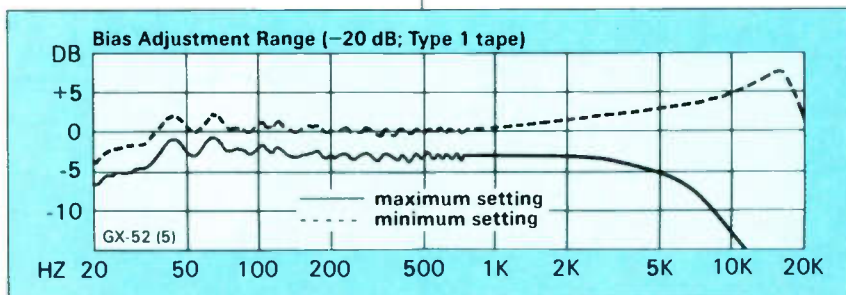
Diversified Science Laboratories tested the deck with TDK SA as the Type 2 chrome equivalent, TDK MA as the Type 4 metal, and Maxell UDS-1 as the Type 1 ferric, leaving the bias adjustment at its center detent for all but the last graph (of bias adjustment range). In all cases, the match is so good that I doubt any adjustment could effect a significant improvement. The adjustment range is more generous than usual; this is a mixed blessing, however, because inadvertent misadjustment can do more harm than usual.



The GX-52's motorized cassette-well door

Tape speed is spot-on the nominal 1 7/8 ips, which can be said of few decks we've tested. The flutter measurement is fine but not spectacular: about par for a model with a single direct-drive capstan. The multilanguage manual is above average and distinctly more practical in format and layout than has been the case with other recent Akai components.

For a recordist who wants good performance and a few of the most important convenience features but is willing to put up with neither the clutter nor the cost of going all-out in either direction, the GX-52 is a tempting possibility. Depending on what you record and how you go about it, the edit feature can be particularly useful, and you won't find it on any other deck in this category. In fact, you won't find many decks at any price that offer this combination of simplicity and capability. *Robert Long*



Multiplex Filter (defeatable)

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

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

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	55 1/2	55	52 1/4
Dolby B	64 1/2	64	62
Dolby C	70 3/4	70 1/4	68

Indicator Reading for DIN 0 dB (315 Hz)

Type 2 tape	+4 dB (for +4.7 dB THD)
Type 4 tape	0 dB (with 0.34% THD)
Type 1 tape	0 dB (with 0.42% THD)

Indicator Readings for 3% Distortion (315 Hz)

Type 2 tape	+4 dB (for +4.7 dB DIN)
Type 4 tape	+8 dB (for +6.5 dB DIN)
Type 1 tape	+8 dB (for +5.7 dB DIN)

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

Type 2 tape	≤ 0.30%
Type 4 tape	≤ 0.23%
Type 1 tape	≤ 0.16%

Erasure (at 100 Hz) ≥ 68 1/4 dB

Channel Separation (at 315 Hz) 38 3/4 dB

Indicator "Ballistics"

response time	3.0 msec
decay time	≈ 760 msec
overshoot	0 dB

Speed Accuracy (105 to 127 VAC)

no measurable error

Flutter (ANSI weighted peak; R/P) ±0.06%

Sensitivity (re DIN 0 dB; 315 Hz) 125 mV

Input Overload (at 1 kHz) > 10 volts

Input Impedance 45k ohms

Output Impedance 2,400 ohms

Output Level (from DIN 0 dB) 0.66 volt

Dolby tracking also is excellent and a tribute to the deck's inherent match in sensitivity (and bias) to the tapes used. HX Pro, which is included along with Dolby B and C, keeps the 0-dB response traces virtually compression-free into the high treble (about 10 kHz for the Type 4, somewhat lower for the other two) but doesn't extend the curves exceptionally toward the ultrahighs. Erasure of Type 2 tape is outstanding, but noise and distortion performance is only about average for this class of deck.

The level meters show basically 2-dB signal increments from +8 down to -8 dB, relative to their own 0-dB, which is near DIN reference level, depending on the tape in use. Below -8 dB, increments become progressively coarser. A row of fine dots between the display itself and the calibration markings outlines the recommended useful dynamic range for the selected tape type—based, as is the fundamental tape matching, on the keyways at the back of the cassette shell. All this works very well, but I wish Akai could be persuaded to abandon the two other implied 0-dB calibrations it includes in its meters: the Dolby symbol at what otherwise would be DIN -2 dB and the "0 VU" at DIN -4 dB. Neither has any practical value to the average recordist, and therefore they only worsen an already confused situation.

ABOUT THE dBW

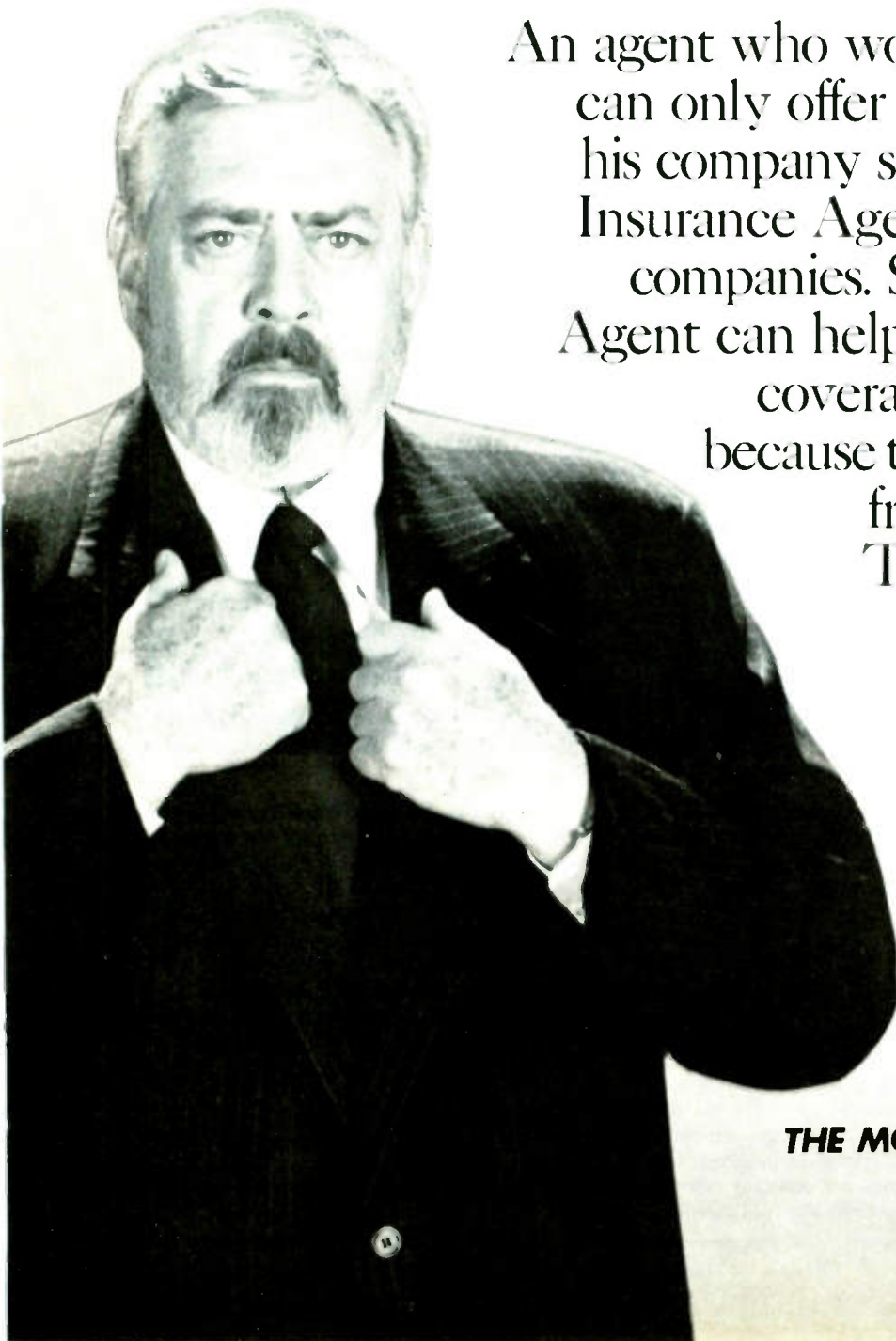
We currently are expressing power in terms of dBW—meaning power in dB with a reference (0 dBW) of 1 watt. The conversion table will enable you to use the advantages of dBW in comparing these products to others for which you have no dBW figures.

WATTS	dBW	WATTS	dBW
1.0	0	32	15
1.25	1	40	16
1.6	2	50	17
2.0	3	63	18
2.5	4	80	19
3.2	5	100	20
4.0	6	125	21
5.0	7	160	22
6.3	8	200	23
8.0	9	250	24
10.0	10	320	25
12.5	11	400	26
16.0	12	500	27
20.0	13	630	28
25.0	14	800	29

“Before you buy insurance, examine the evidence.”

RAYMOND BURR

An agent who works for one company can only offer you the policies that his company sells. An Independent Insurance Agent represents several companies. So your Independent Agent can help you select the right coverage at the right price because there are more policies from which to choose. The evidence is clear.



**THE MORE-THAN-ONE-COMPANY
INSURANCE AGENT.**

You'll find the Independent Insurance Agent
nearest you in the Yellow Pages.

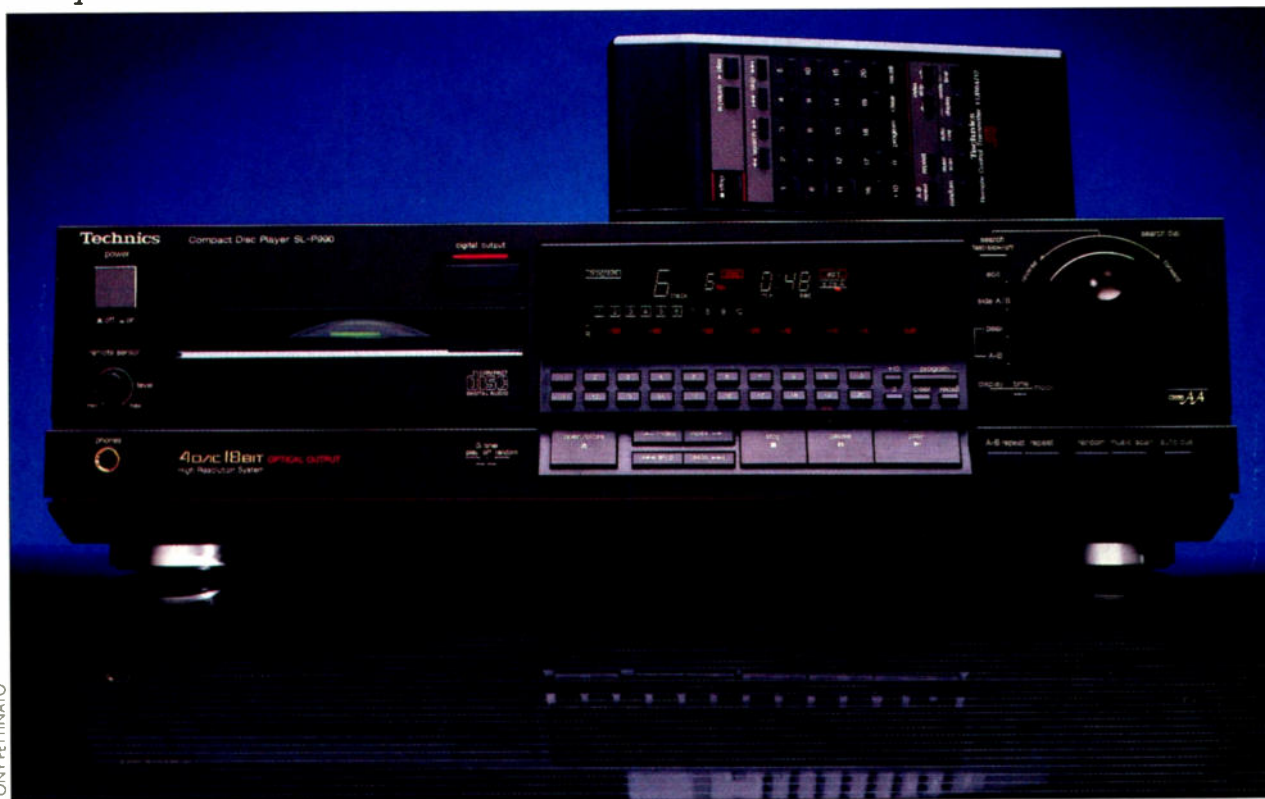
Technics SL-P990 Compact Disc Player

At a time when most Compact Disc players are so similar that they're difficult to tell apart, it is refreshing to encounter a model that dares to be different and makes those differences count for something. The SL-P990 fits that mold: Its lab data are impressive, and among its features are some I've encountered in no other model.

The grabber, on first glance, is the flywheel control for scan cueing, a feature associated with professional digital equipment and some high-end VCRs. In the 990, it has three modes: fast, slow, and off. The last prevents accidental re-cueing but is otherwise unnecessary as

There is also a relatively commonplace music-scan function that plays the first 15 seconds of each track and then moves on to the next. The obligatory track-skip buttons (forward and back) are present, as are index-skip buttons to move within a track that has indexing markers. Unfortunately, most CDs are not indexed. (The indexing subsystem, which could be a major boon to lovers of classical music, is in danger of atrophy from lack of exercise. Write the record companies—or, better, record producers.)

Random-access programming will accept a sequence of as many as 32



TONY PETTINATO

Dimensions: 17 by 5 inches (front), 12 $\frac{3}{4}$ inches deep plus clearance for connections.

Price: \$825.

Warranty: "Limited," one year parts and labor.

Manufacturer: Matsushita Electric Industrial Co., Ltd., Japan.

U.S. Distributor: Matsushita Electric Corporation of America, 1 Panasonic Way, Secaucus, N.J. 07094.

far as I can tell. The fast mode can stride across the disc contents, sampling the music intelligibly only when you pause. The discontinuities in between are a bit jarring, but that's not the point. If you want to ease your way across the material, you can choose the slow scanning mode, which makes it easier to keep track of what the music is doing without pausing along the way. If your timing is delicate enough, you can even "freeze" the music at a single moment in this mode by reversing the flywheel at just the right rate to compensate for the music's forward progress. Obviously, conventional scanning controls don't have anything like the flexibility of this one.

tracks. Random (shuffle) play is available, as well. There are two repeat buttons, one for an A-B segment and another for repeating the entire disc or the programmed sequence. A switchable "auto-cue" function starts play instantly, eliminating the second or so of silence that often precedes the music. One display-mode button steps through several options of elapsed or remaining time; another switches between a quasi-analog display of approximate playing position (calibrated in minutes and also showing total playing time) and a pair of output-level meters.

All of these controls are repeated on the supplied wireless remote, which runs

on two AAA cells. Beyond the scope of the handset is an additional group of controls—to simplify—or at any rate enhance—making tape dubs from CDs. Other CD players have offered what Technics calls “edit” functions to figure out automatically which cuts will fit on the available tape length. Here, you can work either from the disc’s track order or from a sequence that you’ve programmed. The 990 won’t accept a sequence longer than 99 minutes, but then most cassette decks (or their manufacturers) deplore anything longer than C-90s anyway, with the possible exception of the new C-100 length. You can, indeed, enter any tape length between 1 and 99 minutes using the programming keypad.

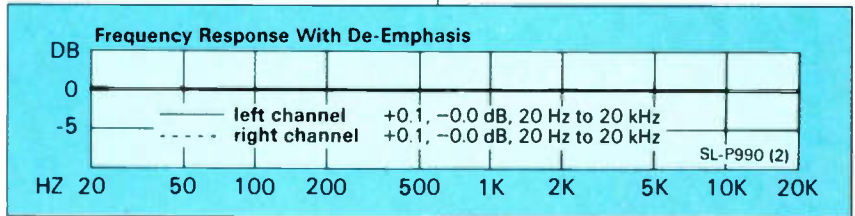
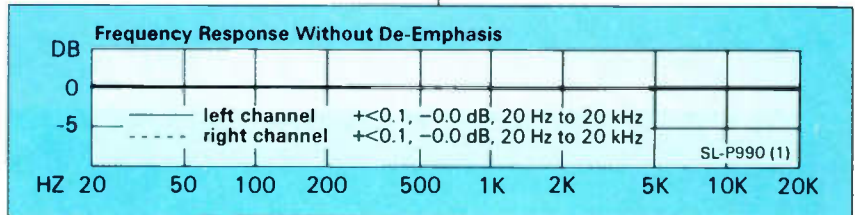
Most exciting, however, is the peak-level search function. It scans the entire disc or a programmed sequence—or, on command, an A-B portion only—seeking out the highest signal level the tape deck will have to contend with. The 990 then plays a six-second patch of the CD, including the maximum level, and repeats it until you press STOP, giving you unlimited time for properly setting the recording level on your tape deck. The maximum evidently is digitally selected using a sampling technique, and Technics says a different maximum may be picked up if you repeat the process (the 990 always chose the same spot when I tried it, but varied in another editor’s trials). Looking for the peak level can take about three minutes if you ask the player to scan the entire disc, so save a phone call or a trip to the refrigerator to while away the moment.

Internally, the 990 uses 4-times resampling with 18-bit filter resolution. The digital-to-analog conversion is via four converters: two in each channel, handling the positive and negative waveform halves separately—which Technics says eliminates a form of crossover distortion. Class AA analog circuitry (a proprietary configuration) is used at points that can benefit from its relative immunity to loading—in the headphone output stage, for instance. Digital- and analog-section power supplies are separated to prevent interference artifacts, and the antiresonant chassis design conforms to current high-end thinking among Japanese manufacturers. Should you ever need to work with unconverted signals, the 990 supplies two digital outputs—one coaxial (pin jack), one optical—and the necessary cables.

The data all represent superb performance, comparable to the best that Diversified Science Laboratories has ever measured for us. Frequency re-

sponse both with and without de-emphasis is virtually perfect. Linearity figures are exceptionally good (and more comprehensive than in past reports, because the lab has switched to a CBS test disc that includes test cuts with dithering and levels that extend down to -100 dB). No point of weakness can be discerned anywhere among the measurements or (need I say it?) in the listening tests.

The SL-P990 is, in fact, an outstanding CD player, right down to the little details like the timer-play switch and the headphone-level control. Like most or all new models, it handles 3-inch CDs without the need for an adapter ring and



will play programmed contiguous bands—successive “scenes” in Wagner, for instance—seamlessly (except during edit play, which always adds three seconds to the original track spacing to satisfy the music-search function on cassette decks). I can think of only two CD player features I’ve ever enjoyed that the 990 doesn’t incorporate: automatic pause at the end of the current track and index programming. These two extremely rare functions aside, the SL-P990 is a wish-list model, particularly for recordists who enjoy set-and-forget automation.

Robert Long ▶

REPORT POLICY

Equipment reports are based on laboratory measurements and controlled listening tests. Unless otherwise noted, test data are provided by Diversified Science Laboratories. The choice of equipment to be tested rests with the editors of High Fidelity. Samples normally are supplied on loan from the manufacturer. Manufacturers are not permitted to read reports in advance of publication, and no report or portion thereof may be reproduced for any purpose or in any form without written permission of the publisher. 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.

All data were obtained using the Sony YEDS-7, CBS CD-1, and Philips 410 055-2 and 410 056-2 test discs.

Channel Separation (at 1 kHz)	125 dB	
Channel Balance (at 1 kHz)	± <0.1 dB	
S/N Ratio (re 0 dB; A-weighted)		
without de-emphasis	113 1/4 dB	
with de-emphasis	115 3/4 dB	
Harmonic Distortion (THD+N; 40 Hz to 20 kHz)		
at 0 dB	<0.01%	
at -24 dB	≤0.050%	
IM Distortion (70-Hz difference; 300 Hz to 20 kHz)		
0 and -10 dB	<0.01%	
at -20 dB	0.016%	
at -30 dB	0.016%	
Linearity (at 1 kHz)		
	undithered	dithered
0 to -60 dB	no measurable error	
at -70 dB	+0.1 dB	+0.6 dB
at -80 dB	+0.2 dB	+1.1 dB
at -90 dB	+0.3 dB	+2.5 dB
at -100 dB		+1.2 dB
Tracking & Error Correction		
maximum signal-layer gap	> 900 μm	
maximum surface obstruction	> 800 μm	
simulated-fingerprint test	pass	
Maximum Output Level		
line output	2.65 volts	
headphone output (open circuit at clipping)	1.70 volts	
Output Impedance		
line output	560 ohms	
headphone output	33 ohms	

Sony TC-RX80ES Bidirectional Cassette Deck

The TC-RX80 is a member of Sony's ES line, making it one of the few bidirectional decks in such a premium series. Rarer still, for a reversing model, is the RX80's fine-tuning adjustments for tape matching. And even more startling is its five-band spectrum analyzer that permits tailoring recording parameters to the signals at hand—the only instance of an analyzer ever appearing in an auto-reverse model, as far as I can remember. Like almost all other reversing decks, however, the RX80 has no monitoring head (it's a

to facilitate dubbing analog discs.

A front-panel switch controls the two directional modes: One mode defeats the automatic reverse in both recording and playback; the other permits continuous reversing at both ends of the tape during play but reverses automatically only at the end of Side A during recording. The reversal process itself withdraws the drive, rotates the head block 180 degrees, switches capstans, and reengages the drive. It may occur at either the beginning or the end of the cassette leader tape, evidently depending on the leader's



TONY PATTINATO

Dimensions: 17 by 4½ inches (front), 10 ½ inches deep plus clearance for controls and connections.

Price: \$600.

Warranty: "Limited," three years parts and labor.

Manufacturer: Sony Corp., Japan.

U.S. Distributor: Sony Corporation of America, Sony Dr., Park Ridge, N.J. 07656.

"two-head" deck). This simplifies the problem of providing bidirectional recording, but it complicates the tape-matching problem by requiring a cut-and-try method. Sony has eased the latter problem by partially automating the fine-tuning process.

First, the RX80's convenience features. In addition to the usual record/play timer switch, there is music scan (often called "intro scan," sampling the opening seconds of each selection in turn), blank skip (which fast-forwards past any unrecorded section longer than ten seconds), auto play (to begin playback automatically after rewinding), and memory (counter-zero) cueing. There's no remote as such, but special back-panel connections provide for remote control, including starting the deck in synchrony with appropriate Sony turntables

transparency, so a few seconds can be lost at this point in unattended recording. However, as the tape nears the leader, the counter begins to flash, alerting you that a manual direction change is in order if you want to avoid an awkward break or the possibility of lost music as the leader passes by.

The front-panel headphone jack is equipped with a level control, a feature without which the jack is relatively useless, though not all designers seem to recognize this. The panel organization is spare and uncluttered. For example, a single button is used to step you through several convenience-feature options, called out on the display panel. My only quibble in this respect is with the recording-level knob, which has a stiff clutch between its left- and right-channel elements. This, desirably, keeps the two

working together as one in normal operation, but the shallow knob elements are excessively difficult to adjust independently when the need arises.

The display panel includes three sections. That on the left contains indicators for the operating functions (DOLBY B/C and OFF, for instance) and the counter (reading in approximate minutes and seconds as determined mechanically from tape motion). The display's middle section is the spectrum analyzer, which shows energy in frequency bands centered on 100 Hz, 300 Hz, 1 kHz, 3 kHz, and 10 kHz. At the right is the metering: left- and right-channel "bar graphs" with a nondefeatable peak-hold feature that retains maximum readings for about 1/2 seconds.

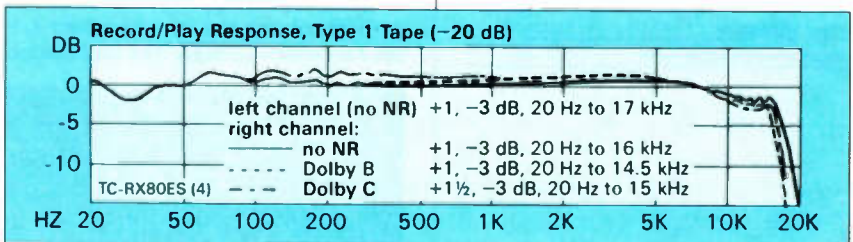
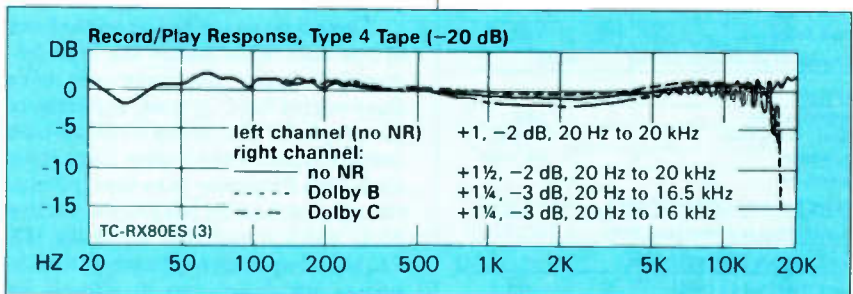
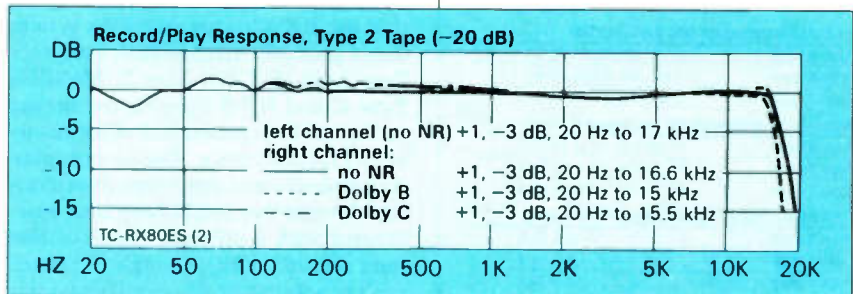
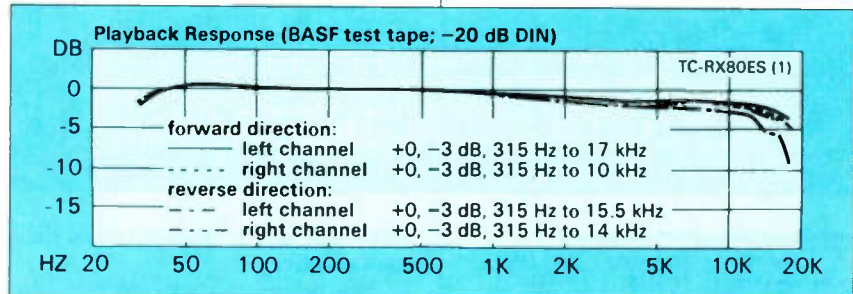
The analyzer's vertical scale is calibrated from "0" to "10," with five display increments between each calibrated step. The manual doesn't stipulate just what these markings mean in objective terms or even how to use such a display as an adjunct to recording. But as an indicator of relative signal energy in its five bands, it's useful. If you know enough about how magnetic tape works, you could even use the bias control to shade performance for maximum headroom in the midrange or the treble, depending on where the display indicates you will most need it.

The metering evidently is calibrated for a 0-dB reading at about 2 dB above the DIN reference used in our testing. Calibration extends to +10 dB in 2-dB increments, though the display has finer divisions. An "overload" range is indicated above +2 dB, but the manual suggests how this limit may be tempered, depending on the specific tape in use. The steps grow progressively coarser as level drops below 0 dB. Overall, including the peak-hold feature, the metering design is more satisfactory than many others and is significantly bettered by those on only a very few current models.

When you insert a cassette, the TC-RX80ES sets bias level and recording EQ automatically for the tape type (as determined from the shell's keyways). To fine-tune, you press a calibration button, then the recording button. The deck then records test tones for about ten seconds, rewinds, and plays them back. By observing on the analyzer any level difference between the 300-Hz and 10-kHz bands, you can tell whether bias is correctly trimmed for the tape formulation in use. (This seems to be the primary purpose of the analyzer. It is the only one mentioned in the manual.) If the two are unequal, you adjust the bias knob and try again; once the bias is adjusted, you ob-

serve the level on the regular meters and adjust it on separate left- and right-channel knobs to equal the test-tone input level. This compensates for tape sensitivity greater or less than that of the reference tapes for which the deck is set at the factory.

This is a more thorough and delicately handled approach to tape matching



than you find even in most nonreversing decks these days. But, while I don't wish to minimize its importance, it isn't up to the standards of ease and precision of the best systems available in top three-head decks. Moreover, the level ("Dolby tracking") adjustment alters playback—not recording—level. If it is to be spot-on in each playback, therefore, you must either leave the controls at their detents

Test Reports

and use only tapes of more or less standard sensitivity or retain notations or test-signals on your tapes to enable resetting of these controls each time you play the tape. And if a Dolby-encoded tape made on the RX80 is to be played on another deck, tracking will be correct only

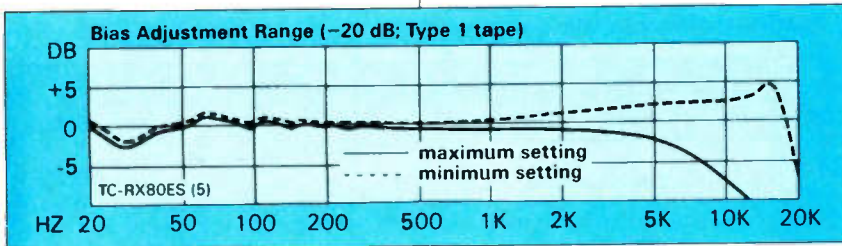
for the odd high-frequency behavior of our sample of the TC-RX80ES may lie somewhere in the relationships between these unfamiliar elements.

But I could hear no roughness or other artifact attributable to this measurement oddity. All the tapes I made sounded at least as good as those I've been able to make on any bidirectional deck and much better than on most. The tapes were even comparable to dubs made on good unidirectional decks, assuming careful tape matching in all cases. In playing back previously recorded material, however, I experienced the same problem as the lab did in measuring playback response: an azimuth mismatch between the deck and the tape, with a resultant loss of highs. I've certainly heard much worse, particularly in reversing decks; but considering its excellent results in some respects, I had hoped for better from the RX80.

The forward direction is noticeably better than reverse in azimuth match. By a small margin, forward also outpaces reverse in flutter performance; however, speed accuracy is marginally more precise in reverse. (The data column shows worst case for each.) For best possible playback of prerecorded material, therefore, you could choose to use the RX80 as a unidirectional deck—forward only. (The two capstans are of different diameters—to avoid cumulative mechanical resonances in moving parts—which presumably contributes some dissimilarity to the performance of the two directions.)

This is, by a wide margin, the most sophisticated rotating-head bidirectional cassette deck we've ever tested. Automatic reverse can be such a convenience that it's good to see so much original thinking lavished on it. And Sony's initiative has paid off in performance that is, by and large, a big step forward for the format.

Robert Long



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

	Type 2 tape	Type 4 tape	Type 1 tape
no NR	58 3/4 dB	58 3/4 dB	55 1/4 dB
Dolby B	67 1/4 dB	66 3/4 dB	64 3/4 dB
Dolby C	74 1/4 dB	74 1/4 dB	71 1/2 dB

Indicator Reading for DIN 0 dB (315 Hz)

Type 2 tape	-2 dB (with 0.52% THD)
Type 4 tape	-2 dB (with 0.53% THD)
Type 1 tape	-2 dB (with 0.37% THD)

Indicator Readings for 3% Distortion (315 Hz)

Type 2 tape	+5 dB (for +5.0 dB DIN)
Type 4 tape	+5 dB (for +5.1 dB DIN)
Type 1 tape	+4 dB (for +4.0 dB DIN)

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

Type 2 tape	≤ 0.23%
Type 4 tape	≤ 0.24%
Type 1 tape	≤ 0.14%

Erasure (at 100 Hz)

Type 2 tape	74 dB
Type 4 tape	57 1/4 dB

Channel Separation (at 315 Hz)

	49 dB
--	-------

Indicator "Ballistics"

response time	4.6 msec
cursor decay time	≈ 300 msec
peak hold	≈ 1,600 msec
overshoot	0 dB

Speed Accuracy (105 to 127 VAC)

	≤ 0.6% fast
--	-------------

Flutter (ANSI weighted peak; R/P)

	≤ ± 0.11%
--	-----------

Sensitivity (re DIN 0 dB; 315 Hz)

	100 mV
--	--------

Input Overload (at 1 kHz)

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

Input Impedance

	52k ohms
--	----------

Output Impedance

	3,000 ohms
--	------------

Output Level (from DIN 0 dB)

	0.77 volt
--	-----------

when that tape is of more-or-less standard sensitivity.

That being said, the measurements at Diversified Science Laboratories show that the RX80's tape matching system does a good job. All tapes DSL used were from Sony (UX-Pro Type 2, Metal-ES Type 4, and HF-S Type 1), but similar results can be expected with other major-brand formulations. The record/play curves show some departures from absolute flatness that might have been ameliorated with a different choice of bias (and recording EQ, though the latter can't be adjusted), but overall behavior is good.

There is no way of telling on the basis of our tests what causes the high-frequency "wiggles" that sometimes make these curves hard to read, particularly the graph for the Dolby-C/metal-tape combination. Sony's new Superbias ultra-high-frequency bias-tone generator makes its bow for test purposes in this deck, and it is tied into the Dolby HX Pro high-frequency headroom-extension system, which achieves its purpose by varying high-frequency bias. The record/play head, too, is new: a Sony Laser Amorphous design. The explanation



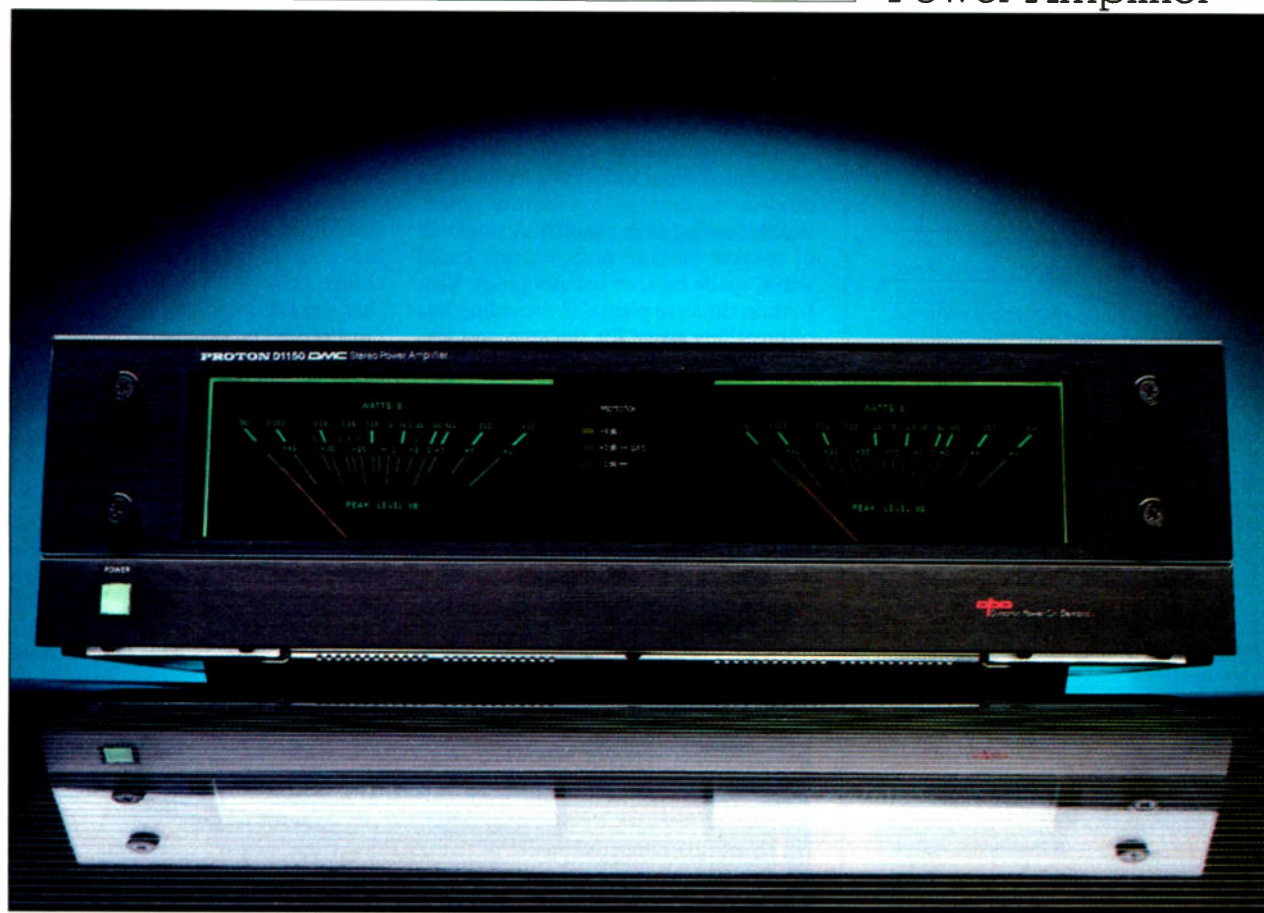
The TC-RX80ES's display contains a five-band spectrum analyzer (center).

Back in January 1986, we called Proton's D-540 integrated amplifier "the most powerful '40-watt' amplifier we've ever tested." That comment was prompted by the more than 6 dB of dynamic headroom supplied by the D-540's Dynamic Power on Demand (DPD) circuitry. As we've mentioned many times since, dynamic headroom is a measure of the additional power—beyond steady-state, or continuous, power—an amp can momentarily produce to avoid clipping high-level transients. Despite its modest power rating, the D-540 at times acted as if it had more

thought to cover nearly all musically significant transients. However, Proton researchers have found that the standard rating time is, in some instances, too short. So the company also rates the AA-1150 with 100- and 200-millisecond pulses, which yield correspondingly lower headroom figures but also indicate that the DPD is useful for peak signals of that duration.

What does a large amount of dynamic headroom do for you? Basically, the advantage can be counted in dollars and measured in size and efficiency. Because a DPD amp only masquerades as a mon-

Proton AA-1150 Power Amplifier



than 160 watts (22 dBW) per channel on tap. Such amplifier designs are not exclusive to Proton, but few others have matched the company's forcefulness in this respect.

Proton's latest DPD product is the AA-1150 power amp. Briefly, DPD works by drawing from a reserve of energy stored in large capacitors. After a high-level signal has been delivered, the capacitors recharge for the next assignment. Meeting the industry's test standard for dynamic headroom requires that this extra power be sustained for 20 milliseconds, a duration generally

ster amp, it can use smaller power transformers and heat sinks, translating to an attractive watts-per-dollar ratio. As Proton puts it in the AA-1150's thorough and well-written manual, the amp can "play as loud as an overdesigned 'heavy-weight' while remaining moderate in size, weight, and price." (There's no magic here, however: 200 watts straight up from a conventional amp is at least as good as 200 watts of dynamic power.)

The AA-1150 is extremely attractive, dominated by two large, mechanical power meters that are said to reflect peak power output (as opposed to just show-

Dimensions: 16½ by 4¾ inches (front), 14½ inches deep plus clearance for speaker terminals.

Fuses: 4 ampere for power supply.

Price: \$459

Warranty: "Limited," two years parts and labor.

Manufacturer: Made in Taiwan for Proton Corp., 737 W. Artesia Blvd., Compton, Calif. 90220.

TONY PETINATO

Test Reports

Rated Power (8-ohm load)	17.0 dBW (50 watts)/channel
Output at Clipping (at 1 kHz; both channels driven)	
8-ohm load	18.2 dBW (66 watts)/channel
4-ohm load	19.8 dBW (95 watts)/channel
Dynamic Power (at 1 kHz)	
8-ohm load	24.5 dBW
4-ohm load	26.3 dBW
2-ohm load	26.8 dBW
Dynamic Headroom (re rated power; 8-ohm load)	+7.5 dB
Harmonic Distortion (THD; 20 Hz to 20 kHz)	
at 17.0 dBW (50 watts)	<0.01%
at 0 dBW (1 watt)	<0.01%
Frequency Response	
	± 1/2 dB, 14 Hz to 30.7 kHz
	+ 1/2, -3 dB, 11 Hz to 80.4 kHz
S/N Ratio (re 0 dBW; A-weighted)	93 dB
Sensitivity (re 0 dBW)	155 mV
Input Impedance	22k ohms
Damping Factor (at 50 Hz; re 8 ohms)	270
Channel Separation (at 1 kHz)	107 dB

A QUICK GUIDE TO TAPE TYPES

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

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

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

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

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

ing average power). The meters' 0-dB markings represent the amp's rated power (50 watts) into 8 ohms; the scale runs to 400 watts, or +9 dB referenced to the zero point. Three LEDs between the meters indicate when and to what degree the DPD circuitry is in use. They are marked 0 dB (the threshold of DPD), +3 dB, and +6 dB. The owner's manual warns that if the last light is on most of the time, you are probably overdriving the amp.

When the AA-1150 is first powered up, its protection circuitry temporarily disables the speaker outputs to prevent turn-on thumps. This is indicated by an LED marked PROTECTION. If a speaker is drawing too much current or if DC is present at the amp's outputs, the LED remains lit until the problem has been corrected.

The wide spacing of the AA-1150's gold-plated input jacks gives a clue to its dual-mono design—a separate power supply feeding each channel. A single set of speaker binding posts accepts bared wires, spade lugs, or banana plugs. Ventilation slots are plentiful, providing lots of breathing space for the amp and giving you a good view of its neatly arranged interior. Indeed, no small part of the 1150's appeal is its appearance: Sometimes you want to just look at the thing, its orange needles bouncing seductively through the soothing green light of the meters. A clear plastic panel covers the meters and contributes a luxurious gleam.

In Diversified Science Laboratories' tests, the AA-1150 handily exceeded its 50-watt (17-dBW) continuous-power rating into 8 ohms, and output into 4 ohms was nearly 50 percent greater still.

The claimed 7-dB headroom actually turned out to be 7½ dB for an 8-ohm load, meaning the AA-1150 is capable of pumping out as much as 24.5 dBW (280 watts) per channel on peak signals. We can't recall encountering a higher dynamic-headroom figure. As a testament to the amp's stability into low-impedance loads, dynamic power increases significantly at 4 and 2 ohms (although it falls short of Proton's 2-ohm headroom specification).

In every other respect as well—distortion, frequency response, separation, and damping factor—the AA-1150 performed superbly. The dual-mono design contributes to an incredible 107 dB of separation at 1 kHz; even at 10 kHz, separation is 94 dB. These extra-high figures are not tangible (even 40 dB would be more than adequate), but they do speak strongly of the 1150's careful design.

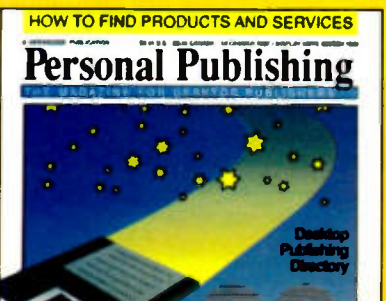
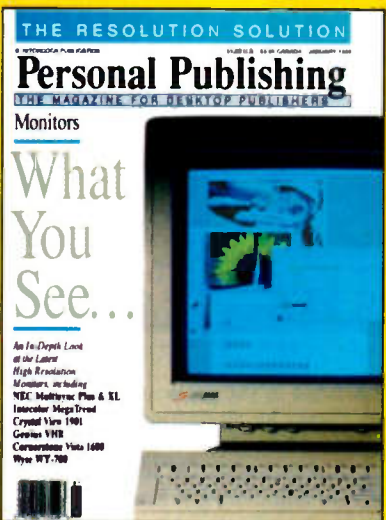
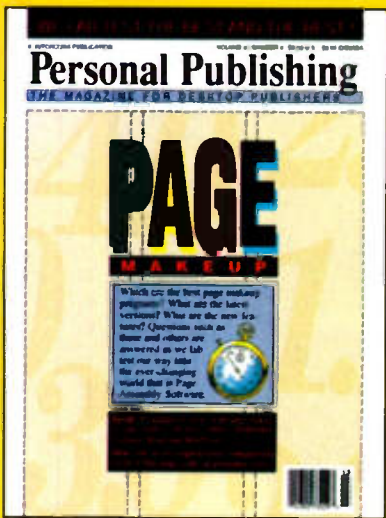
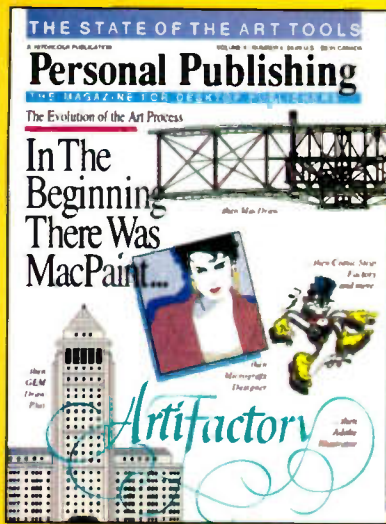
DSL attributes a ½-dB boost at 22 Hz (inaudible) to a built-in infrasonic filter that cuts off at approximately 16 dB per octave below 11 Hz. The lab observed that the DPD indicators were quite accurate during the dynamic headroom test.

In listening tests, I was anxious to light up that +6-dB DPD indicator. But it never happened: By the time the first light came on (the threshold of DPD), things were already way too loud through speakers of average sensitivity. I'm sure many people are unaware how little power it takes to fill a typical listening room with a reasonable level of sound. In its own way, the Proton AA-1150, with its telltale DPD indicators, is a triumph of reason at a very reasonable price.

Christopher J. Esse ▶



The AA-1150's level meters are supplemented by three peak-indicating LEDs (right).



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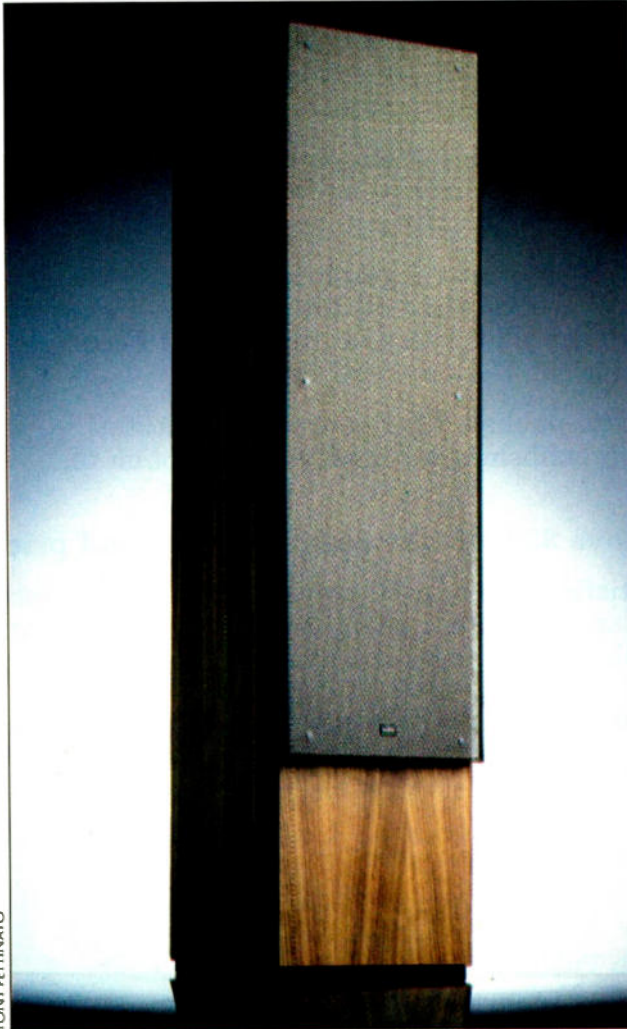
ADS M-12 Loudspeaker

One down from the top of the ADS home-loudspeaker line stands the M-12, a slim and handsome tower model. It represents a rethinking of ADS's design principles and exemplifies quite a few refinements, especially in driver construction and in the control of off-axis radiation. The sound has benefited greatly from this design initiative.

Although it has four drivers, the M-12 is a three-way acoustic-suspension

from ringing. A stiff stainless-steel coil former is used in the midrange unit, and its effect is a smooth extension of the driver's range for several octaves beyond the tweeter's 2-kHz crossover frequency.

In order to promote stable and accurate imaging, special care has been taken in the M-12's crossover-network design to produce a smooth radiation pattern by the prevention of "lobing" (from "lobe," the preferential beaming in certain direc-



TONY PETINATO

Dimensions: 43 by 11 inches (front), 14 inches deep.

Price: \$1,900 per pair.

Warranty: "Limited," five years parts and labor.

Manufacturer: Analog and Digital Systems, Inc., 1 Progress Way, Wilmington, Mass. 01887.

system. The two 8-inch woofers have polymer cones. Radial resonance modes are suppressed by a compound curvature of the woofer diaphragms, a technique also used in the 5-inch cone midrange driver. Both the midrange unit and the 1-inch dome tweeter have diaphragms made of a proprietary copolymer. Compared to ADS's earlier woven-fabric soft-dome material, the new material is said to have a molecular structure that gives it greater strength while maintaining high internal damping and freedom

of frequencies in the crossover regions that is caused by interactions between drivers). Linkwitz-Riley four-pole networks are used throughout to achieve this. Ferrite-core inductors (for low distortion and freedom from saturation) and metallized polypropylene-film capacitors (for low dielectric absorption) are used to construct the crossovers.

A look behind the removable grille reveals the drivers in an uncommon configuration: From top to bottom, the order is midrange, tweeter, woofers. The

midrange is at the top to elevate it as far as possible from the floor, so that the notch in response that would be caused by its floor reflection is moved in frequency to below the driver's operating range. Similarly, the woofers are located, says ADS, "as near to the floor as practical," so that floor-reflection effects lie *above* their operating range. The midrange and tweeter are at about ear level for a seated listener.

The M-12 is finished on all sides and the top and comes in either a matte-black plastic laminate or a genuine oiled-walnut veneer. Depending on the finish, the perforated-metal grille is either black or bronze. On the bottom is a recess containing a pair of multiway binding posts. Those seeking banana-plug connection to the M-12s should be warned that if the plugs are attached to heavy speaker cable, the connectors may stick out too far from the recess to allow the speaker to stand upright. Spade-lug or even bare-wire connection may be preferable.

For smoothest response and best imaging, the well written and complete manual urges placement of the M-12 enclosures two to four feet from side or back walls "or other major boundaries." The traditional equilateral-triangle layout is also suggested, with the accompanying drawing showing a direct aiming of the speakers' front panels at the preferred listening position.

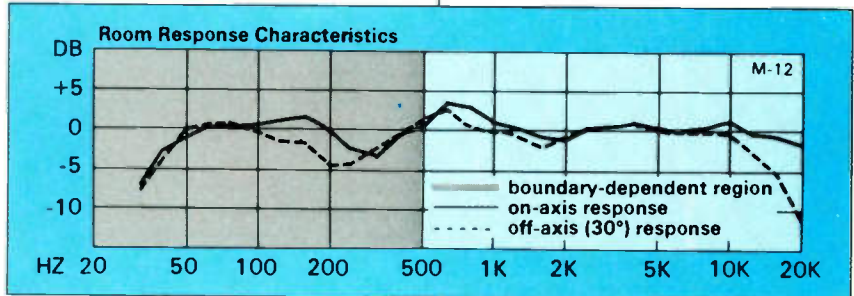
I recommend taking this hint when auditioning the speakers since, as our graph shows, the off-axis tweeter response falls off above 8 kHz. As a result, even when sitting directly on-axis, the M-12 at times sounds a little lacking in "air," that feeling of upper-frequency spaciousness that is most easily heard with a good recording of massed strings. At other times, the M-12 can even sound a bit dulled, compared to speakers with flatter off-axis high-frequency responses.

Our graph, however, paints too bad a picture of the speakers' behavior below 2 kHz. Diversified Science Laboratories obtained this response with the speaker only 3 inches from the rear wall. And indeed, although the speakers' bass is most extended in this position (being flat down to almost 50 Hz), the -5-dB upper-bass dip and +3-dB midrange peak are audible, the former as a lack of warmth or richness and the latter as a hint of nasality (which is abetted by the dip around 1.6 kHz).

DSL's other response traces, taken with the speaker 34 inches from the wall and thus more in line with ADS's recommendations, show a considerable flattening out of the midrange; the dip at 1.6 kHz is completely eliminated in the on-

axis response. The upper-bass dip also fills in nicely on axis. But the midrange peak remains, and even increases in level to about +5 dB compared to the surrounding frequency region. Bass response begins to fall off an octave higher (around 100 Hz). So, in this position, a slight touch of nasality remains, and the speaker can sound a bit thin with material containing extended bass information.

Before you jump to hasty conclusions, keep in mind that I am nitpicking here. I compared the M-12 with our reference system, which costs more than



twice as much. The ADS speaker, heard on its own, is excellent. Ignoring the midrange peak—which is by no means obvious with much program material—the on-axis, out-in-the-room frequency response can be characterized as a very fine ± 2 dB from 90 Hz to 20 kHz. Imaging is quite precise and solid.

Distortion was never a problem, remaining reasonably low until the 100-dB sound-pressure test level was reached. And even then, distortion above 100 Hz was below 1 percent (except for a small and negligible excursion to about 1½ percent at 400 Hz). In DSL's tests, the speaker accepted 45 volts peak (equivalent to 253 watts, or 23.7 dBW, into 8 ohms), and delivered a calculated peak SPL of 112.5 dB at 1 meter. Impedance was on the low side, averaging approximately 5 ohms with a dip to 3.8 ohms at around 300 Hz. For purposes of multi-speaker hookups, consider the M-12 a 4-ohm model, with all the parallel-connection restrictions that apply to such units.

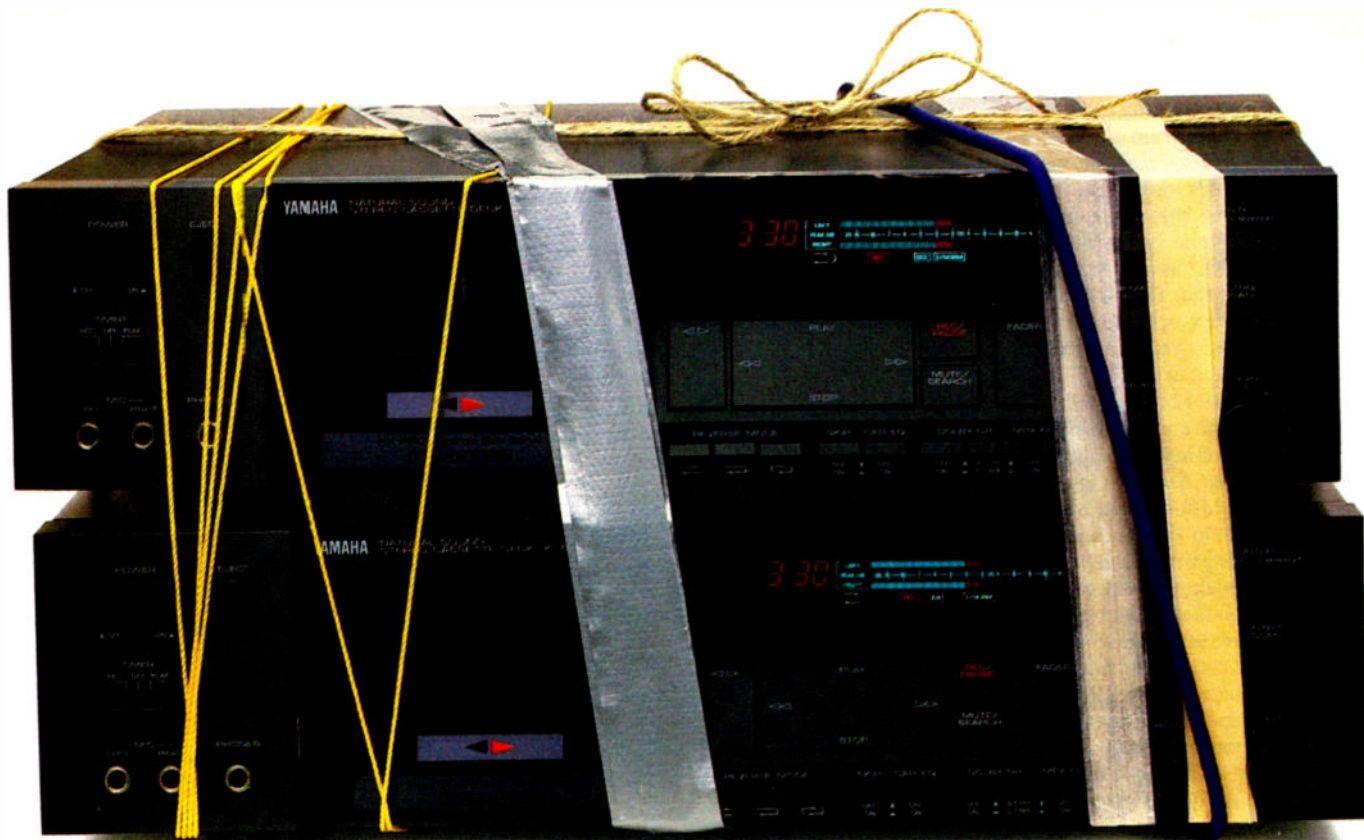
On the whole, the M-12 is a step forward over previous ADS models in this price range. The sound is not as "forward" or "aggressive" as that of earlier units, and the overall effect is smoother, cooler, and cleaner, particularly at high volume levels. The response aberrations discussed earlier are no worse than I've seen for other speakers costing much more and are certainly minor compared to the problems found with other, more popular and famous speakers costing as much. Do give the M-12s a listen.

David Ranada

Sensitivity (at 1 meter; 2.8-volt pink noise)

88 1/2 dB SPL

Average Impedance (250 Hz to 6 kHz) 5 ohms



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Sounding Off



*An Interview
With Noel Lee
Of Monster Cable*

By Gordon Brockhouse

Among the most hotly debated issues in audio is the audibility of cables. At one end of the spectrum are avid audiophiles who spend \$100 per foot and more for speaker cables and "interconnects." At the other end are conservatives, who maintain that any differences between 14-gauge hardware-store wire and premium speaker cables are inaudible. And even if differences can be detected, this group insists, there is no proof that the expensive cables are more accurate. Smack in the middle of the debate stands Noel Lee, thirty-nine-year-old founder and president of Monster Cable Products, Inc. A mechanical engineer, Lee founded the San Francisco company after working at the Lawrence Livermore Laboratory for several years. An audiophile since his youth, he built Dynakits and Heathkits as a teenager and later operated a recording studio.

While working at Livermore, Lee experimented with some of the audiophile cables then available. "I discovered there were sonic differences between cables of the same cross-sectional area," he recalls. "According to the electronics textbooks, that didn't make sense. I started to wind cables different ways and got different sonic results, and came up with Monster Cable." While Monster wasn't the first company in the field, it quickly became the largest seller of premium cables. More than any other firm, it is responsible for creating interest in speaker wire and interconnects.

[Editor's note: This interview has been edited for space only, not for content. HIGH FIDELITY views the claims made by high-end cable makers with a great deal of skepticism. Within reasonable limits, we do not believe that the manner in which a cable is wound or the conductive material from which it is formed contributes directly to sound quality. We also have strong reservations concerning the application to audio of physical principles generally considered to have relevance only at very high (radar) frequencies.]

GB: *The audibility of cables remains controversial. In controlled listening tests, the differences don't show up. Why?*

NL: They're not using material that will show differences strongly enough and quickly enough. A lot of cable-related distortions are most noticeable on material with a lot of high-frequency energy. If you are playing something that's rolled off, you're not going to excite these high frequencies. When I'm listening to cables, I'll take an overcut record, I'll take a peaky cartridge, I'll do a lot of

things to excite those frequencies. If I can keep them under control, I know I'll be coasting when I play a good recording.

All the A/B tests that I've read about have used a switching device. You can hear switches; you can hear wire in the switch boxes. When audiophiles plug in a new wire in their system, they don't have a switch box, but they can hear the difference immediately. When *Stereo Review* did tests between amplifiers, they couldn't hear the difference through an ABX box. They did the same with CD play-

ers and proclaimed there is no difference between a \$2,500 Meridian and a \$198 Magnavox or whatever it was. And they couldn't hear differences with cables. Their conclusion in all these cases was that there is no difference.

I would advise people to listen with an open mind. The three major magazines won't even talk about cables. It's really disappointing, because we get such good press in every other country in the world. In other countries the question isn't whether wires make a difference, but which wire should one buy.

GB: *Is there a problem with the basic methodology of blind testing? Is there something about these differences that eludes testing?*

NL: No. I'd like to be subjected to a totally blind test without switches. When you switch back and forth very quickly, the mind integrates subtle differences. If you're switching between speakers with gross differences in frequency response, there's no problem using a switch. But when you're switching between electronics, the mind is integrating. It's like pouring a bunch of different wines down your throat one right after the other. You can't discriminate.

GB: *So what you're saying is the opposite of conventional wisdom, which says you have to switch quickly because audio memory is short.*

NL: Absolutely. The people who developed this theory were working with tones. They would switch back and forth between two frequencies close together and see if they could remember which one was which. When we listen to audio equipment, we listen to the texture of the music, the harmonic tones of the instruments, the depth and width of the image, not only amplitude.

The whole musical experience has to be taken in. One needs to take a mental photograph—the mind integrates the whole thing. Whenever I do a listening test, I listen to a passage once, then again, so I make sure I have a fix on the material. Then when a change is made, I can easily pick that change up.

GB: *Let's look at some specific products. Can you explain the need for*

balanced conductors in your interconnects? What benefit does that provide you?

NL: Our aim is to control electromagnetic fields generated by the cable as current passes through. In most coax cables, the plus and minus conductors are different materials, used in different amounts and in different configurations. You might have a thin wire down the middle, with a braided shield around the outside. So you don't have adequate control of the two conductors as you have in a speaker cable.

As the signal travels through the wire, each frequency generates its own electromagnetic field. The fields interfere with each other as they energize and collapse. That creates a time-related distortion, causing the low frequencies to travel slower through the wire relative to the high frequencies. When we compare standard wires with ours, they seem two-dimensional, collapsed, lacking in dynamic range. They actually sound brighter, although the highs are even rolled off.

GB: *Can you explain why you use different wire thicknesses for different frequencies in your interconnects? If I can be anthropomorphic, how do the low frequencies "know" they ought to travel down the large center conductor and the high frequencies down the little strands?*

NL: The audio signal takes the path of least electromagnetic resistance. If you have only multiple small conductors, bass frequencies will be forced to travel down those tiny high-frequency wires. The larger wires become more inductive at high current and are therefore a more optimum path for bass frequencies. If you have a large wire for those bass frequencies, that's where they'll go, because there is less electromagnetic resistance.

GB: *Doesn't the cable behave like a single conductor, anyway? Or are the wires separately insulated?*

NL: They are insulated. If they weren't, this effect would still occur, though not to the same degree.

GB: *Why don't the high frequencies travel down the big conductor? Doesn't it present a lower-resis-*

tance path for all frequencies?

NL: As a signal's frequency rises, it tends to travel along the outside of the conductor. If there's another path with higher surface area for the high frequencies, they'll take it, because that's the path of least electromagnetic resistance for them.

GB: *Can this be measured? Is there some kind of tool that shows high-frequency content higher on the small conductors than on the large one?*

NL: Yes, you can measure them, but there is no standard against which you can measure. The time delays involved are very small. In a one-meter cable, it's several nanoseconds. However, in percentage terms the delay of a low-frequency relative to a high-frequency signal is very high. It's definitely audible.

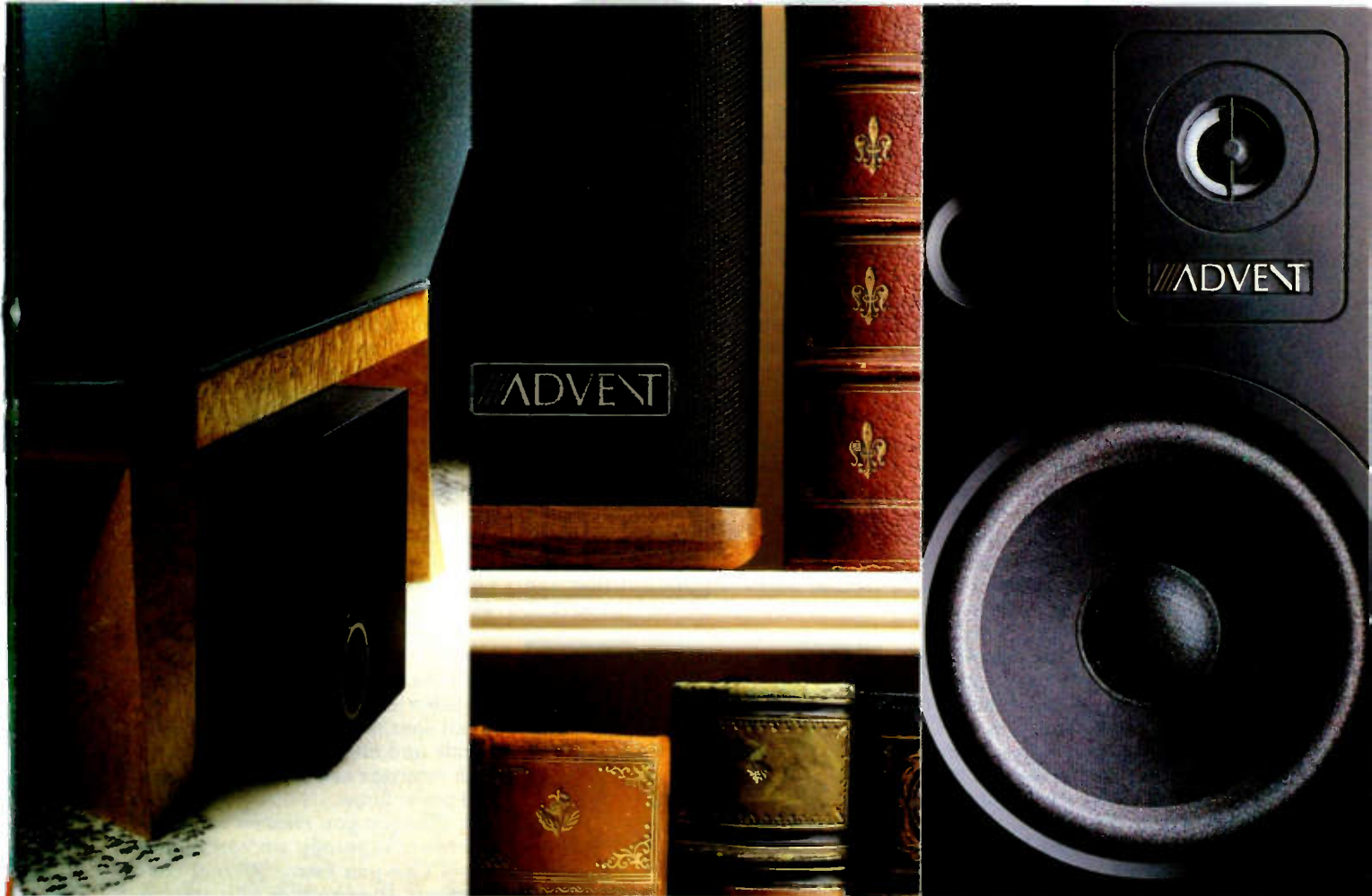
GB: *What about the actual signal content of the different conductors? Can you measure these?*

NL: Not directly, but they can be determined from complex-impedance measurements.

GB: *I guess I'm showing my English-major background. People who dispute these effects grant that high frequencies tend to travel along the surface, but they say this happens only at very high frequencies, out in the radio band.*

NL: These effects do occur at audio frequencies when you're talking about skin depth, which is the depth of penetration into the conductor. If you do a calculation, the depth of penetration of a 20-kHz signal in copper is 0.02 inch, and at 20 Hz, it's 1/2 inch. All this theory is fine, but in the end it's what you hear. Either it makes the grade, or it doesn't.

The fact that we use conductors of different thicknesses is one aspect of the design. The second is how we wind them. The big conductor for the bass goes straight through. In our Interlink Reference cable, we have four conductors of intermediate size for the midrange. They're wound around the bass conductor. The high-frequency conductors are very, very fine wires grouped together in several little bunches. They are wound around the bass and midrange conductors. Winding the wires this way creates



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an inductance, just like winding a wire around a bobbin. So the highs are delayed more than the midrange frequencies. Everything is in line, so signals can travel through the wire with much closer delays.

The third aspect of our technology is our Microfiber dielectric. Any dielectric has two properties: energy storage and energy loss. When the signal stops, and the electromagnetic field collapses, energy stored in the dielectric may not get released at the same time as the signal stops. It's perceived as a "grunge," a noise, a distortion that you notice especially on transients. As with many forms of distortion, you become most aware of it once you've gotten rid of it.

There's also energy loss. Some of that energy turns to heat. This is most noticeable on very sharp transients: a bass drum, a kettle drum, the plucking of a string bass, for example. On these signals, the leading wave can be 20 to 40 times higher than the rest of the signal. In listening comparisons, there's a significant increase in perceived dynamic range with Microfiber. Because it's 30 percent air, Microfiber doesn't store as much energy as a solid material. The energy that is stored is dissipated very rapidly. There's also much less energy loss than with a solid dielectric.

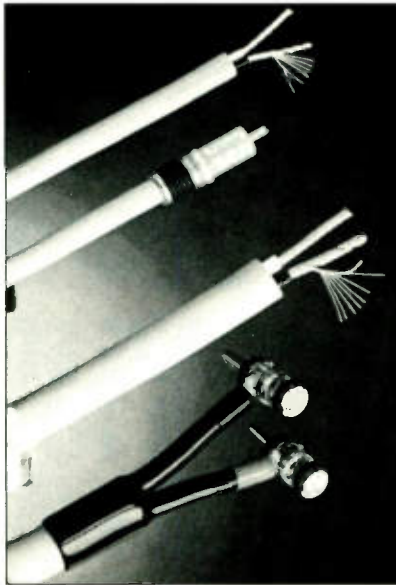
GB: *I gather your design approach for speaker cables has evolved considerably since you started the company.*

NL: Absolutely. The initial Monster Cable was designed purely by listening. We didn't have any idea of the theory behind what we were doing. We wound the wires this way and that way, and came up with a cable that gave us more dynamic range and greater bass and treble extension than conventional 10- or 12-gauge wire.

We've refined that over the years. The foundation of our current technology is the use of helical windings over what we call the Magnetic Flux Tube. There's a dielectric in the middle of the wire. This dielectric breaks up internal inductor effects at the center of the cable assembly. Instead of going around the outside of one

large, solid conductor, the field moves along a small conductor wound around a tube. This way, it can travel along the inside and outside of the wire. That allows a more even distribution of the electromagnetic field across the cross-section of the wire.

With speaker wire, you're dealing with much higher currents than with interconnects. It's like a turbulent river instead of a stream that you have to guide along. It's like the difference between turbulent flow and laminar flow in fluid mechanics. With



M-Series interconnects, speaker cables

slow-moving liquids, you can predict the resistance in a pipe and you can steer the fluid in a certain direction. Once it gets to a certain velocity, it's much more difficult to control.

It's even more complex with electromagnetic fields because you have many frequencies at the same time. Just imagine several fluids of different viscosities being shot down a pipe at the same time at great velocities, and you have an idea of the complexity.

GB: *What's your actual design methodology? Are there objective performance parameters that you're after when you design a cable? Do you have a method for correlating measurements with perceived effect?*

NL: We build computer models of designs. That gets us in the ballpark. That tells us the inductances required, the time delays of the signal—that kind of thing. For a certain diameter wire, we can calculate the makeup of the wire and its target price. During our first two years, modeling was done independently. Our engineers would run the calculations, and we'd listen, not knowing what the calculations were. Our impressions correlated very closely with the calculated result.

After we model the wire, we fine-tune it: the dielectric, the windings, even the termination methods. Then we listen to it on various systems: on small speakers as well as large dynamic and electrostatic speakers; with receivers and separate preamps and power amps.

GB: *What do you view as more important, topology or conductor type? Can you hear different conductors? Does copper of a certain purity sound better than copper of a lower purity? Does silver really sound bright as some audiophiles complain, or are their eyes influencing their ears?*

NL: I'll tell you, sometimes audiophiles let the price influence their ears. You don't always get what you pay for, especially in cables. We believe that as long as the conductor is of high purity, there are many, many more things that are much more influential than the conductor type. You cannot do an A/B test between two cables of different conductors unless they're of exactly the same construction. In our listening tests, we alter two or three strands in a wire, and we can hear it. We change the dielectric slightly, and we can hear it. We change the amount of conductor or how it's wound, and we can hear it. When we change conductor material, we can't hear it.

Let's put it this way: We haven't been able to determine a difference in sound related to the purity of the copper between an oxygen-free copper (OFC), which we use, and other coppers, such as linear-crystal (LCC). What you do hear in these coppers can be calculated with simple formulas. You hear the magnetic properties



of the materials as they either speed up or slow down different frequencies traveling through the wires, which is why silver sounds bright. If you look at the magnetic permeability and the permittivity of silver, it has a wider disparity between higher and lower frequencies.

There are other reasons why different materials sound better. When you process something like an LCC or OFC copper, there are different techniques for drawing the wire. The crystalline structure at the outer surface may not be the same as the inside, which may explain the differences in sound. That's why, when some of the exotic copper materials came out, everybody said they sounded great. Well, they didn't sound fantastic; they sounded different. A good product will survive in the market, and they didn't, except in Japan.

GB: *There seems to be an inconsistency. You said if you change the strands or dielectric or winding, you can hear that, but that when you change the conductor type, you can't. But then you said the magnetic properties of different conductors account for different sonic characteristics. Are you saying there are differences in the way these coppers sound?*

NL: When I said conductor material, I meant purity of the conductor. Copper—whether it's OFC, OCC, or LCC—will exhibit similar sonic characteristics. You can hear the difference between copper and other materials. There's a difference between the magnetic properties of copper and other metals, like silver or aluminum, and consequently in their sonic characteristics.

GB: *How much better sounding could a price-is-no-object wire sound than your best cables?*

NL: Our best wires are the best we know how to build. If the question is, can we build a wire better than we're building now, the answer would be: If we can, it will be a commercial product eventually. Our best wires aren't handicapped by a target price. You have to realize that there's a demand for higher-priced wires than ours.

GB: *Are you saying other cable companies are inflating prices?*

NL: Absolutely. There are some people charging outrageous prices for wires. In terms of performance, there's no justification for these prices. We differ from our competitors in several respects. I feel we're the only company that really has a handle on the technology, on what the distortions are in cables and how to correct them. The others are where we were a few years back, when we didn't know what the answers were. They're grabbing onto technology that really isn't real: solid-core and exotic materials, for example.

GB: *High-gauge solid-core speaker wire is being promoted in some circles, especially in Britain. What's your view of that?*

NL: I think solid-core wire may be suited to British tastes, just like British loudspeakers. If you take one diameter wire, you can make it sound very good at one frequency, let's say the midrange, which is what I think they're hearing. You get the sound round and smooth. But the highs will be rolled off, and the bass will be tubby.

In particular, it will lack dynamic range. You can't get powerful bass out of a small woofer. You're not going to get dynamic range out of a small conductor either, beyond a certain point. A small conductor will tend to saturate and thereby compress the sound.

GB: *Some recording companies are now using Monster Cable. How did that happen?*

NL: Traditionally, recording engineers have viewed audiophile products as crazy, lunatic. Audiophiles think recording engineers can't hear what they're doing, because their recordings sound terrible. Now we're seeing a fusion. The Compact Disc places greater demand on the recording engineer. People can hear a lot more. Because of this, the recording engineer has become an audiophile. It's being demanded of them to create good sound as well as good music.

GB: *Is this occurring primarily with smaller labels?*

NL: Oh, no. We're doing things with CBS and A&M. We're doing projects in major pop studios. For instance, John Arrias has built a completely

Monster-wired studio to do all future Barbra Streisand projects. And Bruce Swedien is using our cables in all future projects of Michael Jackson and Quincy Jones. All recordings from Telarc, DMP, and GRP in the last year have been made using our cables in all the signal paths. You hear the difference. The recordings are quieter, cleaner, smoother, more natural sounding, more dynamic.

GB: *Some equipment suppliers are offering direct digital outputs on their CD players and digital inputs on their preamps. How does that affect the market for your products?*

NL: In a fiber-optic link, you eliminate all these electromagnetic problems we've been talking about. To me, fiber is the way to go. Theoretically at least, you can get rid of wire. I'm in the wire business, but I know how bad wire can be.

But you have to pay attention to the quality of the fiber-optic connector because it has to be highly polished and very linear. The shielding is very important. That's why a lot of fiber optic cables are armored. You need to have a connector that will interlock and not be subject to vibration or movement. This results in data loss at the junction and consequently more interpolation.

GB: *Where do you see your business in the year 2000? Is Monster Cable going to be much the same kind of company it is now, or are technological changes in the 1990s going to force you into new areas?*

NL: We're in the connecting business. Whatever they do with cables—fiber optics or infrared, visible wires or no wires—that's where we want to be, always aiming toward the higher end of the market to provide audiophiles with the best ways of connecting their components. Our computer cable division and our pro division are both expanding rapidly. But we're first of all an audiophile company. The major core of our engineering staff are all audiophiles who spend countless hours listening and fine-tuning. □

Gordon Brockhouse has been an editor of Canadian audio and computer industry trade publications.

"Polk Has Triumphed."

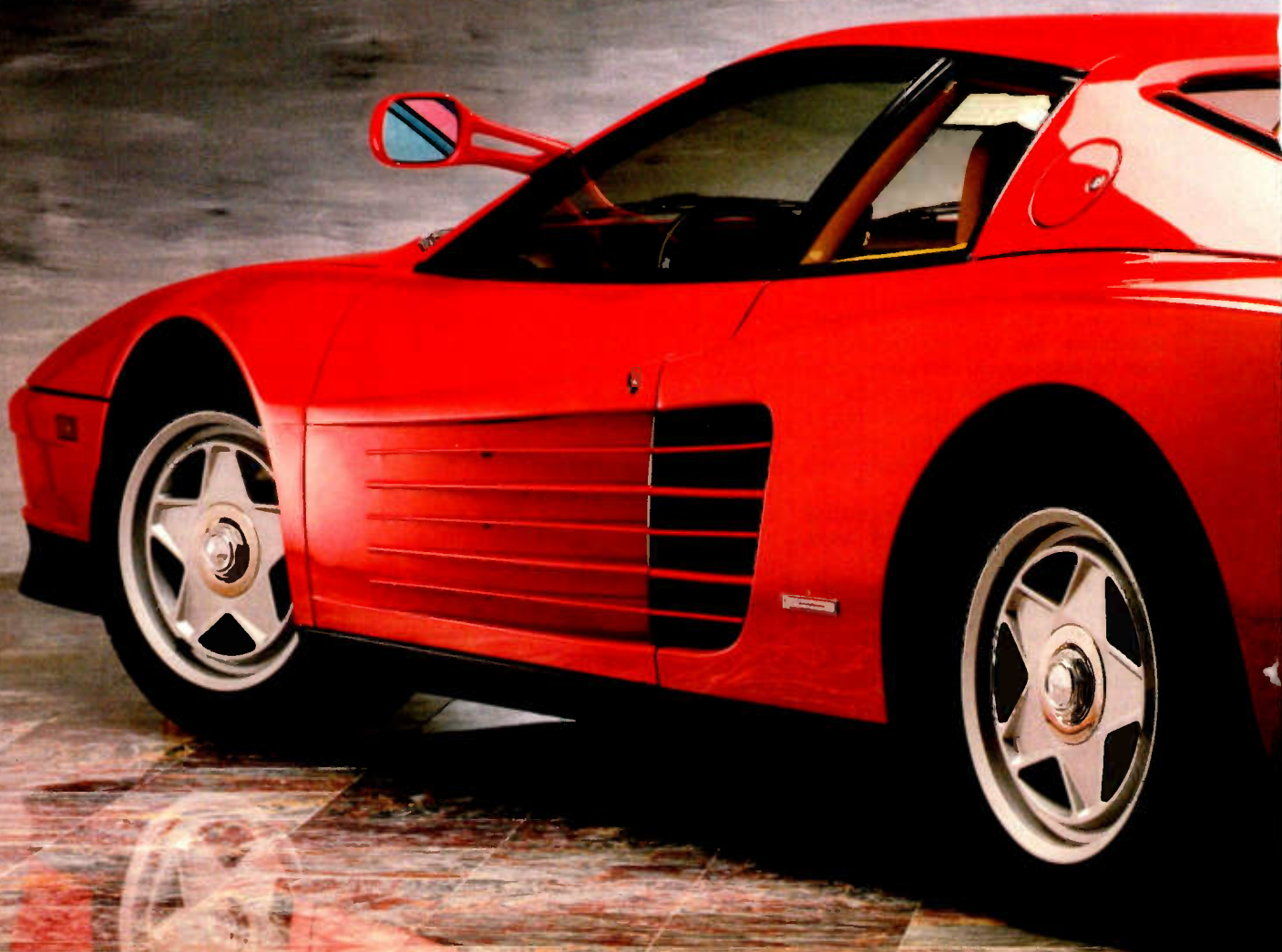
CAR STEREO REVIEW

Introducing Matthew Polk's New SDA Mobile Monitor Systems

Matthew Polk has a passion for perfection in the cars he drives, and the speakers he creates. His astonishing new SDA Mobile Monitor Speaker Systems combine the awesome sonic benefits of his revolutionary SDA True Stereo technology with the superior sound of his Grand Prix award winning Mobile Monitor loudspeakers. Car Stereo Review, the definitive authority on the state-of-the-art in autosound, raved, "It's like jumping into hyperspace."



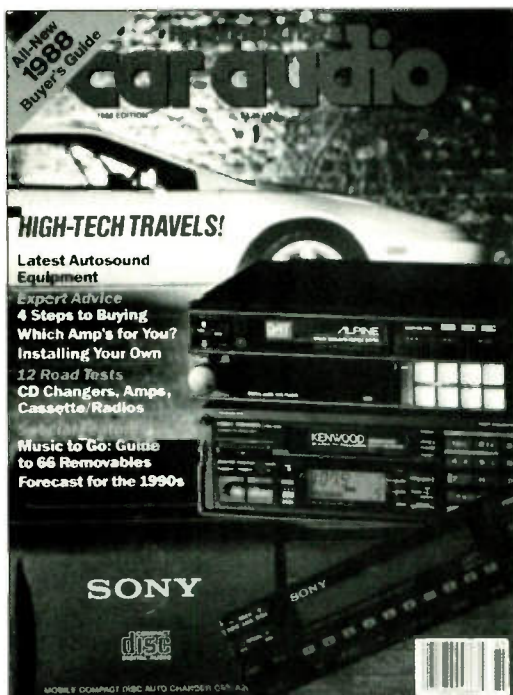
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LA COMMEDIA FINITA

The undoing of CBS's Copy
Code anti-taping system.
By David Ranada

The coup de grace came with an unexpected decisiveness. On March 1, 1988, the United States National Bureau of Standards (NBS) issued its report on the efficacy of CBS's Copy Code anti-taping system. The report's executive summary said that "the system does not achieve its stated purpose [having exhibited false-positive and false-negative responses]. . . . The system's encoder alters the original electrical signal. For some listeners for some selections, this results in a discernible difference between prerecorded notched and unnotched material. . . . The copy prevention system can be bypassed easily. . . . The circuits are simple and easy to construct." These conclusions effectively killed congressional support for the CBS system. In the words of Jason Berman of the Recording Industry Association of America (RIAA), the group that has lobbied most strenuously in sup-

Finding the Killer Chord

As soon as the NBS's plans for testing Copy Code were announced, I volunteered my services to the Home Recording Rights Coalition, hoping to assist it in shaping the procedures used in the test (the NBS having solicited recommendations from the HRRRC) and in selecting the program material for the Copy Code listening tests. Although I submitted long memos on test procedure and on various electronic means to defeat Copy Code, perhaps the most important function I performed in this affair—and the work about which I'm most proud—was finding music that could be audibly degraded by Copy Code encoding. Specifically, I found the "killer chord": the musical excerpt whose alteration by the Copy Code notch filter was most easily detected.

I started with one crucial and, as it proved, valid assumption, which had to be made because CBS had steadfastly refused to provide many important technical details about the Copy Code encoder. Although CBS had by this time (late 1987) also disowned earlier descriptions of the system, I reasoned that the frequency of the encoder notch would be essentially unchanged from its original location at 3,840 Hz.

The notch frequency is one of the most important design parameters of a system like Copy Code, because it influences other critical aspects of both the encoder and decoder (such as the minimum encoding-detection time). The "richness" of all kinds of musical spectra around the notch frequency, the ability of various audio media to pass frequencies around the notch, and, of course, the notch's audibility all constrain its location in frequency. Specifically, a Copy Code notch must be high enough not to intrude directly upon music fundamentals, and yet it must be low enough to fall in a frequency range usually filled with musical overtones. It could not be too high, or the system would not be effective with low-fidelity media like analog videocassette soundtracks—remember that Copy Code was originally intended to stymie *all* home audio taping.

Notch location would therefore have been one of the very first things determined in an engineering-feasibil-

ity study. Its precise location would be determined by a survey of music spectra combined with a battery of listening tests. Since Copy Code had been under development for some years by the time the DAT debate surfaced, I felt that such testing would have already been conducted and that the frequency first mentioned by CBS (in the days before it started acting defensively over the system) would be the optimum one. So, despite protests by Copy Code's sponsors that the notch parameters had been changed, I concluded that 3,840 Hz would be as good a place as any to start looking for audible degradation. Any change by CBS would have to have been minor, otherwise the system would not be able to fulfill its design objectives.

Listening tests centered around 3,840 Hz were thus in order. I decided to listen for only one specific effect: the attenuation of musical fundamentals or strong harmonics near 3,840 Hz that would result from notch filtering. Other effects could have been listened for, such as a horrendous phase shift around the notch frequency characteristic of narrow filters, or a highly colored filter-noise spectrum. But I concluded that since severe attenuation at 3,840 Hz is what a Copy Code decoder is designed to detect, any phase shifts or noise should be considered as simply undesirable by-products of encoding.

But CBS had chosen well. I pulled out my books on orchestration and instrumentation and found that musical fundamentals near 3,840 Hz are rare. In general, only pianos, piccolos, glockenspiels, and pipe organs ever emit fundamentals at the two musical pitches closest to 3,840 Hz: the B-flat and B-natural closest to the top of a piano keyboard. So I decided to extend my search to the various "subharmonics" of those two notes (at one-half, one-third, one-fourth the frequency, etc.), concentrating on those belonging to the high B-flat. All B-flats lower than 3,840 Hz thus became candidates. E-flats, especially the ones that are one and two octaves above middle C, also came under scrutiny.

It was, and is, absolutely impractical to listen to randomly selected CDs hoping to find some passages with substantial energy clustered near 3,840 Hz. Perhaps CBS hoped that this would make it impossible to find obviously degradable music. So my initial

searches were visual, not auditory. Since college days, I have collected a library of orchestral scores covering much of the basic symphonic and operatic repertory. One can flip through the pages of a Beethoven symphony or Wagner opera looking for specific pitches played by selected instruments much faster than a real-time playing of the works. My score collection was supplemented by several visits to the many shelves of music at the New York Public Library at Lincoln Center.

Throughout the score scanning, I looked for three things I thought would be most audibly degraded: relatively long-held notes and chords containing subharmonics of the Copy Code frequency; passages in which notes of Copy Code subharmonics are rapidly repeated; and the rare passages in which the high B-flat is hit directly. Then, using a notch filter centered at 3,840 Hz but constructed to be slightly narrower than the original CBS Copy Code specifications, I listened to CDs of the suspect passages while switching the filter in and out. I accepted only those passages in which a difference was absolutely obvious: as if a sinewave oscillator at 3,840 Hz were being turned on and off behind the music.

I concentrated on looking for passages containing instruments that I believed would throw substantial harmonic energy into the notch, preferring violins to flutes or piccolos, for example, because violin notes have far richer spectra than sine-wave-like flute notes. Furthermore, violin vibrato and pitch inaccuracy would be likely to throw harmonics directly into the notch. Certain things received special scrutiny: those discs that had been used by Copy Code's sponsors in demonstrations of the system's alleged inaudibility (Barbra Streisand's "Broadway Album," for example); those from artists who had issued statements in support of Copy Code (Herbert von Karajan, Leonard Bernstein, George Harrison, and others); and pieces that stood some chance of being recognized by a congressman (Copland's *Fanfare for the Common Man*, Sousa's *Stars and Stripes Forever*, as examples).

In all, I submitted to the NBS, via the HRRRC, three lists (totaling 68 separate CDs) of selected notch-degraded passages. All the selections are listed in an appendix to the NBS report, but only the first 32 reached the NBS in

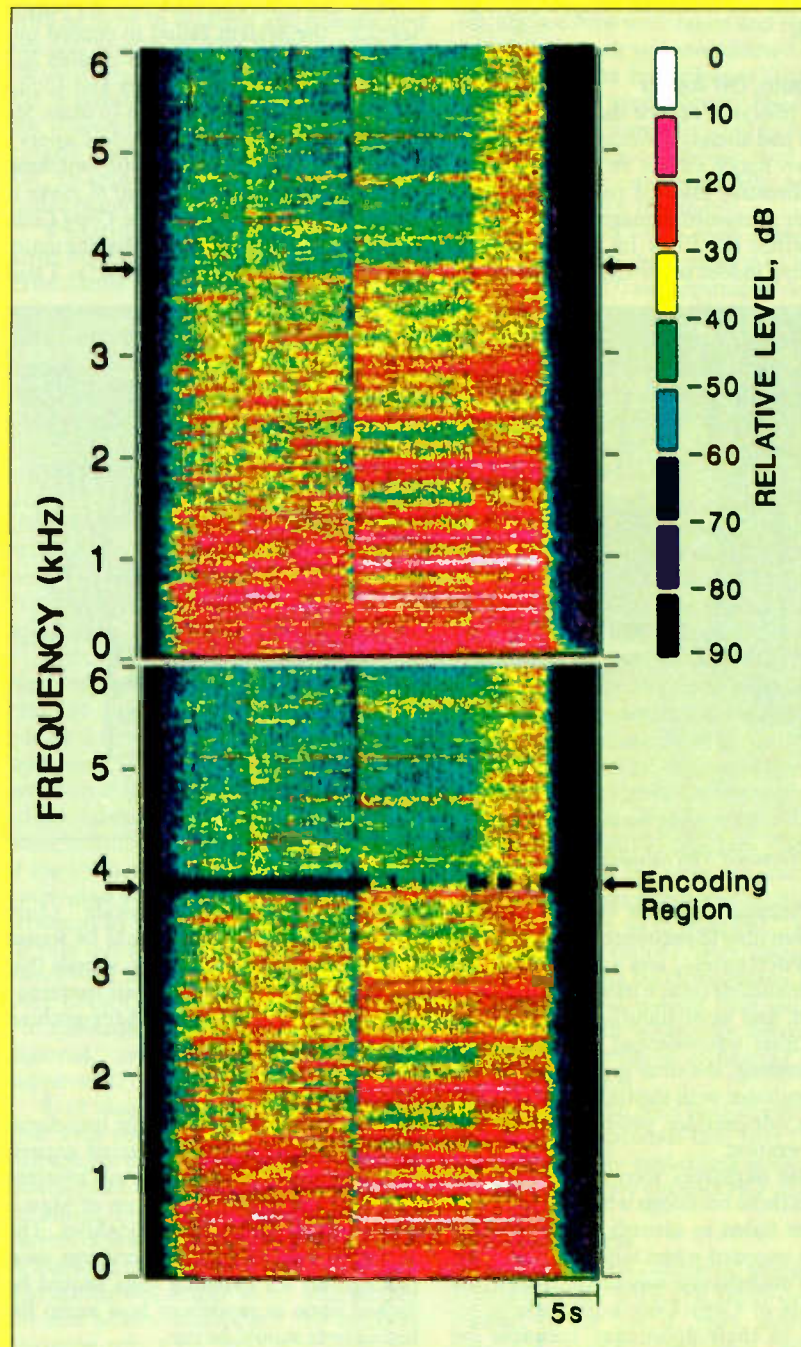
time for consideration for the listening tests. Furthermore, because the actual Copy Code encoder removed the notch whenever it thought that it would be audible, not all of the 32 selections ac-

tually generated notching. Still, 7 out of the 24 selections used in the listening tests, and 13 out of 56 discs used in the false-positive/negative tests came from my first list of 32.

Fortunately, the killer chord was on that list. That chord is the last one in Prokofiev's *Alexander Nevsky*: a sustained fortissimo B-flat-major chord scored for full orchestra (including glockenspiel, xylophone, and piccolo) and chorus, and filled with B-flats from top to bottom. In the specific recording I suggested (London 410 164-2) the chord is held for a good 15 seconds. The fundamental of the piccolo note fell right into the Copy Code encoder's notch and was severely attenuated, but not continuously, by the encoder. Therefore, the long piccolo note in the original was transformed by the encoding into several disconnected notes (see the nearby color spectrogram).

On the whole, this Prokofiev chord proved to be the selection of "real music" (as opposed to specially devised synthesizer chords) whose degradation was most easily detected in the NBS listening tests. For example, the NBS report states that for the serial listening tests, "the probability of obtaining an average score of 70.1 percent [the result for the Prokofiev] or more from a set of 348 responses generated by a 50-50 chance mechanism is much less than one in a million." In the parallel listening tests, the data for the Prokofiev chord showed "statistically significant evidence that the encoded channel is audibly distinguishable from the unencoded version." The NBS showed that Copy Code encoding is audible, in direct contradiction to claims by its supporters and developers.

I find two ironies surrounding this particular chord. The first is that in a test by an agency of the U.S. Government, the selection that proved crucial is from a Stalin-era masterpiece. In fact, Sergei Eisenstein's film *Alexander Nevsky*, the soundtrack of which formed the basis of Prokofiev's cantata, celebrates the victory of the East over an aggressor West (Teutonic hordes, to be more specific). The second irony is that my searches through the works of Prokofiev and Shostakovich were prompted by a suggestion from a professional flute and piccolo player. He plays in a major symphony orchestra and is a member of the American Federation of Musicians, an organization that supported Copy Code. Such groups should ask their constituents if they should be squandering energy and money in pursuit of such worthless objectives. D.R.



The NBS's color spectrograms of the "killer chord": At top is the original, at bottom as filtered by a Copy Code encoder. Frequency in each spectrogram runs from bottom to top. Color signifies level, as indicated by the color code at the upper right. Time runs horizontally from left to right. In both spectrograms, small arrows point to the frequency region removed by the Copy Code encoder. In the encoded version, note the removal of the bright stripe at the Copy Code frequency. This is a piccolo note, the interruption of which proved to be extremely audible.

FM 96.3 MHz

It was a shock to discover recently that a colleague whose technical acumen I particularly respect doesn't bother much with "quieting" graphs when he wants a picture of the overall performance of a tuner or receiver. While tuner quieting curves are indeed rather daunting to the audio enthusiast familiar only with frequency-response plots, I find them indispensable for assessing car stereos. And while they are less informative for home gear (the area that most interests my colleague, which may account for his attitude), they still give a sense of a tuner's behavior under fringe-area reception conditions for which words are, at best, an awkward substitute. Let me show you what I mean.

First, the crucial definition: "Quieting" is the signal-to-noise (S/N) ratio for an FM tuner when measured at a specified antenna-input level. In general, as the radio-signal strength from the antenna increases, the S/N ratio also increases until the point of "full limiting," or "ultimate quieting," is reached. The tuner's S/N ratio then remains relatively constant with increasing antenna-signal strength until, in some tuners, overload of the input electronics increases the noise level.

Figure 1 shows the quieting curves for the tuner section of a fairly typical component-grade home receiver. This tuner, however, has a special automatic-blend feature. The horizontal scale is calibrated in dBf of antenna-input power, 1 dBf being

1 decibel above a reference level of 1 femtowatt (one quadrillionth or 10^{-15} watt). The vertical scale is calibrated in the more familiar audio-level decibels, from 0 dB down to -70 dB. The 0-dB reference level in this case represents the tuner's audio output with full limiting of a 100-percent-modulated antenna signal. Full limiting has usually occurred by the time the antenna signal has reached 65 dBf.

The dashed curve at the upper left shows how output is attenuated for input signals too weak to attain full limiting. The bottom curves show the tuner's noise level for three reception conditions: mono, normal stereo, and stereo received with the automatic-blend feature engaged. As measured, the mono curve represents tuner behavior during mono broadcasts, but usually a tuner behaves the same when manually switched into mono operation (if that is possible).

Eagle-eyed graph readers will notice in Figure 1 a change from earlier HIGH FIDELITY practice. We've traditionally graphed noise relative to output at all antenna-signal strengths, showing the audio output with a 100-percent-modulated antenna signal as 0 dB, no matter what the actual audio output voltage. In car stereo products, however, the absolute output level is important because of the rapid on-the-road shifts in signal strength. So we will now graph home FM gear as we do car stereo.

In Figure 1, S/N ratio can be read di-

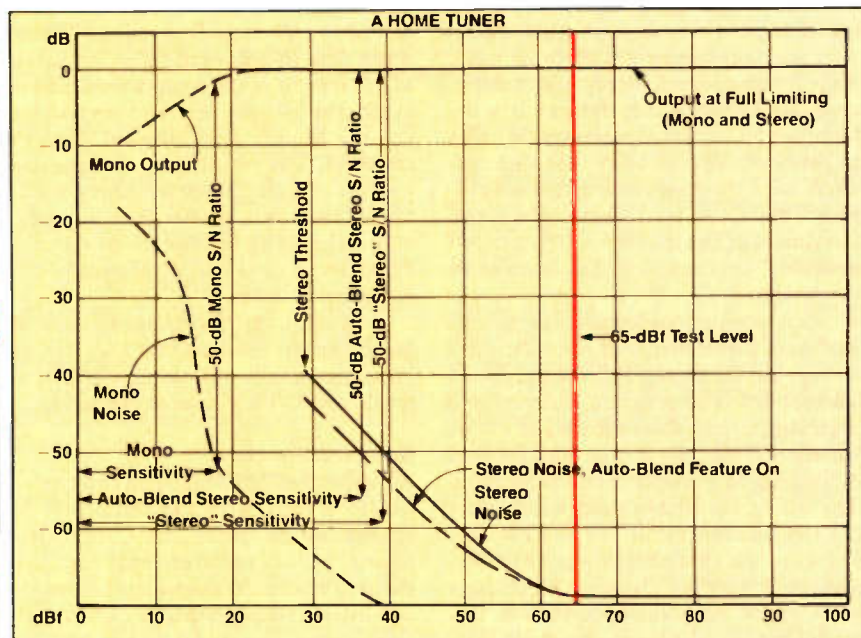


Fig. 1. FM quieting curves supply an enormous amount of information about a tuner's performance under various reception conditions.

ILLUSTRATIONS BY ALICE TOPP

rectly from the value of the lower noise traces, as long as the upper audio-output curve is at 0 dB (as it is for most of the graph). For any input-signal strength for which output falls below the 0-dB line of the graph, S/N ratio is the *difference* between the upper output curve and the corresponding noise curve. You can see this graphically at the point shown in the figure where there is a 50-dB difference between the mono output curve (at about $-1\frac{1}{2}$ dB) and the mono noise curve (at about $-51\frac{1}{2}$ dB). For lower antenna-input levels—that is, farther to the left in the graph—the difference is less than 50 dB; for higher inputs, S/N ratio is higher. This tuner's sensitivity spec can be derived from the graph: Sensitivity is the input level (measured along the dBf scale) for which the tuner's S/N ratio is precisely 50 dB, in either mono or stereo. (We don't bother with the older, less useful "minimum useful sensitivity" spec.) In this case, mono sensitivity is about $17\frac{1}{2}$ dBf, and normal stereo sensitivity is 39 dBf.

As the antenna-input level falls below the 50-dB-quieting point, noise rises rapidly and typically produces the steeply rising curve shown here. In some units, the noise curve will make a more pronounced dip near the sensitivity-rating point. Such an anomaly, while not intrinsically bad, suggests that the manufacturer has "tweaked" the tuner to make it measure well, and that at other nearby input levels, its reception may be marginally noisier than that of a tuner with the same sensitivity rating but a relatively neat, smooth curve—like this unit.

Stereo S/N ratios can be read directly from the noise curves because the audio output is at the 0-dB line for all inputs above the stereo threshold (29 dBf); if the noise curve is at -60 dB, for instance, the S/N ratio is 60 dB for that antenna-input level (here, 49.5 dBf). This tuner's automatic-blend feature only takes effect when the noise inherent to stereo reception begins to rise—in this case, near 60 dBf. From the curves, you can see that by trading away some channel separation, this tuner improves S/N ratio for a given input (or sensitivity, depending on your viewpoint) by some 3 dB, which isn't staggering but is typical of a feature of this sort.

The colored vertical line represents the full-limiting test level of 65 dBf, an accepted representation of the signal strength to be expected in the suburbs when you're tuned to a typically powerful metropolitan station. This is the antenna-signal level at which most of the remaining FM tuner measurements are made. For instance,

you can read stereo S/N ratio (69 dB, in this case) directly off the stereo noise curve. Mono S/N ratio is here greater than 70 dB, and the mono noise curve is off the bottom of the graph. Home listening environments seldom offer better than 70 dB of dynamic range, but HIGH FIDELITY reports such high S/N figures in the measurement data nonetheless.

In any event, these ratings tell you only what the S/N is at 65 dBf; only the curves will tell you whether this rating holds up for extremely high inputs (where overload adds noise in some tuner front ends) or at inputs only a few dBf below the rating point (where it becomes increasingly hard to maintain the stereo S/N ratio because of increased noise introduced by the stereo subcarrier—or, more precisely, because the subcarrier level is falling with respect to noise).

The car stereo tuner's most striking difference from the home tuner is in the treatment of automatic blend (see Figure 2). Draconian measures are needed to make FM inputs below 65 dBf listenable in a moving car. Instead of a modest inter-channel blend and a marginal improvement in stereo S/N, most tuner designers blend channels until there is no separation left at all. Just how they do this makes all the difference between models and determines their audio "roadability."

To document this, HIGH FIDELITY adds a 1-kHz channel-separation curve to the car stereo graph (more precisely, it represents the output in the "unwanted channel"—that is, the channel *not* measured for output and noise). Separation is read in dB on the same scale used for audio output level, and in Figure 2 you can see how separation begins diminishing very rapidly below 65 dBf. The designer here evidently wants a good 65-dBf separation rating, but then wants to reduce separation as quickly as possible to the range where one might begin to hear loss of stereo image (at a separation of around 20 dB). Then, to keep image "size" from fluctuating too radically, the rate of blend is decreased somewhat.

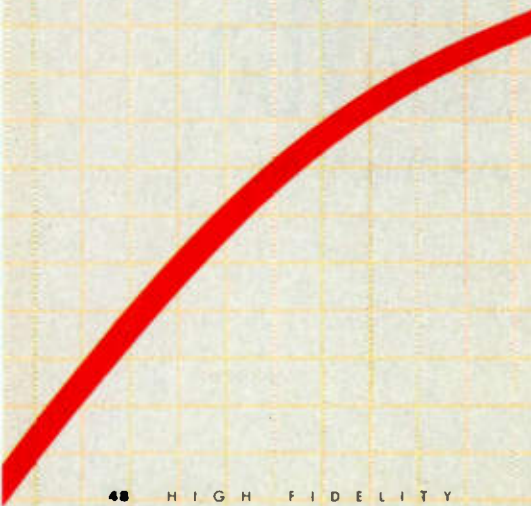
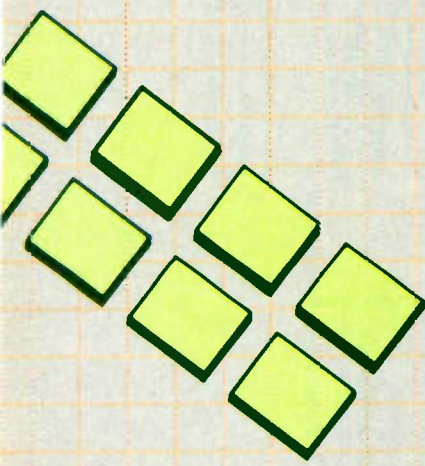
But notice what happens to the stereo noise curve at this point: It has been rising as antenna-input level fell (between 45 and 65 dBf), much as it did in the home tuner; but here the blend is complete enough to cancel much of the noise. As a result, between 45 and 37 dBf the stereo noise curve drops rapidly again until—where the output curves for the wanted and unwanted channels converge and blend is complete—the curve lies almost on top of the mono noise curve, just as the stereo image



How to Read Our Tuner Curves

BY ROBERT LONG

FM 96.3 MHz



has collapsed to mono.

In most sets, the stereo indicator will stay lit even after the separation has been completely blended away. At this point, however, stereo is a figment of the read-out's imagination. As shown in Figure 2, a stereo sensitivity rating can be measured where the stereo S/N ratio is 50 dB, but because reception can't really be called stereo with separation of less than 10 dB, we don't print the number in our data.

Actually, the 6-dB drop in stereo output at the point where wanted and unwanted channels are equal is an artifact of the measurement technique. With full blend, some of the measured channel's audio signal is diverted to the opposite (unmeasured and unmodulated) channel; since only the channel that's being measured at the moment is modulated, there is no compensating feed in the opposite direction. With both channels modulated by music, however, blending channels doesn't, in itself, disturb the total output and, therefore, doesn't change the sound level in the car.

But the droop to below -6 dB, in the neighborhood of 20 dBf, is true output attenuation; and such mono output attenuation is audible because blend can't be applied to reduce it, of course. In some models, output is attenuated much more drastically at low signal strengths than in Figure 2. On the road, where signal strength fluctuates rapidly, this creates an aural effect that always reminds me of

lumpy mashed potatoes. The design shown here postpones the attenuation (needed to protect you from very loud noise bursts when the station fades altogether) until just below the mono-sensitivity rating point—that is, at the maximum acceptable noise content—so only stations that are received poorly can suffer from sonic lumps.

Successful car stereo FM, to a much greater degree than in home tuners, is a question of a canny balance of multiple conflicting trade-offs. If channels are blended too gradually with falling radio-signal level, for instance, the price is excessive noise in stereo reception on the open road. If the blending is not gradual enough, the rapid inflation and collapse of the image can be downright alarming—and distracting—to the driver. Output attenuation at very low signal strengths can likewise be too rapid or too cautious. And these trade-offs can all be assessed directly from a careful reading of the quieting curves.

If you do all your listening around town, you'll probably be most interested in the relatively uneventful happenings on the right-hand half of the graphs for both car and home gear. But if you have a taste for certain weak stations (perhaps that of a local college or of a commercial broadcaster in another city) or if you live in or travel through the boonies, the whole of a tuner's quieting graph can have some fascinating stories to tell. □

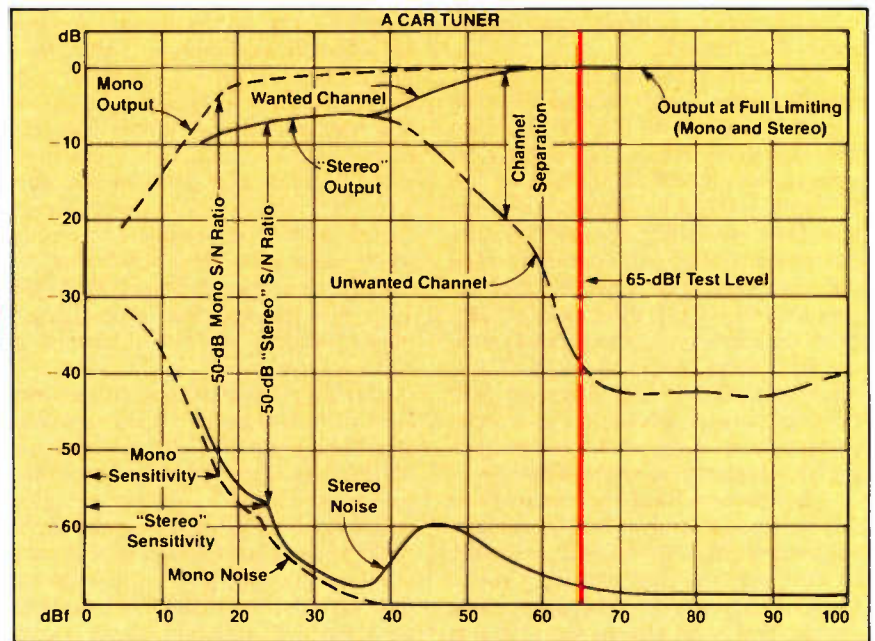


Fig. 2. The relative complexity of the quieting graphs for car tuners reflects the signal processing necessary to maintain listenable reception on the road.



Edited by Ted Libbey
and Ken Richardson

Deaths in the Family

The deaths this spring of Irving Kolodin and Robert Donaldson Darrell marked the end of an era in phonographic history. Born in the first decade of the century—Darrell in 1903, Kolodin in 1908—the two were pioneers in the field of record criticism, and were among the first in this country to write extensively about phonograph records as serious musical documents and to compile worthwhile guides to the classical catalog. Both were associated with *HIGH FIDELITY*, Darrell for many years, Kolodin for a brief period at the end of his career. They died two days apart.

Just as recordings, however imperfectly, made serious music accessible to a broad public for the first time, these critics, by writing about what people anywhere could hear (as opposed to what concertgoers in Boston, Chicago, New York, Philadelphia, and a few other big cities could hear), helped open the door to an appreciation of that music and of the artists who performed it to millions who might otherwise have remained unenlightened. They lifted recordings from the realm of amusement to the realm of art.

R. D. Darrell began reviewing records in the 1920s (I remember my astonishment when for *HIGH FIDELITY* he critiqued the reissue of a Mengelberg recording made in 1929 by quoting from his review of the *original* release). His magnum opus, published in 1936, was *The Gramophone Shop Encyclopedia of Recorded Music*. It was the first comprehensive survey of what one could hear on records, and a groundbreaking critical work.

Kolodin joined the fray in 1941, with *A Guide to Recorded Music*. He reviewed records actively and acutely as music editor of *Saturday Review*, a position he held from 1947. A prolific author, he compiled several other record guides during the 1940s and 1950s, and continued to produce important books until shortly before his death. He was a master of the short review that told a reader everything he needed to know.

For those of us at *HIGH FIDELITY*, the loss of these two colleagues—who were also friends and teachers—has been keenly felt. But while their typewriters have been silenced, their writing remains for future generations of music lovers to encounter and to profit from. My own initial musical experiences came from recordings, and a good deal of what I found myself reading about them and about the music they contained was written by Irving and Rob. I'm sure that others who come to music through records will find themselves indebted, as I am, to both of them. As for those of us who write about recordings, we may look at things differently, and judge by different standards, but we will always be their followers.

Ted Libbey

Digital but Residential

The Residents have always surrounded themselves with trappings that are somehow apropos, like calling their company The Cryptic Corporation. What could be more cryptic than a group with no individual names, a group that always appears in masks, a seeming quartet that might be dozens. When they performed live a few years ago, it was evident that two of them were women—but who could be sure that these Residents were the same ones that first made unearthly music in 1974.

Although none of the group's three most recent Compact Disc arrivals is a masterpiece like 1979's *Eskimo*, all are little lights into the strangeness that is the Residents' music. *Duck Stab* (East Side Digital RESIDE 3) combines three EPs: *Duck Stab* and *Buster and Glen*, both recorded in 1977 and released together the following year on LP, and *Goosebump*, from 1980. The first two EPs represent the most typical of the pre-*Eskimo* Residents, when they were conceptual artists in search of a concept. These 14 tracks are short bursts of musical anarchy, with unlikely harmonic intervals forced to work in context. The Residents take pleasure in turning the familiar into something alien, showing pastiche up its own butt in "The Booker Tease" and "Elvis and His Boss." On the four tracks of *Goosebump* (actually the B-side of a record of *Eskimo* "disco mixes" called *Diskomo*), the group plays nursery rhymes on toy instruments—but instead of exuding the kooky charm of the all-toy band *Pianosaurus*, the Residents prefer to put Mother Goose in bondage.

Fingerprince (ESD RESIDE 4) is in fact the full-length 1976 recording *Tourniquet of Roses*, whose 18 sections had to be divided into the *Fingerprince* LP and the *Babyfingers* EP for its original vinyl appearance. This is the Residents at their guerilla weirdest, offering opera ("Walter Westinghouse"), ballet ("Six Things to a Cycle"), pun ("Boo Who?"), and parody ("Melon Collie Lassie"). But even this is not what it seems. Sample lyrics of the opera: "Love me tender/Love me sweet/Love me like I love my feet." Of the ballet: "Chew chew gum chew gum gum chew chew." Of "Godsong": "All that God wanted to be/Was just a normal deity."

Those last lines are partially the premise of the group's new recording, *God in Three Persons* (Rykodisc RCD 20044), an hour-long morality play about pain and pleasure being the opposite sides of the same coin. The climactic "Kiss of Flesh" is by far the Residents at their most lyrically graphic and lurid. It comes, though, on an album that is certainly the Residents at their least musically challenging, a kind of oratorio performed over Kraftwerk-like synth licks. Maybe this marks a new creative phase. Maybe it's an aberration. Most likely, the Residents are just being cryptic.

Hank Bordowitz



MICHAEL NG



WALTER LEGGE

The Doyen of Record Producers

When Walter Legge walked into the small Queen's Hall C Studio that Thursday in November 1931, his career—indeed, his whole life, as we would see it today—hung in the balance. His employer, the Gramophone Company, Ltd., had already fired him once. This was no time for him to be doing something that might cost him his job again, now that the Depression had finally laid its icy fingers across Europe.

The Wall Street crash just two years earlier had devastated the American recording industry. Shortly before the deba-

cle, the Victor Talking Machine Company had been bought out by the Radio Corporation of America. Reeling under the combined weight of fierce competition from the new entertainment medium—radio—and the expense of retooling for electrical recording, introduced in 1925, Victor had been an easy target. With the crash, RCA's new Victor Division was forced to abandon virtually all classical recording activity on its Red Seal label. For a while, this helped the Gramophone Company, which, as European supplier of masters to Victor, could step in and fill the vac-

Walter Legge and some of his artists and inspirations (including, from lower left, Thomas Beecham, Ernest Newman, Hugo Wolf, Elena Gerhardt, Coenraad V. Bos, and Elisabeth Schwarzkopf)

BY ROBERT LONG

in expressing my views in the policies and activities of the Recording Department.”

No doubt Legge had ruminated on what and whom he would record were he in charge. The Recording Department, which had been hearing more than it wanted of this sort of thing from Mackenzie and his colleagues, could hardly be expected to hide its feelings when similar criticism emanated from someone on the company's own payroll. So that was that. Or so the Recording Department thought. Within the year, Legge was back as the sole employee of the newly created Literary Department. His initial job was to prepare program notes and write the sales material accompanying each month's release list. He was soon made editor of HMV's dealer magazine, *The Voice*.

By the summer of 1931, Legge was in a position to propose the Wolf project, but he was not at all sure the company would accept it. The times were hard, and the project was outré. And if recordings of superb and lasting quality were to continue to be made in those times, a means had to be found to insure the company against risk. Legge reasoned that if the public subscribed in sufficient numbers to cover the costs before the records were issued, the risk was eliminated. It would take 500 subscriptions to make the project solvent, but nobody at HMV had any idea whether that many could be found for an album of six records containing 19 songs by Wolf. In the end, HMV decided to let Legge try.

Subscriptions poured in rapidly enough to permit scheduling the recording sessions to begin on November 5, 1931. As Legge prepared for that first session, he must have felt reasonably confident of success. In fact, once work began inside the studio, the artists may have felt more apprehension than he did. Having hired the best available artists, another producer would have simply let them loose in the studio and worried about how the microphone and the wax were capturing what they did. That was the way Fred Gaisberg had always worked (see “Fred Gaisberg: An American Original,” April). But not Legge. By his own account, he plunged into details of the artists' interpretations and “interfered with their preconceived ideas quite a lot.” It was, in fact, to be a career-long *modus operandi* and the crux of his argument that he was the world's first record producer, as opposed to those “recorders” (like Gaisberg) who made “sonic photographs” of performances.

The Wolf album turned out to be a smashing success. The subscription minimum was achieved in December, and the



Legge thought of himself as the world's first record producer, and worked day and night at it.

recording was completed the same month, after a final session in the Beethovensaal in Berlin. The album, bearing the label “Hugo Wolf Society, Volume I,” was issued the following April and continued to sell, guaranteeing substantial profit. It included full texts in both German and English and analytical notes by Newman, who had become a close friend and mentor to Legge in the ten years since Legge had begun reading his columns and books.

This set the pattern for the “Society Sets” that were to follow in rapid succession, spurred by the success of the Wolf songs. Though originally conceived as limited editions, they soon were made open-ended; masters for some were even sold to Victor for American issue. Initially, Legge confined himself to the five additional volumes of the Hugo Wolf Society, using a wide variety of outstanding singers (including the veteran tenor John McCormack, a subscriber to Volume I and one of the very few Golden Age singers who recorded Wolf). In 1935, Legge recorded the Yryö Kilpinen Song Society albums with Gerhard Hüsch accompanied by the

composer, a set of which he was particularly proud. Meanwhile, Gaisberg began recording Artur Schnabel for the Beethoven Piano Sonata Society, which was to cover all of that repertory by 1939, the year Gaisberg retired. In between came the Mozart/Da Ponte operas, recorded by Gaisberg at Glyndebourne between 1934 and 1936 with Fritz Busch conducting, and Sir Thomas Beecham's Berlin *Zauberflöte*, recorded by Legge in 1937–38.

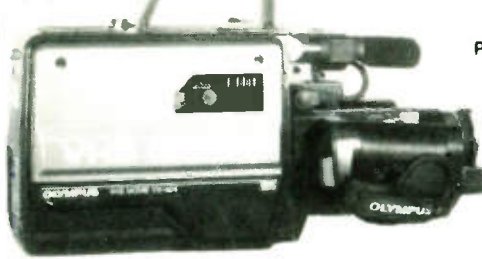
Many of the most impressive Society Sets appeared on English Columbia, of which Legge eventually became the recording director. Among these were Mahler's *Das Lied von der Erde* (with Bruno Walter conducting the Vienna Philharmonic, joined by soloists Kerstin Thorborg and Charles Kullman, and two projects conducted by Beecham: one devoted to the music of Delius, the other containing several of Sibelius's symphonies and tone poems. Without the Society Set concept, many of these works would not have been recorded until much later. The idea was right for its time and was copied by French HMV, Parlophone (a “lesser” EMI label), and British Decca (a competitor), among others.

By 1932, Legge's success with the Hugo Wolf Society had launched him into two other careers: impresario of the London Lieder Club and music critic for the *Manchester Guardian*. He also worked as Beecham's factotum for the 1938–39 Covent Garden seasons. World War II was spent organizing entertainment for the troops and planning for the creation of a British “superorchestra.” The war was barely over when Legge set off in search of talent to sign for EMI. Technically, the Axis countries were still “the enemy,” and British subjects were forbidden to fraternize. Legge arranged to be listed as the agent of a Swiss concern in which EMI owned stock in order to bypass the regulations and slip into Austria. On that trip, he contacted Wilhelm Furtwängler, Herbert von Karajan, Josef Krips, Wolfgang Schneiderhan, Hans Hotter, Ludwig Weber, Walter Ludwig, Max Lorenz, Maria Cebotari, Ljuba Welitsch, Irmgard Seefried, and Elisabeth Schwarzkopf.

Before her formal debut, Schwarzkopf had actually sung in the chorus for Beecham's Berlin *Zauberflöte*, although Legge couldn't recall her. Now he found in her the most perfect singer for his purposes of any he was to encounter. To a fine natural voice and the excellent training she had received from Maria Ivogün and her husband, the pianist Michael Raucheisen, Schwarzkopf added exceptional musi-

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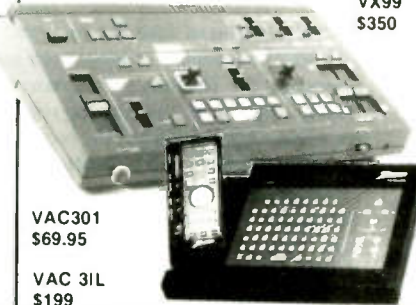
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WALTER LEGGE

cal intelligence and—the touchstone—an ability to work relentlessly in pursuit of perfection. In this, she was fully a match for Legge, as she proved at her initial audition in January 1946. Eventually, the two were married.

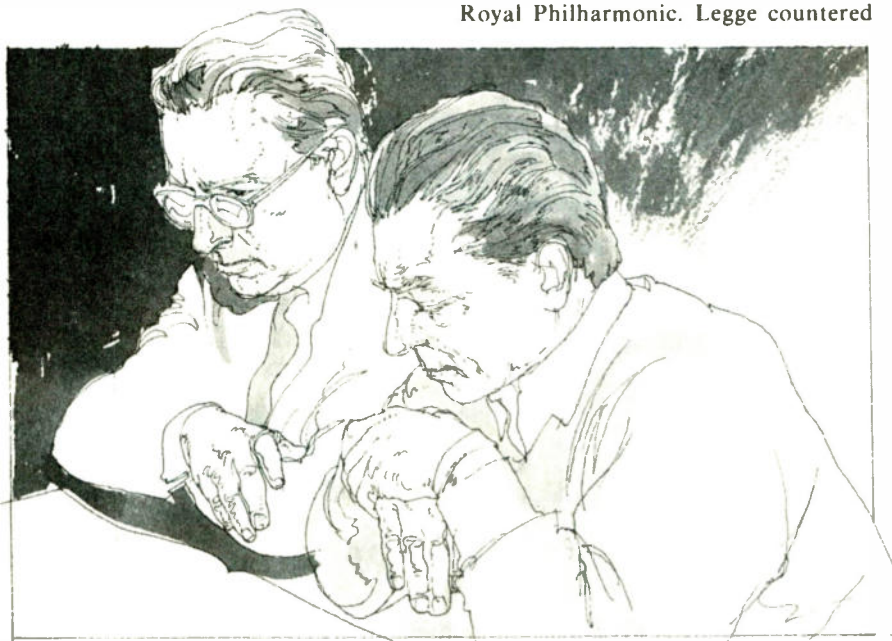
The superorchestra came into being immediately after the war's end. Beecham led the Philharmonia's first concert on October 25, 1945, in Kingsway Hall, and immediately tried to lay claim to the ensemble, which he wanted to make into his new Royal Philharmonic. Legge countered

recording of *Tristan und Isolde* with Kirsten Flagstad and the Philharmonia. Furtwängler, whom Legge had engaged to conduct, was aware that this was Legge's orchestra and that Legge produced all of Karajan's recordings. He was also aware of the degree of artistic involvement that Legge imposed on all his projects. Working through EMI's top brass, Furtwängler attempted to have Legge removed as producer, though, according to Schwarzkopf, his participation (and Schwarzkopf's as a stand-in for Flagstad in the high notes, should they prove troublesome) had been Flagstad's condition for singing *Isolde* so late in her career.

Legge had made many enemies by the time he quit EMI in 1963, at the age of fifty-seven. Perhaps in the tangled world of musical politics it's inevitable that anyone of his eminence should do so, but his fierce drive to make every performance the best it could be contributed heavily to the opposition. Lesser men feared and resented his energy and success. Competing producers (and sopranos) saw a conflict of interest in the way he juggled his schedule with Schwarzkopf's to be present at most of her performances and all of her recordings. Company executives balked at the high studio and talent costs of doing things Legge's way (the Act I *Te Deum* sequence in the *Tosca* he recorded with Maria Callas and Victor de Sabata, for instance, is said to have required 30 or 40 repetitions). Whatever failed to satisfy Legge's standards was subject to stinging abuse; in retaliation, perhaps, he was dismissed by many as a reactionary martinet.

Or worse. Some of his antagonists inside and outside EMI went so far as to accuse him of Nazi sympathies, pointing to the coterie around him that had spent the war years on the opposite side: Karajan, Flagstad, Walter Gieseking, and many more, including Legge's wife. That it was a coterie is obvious—Legge threatened at least once to resign and take all "his" artists with him. But brandishing the word "Nazi" over a man who had attacked Hitler's racism in print as early as 1933 (the year Toscanini canceled his Bayreuth appearances) and gave moral and material support to so many Jewish artists reflects more on the accusers than on the accused.

In fact, like most of the artists he worked with, Legge was basically apolitical. His thoughts were clearly focused on what he believed to be his mission in music, and his thousands of recordings—with scores of the greatest performers of this century—speak eloquently of the zeal with which he fulfilled it. □



Legge's musical alter ego, Herbert von Karajan, was named the Philharmonia's first resident conductor. His successes in London paved his way to Berlin.

with the proposal that the new orchestra go under two names, to serve both his purposes and Sir Thomas's. Beecham walked out in a huff—the only major rift the two ever had—but Legge got his orchestra.

It served him well as both concert impresario and record producer. It also served the purposes of Legge's "musical alter ego," Karajan, who was appointed the Philharmonia's first resident conductor. Karajan's heart was still in Berlin, but the gates to the Berlin Philharmonic were guarded by Furtwängler, who held a lifetime appointment as music director. Furtwängler's resentment of Karajan was long-standing; there were, in addition, profound musical differences between the two. And it didn't help that Karajan had cleared the Allies' denazification process first. But in 1955, a year after Furtwängler's death, Karajan, his eligibility assured by his brilliant Philharmonia recordings, succeeded to the Berlin post.

The animosity between Furtwängler and Karajan almost wrecked one of Legge's greatest triumphs, his 1952 re-



MINI-REVIEWS OF THE LATEST COMPACT DISCS

By David Hurwitz, Paul Moor, Christopher Rothko, Terry Teachout, and James Wierzbicki

TCHAIKOVSKY ORCHESTRAL WORKS: STADIUM, STOKOWSKI

These performances of Tchaikovsky's *Francesca da Rimini* and *Hamlet*, recorded in 1958 by Leopold Stokowski and the Stadium Symphony of New York (composed of members of the New York Philharmonic), are without question the finest these works have ever received. Tchaikovsky's version of hell has never sounded as wildly frenzied as it does here, nor has Francesca's desolate clarinet theme ever sounded so seductive. But the real revelation is *Hamlet*, a masterpiece to stand beside the *Romeo and Juliet* fantasy overture (its only lack is a "big tune" that would ensure its popularity). Stokowski's performance has never been bettered—and most likely never will be. The remastered sound has a relatively high level of hiss, but it is otherwise fine. The small English label dell'Arte deserves every Tchaikovskian's gratitude for rescuing these performances from the oblivion of the old Everest catalog. Playing time: 42:37. (dell'Arte CDDA 9006. Distributed by Allegro Imports.) *D.H.*

MAHLER "DES KNABEN WUNDERHORN": SZELL

One of the many highlights of Dietrich Fischer-Dieskau's triumphant return to Carnegie Hall earlier this year was a recital devoted to Mahler's *Des Knaben Wunderhorn* settings. Now Fischer-Dieskau's 1968 *Wunderhorn*, with Elisabeth Schwarzkopf, George Szell, and the London Symphony, has been transferred to CD. Those who prefer their Mahler plain instead of fancy will run from this disc in horror. More tolerant listeners will rejoice in the fact that these endlessly imaginative performances are finally available on CD. Texts, translations, and notes by Mosco Carner are included. Walter Legge's ungimmicked stereo sound, as always, benefits hugely from digital remastering. Playing time: 49:55. (Angel EMI CDC 47277.) *T.T.*

KREISLER VIOLIN WORKS: PERLMAN

Instead of putting together a Kreisler CD drawn from Itzhak Perlman's three-LP analog series of the composer's works and arrangements, Angel EMI sent Perlman back into the studio to cut a new collection. The disc, entitled *My Favourite*

Kreisler, does contain digital remakes of *Liebesleid*, *Liebesfreud*, *Schön Rosmarin*, and *Caprice viennois*, but most of it is devoted to a dozen pieces previously unrecorded by Perlman. Kreisler's arrangements of Rachmaninoff's *Daisies* and Gluck's *Dance of the Blessed Spirits* are the best of a most attractive lot. Perlman's playing is sweet and straightforward, and pianist Samuel Sanders tosses off Kreisler's meticulously crafted accompaniments with great delicacy. A sequel is in the works. Playing time: 51:07. (Angel EMI CDC 47467.) *T.T.*

HAYDN PIANO TRIOS: BEAUX ARTS TRIO

By now, the Beaux Arts Trio is as closely identified with Haydn as Artur Schnabel was with Beethoven, and it's long past time that a selection from the ensemble's complete set of the Haydn trios appeared on CD. Included here are Hob. XV: 28, 29, 30, and 31. Those primarily interested in musicological niceties will be pleased to know that the H. C. Robbins Landon critical edition was used for these 1971 recordings. (The Landon numbers of the trios on this disc are 44, 45, 42, and 41.) Those primarily interested in interpretive niceties will already know that Menahem Pressler, Isidore Cohen, and Bernard Greenhouse, in their years together as the Beaux Arts Trio, played Haydn with sparkling wit and unflinching poise. More, please, and quickly, too. Playing time: 65:34. (Philips 420 790-2.) *T.T.*

LISZT "A FAUST SYMPHONY": ROYAL, BEECHAM

In the wrong hands, Liszt's *A Faust Symphony* can sound like the second-worst piece of orchestral music to emerge from the 19th century. Like most of the composer's orchestral works, it is overlong, not terribly coherent, and plagued by bass trombone-style orchestration (the louder the music gets, the more like a giant trombone the ensemble sounds). Nevertheless, the piece—however imperfectly realized—is full of fascinating ideas and thematic transformations that can, when persuasively performed, make for a satisfying listening experience.

There have been two such accounts on record: Leonard Bernstein's, with the Boston Symphony, and this one, which features the inimitable Sir Thomas Beecham,

tenor Alexander Young, the Beecham Choral Society, and the Royal Philharmonic Orchestra. Beecham knew how to make everything he played sound like great music, and if any piece needs that kind of commitment, this one does. Liszt's instrumental writing sounds remarkably supple in Beecham's hands, with the "Gretchen" movement for once completely unclinging. Beecham also manages to make more of the inevitably anticlimactic entrance of the final chorus than do all competitors. EMI's sound has transferred well, and though the Royal Philharmonic plays a bit roughly, no one interested in this ungainly masterpiece should hesitate to seek out this disc. (In case you were wondering what the worst 19th-century orchestral work is—it's Liszt's *Dante Symphony*, of course. Not even Beecham could mount a salvage operation on that.) Playing time: 70:00. (Angel EMI CDC 49260.) *D.H.*

GIBBONS SACRED WORKS: KING'S COLLEGE CHOIR, LEDGER

Talk about tradition: Orlando Gibbons (1583–1625) became a chorister at King's College, Cambridge, at the age of thirteen (under the direction of his brother Edward, incidentally) and sang there for two years; with maturity, he became one of England's greatest composers. Here you have today's superlative King's College Choir, under its celebrated director Philip Ledger, performing masterworks by its illustrious alumnus. The London Early Music Group and organist John Butt provide accompaniment, and Butt fills out the disc with several of Gibbons's organ works.

Musicologists may want to know that the opening bars of both the "Magnificat" and the "Nunc dimittis" from the Second Service differ markedly from the edition published by E. H. Fellowes in 1936. The "Magnificat" incorporates two extra verse parts preserved in manuscripts discovered relatively recently; in the "Nunc dimittis," restoration of the original organ score forces the omission of the initial phrase in the second treble part, which seems to belong to a different version.

Suffice it to say that these accounts represent the very last word in performance of this music, with acoustics and recording to match. Playing time: 52:48. (ASV CD DCA 514. Distributed by Harmonia Mundi, U.S.A.) *P.M.* ▶



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**VIVALDI "THE FOUR SEASONS":
PETRI, GUILDHALL**

Without a doubt, Danish recorder player Michala Petri is the most compelling practitioner of the instrument since Frans Brüggen came on the international scene some 30 years ago. Technically, her playing is as solid as Brüggen's. Whether or not she will follow in the Dutch master's highly informed stylistic footsteps, however, remains to be heard. In rather marked contrast to her previous recordings for Philips, her debut release on RCA Red Seal—featuring her transcription for recorder of the violin concertos that make up Vivaldi's *The Four Seasons*—is hardly an exercise in musicological integrity. I'm not sure how a fish out of water sounds, but that's the image called to mind by most of the solo material: It's bubbly but somehow dry, sorely lacking the intensity that normally spices up the work when a good violinist digs into the part. As was the case with James Galway's flute version (also on RCA), the performance seems designed to impress listeners only with its razzle-dazzle. Perhaps thinking that serious music lovers might need an antidote, Petri, harpsichordist George Malcolm, and the Guildhall String Ensemble round out the disc with an equally dazzling—and properly idiomatic—reading of the Concerto in C (R.V. 443) that Vivaldi scored for strings and flautino. Playing time: 47:57. (RCA 6656-2.) *J. W.*

**BACH "WELL-TEMPERED
CLAVIER": GILBERT, LEONHARDT**

Bach's *The Well-Tempered Clavier* inhabits an entirely different sound world when played on the harpsichord than it does when played on piano. On harpsichord, the counterpoint becomes absolutely clear, and the reverberation of the plucked strings lends an extra richness to the harmony. After a long dearth of harpsichord recordings of this work, there are two recent reissues to choose from on CD: Kenneth Gilbert's 1984 set, which incorporates Books I and II in a four-disc box, and Gustav Leonhardt's 1976 account, which is divided by book into two separate boxes of two discs each. [*A third reissue, of Wanda Landowska's performance of Book I, is the subject of the next review.—Ed.*]

Both sets have their virtues: Gilbert's readings are notable for their poise and the sense of tranquility he brings to the music. Leonhardt, in contrast, is far more intense and at times rather cold, particularly in Book I; he occasionally errs on the fast side in his choice of tempos and seems rather unyielding in his approach. When Gilbert misjudges tempo, it tends to be on the slow side. Although his playing occasionally sounds deliberate as a result, his choices also leave him more room for expressive points and subtle rhythmic fluctua-

tions. Leonhardt employs agogic accents as well, but he relies more on changes in registration to alter mood—an effect that Gilbert largely fails to exploit.

Ultimately, I find that Gilbert's gentler approach works better in Book I, while Leonhardt brings a greater sense of authority to Book II, but I do not think either choice will disappoint. Neither recording is ideal. Gilbert plays a beautiful, mellow-toned harpsichord in a lively acoustic, but the image of the instrument has been bloated to stretch-limo size. Leonhardt's recording is close and a shade too bright. One further caveat: Neither recording indexes the fugues, which is a real annoyance. Record labels should make more use of this very convenient CD feature. Playing time for Gilbert: 4:15:59 (Archiv 413 439-2). Playing time for Leonhardt: 4:12:05 (Angel EMI/Deutsche Harmonia Mundi CDCB 49196, 49128).

C.R.

**BACH "WELL-TEMPERED
CLAVIER": LANDOWSKA**

Wanda Landowska's recording of the first book of Bach's *The Well-Tempered Clavier*, made between 1949 and 1951, is full of obvious flaws, starting with the overblown sound of the steel-framed Pleyel harpsichord, but this account remains *sui generis* for its rhythmic poise and passionate projection. Landowska's liner notes are as extravagantly romantic as her wilder interpretations ("Does not this Prelude sound like a full string orchestra of somber color, advancing impetuously until its tumultuous billowing stops brusquely on the dominant?"). Since *The Well-Tempered Clavier* fits with ease onto four Compact Discs, RCA's decision to reissue only the first book is hard to fathom. Presumably, the second will follow in short order. Sonic purists should note that a touch of rechanneling has been applied to the mono originals. It doesn't matter—whatever the format, whatever the flaws, Landowska's *Well-Tempered Clavier* is essential. Playing time: 132:41. (RCA 6217-2.) *T.T.*

**KING'S SINGERS:
FOLK SONGS**

This selection of folk songs from the British Isles displays a more or less impartial attitude toward England, Scotland, Ireland, and Wales. The arrangements, by various hands, are of varying quality, at times involving piccolo, clarinet, harp, fiddle, cello, or string quartet. Eleven of the 16 arrangements appear in a book entitled *The King's Singers' Folk Songs* (Faber & Faber); they get a bit artsy-craftsy at times, with harmonies no authentic folk group would even dream of, but the King's Singers sing them, as they sing everything, with taste, musicality, intelligence, and flair. In the Welsh songs and in one num-

ber sung in an impenetrable Scots dialect, printed texts would have helped; otherwise, though, this virtuoso male sextet sings with such clarity of diction that you can understand almost every word. Playing time: 41:16. (Angel EMI CDC 47506.)

P.M.

**BEETHOVEN, SCHUBERT:
LJUBLJANA SYMPHONY, NANUT**

The Philharmonic Society of Ljubljana, capitol of the province of Slovenia in northern Yugoslavia, elected Beethoven to an honorary membership in 1819; when the Society opened its music school, one of the applicants for a teaching job was Schubert. But that information comes from *The New Grove Dictionary of Music and Musicians*, not the liner notes for the Ljubljana Symphony Orchestra's new CD of Beethoven's Symphony No. 5 and Schubert's *Unfinished* Symphony. Indeed, the packaging is about as skimpy as you can get, and neither the playing of the orchestra nor the interpretations of conductor Anton Nanut are much to get excited about. In terms of both performance and sound, the recording is merely okay. Playing time: 56:49. (Stradivari Classics SCD 6004.) *J.W.*

**MONTEVERDI WORKS FOR
SOPRANOS: KIRKBY, TUBB**

This fine new collection of Monteverdi works for one and two sopranos is, at mid-price, something of a steal. Emma Kirkby and Evelyn Tubb, accompanied by Anthony Rooley's Consort of Musicke, perform equal numbers of sacred and secular works, providing a cross section of Monteverdi's vocal writing. The disc's contents range in style from charming, small-scale pastoral odes to Penelope's imposing lament from *Il ritorno d'Ulisse in patria* (impressively sung by Tubb). There are well-known works, such as the *Cantata Domino* of 1615, as well as several rarities.

The performances are, on the whole, of the highest caliber. Despite a few moments of technical insecurity, this is a virtuoso display by the two sopranos, who sing with considerable feeling and beauty. The ten duets are particularly effective: Kirkby's bright, ethereal tone contrasts well with Tubb's darker, richer sound as the two voices weave among one another, moving through poignant dissonances to sweeter close harmony. The instrumental accompaniment is not quite so accomplished, particularly in the strings, but the playing is sensitive and the technique never offends. The booklet is skimpy and does not include Italian texts or sources for the works. As for recording values, the sound is good but a touch bright, and the balance gives undue prominence to some of the instruments. Playing time: 58:02. (MCA Classics MCAD 25189.) *C.R.*



Nadja Salerno-Sonnenberg and Joshua Bell: One plays by the rules, and the other breaks them.

MENDELSSOHN: Concerto for Violin and Orchestra in E minor, Op. 64.

SAINT-SAËNS: Havanaise, Op. 83; Introduction and Rondo capriccioso, Op. 28.

MASSENET: Méditation from "Thaïs."

Salerno-Sonnenberg: *New York Chamber Symphony*. Schwarz. Patti Laursen, prod. Angel EMI CDC 49276 (D). □ □

MENDELSSOHN: Concerto for Violin and Orchestra in E minor, Op. 64.

BRUCH: Concerto for Violin and Orchestra in G minor, Op. 26.

Bell: *Academy of St. Martin-in-the-Fields*. Marriner. Chris Hazell, prod. London 421 145-2 (D). □ □

JOSHUA BELL: Works for Violin and Piano.

Bell, Sanders. Paul Myers, prod. London 417 891-2 (D). □ □

Wieniawski: *Variations on an Original Theme; Scherzo-Tarantella*. Sibelius: *Romance, Op. 78, No. 2; Mazurka, Op. 81, No. 1*. Brahms (arr. Joachim): *Hungarian Dance No. 1*. Paganini (arr. Kinsky, Rothschild): *Cantabile*. Bloch: *Nigun*. Nováček: *Moto perpetuo*. Schumann (arr. Auer): *Bird as Prophet*. Falla (arr. Kreisler): *Spanish Dance, from "La vida breve."* Grasse: *Waves at Play*. Sarasate: *Carmen Fantasy*.

Nadja Salerno-Sonnenberg has been both blessed and cursed by the efforts of the classical music industry's public relations machine. She has been promoted on *The Tonight Show* and *60 Minutes* as a musical superstar and a tough-talking, flamboyant

personality. She has devised a striking stage figure based on nonconformist attire and bodily contortions. Most of all, she has developed a reputation as an uninhibited interpreter, one who throws aside tradition in favor of performances that are, in the words of critic Tim Page, more like "personal exorcisms."

There is no doubting both the appeal and the marketability of such a persona, yet along with fame can come dangerously heightened expectations. Will Salerno-Sonnenberg's purely musical achievements be sufficient to propel her career forward? Based on the present releases, the answer to that question remains uncertain. For when she is stripped of her distinctive stage presence, the 27-year-old violinist is revealed to be at once less startling and less coherent than one might have imagined.

Salerno-Sonnenberg's willful disregard for tradition is refreshing, yet it is far more arresting in slow, lyrical passages than in fast, virtuosic ones. During the second subject of the Mendelssohn Concerto's first movement, and throughout the entire slow movement, she stretches phrases practically to the breaking point: The numerous rubatos, hesitations, and full pauses threaten to disrupt the musical flow. Such malleable tempos may be mannered, yet somehow Salerno-Sonnenberg makes them seem sincere, as if they are the outward manifestation of a tortured inner vision. Still, it is hard to justify her throbbing, overwide vibrato in the slow movement. And, if her inner vision is so tor-

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DAVID SUTTON

tured, why does it not extend to rapid passagework? Indeed, the virtuoso sections seem surprisingly perfunctory: Not only does Salerno-Sonnenberg ignore many of the score's dynamics and accents, but she often becomes needlessly rough, allowing both intonation and bow control to suffer. One could applaud such risk-taking, and even accept a certain amount of sloppiness, were it justified by insight. But for Salerno-Sonnenberg, insight seems to be synonymous with lyricism.

At first, one pities 20-year-old Joshua Bell for having chosen to record the same Mendelssohn Concerto. Yet one quickly realizes that he can more than hold his own against his older and more experienced rival. In place of her wiry, athletic, surprisingly thin tone is his lush, richer one; in place of her headlong individualism is his interpretive sobriety.

But if Bell is more conventional than Salerno-Sonnenberg, he is not one whit less musical. Considering his age, he possesses an astonishing maturity as an interpreter. In slow, lyrical passages, his tempo manipulations and dynamic gradations delineate phrasing without calling attention to themselves. And in fast, virtuosic passages, Bell combines flawless technique with considerable insight. The long, flowing lines of Mendelssohn's slow movement are not held up at every turn by rubatos; the dazzling finale proceeds without roughness of either bow or intonation. And the Bruch Concerto, which is paired with the Mendelssohn, demonstrates that Bell also possesses a real concept of musical style. From the chaste Romanticism of Mendelssohn, he turns to the impassioned Romanticism of Bruch, pouring himself into the music's sensuous portamentos and rhapsodic rubatos and attacking its incisive articulations with confidence. One can pay him no greater compliment than to say that he makes this overplayed concerto—of far less intrinsic worth than the Mendelssohn—listenable once again.

Encore pieces are hardly the place to judge artistic depth, so suffice it to say that here Salerno-Sonnenberg and Bell are equally successful. Her mercurial, uninhibited approach is well suited to the fluid tempos, emotional spontaneity, and sensuous Spanish inflections of Saint-Saëns's *Havanaise* and *Introduction and Rondo capriccioso*. And Bell's sense of stylistic propriety allows him to dive into a whole slew of Romantic bonbons, reveling in their unabashed virtuosity. (A surprising-

ly poetic, even understated, performance of Bloch's *Nigun* provides a pleasant respite from the pyrotechnics.)

When it comes to comparing Bell with Salerno-Sonnenberg, I do not wish to be misunderstood: I have no quarrel with artistic individualism. I would rather hear such irreverent performers as Ivo Pogorelich, Nigel Kennedy, and the Hagen Quartet than any number of tradition-bound conservatory graduates. But Salerno-Sonnenberg has not yet proved herself able to mold her inner vision into a genuine artistic statement, one that forms an entire work into a unified whole. Bell possesses that ability, yet he is far closer to convention. Whether he can achieve Salerno-Sonnenberg's individuality, and she his coherence, will be fascinating to discover. Playing times: 60:08 (Angel EMI CDC 49276); 54:54 (London 421 145-2); 64:12 (London 417 891-2). *K. Robert Schwarz*

BACH: Partitas (6).

Leonhardt. *Gerd Berg, prod. Angel EMI CDCB 47996 (D, 2).*

The Partitas are perhaps the least well known of Bach's major keyboard works, and unjustifiably so, for they are among his most profound yet most tuneful compositions. Harpsichordist Gustav Leonhardt now brings us a fine and strongly characterized new performance of these works, providing a pleasant contrast to his rather faceless account of the *English Suites* of two years ago.

Uncharacteristically, Leonhardt's tempos tend to the slow side; in addition, when opportunities to apply expressive touches or highlight rhythmic details present themselves, he rarely passes them up. Some may find Leonhardt's point making excessive, and his style somewhat mannered, but for me the points are always well taken—and Leonhardt never lets his attention to detail interrupt the continuity of the line. Nor does he lack power and virtuosity when called for. The opening preludes are appropriately weighty, the faster dances always jauntily sprung. Considering that these are strong interpretations, it is a pity that Leonhardt takes so few of the repeats.

Collectors shopping for a set of the Partitas should give the recordings by Kenneth Gilbert and Trevor Pinnock a listen. Both sets have many virtues—Pinnock is typically impetuous, Gilbert more considered—but to my mind Leonhardt's is now the finest of the offerings on Compact Disc. This impression is helped by Angel's

pleasantly resonant recording of a very listenable harpsichord, one with none of the upper octave brittleness that sometimes characterizes these instruments. Playing time: 95:12. *Christopher Rothko*

BERNSTEIN: A Quiet Place.

Various artists; vocal ensemble, Austrian Radio Symphony Orchestra, Bernstein. Hanno Rinke, prod. Deutsche Grammophon 419 761-2 (D, 2). © (3).

In Jean Cocteau's surrealist movie *Blood of a Poet*, when the hero is informed by the snow-covered lady with whom he is playing cards, "If you do not have the ace of hearts, you are lost," he simply reaches beneath the table and steals the card from the dead boyhood self lying at his feet. Can an artist do this? Can he plunder his own past to redeem his present? Many a composer has borrowed from himself: Beethoven, Offenbach, and Handel come immediately to mind. Leonard Bernstein has tried it here in this curious hybrid of an opera, a 1980s sequel to his 1952 opera *Trouble in Tahiti*. He has borrowed from the earlier score—for which he wrote the words as well as the music—on the grandest possible scale, placing it uncut within the new work as the second act, an opera within an opera.

Projecting the suburban Sam of *Trouble in Tahiti* into the 1980s, along with his now grown-up son Junior, his daughter Dede, and her lover François, sounds like a reasonable enough idea for a libretto. The earlier opera—illustrating the shallow, empty existence of a "typical" American family through the events of a day in their "little white house"—becomes a flashback in the new work. The trouble is that the Bernstein of the mid-1980s is no longer the Bernstein of the early 1950s. The music he has written for the first and third acts of *A Quiet Place*, with its outright quotations from Mendelssohn and Mahler, owes more to German Romanticism (of which Bernstein has proved late in life to be so brilliant an exponent) than it does to Gershwin and Stravinsky and Copland, who inspired the music of his youth. As a result, the two styles never mesh. Nor do the texts.

The lighthearted, tongue-in-cheek satire of the earlier piece, climaxed by the excruciating parody of a 1950s Hollywood escapist jungle movie (*Island Magic*), has little in common with the somber interior monologues and surging orchestral passages of the scene with which *A Quiet Place* begins—the funeral parlor, follow-

ing the death of Sam's wife Dinah—or with the sentimentality of the family members' trying to recapture the past and then "reaching out" to one another, with which the opera rather stickily ends. One can guess at how this came about: The opera is dedicated to Bernstein's deceased wife Felicia Montealegre and to librettist Steven Wadsworth's deceased sister Nina Sherman Zinsser—a "lost wife and lost sister," as Wadsworth puts it in his notes. Thoughts of death were on the minds of both collaborators when they set to work, and much else in the piece is clearly autobiographical as well.

Bernstein nonetheless retained his sure theatrical instinct when it came to composing *A Quiet Place*. There are moments here—shattering, searing moments—that are more profoundly moving than most of what passes for operatic writing today. The orchestration and choral writing are never less than brilliant, and the transitions between the present and the past are skillfully contrived. Moreover, the generic family of the past remains generic in the present—its angst continues to resonate in all of us.

This version of *A Quiet Place* was recorded live in 1986 at the Vienna State Opera, with the composer conducting and the librettist directing (it incorporates major revisions that were made following the premiere by the Houston Opera, which was greeted so coldly in 1983). Much of the vocal writing is conspicuously gratifying, and the work of the principals—Chester Ludgin (the older Sam), Beverly Morgan (daughter Dede), John Brandstetter (the angry, grown-up Junior), Peter Kazaras (François, the French Canadian who was once Junior's lover but has transferred his affections to Dede), Jean Kraft (Dinah's best friend Susie), Theodore Uppman (Dinah's brother Bill), Wendy White (Dinah, in the flashback scenes), and Edward Crafts (the young Sam)—is uniformly fine. The members of the Austrian Radio Symphony Orchestra play their hearts out for Bernstein. Indeed, the whole production is so seamlessly executed, superbly recorded, and sumptuously presented (with a libretto in four languages—and it's fascinating to note how the language of everyday idiomatic American speech looks in Italian, French, and German) that one is inclined to forgive even the most fundamental of its weaknesses. *Trouble in Tahiti* by itself is much the better opera, and it has never been so stunningly set down, even under Bernstein, as it is here. Even if you decide that the pretentiousness of the new material is shown up by the unaffected verve, simplicity, and sparkle of the old; that the two distinct musical approaches fail to fuse into a single whole; and that the glib sentimentality of the "hopeful" ending sounds (as

in so many other Bernstein scores) more superimposed than evolved in any musically inevitable way, you won't be wasting your time lending your ears to this remarkable recording. Playing time: 2:29.

Paul Kresh

GRIEG: From Holberg's Time, Op. 40.;

Two Elegiac Melodies, Op. 34.

TCHAIKOVSKY: Serenade, in C, for String Orchestra, Op. 48.

Orpheus Chamber Orchestra. Steven Paul, prod. Deutsche Grammophon 423 060-2 (D). □

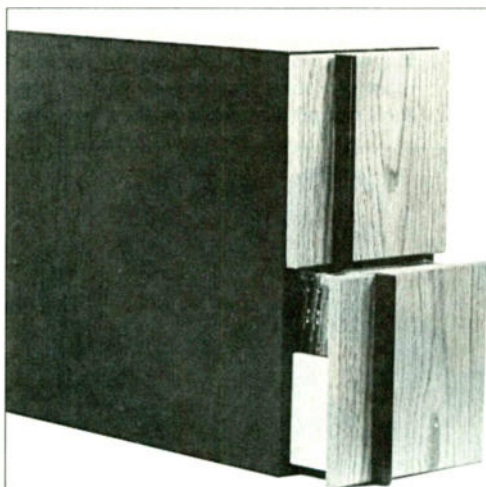
Late Romantic music is not what comes to mind when one thinks of ideal repertory for a conductorless chamber orchestra. The elastic tempos, dynamic shadings, and coloristic effects required in such repertory are traditionally possible only with the intervention of a conductor—or in the intimacy of real chamber groups. Logic dictates that conductorless ensembles should stick to Baroque and Classical music, conceived before the rise of the dictatorial leader.

Yet the Orpheus Chamber Orchestra, proudly without conductor since its birth, insists on disproving such traditional notions. A quick glance at its recorded catalog reveals Elgar, Dvůřák, Bartók, and Vaughan Williams alongside the expected

Haydn and Mozart. It is true that Orpheus has gravitated toward the Romantic serenade repertory rather than Romantic symphonies, as the present combination of Grieg's *Holberg Suite* (1884) and Tchaikovsky's *Serenade for Strings* (1880) points up. Nonetheless, Orpheus continues to show an uncanny ability to achieve the flexibility of tempo and variety in dynamics and tone color usually associated only with conducted ensembles.

In its present incarnation as a small string orchestra, Orpheus brings to Grieg and Tchaikovsky a youthful, exuberant spirit, and a graceful, never excessively melodramatic manner. The music-making is democratic, with all having a vote in creating the interpretation, and none getting trampled in the process. Perhaps this spirit of equality accounts for the lucidity of texture here: Inner voices and hidden counterpoint emerge with startling clarity. Yet the Orpheus players achieve far more than the intimacy, cohesion, and crispness expected in chamber music. For Orpheus also has the emotional fervor and dramatic flair needed to bring off convincingly even the most sentimental moments in these works. It almost makes one wonder—dare they try a Romantic symphony next? Playing time: 56:19.

K. Robert Schwarz ▶



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HARRISON: La Koro Sutro*;
Varied Trio†; Suite for Violin and
American Gamelan*.

● *Gottlieb**, *Sauerbeck**, *Abelt**, *Stein-bergt*, *Winant†*; *American Gamelan**; *Chorus and Chamber Chorus of the Uni-versity of California at Berkeley**, *Brett**, *Bergamo**. *William Winant and Foster Reed, prods. New Albion NA 105 (A)*. ☐

In reviewing certain esoterica, one best serves HIGH FIDELITY readers by quoting the accompanying leaflet directly:

"The Esperanto title of *La Koro Sutro* means 'the Heart Sutra' which is among the most used and profound of Buddhist sutras. 'The Heart Sutra' is the essence of the Perfect Wisdom Scriptures (1st century B.C. onwards) belonging to Mahayana Buddhism. It refers to the heart of divine wisdom ('Hagia Sophia' in Greek) . . . The text was translated into Esperanto by Bruce Kennedy."

In the case of *Varied Trio*, its second movement "is for rice bowls played with chopsticks, pizzicato violin, and piano" and "'Dance' [the fifth movement] is for piano, violin, Chinese drums, and baker's pans." In *La Koro Sutro* and in the suite, "[William] Colvig constructed a gamelan orchestra made of aluminum tubes and slabs with can resonators and modified oxygen tanks suspended in wooden frames." Not exactly, to paraphrase *The New Yorker*, for the old lady in Dubuque.

I first encountered Lou Harrison when he conducted the world premiere of Charles Ives's Third Symphony at Carnegie Recital Hall [now Weill Recital Hall—Ed.] in 1947—the performance that won

Ives the Pulitzer Prize for a work com-posed 31 years earlier. As a composer, Harrison has single-mindedly carved his own unique niche in American music. Most of his 71 years he has spent in the San Francisco Bay Area, which may help explain his having directed his attention not toward Europe but the Orient.

The disc marks the most ambitious un-der-taking yet by New Albion, a small but high-quality label belonging to Foster Reed, a young man with a bit of inherited money and a burning desire to promote the sort of music he staunchly believes in. One could not ask for more proficient per-formances or better recording. Playing time: 72:38.

Paul Moor

HAYDN: Trumpet Concerto in E flat,
Hob. VIIe:1*; **Organ Concerto in C,**
Hob. XVIII:1†; **Horn Concerto in D,**
Hob. VIIId:3*.

● *Immer**, *Hogwood†*, *Brown**; *Acad-emy of Ancient Music, Hogwood. L'Oi-seau Lyre 417 610-2 (D)*. ☐

If there is one area in which the early-in-strument movement has yet to fully con-vince, it is in the brass department. There are a few performers who have shown us that it is possible to play these valveless in-struments with style and precision, but the list is quite short, and I am afraid that the soloists on the present disc are not to be counted among them.

This offering from Oiseau-Lyre pre-sents three popular concertos that show Haydn at his most charming, but not at his most profound. Friedmann Immer plays the Trumpet Concerto on the short-lived,

early-19th-century keyed trumpet. A soft-toned predecessor to the modern valved trumpet, it is capable of playing all the chromatic notes of the scale, but lacks the modern instrument's bite and clarity. This impression is added to by Immer's puffy tone and rather hesitant approach to the work—a pity, since Hogwood conducts a spirited performance, full of verve and swagger.

The orchestral contribution is equally fine in the other two concertos on the disc, but once again the soloists let us down. In the Organ Concerto in C, Hogwood's playing lacks animation, while in the Horn Concerto in D, soloist Timothy Brown succumbs too often to the difficulties of his instrument. Brown's technique can really be faulted, for all the notes are there but they are not always pretty; listening to his account, I found myself holding my breath, not quite sure that he would make it through. In addition, Brown, like Immer, does not really project himself into the music, so that the solo line sounds rather characterless alongside the dashing work of the orchestra.

The sound is first-rate, and these are, in the end, acceptable performances. But this is repertory in which I would opt for modern instruments, at least for the present. Playing time: 53:06. *Christopher Rothko*

MARTINO: String Quartet.

LERDAHL: String Quartet No. 1.

● *Juilliard String Quartet, Fred Lerdahl, Donald Martino, Rachel Siegel, and Curt Witting, prods. CRI CD 551 (D)*.

This recording marks the beginning of CRI's involvement in Compact Disc pro-duction, and I would imagine its release prompted a party at the 34-year-old com-pany's offices. But the music, too, is worth celebrating: Donald Martino's and Fred Lerdahl's quartets are lofty compositions, chamber music essays of the sort that make a positive impression immediately and continue to reward the listener's at-tention emotionally as well as intellectu-ally with each subsequent hearing.

Martino's is the longer of the two works. Its 30-minute span is divided into four sections, each of them loyal to the constructive principles of serialism yet in the long run governed more by a feeling for gesture than a concern for technique. Dynamic tension is on the rise throughout the movements marked *ansioso* and *pres-tissimo* and is not relieved until midway into the *andante* variations of the third movement. This tension results not so much from harmonic action as from rhythmic manipulation and the constant compression and expansion of succinct thematic materials. The *allegro molto* finale is a summary of all that has come before; it begins slowly and then lurches sporad-ically forward, once again building up



DON HUNSTEIN

The Juilliard Quartet, with new member Joel Smirnoff (second from left)

steam until the pressure reaches maximum level, at which point it dissipates in an echo of the third movement's pivotal lyric episode.

Lerdahl's quartet lasts 23 minutes and consists of a single series of variations of ever-increasing length and complexity. The open fifth chord heard at the work's beginning returns often as a kind of consonant beacon in a sea of pointillistic dissonance; in some of the more substantial variations the "static" quality of the harmony is offset by crescendos and decrescendos in obstinate repeated figurations. Although the language of Lerdahl's quartet is very different from that of Martino's, the works have similar shapes. The most notable relaxations of tension come proportionately at just about the same place, and Lerdahl's piece, too—after a long progression from expressions of "simplicity and repose to their opposites"—eventually settles down, albeit not so calmly, in an epilogue that is light-textured and quiet.

Both works were commissioned by the Juilliard Quartet, and both were recorded in performance at the Coolidge Auditorium in the Library of Congress. The playing is as masterly as you'd expect it to be, the recorded sound is excellent, and the audience noise is minimal. Playing time: 53:13.

James Wierzbicki

STRAUSS, R.: *Ariadne auf Naxos*.

Tomowa-Sintow, Baltsa, Battle, Lakes, Prey; Vienna Philharmonic, Levine. Günther Breest and Steven Paul, prods. Deutsche Grammophon 419 225-2 (D, 2). (2). (2).

This recording won the Grammy for the best operatic recording of the year. In my own opinion it has abundant merit, and deserves appropriate praise, but best of the entire year . . . ? I automatically suspect such superlatives.

Many people, not entirely without justification, find the term "German humor" an oxymoron. Both Hugo von Hofmannsthal and Richard Strauss unquestionably did have senses of humor, and they injected plenty of it into this lovely opera, but much of it lies in nuance—in, for example, the choice of a single unexpected word, or a startling musical juxtaposition. That makes the particular personalities of the performers all the more important. In any performance of *Ariadne*, anxiety always grips me as rehearsal number 79 approaches, where Brighella leads his three fellow clowns into that jolly section beginning "Es gilt, ob Tanzen, ob Singen taue." Strauss wanted it both *behäbig* (portly, stolid) and *comodo* (comfortable, easy), which poses a seemingly contradictory problem; far too many conductors, Germanic ones in particular, make it not only portly but downright lumbering. James Levine, to my taste, hits the proper tempo

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bang-on, making that entire section sheer delight. In fact, Levine brings off one of the most enjoyable realizations of this rich score ever to come my way.

Although the work's three opulent female leads have given *Ariadne* a reputation as a soprano's opera, the big surprise comes from the young American heldentenor Gary Lakes, who sings Bacchus (and, in the prologue, The Tenor, whom Hofmannsthal has exchange waspish, all-too-typical barbs with *die Primadonna*, who of course subsequently turns up as Ariadne). Lakes reminded me of the young Jon Vickers even before I read in the libretto booklet that my London colleagues had already remarked that in 1985, not long after his European debut in Paris as Siegmund. In 1981 he won the Lauritz Melchior Competition for heldentenen (after twelve years of no first prize), and he shows encouraging signs of becoming a Siegfried and Tristan in the great tradition. His performance alone would make this recording worth owning.

Not that I mean to slight the ladies, or the other gentlemen. Anna Tomowa-Sintow and Agnes Baltsa sing their roles superbly, and even project much of the dra-

matic content of Hofmannsthal's rich libretto. Zerbinetta, of course, gets the flashiest music in the score, especially that gargantuan, sopranoicidal aria Strauss tailored to the phenomenal measure of Maria Ivogün. Kathleen Battle, that captivating artist, has virtually no trouble with it, except for one point. She does not have a bona fide trill—and the indication "tr" punctuates that aria seventeen times, most sadistically of all when Strauss expects his victim to sustain a high D for two and a half bars, then change it to a trill for two more. Instead of trilling, Battle substitutes a sort of rapid *battuto* on the single note indicated—a curious, incongruous flaw in such a polished technique. She also comes a bit of a cropper on those inhumane triplets three bars before 123, even though Levine does not exceed Strauss's indicated tempo. (I feel like a cur even mentioning these minor blemishes in such an enchanting account, by an artist I admire so much; I wouldn't at all, if Edita Gruberova hadn't tossed off this aria with such devastating aplomb on Orfeo C 101 841 A.)

As if those succulent roles for Ariadne, The Composer, and Zerbinetta didn't provide enough opportunity for ravishing female singing, Strauss also tossed in the three nymphs Dryad, Naiad, and Echo. In live performance, their opening trio about the waves and the leaves can drive you crazy with its sixteenth-notes in close harmony; all three nymphs have to have bull's-eye pitch or else it gets excruciating. I have never heard a performance to match this one, and their later trio (on "Töne, töne, süsse Stimme") provides another delectable passage. Hermann Prey brings his familiar artistry to the part of the young composer's case-hardened teacher.

The orchestra plays as we expect the Vienna Philharmonic to, and the recording crew has brought this entire undertaking very much to life. Maybe it did deserve that Grammy, after all. Playing time: 2:04:54.

Paul Moor. ▶

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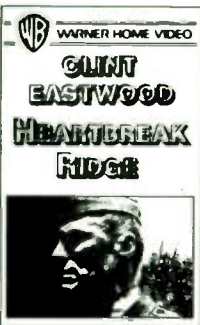


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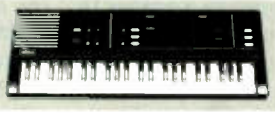
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RECTALS AND MISCELLANY

AGNES BALTSA: Songs My Country Taught Me.

● Baltsa, Papadopoulou; Athens Experimental Orchestra, Xarhakos. *Wolfgang Mitlehner, prod. Deutsche Grammophon 419 236-2 (D).* ⊕ □

If you saw Jules Dassin's classic film *Never on Sunday* (and if you didn't, you still should), you'll recall that when he referred to Greece as having once been the greatest country in the world, Melina Mercouri—today Greece's Minister of Culture—fired

right back at him: "It *still* is!" One hears something similar in Agnes Baltsa's luxuriant voice when she sings these eleven endearing songs from her magnificent native country. Today one of the world's leading international operatic mezzo-sopranos (I heard her countless times at the Deutsche Oper Berlin), she sings these songs with the unpretentious simplicity this kind of music demands, but also with sumptuous, sultry timbre and coloration.

You will find no authentic folk songs here (Mikis Theodorakis, *Never on Sunday's* composer, wrote three of the eleven),

but the ancient essence of Greek folk music permeates all of them, and if you've ever once heard the wonderful, ringing Greek plectrum instrument, the bouzouki, on the spot, these sounds will bring back the heat of the Eastern Mediterranean night and the pungent anise taste of *ouzo* on your tongue. Many of them incorporate those fast, asymmetric rhythms characteristic of folk music in that part of the world—the kind of element that caught the attention also of Béla Bartók.

Each song gets its own prose summary. Some of them may evoke those inspired concert-program notes created by Robert Benchley (e.g., "And now, my love, who will give you my last kiss? The postman died at seventeen. He was my love. Who will show you the path of dreams now, for I too died with the postman?"), but they do explain the smoldering emotions Baltsa so convincingly projects. Playing time: 47:37. *Paul Moor*

MUSICIANS OF SWANNE ALLEY: As I Went to Walsingham.

● *Musicians of Swanne Alley, Nordstrom and O'Dette. Robina Young, prod. Harmonia Mundi HMC 905192 (D).* ⊕ HMC 5192. □ HMC 405192.

The Los Angeles branch of the French firm Harmonia Mundi continues to show praiseworthy initiative in bringing meritorious American groups into the recording studio. The Musicians of Swanne Alley have ties to the University of Michigan, and this rich, endearing program was recorded in nearby Bethel United Church of Christ. The Walsingham name crops up repeatedly in Elizabethan music, attached not only to a family but to a tune and a ballad as well. This record gets off to a romping start with the Walsingham Galliard; "Walsingham" as a tune turns up in three separate guises; and "As I Went to Walsingham" in two. In *The Faerie Queene*, Edmund Spenser referred to Sir Francis, the most famous of the Walsinghams, as "the Great Maecenas of this age." His protégés included Sir Philip Sidney, who married his patron's daughter; half of the six songs heard here are set to Sidney poems.

The Musicians of Swanne Alley take their name from a 16th-century professional Elizabethan ensemble. Six richly talented musicians—three men, three women, all young—make up this lively group. The form a traditional "English consort": treble viol, flute, lute, bass viol, cittern, and bandora. All but one of the members do more than one thing; Emily van Evera, for instance, sings with grace and style and plays the flutes as well.

You could hardly find more enjoyable, or better performed, Elizabethan music, and Harmonia Mundi has recorded it sumptuously. Playing time: 57:34.

Paul Moor

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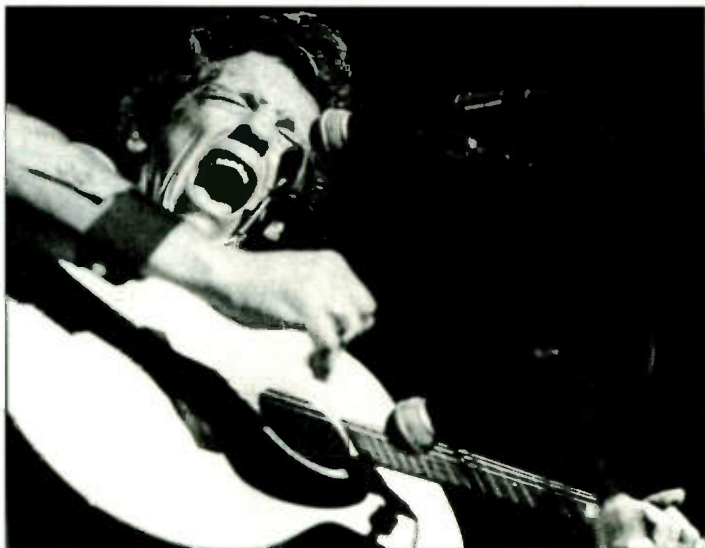
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On the Trail of the Blues

Looking for the real thing in Mississippi, Louisiana, Tennessee, and Arkansas—on a plantation and a riverboat, in an archive and a classroom, from W.C. Handy Park and Beale Street bars to the New Orleans Jazz and Heritage Festival

BY LESLIE BERMAN

CLARKSDALE, MISS., APRIL 21: Late afternoon and the ten-buck catfish fry is in full swing at the Municipal Auditorium. City fathers sporting "Big Frog in a Little Pond" buttons circulate among black laborers, white society matrons and merchants, and assorted kids, all seated at banquet tables facing the crepe-festooned stage. The house lights go down as the constabulary moves into formation, though only the tourists of the national press make any effort to surge forward when three short men in undertaker's black are introduced. Two sport familiar porkpie hats and shades, their long, wispy, blond-red beards naming them before the emcee does: ZZ! ZZ! ZZ Top!! The trio trots past amplifiers and drum kit to a high podium, Billy Gibbons's hand clutching the neck of a cream-colored electric guitar with a dark Mississippi River squiggle running down its fretboard and across the



Hammond: contortions at the Heritage Festival's opening-night event



Rascoe: gentle art in the quiet of the festival's Lagniappe tent

body. *The Muddy-Wood Guitar!* A few words about kicking off a \$1 million fundraising effort for the Delta Blues Museum (headquartered above Clarksdale's Carnegie Public Library), handshakes all around, and the little men wave and march offstage without playing. Is that it? The upscale part of the crowd finishes its hush puppies and Cokes, then drifts out. Onstage, the local band of black musician Earnest "Guitar" Roy, Jr., is in a frenzy, tearing into its single on the Rooster Blues label, "I Wanna Know (What My Little Girl's Been Doin')," earning vigorous applause from the remaining diners.

Before the light goes, I drive north with Memphis photographer Pat Rainer and Little Rock artist Randall Lyon, who interpret the scenery as we flash by Muddy Waters's roofless, tumble-down cypress shack, which doubled as a juke joint, then by the Stovall plantation where he drove

On the Trail of the Blues

tractor. Ugly prefabs that house black plantation hands dot the roadside for what seems like miles before we turn into the drive of the old Stovall main house where Lyon lived one summer. A chained watchdog yelps, and a white peacock flies up to perch on the crumbling splendor of the single-story antebellum mansion. The caretaker shows us ceiling-high library shelves and period fireplace appointments, then regrets he can't attend the evening's blues show: Tickets are too costly. Driving back to town, we pass the new mansion where the Stovall heir entertained ZZ Top with shade and cool drinks throughout the sleepy, dusty, Delta day.

When we get to the Cotton Exchange, the tiny club is knee to knee with young, white customers gripping longneck beers and plastic whiskey cups, listening to the Muddy Waters Blues Band. "Pinetop" Perkins holds forth on the keyboard, singing Muddy's songs over Mojo Buford's wailing harp and Louis Myers's brooding guitar. At one table down front, guitarist Jack Johnson and harmonica player/pianist Frank Frost nod intently. Their carefully dressed-up companions, including most of the black faces in this room, restrict their displays of enthusiasm to brisk, brief applause and private, uninterpretable glances. The white kids shout, stamp, and whistle, eyes bright over their Lacoste shirts. I wander down the street to meet Rooster Blues' Jim O'Neal and peek at the hard-to-find records in his Stackhouse Miss. Arts and Gifts storefront. Why this audience, I ask him? "Most of the girls have made formal debuts at parties featuring black blues bands. Their boyfriends have hired those bands for their frat parties. Even Muddy Waters played them in the '60s. It's traditional." Outside the club, Warner Bros. publicity staffers trade war stories and play music-business trivial pursuit with rock journalists over go-cups of bourbon and water. Finally, we ride north on Highway 61 toward Memphis. I'm feeling very blue.

There's a buzz going on in blues circles, sparked by new acts, new audiences, and a soupçon of commercial outlay. In bars, rock gigs that used to end with formulaic blues jams have given way to whole evenings of talented up-and-comers versed in a variety of blues stylists. But who's really got the blues? Not matinee idol Robert Cray, with his strict techno-picking curiously devoid of the rasping slides and missteps of blues pain; not self-congratulatory Stevie Ray Vaughan, wincing and hunch-

ing theatrically as he sings of himself in the third person. At home in New York this spring, I listened to the sweet, yearning strains of guitarist Bobby Radcliffe, a white musician who's emerging as our best local bluesman. Then a rare appearance by traditional bluesmen from Mississippi made me itch for the unadorned Delta sound. In Robert Palmer's excellent history, *Deep Blues*, I'd read a strong sociopolitical definition of the form, quoted by Joe Dockery, on whose plantation the music is said to have been born: "The best thing

B.B. King said . . . is that the blues means when a man has lost his woman. Which was all he had." So I went down to the Delta, to see if I would hear blues so primal it would prove him right.

OXFORD, MISS., APRIL 20: This is the town of Faulkner, home of "bow-heads" (debutantes) as well as Ole Miss (the University of Mississippi) and its Center for the Study of Southern Culture. William Ferris, the Center's director, secured his reputation by gathering Kenneth Goldstein's folklore



Hemphill: Her blues is too raw for the Memphis tourist traps.

books, B.B. King's personal record collection, and several dozen cases of materials from *Living Blues* magazine to form the Blues Archive. The Center's music-related projects—a comprehensive blues bibliography; the *Living Blues* and *Gospel* magazines and the revamped *Jimmie Rodgers Memorial Newsletter*; innovative courses such as Robert Palmer's "The Roots of Rock"—have raised its profile and generated several million dollars. But it has attracted few scholars. Last year, rumor says, it was shy the requisite number of students for the Southern Culture major, so it drafted one of its work-study staff to flesh out the roster. Ferris is charismatic conjuring funds and publicity. But the Center has yet to initiate or complete one sizable venture with Ferris at the helm.

OXFORD, MISS., APRIL 21: Robert Palmer's classroom at Ole Miss is half-full of glazed sophomores. From a podium, he details the continuum of blues into rock, punctuating a stream of records with pungent observations and anecdotes drawn from 25 years of playing, teaching, and writing about music. More than 100 kids signed up for "The Roots of Rock," because it sounded like an easy ace. "They were pretty freaked out when Robert started with African instrumental music," Palmer's assistant assured me. "And he got up to Little Richard only last week."

NEW ORLEANS, LA., APRIL 22: Tickets priced at \$25 are the tip-off to the event status of a concert/ride on the Riverboat President. It's the first night of the New Orleans Jazz and Heritage Festival, featuring white acoustic blues guitarist John Hammond, blues legend B.B. King, and Texas blues-rocker Stevie Ray Vaughan. Hammond strains and tenses in a sharp suit, contorting his face as he draws and blows harmonica counterpoints to clean-sliding blues licks, closing his eyes as he sings. King plays a masterful, polished set: tastes of guitar lines, careful mugs for the print photographers, delayed vocals imitating emotions carefully held in check. When Vaughan strides onstage, Showtime finally turns on its cameras. The set begins to swing when guitarist Albert Collins and vocalist/keyboardist Katie Webster join him. Even King reappears for the jam, his solos traded with Collins sounding more animated than those he paced through earlier. Though Vaughan's act is the evening's least inspirational, it is his set that draws the audience to its feet.

NEW ORLEANS, LA., APRIL 24: On a big stage at the Jazz and Heritage Festival, Albert Collins's hot band builds in intensity

until it completely eradicates my distress from the night before last. Most of the group members are white, playing to an appreciative, mixed crowd; under Collins's influence, they all pump and flutter wildly. The exuberant female guitarist is a real bonus. Over in the Lagniappe tent, seventy-year-old Moses Rascocoe, a recent acoustic blues find, plays for a smaller audience. His large hands make deliberate patterns on the fretboard—sounds worked out during years of playing what he'd learned from records and instruction books. In the quiet, under the tent, Rascocoe's deference is charming. Later that night, he plays Storyville, a barnlike French Quarter tourist bar better suited to the brassy electric bands that open for and follow him. Rascocoe's gentle art isn't entirely lost on the sparse crowd, but they expected loud, electric blues. In this artificially silenced room, he is agitated.

ON THE ROAD TO EUNICE, LA., APRIL 26: Tagging along with Festival Tours' behind-the-scenes look/listen into Cajun music, I find myself hearing the best blues of the trip—on tapes made by BBC disc jockey Andy Kershaw, another tour member, from his favorite recordings. For three days, we catch snatches of blues in the Cajun, Cajun-country, zydeco, and swamp-pop soundtrack to our ramble.

MEMPHIS, TENN., APRIL 30: In the city famous for co-opting black music, blues scholar Dr. David Evans is holding forth pessimistically on the state of traditional blues. "There are many places that present blues here in town," he says, referring to the reoccupied tourist traps of Beale Street. "But they don't hire local musicians, and they've virtually eliminated the street players who used to congregate in W. C. Handy Park—by drowning them out with highly amplified music from the clubs." Evans teaches at Memphis State University, advises student fieldwork and research, and runs a small blues label, High Water. One of the best performers he has championed is Jessie Mae Hemphill, descended from a Senatobia, Mississippi, blues family. Evans has released several singles for Hemphill; an album is forthcoming. Hemphill complains that she doesn't work much on Beale Street anymore. Evans says her blues is too raw and noncommercial for the strip. That night on Beale Street, I slip from a near-empty bar featuring a cobbled-together-by-management black combo into the lively, loud Rum Boogie, where the white Texas blues band of Anson Funderburgh and the Rockets, with black harmonica player and

vocalist Sam Myers, holds court. It's date night, so the audience is primarily composed of young, white couples. Later, I stroll by Handy Park, where a gray-haired guitarist sings the blues into a tinny mike, bracketed by competing harmonica players and a drunk, dancing in an imitation of a ballet twirl. The guitarist's share of date-night couples is black.

MEMPHIS, TENN., MAY 1: Hemphill and Evans meet me at the A & M Lounge, a busy juke joint, to hear the Hollywood All-Stars, one of High Water's acts. We pay at a speakeasy window, sit at card tables, and drink quarts of Budweiser from blue-tinted glasses while the band rumbles gently through its set. The cheesy Farfisa sound comes from an actual Farfisa. I'm entranced. Couples dance, the room is hung with smoke, a card game progresses.

PINE BLUFF, ARK., MAY 2: Driving down from Memphis, we pass through several blues-associated crossroads and mile after mile of red farmland. At sundown, we reach the Pine Bluff Nursing Home and guitarist Ellis "CeDell" Davis. Until Robert Palmer helped bring him to New York, where he was recorded by the World Music Institute, Davis was known mostly on a party circuit several hundred miles around the Mississippi. Though disabled, partly by a juke joint raid in which he was trampled by escaping patrons, Davis is a vigorous player, stroking chords and flattened notes with a table knife. We talk about bluesmen he has known and worked with. "Come to think of it," he muses, "they're all dead. Except me."

OXFORD, MISS., MAY 3: The Blues Archive's part-time researcher is an intense Swiss harmonica player, Walter Liniger. Overworked but devoted, Liniger finds all of life analyzed and commented on by the blues. We exhaust ourselves discussing class, race, Southern culture, the blues. He's right. It's all in there.

The new editor of *Living Blues* magazine, South African journalist and blues enthusiast Peter Lee, is hopeful about the recapitalization of the independent blues scene. "After all, our subscription base has expanded by nearly 20 percent in only two issues." I ask if he hears much blues in Oxford. "The gigs are in Clarksdale," he says, gesturing west toward the Delta Blues Museum. We laugh together about Billy Gibbons's grand gesture: Why build a guitar out of a plank from Muddy's old shack? "And did ZZ play?" Lee asks. "Of course not," I say. I think (but don't say): They're rich, white Texans with plenty of women. They don't have the blues. □

Acoustic Return



Historic Date

Williams (left) recruits Art Blakey for the drummer's first trio recording in 17 years, while Byrd (right) at long last makes another acoustic album.

JAMES WILLIAMS: *Magical Trio 1*.

Ⓞ *Kiyoshi Koyama and James Williams, prods. Emarcy 832 859-1.* Ⓜ

DONALD BYRD: *Harlem Blues*.

Ⓞ *Orrin Keepnews and Donald Byrd, prods. Landmark LLP 1516.* Ⓜ

James Williams is a wonderfully articulate pianist who has worked with Art Blakey (as a Jazz Messenger on ten recordings), Dizzy Gillespie, Jack Walrath, and Art Farmer. He also has led several of his own dates, and on his current album, he leads a trio that is newsworthy because of its drummer: Blakey, who previously had participated in only *three* trio recordings, each with Thelonious Monk, the most re-

cent released 17 years ago. That alone says something about the drummer's feeling for the keyboardist. Furthermore, Williams picked Ray Brown as the bassist for this trio so that Brown and Blakey, both Pittsburgh natives, would at last have a chance to record together. The result, *Magical Trio 1*, is a masterful project.

The album opens with "Hammerin'," one of two Williams originals; playing unaccompanied at the outset, the pianist demonstrates his prowess and depth. Williams is simultaneously concerned with tradition and with what he calls "moving the music forward," and here he gives us a taste of ragtime, gospel, and blues before

inviting Blakey and Brown to join him in one of the best hard-bop swings you'll ever want to hear. In fact, you've never heard Blakey drive harder and Brown sound better than they do on *Magical Trio 1*. "Love Letters," one of three standards included here, is an all-out performance that moves from straight to bossa time. Thad Jones's "Mean What You Say" sounds relaxed at first, but before it's over, Blakey's snare and cymbal and Brown's walking bass provide the perfect foil for Williams's fluid, innovative, high-powered piano. And the trio composition "J's Jam Song" has Brown seducing, then haunting before

(Continued on page 77)

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(Continued from page 73)

the piece becomes intoxicated with thunderous three-way improvisation.

Harlem Blues is a similarly important record: This is trumpeter Donald Byrd's first acoustic album in who knows how many years. No stranger himself to Blakey, Brown, hard bop, and apparently Williams (whose lovely "Alter Ego" is played here), Byrd enlists veteran bassist Rufus Reid and a coterie of younger players: alto saxophonist Kenny Garrett (now with Miles Davis), much-in-demand drummer Marvin "Smitty" Smith, and pianist Mulgrew Miller, who replaced Williams in Blakey's band.

The leader wrote two of the six compositions here: "Fly, Little Byrd" features a fiery solo by Miller, fanned by the interplay between Byrd and Smith, and "Sir Master Kool Guy" energetically pushes the trumpeter, inciting him to flex his muscles as Smith drives the point home. Garrett sounds proficient on his "Voyage à Deux," where he shares lines with Byrd (on flugelhorn), and he plays with the fervor and skill of a Sonny Stitt on the title track, W. C. Handy's classic, here given a slow, warm treatment. Perhaps the surprise performance comes during a modernization of "Blue Monk": Miller and Smith allow their immense talents to run over and, with Byrd, re-create the feeling the trumpeter once offered on his impeccable, luscious composition "Tanya," now a quarter-century old. *Harlem Blues* is a joyous recording. *Jon W. Poses*

DUKE ELLINGTON:

Black, Brown, and Beige.

Ed Michel, prod. RCA/Bluebird 6641-
 ① 2 (3). ② (4). ③ (3).

DUKE ELLINGTON (with Stewart/Bigard/Hodges): The Great Ellington Units.

Orrin Keepnews, prod. RCA/Bluebird
 ① 6751-2.

The first of these Compact Discs, a sequel to *The Blanton-Webster Band*, is a three-CD collection of Duke Ellington's mid-1940s Victor recordings that kicks off with four excerpts from his hour-long concert suite, "Black, Brown, and Beige," recorded in 1944. The album carries the band through 1946, when it left Victor for Musicroft. Ellington's work from this period is less well known and more uneven than the legendary recordings offered on *Blanton-Webster*, but the best of the 54 tracks on *Black, Brown, and Beige*, such as "Suddenly It Jumped" and "Rockabye River," are as good as anything he ever did.

The Great Ellington Units, a CD-only release, brings together 22 cuts recorded in 1940 and 1941 by small groups drawn from the Ellington band and led by cornetist Rex Stewart, clarinetist Barney Bigard, and alto saxophonist Johnny Hodges. The Hodges tracks include such jazz classics as "Passion Flower," "Squaty Roo," and the original combo version of "Things Ain't What They Used to Be." Hodges's jump choruses on "Squaty Roo," with bassist Jimmy Blanton and drummer Sonny Greer in hot pursuit, are worth ten times the price of admission all by themselves.

The 78-rpm originals summoned for both of these collections have been reprocessed by Sonic Solutions, a San Francisco company whose No Noise system is advertised as being able to "remove virtually all imperfections and aural distractions (surface noise, pops and clicks, scratches, rumble, etc.) commonly associated with vintage material, without altering the basic recorded sound." [See this month's "Bits & Pieces" for the technical details.] The results, judging by the clean-sounding transfers heard on both sets, are exceptionally satisfactory.

Angry owners of *The Blanton-Webster Band*, by the way, should note that a new CD version, painstakingly remastered by Ed Michel and given the No Noise treatment, is being slipped into record stores without fanfare. The original CD set was an unbelievable disaster, a mishmash of bad sound, wrong takes, and a couple of tracks (including, believe it or not, "Take the 'A' Train") from which the first couple of seconds were chopped off. All of these errors have now been corrected, making *Blanton-Webster* an indispensable part of any jazz collection. The newly remastered CD has a gold sticker on the packaging.

Bluebird deserves high honors for admitting that it goofed and bringing out a redone *Blanton-Webster*. What's more, this year's coming Bluebird reissues are definitely something to shout about. In addition to a set called *Early Ellington*, look for Compact Discs devoted to Sidney Bechet, Bix Beiderbecke, Earl Hines, and Jelly Roll Morton, plus a complete set of Artie Shaw's Gramercy Five recordings and individual discs devoted to the Metronome and Esquire All-Star Bands. The folks at Bluebird have earned a Nobel Prize for jazz reissues. Why isn't CBS doing this good a job? *Terry Teachout*

FRANK MORGAN AND THE McCOY TYNER TRIO: Major Changes.

Richard Bock, prod. Contemporary C
 ① 14039. ② ③

Since alto saxophonist Frank Morgan returned to the scene in 1985, he has been one of Contemporary Records' most prolific and consistent artists, averaging more than an album per year in addition to a plethora of guest shots. I've been as enthusiastic about his work as anyone: He possesses a true sense of urgency, having lost so much time because of his much-publicized, now finished incarceration. But we may be approaching saturation point.

Like liner-note writer Francis Davis, I have trouble thinking of "Theme from *Love Story*" as a plausible vehicle, no matter how great the performance. Pianist McCoy Tyner's chordal embellishments are sincere; so are Morgan's passages. But the nearly 11-minute rendition, with an arrangement reminiscent of Stan Getz, flirts with redundancy. On the other hand, "How Deep Is the Ocean," after an intentionally slow opening, swings hard for most of its eight minutes. Similarly, "Emily" and "All the Things You Are" contain oodles of subtlety along with scores of uncommon notes, raising the level of what might be misperceived as cocktail music.

Indeed, *Major Changes* does have many bright moments. As a group, Morgan, Tyner, bassist Avery Sharpe, and drummer Louis Hayes are formidable and engaging. Ultimately, the backbone of this record is Tyner's three compositions. "Changes," the opener and tone-setter, is a fresh-sounding, well-directed uptempo piece sparked by Sharpe and Hayes. "Search for Peace" begins with strong percussive playing from everyone, becoming even more forceful as the track progresses; this is patented, potent Tyner, with Hayes, Sharpe, and Morgan up to the task and

FORMAT KEY

- ① LP/EP
- ② Cassette
- ③ Compact Disc
- Ⓜ Videocassette
- Ⓨ Videodisc

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then some. Meanwhile, "Frank's Back" epitomizes the bluesy streak that runs throughout the session. If there is a major shortcoming to this record, it's that the assembled talent and maturity warrant more ensemble work. *Jon W. Poses*

POP

GRAHAM PARKER:

The Mona Lisa's Sister.

Graham Parker and Brinsley Schwarz, prods. RCA 8316-2.

"I don't mean to bother you/But I'm in distress," sings Graham Parker on his new album's closer, Sam Cooke's "Cupid," and this ironic plea (he *does* mean to bother you) could stand as a statement of the disc's Grand Theme. Musically, *The Mona Lisa's Sister* is Parker's punchiest, most pleasure-giving recording in almost a decade; lyrically, it's among his bleakest. This makes for a potent combination: Unlike some of his recent efforts, this one has lean, acoustic-guitar-driven arrangements and a well-tended beat that keeps things moving, never allowing the proceedings to bog down into a sulk. Still, one suspects it's his pungent lyrics that will continue to prevent Parker from breaking through to the wider audience he so richly deserves—something he addresses here, though not for the first time, on "Success," bemoaning his fate over a gently swaying rhythm.

There are moments of respite from this danceable cynicism: the aforementioned "Cupid," the open-hearted love song "I'm Just Your Man." But stark as most of the songs are, wallowing in gloom is hardly the point. Parker states his intention—to face down reality and transcend the mire of "everyday evil"—on the set's opener, "Don't Let It Break You Down." Even his direst visions, the hell-on-earth of "OK Hieronymus" and "Get Started. Start a Fire," are carried by a beat and a bass line that defy depression. Parker's spiky worldview may not result in sustained chart action, but his fans know something that other people don't: The ugly truth is rarely so enjoyable. *Richard C. Walls*

JONI MITCHELL:

Chalk Mark in a Rain Storm.

Joni Mitchell and Larry Klein, prods. Geffen GHS 24172.

JANE SIBERRY: The Walking.

Jane Siberry and John Switzer, prods. Reprise 25678-1.

Chalk Mark in a Rain Storm is Joni Mitchell's weakest record of the Eighties. Although the emphasis on digital technology is similar to the approach of the landmark *Wild Things Run Fast* and its follow-up, *Dog Eat Dog*, the new release still falls short. And though *Chalk Mark in a Rain Storm* contains relevant themes—war,

competition/materialism, the plight of the Indians—it lacks cohesion. Mostly, it lacks memorable songs. There's no bulletin comparable to "Chinese Cafe," no observation as touching as "Lucky Girl," no love song as exuberant as "Underneath the Streetlight." Mitchell's singing has little spark when applied to such lackluster material. Only on "A Bird That Whistles," the closing arrangement of the traditional song "Corrina, Corrina," do her vocals become delightfully jazzy; together with Wayne Shorter's saxophone, they make this track the album's best offering.

Jane Siberry is attracting more and more attention these days, but no one can accuse her of going commercial: On Side 2 of her third LP, *The Walking*, she goes further out than ever before. Like her earlier albums, the new record is weird and wonderful, filled with quirky melodies, unusual time signatures, and lengthy narratives that bounce from main ideas into subtexts. No doubt e.e. cummings would approve of Siberry's wordplay, but don't expect to understand it: Approach these songs as you would an impressionistic painting, and you'll discover one of rock's most distinctive voices. *Kate Walter*

TIMBUK 3: Eden Alley.

Dennis Herring, prod. I.R.S. IRS 42124.

Although it lacks their debut's element of surprise, *Timbuk 3's* second album is just as inventive. The ability of husband-and-wife duo Pat and Barbara K. MacDonald to mix deep folk ("hillbilly" wouldn't be too off the mark) and funky dance elements is still compelling, as are those homely Americana harmonies rising over the thump and bump of post-everything beatbox rhythms.

Though the Tims continue to be critical observers, they're too rueful—too *experienced*—to be really nasty, drawing their portraits more with an emphasis on detail than judgment. And what sharp licks they do get in are mitigated by their deadpan delivery, making songs like "Dance Fever" and "Welcome to the Human Race" more cutting on the lyric sheet than in performance. It's this essentially sympathetic quality that gives the new album's fragmented story line its charm: Born in "Eden Alley" where "children make love in the shadows/While the elders pray for kingdom come," put off religion by "Rev. Jack & His Roamin' Cadillac Church," our hero settles, despite wariness about "Too Much Sex, Not Enough Affection," for "A Sinful Life" ("with you"): "Let love be our religion/Until this life is through/The next best thing to heaven/Is a sinful life with you." It's a tale that can't fail to warm the cockles of any world-weary secular humanist's heart. *Richard C. Walls*

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① *Rykodisc RCD 40072*.

This now defunct Boston-based postpunk quartet's most lasting legacy may be that they've broken the CD time barrier: Their chronological compendium of 24 tracks (culled from two singles, one EP, one studio LP, and one live LP, plus two previously unreleased cuts) clocks in at a record 80:05. That's a lot of time to spend with the group's single-minded fervor. Though they were worthy explorers within their narrow range—their songs are smart, edgy complaints with tense, unshapely melodies—after a while you wish they'd extend their melodic reach and break out of their petulant rut. In small doses, though, it's bracing. *Richard C. Walls*

BOZ SCAGGS: *Other Roads*.

Ⓜ *Columbia FCT 40463*.

Boz Scaggs's first release in eight years is a collection of ten steamy, sophisticated pop songs with huge potential for airplay. The album took 2½ years to make, but most of the rhythm arrangements were recorded

live with a minimum of electronic drums, so *Other Roads* doesn't degenerate into an overproduced soup. Rather, the sound is vibrant and crisp, featuring funky guitar chops, Dann Huff's ferocious leads, and an abundance of surprisingly tasteful programmed keyboards. Every song is collaborative or borrowed, and though some of the lyrics are pretty thin, Scaggs's smoldering voice delivers the ballads, rockers, and jazz cuts superbly. *Richard Price*

BRUCE HORNSBY AND THE RANGE:

Scenes from the Southside.

① *RCA 6686-2*.

Scenes from the Southside will sever whatever ties Bruce Hornsby and the Range had to New Age. The wimpiest thing here is Hornsby's version of his own "Jacob's Ladder"—covered with great success by Huey Lewis—and though it doesn't match his mentor's version, it's not wimpish at all. Most of the new album's nine songs take the time to stretch out a bit and showcase the band's considerable chops. The group's first album pretty much hid musi-

cianship; this one highlights it. Give *Scenes a 95*: It's got a great beat, and you can dance to it. *Daniel J. Rosenbaum*

DARYL HALL/JOHN OATES: *Ooh Yeah!*

① *Arista AL 8539*.

Daryl Hall and John Oates make viral music: *Ooh Yeah!* attacks the brain and breeds there, causing you to hum incessantly. The disease manifests itself in cerebral inflammation of two decades worth of the r&b cliché that Hall and Oates use so well. They multitrack all varieties of familiar phrases into the same space, fusing a System-atic synth line with Chic rhythms and Billy Oceanic lead guitar in "Rockability." Strains of this stuff are likely to be carried via radio for the rest of the year, with the hooky "Missed Opportunity," the quietly storming "Rocket to God," and the harmony-rife "Talking All Night" bound to follow the current hit, "Everything Your Heart Desires," putting music fans into the critical ward. If you contract this recording, give in, because there's no antibiotic. *Hank Bordowitz*

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C U R R E N T S



The EDV-9500 is Sony's first ED Beta offering in the U.S.

(Continued from page 14)

enables voice-overs to be made on the AFM track at the touch of a button.

The PCM recording aspect could be all but lost among the multitude of video attractions, which include a five-speed shutter (top speed: 1/4000 second), interval (time-lapse) recording, a built-in character generator, an optional editing controller, a time counter, and a minimum illumination rating of 4 lux.

On the big-tube front, Sony now has two 32-inch TV monitor/receivers based on the company's XBR picture technology. The KV-32SXR10 (\$2,700) features MTS stereo tuning, S-Video inputs (for ED Beta or S-VHS decks), and an optional stand with a built-in "superwoofer" to enhance bass reproduction. The set's cabinet comes in a marble-black or simulated-stone color. *Sony Corp., Sony Dr., Park Ridge, N.J. 07656.*

Stick Joy

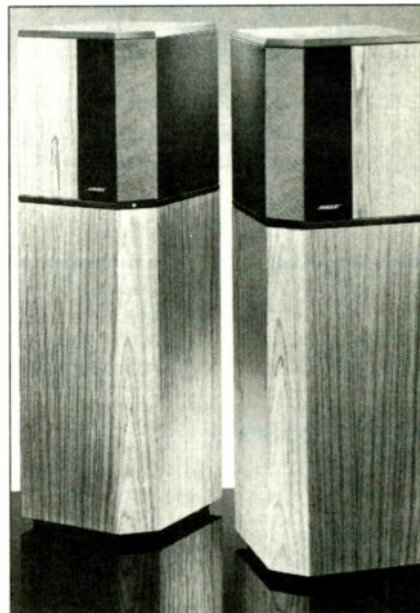
Video games are normally not part of our beat, but if you need a joystick for Nintendo, Sega, Atari, or Commodore game systems, check this out. Camera Corporation has introduced the Freedom Stick (\$70), the world's first infrared (wireless) joystick controller. The company says the new stick has a range of 20 feet (no more eyestrain) and works as much as 90 degrees off-axis of its receiver. Switches for one or two players and manual or automatic firing are provided. *Camera Corp., 230 Fifth Ave., Suite 1100, New York, N.Y. 10001.*

Acoustimass Duo

In June 1987 we reviewed the Bose AM-5 three-piece speaker system, which combines a pair of tiny satellite speakers with a single "Acoustimass" bass module that can be placed nearly anywhere in a room

without significantly compromising the stereo image. Now Bose offers the SE-5 (\$699), a similar three-piece system with two satellite speakers designed to produce a precise stereo soundstage over a wide area of the listening room (Stereo Everywhere is the Bose designation). As with the AM-5, the bass module can be hidden from view.

The new 10.2 Series II floorstanding loudspeaker (\$1,299 per pair) also em-



Bose 10.2 Series II loudspeaker

plays the Acoustimass bass principle, for the first time in a pair of conventional enclosures. It, too, is a Stereo Everywhere model, with an 8-inch midrange driver and two tweeters arrayed to deliver the effect. The 10.2s stand 40 inches tall, occupy just one square foot of floor space each, and are finished in a genuine wood veneer. *Bose Corp., The Mountain, Framingham, Mass. 01701.*

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