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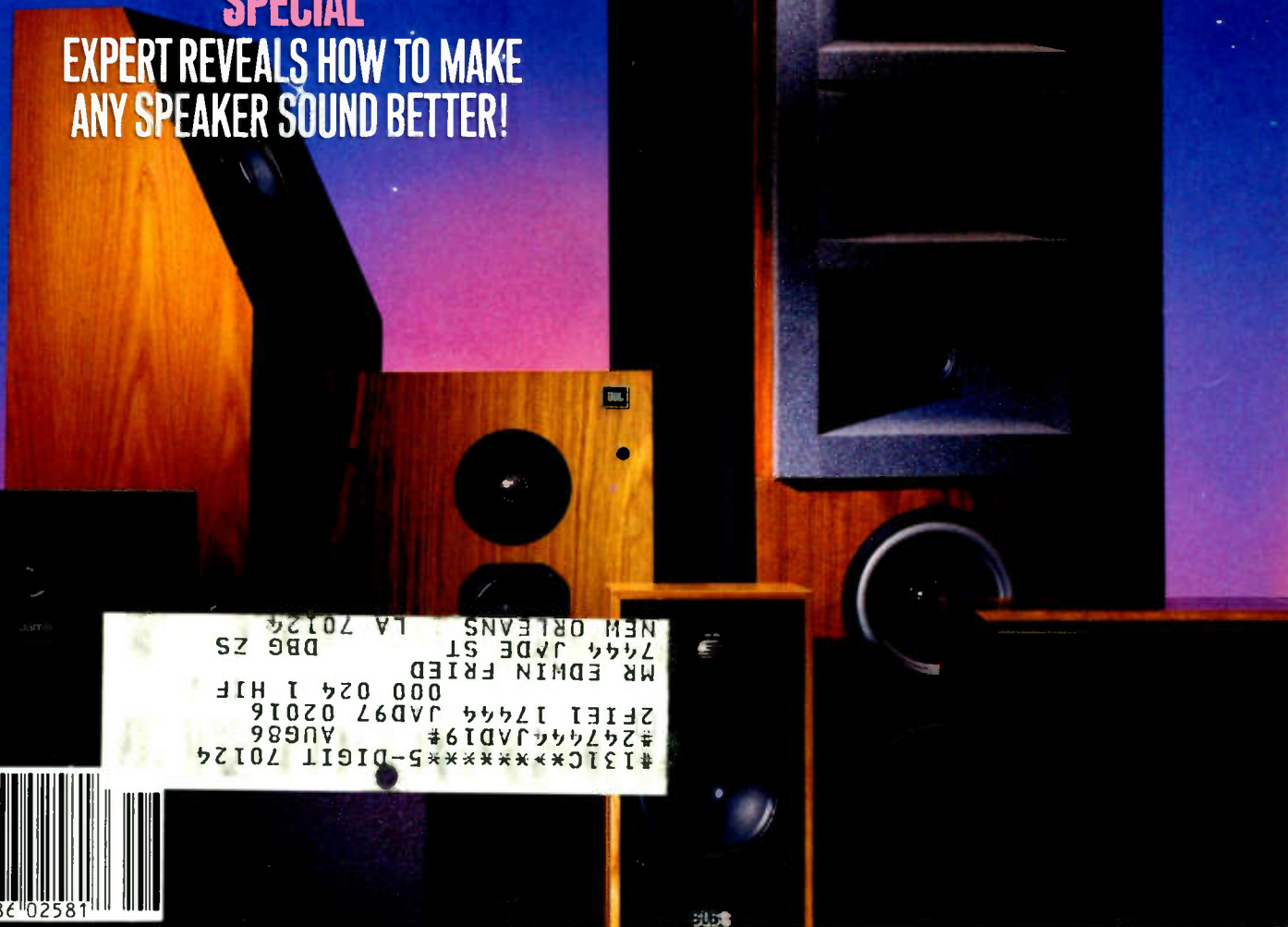
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Cover Photo: Nick Bastion

On the Cover: Clockwise from lower left: Jamo CBR-200 loudspeaker, Snell Type C-i loudspeaker, JBL L-80T loudspeaker, Acoustic Research MGC-1 loudspeaker, American Acoustics D-8500 loudspeaker, Celestion SL-6S loudspeaker, Advent Prodigy loudspeaker

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BY
WILLIAM
TYNAN

HOME REMEDIES

CERTAINLY THE LOUDSPEAKER IS ONE OF THE MOST INTRIGUING components. One look at this month's cover reveals the diversity of designs and sizes, from "bookshelf" to floor-standing—some with unusual angles, others with a more traditional "box" design. And our lab tests show that, while tackling diverse goals, each also performs well. But no two sound the same. And herein lies the dark side of the moon with speakers: It is extremely hard to predict how a pair will sound when set up in your home.

Our lab tests are conducted under controlled conditions, and we audition speakers in a special listening room, in essence providing a common acoustical baseline against which to judge how different speakers sound relative to one another. But I doubt that you would find our particular listening ambience duplicated by any hi-fi dealer. And it's not very probable that your home stereo system is set up in an environment like a dealer's demonstration room. This can lead to dissatisfaction: Speakers that sounded great at the store sound less than that in your home.

Often the solution is relatively simple, and the remedy can be used to touch up the sound of old speakers, too. This month, in "Room to Improve," veteran speaker engineer Timothy Holl elaborates on easy changes that you can make to the listening environment—such as moving a rug or opening the drapes—that will enable you to hear speakers at their best. In this issue's "Basically Speaking," Editor Michael Riggs examines some unusual loudspeaker designs and explains some of the trade-offs involved.

Music coverage this month tackles both the process and the product. Our BACKBEAT feature profiles pop star Laurie Anderson, and CLASSICAL MUSIC leads off with a behind-the-scenes visit to the Soviet recording giant Melodiya. And more than 20 Compact Discs, classical and popular, are reviewed.

The first week in June, we'll all be in Chicago for the 20th annual Summer Consumer Electronics Show, where audio, video, and car stereo manufacturers will unveil their 1987 model lines. A preliminary look at some products indicates that stereo TV, remote control, and audio-video components—along with CD players, of course—will be among the hot items. We will keep you posted in "Currents" and will provide a complete report on the show in September. ■

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ZZ TIP

JEFF NESIN BEGINS HIS REVIEW OF ZZ TOP'S *Afterburner* [March] by stating that the band has been "in business since 1970." In fact, ZZ Top was formed in the Sixties and played the clubs in and around Houston for quite some time before making its first London album. What's more, ZZ started as a four-piece band and made a single as such, "Salt Lick," which was a huge regional hit. The fourth member, whose name I don't recall, worked keyboards. I saw what was probably one of the group's last performances as a quartet when it was second-billed to Janis Joplin at her final Houston concert, held at the Sam Houston Coliseum in October 1969.

David Green
Houston, Texas

Associate Editor Ken Richardson replies: We always appreciate being informed via first-person accounts from the Lone Star State. ZZ Top did indeed release a single called "Salt Lick" (b/w "Miller's Farm"). It first appeared on manager Bill Ham's label, *Scat*, and then was reissued by London.

However... the ZZ Top that recorded "Salt Lick" was not a quartet—nor was it the trio known today. According to David Thomas's *Elimination*:

The ZZ Top Story (Omnibus Press), the most authoritative bio we could find, the single was recorded by guitarist Billy Gibbons with keyboardist Lanier Greig and drummer Dan Mitchell, both of whom came from the last incarnation of Gibbons's previous band, *Moving Sidewalks*. Although Thomas at one point admits that "much of ZZ's early history is confined to hearsay and legend alone," he claims that the name "ZZ Top" was "indisputably the sole property of Messrs. Gibbons, Greig, and Mitchell, and someone, somewhere, has the registration slip from Paris County Courthouse to prove it." In short order, says Thomas, Greig was replaced by Billy Ethridge, a onetime member of the Chessmen; Mitchell was replaced by Frank Beard; and Ethridge was replaced by Dusty Hill, who had played with Beard in two previous bands, the Warlocks and *American Blues*. In a story on ZZ Top in the January issue of *Musician*, Timothy White confirms that "Salt Lick" was recorded by a trio—although he identifies Ethridge, not Greig, as the keyboardist and refers to Dan Mitchell as "Don."

As for dates, it may be most accurate to say that ZZ Top has been in business since the very late Sixties: Whereas Thomas lists 1970 as the release date for both the *Scat* and London issues of "Salt Lick," White mentions "late in 1969" as the time of the band's signing with London. What's certain is that

both *Moving Sidewalks* and *American Blues* were still in action in early '69.

Moving Sidewalks, whose "99th Floor" was a truly huge regional hit, opened for such acts as the Jimi Hendrix Experience, Ten Years After, John Mayall, and the Doors. This fact, together with Thomas's early ZZ family tree and Gibbons's own statement to *Melody Maker* that ZZ keyboardist Ethridge had quit the band before Hill hopped aboard, makes it seem more likely that the *Sidewalks* would have supported Janis Joplin. Then again, given the time frames supplied by both Thomas and White, your October '69 date sounds like some form of ZZ to us—and Thomas, pointing out that Gibbons has given *Rolling Stone* and *Sounds* two entirely different descriptions of his first meeting with Hendrix, comments, "Obviously, Billy's memory plays some strange tricks over the years."

All of which shows that rock scholarship is hazardous and fun. Thanks for prompting the search!

IN PRAISE OF A CRITIC

EVEN THOUGH CLASSICAL MUSIC REVIEWER Thomas Hathaway still is listed as a contributing editor, the current issue, *March*, does not contain a contribution from him. I hope future issues will make up for that.

(CONTINUED ON PAGE 6)

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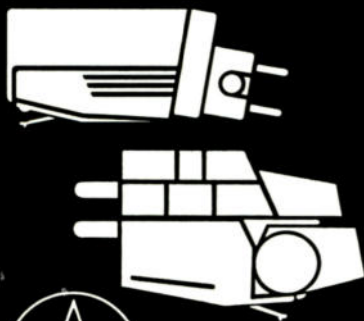
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(CONTINUED FROM PAGE 5)

Hathaway's work is unusual not only in the high quality of his writing but in the passionate integrity with which he critiques music and performances. He writes precisely as well as comprehensively, and he has a gift for wit without vulgarity, enthusiasm without meanness or bullying. Above all, his loyalties are to composers and dedicated artists, not to careerism—also known as "getting along in order to get ahead," which makes most writing about music today seem straight out of Balzac's *Lost Illusions*.

As an example of that sort of writing, which is typical of the slide toward p.r. and away from scrupulous criticism, I cite Paul Kresh's review of RCA's *Follies* concert recording [March]. It begins with a quotation from the LP's producer indicating that he did not like the 1971 Capitol original-cast album. This would have made an independent and informed reviewer compare the two recordings, which would have shown an extraordinary contrast almost totally to the disadvantage of the overblown, overhyped, and painfully self-conscious newer release.

The *Follies* review could have made a comparison of, say, Yvonne DeCarlo with

Carol Burnett, or Alexis Smith with Lee Remick. Indeed, it could have offered a reflection on technical and production qualities being at the center of the recording business while artistry, style, and intensity are becoming virtually extinct. Criticism should remind people of what is being lost under the gloss and varnish, in order to praise the greatness that comes through (albeit more and more rarely) against the tide of Gresham's law. I have confidence in Hathaway's ability and taste to do just that.

I would be sorry to read less of Hathaway's work in your pages. His article on Glenn Gould [April 1985] was memorable, by far the finest writing about the pianist since his death. I based much of my hope for the improvement of HIGH FIDELITY on expectations largely derived from reading [Classical Music Editor Theodore W. Libbey, Jr.'s] own writing in Washington and New York newspapers. Diminishing Hathaway's contributions in the future would, in my opinion, be a decisive step backward.

Raoul Gorsten
New York, N.Y.

THE AMAZING DISAPPEARING FMX?

ON THE LEFT SIDE OF YOUR APRIL COVER IS printed "Amazing FMX! Breakthrough in Stereo FM." I looked in the table of contents for the page number of this article, but in vain. Where is it? Am I missing a few pages?

By the way, if I wanted to read about video, I'd buy a video magazine. Did you ever take a survey of your readers to see if we really want this coverage?

John L. Milowshi
Milwaukee, Wis.

The information on FMX is in our CES coverage on page 52. No, we've never done a formal survey on whether our audience wants video in HIF, but so far the informal response from readers has been mostly positive. In any event, audio and video are becoming so closely allied that it's hard to ignore either. And we feel that we deliver the best video equipment coverage around, so even if you were getting a video magazine, you'd do well to get HIF, too, for information on both audio and video.—Ed.

HE'S GOT A FISHBONE TO PICK WITH US

I WAS UPSET AFTER READING HAVELOCK NELSON's Fishbone review [September 1985]. For starters, Fishbone is not even close to a punk sound or style. Nelson should listen to the Sex Pistols or some old Clash to find out the difference. Second, I do not think that Fishbone wants a Top 40 hit; many bands do not. Finally, the song is "Another Generation," not "New Generation." Nelson should stay in his league and review Madonna and Sade and leave the good stuff alone.

Tom Grof
Cleveland, Ohio

Havelock Nelson replies: I never listened to punk lyrics, but I dug its pogo beat, its go-for-jun rebel attitude, and that's what I remember when I listen to Fishbone. Who may not care if they ever get a hit, but that just might be CBS's bottom line.

MOSS MUSIC: ALIVE AND WELL

MICHAEL H. GRAY'S ACCOUNT IN YOUR APRIL issue of the dilemmas facing record companies in this country due to inadequate Compact Disc supply is right on target. As he relates, the Moss Music Group was hurt by the CD crunch and was forced to file under Chapter 11 federal bankruptcy proceedings.

I am pleased to advise, however, that our circumstances are now much improved. We are promised adequate CD deliveries by a number of different suppliers, we have restructured the company's management, and we have realigned our financial base. I feel confident in predicting that our company's future is very bright.

Ira L. Moss
President, Moss Music Group, Inc.
New York, N.Y.

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AUDIO SYSTEMS

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ADAPTING

I OWN AN AR TURNTABLE AND A FISHER 800B stereo receiver that I got in 1961. Are they ever going to simulcast in FM-AM stereo again? My receiver makes provision for these broadcasts, but it's difficult to find them.

Also, I've been having difficulty with the new digitally recorded records. I couldn't find an adapter for the larger hole in any store, so I made one from cardboard. But the tonearm keeps skating across the record. Is this because the AR has no antiskating?

Ron Howell

San Jacinto, Calif.

We don't know just how to break the news, but things have changed a little since 1961. FM-AM simulcasts were only an interim make-do while the FCC was mulling over the proposed stereo-FM broadcast standards. Today's FM-TV stereo simulcasts presumably also will slip into oblivion now that the FCC has approved a stereo TV system. In fact, to the best of my recollection, the FM-AM scheme, which was never very much alive, was quite dead by the mid-Sixties.

Compact Discs (doubtless what you have made the adapter for) work on an entirely different principle from LPs and require a special CD player. There's no possibility whatever of adapting an AR turntable for the purpose—though it will, of course, play LPs made from the same digital master tapes.

HIGH FI

I'D LIKE TO PUT MY SPEAKERS (MID-PRICE MODELS with 12-inch woofers) high up in the back wall of my living room. It is 30 by 15 feet, with a ceiling that slopes from 8 feet high at the front end to 15 feet high at the back. Carpeting, a blown-on ceiling, and the furniture should keep the room acoustically neutral. My plan is to recess the speakers flush with the wall at the 9- or 10-foot level, with the sheetrock around them extending into an unfinished attic. But I'd like to keep the opening into the living room small.

What performance penalties would be imposed by this configuration? How much clearance should I leave between the speakers and the sheetrock? Would an additional cloth covering in front, to match the wallpaper, degrade the sound appreciably?

E. H. Butler

Hendersonville, N.C.

In reverse order: A fabric that matches the wallpaper is unlikely to be acoustically transparent and probably will muffle the highs slightly. If your speakers are acoustic suspension (sealed) systems, you need leave no clearance at the back and sides, but the opening should be the same size as the front of the speakers so that the front panel can be flush with the wall surface (many speakers perform best in this semiburied configuration). The same holds true if you own a bass reflex system with a

front vent; don't, however, use speakers with a vent located anywhere else.

But the overall setup bothers us on two counts. First, putting the speakers high up on the back wall is bound to give you unsatisfactory stereo imaging, even if you sit "backward" for serious listening. Second, if those dimensions are accurate, the repeated multiples of 15 feet are bound to create some standing-wave problems, and 8 feet is awfully close to half of 15. If actual measurements are multiples of each other, you may be able to inhibit the mutual reinforcement by using large furniture pieces to break up the critical surfaces—which is generally a good acoustic idea in any event (see "Room to Improve" on page 51).

FOUR HEADS ARE BETTER

I PLAN TO BUY A TOP-OF-THE-LINE FOUR-HEAD VHS Hi-Fi VCR retailing for about \$1,200, plus a cheaper two-head VHS deck. To get the best reproduction when dubbing, should I use the four-head deck as the playback deck or the recording deck? Also, which would be better for the stereo signal?

Joseph Campbell

Oakland, Calif.

Prerecorded tapes are always at the SP (high) speed, and the extra heads benefit only the slower speeds (LP and EP). So if your copy of a prerecorded tape is to be at slow speed, it should be made on the four-head deck; if the copy also is at SP, it shouldn't make much difference to the picture which deck is used for which function. But it may make a lot of difference to the sound. If any of your original tapes are in the VHS Hi-Fi format, you'll be able to play them on the four-head VHS Hi-Fi deck but not make a comparable copy. None of the inexpensive two-head decks we know of have the Hi-Fi capability, and few, if any, have stereo of any sort. So if the originals have Hi-Fi sound, we'd dub from the four-head deck for clearer possible audio in the duplicate; if the tapes have longitudinal-track audio only, we'd do it the other way around, recording on the four-head's Hi-Fi tracks to maintain the quality of the originals.

"NORMAL" STEREO TV

I WOULD LIKE TO KNOW HOW ONE WOULD HOOK up a normal TV set to a normal stereo receiver to get the stereo sound from Home Box Office and other stations that transmit in stereo. Or can it be done at all?

Bill Beddingfield

Jacksonville, Ill.

It depends on your cable system. If it carries the stereo sound as an FM "station" that the audio receiver can pick up, you can simply treat it the way you would a PBS simulcast: Turn down the volume on your TV set, place the stereo speakers on either side, and listen to the FM while you watch the TV. But if the stereo is multiplexed into the station's signal, following the scheme recently approved by the FCC, you will need a stereo adapter that can

be used with your television set. Most require a special MPX jack on the set, from which they pick up the necessary TV audio signal. An adapter is available from Recoton that picks up the audio signal reradiated from a set's IF strip. This should work with almost any set, although there may be exceptions. Unfortunately, many cable systems cannot handle stereo TV signals, and though they could strip off the stereo subcarrier and put the sound on the FM band, most just give you mono.

TAPE EATER

WHAT DO YOU DO ABOUT A CASSETTE DECK that eats tapes?

J. Scott Hilton

Naples, N.Y.

You should first have it checked for proper tensioning. As belts wear and start to slip, the reduced take-up tension tends to let the tape "stick" to the capstan so that a loop goes right around and gets caught under the pinch roller. Paradoxically, the better the tape—that is, the more finely calendared its magnetic surface, and therefore the less its capacity to trap air between tape and capstan—the more likely the misadventure. So if take-up tension proves to be up to spec or otherwise unadjustable, you should experiment with tape brands, perhaps giving up some performance in the extreme highs in favor of a less carefully manufactured brand. Also, keep the deck clean.

CD HISS-HOP

WHEN I PLAY COMPACT DISCS THAT WERE DIGITALLY recorded, mixed, and mastered, I still hear a very faint hiss in the background. I've listened to my integrated amp (Yamaha A-500) at full volume with no signal or with the CD player (Technics SL-P1) on PAUSE, and I hear no hiss whatsoever. In recording, are small amounts of white noise added to CDs to smooth the overall sound? Also, my player sometimes jumps approximately a minute ahead for no apparent reason, though the passage plays perfectly the next time I try it.

Bill Law

Bolingbrook, Ill.

We're not sure about the hiss, although if you turn the volume up enough, there's a chance of hearing a little noise (usually from the microphones and recording console) in the very quiet passages of almost any recording. Hiss can also become evident if the recording engineers set their levels too conservatively (digital recorders sound very nasty when overloaded). We're even less sure about the jumps you describe, which are huge compared to the mistrackings we've encountered (and seldom, at that) in some CD equipment. It suggests a programming error, rather than one of tracking. If your discs are kept in good condition and the mistracking persists, take the player in for a checkup.

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



Digital Signal Processing Comes Home

This month's featured product, the Sony SDP-505ES digital surround-sound processor, enters the competition for IIF's Product of the Year Awards.

THE FIRST CONSUMER AUDIO PRODUCT to make extensive use of digital signal processing (DSP) is Sony's SDP-505ES, an all-digital surround-sound processor. It combines the functions of time-delay concert-hall simulation and Dolby Surround movie-sound-track decoding. As translated from the Japanese, Sony's preliminary description says the unit "can reproduce five types of atmosphere (Dolby Surround, presence delay, matrix, hall, [and] simulated stereo)." Obtaining these effects requires adding two rear speakers to a system, but the SDP-505ES contains a stereo 16-watt (12-dBW) power amplifier for feeding them. There are also line-level processed outputs.

In contrast to previous units with similar features, the SDP-505ES operates completely in the "digital domain." Other home surround processors have employed analog-companded delta modulation techniques or analog charge-coupled/bucket-brigade circuits and standard analog Dolby B integrated circuits as found in cassette recorders. Sony's device uses pulse-code modulation (PCM), the same digital coding system used by the Compact Disc format. Incoming analog audio signals are digitized by the SDP-505ES with 16-bit analog-to-digital converters (ADCs) operating at a 44.1-kHz sampling rate, and the outputs are from 16-bit digital-to-analog converters (DACs). The delay line uses computer-type memory chips to achieve maximum delays of 90 milliseconds.

(CONTINUED ON PAGE 15)

Buy any Sony car compact disc player and Arista will help supply the discs.

Buy any Sony car compact disc player along with any 3 Arista compact discs by July 31, 1986 and get 2 more free from this special selection. Or buy 6 and get 4 free.



To get your free discs: Cut out the bar codes on the liner notes inside each Arista disc, and the coupon at the bottom of this page with your 2 or 4 selections checked off. Send them along with a copy of your sales receipt for any Sony car compact disc player to the address on the coupon.

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THE LEADER IN DIGITAL AUDIO™

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Loaded.

Fully loaded.

Introducing the Sony DiscJockey.[™] The world's first car compact disc changer. Leave it to Sony to give new meaning to the term "loaded." They've just taken the conventional car compact disc player and turned it into the ultimate automotive entertainment system. Through an ingenious Remote Commander,[®] Sony has put you in control of 10 discs. Program any disc, any track, in any order you choose. All this and an AM/FM tuner.*

As for high performance, the special 10-disc changer delivers up to 10 hours of incomparable digital sound. Its suspension maintains precise disc tracking under the most torturous road conditions. And it's located in a most unlikely and secure place—the trunk of your car. The Sony DiscJockey. The car stereo destined to become standard equipment for those who have very high standards.



ANYTHING ELSE IS JUST UN-PROFESSIONAL



From Live Aid to Lincoln Center, top ten artists to top studio producers, JBL has been the #1 choice in professional loudspeakers for more than 40 years. Now the JBL "T" and "TL" series promise to make the star of stage, screen and studio, the star of car audio, too.

Rugged, reliable, automotive versions of JBL's professional equipment, the "T" and "TL" series are designed by the same acoustical engineers with the same attention to quality and performance.

"T" series loudspeakers feature high and mid-high frequency transducers made of pure titanium—the same titanium domes that are used in JBL's professional studio monitors. Titanium's high strength-to-weight ratio ensures clear, powerful highs without listener fatigue. And now, for the first time, you can get the benefits of titanium at a lower cost with the "TL" series' titanium laminated domes.

High polymer laminated and mineral filled polypropylene low frequency transducers, in the "T" and "TL" respectively, deliver smooth, uncolored, powerful bass response. They're remarkably resistant to the automobile's acoustically hostile environment. You'll get that smooth JBL response on the bumpiest roads, too. Cast aluminum mountings and die-cast frames resist twisting and buckling, even when mounted on uneven surfaces. Cones and voice coils are tightly aligned for consistently accurate musical reproduction and high power handling. The JBL "T" and "TL" series automotive loudspeakers. Once you've heard the professionals, you won't want anything else.

For more information and your nearest dealer call toll free 1-800-633-2252 Ext. 150 or write JBL, 240 Crossways Park West, Woodbury, New York 11797.



Pictured above, left to right are: The T95, T55, T65, and the TL900, TL500, TL600

JBL

A Harman International Company

(CONTINUED FROM PAGE 12)

onds independently adjustable by 0.1-millisecond (100-microsecond) steps for each channel. "This allows an atmosphere to be freely created of being in any of the famous concert halls or monasteries anywhere in the world," Sony attests. In Dolby Surround operation, the delay is restricted to between 10 and 30 milliseconds, as required for proper surround decoding. The mechanism seems not to include reverb synthesis—just delay. The data make no mention of recycling any portion of the delayed signal, a must for simulating reverberation.

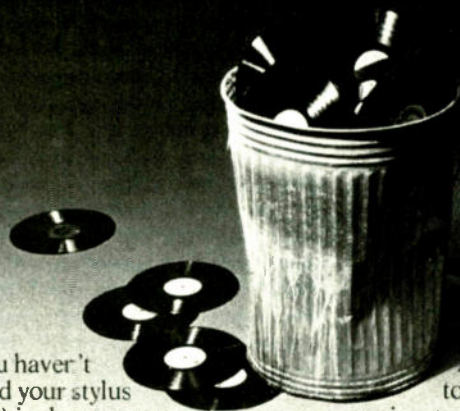
All-digital delay lines have been used in professional ambience units for years. They can provide wider dynamic range and lower distortion than analog devices, especially at long delays. Where DSP really comes into its own is in the SDP-505ES's digital realization of the Dolby B decoding that is a necessary part of any true Dolby Surround processor. Inasmuch as a precise mathematical "transfer function" for the Dolby B system has never before been derived (as far as we know), its digitization by Sony seems all the more remarkable. The necessary mathematics for Dolby B decoding and management of the other time-delay modes is performed by a high-speed general-purpose integrated circuit utilizing parallel and pipelined processing. We may see this chip in future DSP components.

Harmonic distortion for the SDP-505ES is given as 0.008 percent or less, and the dynamic range as at least 90 dB. The surround outputs have an unusually wide frequency-response rating of 5 Hz to 20 kHz (+0, -3 dB). The unit's center-channel output has a response of 10 Hz to 100 kHz. Inputs and line-level outputs are through standard pin connectors. The volume control adjusts the level of front, surround, and center speakers simultaneously, although there is a separate front-panel surround-level control. A switch will throw in a pink-noise signal for balancing front and rear speaker levels. There are three memories for storing delay settings. Sony says the "high-definition reproduction" that DSP affords in the SDP-505ES "can be expected to satisfy even hi-fi maniacs." We're crazy to find out if it does—the monastery can wait. Price: \$700. For more information, write Sony Corporation of America, Sony Dr., Park Ridge, N.J. 07656.

SEE-FOR-YOURSELF CDs

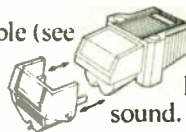
PHILIPS IS MAKING AVAILABLE THROUGH Magnavox (its American arm) two new test Compact Discs meant for evaluation of a player's error-correcting and tracking abilities. Test disc 5 holds unblemished copies of the music as a reference. Disc 5A contains three types of artificial defects: 400- to 900-

Stylus wear. By the time you hear it, it's too late.



If you haven't replaced your stylus (needle) in the past year, you may be permanently damaging every record you play.

Replacing your stylus is simple (see diagram). And selecting the proper stylus to replace it with is also easy. Make certain it's a genuine Shure stylus.



All Shure styli are designed to exacting specifications for precise stereo reproduction. And only a Shure stylus can restore your Shure cartridge to its original standard of performance. Don't accept substitutes. Protect your records and your sound. Get a genuine Shure Replacement Stylus. Soon.

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For the name and location of the Shure Stylus replacement center in your area, call toll-free: 1-800-257-4873. In Illinois 1-800-624-8522.

Our CD gives you a big return for a minimum investment.

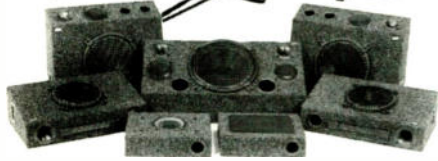


There's no penalty for buying an inexpensive CD player. If it's Toshiba's XR-J9. Because it not only offers concert quality sound, but high quality features, as well. Like 16 program random memory, three beam laser pick-up and full LCD display. Any way you look at it, it's a sound investment.

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Simply place them vertically behind truck bench seats or lay them flat in the cargo area of vans and hatchbacks.

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Limited Warranty

ROAD THUNDER SPEAKER
*for wherever
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Road Thunder Speakers are portable and easy to place just where you want them. Such dynamic sound that people use them with their home stereo system.

MTX Road Thunder Speakers available at American TV in Madison, WI; P.C. Richards in Hauppauge, NY; and Radio Frank in Dearborn, MI.

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Phone (815) 367-3811

micrometer interruptions of the information layer (portraying pressing defects and label-side scratches), 300- to 800-micrometer black dots (representing dust), and simulated fingerprints. Magnavox says that all CD players should be able to track the smallest disturbances on the disc without any errors. Price for both discs (ordered together as 4H39730096): \$139.90. These pressings join disc 3 (4H39730085), which contains various audio test tones for measuring frequency response, distortion, and amplitude and phase linearity. It costs \$49.95. (Test discs 4 and 4A were earlier versions of the error-checking discs.) Order from L. T. Coughlin, N.A.P. Consumer Electronics Corp., P.O. Box 309, Snapp Ferry Rd., Greeneville, Tenn. 37744-0309. Credit card orders are taken at (800) 851-8885.

VIDEO PROCESSOR

FOR THE SEMIPROFESSIONAL AND THE SERIOUS video amateur, Ambico's V-0353 Video Command Module offers a variety of video postproduction techniques and effects, in addition to processing that improves the quality of tape copies. A built-in joystick and separate red, green, and blue controls can be used to create "wipes" in seven colors to or from any of the four sides or corners of the picture. The system also can produce color bars and negative-color images. Other features include split-screen processing for comparison between enhanced and unenhanced images and internal or external synchronization. The unit has two audio-video inputs and three outputs. Price: \$800. For further information, contact Ambico, Inc., 50 Maple St., P.O. Box 427, Norwood, N.J. 07648.

MINOLTA HQ CAMCORDER

THE MINOLTA CR-1100S AF IS A VHS CAMCORDER featuring HQ circuitry, autofocus, auto-exposure, automatic white balance, and a $\frac{2}{3}$ -inch electronic viewfinder doubling as an instant-replay monitor. Four improvements to the picture are said to result from the HQ system: sharpened edges (from an expanded white-clip level), increased sharpness overall (from a detail-enhancement circuit), less "snow" (because of luminance noise reduction), and less color noise.

Shooting controls are positioned for fingertip operation. Separate transport controls include the standard VCR modes plus a three-times-normal-speed search function. The unit records and plays only at the fastest VHS speed (SP).

The lens is an 8.5- to 51-mm f/1.2 power-zoom model with macro capability. It has three focusing modes: fully automatic (infrared controlled), manual, and one-shot auto-



MINOLTA CR-1100S AF VHS HQ CAMCORDER

focus, which springs back to manual after the user finishes shooting one scene. There is a manual iris control to improve backlit shots and fades. The camera tube is a $\frac{1}{2}$ -inch Saticon device with a minimum stated illumination of 7 lux. "Unidirectional" is the (only) word given to describe the camera's attached microphone.

Supplied accessories include a one-hour battery pack, AC adapter/charger, RF converter (to hook up the camera to a TV set), direct video input/output plug, various cables, carrying handle, and shoulder strap. Without battery pack, the camera weighs $5\frac{1}{2}$ pounds. Price is \$1,833. Write to Minolta Corp., 101 Williams Dr., Ramsey, N.J. 07446.

DISCO CD PLAYER

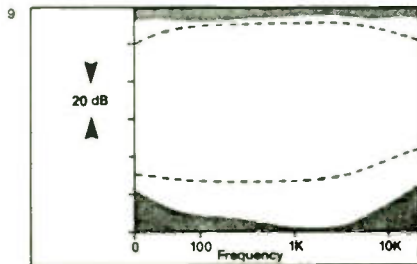


NUMARK'S CD-9000 HAS SEVERAL FEATURES making it suitable for broadcast or nightclub mixing operations. First among these are its variable-speed (tempo) and variable-pitch (key) capabilities. Both can be changed by as much as ± 10 percent *independently*—you can change the tempo without changing the key or vice versa. A program-end indicator on the supplied remote control alerts the user when a track has 30 seconds of remaining playing time. Recordings are loaded only via protective single-disc cartridges. The CD-9000 attaches to a standard 19-inch rack. The controller is suitable for panel mount-

ing. Price is \$1,669. More details are available from Numark Electronics Corp., P.O. Box 493, Edison, N.J. 08818.

NEW DOLBY SYSTEM

NOT ONES TO SIT IDLY BY AS DIGITAL RECORDERS start their ascendancy in the world's sound studios, Dolby Laboratories has developed a new professional audio recording system called Dolby SR (for spectral recording). According to the company, new techniques enable Dolby SR "to give professional analog tape recorders a useful dynamic range equal to or greater than that of 16-bit digital recording systems." Stated overall dynamic range for Dolby SR through one cycle of recording and playback is 105 dB (from clipping to the unweighted noise level, 20 Hz to 20 kHz); the best that 16-bit digi-



DOLBY SR PROCESSING EXPANDS TAPE DYNAMIC RANGE OVER THE ENTIRE SPECTRUM.

tal audio can do is slightly better than 97 dB, and that is the theoretical maximum. Dolby refrains, however, from calling the technique a noise reduction system, for in addition to reducing tape hiss, Dolby SR is claimed to suppress modulation noise and to reduce distortion caused by tape saturation. To do this, the circuit "continuously adapts its own spectral transmission characteristics to those of the signal."

Reading about Dolby SR would lead one to believe it is a very complicated circuit requiring not only quite a few parts but also a fairly good recorder to obtain all of the system's benefits. This (and its price) would imply it is suitable only for professional use, as intended. But buried in Dolby's own literature is this statement: "The existence of the new system will no doubt prompt a reevaluation of recording and transmission formats that have been thought to be inadequate or marginal for professional use. . . . The new system might result in greater use of 7 1/2 ips and various cassette and cartridge formats [italics added]." Hmm. I wonder if Dolby SR can be stuffed into a single integrated circuit. Dolby SR circuits (catalog no. 280) for installation in existing Dolby module mainframes cost \$750 per channel. Contact Dolby Laboratories, Inc., 100 Portrero Ave., San Francisco, Calif. 94103-4813. *David Ranada*

REDEFINITION.

THE CARVER RECEIVER: Redefines your expectations of receiver performance with the power you need for Digital Audio Discs plus virtually noise-free stereo FM reception. A receiver with astonishing performance incorporating two highly significant technological breakthroughs: Bob Carver's Magnetic Field Power Amplifier and his Asymmetrical Charge Coupled FM Detector.

ESSENTIAL POWER: Your system needs an abundance of power to reproduce, without distortion, the dynamic range of music on Digital Audio Discs and fine analog recordings.

The Magnetic Field Amplifier in the CARVER Receiver gives you 130 watts per channel* of pure, clean power with superbly defined, high fidelity reproduction.

The Magnetic Field Amplifier produces large amounts of power (absolutely necessary for the accurate reproduction of music at realistic listening levels) without the need for heavy heat sinks, massive transformers, and enormous power capacitors required by conventional amplifier design.

Unlike conventional amplifiers which produce a constant, high voltage level at all times, irrespective of the demands of the ever-changing audio signal (Even when there is no audio signal in the circuit at all!), the Magnetic Field Amplifier's power supply is signal responsive. Highly efficient, it produces *exactly and only* the power needed to carry the signal with complete accuracy and fidelity.

The 130 watts-per-channel* CARVER Receiver is about the same size and weight of conventional receivers having merely 30 watts per channel!

NOISE-FREE RECEPTION: The AM-FM CARVER Receiver gives you FM stereo performance unmatched by that of any other receiver.

As it is transmitted from the station, the stereo FM signal is extremely vulnerable to distortion, noise, hiss and multipath interference.

However, when you engage CARVER's Asymmetrical Charge Coupled FM Detector circuit, the stereo signal arrives at your ears virtually noise-free. You hear fully separated stereo with space, depth and ambience!

"This receiver combines the best elements of Carver's separate tuner and amplifier. . . . The Carver Receiver is, without question, one of the finest products of its kind I have ever tested and used. Bob Carver is definitely an audio and r.f. genius." *Leonard Feldman, Audio Magazine, June 1984*

"I consider the Carver Receiver to be the "most" receiver I have yet tested in terms of the quantitative and qualitative superiority of almost all its basic functions." *Julian D. Hirsch, Stereo Review, April 1984*

The CARVER Receiver has been designed for fidelity, accuracy and musicality. You will want to visit your CARVER dealer for a personal audition of this remarkable instrument.

***130 watts per channel RMS into 8 ohms, 20 Hz to 20 kHz with no more than 0.05% total harmonic distortion.**



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B Y
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EXOTIC LOUSPEAKERS

NOT THE NAME OF A NEW MANUFACTURER, THOUGH I suppose it could be. Instead, it's a catchall category for speakers made in ways that depart significantly from the norm. Almost all commercial loudspeakers are systems comprising two or more dynamic drivers of different sizes mounted in a box. A conventional dynamic driver consists of a cone or dome diaphragm (usually made of paper or plastic) attached rigidly at its apex or edge to a coil of wire (the voice coil) immersed in a magnetic field. (Ordinarily, this field is supplied by a strong permanent magnet at the back of the driver's frame.) When an alternating current, such as the audio signal from a power amplifier, is passed through the voice coil, it induces an alternating magnetic field that interacts with the field of the driver magnet, causing the coil (and therefore the diaphragm) to vibrate in synchrony with the input.

But this is by no means the only way of reproducing sound. The best-known alternative is found in electrostatic loudspeakers. In these systems, the diaphragm consists of a very thin sheet of some insulator—usually polyester—impregnated with enough of a conductive substance to enable it to hold an electrical charge. It is suspended between two metal grids, to which the amplifier leads are attached. A dc "polarizing voltage" is applied to the diaphragm to keep it constantly charged. When a signal passes from a power amplifier through the grids, their resulting electrostatic charges (which are of opposite polarity) push and pull the diaphragm back and forth between them by means of electrostatic forces.

The classic advantages of electrostatic drivers are their low distortion (arising from their highly linear push-pull mode of operation) and their potential for full-range operation, without crossovers to split the signal into two or more frequency ranges for reproduction by specialized drivers. On the other side of the coin is the difficulty of getting adequate deep-bass reproduction (because of cancellation from the diaphragm panel's backwave), high volume (because of excursion limitations), or wide treble dispersion (because of the large size of the diaphragm required to get adequate loudness). Electrostatics are also more failure-prone than dynamics and must be plugged into a wall outlet during operation to charge the diaphragm.

This is not to say that these problems are insurmountable or that excellent electrostatic loudspeakers are not possible. Indeed, some of the world's most beloved designs have been electrostatics. The reason is what tends to be the characteristic electrostatic sound, which is clean, dry, and precise, possessing excellent detail and stereo imaging. And many people have considered these qualities desirable enough to put up with the limitations.

Others have turned to a slightly different approach that promises many of the advantages of electrostatics without some of their problems. In planar-magnetic speakers, such as those made by Magnepan, a light plastic diaphragm is stretched over a

grid of small, powerful permanent magnets. A long, zigzagging wire running through the diaphragm forms the equivalent of a voice coil, through which passes the audio signal from an amplifier. The result is a novel kind of dynamic driver (though seldom referred to as such). As in a conventional dynamic driver, the alternating signal current induces an alternating magnetic field that interacts with the field set up by the grid of permanent magnets, forcing the diaphragm to vibrate.

This technique has a number of appealing characteristics. The system is reliable and uncomplicated—none of the input transformers required by electrostatic speakers and none of the destructive arcing that can accompany their operation at high volumes—and it presents an almost purely resistive load to the amplifier, as opposed to the very difficult reactive loads typical of many electrostatic designs. Yet because it distributes the driving force almost uniformly over the surface of the diaphragm, it is far more amenable to use in large planar loudspeakers than is the standard dynamic method, which applies all of its force to a relatively small area of the diaphragm. A full-range electrostatic's large surface area and bipolar output (from both the front and back of the diaphragm) give it a narrow figure-eight radiation pattern that is largely responsible for the so-called electrostatic sound. A planar-magnetic speaker can mimic these characteristics fairly easily.

On the other hand, planar-magnetic diaphragms tend, as a class, to have a greater mass-per-unit area than do electrostatic diaphragms. This means that speakers using this principle must develop more force to provide adequate control of the diaphragm and to accelerate it fast enough to yield good high-frequency reproduction.

Although electrostatic and planar-magnetic speakers are the most common alternatives to conventional dynamic drivers, they are not the only ones. Plasma and ionic drivers, for example, seek to use a tiny, pulsating volume of ultrahot gas as a virtually massless loudspeaker diaphragm. These are very difficult to make, however, and require periodic maintenance if they are to continue working. Consequently, they are quite rare. Another unusual type is the ribbon driver, which is almost invariably a tweeter (though at least one company, Apogee, makes full-range ribbon speakers).

Whether you should own one of these maverick designs is, like any other buying decision concerning loudspeakers, a very personal matter. The ordinary cones and domes so familiar to all of us have achieved their dominance by dint of low cost combined with ruggedness, ease of installation, and high performance. When other types of speakers are selected, the basis for the choice almost always is performance alone: their ability to produce a sound either unavailable or difficult to obtain from conventional loudspeakers. In the end, the decision comes down to your ears, your wallet, and your patience. ■



GOOD NEWS TRAVELS FAST.

People talk, when there's something worth talking about. Like Aiwa. And Aiwa's new Avimax 8 camera-recorder. A small idea that's getting a lot of attention. What's the big deal? This new tiny 8mm video cassette for starters. It's less than half the size of a VHS cassette. Aiwa's new Avimax 8 camera-recorder gives you all the dramatic performance capabilities of the new 8mm video format. The videotape that's fast becoming the worldwide video standard. Over 100 companies are already behind it. And it's no wonder. Up to 2 hours of high-resolution recording can now fit on a video cassette as small as an audio cassette. Which brings us to sound. Remember, this Avimax 8 camera-recorder is an Aiwa. For those who love technical audio specs, here's one your neighbors will hate. Aiwa's AFM sound recording system gives you an astonishing 85dB S/N ratio! That's second only to the sound quality of the compact disc. What's more, with the optional 181-channel Tuner/Timer, it can all be activated by the Aiwa 10-key Remote Commander. Even the 3-week/4-event program timer. Now let's focus on Aiwa's amazing new CCD image sensor. It lets you be sure that when you shoot, what you shoot will come out bright and clear, just like you see it in the electronic viewfinder, without the image lag or burnout you get with conventional pickup tubes. Combine the CCD image sensor's extra-low-light sensitivity with Aiwa's 6:1 ratio f1.4 power zoom lens and even Cecil B. DeMille gets envious. The amazing new Aiwa Avimax 8mm camera-recorder—it's portable video's open, and shut case.



COMPUTERS HAVE TAKEN SOMETHING FROM YOUR MUSIC.



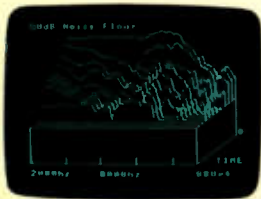
THE NOISE.

Computers have allowed EPI engineers to evaluate new aspects of speaker performance and push noise/distortion to an all-time low. The new computer-tested EPI Time/Energy Series speakers separate the instruments so you can hear the parts as well as the sum.



Their sound is crystal clear, uncolored and more natural than ever.

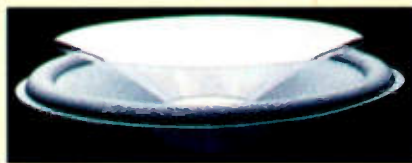
COMPUTERS DISCOVER THE MISSING LINK. Using computers, EPI engineers discovered that conventional speakers don't reproduce short signals cleanly. Since this



type of signal is particularly relevant to the ear's ability to recognize sound it was a profound discovery.

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

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



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

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

The EPI Time/Energy Series represents the most



dramatic improvement in the fundamental fidelity of our speakers in the entire history of EPI. Now we know what computers are good for.



TIME/ENERGY SERIES

Epicure Products, Inc., Newburyport, MA 01950
(800) 225-7932 In MA (800) 892-0565
A Penril Company

LUX ET VERITAS

MUCH AS I, A HARVARD MAN, DISLIKE USING THE YALE motto as a title for this column, there is indeed much truth (*veritas*) to be learned about the terminology of light (*lux*), at least as found on video-component data sheets. There, along with specifications measured in lux, you might find ratings given in foot-lamberts or footcandles. I'll give an introduction to this confusing verbiage by starting with a technology less sophisticated than television: a 75-watt General Electric Soft White light bulb.

As stated on the bulb's carton, its average light output is 1,170 lumens (lm), a lumen being the unit for luminous flux, the rate of flow of light energy. Backing up to a still more primitive technology, one lumen is equivalent to $\frac{1}{4}\pi$ candelas (cd) when generated by a light source radiating equally in all directions. (The candela is the official unit for the light intensity emitted by the standard candle, once defined as the light from a crucible glowing at the temperature of solidifying platinum.) The 1,170-lm bulb, an approximately uniform spherical radiator, has an intensity of 93.1 cd.

Illuminance is the amount of light from the GE bulb actually hitting a surface, such as a tabletop. One lux (lx) is an illuminance of one lumen uniformly distributed over one square meter. A footcandle (fc) is one lumen spread over a square foot and is equal to 10.764 lx. The footcandle is a larger unit, because it represents the same amount of light falling on a smaller area. Since light intensity diminishes according to the square of the distance from its source, two meters from the GE bulb, the illuminance on a tabletop will be about 23 lx, or 2.16 fc. A square foot of the table is receiving only 2.16 lm from the 1,170-lm bulb. Illuminance has several other units of measurement, such as the phot, the milliphot, and the nox.

Video-camera sensitivity specs are statements of required illuminance and are therefore given in

either lux or footcandles. Note that a sensitivity rating is *not* a direct measure of how bright a scene must be in order to be photographed. Instead, the spec is the amount of light that must fall on the camera's image detector to obtain a specified output. A more complete camera-sensitivity rating will also include the aperture setting (an *f*/stop number), because a wider aperture (lower *f*/stop) can compensate for lower detector sensitivity by letting in more light.

If half of our GE-lit table were painted black and the other half white, both parts would still have the same illuminance, yet would appear very different—people do not "see" illuminance. Instead, the eye senses *luminance*, a quality loosely equated with "brightness." The unit of luminance is the footlambert (fL). It quantifies the perceived intensity of a uniformly diffusing surface emitting or reflecting one lumen per square foot. (A lambert corresponds to one lumen per square centimeter.) A professional monitor—dimmer than a home TV set, as a rule—might have a brightness spec of 110 fL, while Pioneer's SD-P40 40-inch rear-projection television is rated at 300 fL, higher than many direct-view screens. The validity of directly comparing these specs, however, depends greatly on how the measurements were taken. And which of the screens actually appears brighter depends on the viewing conditions and the contents of the image.

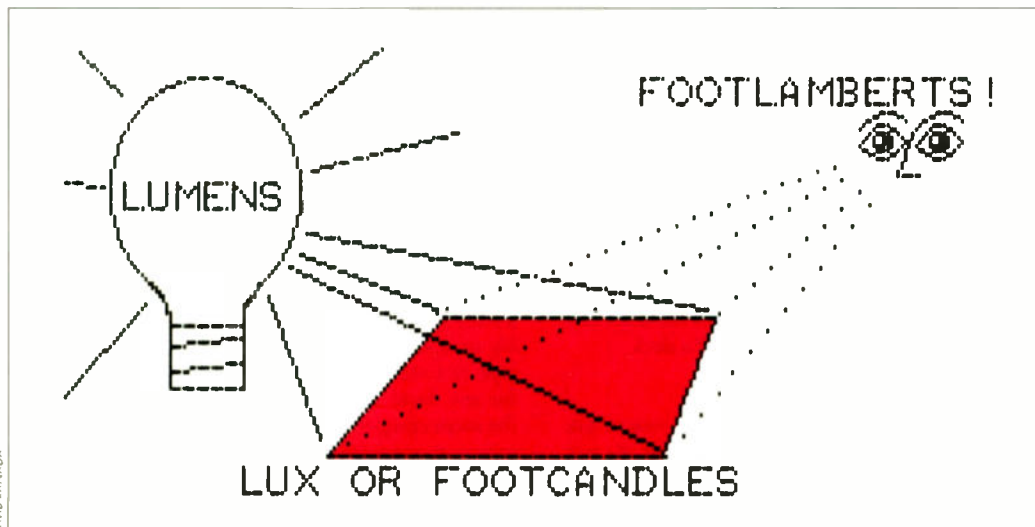
There are many other terms for luminance. One text even discourages using names for luminance and advocates only candelas per unit area. Additional designations include the blondel, stilb, apostilb, mililambert, skot, and nit (one candela per square meter). Though you might despair over learning lumens, lux, footcandles, and footlamberts, you should be thankful for the relative simplicity of video component specs. As for the other terms, I leave to you the veritably ob-nox-ious lux-ury of picking nits. ■



B Y

D A V I D

R A N A D A



LIGHT SOURCES EMIT LUMENS, WHICH CREATE LUX OR FOOTCANDLES ON ILLUMINATED SURFACES. WE SEE ONLY BRIGHTNESS, AS MEASURED IN FOOTLAMBERTS.



PLAYING AROUND

NOT A FULL DECK?

HERE WE GO AGAIN. AMONG THE KOREAN VIDEO ENTRIES at the last Consumer Electronics Show were some playback-only VHS decks—VCPs (videocassette players), I've seen them called, as opposed to VCRs. They make good sense. If the heads don't have to cope with recording, they can be optimized for their intended function and yield better performance (and, if they could be produced in substantial quantities, possibly lower cost) than the present dual-purpose head assemblies. And anyone who plans to copy tapes (there *are* legal and ethical forms of copying!) should welcome the economical option for the source deck.

So the world is going to beat a path to the Koreans' doors, right? I doubt it. The same arguments apply to audio taping, yet every playback-only home audio deck for otherwise comparable use was a sales disaster as far as I can remember. In the Sixties, Viking (at that time manufacturing a best-seller among low-cost home stereo decks) tried a playback unit that almost nobody bought. Then Advent (among the creators of the modern high fidelity cassette deck) introduced the playback-only Model 202—another big sales disappointment. Sony had one a few years back, but it was so far from being a hit that even Sony public relations operatives couldn't seem to supply me with information about it.

What's wrong? Nothing to do with the equipment or its basic concept, which was and is fine (witness the success of the Walkman and its derivatives). The problem is with us. When we go out to buy a home deck, we expect it to be able to record. A playback-only model, with almost as many parts, costs practically as much as a recording deck, yet we think of it as only half as good because it's missing one of the two fundamental functions of tape. We look at a player. Then we look at the recording model for only 20 percent (or whatever) more, and we think of all the things we *couldn't* do with a playback-only machine. We buy the recorder.

A onetime Ampex sales executive (Jack Trux, now of B&O) once quoted a study showing that although Americans demand recording capability when they buy a deck (which meant, at the time, an open-reel model), the recording function remained unused after the first year in 90 percent of those units. Astonishing—and far less true today because the cassette has made recording so much easier and less intimidating. Blank-tape sales statistics more than document the change in attitude. But I think the basic fact remains: We don't like to play with half a deck.

IS IT HI-FI?

THERE ARE THOSE—STILL—WHO LOOK DOWN THEIR noses at the cassette format and insist that it's not really high fidelity. To support their case, they can cite plenty of problems—mechanical, electronic, and magnetic. In a world of digital sound that's expecting a digital cassette at any moment, the wonder is that

cassettes merit serious consideration at all: They were intended for taking down dictation, not music. On the other hand, cassettes supply the musical needs of millions, including those who constantly forget which EQ and noise reduction switches to push for the tapes they play.

It would be easy to dismiss the latter group as having nothing to do with high fidelity. But I'm not so sure. About a year ago my wife and I had dinner with some good friends and a couple with whom we were supposed to have "so much in common." The similar ingredient, it turned out, was that the husband and I both admire live-concert broadcasts, as opposed to studio recordings. He records everything he can off the air—on open reels. When he discovered that I turn more readily to cassettes these days, he totally dropped the subject and talked about the stock market for the rest of the evening.

Now my local "good music" stations are guilty of a hair- and hackle-raising list of audio sins. Compression sometimes is so severe that single voices can sound louder than full orchestral blasts. One station has been known to remove hiss that shouldn't have been in its source material to begin with by using a noise gate that also suppresses hall reverberation and even some pianissimo musical passages. This same station frequently has suffered from tape wow so severe you could hear it in speaking voices and violins (forget piano!), and erase-head failure once left remnants of a *BBC commentary*—at the wrong speed, yet—rumbling behind the Chicago Symphony.

Most shocking of all is that most of these vagaries (and this is by no means an exhaustive list) go unnoticed by the stations, where nobody bothers to listen, as far as I can tell. And in general, the audience doesn't notice either—these are public stations that rely on listeners to fund their continuing operations, which they keep doing. My open-reel acquaintance didn't seem to perceive that his extra tape cost may be an exceedingly poor investment for such sonic fare. I guess it just proves that you can overlook all sorts of sins if you've made up your mind to focus your misgivings elsewhere.

DRIVE TEST

IT'S NEWS TO NOBODY THAT CLOSED-LOOP DUAL-CAPSTAN drive is desirable. But recently I was surprised to discover just how big the difference can be when something goes wrong with a cassette. One tape with extremely high friction in one hub reproduced superbly on a closed-loop model but wavered horribly on a single-capstan deck. And a curled Dolby C tape (a C-120, a length that I wouldn't recommend for any deck) sounded like a live performance with the more competent drive but produced disturbingly erratic dynamics in the other as changes in tape output (due to the continuously varying intimacy of tape-to-head contact) were magnified by the noise reduction system. I was a believer; now I'm an advocate. ■

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



NEC's monitor experience here...

**brings you a better
monitor experience here.**

The computer monitor: the most critical of all picture tube applications. It must be sharp enough for extended viewing from inches away. That's why demanding computer professionals demand monitors from NEC.

Even if you don't run a mainframe computer installation, it's comforting to know that NEC puts much of our computer monitor technology into TV Receiver/Monitors for the home.

Consider the NEC CT-2610A. It uses a full square 26" picture tube for an undistorted image, and a comb filter for picture resolution that's even better than TV broadcasting itself. The CT-2610A receives stereo TV, tunes in 142 channels, and gives you enough inputs and outputs to start your own TV network.

You see, building highly acclaimed computer monitors is not enough for NEC. We feel obligated to take the world's most advanced technology one step further. Into your home.

NEC

We bring high technology home.



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

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

In fact, the SD-P40 is not merely far

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

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

PIONEER INTRODUCES THE WORLD'S FIRST PROJECTION MONITOR.

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

450 LINES. AND THAT'S THE BEGINNING.

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

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

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

THE END OF BIG-SCREEN COMPROMISE.

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

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

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

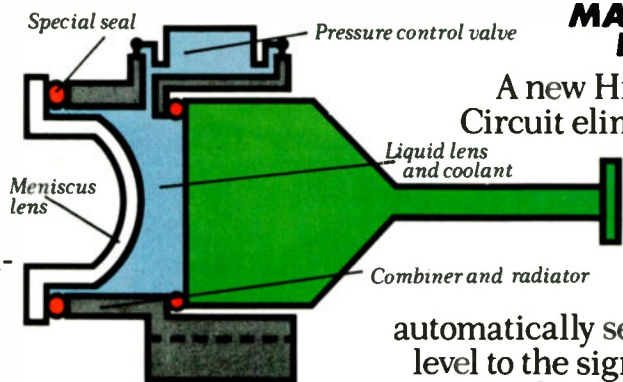
The fuzziness you're so used to seeing around white lettering and objects at high brightness, known as "blooming," is eliminated.

Color values are exceptionally accurate.

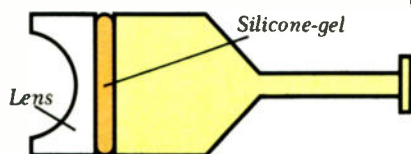
AN UNPARALLELED LENS. A REVOLUTIONARY LENS SYSTEM.

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

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



The "Liquid Lens" Technique.



Conventional Coupling Technique.

MAJOR ADVANCES IN CIRCUITRY.

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

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

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

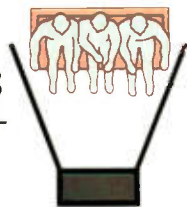
And new High-Focus CRTs utilize not one but three electron lenses. These, combined with a newly developed Linear Tracking Focus System, result in a focal performance superior to conventional CRTs.

THE HEART OF A SOPHISTICATED AUDIO/VIDEO SYSTEM.

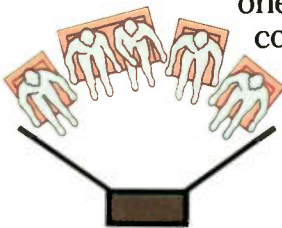
Inputs are provided for a LaserVision player

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

In fact, the entire system is controlled by



Conventional seating



Our seating

Finally, you can sit anywhere.

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

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

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

 **PIONEER®**



 PIONEER

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



PHOTOS BY NICK BASHION

TESTED THIS MONTH (CLOCKWISE FROM TOP RIGHT): NAKAMICHI CR-7A CASSETTE DECK, ACOUSTIC RESEARCH MGC-1 LOUDSPEAKER, CELESTION SL-6S LOUDSPEAKER, JBL L-80T LOUDSPEAKER, AMERICAN ACOUSTICS D-8500 LOUDSPEAKER, NEC AV-300 SURROUND-SOUND DECODER AND AMPLIFIER, AND SNELL TYPE C-I LOUDSPEAKER.

JBL L-80T Loudspeaker

DIMENSIONS: 14 BY 33½ INCHES (FRONT), 12 INCHES DEEP PLUS CLEARANCE FOR GRILLE. **PRICE:** \$750 PER PAIR. **WARRANTY:** "LIMITED," FIVE YEARS PARTS AND LABOR (EXCEPT CABINETS). **MANUFACTURER:** JBL (A HARMAN INTERNATIONAL COMPANY), 240 CROSSWAYS PARK WEST, WOODBURY, N.Y. 11797.

THE L-80T ISN'T NEARLY AS RADICAL AS some of JBL's more striking loudspeakers (for one, the trapezoidal L-250, which we reviewed in April 1983), but it's not an entirely conventional design either. Noticeable at first glance is the grille: stretch fabric over a thin but stiff plastic frame held about a half-inch in front of the baffle by mounting pods. The intent doubtless is to minimize diffraction. But the visual effect, together with the wood veneer that covers all exposed sides of the enclosure, strikes us as quite handsome.

Behind the removable grille are three drivers. A 10-inch woofer is mounted on the vertical axis a little less than halfway up. Above it and slightly offset to the right are, first, a 5-inch midrange driver and, near the top, a 1-inch dome tweeter. The tweeter diaphragm is made of titanium (the reason for the T suffix in all four L-Series speakers introduced recently, of which the 80 is the next-to-top model). JBL says it had to develop a special fabrication technique involving compressed nitrogen before it could obtain a titanium dome sufficiently thin and yet free of stress fractures.

At 4.5 kHz, the signal is crossed over to a midrange driver with a high-polymer laminate cone. The woofer, which takes over at 800 Hz, is made with a cone diaphragm of

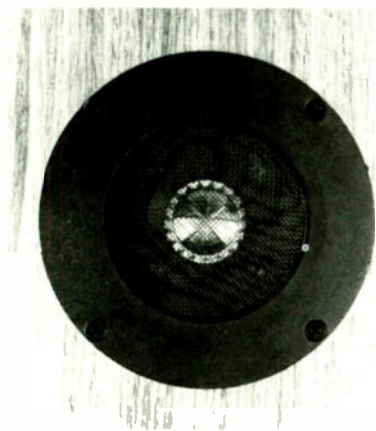
Aquaplas, a material that JBL has been using in the woofers of professional monitor speakers for 15 years. A ducted port opens at the back of the L-80T's bass-reflex enclosure, near the floor and just above a recess that holds a pair of heavy-duty binding posts for the amplifier leads. The posts are angled for much easier access than usual, even though the recess is smaller than average. There are no controls on the speaker.

Because the port on the back surface needs room to "breathe," the speakers can't be jammed against a wall, though in most installations they probably will be placed only a short distance out into the room. Diversified Science Laboratories tested the L-80T both 6 inches and 36 inches from the wall behind it, with similar results. The closer spacing produced the flatter response, however, and was used to obtain all the data shown.

As you can see, even allowing for the prominence centered on 200 Hz, on-axis response stays within $+5\frac{1}{2}$, -2 dB virtually throughout the frequency range, rolling off only below the 40-Hz band. Off-axis response is similarly smooth and fits within a similar window: $+2\frac{1}{4}$, -4 dB from below 40 Hz up. Only at the very top of the range does it diverge significantly from the on-axis curve, indicating just moderate tweeter directivity. Moving the speaker farther from the wall increased the divergence somewhat; more significant, the 200-Hz prominence also increased, but at some expense in the deep bass, where rolloff begins a bit higher in the frequency range because of the loss of boundary reinforcement.

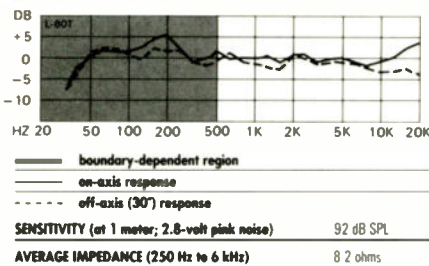
Given JBL's use of a relatively large ported enclosure, we were not surprised to find that the L-80T's sensitivity is somewhat higher than average among the loudspeakers we test. More remarkable is its impedance curve, which is unusually flat through most of the range: between 5.4 and 12 ohms from 70 Hz up. The impedance peak of the upper bass resonance, at 55 Hz, measures 24 ohms; the lower bass resonance, occasioned by the port, is below 20 Hz, where impedance measures 18 ohms. Amplifiers should find the L-80T more like the 8-ohm resistor with which they are traditionally tested than is usually the case with actual loudspeakers.

In theory, a number of factors should help minimize distortion in the L-80T. The ability of the materials in the midrange and woofer cones to damp internal reflections



JBL'S TITANIUM DOME TWEETER

ROOM RESPONSE CHARACTERISTICS



and JBL's proprietary symmetrical magnetic gap (SMG) design are among them; another is the use of a medium-size woofer in a three-way system, which puts less premium on the capacity of the driver suspensions to make long excursions without becoming nonlinear than would be the case in a smaller two-way system. And distortion is indeed quite low in the lab measurements. Outside of the extreme bass, it doesn't exceed 1 percent at any test frequency until the sound pressure level (SPL) reaches 95 dB, where total harmonic distortion (THD) still averages less than 1/2 percent overall. At 100 dB, the average creeps up a bit, but many other loudspeakers distort to the tune of several percent at this drive level.

In our 300-Hz pulse power-handling test, the lab drove the L-80T to the limit of its amplifier without complaint. At that point, peak input was the equivalent of 283/4 dBW (470 watts) into an 8-ohm load. Calculated output for that drive level was 1183/4

dB SPL—certainly more than enough for typical home applications.

In the listening room, as in the lab, we considered the performance with the speakers near the wall behind them slightly superior to that obtained with a more freestanding placement, though we admired the sound both ways. Deep bass is noticeably crisper in the preferred location in our listening room and overall response perhaps a tad smoother to the ear. Stereo imaging is very good; not quite the sort to induce goose bumps, perhaps, but clear and stable, and less distracting than jazzy, ultraspectacular imaging sometimes is.

JBL evidently expects a certain pride of ownership in those who buy the L-80T. When you send in your warranty questionnaire, the company will send you an engraved brass plate reading, "Crafted expressly for [your name] by JBL Incorporated." Classy. And so is the speaker itself. ■

T E S T R E P O R T S

Celestion SL-6S Loudspeaker



DIMENSIONS: 8 BY 17 1/4 INCHES (FRONT), 10 1/2 INCHES DEEP. **PRICE:** \$899 PER PAIR. **WARRANTY:** "LIMITED," FIVE YEARS PARTS AND LABOR. **MANUFACTURER:** CELESTION INTERNATIONAL, ENGLAND; U.S. **DISTRIBUTOR:** CELESTION INDUSTRIES, INC., BOX 521, HOLLISTON, MASS. 01746.

IN A WORLD THAT HAS SEEN ONE REMARKABLE small speaker after another over the last decade or so, Celestion's SL-6S is by no means among the most diminutive, but it is among the most noteworthy: a truly fine speaker by any standard that just happens to be astonishingly small by most. The quality of its sound is a tribute to Celestion's engineering, which has led the way in applying modern technology to speaker design and testing (see "Strictly Speaking," November 1985, and "Loudspeakers and Computers: The Quiet Revolution," November 1983).

A case in point is the SL-6S's dome tweeter. Like the high-frequency driver in the original SL-6 (test report, April 1982), it has a very thin metal diaphragm designed with the aid of laser interferometry to perform as an almost perfect piston over most of its range. The main difference is that the new tweeter uses aluminum as the diaphragm material instead of copper. The resulting reduction in moving mass is said to improve sensitivity by 2 dB and to push the dome's first breakup mode beyond 20 kHz,

eliminating the need for the notch filter built into the SL-6's crossover network.

Celestion has changed the woofer (also designed with the help of laser interferometry) only slightly. As before, the driver's PVC cone is welded to a PVC inner surround designed, in particular, to absorb midrange waves traveling in the cone and prevent their reflection back toward the voice coil. But now, outside the PVC surround is another, of rubber, to increase the uncompressed throw range. This is a particularly important factor in a small (approximately 5 1/2-inch) woofer that is expected to handle both reasonably deep bass and high acoustic levels—and both evidently were among Celestion's goals. The crossover frequency is unusually high: 2.8 kHz. This means that the woofer actually reproduces all of the midrange and much of the harmonic structure of many instruments, while the tweeter must take care of only upper partials in many cases. The crossover is quite steep—Celestion says that a third-order (18 dB per octave) high-pass filter feeds the tweeter and a second-order (12 dB per octave) low-pass, the woofer—and Diversified Science Laboratories' near-field measurements confirm that there is no significant output from the tweeter below 2 kHz or from the woofer above 4 kHz.

(CONTINUED ON PAGE 31)



Hear What You've Been Missing

Introducing DPD™ from Proton

If you're running that terrific new CD player off an amplifier or receiver that's three to five years old, you're missing out on a great deal of clean, uncompromising sound. Most amps of that vintage just can't create the extra headroom that's necessary for accurate digital reproduction. Every time the music hits a peak, your amp will be gasping for breath. And you'll definitely hear about it. Unless you have a Proton 40 Series amplifier or receiver with our exclusive, patented DPD circuitry.

Reserve power in an instant

DPD stands for Dynamic Power on Demand™. Designed for the increased demands of today's digital audio discs and hi-fi video sound, it utilizes a sophisticated, dual power supply which acts as a power reserve. During musical peaks, it delivers up to four times the amplifier's rated power for an amazing six dB of headroom. And DPD handles these boosts much more smoothly.

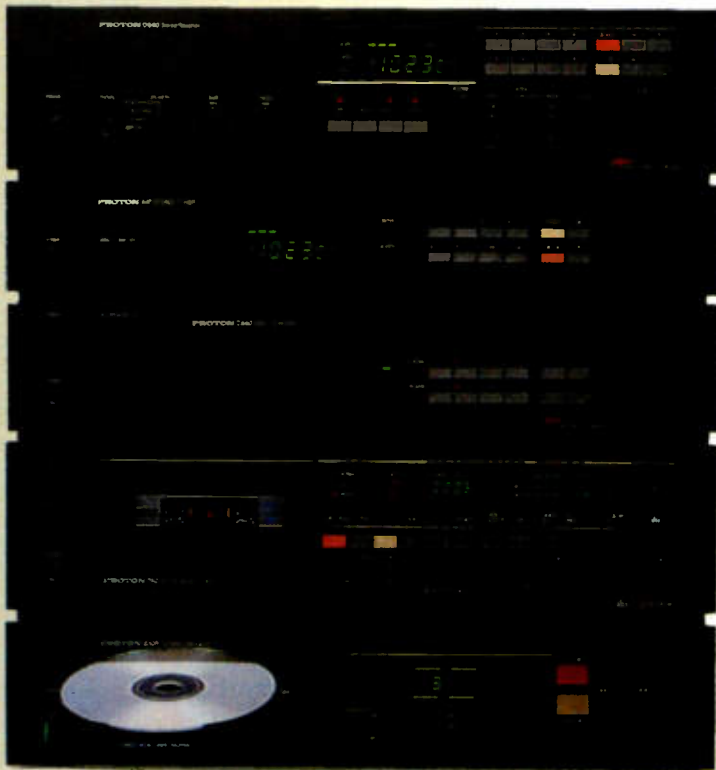
Plus, DPD sustains that dynamic power up to 400 milliseconds. More

than enough time for you to hear all the crisp, clean transient response you've been missing. From the pluck of a cello. To the crash of a cymbal. As faithfully as if they were being performed live.

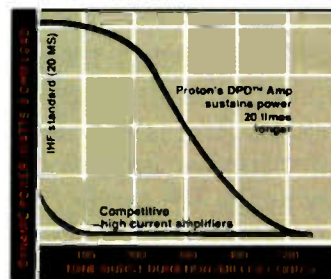
Best of all, DPD gives you all of this extra power without your having to pay the extra price for a much larger amplifier.

So if you want totally uncompromising digital sound, you can't afford to compromise with your system. That's why you need Proton with DPD. With anything else, you'll be missing out.

For the Proton Audio/Video Dealer nearest you, call (800) 772-0172 In California, (800) 428-1006



Proton's acclaimed 40 Series Audio Components top to bottom: D940 Stereo Receiver with DPD™, 440 Stereo Tuner, D540 Stereo Amplifier with DPD™, 740 Stereo Cassette Deck and the 830R Compact Disc Player.



PROTON®

Clearly the best.

737 West Artesia Blvd., Compton, Calif. 90220

Because you have two eyes and two ears, it has six heads.

We're talking about the new Yamaha YV-1000 HQ VHS Hi-Fi video deck. And the six heads are no laughing matter.

Four are built just to take care of the picture. And two are built just to take care of the sound. So both picture and sound are uncompromised.

And the same high tracking speed that's used to record the video is used to record the audio.

Which means you get frequency response from 20Hz to 20kHz. Dynamic range of 80dB. Channel separation of 60dB. And wow and flutter that are virtually unmeasurable.

And that means sound so dramatic it makes you a part of the picture.

Of course, the picture itself is as extraordinary as the sound.

The video heads in the YV-1000 are a 4-head double-azimuth configuration for exceptionally high clarity in both the standard play and extended play modes. And newly developed HQ video circuitry further improves picture quality, especially in the EP mode.

But hold it, what about noise lines in the freeze-frame mode? A special circuit in the YV-1000 heads even does away with them. So you get a still picture that's as sharp as a photograph.

Another thing the YV-1000 does away

with is obsolescence.

It's equipped with Multichannel Television Sound (MTS) to play back stereo broadcasts, and a Separate Audio Program (SAP) channel to monitor programs broadcast in two languages. It also has 12 VHF channels, 56 UHF channels, and 113 cable-ready channels. And the capability to record a simulcast stereo signal from an FM tuner along with the video signal.

So whatever's on tonight or on the drawing board for tomorrow, the YV-1000 is ready for it.

All this advanced technology might be a little scary if the YV-1000 didn't have so many user-friendly features.

The tape counter, for instance, doubles as a remaining time indicator. So you won't run out of tape before you run out of program.

When the end of the tape is reached, the YV-1000 automatically rewinds it for you.

And the infrared remote lets you operate the YV-1000 from your easy chair.

But now it's time to get up from your chair to visit your Yamaha dealer. And see what amazing things the six-headed YV-1000 video deck can do for your eyes and ears.

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



(CONTINUED FROM PAGE 28)

The final innovation in the SL-6S is its cabinet, which has been redesigned to approximate more closely the acoustical inertness of the flagship SL-600's enclosure without recourse to its expensive aluminum honeycomb construction. This has been achieved by changing from the material used in the SL-6's cabinet to a new medium-density fiberboard that is cut thinner to reduce energy storage. At the same time, Celestion says, rigidity has been improved by inseting the back panel and adding extensive internal bracing. Together, these modifications are said to raise the frequencies of panel resonances while diminishing their strength.

Celestion recommends 18-inch stands, and this height was used for both DSL's measurements and our listening. In both cases, we moved the speakers out into the room somewhat to avoid early reflections from the wall behind them. The resulting response was quite flat and very smooth throughout the midrange and lower treble. Only at the very top of the audio band is there a suggestion of roughness in the on-axis trace, which lies within ± 6 dB from the midrange up, even including the dip in the 400-Hz region, which presumably is occasioned by interference from a floor reflection. The woofer's maximum runs a hair higher in level and occurs at about 160 Hz, below which rolloff is more gradual than usual down to the extreme bass. Off-axis response is similar, with very little evidence of beaming, though it's a bit less even overall.

Impedance is unusually though not uncomfortably high—an advantage for small speakers that, consequently, may be used as extension units in a high-quality system, in parallel with the main speaker pair. The lowest impedance dip within the audio band barely reaches below 8 ohms and is at around 30 Hz. The more usual midbass dip (just above 100 Hz) drops only to 8.8 ohms, and the lowest impedance at significantly higher frequencies is 10.6 ohms at 20 kHz. There is a broad rise in the treble, reaching 38 ohms near 1.5 kHz, and a narrow one hit-

ting 31 ohms at about 65 Hz. There's also a minor (12-ohm) peak down near 20 Hz, but the lie of the curve through most of the range is relatively high (averaging 22.5 ohms in our "music band" test and 17.9 ohms across the audio band) and quite smooth.

Sensitivity is respectable for a small, sealed system, but low relative to what we're used to seeing from larger models. In our 300-Hz pulse power-handling test, the SL-6S accepted without faltering the full output of the lab's test amplifier, the equivalent of some 27½ dBW (560 watts) peak into an 8-ohm load, for a calculated peak output of 112½ dB SPL (sound pressure level). Celestion rates the SL-6S for amplifiers delivering between 25 and 120 watts (14 to 20¾ dBW). Although we'd prefer to see the lower figure applied only in small rooms, the recommendation is certainly reasonable.

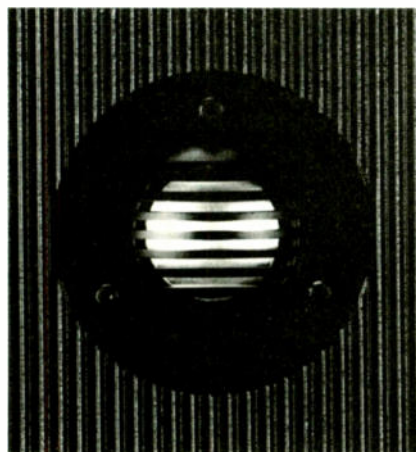
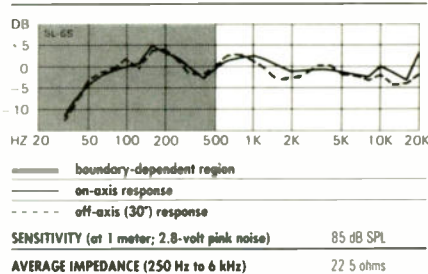
Typically for a small speaker, the SL-6S is working hard at high sound pressure levels and at low frequencies. Below 100 Hz, distortion is relatively high at all test levels and too great for adequate (or safe, from the speaker's point of view, perhaps) measurement at the maximum test level of 100 dB SPL. Distortion at higher frequencies averages around 2 percent at this level, dropping to about 1 percent at 95 dB and down to about ½ percent at 85 dB SPL, by which point distortion is less than 10 percent at most bass frequencies. Overall, then, performance in this respect is at least fair when compared with that of a wide spectrum of speakers and excellent when compared with that of other models of comparable size.

But the listening quality of the SL-6S is exceptional in a way that the data can't convey. Imaging is well above average, with a depth and an unequivocal sense of placement that breathes new sonic excitement into some of the recordings we regularly use for speaker evaluations. The sound also is unusually free of coloration, with bass response that is, if anything, more extended than even the gentle rolloff of the response curve suggests and treble output that is notably flatter than that of the SL-6.

It was hard at times to believe that we were listening to so small a system. It betrayed its limitations only at high acoustic levels with heavy, complex orchestral material, and even then, the evidence that it was beginning to run out of steam was never particularly intrusive.

The symmetrical placement of the two drivers on the front baffle's vertical axis doubtless contributes to the excellent imaging. They are hidden behind a grille made of stretch fabric over a cut-out board. We wondered whether the edges of the cutout, which are neither beveled nor fitted with damping material to prevent diffraction, might adversely affect the imaging or the tonal balance, but the sound was virtually the same whether the grilles were on or off. Finish is good to excellent throughout, with real wood veneers (in a choice of walnut,

ROOM RESPONSE CHARACTERISTICS



THE ALUMINUM DOME TWEETER USED IN THE SL-6S

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.

rosewood, or black ash) used on the sides and ends and heavy, gold-plated binding posts mounted on the back panel in a way that provides easy access for attaching am-

plifier leads.

If you want a truly compact speaker of superb quality, you need look no farther. In fact, few speakers of any size will give you

significantly better performance than this littlest Celestion, except in the deep bass or at very high volumes. We give it our wholehearted recommendation. ■

T E S T R E P O R T S

Snell Type C-i Loudspeaker

DIMENSIONS: 14 $\frac{1}{2}$ " BY 44 INCHES (FRONT), 12 $\frac{1}{2}$ " INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. **PRICE:** \$1,800 PER PAIR IN OAK VENEER, \$1,890 IN WALNUT VENEER. **WARRANTY:** "LIMITED," FIVE YEARS PARTS AND LABOR. **MANUFACTURER:** SNELL ACOUSTICS, INC., 143 ESSEX ST., HAVERHILL, MASS. 01830.

WITH CONSIDERABLE FANFARE, BUT variable sonic results, several recently introduced speakers have been claimed to afford improved or unusual stereo imaging. Snell Acoustics, in its characteristically quiet and unassuming way, has been offering a degree of enhanced imaging for some time. The Type C-i—next to the top of the Snell product line—is already a second-generation speaker, being a redesign of a model that has been out for a couple of years. And although the effects it strives to create are relatively modest, it can be counted among the most successful enhanced-imaging speakers.

The means by which this is achieved are relatively simple: The C-i is a four-way design, each enclosure of the mirror-image pair having a 10-inch acoustic suspension woofer, a 4-inch cone midrange driver, and two $\frac{3}{4}$ -inch dome tweeters. Crossover frequencies are 275 Hz, 3.5 kHz, and 15 kHz (from one tweeter to the other "supertweeter"). Crossover parts are selected to match the drivers in each unit (replacement drivers come with the appropriate crossover components). The handcrafted enclosure, handsomely proportioned and finished, is available in oak or walnut veneers. The black grille cloth is fastened with Velcro and is therefore detachable, though not without considerable tugging. Mounted on the back are separate pairs of multiway binding posts for the woofer and the higher-frequency drivers. Removable jumpers make it possible to use the internal crossovers during bi-amplification.

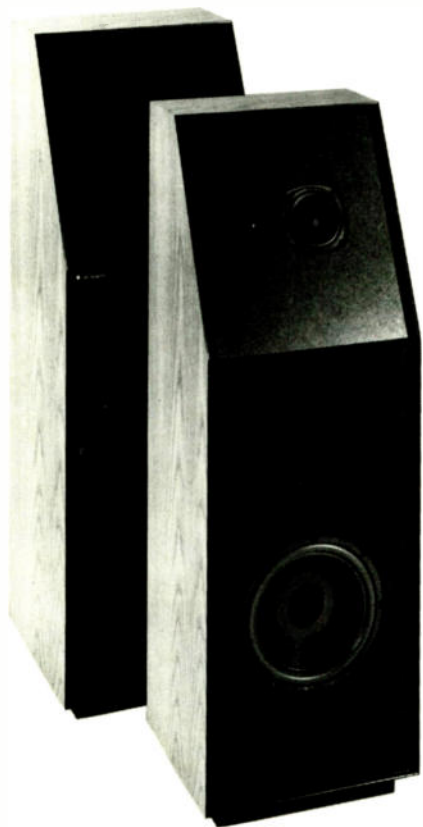
There are no gimmicks. True, one of the tweeters is on the back of the unit at about seated ear height. But it is the supertweeter handling information above 15 kHz, of which there usually is very little. Snell says it is included to give the C-i a flatter power response at extremely high frequencies. And

true, the front-panel mid- and high-frequency drivers are asymmetrically mounted on a raked baffle (steps said to reduce cabinet-edge diffraction and floor reflections). But none of these features is unique—they have been used on other speakers, although probably not in this combination. The C-i even has one trait that, according to common wisdom, should be detrimental to good imaging: The midrange driver and front tweeter are horizontally arrayed, an arrangement that is supposed to destabilize an image as the listener's head moves from side to side.

We heard none of that effect. What we did hear when we placed the enclosures at the recommended positions (about 20 inches from the wall behind them and several feet from the side walls) was the audio equivalent of an "out of body" experience: The image "detached" itself from the drivers, its width not restrained by the spacing of the cabinets and the perceived depth not cut off by the wall behind. Recordings containing natural ambience blossomed in such an environment, filling the front of the listening area with startlingly lifelike sound. Effects such as these are characteristic of speakers that direct much of their output away from the listener. But we cannot recall ever hearing effects of this type and strength from a relatively conventional, predominantly front-radiating model.

The extended image width and depth was not overdone, however. Stereo placement remained stable, precise, and natural, though not razor-sharp, within a rather large acceptable listening area (several feet) surrounding the central "sweet spot." And the clarity of complex musical textures was not degraded by the enhanced sense of spaciousness that, on some speakers, submerges everything in an indistinct sonic wash. Indeed, this speaker struck us as clearer than many, especially at high levels.

Part of this combination of space and clarity must surely originate in the speaker's overall frequency balance. Above 500 Hz it is outstandingly flat both on and off axis, but below that frequency there is a dip (at about



BEYOND CONVENTIONAL AUDIO



THE ONKYO INTEGRA DX-320 WITH OPTO-COUPLING THE SOUND IS NO ILLUSION

The Integra DX-320 Compact Disc player is the first of ONKYO's new generation of CD players to incorporate our unique Opto-Coupling digital signal processing system. Conventional CD players transmit digital data internally via printed circuit board wiring, which interacts with analog audio signals to produce Digital Signal Interference (DSI), resulting in an audible "harshness" in the music.

Specially designed high speed Opto-Coupling modules in the DX-320 transfer the digital audio and other data signals to the analog output stage via fiber optics, preventing DSI. The result is noise-free, life-like reproduction with none of the harsh sound characteristics often attributed to other CD players. This remarkable new technology can only be found in the ONKYO DX-320.

Double oversampling and digital filtering greatly improve phase and harmonic accuracy. A fully programmable wireless remote control includes memory selection, phrase capability, and indexing for maximum convenience.

Our unique transport design incorporates ONKYO's exclusive Poly-Sorb, a rubber-like compound that improves isolation by absorbing extraneous vibrations, eliminating skipping and mistracking.

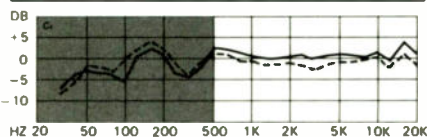
The Integra DX-320 Compact Disc player fulfills the promise of digital audio, with sound quality that's as close to the original as anything you've ever heard. Audition the DX-320 at your authorized ONKYO dealer today.

Artistry In Sound

ONKYO

200 Williams Drive, Ramsey, N.J. 07446

ROOM RESPONSE CHARACTERISTICS



—	boundary-dependent region
- - -	on-axis response
· · ·	off-axis (30°) response
SENSITIVITY (at 1 meter; 2.8-volt pink noise) 86 dB SPL	
AVERAGE IMPEDANCE (250 Hz to 6 kHz) 7.1 ohms	

315 Hz), a peak (at 170 Hz), another minor dip (at 80 Hz), and a rolloff below 50 Hz. This response is what we would have expected from the speaker's perceived frequency balance (as opposed to its imaging characteristics). At times it sounded just a tad too bright, but it was a very-high-frequency brightness easily tamed with a tone control, not the kind of harsh, spotlight forwardness of a rough or peaked response in the lower treble. At other times the brightness translated into a slight lack of upper-bass body, an effect abetted by the 315-Hz dip. That the speaker was nonetheless perfectly capable of delivering the lows when necessary was ably demonstrated by pipe organ recordings containing deep bass tones.

The only potential difficulty we found with the Snell C-i is its voracious appetite for power; this speaker practically demands a hefty amplifier. We'd recommend a unit capable of at least 20 dBW (100 watts) per channel to obtain sound levels above 100 dB SPL (sound pressure level). One of our listening-room amplifiers with that rating was sent into clipping by rock recordings played at what we thought were loud but not unreasonable levels. The speakers can evidently take quite a bit of power, since they with-

stood the 64-volt peak-to-peak maximum output of the lab's amplifier (equivalent to 27 dBW, or 500 watts, into 8 ohms) and produced a calculated 113 dB SPL. As an amplifier load, the speaker should be easy to drive since the impedance response is just about as flat as the frequency response. It varies by only ± 2.7 ohms from 250 Hz to 20 kHz. The only excursions outside that range are a dip to 3.8 ohms at 150 Hz and a rise to 15.1 ohms at 20 Hz.

Distortion was fairly well controlled, though at 50 and 80 Hz the distortion started out a little higher than normal (1.7 and 1 percent, respectively, at 85 dB SPL) and increased along with the applied power, reaching 5.17 and 4.87 percent at 100 dB SPL. Above 100 Hz, distortion averaged less than 0.3 percent at 85 dB SPL, rising to 0.75 percent at 100 dB SPL. None of this distortion, high- or low-frequency, was ever audible as such.

It certainly did nothing to diminish the pleasure afforded by the C-i's unboxy look and emphatically spacious, well-balanced, and unboxy sound. With products such as the Type C-i, we wish that Snell would try to keep a more visible profile—like that of the speaker itself. ■

T E S T R E P O R T S

American Acoustics D-8500 Loudspeaker



DIMENSIONS: 18 1/2 BY 30 1/2 INCHES (FRONT), 14 1/2 INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. PRICE: \$900 PER PAIR. WARRANTY: "LIMITED," TEN YEARS PARTS AND LABOR. MANUFACTURER: AMERICAN ACOUSTICS, 1 MITEK PLAZA, WINSLOW, ILL. 61089.

EVERY ONCE IN A WHILE, EQUIPMENT REVIEWING (any kind of reviewing, we guess) forces the critic to confront his prejudices—which is exactly what happened to us when we first set up the American Acoustics D-8500 loudspeakers for our listening sessions. Usually, designers of speakers with oversize woofers (like the polypropylene 15-incher in the D-8500) feel obliged to demonstrate in no uncertain terms that the buyer is getting something for his money. The result is a boomy, overblown low end: big woofer, big bass. So we were pleasantly surprised to discover that American Acoustics has resisted that temptation entirely. In this speaker, the big cone is used the way it should be, to obtain low distortion at high levels all the way down into the deep bass.

This ties in with the primary goal Ameri-

can Acoustics set for its Digital Series speakers: accurate reproduction at both very high and very low levels, to cope with the extraordinary dynamic range available on the best Compact Discs. In the D-8500 (the only model to use the 15-inch woofer), middle and high frequencies are handled by a 5-inch polypropylene-cone midrange driver and a 1-inch soft-dome tweeter arrayed vertically in the middle of the vented, floorstanding enclosure's front baffle. American Acoustics says the crossovers between drivers are achieved with second-order (12-dB-per-octave) filters at 700 Hz and 5 kHz. The speaker's walnut finish is set off by a dark brown cloth grille stretched over a removable plastic frame with beveled edges to minimize diffraction. Amplifier connections are made to color-coded spring clips near the bottom of the back panel.

The data supplied by Diversified Science Laboratories demonstrate the advantage of the big woofer. Even at our highest test level (100 dB SPL), total harmonic distortion (THD) is less than 1 percent between 250

and 40 Hz. Performance is similar through most of the rest of the range as well, but there is a marked rise in distortion in the lower midrange, around 400 Hz, where it jumps up to more than 10 percent. This peak is apparent at lower drive levels, too, but is less pronounced, just barely reaching 2 percent at 85 dB SPL., compared with 1/2 percent or less over the rest of the band at this volume. DSL's plot of the midrange driver's near-field response indicates that it is essentially flat down to 400 Hz, despite the nominal 700-Hz crossover between it and the woofer. This suggests that the nonlinearity may be caused by the small cone having to make large excursions at the bottom of its range. Since musical energy is distributed over the audio band, we would expect distortion to be lower in practice, and we were not aware of it in our listening.

The system's wide dynamic range is further confirmed by its high measured sensitivity and its excellent performance on our 300-Hz pulse power-handling test, in which it accepted without distress the full output of the lab's amplifier, equivalent to 27 dBW (496 watts) peak into 8 ohms, for a calculated sound pressure level of 121 1/4 dB. We also were pleased to note the evenness of the D-8500's impedance plot. The maximum impedance is 11.9 ohms at 58 Hz (the bass resonance frequency), and the minimum is 5 ohms at 25 Hz and 80 Hz. For the most part, however, the curve stays between 5 and 7 ohms. This should make the speaker a very easy load to drive, though some amplifiers

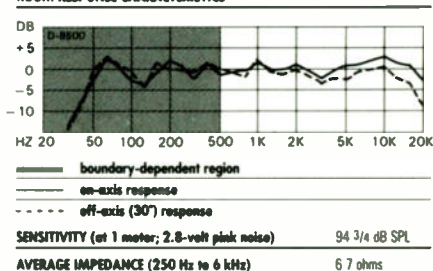
might balk at running a pair of D-8500s in parallel with another set of loudspeakers.

DSL took its third-octave room-corrected response measurements with the speaker a few inches from the wall behind it and well away from other walls. The results are impressive. The on-axis curve is within +3, -4 dB from below 50 Hz to 20 kHz, and the off-axis curve is within the same limits out to about 17 kHz. We were particularly struck by how similar the two plots are, except at the very top, where the tweeter's increasing directivity causes some rolloff in the off-axis response.

The D-8500 sounds much as the response measurements would lead you to anticipate. We noted little coloration and none of the boominess we had initially expected. Low-frequency reproduction is in fact quite smooth and tight and extends well into the deep bass (if not to the subterranean depths achieved by some larger speakers). We sometimes heard a touch of brightness or roughness in the treble, perhaps occasioned by the slight response bump in that region, but it was neither pronounced nor always in evidence. Imaging is very good overall, though somewhat better laterally than front to back.

In short, this is a good speaker that is especially suitable for those who want to be able to play their music loud without coloration or distortion and without having to buy a huge amplifier. If you're in that category, you certainly should give the D-8500 a serious listen. ■

ROOM RESPONSE CHARACTERISTICS



T E S T R E P O R T S

Acoustic Research MGC-1 Loudspeaker

DIMENSIONS: 26 1/4" BY 32 INCHES (FRONT), 16 1/4" INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS; **CONTROL ELECTRONICS:** 17 BY 4 INCHES (FRONT), 12 INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. **PRICE:** \$3,600 PER PAIR. **WARRANTY:** "FULL," FIVE YEARS PARTS AND LABOR. **MANUFACTURER:** ACOUSTIC RESEARCH, 330 TURNPIKE ST., CANTON, MASS. 02021.

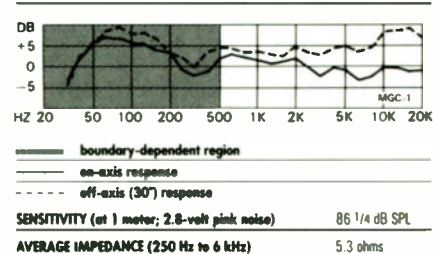
MOST OF TODAY'S COMPONENT AUDIO equipment is pretty good—certainly much better than what was available 20 or even ten years ago. Even loudspeakers, which constitute the most-difficult-to-perfect link in the chain, are capable of reproducing what's fed to them with passable accuracy nowadays. And yet, you won't often find yourself being fooled into thinking that you're hearing live music, no matter how good your system is.

There are a variety of reasons for this ultimate failure of realism, but the most conspicuous of them is that a two-channel recording, no matter how good it is, cannot provide enough information to reconstruct the sound of a live acoustical event when played back over a simple pair of loudspeakers. Another major difficulty is the room, which imposes its own sound on top of that in the recording (see "Room to Improve," page 59). And a third is the problem of making a good recording (a knotty complex of problems, really).

When we first heard about Acoustic Research's "Magic Speaker," we were very excited, because more than any other loudspeaker we knew of, it seemed to address the remaining obstacles to the creation of a truly

All data shown here were taken with the ambient speakers turned off.

ROOM RESPONSE CHARACTERISTICS





SEE RADAR IN A NEW LIGHT.



Green LED - There's radar in the area.



Yellow LED - Radar is near. Proceed with caution.



Red LED - You are in clocking range.

FOX TAKES RADAR OUT OF THE DARK WITH THE SUPERFOX VIXEN II.

Now you can see much more than red when you look at a radar detector.

When you look at the Vixen II LED, you'll see just how close you really are to radar.

Green tells you there's radar in the area.

Yellow warns you that you are much closer and should proceed with caution.

And red is the range that's accompanied by one continuous audio alarm.

It combines both sight and sound into the most advanced alert system in radar today. No

tiny numbered meters to read. No bouncing needles. No more guessing.

WHAT ROAD & TRACK SAW, IT "HIGHLY RECOMMENDED."

ROAD & TRACK Magazine's April '85 issue looked at the 10 most widely distributed radar detectors. They tested for overall Sensitivity, Sensitivity Around A Corner, Sensitivity Cresting A Hill, the Maximum Audible signal, and Leakage and Leakage Reception (picking up non-radar signals as radar). It was a tough road test that not everyone passed and that only a few were considered good enough to be "highly recommended" by the editors of ROAD & TRACK.

The SuperFox Vixen II was one of the few.

WE'RE AS SENSITIVE TO RADAR AS YOU ARE.

Fox has been pioneering the research and development of radar detectors for almost a decade. The Vixen II incorporates the most advanced technology in radar today, both in finding radar and in communicating its findings to the driver.

A dual conversion super-heterodyne receiver gives the Vixen II many times the range of any radar signal. No matter what the band, pulse or continuous. What's more, the Vixen II goes beyond line of sight range. It can see around corners and over hills to pick out weak reflected signals.

CITY, HIGHWAY, OR PRESET.

The Vixen II is sensitive to all your driving needs. So we offer you a choice of City/Highway or Preset.

For most driving, a special "Preset" position will yield the best results. Around town, you may want to turn the squelch control to "City," to eliminate annoying false alarms from non-microwave signals, for example.

On the open road, turn it to "Highway." Or choose any point in-between. With the Vixen II, you're in control.

IT'S LIGHT ON VISORS, TOO.

Our sensitivity even extends to installation. The mounting system of the Vixen II adapts to any size or shape dash. Or if you prefer, clips quickly to any visor.

When you reach your destination, you can simply unplug the cord and put your Vixen II safely away.

A VIXEN II IS AS NEAR AS YOUR PHONE.

Call toll free to order a Vixen II for \$249.95,* or to get the name of your nearest Fox dealer. Call 1-800-543-7892. In Ohio, 1-800-621-2513; in Canada, 1-800-663-0295.



FOX MARKETING, INC.

believable illusion of sonic reality in the home. Of course, a loudspeaker can't do much about the inherent quality of a recording, but it can strive to make the most of what's there.

To do that, the MGC-1 makes two basic departures from conventional practice. One is evident when you pull off the grille. The midrange and high-frequency drivers are set back from the front of the speaker and surrounded by blocks of foam. The foam, together with the design of the main driver array, restricts the speaker's primary radiation pattern at middle and high frequencies so as to minimize interfering reflections from room surfaces, such as the walls, floor, and ceiling. This ensures that the listener receives a very "clean" first-arrival sound from the speaker, which is critical to establishing accurate tonal balance and image localization. It also prevents cabinet-induced reflections and diffraction that can blur the sound.

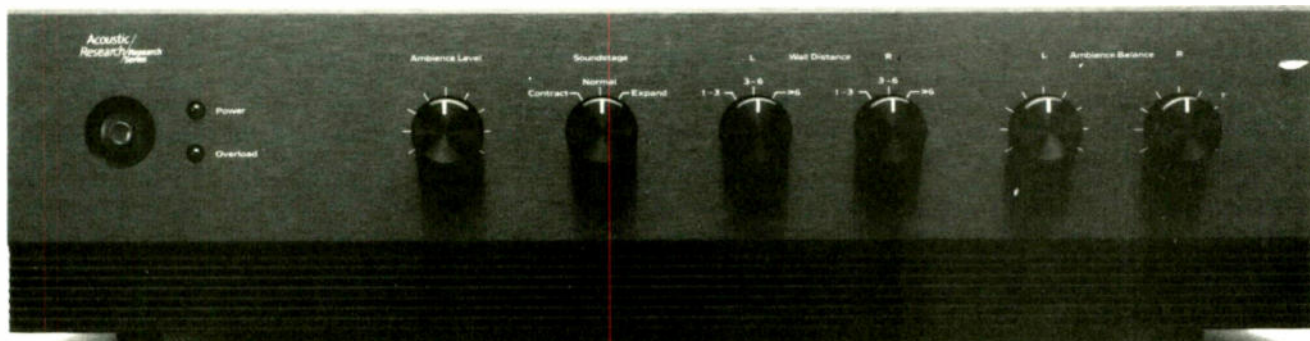
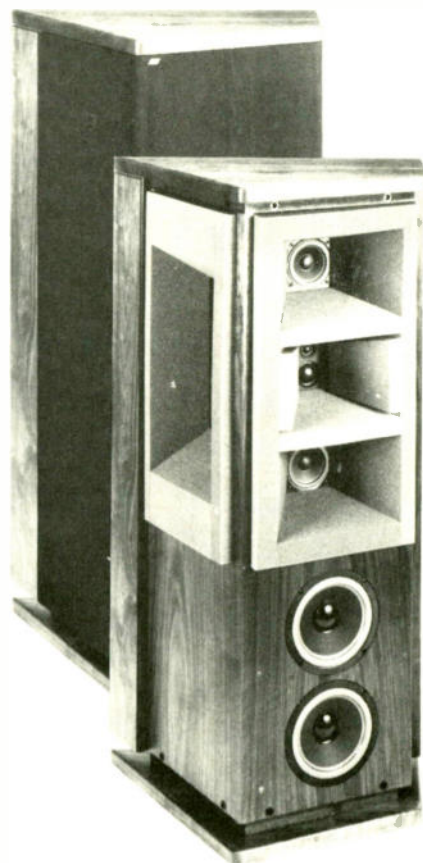
The other major difference between the MGC-1 and other speakers is evident when you look around to the side and see a second set of drivers—a 6-inch cone in an acoustic suspension subenclosure and a 1-inch dome tweeter, with a crossover at 3.5 kHz—also surrounded by foam and directed at an angle toward the wall. These are not fed the same signal as the main drivers. Instead, they are driven by 100-watt (20-dBW) amplifiers in a special control box that rolls off the signal below 450 Hz and above 5 kHz and delays it by as much as 20 milliseconds.

The function of this part of the system is to create a realistic sense of space and ambience without degrading the quality of the first-arrival sound from the main driver array. The high-frequency rolloff prevents the delayed sound from betraying itself as a discrete echo, while the one at the bottom prevents interference with the output from the main system at frequencies too low for the foam to provide effective attenuation. Thus, the bass, which is essentially omnidirectional anyway, is handled exclusively by the main system's two 8-inch acoustic suspension woofers below 200 Hz and by its two 4-inch lower-midrange drivers above. (At 1.1 kHz, the signal is crossed over to one of Acoustic Research's dual-dome midrange/tweeter

modules, which uses a 1½-inch dome to handle frequencies between 1.1 and 5.3 kHz and a ¾-inch dome to reproduce the top two octaves; the two drivers share a single magnet structure so that they can be squeezed close enough together to prevent interference between their outputs in the crossover region.)

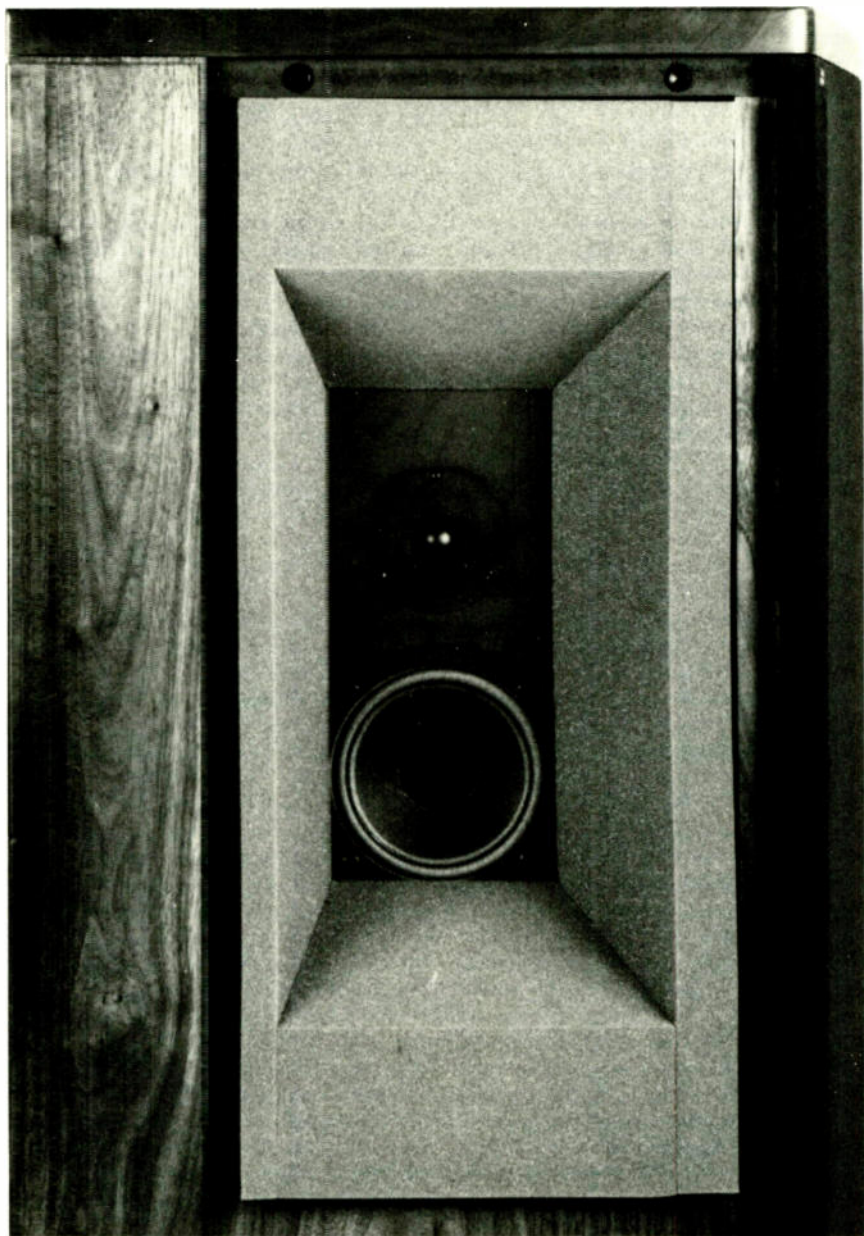
The angle at which the side drivers fire is precisely calculated to maximize the difference between the signals arriving at the listener's two ears (in technical jargon, to minimize the interaural crosscorrelation). This is based on psychoacoustic studies that have shown this is what people prefer to hear. (The main drivers are angled into the listening area.) Similarly, the 20-millisecond delay corresponds to the most desirable timing for the arrival of the first reflections at the listener's ears. Since the sound from the ambience array bounces off a side wall before reaching the listener, the delay is partly a function of the distance of the speaker from the wall. For this reason, the amount of electronic delay added to the signal is independently adjustable for each channel at the control box. In fact, the controls are calibrated in terms of the wall distance, making the adjustment for optimum delay relatively straightforward.

Other controls on the box include a master volume control for the ambience channels, a pair of individual level controls for adjusting their balance, and a control for adjusting the image width. The setting of this last determines whether the signal sent to the ambience speakers is derived from the regular stereo signal, a mono sum of the two channels (L+R), or the stereo difference signal (L-R). There also is a processor loop that you can use to put an equalizer into the ambience chain—or Acoustic Research's SRC-1 remote control unit (test report, January 1984). Or you could put in both. With the SRC-1 in the loop, it's very easy to adjust the level and balance of the ambience speakers from your listening position, which is a real advantage. And with an equalizer there, you can adjust the response of the ambience speakers to compensate for acoustical anomalies in the listening room without messing up the first-arrival sound from the



OUTPUT OF THE MGC-1'S SIDE-FIRING AMBIENCE DRIVERS IS CONTROLLED FROM THIS BOX OF ELECTRONICS, WHICH INCLUDES DELAY LINES, FILTERS, AND POWER AMPLIFIERS. LEVEL AND DELAY TIME CAN BE ADJUSTED FOR EACH CHANNEL INDIVIDUALLY. THE CONTROLLER CONNECTS TO THE SPEAKERS WITH A SPECIAL SET OF CABLES; NO CONNECTION TO YOUR PREAMP OR RECEIVER IS NECESSARY.

THE MGC-1'S AMBIENCE OUTPUT IS DELIVERED BY A 6-INCH ACOUSTIC SUSPENSION WOOFER AND A 1-INCH DOME TWEETER, WITH A CROSS-OVER AT 3.5 kHz. FOAM AROUND THE DRIVERS RESTRICTS THEIR RADIATION PATTERN TO PREVENT INTERFERENCE WITH THE MAIN OUTPUT FROM THE FRONT DRIVER ARRAY.



main array—a feat impossible with any other loudspeaker. The controller is designed to pick its signal off the output from your power amplifier, which feeds the main speaker array directly.

Testing any kind of loudspeaker is difficult, but a novel design like the MGC-1 presents special problems. We elected to perform our basic measurements on the main array alone. (It would be very difficult to interpret the results of some of our standard tests with both arrays operating, and some of them might not make much sense.) With an MGC-1 in its recommended position, backed up against the wall behind it, the third-octave response is quite smooth both on- and off-axis. But because of the way the cabinet is built, the "off-axis" measurement position is actually on (or almost on) the main axis of the primary driver array, whereas the position that is on the cabinet axis is

off the driver axis. Thus, the on-axis curve rolls off at the top relative to the off-axis plot—the reverse of the customary arrangement. And because of the foam, which is designed to make the speaker fairly directive at high frequencies, the difference between the two curves is more marked than usual.

In our 300-Hz pulse power-handling test, the MGC-1 took the full output of Diversified Science Laboratories' amplifier, equivalent to $26\frac{1}{2}$ dBW (450 watts), delivering a calculated peak SPL (sound pressure level) of $112\frac{3}{4}$ dB. The distortion figures also indicate excellent power handling. They are, in fact, remarkably low for a loudspeaker, averaging well under $\frac{1}{2}$ percent over virtually the entire measurement range at moderate levels (90 dB SPL or less), and except at very high and very low frequencies, they seldom break 1 percent even at our highest test level (100 dB SPL).

Sensitivity is on the low side, though it is important to remember that the contribution of the side drivers (which are driven by their own dedicated amp) will make the speaker's effective sensitivity higher than the number recorded in our data column would suggest. Nonetheless, we found in our listening that the speakers required quite a bit of power, and we would recommend the use of a hefty amp. This is despite the relatively low overall impedance, which ranges from a minimum of 3.2 ohms at 130 Hz to a high of 8.9 ohms at 800 Hz. We would not expect most amps to have any trouble driving the MGC-1 (though a few with particularly low current capability might not perform up to snuff), but it probably would not be wise to run a pair in parallel with another set of the speakers.

These speakers are a wonder to hear. With the ambience drivers off, they have a

very clean, dry, analytical sound with razor-sharp imaging—much like what you might hear from a good electrostatic, only with better bass and greater dynamic range. And turning the side speakers on does nothing to detract from these qualities. (In fact, one interesting by-product is that the stereo image becomes stable over an extremely wide listening area.) It opens the sound up, giving it depth and body without obscuring detail or confusing the image the way conventional multidirectional loudspeakers sometimes can. With a good recording, the sense of spatial realism can be startlingly good.

The sound also is impressively smooth and uncolored. We sometimes noted a tendency for the low end to stand out a little,

blending not quite perfectly with the rest of the range, but not to a disturbing degree. And we are a little surprised that Acoustic Research did not take the bottom end lower in a speaker of this size and price. Again, this is nothing to get worked up about (very little music has any content below 50 Hz, where the MGC-1 is still going strong), but the speaker's otherwise exceptional performance is just average here.

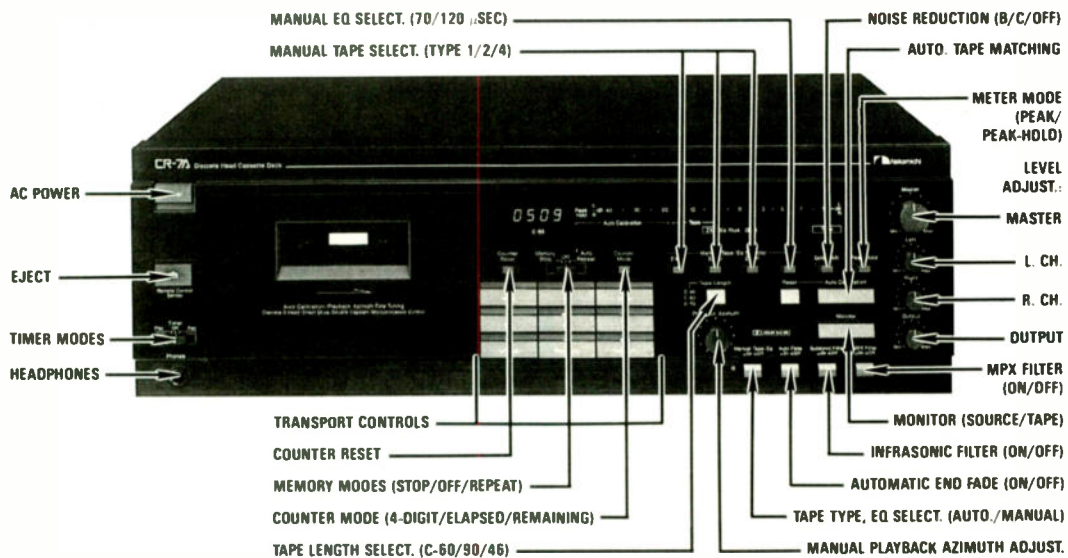
It is interesting to play with the image-width control. For most recordings, the regular stereo setting seems to work best. But the mono setting can be used to close the image up a little when that seems desirable (as it might, for example, on some video soundtracks, to maintain congruity of the audible

and visible images), and the L-R position can yield anything from enhanced spaciousness on well-made acoustic recordings to rather spectacular, spaced-out effects on souped-up pop recordings. If nothing else, it will convince you that this is no ordinary speaker.

We rank the MGC-1 among the world's great loudspeakers, both for its superb sound and for the important design innovations it embodies. Our big hope now is that Acoustic Research can achieve similar results for less money. Meanwhile, even if you can't afford a pair, you should make an effort to hear the MGC-1. It is in that small handful of loudspeakers that demand to be heard, if only as a lesson in what is possible. ■

T E S T R E P O R T S

Nakamichi CR-7A Cassette Deck



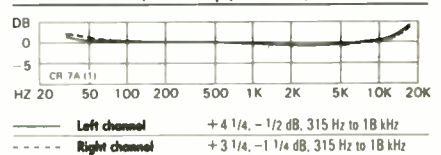
DIMENSIONS: 17 1/4 BY 5 1/4 INCHES (FRONT), 12 INCHES DEEP PLUS CLEARANCE FOR CONTROLS AND CONNECTIONS. PRICE: \$1,350, INCLUDING WIRELESS REMOTE CONTROL. WARRANTY: "LIMITED," ONE-YEAR PARTS AND LABOR. MANUFACTURER: NAKAMICHI CORP., JAPAN; U.S. DISTRIBUTOR: NAKAMICHI U.S.A. CORP., 19701 S. VERMONT AVE., TORRANCE, CALIF. 90502.

NAKAMICHI MADE ITS REPUTATION ON THE radical departures it has so often built into its equipment, and many of its innovations have gone on to become industry standards. But even the boldest innovators come to moments when it's time to stop and consolidate—to take stock, as it were. This

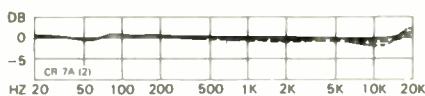
seems to be such a period in Nakamichi's history, and the CR-7A is a sort of apotheosis of the company's cassette deck technology.

It does not, however, incorporate every feature and idea that has ever appeared on a Nakamichi deck. Part of the stock-taking evidently has been a cool appraisal of past features for their absolute and relative utility in a home tape machine. And while some recordists may regret the inclusion or omission of some specific items, we think that the complement Nakamichi has chosen is exceedingly well thought out—particularly in light of the deck's price, which, though sub-

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

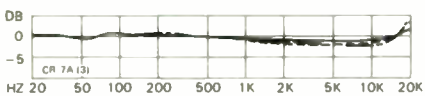


RECORD/PLAY RESPONSE, TYPE 2 TAPE (-20 dB)



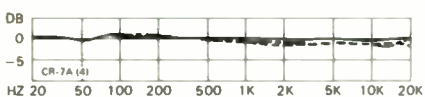
Left channel (no NR)	± 1 dB, 20 Hz to 20 kHz
Right channel:	
— no NR	± 3/4 dB, 20 Hz to 20 kHz
- - - - - Dolby B	+ 3/4, -1 1/2 dB, 20 Hz to 20 kHz
- - - - - Dolby C	+ 1 3/4, -2 1/4 dB, 20 Hz to 20 kHz

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



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

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



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

stantial, is not astronomical.

The most unusual of the features it does encompass is a control for manual adjustment of playback-head azimuth (perpendicularity of the magnetic gap to the tape path) that can be operated either at the deck itself or from the supplied RM-7C wireless remote control. Azimuth tuning is aided by a special display mode that automatically replaces the recording-level display as soon as you begin adjustment. As usual in all but its least expensive models, Nakamichi lets you choose the "wrong" bias or equalization for special purposes, but the CR-7A gives you the option of totally automatic tape-type selection as well. And the Auto Calibration system, as Nakamichi calls it, can be used to automatically fine-tune recording sensitivity and bias for individual tapes.

Then there are three fader options: manual (at the master level control), automatic on manual cue (in either four or two seconds between level extremes, depending on whether you tap or press the controls), and an entirely automatic fade-out at the tape end when you've set the deck and its real-time counter appropriately. In addition, the CR-7A has an output level control (a necessity if you're to use the headphone jack), a repeat and automatic-stop feature, the all but obligatory timer functions, a three-mode tape counter (hub turns, elapsed time, or remaining time, even during fast winds), and a two-mode level display (peak or peak-hold).

Let's begin with the azimuth control. For truly fine playback, this is an important capability, because the transport speed for cassette tapes is so slow that recorded wavelengths are microscopically small at high frequencies. One cycle of a 20-kHz tone, for example, occupies only about 0.0001 inch (0.1 mil) along the tape. That means that

one end of the playback gap need be displaced, relative to the position of the other end on the recorded signal, by only half that—0.05 mil, or approximately the width of the head gap itself—for the magnetic flux at the two ends of the gap to be, in effect, 180 degrees out of phase and thus cancel each other's contribution to the playback head's output.

Even if all heads were "perfectly" aligned, tape skew could still alter the effective azimuth between recording and playback heads and do so in different ways for different cassettes. If that were all, however, even fairly fussy users might be able to accept the treble loss caused by an occasional azimuth mismatch. But some apparent disagreement lingers about what constitutes perfect azimuth, and there has been considerable disagreement on this point between test tapes—and, therefore, between the decks adjusted with the help of those tapes. So, particularly if you have a cassette collection that goes back some years, optimum playback may demand azimuth readjustment in some cases.

The audibility of a mismatch depends on the high-frequency content of the tape, as you quickly discover in working with the CR-7A's adjustment. If the program contains little above 6 or 7 kHz, you may notice no difference at all; conversely, tapes full of aural glitter may change from vivid and alive to relatively dull and "canned" as you move away from ideal azimuth match, particularly with noise reduction, which tends to emphasize the disparity.

You may find (as we did in working on this report) that some prerecorded tapes sound better with the azimuth deliberately misaligned to some extent. Our guess is that the producers of these recordings sought to compensate for possible azimuth disparities by equalizing in a treble peak. With the CR-7A adjusted for maximum high-frequency output, these tapes therefore sound rather harsh and edgy. If so, you can note the preferred position of the adjustment knob and preset it accordingly on future playback.

The control's rotation is marked off by dots at 30-degree intervals, but no numerical calibration is supplied. When you make the adjustment with the remote, the knob remains fixed. Replacing the tape in the transport automatically recalibrates the azimuth to the knob setting. The remote also provides the standard transport functions: play, record, stop, pause, fast forward, and rewind. (When used with Nakamichi's CA-7 preamplifier, the CR-7A can be operated from a system remote control, but in that case you must make azimuth adjustments at the deck.)

With either front-panel or remote azimuth control, any adjustment converts the left-channel portion of the level meter into an alignment guide. A central pointer, just above the display, represents the midpoint in the adjustment range; the lit display element farthest to the right represents the

THE CR-7A'S REMOTE HANDSET PROVIDES CONTROLS FOR ALL BASIC FUNCTIONS, INCLUDING PLAYBACK AZIMUTH ADJUSTMENT



playback head gap's position within that range. As you make the adjustment (by ear), the row of lit elements—which, unlike the knob, can be seen from across the room—grows or shrinks in response, showing you where you are within the available range.

Applied to its normal tasks, the metering is simple and clear, with 24 elements in each channel, representing levels marked from -40 to +10 dB. The indicators light in 1-dB steps between about +3 and +7, which corresponds to the range extending about 2 dB on either side of DIN 0 dB—the range of impending overload for typical tapes in most decks. For most purposes, we preferred the regular peak display mode, which keeps the highest cursor lit long enough for quick assessment. The peak-hold mode, which itself retains maxima for only about 2 seconds, can be useful when you don't want to keep your eyes glued to the display for long periods of time.

Recording headroom is outstanding, with midrange distortion remaining below 3 percent to levels near the top of the scale (Type 2 tape), at the top (Type 1), or beyond it—apparently by about 5 dB (Type 4). In the last test, with metal tape, the CR-7A is one of only four decks we have ever evaluated to make it into the +8-dB DIN range—and two of the remaining models also were Nakamichis. We normally consider +6 dB DIN for 3-percent distortion outstanding performance. The results are partly tape-dependent, however: For instance, we've never encountered this much headroom with other than metal tapes, though in some decks metal offers no significant additional midrange headroom.

The CR-7A's capability in this respect suggests that the deck's metering should be extended upward, at least for Type 4 tape, to facilitate maximum exploitation of the available dynamic range. On the other hand, if you were to make full use of that midrange headroom (and even if the program material didn't suffer compression in the highs), the recorded signal might prove too extreme for clean playback on lesser decks. In any event, the way the meters are calibrated requires running peaks to near or beyond its upper end (+10 dB) to take complete advantage of today's premium tapes—the only kind it makes any sense to use with a deck of this quality.

The specific brands used by Diversified Science Laboratories to measure the deck were all Nakamichi's own: SX ferricobalt for the chrome-compatible Type 2, ZX for the metal Type 4, and EX-II for the ferric Type 1. The initial step in each case was use of the Auto Calibration system. It shuts off the monitoring and noise reduction, fast-winds a short distance (to get away from the leader, if you're at the start of the tape), and begins recording and analyzing (via the playback head) a series of test tones.

First it optimizes playback azimuth. Then it adjusts sensitivity and bias, repeating this control loop so that any change in sensitivity

due to a change in bias is reflected in the final settings. If it cannot achieve satisfactory results at any stage (which could be because of a substandard cassette or your having manually set the wrong tape type before the process began), it will stop and flash its indicators at you. Otherwise, it rewinds to the starting point, restores monitoring and noise reduction, puts the deck into recording-pause, and stores the bias and sensitivity settings in memory. A separate memory for each of the three tape types is preserved even through power outages by a lithium battery with a life expectancy of seven years (Nakamichi's figure—we didn't test it that long).

The lab also performed the azimuth adjustment procedure, though results in both the record/play and playback response tests suggest excellent performance even with this control left at its midpoint. In particular, the high-frequency output is so stable and so extended that some misadjustment here looks like spot-on behavior for most other decks. And with the azimuth optimized to the BASF playback test tape, the curve rises somewhat at the top. To what extent this bump is attributable to the deck or to the tape is at least partially moot. Nakamichi and BASF have traditionally taken different views of how to implement the IEC standards with respect to the gap loss that is inherent in any playback head. Gap-loss compensation is unavoidable if response is to be flat; here it looks as though some is being supplied by both tape and deck, pushing the high end up slightly.

The record/play curves made with the Type 1 tape are exceptionally flat, and the others, though less so, are nonetheless excellent by any standard. There is some evidence of underbiasing—a hair more high-frequency recording EQ and a bit less bias probably would smooth both the slight sags in the 10-kHz region and the tendency to peak toward the top of the band—but it is noticeable only within the context of the curves' overall superiority relative to those obtained from most other available decks. High-frequency compression, as assessed at 0 and -10 dB, also shows up least with the Type 1 tape and most with Type 2, as frequently is the case. Nowhere can it be called worse than moderate.

The CR-7A gives you unusual control over headroom because of its manually switchable EQ. Once the Auto Calibration system has been used (and with the automatic type-type matching defeated), you can switch away from the mandated EQ. The instruction book (which is outstanding by most standards, though it has more rough edges than usual for Nakamichi) explains how—and when—to use this option to increase high-frequency headroom at some expense in noise with tape normally employing 70-microsecond EQ or, conversely, to reduce noise with "120-microsecond" ferrics.

Another unusual feature is the infrasonic

MULTIPLEX FILTER (defeatable)			
-12 dB at 15 kHz; -31 dB at 19 kHz			
INFRASONIC FILTER (defeatable; see text)			
-3 dB at 19 Hz; -39 1/2 dB (max.) at 10 Hz			
S/N RATIO (re DIN 0 dB; R/P; A-weighted)			
	Type 2 tape	Type 4 tape	Type 1 tape
no NR	56 1/4 dB	55 1/4 dB	52 1/4 dB
Dolby B	65 1/4 dB	64 3/4 dB	62 dB
Dolby C	71 1/2 dB	70 3/4 dB	68 dB
INDICATOR READINGS FOR DIN 0 dB (315 Hz)			
Type 2 tape	+5 dB (with 1.20% THD)		
Type 4 tape	+5 dB (with 0.47% THD)		
Type 1 tape	+5 dB (with 0.60% THD)		
INDICATOR READINGS FOR 3% DISTORTION (315 Hz)			
Type 2 tape	+10 dB (for +3 dB DIN)		
Type 4 tape	> +10 dB (for +8 dB DIN)		
Type 1 tape	> +10 dB (for +4 3/4 dB DIN)		
DISTORTION (THD at -10 dB DIN; 50 Hz to 5 kHz)			
Type 2 tape	≤ 0.74%		
Type 4 tape	≤ 0.34%		
Type 1 tape	≤ 0.48%		
ERASURE (at 100 Hz)	≥ 72 1/2 dB		
CHANNEL SEPARATION (at 315 Hz)	45 dB		
INDICATOR "BALLISTICS"			
Response time	6.0 msec		
Decay time (peak hold off)	≈ 900 msec		
Peak hold time	≈ 2 sec		
Overshoot	0 dB		
SPEED ACCURACY (105 to 127 VAC)	0.5% fast		
FLUTTER (ANSI weighted peak; R/P)	± 0.078%		
SENSITIVITY (re DIN 0 dB; 315 Hz)	86 mV		
INPUT OVERLOAD (at 1 kHz)	> 10 volts		
INPUT IMPEDANCE	89k ohms		
OUTPUT IMPEDANCE	2.160 ohms		
MAXIMUM OUTPUT (from DIN 0 dB)	1.53 volts		

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 ferricobalts 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.

filter, which Nakamichi recommends you use in recording from LPs, to keep out unwanted "subrumble," so to speak. It is a notch filter, however, rather than the usual high-pass sort. Maximum effect is at 10 Hz, where it attenuates the input by almost 40 dB; at 5 Hz, in the heart of warp territory, attenuation is only 10¼ dB. The designer evidently assumed that your preamp or receiver already will have some infrasonic (high-pass) filtering that will control the lower

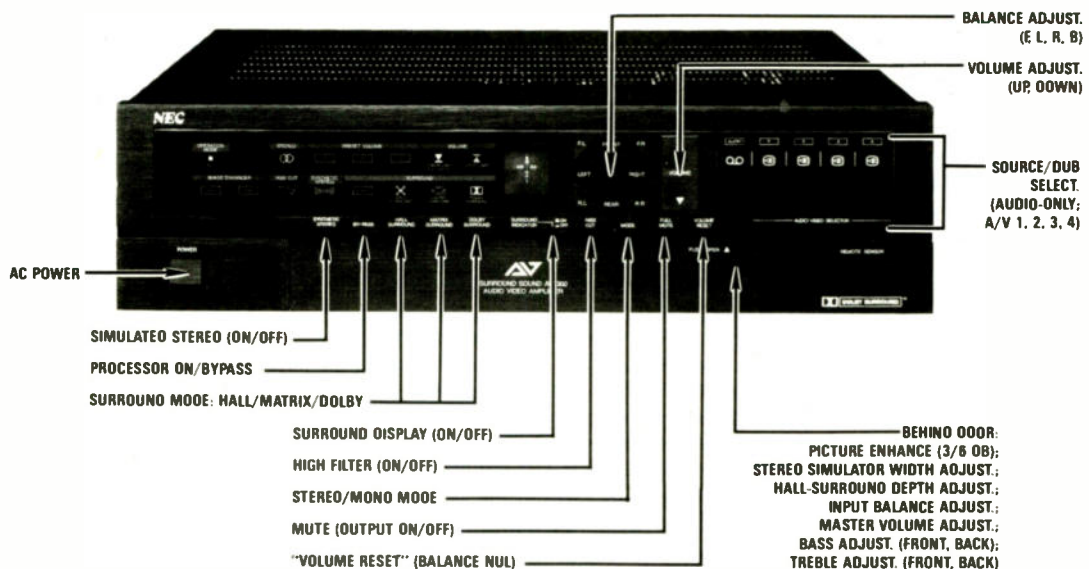
range; the notch characteristic permits the CR-7A to leave response in the audio band essentially flat while rolling it off very steeply below 20 Hz.

As has been the case with so many of Nakamichi's cassette decks, the only word for the CR-7A is "superb." The quality of Nakamichi's Asymmetrical Diffused-Resonance closed-loop (dual-capstan) drive system is well established. In the CR-7A, even the control scheme is admirable, if complex;

gone is the long row of poorly differentiated buttons that, on some models, has made it all too easy to push the wrong one. We have the feeling in working with the CR-7A that, once again, it is the creation of designers who love tape and recording as much as we do. But be warned: Once you've grown accustomed to having the azimuth adjustment at your disposal and realized how much you might be losing without it, you may never again feel satisfied with anything less. ■

T E S T R E P O R T S

NEC AV-300 Surround-Sound Decoder/Amplifier



DIMENSIONS: 17 BY 4¼ INCHES (FRONT), 13¼ INCHES DEEP PLUS CLEARANCE FOR CONNECTIONS. **PRICE:** \$499. **WARRANTY:** "LIMITED," TWO YEARS PARTS AND LABOR. **MANUFACTURER:** NEC CORP., JAPAN. **U.S. DISTRIBUTOR:** NEC HOME ELECTRONICS (U.S.A.), INC., 1401 W. ESTES AVE., ELK GROVE VILLAGE, ILL. 60007.

EVERY SO OFTEN, WE COME ACROSS A PRODUCT that offers so many features and options, it's hard to imagine how one could possibly take advantage of all of them, at least from day one. But if the price isn't totally out-of-line for the features you *will* use, that should not be a drawback. NEC's AV-300 surround-sound audio-video amplifier is just such a product, and though we can't say there's nothing we would have done differently if we had designed it ourselves, we are, on the whole, mightily impressed with how well conceived it is.

To start with, it's a four-input audio-video switcher with two-way tape dubbing between VCRs connected to Inputs 1 and 2 and dubbing onto both from sources attached to Inputs 3 and 4. The AV-300's two monitor-output jacks let you route the selected program to two sets simultaneously. A fifth, audio-only input enables you to listen to a Compact Disc player, cassette deck, or other source and to record from it onto one or both of the decks connected to Inputs 1 and 2, thus replacing the soundtrack of the video program you're recording with a new one. And if you've used the audio input for a cassette deck, you'll be able to record on it from the audio-output jacks that are provided. Alternatively, the audio loop can be used to hook up an equalizer or other signal processor, which will be in the circuit whenever

you press the input's front-panel selector button.

Next, the AV-300 is a four-channel audio amplifier with independent bass and treble controls for the front and back speakers, volume and input balance controls, a master volume control that raises and lowers the level of all four channels simultaneously, and a "Joy Plate," which serves as a sort of quadriphonic "balance" control. Pressing the top of the plate raises the level of the front channels, and pressing the bottom raises that of the rear ones; touching the right edge raises the level of the right-channel speakers, front and back, and pressure on the left edge does the same for the left pair of speakers. Unlike a normal balance control, the Joy Plate boosts signal levels in the desired channels rather than lowering

The Boston Acoustics tapered grille panel.

You don't have to take it off

before you turn the music on.

Ordinary panel



Boston Acoustics tapered panel

You may have noticed that most speakers sound their best only if their grille panels are removed. That's because a portion of their sound diffracts off the thick inner edges of the panels, reaching your ear later than the direct sound. Some audio frequencies are reinforced and others canceled, distorting frequency response. The diffracted, delayed sound also smears the time cues essential to accurate stereo imaging.

At Boston Acoustics, we design our grille panels with specially tapered edges that virtually eliminate sonic diffractions and their distortion. To achieve the thin, unobstructing panel cross-section that is necessary, we go to the extra cost of precision-molded panels.

You'll find diffraction-corrected grille panels in all Boston Acoustics stereo speaker systems, including our new A4C and A60 Series II. The

world-renowned A40 delivers musical accuracy and outstanding stereo imaging at a suggested retail price of only \$160 per pair. And the slightly larger A60 now has a one-inch dome tweeter to complement its powerful eight-inch woofer. At just \$220 per pair.

For descriptive brochures, review reprints and the location of your nearest dealer, send your name and address to: Speaker Information Packet, Boston Acoustics, Inc., 247 Lynnfield Street, Peabody, Massachusetts 0196C. (317) 532-2111.

You'll never have to sacrifice our great looks to enjoy our great sound.

Boston Acoustics

AMPLIFIER SECTION

Except where otherwise noted, data are for the front channels operated in the unbridged (standard) mode with no signal processing.

RATED POWER	14 3/4 dBW (30 watts)/channel
OUTPUT AT CLIPPING (at 1 kHz; both channels driven)	
8-ohm load	17 1/2 dBW (56 watts)/channel
4-ohm load	19 dBW (80 watts)/channel
DYNAMIC POWER (at 1 kHz)	
8-ohm load	17 3/4 dBW
4-ohm load	20 dBW
2-ohm load	20 dBW
DYNAMIC HEADROOM (re rated power, 8-ohm load)	3 dB
HARMONIC DISTORTION (THD; 20 Hz to 20 kHz)	
at 14 3/4 dBW (30 watts)	≤ 0.030%
at 0 dBW (1 watt)	≤ 0.020%
FREQUENCY RESPONSE	
	+0, -1 dB, 42 Hz to 22.0 kHz
	+0, -3 dB, < 10 Hz to 65.3 kHz
SENSITIVITY (re 0 dBW)	25.5 mV
S/N RATIO (re 0 dBW; A-weighted)	
synthetic stereo off	80 1/2 dB
synthetic stereo at maximum	75 dB
INPUT OVERLOAD (1-kHz clipping)	6.3 volts
INPUT IMPEDANCE	47k ohms
OUTPUT IMPEDANCE (re tape)	2,250 ohms
DAMPING FACTOR (at 50 Hz)	220
CHANNEL SEPARATION (at 1 kHz)	72 1/4 dB
HISS FILTER	-11 dB at 8.2 kHz (maximum effect)

them in the opposite channels, which takes some getting used to.

Once you have adjusted the volume and balance as you wish, you can store your preferences in memory for instant recall at the touch of a button. The AV-300 provides for three such presets and indicates on the front panel which (if any) you've chosen. And if you've raised or lowered the volume fully in any channel (or pressed MUTE), this, too, is shown.

A three-color surround display gives you a rough idea of the levels in each channel. Red crosses in the four corners indicate the loudest passages; yellow crosses on the diagonals, passages of lower volume; and a green cross in the center, the lowest level. If the flashing display becomes distracting (which it can), you can turn it off with a switch just below and to the right.

Used in its four-channel mode, the AV-300 is rated at 30 watts (14 3/4 dBW) per channel into 8-ohm loads. (NEC recommends sticking with speakers rated at 8 ohms or more.) A back-panel slide switch enables you to bridge the amplifier for operation as a stereo amplifier rated at 60 watts (17 1/4 dBW) per channel.

If you've already outfitted your video system with a good stereo amp, you may want to use it to drive the back speakers and use the AV-300 in its bridged mode to drive the front pair. Removing the back-channel pre-out/main-in jumpers from their rear-panel jacks and connecting the preamp outputs to your existing amp will permit you to do that.

Another set of links is provided for the front channels, which gives you a second place to hook in an external audio signal processor. Or if you want to use your present amplifier for the front channels and the AV-300 in the bridged mode for the back, you can do that by removing both pairs of jumpers and connecting the preamp outputs for the back channels to the front-channel power-amp inputs. There also are high- and low-level mono output jacks to feed a powered subwoofer, a mono amplifier driving a center-channel speaker, or both.

Perhaps the most important feature, however, is the AV-300's built-in surround-sound processor, which includes true Dolby

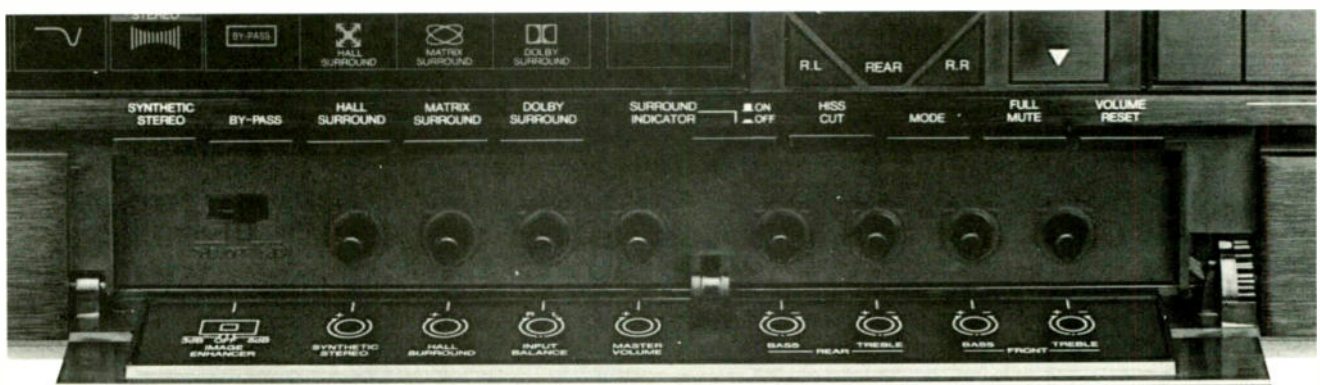
Surround decoding among its three options. NEC recommends this setting not only for Dolby-encoded movies, but for most other films as well. The matrix surround position is recommended for sports and music programs and the hall surround (synthetic reverberation) for televised concerts and old movies.

All three systems route sound to the back channels. For material without Dolby Surround encoding, determining the process that yields the most plausible results is largely a matter of taste; for Dolby-encoded movies, however, the Dolby Surround option definitely is the one to choose. You can kill the back channels entirely by pressing BY-PASS and adjust the amount of reverberation in the hall-surround mode with a control behind the door on the front panel. As with most other AV-300 functions, your selection is indicated by an illuminated display.

If you're working with a monaural program, you can add some life to it by pressing SYNTHETIC STEREO. Again, a legend illuminates to show your choice, and the degree of enhancement is adjustable via a control behind the door—a nice touch. The pseudo-stereo circuit also can be used on stereo sources (though we can't imagine why you'd want to), and the surround-sound functions can be added to synthetic stereo to produce ersatz four-channel sound. The quality of what you get when you exercise this option is best described as variable.

Finally, the AV-300 offers you the option of a hiss filter (to quiet noisy tapes) and a two-position video image enhancer. As usual, whenever these functions are operative, they're called out by illuminated legends. The image enhancement is activated by a slide switch behind the door and affects both the video recording and monitor outputs.

Although the front panel can light up like a Christmas tree, the display (except for the surround indicator) is never garish and is useful when you are operating the unit from its infrared wireless remote. The handset gives you full control of volume (including the three presets), a mute switch, a four-button Joy Plate equivalent, and a surround-mode selector. If you are using a compatible (CONTINUED ON PAGE 53)



THE AV-300'S IMAGE-ENHANCER SWITCH AND MANY OF THE SECONDARY AUDIO CONTROLS ARE HIDDEN BEHIND A FLIP-DOWN DOOR.

A \$10,000 Challenge To Escort

Let's cut through the Radar Detector Glut. We challenge Escort to a one on one Distance and Falsing 'duel to the death' on the highway of their choice. If they win, the \$10,000 check pictured below is theirs.

By Drew Kaplan

We've put up our \$10,000. We challenge Escort to take on Maxon's new Dual Superheterodyne RD-1 \$99⁹⁰ radar detector on the road of their choice in a one on one conflict.

Even Escort says that everyone compares themselves to Escort, and they're right. They were the first in 1978 to use superheterodyne circuits and they've got a virtual stranglehold on the magazine test reports.

But, the real question today is: 1) How many feet of sensing difference, if any, is there between this top of the line Maxon Detector and Escort's? And 2) Which unit is more accurate at interpreting real radar versus false signals?

So Escort, you pick the road (continental U.S. please). You pick the equipment to create the false signals. And finally, you pick the radar gun.

Maxon and DAK will come to your highway with engineers and equipment to verify the results. And oh yes, we'll have the \$10,000 check (pictured) to hand over if you beat us by more than 10 feet in either X or K band detection.

BOB SAYS MAXON IS BETTER

Here's how it started. Maxon is a mammoth electronics prime manufacturer. They actually make all types of sophisticated electronic products for some of the biggest U.S. Electronics Companies. (No, they don't make Escort's).

Bob Thetford, the president of Maxon Systems Inc., and a friend of mine, was explaining their new RD-1 anti-falsing Dual Superheterodyne Radar detector to me. I said "You know Bob, I think Escort really has the market locked up." He said, "Our new design can beat theirs".

So, since I've never been one to bet in second place, I said, "Would you bet \$10,000 that you can beat Escort?" And, as they say, the rest is history.

By the way, Bob is about 6'9" tall, so if we can't beat Escort, we can sure scare the you know what out of them. But, Bob and his engineers are deadly serious about this 'duel'. And you can bet that our \$10,000 is serious.

We ask only the following. 1) The public be invited to watch. 2) Maxon's Engineers as well as Escort's check the radar gun and monitor the test and the results.

3) The same car be used in both tests. 4) We do this test during the summer when it's warm. (I'm from California, and anything below 80° will do me in.)

5) We'd like an answer from Escort no later than June 1, 1986 and 30 days notice of the time and place of the conflict. And, 6) We'd like them to come with a \$10,000 check made out to DAK if we win.

SO, WHAT'S DUAL SUPERHETERODYNE?

Ok, so far we've set up the conflict. Now let me tell you about the new dual superheterodyne technology that lets Maxon leap ahead of the pack.

It's a technology that tests each suspected radar signal 4 separate times before it notifies you, and yet it explodes into action in just 1/4 of one second.



Just imagine the sophistication of a device that can test a signal 4 times in less than 1/4 of one second. Maxon's technology is mind boggling.

But, using it isn't. This long range detector has all the bells and whistles. It has a separate audible sound for X and K radar signals because you've only got about 1/3 the time to react with K band.

There's a 10 step LED Bar Graph Meter to accurately show the radar signal's strength. And, you won't have to look at a needle in a meter. You can see the Bar Graph Meter with your peripheral vision and keep your eyes on the road and put your foot on the brake.



So, just turn on the Power/Volume knob, clip it to your visor or put it on your dash. Then plug in its cigarette lighter cord and you're protected.

And you'll have a very high level of protection. Maxon's Dual Conversion Scanning Superheterodyne circuitry combined with its ridge guide wideband horn internal antenna, really ferrets out radar signals.

By the way Escort, we'll be happy to have our test around a bend in the road or over a hill. Maxon's detector really picks up 'ambush type' radar signals.

And the key word is 'radar', not trash signals. The 4 test check system that operates in 1/4 second gives you extremely high protection from signals from other detectors, intrusion systems and garage door openers.

So, when the lights and X or K band sounds explode into action, take care, there's very likely police radar nearby. You'll have full volume control, and a

City/Highway button reduces the less important X band reception in the city.

Maxon's long range detector comes complete with a visor clip, hook and loop dash board mounting, and the power cord cigarette adaptor.

It's much smaller than Escort at just 3 1/2" wide, 4 3/4" deep and 1 1/2" high. It's backed by Maxon's standard limited warranty. Note from Drew: 1) Use of radar detectors is illegal in some states.

2) Speeding is dangerous. Use this detector to help keep you safe when you forget, not to get away with speeding.



CHECK OUT RADAR YOURSELF RISK FREE

Put this detector on your visor. When it sounds, look around for the police. There's a good chance you'll be saving money in fines and higher insurance rates. And, if you slow down, you may even save lives.

If you aren't 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To get your Maxon, Dual Superheterodyne, Anti-Falsing Radar Detector risk free with your credit card, call toll free or send your check for just \$99⁹⁰ (\$4 P&H). Order No. 4407. CA res add tax.

OK Escort, it's up to you. We've got \$10,000 that says you can't beat Maxon on the road. Your answer, please?

Escort is a registered trademark of Cincinnati Microwave.



Dept. HF37

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8200 Remmet Ave., Canoga Park, CA 91304

BSR's Endangered Colossus

Prepare for bone jarring bass and dramatically clear highs from these newly developed 15" 3-way 5 speaker systems that nearly missed their chance to charm an audiophile's ear. BSR moved its dbx and ADC divisions into one facility and these speakers almost became orphans. So now, they're yours at a close-out price.

By Drew Kaplan

It's a shame. But, it's also a great opportunity to get a pair of 15" audiophile loudspeakers with the newest in stereo imaging at a market-breaking price.

Imagine a precisely matched mirror image pair of top-of-the-line BSR speakers that can effortlessly recreate the cataclysmic impact of a full orchestral crescendo at full volume and yet offer flawlessly subtle sound detail to 21,500hz.

You'll thrill to thunderous bass all the way down to 26hz. Incredibly rich, full, vibrant sound at low volume will explode with life as you increase the volume.

But before we examine the front speaker complement, the twin overlapping crossovers and the top mounted sonic placement and ambiance speakers, let's see why they were almost orphaned.

You see, BSR, the half billion dollar electronics giant, is the parent company of two of the best names in up-scale audio, dbx and ADC.

Last year dbx developed a new multi-thousand dollar speaker system called the Soundfield One which lets you sit virtually anywhere in your room and have full stereo imaging and terrific sound.

BSR decided to consolidate ADC and dbx into one building (still 2 companies) and put all its speaker efforts into dbx.

POOR JACK

Well, while dbx's engineers were off designing their multi-thousand dollar masterpieces, BSR's Senior Acoustical Engineer (he had been Fisher's Chief Engineer for 10 years during its top end component stereo days), was designing BSR's radically new speaker line.

The revolutionary top of the line 15" stereo imaging pair pictured above will let you enjoy superb stereo imaging without sitting directly in front of your speakers.

But unfortunately, in the consolidation move, BSR's speakers went by the wayside, and so did Jack.

Enter DAK. After a few fearful negotiations and considering the engineering costs BSR had already expended, they agreed to make the speakers just for DAK.

Because there's virtually no BSR overhead left on these speakers, and the R&D was all but complete, we've gotten these speakers for virtually the component costs plus a little BSR labor.

And don't worry about Jack. BSR had him finish the engineering (they really are great people) and they'll pay him a royalty on each speaker we sell. Besides, by the time you read this, Jack is sure to be snapped up as the Chief Engineer at another esoteric audio company.

WHAT'S STEREO IMAGING?

Stereo imagery is the logical separation and interaction between channels. It's the successful creation of a panoramic wall or stage of music rather than the confined, easily located 2 speaker sound. **IT'S WHAT'S INSIDE THAT COUNTS**

Imagine the full thunder of a kettle drum, or the pluck of a string bass being explosively recreated in your living room. BSR's 15" sub-bass acoustic suspension driver will revolutionize your concept of low clean bass.



Its magnetic structure weighs a thundering 48 ounces. But that's not all. The magnetic field is developed by the rare earth metal Strontium for state of the art massive but flawlessly controlled bass.

A 38mm voice coil with a 200° centigrade temperature capacity, will handle the most demanding digital or analog recordings. And, a new super rigid cabinet design virtually eliminates coloration due to uncontrolled cabinet resonance.

At low volume, the bass will fill in and envelope you. At high volume, your room, your walls and your neighbors will shake. This is definitely not a speaker system for apartment dwellers.



MATCHED PAIRS

The mid-range and high end of BSR's speakers are truly unique. Front mounted 8" polypropylene mid-range drivers provide rich sound while top mounted 5" polypropylene mid-range drivers provide an open, lifelike ambiance.

Front mounted exponential horn tweeters provide awesome brilliance to 21,500

hz, while top mounted tweeters enhance separation because they are mounted to the outside edge of each speaker.

So, this system has a specific left and a specific right speaker. You'll find wide, but interactive separation that will vastly widen your ideal listening area.

The imagery will give the illusion of musicians actually playing in front of you. Your music will take on a three dimensional quality. You'll enjoy superb stereo imagery regardless of each speaker's specific placement in your room.

MORE SPECIFICS

The exponential horn tweeters, both in front and on the top of these systems, employ 25mm rigid phenol diaphragms for stability and accurate response.

Polyamid-imid binders and ferro-fluid coolant allow for a 300% increase in heat dissipation so you can drive the voice coils up to 200° centigrade.

Now, the mid-range. Both the 8" front firing and the 5" top firing polypropylene drivers reproduce the mid-range frequencies like no ordinary speakers.

It's amazing that so many speaker manufacturers simply slap in 5" paper mid-ranges to reproduce what's really the major portion of the sound spectrum.

BSR's 8" and 5" polypropylene mid-ranges are rigid, exacting drivers that deliver incredibly pure uncolored sound.

They have matched 25mm voice coils, also protected by ferro-fluid and polyamid-imid to 200° centigrade. They are driven by powerful barium ferrite magnetic fields.

NOT QUITE FINISHED YET

To prevent phase shift and cancellation, two totally separate crossover networks are employed in these speakers.

Next page please. . .

. . .BSR's Colossus Continued

All frequencies below 800 hz are directed to the 15" woofer. The front system routes frequencies above 800hz to the 8" mid-range to take full advantage of its superb reproduction capabilities. Frequencies above 3400hz are routed to the horn tweeter.

The top mounted system routes only frequencies above 1200hz to the 5" polypropylene ambient mid-range driver, and frequencies above 3400hz are routed to the top sonic placement tweeter.

There are level controls for both the top and front mounted speakers so that you can voice the speakers to match your musical taste and environment.

Note: Only the top tweeters are mounted at the the edges. The front mounted tweeters are conventionally mounted

for acoustical symmetry.

Each speaker is fuse protected for up to 200 watts peak, 150 watts continuous power. You can operate these super efficient speakers with as little as 20 watts.

AND OH WHAT A PRETTY FACE

The speaker systems are 30" tall, 19 1/4" wide and 10 1/2" deep. Their lovely oak wood-grain appearance is enhanced by the dark removable grill cloths that beautifully contrast with the rich wood-grain tones. They're a statement of audio elegance when placed in any room. They're backed by BSR's 2 year limited warranty. **A COLOSSAL DREAM COMES TRUE RISK FREE**

You'll hear depth of sound at low levels that was previously unobtainable. And yes, when you crank up the volume, your music will explode with realism and drama.

Try these speakers in your own system. Then compare them at any Hi-Fi Store with any pair of speakers up to \$1000. If they don't beat all the competition hands down, simply return them to DAK in their original boxes within 30 days for a courteous refund.

To order your matched pair of BSR top-of-the-line 15" 3-way 5 speaker systems with unique stereo imaging risk free with your credit card, call toll free or send your check for DAK's market-breaking price of just \$298 for the **MATCHED PAIR** plus \$22 for Postage and Handling. Order No. 4352. CA res add tax.

It's a dream system for an audiophile. Sonically pure, thunderously powerful, these BSR speakers will make your future listening years an on-going fabulous, if not earthshaking experience.



So, your spouse or neighbors aren't into thunder and paint peeling audio. Don't worry, BSR has developed two smaller but still mighty versions of the colossus that use the same basic components, at incredible prices.

Don't despair. You won't be relegated to 'little sound' by these more sane versions of the Colossus. After all, a 15" 3-way system is usually a distant dream of only the most ardent audiophile.

10" 3-WAY SANE COLOSSUS

You will experience the same dramatic highs to 21,500hz produced by the identical exponential horn tweeters with the same rigid phenol diaphragms. There's even a variable brightness control.

And, don't look for any cheap paper mid-range speakers. You'll thrill to rich, full, incredibly pure music from a 5" rigid polypropylene mid-range driver.

The 10" woofers utilize a massive Strontium magnetic structure and can reproduce dramatically clean, massive bass down to 32hz. Unless you actually set these speakers next to the Colossus, you'd think the bass is incomparable.

The crossover points are at 1200hz and 3400hz. The speakers are rated for 90 watts peak and 45 watts continuous power and require at least 15 watts.

If you're a normal audio person, you'll be thrilled with these as main speaker systems for your stereo. But, if you're a slightly crazy DAK-type audiophile, the big Colossus Systems add a thrill to your music that goes far beyond printed specs.

These speakers are 23 3/4" tall, 13 3/4" wide, and 8 3/4" deep. Their rich oak wood-grain appearance which surrounds the contrasting dark grill cloth, will be an elegant addition to any room.

8" BOOKSHELF COLOSSUS

Where space is a consideration, your music need not suffer. BSR's newest 2-way 8" systems provide an astounding level of musical fullness.

BSR's exponential horn tweeter produces superb highs to 21,500hz. The 8" woofer/mid-range produces bass down to a very respectable 38hz and powerfully clean mid-range up to 2500hz.

On the floor or in a bookcase, these speakers will give you years of full rich beautiful sound. They are just 19 1/4" tall, 11 1/4" wide and 8 3/4" deep. Their rich oak wood-grain appearance which surrounds the contrasting grill will be a beautiful addition to any room.

All BSR speaker systems are fuse protected and backed by BSR's standard 2 year limited warranty.

TRY RICH DRAMATIC SOUND RISK FREE

These smaller versions of the Colossus may have a hard time competing with the awe inspiring sonic violence of their bigger brother. But, compared with tra-

ditional speakers, you'll find they've gained greatly by their genetic origin.

If you're not 100% satisfied, simply return them to DAK within 30 days in their original boxes for a refund.

To order the 10" 3-way Sane Colossus with its horn tweeter, polypropylene mid-range and 10" Strontium woofer risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$69 each plus \$9 P&H each. (2 required for stereo). Order No. 4348.

To order the 8" 2-way Bookshelf Colossus with its exponential horn tweeter and 8" Strontium woofer/mid-range risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$44 each plus \$6.50 P&H each. (2 required for stereo). Or. No. 4347.

These speakers have gained a great deal from their big brothers. They'll bring you years of superb musical sound and add truly elegant visual appeal to any room.



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CD Extortion

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

By Drew Kaplan

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

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

TIGHTEN THE SCREWS

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

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

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

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

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

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

SAFE INVESTMENT

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

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

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

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



This is the experience you can expect with your first introduction to digital audio. Forget any experience you've ever had before with stereo. CD audio is an awesome advance that dwarfs the switch we made years ago from 7Bs to LPs.

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

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

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

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

NO SOUND AT ALL

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

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

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

standing next to a jet engine.

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



NOT PERFECT?

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

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

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

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

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

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



SOUND LIKE A LIGHTNING BOLT

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

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

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

a conventional LP. (It's earthshaking.)

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

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

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

LOADED

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

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

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

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

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

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

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

TRY EXPLOSIVE SOUND RISK FREE

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

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

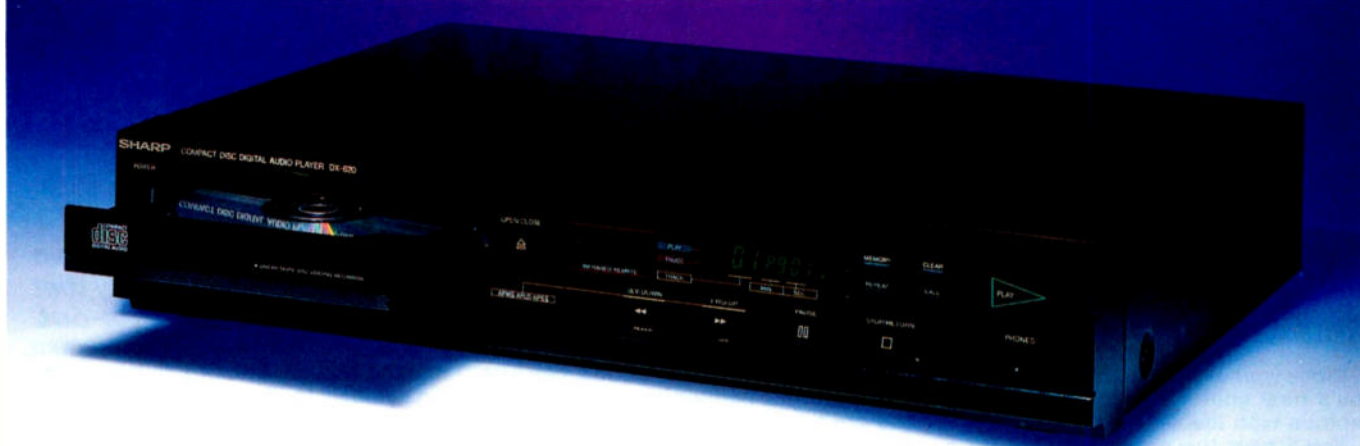
original box for a courteous refund.

To order your Fully Programmable CD Disc Player and experience the sonic thrills of a lifetime, call toll free, or send your check for DAK's market breaking price of just \$149⁰⁰ (\$7 P&H). Order No. 4546. CA res add sales tax.

IMPORTANT NOTE: If you have a particular love for either CD player, you can have your choice for just \$159⁰⁰ (\$7 P&H). Use Order No. 4326 for the BSR CD, or use Order No. 4304 for the Emerson CD. So, you'll pay only \$149⁰⁰ if the choice is ours, or \$159⁰⁰ if it's yours.

It may strain my credibility to describe any device I'm offering for only \$149⁰⁰ as providing sound many times better than anything you've ever heard before. But, use DAK's risk free trial to experience this bigger than life sound for yourself.

PLEASE USE ADDRESS AND PHONE AT BOTTOM OF PAGE



CD Extortion Works

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

By Drew Kaplan

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

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

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

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

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

If you touch the repeat key, you can have the entire CD repeat, a single any songs you have programmed. Whatever selection(s) you choose, automatically repeat endlessly, for an hour or a day of uninterrupted music.

ALL THE SAME

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

Their specs are so far beyond the

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

So, choose an Emerson, a BSR, or a Sharp, based on the features you desire. Because, the truth is, you won't be able to hear any difference between the 3.

I like the Sharp CD because of the total control you'll have of your music from the wireless infrared remote.

second time or skip through a song I don't like. And, selecting what I want to hear from across the room really enhances my musical enjoyment.

It's backed by Sharp's standard limited warranty.

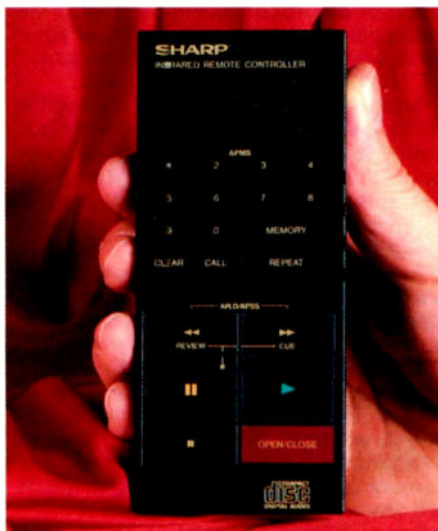
ENJOY REMOTE EXPLOSIVE SOUND RISK FREE

You'll thrill to the sonic vibrance of your music. You'll thrill to the remote ease. And, you'll thrill to the remote programmable control of your music.

If you're not 100% satisfied, simply return it in its original box within 30 days for a courteous refund.

To order your Sharp Programmable Infrared Wireless Remote Control CD Player risk free with your credit card, call toll free, or send your check for DAK's extorted price of just \$199⁰⁰ (\$8 P&H). Order No. 4427. CA res add tax.

Now the choice is yours. You can have incredibly explosive sound for just \$149⁰⁰ or you can have incredibly explosive remote controlled sound for just \$199⁰⁰.



I often like to hear the same song a

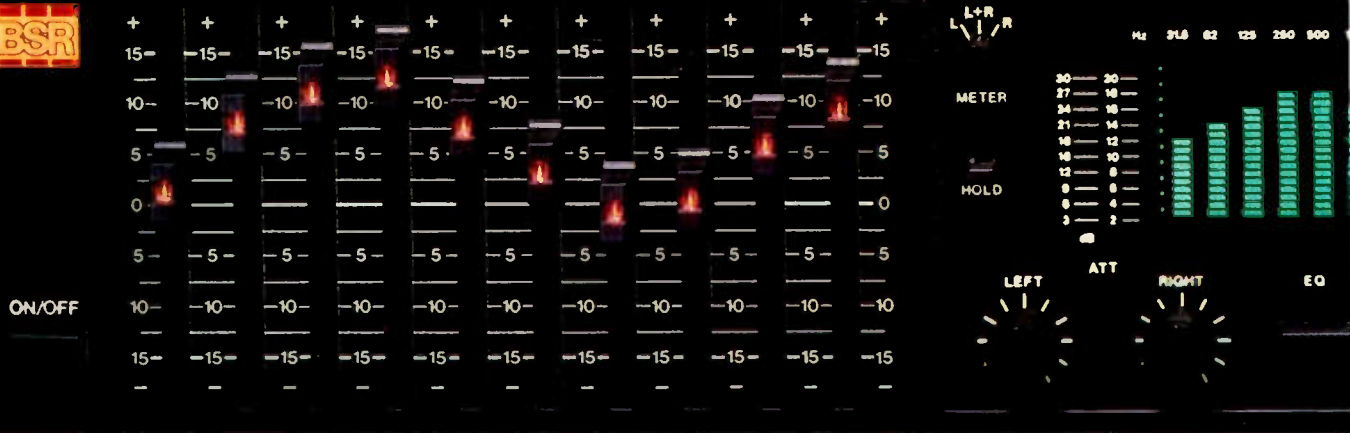
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LEFT / FREQUENCY (Hz) / dB

31.5 63 125 250 500 1k 2k 4k 8k 16k

STEREO FREQUENCY EQUALIZER



model

Smart Sound Detonator

Obliterate the wall between you and the individual instruments in your music. Infuse your own stereo system's sound with a breathtakingly vibrant 30 to 50% improvement in sound quality that you can measure with this superb BSR Equalizer/Spectrum Analyzer limited \$149 close-out.

By Drew Kaplan

Close your eyes. Touch a button. And you'll hear your stereo system literally explode with life.

You'll hear the gentle brushes on a snare drum, the startling bone-jarring realism of a thunder clap, or the excitement of a full cymbal crash.

You'll hear string basses and other deep low instruments emerge from bass (that will sound murky by comparison), with such clarity and such definition that you'll feel you can almost touch each instrument.

This astoundingly distinct yet powerful bass adds such a full bodied warm feeling to your music, you'll feel as if you've been lovingly wrapped in a warm soft blanket on a cold winter's night.

But don't take my word for the sound quality improvement. With the Pink Noise Generator, Calibrated Electret Condenser Mike and the 220 Element Spectrum Analyzer, you can instantly measure each and every improvement you make.

Plus, there's more. A subsonic filter effectively adds the equivalent of many watts onto the power of your amplifier.

Plus, with its provision for two separate tape decks including two way dubbing, you'll have much more than just greatly improved sound.

You can count on great sound from this top of the line Equalizer/Analyzer. It has a frequency response from 5hz to 100,000hz \pm 1db. And, it has an incredible 100db signal to noise ratio.

BSR, the ADC equalizer people, make this super Equalizer/Analyzer and back it with a 2 year standard limited warranty. Our \$149 close-out price is just a fraction of its true \$379 retail value.

FIRST THE EQUALIZER

YOUR STEREO'S HIDDEN SOUNDS

Your stereo can sound incredibly bet-

ter. Just a 5db roll-off at the high end, up around 14,000hz to 16,000hz, can just decimate the harmonics that give you the open feeling you'd experience at a live concert. A similar roll-off at 60hz, causes the fundamental bass notes to just fade away into the 'murk'.

An equalizer isn't some magical device that manufactures sounds that don't exist. Most of the frequencies that will make your music really vibrant, are actually already recorded in your music.

You'll be able to prove this with a few simple tests we'll try when we discuss the Spectrum Analyzer.

You see, certain frequencies are simply not reproduced with as much volume as are the mid-range frequencies which stretch from about 800hz to 2,000hz.

An equalizer simply lets you establish accurate control of all frequencies to fit your equipment, your recordings, your taste, and your listening environment.

TOTAL MUSICAL CONTROL

And, what a job it can do. It's totally unlike bass and treble controls which simply boost everything from the mid-range down for bass, or everything up for treble. You can boost the low-bass at 31.5hz, 63hz and/or 125hz to animate specific areas or instruments.

And, when you boost the part of the bass you like, you don't disturb the mid-range frequencies and make your favorite singer sound like he has a sore throat.

The high frequencies really determine the clarity and brilliance of your music. The problem is that highs are very directional. Wherever you move in your listening room, you'll find a big difference in high end response, as you'll see when we test the Analyzer.

No recording engineer or equipment manufacturer can even begin to control your listening environment.

You can control the highs at 4,000hz, 8,000hz and/or 16,000hz, to bring crashing cymbals to life at 16,000hz while at the same time you can cut tape hiss or annoying record scratches at 8,000hz.

But there's more. Don't leave out the mid-range. You can boost trumpets at 300 to 500hz or a clarinet at 1000hz. You can boost or cut any part of the frequency spectrum a full \pm 15db.

TAPE DECK HEAVEN

You can push a button and transfer all the equalization power to the inputs of two tape decks. Now you can pre-equalize your cassettes as you record them and get all the dramatically enhanced sound recorded right on your cassettes.

This is an especially great feature when you play your cassettes on bass-starved portables or high-end starved car stereos.



SIMPLY PLUG IT IN

Use your tape monitor circuit, but lose it. Now your one tape monitor circuit lets you connect two tape decks.

Just plug the equalizer into the 'in' and 'out' jacks on your receiver preamp. We even supply the cables.

As you listen to your records on any 'Aux', any time you push the monitor switch on your receiver, hear your music jump to life.

The output from your receiver is fed directly to your tape deck(s), recording, and with the touch of a button you can choose to send equalized signal to your deck(s).

When you want to listen to a deck, just select which tape deck you want, turn the switch on the r-

\$149 CLOSE-OUT



and your tape deck will work exactly as it did before. Except, now you can listen with or without equalization.

Look at this. You can dub tapes from deck 1 to deck 2, or from deck 2 to deck 1 with or without equalization.

THE SUBSONIC FILTER

Much of the power drawn from your amplifier is used to drive your woofers. When you drive the amplifier too hard, it clips and you end up with distortion.

A subsonic filter removes a lot of non-musical material you can't hear that exists below 20hz. So, it relieves your amplifier of a lot of work. It doesn't actually create more watts (Please, no letters from my 'technical' friends) for your amplifier.

But, it's like turning off the air conditioning in your car. It saves you using about 7hp of what you have. And therefore, you'll have more watts for clean powerful sounding music.

THE SPECTRUM ANALYZER

Now you can scientifically analyze your stereo listening room and test your equipment by using BSR's Real Time Frequency Spectrum Analyzer.

Plus, you'll see your music not as a single level on a VU meter, but as a kaleidoscopic parade of 10 individual 20 element VU meters.

Each is tuned to a specific octave of the sound spectrum. An eleventh 20 element meter averages all levels.

The effect is awesome. You can visualize isolate a string bass or cymbal, and visually see each individual instrument just as a wave moving across the 220 dual fluorescent elements.

THE MOUTH AND EARS

alks. The Analyzer speaks with a pure calibrated Pink Noise.

is the standard composite 'sound' frequencies used for testing in labs and the world. All frequencies from 20,000hz are generated at the same level at the exact same time.

It gets too. If you are testing a cassette with a component in your system, virtually a 'Line Button'. If you're testing the whole system with speakers, use the calibrated electret condenser

microphone (included). Either way, you'll have a quick, easy and accurate way to evaluate the total sound of your system.

HOW TO TEST SPEAKERS, EQUIPMENT AND TAPE

Testing your speakers in your listening room is the really crucial test. Simply place the calibrated microphone where you normally sit to listen to your stereo.



At the end of an 18 foot cord is the ear of the system. Just clip the mike wherever you sit and test your room.

Turn on the Pink Noise. You can switch to Left Channel, Right Channel or both. There's a meter range button, a sensitivity control, and even a switch that lets you freeze the meter.

Just sit down at the equalizer. Start with one channel. You'll see all 10 octave bands on the meter. Just slide the corresponding controls to increase or decrease any area that needs help.

You have now set up your system to its maximum capability. But as you'll see, location is very important. Move the microphone 5 feet to the left or right.

Then turn on the Pink Noise and check the Spectrum Analyzer. Now you can see why the specifications that come with your system are only a starting point.

Here's a way to test your tape deck and tape. First record Pink Noise for 3 minutes at -20VU. Then play it back and note the readings on the meters.

Now, record the Pink Noise again at 0VU or +3. Wait till you see how much the high end falls off. Now you'll see why all specifications are listed at -20VU.

With the Equalizer/Analyzer you can enjoy the finest stereo sound from your system and be a test lab too.

WHY SO CHEAP

BSR now only sells equalizers under their ADC name. Well, as Detroit comes out with new cars each year, ADC comes out with new equalizers. We got them to supply us with just 30,000 of last year's

ADC model before they shut it down.

They had already paid for all the tooling, all the research and design, so we were able to buy these for less than half the normal price, for cold hard cash.

THE FINAL FACTS

There are 20 slide controls, each with a bright LED to clearly show its position. Each control will add or subtract up to 15db. (That's a 30db range!)

There are separate sound detonation slide controls for each channel at 31.5hz, 63hz, 125hz, 250hz, 500hz, 1,000hz, 2,000hz, 4,000hz, 8,000hz, and 16,000hz.

BSR backs this top of the line Graphic Equalizer/Spectrum Analyzer with a 2 year standard limited warranty. It is 17 1/2" wide, 3 1/2" tall and 8 3/4" deep.

MAKE YOUR MUSIC EXPLODE RISK FREE

It's startling. Music so vibrant with life you'll swear it's 3 dimensional. Sculpture your music any way you want it. If you're not 100% satisfied for any reason, simply return it to DAK within 30 days in its original box for a courteous refund.

To order your BSR EQ3000 Smart Sound Detonator 10 Band Graphic Equalizer with Real Time Spectrum Analyzer and Calibrated Mike, with Subsonic Filter and Two Way Tape Dubbing risk free with your credit card, call toll free, or send your check, not for the \$379 retail value. Don't even send the \$227.97 dealer cost. Send just \$149 plus \$8 for postage and handling. Order No. 4100. CA res add sales tax.

The sound of your stereo will explode with life as you detonate each frequency band with new musical life. And, you can see and measure exactly what you've done.

Dept. HF03

DAK
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For credit card orders call 24 hours a day 7 days a week
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8200 Remmet Ave., Canoga Park, CA 91304

SAME OLD DOG, BRAND NEW SUBWOOFER

15" Thundering Subwoofer

Man's best friend meets the audiophile's best friend at an earthshaking bone jarring new price. Now you can add the impact of a 15" subwoofer to any stereo system for just \$99⁹⁰.

By Drew Kaplan

A puppy may be man's best friend. Woof, Woof. . . But, now I've got a new friend you can add on to your stereo system. It doesn't need to be taken on walks, washed or fed. But, it makes a great cocktail table for you when you're being fed. And, oh what a woof it has.

GREAT SOUND FOR EVERYONE

It's called a subwoofer. And, normally it is the beloved pet of only the most ardent audiophiles.

It's not generally understood that it can be used with virtually any speaker system in any stereo. And, in addition to substantially increasing and perfecting the bass response, it has a significant impact on the mid-range clarity too.

Before I tell you exactly how marvelous your stereo will sound when you connect this subwoofer to it, there are two things you should know.

First, you'll be getting your new friend at a phenomenal price. DAK has sold over 10,000 of Cerwin-Vega's 12" subwoofers. They had a retail price of \$332, but we sold them for \$164⁹⁰.

Second, your new friend comes complete with a paid up health insurance policy in the form of a 2 year limited warranty from its father, BSR.

By the way, the puppy sitting on top of the subwoofer is the same puppy I used with Cerwin-Vega's, but wait till you hear what's under him now. You'll have BSR's 15" massive infusion of explosive bass, added to your system for just \$99⁹⁰.

But don't be misled. BSR bass is clean and tight; never sloppy or overpowering. It adds a feeling of depth and fullness to your music that you simply can't get with two or 3-way speaker systems.

HERE'S WHAT IT DOES

Basically, the problem with most speaker systems is that the bass overpowers the system. In a 3-way system, a woofer may be crossed over at about 800hz. And, in a 2-way system as high as 3000hz.

So, the woofer must handle movements of up to an inch at frequencies below about 80hz, while at the same time attempting to reproduce the very fine vibration type movements of the mid-range frequencies.

It is this difference in movements that causes both the bass to be weak or not precise, and the mid-range to become muddy (intermodulation distortion).

Even the best 3-way systems fall prey to these problems. And, it's why a subwoofer can do so much for your mid-range clarity as well as your bass.

PROBLEM SOLVED

BSR's subwoofer has a specially engineered crossover network that sends frequencies above 120hz to your regular speakers and reproduces just the mammoth movement frequencies from 120 hz down to 22hz with a special floor firing dual wound super subwoofer.

If you have downstairs neighbors, this subwoofer isn't for you. The woofer is a very special hybrid. It has a mammoth one and one half inch voice coil which allows the speaker to make the very large



movements required to reproduce the very low frequencies.

But, it would do a lousy job of reproducing mid-range, which is why, cost aside, manufacturers don't put big voice coils in normal 10" or 12" woofers.

To make the massive movements accurate, this woofer has a very large magnetic structure. This magnetic structure also makes the subwoofer system extremely efficient. (The sensitivity is 91.5 db at 1 watt at 1 meter.)

So, whether you have two or three-way speaker systems, with 8", 10" 12" or even 15" woofers, you'll find the sonic improvements staggering.

You'll hear and feel the awesome effect of thunder rumbling through your home. You'll hear a depth and dramatic fullness to your music that won't be heavy but will thrill you with its massive strength.



Here's a "floor's eye view" of the subwoofer. You'll feel and hear bass so alive, you'll think it is.

EASY HOOKUP

It's easy to connect. Simply run the right and left speaker wires from your amplifier to the input terminals of the subwoofer. It works with any system from 20 to 150 watts per channel.

Then, you simply connect the speaker

wires from your two stereo speaker systems to the output terminals on the subwoofer. They receive the exact signal that they did before except that everything from 120hz down is routed only to the subwoofer.

Placement of your regular speakers is just as critical as usual for stereo imaging, but the subwoofer can be placed anywhere because low frequency material is totally non-directional.

The subwoofer makes a perfect cocktail or end table. Its rich wood-tone appearance matches any decor. It is 24½" long, 16¼" high and 20" wide.

TRY AUDIOPHILE'S BEST FRIEND RISK FREE

The fullness, richness and depth is awe inspiring. Wait till you connect this subwoofer to your system and experience truly massive force from your music.

If you aren't 100% satisfied, simply return it to DAK in its original box within 30 days for a courteous refund.

To order BSR's Thundering Subwoofer with its dramatic 15" Dual Wound Voice Coil Subwoofer risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$99⁹⁰ (\$14 P&H). Or. No. 4514. CA res add tax.

You can't replace the love and softness of a warm puppy. But, wait till you experience the richness and depth this subwoofer will add to your bass and the clarity you'll hear in your mid-range.



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(CONTINUED FROM PAGE 44)
 NEC VCR, you'll be able to control many of its functions from the AV-300's remote.

On Diversified Science Laboratories' test bench, the AV-300 performed quite well. Distortion at rated power (in the four-channel mode) never exceeded 0.030 percent—which, in our opinion, is inaudible—and consisted almost entirely of the third and second harmonics. At 0 dBW (1 watt), distortion was below our reporting limit (0.010 percent) from 20 Hz to 4 kHz and reached a maximum of 0.020 percent at 16 kHz.

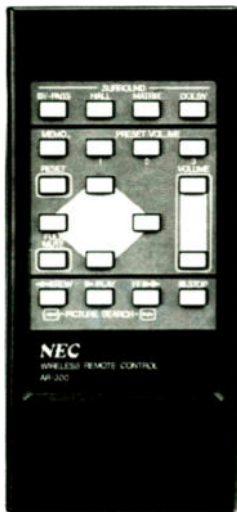
The amplifier's front channels (the ones tested) exceeded NEC's continuous power rating by a wide margin when driven alone, implying that if all four channels were driven together, the AV-300 still would easily meet its specifications. Dynamic power was greater yet and held up respectably all the way down to 2 ohms. Damping factor is far more than adequate at low frequencies and remains high out through 10 kHz (an unusual feat).

The AV-300's least impressive characteristic is its frequency response, which is down 1/2 dB at 115 Hz, but the rolloff (probably due to a slightly miscalibrated bass control) is very gentle, pulling the output down less than 1/4 dB at 20 Hz. It would take good ears to hear the difference between that and flat. The tone controls have a maximum effect of +15 1/2, -13 dB at 20 Hz and +11, -13 dB at 20 kHz. The TREBLE is a shelving control, and the BASS is a variable turnover design. Both are tiny and somewhat difficult to use.

The hiss filter is unusual: Its response is 3 dB down at 5.3 kHz, reaches maximum rejection at 8.2 kHz (-11 dB), and rises above that. But it can be useful for cleaning up the sound from the edge track of a videotape. Since volume is adjusted digitally, DSL checked the evenness of the control's "taper." The step size varied from a minuscule 1/4 dB to as much as 3 dB, which is a rather large change. Noise proved more than adequately low under all conditions, but was lowest when the synthetic stereo generator was switched off.

The AV-300's video circuit is likewise very clean. Chroma level does drop by 1 1/4 dB going through the system (to either the tape-output or monitor jacks), but the loss is uniform for all colors and is easily correctable. There is no measurable chroma phase (hue) error, chroma differential gain or phase, or gray-scale nonlinearity. Luminance (brightness) level drops a smidgen, but not enough to be of any concern.

With the image enhancer off, the video frequency response (which determines picture sharpness) rolls off at the highest frequencies, but only very slightly. The enhancer is most effective from 1.5 MHz up, with its maximum boost (which occurs from 2 to 3 MHz) amounting to about 3 3/4 or 7 dB, depending on the setting of its selector switch. Here we wish NEC had provided slightly different choices. Even with a Laserdisc source, the high setting (+6 dB) noticeably in-



THE REMOTE CONTROL FOR THE AV-300 IS SO VERSATILE THAT IT CAN EVEN BE USED TO OPERATE SOME NEC VCRs.

creased the video noise level, producing a mottled effect on a black screen, and there are sources for which somewhat less equalization than that provided by the low position (+3 dB) would be nice.

But we're quibbling. The AV-300 is first and foremost an audio enhancement product cum video switcher, and viewed in that light, it's first rate. If you haven't heard Dolby Surround at home, you owe yourself the experience. And we can't think of a better or simpler way to experience it than with the NEC. Just about everything you need is in one package: Dolby Surround decoder, an unusually versatile set of audio controls, and front and rear power amps. Plus you get a fine and flexible audio-video switcher, lots of special audio effects to play with when you get hooked on surround sound, and the convenience of a full-featured remote control. You just add the program source and speakers. A good deal, we'd say. ■

VIDEO SECTION

Except as noted, all data were taken with the image enhancer off.

VIDEO FREQUENCY RESPONSE

Image enhancer	off	3 dB	6 dB
at 500 kHz	flat	flat	+1 1/4 dB
at 1.5 MHz	flat	+2 1/2 dB	+6 dB
at 2.0 MHz	-1/4 dB	+3 1/2 dB	+6 3/4 dB
at 3.0 MHz	-3/4 dB	+2 dB	+6 1/4 dB
at 3.58 MHz	-1 1/4 dB	+3/4 dB	+5 1/4 dB
at 4.2 MHz	-1 1/4 dB	+1/2 dB	+4 dB

LUMINANCE LEVEL

4% low

GRAY-SCALE NONLINEARITY (worst case)

none

CHROMA DIFFERENTIAL GAIN

none

CHROMA DIFFERENTIAL PHASE

±0°

CHROMA LEVEL

1 1/4 dB low

CHROMA PHASE ERROR

none

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

A M A S T E R

DISC MASTERER

Masterdisk's Bob Ludwig talks about the art of his craft.



PHOTOS BY DAVID BANADA

BY DAVID BANADA

BOB LUDWIG BELONGS TO THAT MOST SELECT AND POWERFUL CLASS OF AUDIOPHILES, the disc-mastering engineers. And he is among the best of that rare breed, judging from the clients he and his Masterdisk Corporation serve and from the sonic and commercial success of the recordings they make together. Classically trained at the Eastman School of Music, Ludwig now finds himself working with such rock artists as Bruce Springsteen, Dire Straits, Phil Collins, and Mick Jagger—and probably most of

1200 Baud Smart Duck

If it walks like a duck, sounds like a duck, and looks like a duck, it darn well better act like a duck. And ADC's new Hayes Compatible 1200 baud auto-answer/auto-dial modem is one heck of a duck. And, it's a market buster at just \$169.

By Drew Kaplan

Hats off to Hayes. They've just about written the book on specs and protocol for the 1200 baud modem market.

Every professional modem bills itself as 'Hayes Compatible'. But the big question is, how much does it really cost to make a top-of-the-line 1200 baud modem? Or, who's getting rich?

ADC's modem is made in the same factory by the same people as one of Hayes's biggest competitors. And, ADC is a division of BSR, the enormous half-billion dollar electronics giant.

So for \$169, you'll not only be getting a duck that quacks properly to Hayes modems, but sings like a nightingale to your pocketbook and can save you a fortune in time with its extra features.

DUCK SOUP

Any computer with an RS232 standard serial port, will work flawlessly with this modem. And, virtually any modem or terminal software that's compatible with Hayes, will be compatible with ADC.

We've even got intelligent programs, cables, and interfaces (if you need them) to activate your IBM PC or Clone, and your Apple IIE or IIC.

I've owned a Hayes 1200 baud modem for about 2 years. I just unplugged it and plugged in ADC's to operate my Hewlett-Packard dumb terminal which I use at home to monitor DAK's computer.

The only differences I noted were improved monitor sound, more screen displays and a help menu. And oh yes, one last extra. I use a few local data bases whose phone lines are always busy.

Well, ADC's intelligent modem recognizes a busy signal, hangs up and keeps retrying the number every 30 seconds.

There are less important (to me) extras like day, date and time, an extra phone jack and auto tone/pulse switching. So, you'll love it for discount services.

DO YOU NEED TO KNOW?

Just think, you can transform your PC into a terminal that can interact with main-frames. You can download information from your main office computer and run Lotus, Wordstar or you name it. It's all possible with your PC and modem.

You can exchange information with other computers. Say you're a writer, you can send a chapter from your home or office in Los Angeles to New York, have it edited and sent back to you.

You can even send it directly to typesetters and have a book or a newsletter prepared from your transmitted file.

It's really great when drafts of contracts are flying back and forth. Why retype everything over and over again?

Electronic mail lets you type in your message and you won't have to worry about playing telephone tag any longer.

You can get the weather in Baltimore, get the latest quote on your company's stock, or even reserve a seat on the next flight to Las Vegas. You can upload public domain software (there's an enormous amount of free software) or sample the newest programs before you buy.

There are pay data bases like Com-



puServe and The Source that have information about anything, and thousands of free bulletin boards about everything from Ham Radio to Parapsychology.

There's even a new book that lists and describes such diverse data bases as one with 6500 references about coffee, to one with 2,000,000 on agriculture.

Of course, economics, medicine, law and computers are all well represented.

THE TECHNICAL SIDE OR, WHY 1200 BAUD?

The ADC Modem will communicate at 1200 baud (about 120 characters per second) or 300 baud (about 30 characters per second) automatically, depending on the link at the other end.

So, it's clearly a decision of money and time. 1200 baud is roughly 400% faster than 300 baud, so if you transfer data across the country you save 400% on your phone bill. And think of the time \$169 can save you!

If you download material from pay data bases, even though some charge more for 1200 baud, you still come out way ahead because of the amount of information you get per dollar.

It comes with a modular phone cord that you simply connect to any standard modular jack and it uses standard Bell 103 and 212A protocols. It operates in half or full duplex.

Its built-in microprocessors let you automatically answer in-coming data calls and act on all Hayes commands.

It even waits for dial tones and phone network tones during auto-dial. The modem is 9 1/2" X 5 1/2" X 2". It's backed by ADC's standard 1 year limited warranty.

HOOKING IT UP MADE EASY

All you need is a serial output, a cable and a modem program. All our modem programs on disk let you save, upload and download files. Look how easy it is.

If you own an IBM PC or a clone, usually you'll find an RS232 serial port already built-in. All you need is our cable and modem program on disk which we've packaged together for just \$29 plus \$3 P&H. But, before you order your cable, you may need a short sex education course.

Sex Education 1A. You need to determine whether your computer's RS232 connector is male or female.

If you look at the picture below this paragraph, you will note that the connector has holes going in. It's a female. If it had copper pins sticking out, it would be a male. Now wasn't that simple?



So, if yours is female, order our male cable and modem program Or. No. 4353. If you have male pins sticking out, order our female cable, Order No. 4354.

If you don't have an RS232 port, we have a serial interface card for your IBM or Clone complete with cable and modem program for \$99 (\$4 P&H) Or. No. 4355.

For your Apple IIC, your serial interface is built-in. All you need is our cable and modem program on disk. They are just \$29.90 (\$3 P&H) Order No. 4356.

For your Apple IIE, you'll need a serial interface with an RS232 port, a cable and a modem program. It's all yours for just \$89 (\$4 P&H) Order No. 4357.

1200 BAUD SMART DUCK

RISK FREE

For business or pleasure, you'll communicate, gather information and save time. If you aren't 100% satisfied, simply return it in its original box to DAK within 30 days for a courteous refund.

To Order Your ADC 1200 Baud Intelligent Modem risk free with your credit card, call toll free, or send your check for DAK's market busting price of just \$169 plus \$6 P&H. Order No. 4334.

The OnLine Directory of over 1,100 Data bases, complete with descriptions is just \$14.95 (\$2 P&H) Order No. 4358.

The ducks will sure to be quacking up a storm when they see BSR's factory direct, through DAK, price on this state-of-the-art 1200 baud intelligent modem.

Hayes, Lotus, Wordstar, IBM, and Apple IIE & IIC are registered trademarks of Hayes Microcomputer Products, Lotus Development, MicroPro, International Business Machines and Apple Computer.



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8200 Remmet Ave., Canoga Park, CA 91304

Cable Controller Plus

Get all the cable channels on any TV or video recorder with this all new wireless infrared remote control cable tuning system. And at just \$88, we're sure to break the cable market wide open.

If you've got cable, you've got it all. Now you can tune in up to 60 cable channels from your easy chair.

The Universal Cable Controller receives all VHF Low Band channels 2-13 and VHF Midband 14(A)-22(I).

Plus it tunes the Super Band VHF channels 23(J)-36(W) and Hyper Band channels from 37-60. You'll get a lot of stations for our breakthrough price.

MOVIE CHANNELS

If there are movie channels on your cable and they're not scrambled, the Controller is all you need. If they're scrambled, you'll need the cable company's box.

Note: Check with your cable company before viewing anything at all, to see if they require you to pay a fee.

SPORTS PLUS

There are lots of 'Super Channels' broadcast on cable. On the all sports channel you'll watch 'World Class Sports' whenever you wish. All Movie Channels give you entertainment at all hours.

And 'Super Stations' from New York and Atlanta give you major city TV for cities other than your own. Plus, there's Cable News Network for a world wide perspective on the news and much more. Why not see what's on your cable?

ONLY FOR CABLE

If you don't have cable, the Cable Controller isn't for you. It only finds you extra channels when you are connected to a cable. And, it doesn't tune in UHF.

But, if you're on cable, your cable company is rebroadcasting UHF over unused VHF channels. So with the Cable Controller tuner, you'll get it all.

TOTAL RANDOM ACCESS TUNING

The wireless infrared remote hand controller does it all. It switches both the TV and the Controller on and off and selects your channels. **And, look at this.** You can select your favorite channels (up to 6) and store them in a special section.

Then just touch the special 'RCL' Recall Button and you'll be able to sequence through only your favorite channels. This is especially convenient if you like to flip through movie channels during commercials on regular TV.

For the other channels, you'll enjoy total random access tuning. You can go directly from channel 2 to 28. Or you can step tune one channel at a time.

Once you've set your own TV to channel 3, you can just forget it. Any fine tuning is handled from the wireless infrared remote handset. And you'll have crystal controlled frequency phase lock loop synthesizer tuning for the finest picture.

You'll see the number of the station that you have selected displayed on the command base. And, you can tune channels either from the remote or the base.

Color tints, volume, brightness and contrast are all controlled by whatever method you now use.

INSTALLATION

Nothing to it. All cable systems use 75 ohm round cable. Simply unscrew the end from your TV and screw it into the Controller base input.



Then screw in an identical cable (included) between the Cable Controller and your TV. Finally, plug your TV's AC plug into the Controller and the Controller's AC plug into the wall.

WHAT IT IS

The Cable Controller is actually a very sophisticated, all electronic VHF TV tuner/receiver. It's really like a TV set without a picture tube.

Since it's all electronic, you won't be getting snow from dirty tuning contacts and loss of fine tuning as the set ages.

The Controller tunes all the possible stations that your cable can broadcast, something that would be very expensive to build into standard TVs, because not all TVs are going to be used on cable.

dreds of dollars extra. You can feed both your TV and video recorder. Or, you can separate them so that you can easily watch one thing and record another.

WHAT IT ISN'T

It isn't one of the infamous 'black boxes' you might have read about that illegally decode various 'Pay TV' channels. On cable, most of the programming isn't scrambled, it's just found outside the tuning range of the average TV.

So, if there is a Pay TV channel that is scrambled, or is only unscrambled on one TV in your house, the Controller is not made and should not be used to tune it in without paying.

Actually 'Cable Ready' TVs and video recorders do basically the same thing as the Cable Controller, but cable tuning is usually an added on feature that often doesn't cover as many channels.

The Cable Controller is made and backed by a standard limited warranty from Universal Security Instruments Inc.

TRY THE WORLD OF CABLE

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the rest of the other Grammy nominees over the past several years.

Where does he get the power I attribute to him? Disc cutters are the last persons able to intentionally alter the sound of a recording before it is reified in vinyl or, for Compact Discs, polycarbonate. Contrary to widespread belief, an LP master or CD master tape often is not a direct copy of the original mixdown submitted by a recording's producer. Rather, disc cutters use their training and experience to "sweeten" the transfers. As you will learn from Ludwig's remarks, the stock-in-trade of the mastering engineer is careful listening and an intimate knowledge of how minute changes in sound quality can have musically significant results.

I visited Masterdisk just as Ludwig was doing some preliminary Direct Metal Mastering (DMM) of the first side of the latest Journey album. I posed a few questions I had always wanted to ask a mastering engineer.

High Fidelity: Some Compact Discs sound quite different from their analog counterparts. At times the sound is much worse on CD. Is it because different masters are used?

Ludwig: It depends on whether we make the CD master or the record company does it. In the early days of the Compact Disc, before record companies were as smart as they are now, very often they would run CDs from safeties [copies of the original session tapes]. We had a very big record once that was run from a flat safety instead of the tape that had all the artistic changes on it. Some older analog tapes have been in storage for several years, and many of them are in pretty rough shape, especially those recorded at extremely high levels. Through the years, these tapes have tended to erase themselves a little bit on the high end. It's a challenge to get something dynamic out of them. But I think all the CDs I've personally done sound very much like we intended them to.

High Fidelity: Have you noticed a greater interest in sound quality with recent productions?

Ludwig: Definitely. Almost without exception, every major title we master is recorded digitally or in "super analog" [$\frac{1}{2}$ -inch, 30-ips, two-track tape]. For instance, I feel very proud of the Dire Straits record [*Brothers in Arms*, Warner Bros., LP: 25264-1, CD: 25264-2], which was done totally digitally. It has a lot of dynamics.

We've been working with digital equipment a long time. For years since I started mastering, a slight amount of tape hiss never bothered me very much; it didn't interfere with my musical enjoyment. Now it does. Somewhere along the line, with digital, my brain switched over. I'm also very intolerant now of record noise.

Watching Ludwig work on the Journey LP, I notice that as each tape band passes by, he switches in a different equalizer bank. Thus, the EQ varies from band to band, each change already having been decided and compiled on a file card. As Ludwig demonstrates to me, these changes range from very subtle alterations of the midrange to more noticeable cuts and boosts in several parts of the spectrum simultaneously. In essence, he is performing on the equalizer (the score being the file

card) in an effort to create an electronic work, a hit pop record—all the while balancing the sometimes conflicting demands of accuracy and musical value.

High Fidelity: Is all the EQing you do for musical reasons, or are there technical reasons why you might alter the sound?

Ludwig: Sometimes on the inner bands [of an LP], where there is some loss of high frequencies, we'll use an EQ that we wouldn't use for the CD. However, with Direct Metal Mastering, the inner bands are far more accurate at the top end than they used to be, so almost no inner-band EQ is being done for those masters.

We want the Journey album to sound as bright and as "hard" as possible. The [analog] pressing should come back very accurate. It might be that when we do the Compact Disc of it, we'll decide the sound is just a tad too hard for CD and modify the midrange EQ by perhaps 1 dB on the "softer" side. But this is all starting with EQ that is made for artistic reasons. In fact, the vast majority of the EQ is for artistic reasons.

High Fidelity: Do you EQ everything that comes in, or are some tapes left "as is" during cutting?

Ludwig: With a classical recording, our intention is to duplicate an event as faithfully as possible. Many times, a classical tape has been recorded in a very good acoustic with two or three very expensive microphones. For instance, Telarc CDs are basically three mikes mixed through a good desk [mixing console] and right into the digital processor. There's not much "mastering" that needs to be done to something like that. If Telarc were to bring a tape to me, I would say, "Go for it!" It wouldn't even pass through our console: It would be plugged right into the lathe. And the CD master would be a direct clone of the master tape.

Moving away just a little from that, we recently

MASTERDISK'S DIRECT METAL MASTERING LATHE POISED TO BEGIN CUTTING A GROOVE IN A COPPER BLANK. THE VIDEO MONITOR IS HOOKED TO A MICROSCOPE AND IS USED TO CHECK THE QUALITY OF THE CUT. NOTE THE TONEARM AT LEFT.



THE VAST
MAJORITY OF
THE
EQUALIZATION
IS FOR
ARTISTIC
REASONS.



AFTER A SUCCESSFUL CUT: THE "SUPER ANALOG" MASTER TAPE (1/2-INCH, 30-ips, TWO-TRACK STEREO, NO NOISE REDUCTION). MANY POP RECORDS ARE MADE FROM MASTERS IN THIS FORMAT.

WITH A POP RECORDING, THE WHOLE THING IS A COMPLETE FABRICATION FROM THE WORD GO.

mastered the New York City Opera performance of Bernstein's *Candide* [to be released by New World]. That was recorded onto an eight-channel Soundstream digital unit and then mixed down to two channels on a Mitsubishi machine. As the producer was mixing the recording, she kept coming over from the mixing room to make sure all the balances were correct; it was kind of like "premastering." There were a few little changes we suggested, which she made. In the CD mastering stage, we borrowed a Studer sampling-rate converter box and just transferred the Mitsubishi tape straight across to the master. It worked out really well.

With a pop recording, you're basically dealing with music that never existed in "real time": The whole thing is a complete fabrication from the word go, and the producer's EQ is based totally on the machines he's using to mix the recording. Many times, producers won't know how far things can or should be pushed—so things are very often pushed to the limit. A lot of EQ has to do with just trying to get as much musicality out of the tape as possible.

High Fidelity: What do you think of audiophiles who refrain from having tone controls in their equipment—after you've EQ'd everything in a recording to make it sound "right"?

Ludwig: I invite them to join me. One hopes your readers know that the listening room influences the sound at least as much as the speaker does. If your setup is compromised because one of the speakers is underneath a sofa or something like that, I think a little treble boost might be in order.

From my experience, if you own a top-of-the-line system, you won't need to fool with the EQ very much. We try to make our records extremely well balanced, so that they will sound good on any system. That's the goal: to have every part of the frequency spectrum well balanced. The result has to sound decent on our "skip test" cheapo record player with 2-watt amplifier, excellent through a set of big speakers, and excellent through "bookshelves." And it should sound good on the radio, too.

Now if you're playing one of these finely balanced records at a party and you want to dance, there's nothing wrong with turning up the bass. But if the same record had that amount of bass on it to begin with, it would sound ridiculous on almost every system. Certainly on the radio it would sound like a joke.

High Fidelity: It seems as if you're dealing with fine nuances of taste, ultimately.

Ludwig: Our bottom line, and that of other good mastering houses, is musicality. Of course, there's a certain subjectivity to that: What might be open and airy to me might be bright and shrill to somebody else. But one reason we have the reputation we do is that we make more right musical choices than wrong ones. At least I hope so.

Sometimes an artist or a producer will have a certain musical value in mind, and it's our job to translate that into sound. For example, somebody might rightly say that a "flat" version of the Journey tape sounds more "hi-fi" than the EQ'd version. But if the artist wants as much excitement as possible, sometimes having certain frequencies emphasized creates more excitement, even though you might think it sounds a little shrill in the midrange. In pop music, anyway, the thing that sells the record is the excitement, not that it is hi-fi.

High Fidelity: You must encounter some producers who don't have a good idea of what they want or who have made a bad-sounding tape. How much hand-holding do you do for them?

Ludwig: Quite a bit, actually. The real problem is with the producers who come in with a horrible-sounding tape that they think is fine. Usually a big, long lecture takes place. Generally, though, people come to us to get our input. They've been working on their album for so long that they've lost any objectivity they once had. We then EQ the tape the way we hear it. Usually the client says "Great!" and that's that.

High Fidelity: With the Journey album you're cutting now, however, the process is a bit more involved and expensive.

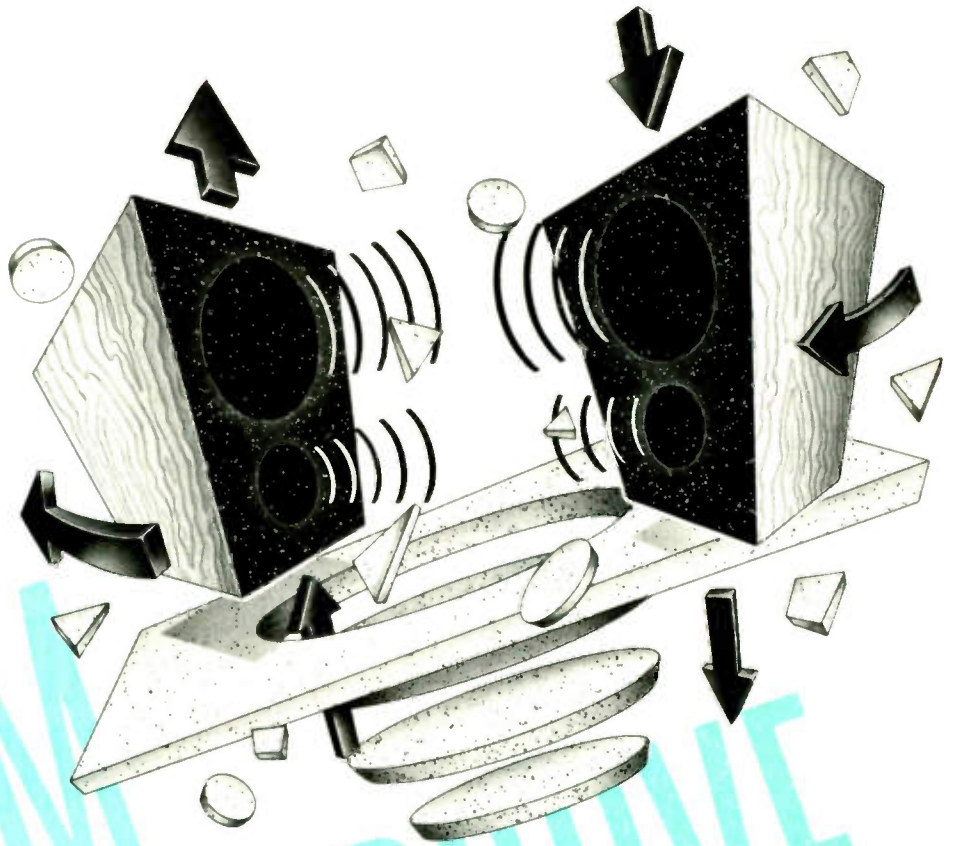
Ludwig: We do whatever we can, given the time and the money that the client is willing to spend. With a group like Journey, all they care about is getting it what they consider right. We're cutting this album—which is going to be a huge, huge record—several different ways, with a slightly different EQ each try. What we're doing now is experimenting with minor things in the midrange to see if the sound comes out any better. The next cut will be from the digital mix of the same thing. Then we'll actually go through the trouble of making test pressings of each cut. The group will play them on different stereo sets around town, making sure the record is exactly the way they want it. Whichever cut we decide has the best-sounding EQ is the one we'll use for the CD.

When all is said and done, the group, the mixing engineer, and I will end up saying to ourselves, "Does it sound like a record?" If we don't think it does, we'll go back and try something different. It's almost like research and development.

High Fidelity: And the record buyer has no idea which version is selected—and no idea of the trouble you've gone through.

Ludwig: Right, no idea at all.

A PRIMER ON
LISTENING-ROOM
ACOUSTICS
AND LOUSPEAKER
PLACEMENT



ROOM
TO IMPROVE

IT'S AN OLD, FAMILIAR STORY. HAVING DECIDED TO BUY a new pair of loudspeakers, you listen carefully and exhaustively in a store showroom and choose one model that sounds good compared with several others. Making your purchase, you take the new acquisitions home, excavate them from their boxes (throwing the packing material all over the living room), and set them up on a couple of milk-carton crates. But after listening for a short time, you gradually begin to wonder if the rest of your system has gone bad: The speakers just don't sound like they did in the store. What happened? Turn to the next page and see.

Timothy Holl, who has been designing loudspeakers for 20 years, now works for Bose Corp.

THE TRUTH

The "sound" you heard in the showroom was actually two sounds combined: that produced by the speaker system and that caused by the original sound's interaction with the room. This interaction depends on the placement of the speaker cabinets, the dimensions and furnishings of the room, and even how the room was built. The effects of these factors can easily be as audible and important to the overall sound quality of an audio system as the inherent performance of the speaker itself. Change the room and you change the sound of the speaker. That's why a speaker usually sounds different at home from the way it does in a showroom. In the worst cases, even an excellent speaker can exhibit lackluster performance because of its surroundings.

It is often difficult

to mentally compensate for a showroom's acoustical qualities when shopping for a loudspeaker, even though it is imperative to make an attempt. Fortunately, you can tailor the sound at home by carefully selecting and setting up your listening room. With a little effort, the full potential of your speakers can be realized.

THE ROOM

Since a room can't tell the difference between music and any other sound, it applies its acoustical "signature" to all sounds generated within it. Careful listening to an easily repeatable test transient—a handclap—may reveal some of your chosen room's acoustical faults. While performing this test, be sure to move around the room (as professional sound engineers do when checking out a recording venue), in-

vestigating all possible speaker and listening locations.

A "live" or "wet" room is one in which the sound leaving the loudspeakers is reflected again and again from the room's surfaces. A handclap in such a reverberant room results in an indistinct, blurred, and hollow sound. Conversely, a "dead" or "dry" room is one in which sound is largely absorbed rather than reflected. A handclap here produces an almost muffled sound—a single "tick" as the palms are brought together. But even a dead room may have a "tick-tick-tick" echo if bare parallel walls (or acoustically untreated floor and ceiling) surround the listener. This sound is a reflection going back and forth between the parallel room surfaces and is known as flutter echo. Ideally, a room will be neither too live nor too dead and will have no flutter echoes—although, left

untreated, a very dead room can be much less objectionable than a very live one (where normal conversations, not to mention music, may be difficult to follow, for example).

If the room over-

ments for this condition should probably be done after the fact. An overly dry room will require abnormally high amplifier power to generate high sound levels. You can make the room *more rever-*

MOVING THE SPEAKERS CAN DRAMATICALLY ALTER HOW STANDING WAVES ARE EXCITED.

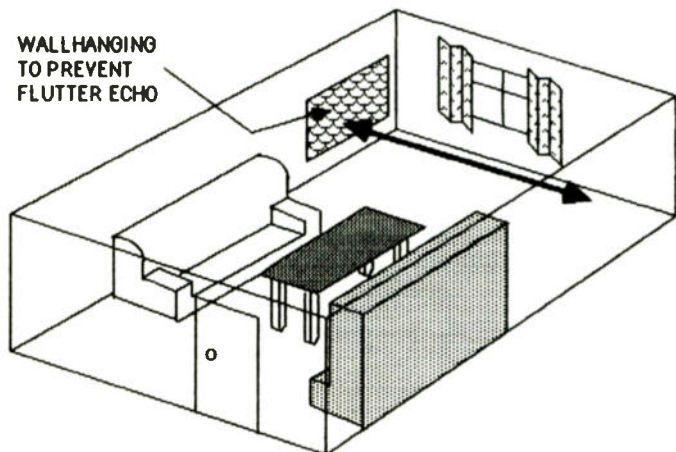
ly reverberant, you have to make it absorb some of the energy. Add a rug if the floor is uncovered and place hangings or acoustic tiles on any large expanses of bare wall. Drapes also help, absorption increasing with heavier fabric and with deep folds. To get an idea of what will work—before any permanent, expensive, or unsightly alterations are made—use a blanket as a temporary rug and hang towels or blankets in various positions. Also remember that adding soft-surface furniture (such as upholstered chairs and couches) and filled bookcases can dramatically reduce the reverberation.

It is somewhat difficult to judge whether a room is too dead before the speakers are installed, so any treat-

berant by adding such hard-surface furniture as tables or by removing carpets or drapes. Once again, experiment before committing yourself, using sheets of plywood or hardboard as temporary reflecting surfaces. Do not, however, use pegboard, as the small holes in it will perform the opposite task and produce a very good sound absorber. Drawing back drapes to reveal an expanse of window glass costs nothing and provides a handy variable acoustic reflector.

Any basic treatments for flutter echoes should increase the diffuseness of the reflections without greatly changing the general reverberation characteristics of the room. For example, you can move absorbent material to one of

F I G U R E 1.



BY PLACING ACOUSTICALLY ABSORBENT MATERIAL OR A PIECE OF DIFFUSING FURNITURE (SUCH AS A FILLED BOOKCASE) ON ONE OF TWO PARALLEL ROOM SURFACES, YOU CAN REDUCE FLUTTER ECHO PROBLEMS.

the offending wall surfaces (see Fig. 1) or relocate a bookcase or other large item of furniture.

INITIAL PLACEMENT

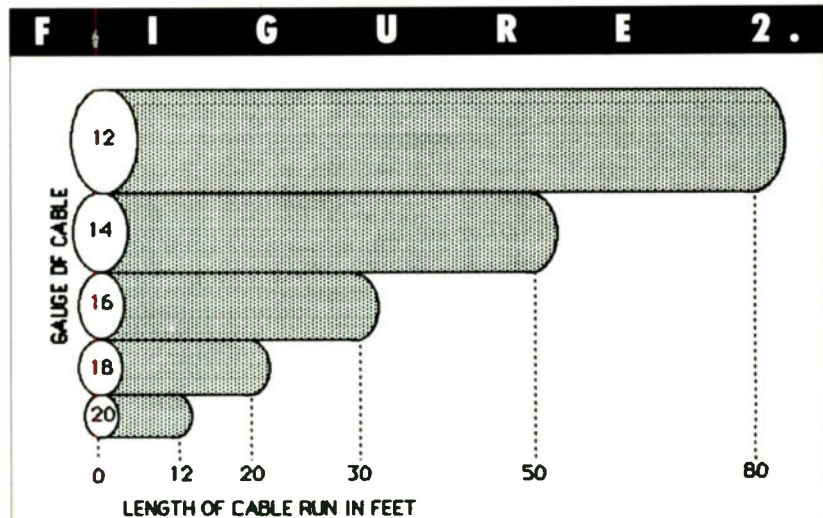
As I stated before, the position of your speaker cabinets also has a major influence on how sound interacts with the room. Although substantial changes in sound quality can result from moving a speaker enclosure only a few inches, there is no black art to placement—just trial and error and plenty of attentive listening.

To start, note any specific instructions given by the manufacturer—after all, it should know the speakers better than anyone else! A model designed for optimum performance when placed away from a wall will not sound good when backed up to one, whereas a model designed to stand against a wall usually needs that surface nearby for correct tonal balance. If no recommendations are given (a disgracefully common occurrence), begin by placing the cabinets about 6 to 8 feet apart, each one being at least 2 to 3 feet from a side wall and within about 1 foot of the wall behind it. If your speakers are direct-radiating (having all their woofers, tweeters, and so forth on their front surfaces), they should be positioned so that the drivers face the listener with no intervening obstructions. Some

speakers deliberately use reflections from nearby room surfaces to enhance the stereo image; if you own this type, make sure those surfaces are relatively "hard" and that the speakers don't have very absorbent surfaces behind or to the sides of them. And be sure to take these requirements into account when planning any wall treatments to control a too-live room or to cut down an echo.

Finally, when first installing your speakers, use cable of sufficiently heavy gauge; otherwise, the resistance of the wire could cause boomy bass that cannot be cured no matter what you do to the room. In general, the total resistance of the cable to each speaker should measure no more than 250 milliohms (one-quarter ohm), a condition that can be met if you choose the wire gauge with the aid of Fig. 2. You can buy inexpensive 16-gauge zip cord in many places; it is sufficient for all but the longest cable runs.

IMAGE QUALITY AND STABILITY SHOULD BE CONSIDERED IN YOUR LISTENING TESTS.



USE THIS CHART TO HELP YOU SELECT A SPEAKER CABLE. IT SHOWS THE LONGEST USABLE RUN FOR EACH CABLE GAUGE.

FINE TUNING THE BASS

In addition to being the result of bad speaker design, "boomy," "ringing," or "one note" bass can be caused by "standing waves," which are resonances of the listening room occurring at frequencies for which the room's dimensions equal one-half the

wavelength of the sound, and at multiples of those frequencies. (A sound's wavelength in feet approximately equals 1,130 divided by its frequency in Hz.) Furniture placement and wall or floor treatments will have little effect at the lowest frequencies because the wavelengths are so much larger than the acoustical obstructions that can be installed. However, moving the speakers can dramatically alter how standing waves are excited.

First, place the speakers asymmetrical in relation to the side walls—say, with one 3 feet from one wall, the second 5 feet from the other. If this does not work, the speakers may be exciting a standing wave between the wall behind them and the opposite one. Solving this problem requires pulling the cabinets out into the room. This has two results: The standing wave is less likely to be excited, and a cancellation is introduced at the frequency whose wavelength is equal to

four times the distance from the rear wall (see Fig. 3). By gradually increasing the distance between the speakers and the wall behind them, it is possible to vary this cancellation frequency until it coincides with a troublesome standing-wave frequency, thus reducing standing-wave boominess.

Overall bass-to-treble balance also is affected by speaker placement. As a rule, the more room boundaries there are near a speaker, the more bass it produces relative to the rest of the spectrum. Hence, more bass is heard when a speaker is standing on the floor than when it is raised several feet above it (and most bass is heard when a speaker is near or in a corner). The majority of "bookshelf" speakers, however, are designed to be raised off the floor by at least 2 feet. When they are on the floor, the bass is emphasized, but the lower midrange is reduced and your shins get the high frequencies.

THE MIDS & THE HIGHS

Most speakers are multiway systems with woofers, tweeters, and perhaps midranges, and the relative positions of the drivers significantly affect the sound at frequencies near the crossovers between them. These are the frequency ranges where (in a two-way system) woofer and tweeter operate together and where (in a three-way system) woofer and midrange or midrange and tweeter operate together. Because crossovers usually occur at fre-

the interdriver distances combined with the phase alterations produced by the crossover circuitry can "beam" the sound in unexpected directions.

Changing a cabinet's height or tilt or adjusting your own seating height can therefore alter a speaker's perceived balance. Experiment with these effects by propping up your speakers firmly on various chairs, stools, or other solid, raised surfaces, making sure that both speakers are at the same height and tilt for each test. If you find that they sound best at some position above the floor, then look for stands of that height. A suitable stand will hold the en-

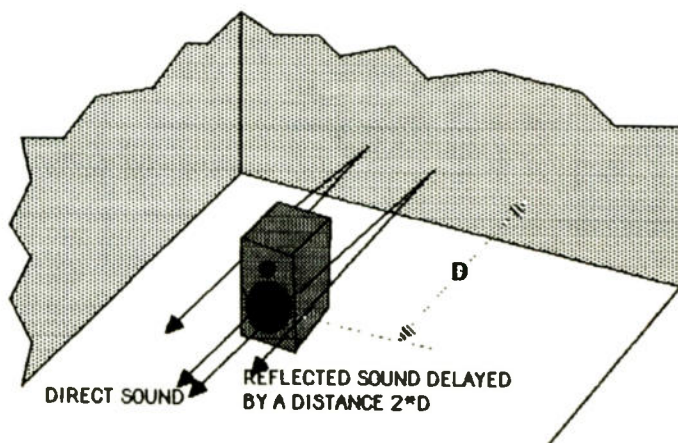
THE MAJORITY OF "BOOKSHELF" SPEAKERS ARE DESIGNED TO BE RAISED OFF THE FLOOR.

quencies where the sound has relatively short wavelengths, the spacing between the drivers involved often is larger than a wavelength, which causes interference effects. This interference reinforces the radiating sound in some directions and decreases it in others. That is, near a crossover frequency,

closure firmly without allowing it to rock or slide and will be absolutely stable on your particular floor surface.

When checking for tonal balance, move around in the intended listening area. Unless you are the only person likely to listen at any time, the speakers should not be set up

FIGURE 3.



SOME STANDING WAVES CAN BE CONTROLLED BY PULLING THE SPEAKERS AWAY FROM THE WALL. A CANCELLATION OCCURS AT THE FREQUENCY WHOSE WAVELENGTH IS FOUR TIMES THE SPEAKERS' DISTANCE TO THE WALL.

for a single "sweet spot." Different speakers have different sound-dispersion patterns, and often the tonal balance achieved and the area over which it is maintained can be altered by changing the degree of "toeing in" of the cabinets. Some speakers are at their best when placed parallel to the wall behind them, others when directed toward the listener. Whatever you find to be best for your system, do ensure that both speakers are mounted at the same angle.

STEREO AND ALL THAT

Most of the procedures I have described will affect the stereo image as well as tonal balance. Therefore, image quality and stability should also be considered in your listening tests. Achieving a stable image requires that

each speaker deliver the same frequency response to the listener. Consequently, although I have given reasons for placing speakers asymmetrical relative to side walls, conventional speakers should always be placed symmetrically relative to the listener. In addition, many listeners have found that a toe-in angle that makes the speakers' front axes cross in front of (not at) the listening position results in an unusually stable image.

Strong reflections from a side wall near one of the speakers can cause the stereo image to "wander" in that direction. Such an effect will be frequency dependent; therefore, the sounds of only certain musical instruments may exhibit the symptoms. The cure once again is to experiment with speaker/wall distances and with absorbent wall treatments near the speaker, changing size and position until the image is uniform and stable. There are now

some speakers on the market that have deliberately unconventional radiation patterns so that stable imaging is achieved over a wide listening area. These models usually are accompanied by rather specific placement recommendations, which should be followed.

As you can see, there are various remedies you can follow if you feel that your loudspeaker system is not living up to its full promise. Although hundreds of different speaker designs are available, each with a different sound quality, there are also tens of thousands of different listening rooms—and a still greater number of ways to change the sound of those speakers in those rooms. A little experimentation is therefore certainly worthwhile and can result in the sort of performance you always thought you should have but somehow just never achieved. ■

SWEET LITTLE ROCK 'N' ROLLER

PRETTY IN PINK, WRITER-DIRECTOR JOHN HUGHES'S third blockbuster, features box office draws Andrew McCarthy (*St. Elmo's Fire*) and Hughes's lead in both *The Breakfast Club* and *Sixteen Candles*, Molly Ringwald. It's designed to attract movie-going regulars (twelve- to nineteen-year-olds), not offend them. But judging from the film's hip title, which was taken from its theme song by the Psychedelic Furs, and the punk-via-Cyndi Lauper look of protagonist Ringwald, I figured that more than either of Hughes's other movies, this one would let rock 'n' roll take sides, and I was right.

The battle lines are simple in *Pretty in Pink*: Andie (Ringwald), a poor but smart girl from a broken home, and Blaine (McCarthy), a "richie" who drives a B.M.W. and believes that corporate families still arrange marriages, fall hard for each other. As the thin plot worries over whether or not love can conquer class differences, Andie slowly but surely builds her case. Although she's a misfit because her clothes look like they come from "the five-and-dime," as one preppie rival sneers, she's also a traditional heroine because of the way she acquired that wardrobe: hard work, ingenuity, and a sewing machine. So she's weird but not off-putting. Likewise, she's smart but not bookish: she only hopes that her best friend Duckie (Jon Cryer) isn't flunking deliberately to postpone life after high school. And though her dad (Harry Dean Stanton) may be unshaven and unemployed, he's a loving parent: "A good kiss can scramble anyone's brains, honey," he tells his rattled daughter after Blaine has asked her to the prom.

But overall, music speaks louder than words. Andie works in a record store run by Iona (Annie Potts), her friend/substitute-mother, a nostalgia freak who teases her hair into a beehive and insists on dancing with Andie to the Association's "Cherish" as she offers advice about Mr. Right. Duckie lip-synchs Otis Redding's "Try a Little Tenderness" to convince Andie that their relationship can be more than platonic, and consoles himself afterward by imitating a lounge singer doing John Lennon's "Love Is Real." Blaine asks Andie out after returning a Steve Lawrence album, which she had sarcastically recommended as "white . . . hot"—he wants something "more political." His friends get drunk and use their girlfriends; hers hang out at the local club listening to a local band, keeping the faith. Rock 'n' roll inspires her dad's attempted comeback in the job market, too: "If Tina Turner can do it, Jack Walsh can do it," she encourages him.

The *Pretty in Pink* soundtrack (A&M SP 3901, on LP, cassette, and Compact Disc) is the usual ten-track mixed blessing, although Suzanne Vega's "Left of Center" stands out. Twenty-two songs were used for the movie; obviously, stuff like Redding and the Lennon spoof were eliminated from the record to make room for new product, like A&M stablemates Vega and Jesse Johnson. Context is everything, I guess.

Georgia Christgau



E D I T E D

B Y

G E O R G I A

C H R I S T G A U

A N D

T E D

L I B B E Y

SERMON, NARRATIVE, AND . . .

I WANTED TO DEVOTE A COLUMN TO THE ABSURDITY OF the 28th annual Grammy awards, and even went to the trouble of finding out how the Atlanta Symphony was able to pack the nominations and bloc-vote its own recordings. Then I decided that the best response to the Grammys was no response at all. So I won't waste your time with a diatribe, or list the reasons why it's ludicrous that *West Side Story* won the Grammy for the year's best cast-show album (the list would begin with José Carreras and Kiri Te Kanawa), or chafe at how John Aler could be recognized as having been the best classical vocal soloist, or wonder aloud what fraction of those who voted for Sir Georg Solti's recording of Schoenberg's *Moses und Aron* as the best opera issue actually listened to it.

Instead, I thought I'd report on the activities of some favorite recording artists. The Austrian cellist Heinrich Schiff was recently in New York, and we had a chance to talk about some of his projects, including an account of Rachmaninoff's Cello Sonata with pianist Elisabeth Leonskaya, soon to be released by Philips. Also in the offing from the Dutch label is an all-Lutoslawski disc, featuring the Cello Concerto with Schiff as soloist and the composer conducting the Bavarian Radio Symphony Orchestra. The filler is expected to be the Concerto for Oboe, Harp, and Chamber Orchestra, with Heinz and Ursula Holliger.

For Angel EMI, Schiff is halfway through a traversal of the two concertos of Vieuxtemps with Neville Marriner: The first (Op. 46) is in the can, and sessions for the second (Op. 50) are scheduled for August. Schiff also mentioned his recording of the six solo cello suites of Bach, which has been out for nine months in Europe and drew rave reviews from the European press. I have yet to receive a copy from Angel or see it in the stores. You can imagine how long it will be before we get the Compact Discs. I had to tell Schiff that this sort of thing is scarcely going to help him establish his reputation in the United States, something I especially regret, because ever since hearing his North American debut at Blossom in 1981, I have thought him the finest cellist of the young generation.

Another talented member of this generation is conductor James Conlon, music director of the Rotterdam Philharmonic. Conlon, who also was in New York recently, told me that he and the orchestra are following up their account of Liszt's *Eine Faust-Symphonie*, released last year, with a studio recording of the *Dante Symphony* (just issued) and a live recording of the oratorio *Christus* (due in September), both for RCA Erato. In addition, there will be a special CD coupling of shorter works of Liszt: the two episodes from Lenau's *Faust* (originally included on the LP of *Eine Faust-Symphonie*, but omitted from the CD), the ever popular *Les Préludes*, and *Deux Légendes*, inspired by the lives of St. Francis of Assisi and St. Francis of Paola. Conlon told me he would like to do *The Legend of St. Elizabeth* in this, Liszt's centennial year, but that cost was "a problem." Ted Libbey

CLAS

BY HARLOW ROBINSON

THE RECORDING BEHEMOTH OF TVERSKOY BOULEVARD

*State-run Melodiya: calling the tunes
for the Soviet music listener*

ONE DAY LAST WINTER, IN THE midst of an unseasonable thaw that turned Moscow's snow-covered streets to slushy ruts, a small group of Americans paid a visit to the administrative offices of Melodiya, the sole official producer of records and cassettes for the huge Soviet market. Like the weather, the welcome we received was unusually warm—reflecting the more temperate climate of Soviet-American relations that has developed since Mikhail Gorbachev became the top man in the Kremlin. Felix Perepelov, Melodiya's deputy director general, and Mikhail Shapiro, who is the director of repertory and who bears a disarming likeness to Alan Arkin, answered our questions about the label's production, organization, new performers, and current recordings with enthusiasm and even some self-criticism.

Housed in an elegant cream-colored palace on Moscow's Tverskoy Boulevard (whose 19th-century ambience and aristocratic pretensions provide a startling contrast to the city's gray homogeneity of con-

crete and steel), Melodiya is not the first record company to occupy the premises. Before the Revolution, a private concern bearing the romantic name of "Recording Amour" operated out of the same building.

Today, Melodiya is one of the world's largest record companies—not surprising when you remember that it has a monopoly on one of the world's largest markets. It produces 120 million commercial LPs and eight million cassettes annually, plus five million educational records sent directly to Soviet schools; operates large studios in Moscow, Leningrad, Tbilisi, Tashkent, and Alma-Ata; maintains its own symphony orchestra; runs 24 distribution centers across the enormous breadth and length of the U.S.S.R.; and controls sales of Melodiya recordings (and purchase of foreign ones) abroad. Exports account for a very small part of the label's business: Only about four million records are sold abroad each year, and about the same number of foreign releases are purchased for sale (at prices double those for the domestic product) in the U.S.S.R.

Like all Soviet enterprises, Melodiya is owned and operated by the state, a situation that creates enormous possibilities and enormous difficulties. First the possibilities. Since the company is state-subsidized (although theoretically it pays its own way), it can function more or less independently of the laws of supply and demand. Melodiya, Perepelov told us proudly, will make a recording if it has been determined that at least 200 people will buy it—and it will be no more expensive than any other record. Many classical releases are sold at a lower price than recordings of popular music, for which the demand is greater and for which Melodiya can set an even higher price. At the moment, 35 to 40 percent of all the titles Melodiya produces are from the classical repertory, but classical ranks only third in volume of sales, trailing popular (pop songs, rock, operetta, and stage music), which now controls 70 percent of the market, and music for children.

The main disadvantages of state control for Melodiya appear to be difficulty in ob-

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taining approval and funding for technological research, lack of incentive to institute the latest technical advances in production (the benefits of which could be passed on to the consumer), and fear of the spread of information or subversive music through tape recordings. For example, in the field of cassettes, Melodiya is far behind its American, Asian, and European counterparts. The problem is not that the Soviet consumer doesn't want them: So intense is the demand for blank cassettes that Melodiya does not issue classical titles on cassette for fear that consumers will buy these relatively inexpensive tapes and erase them to record popular music (or who knows what else). Blank cassettes are very expensive in the Soviet Union, and hard to come by.

Melodiya also lags far behind Western companies in the development of digital recording equipment and Compact Discs, although the reasons in this case seem to be bureaucratic inertia and an unwillingness to import expensive Western technology. Perpelov told us that the label is planning to

build a plant in Riga (in Latvia), which will use Philips equipment to produce CDs by 1989. The production of digital players is also in the offing.

If Melodiya is cautious in its attitude toward new technological developments, it has become more adventurous in the range of the repertory it records. An artistic council with 40 members, headed by the influential and relatively liberal composer Rodion Shchedrin, makes recommendations about new classical recordings, planning two years in advance. Another important voice in the process belongs to Gennady Rozhdestvensky, who conducts the State Symphonic Orchestra of the Ministry of Culture, which in fact operates under the auspices of Melodiya. Rozhdestvensky—one of the most talented, energetic, and progressive Soviet conductors working today—has stubbornly and successfully advocated recording new works by living Soviet composers and little-known compositions by such Soviet masters as Prokofiev and Shostakovich.

Among the projects scheduled to be

completed in the next two years is the first Soviet recording of Prokofiev's opera *The Flaming Angel*, which was unknown in Russia for more than 50 years. Rozhdestvensky will conduct. Meanwhile, conductor Dmitri Kitarenko is in the process of taping all the Prokofiev symphonies. Other Prokofiev works that are little known either in Russia or in the West—including *The Year 1941 Suite* and the "festive poem" *The Meeting of the Volga and the Don*—are also on Melodiya's agenda.

As we were rising to leave at the end of our meeting, laden with the information, records, and catalogs that our hosts had presented us, someone asked who designed Melodiya's record jackets. The answer underscored the educational intent of the Soviet entertainment industry and the unique range of resources at its command: students at the local art institute. ■

Harlow Robinson writes frequently on the performing arts. His Ugly Duckling: The Life, Times, and Music of Sergei Prokofiev will be published by Viking Press early in 1987.

THE CD SPREAD

MINI-REVIEWS OF THE LATEST COMPACT DISCS

BY ROBERT E. BENSON, IRVING KOLODIN, K. ROBERT SCHWARZ, AND BILL ZAKARIASEN

"LEMMINKÄINEN" SUITE CONTINUES CYCLE FROM JÄRVI

JEAN SIBELIUS'S *LEMMINKÄINEN SUITE* (SOMETIMES called *Four Legends from the Kalevala*), Op. 22, poses among the most severe challenges this composer has given any conductor. Its quasi-symphonic form is cyclical yet sprawling, its lavish orchestration extremely difficult to balance properly. Among many recordings, only the long-unavailable Capitol issue conducted by Sixten Ehrling did justice to the suite, but the ancient mono sound hardly did likewise. Now, thanks to Neeme Järvi's magnificent traversal (as part of his complete survey of Sibelius orchestral works played by the Gothenburg Symphony on the BIS label), we have a performance of *Lemminkäinen* that is as close to definitive as one could reasonably hope for.

For most of the way, Järvi's tempos are extremely broad, yet he manages to create a feeling of incredible tension. He has mastered the architectural shape of each movement well-nigh perfectly. For instance, the long, slow conclusion to *Lemminkäinen and the Maidens* for once becomes a shattering denouement and not an anticlimax. *The Swan of Tuonela* (still the most popular section) swims with magnificent inevitability, while the high point of the performance is reached in a truly revelatory reading of *Lemminkäinen in Tuonela*—the one movement that, despite its fabulous imagery, has baffled most previous conductors as to its true shape. Only in a slight miscalculation at the culmination of *Lemminkäinen's Return*, in which the vociferous crash of the percussion covers the important treading bass line, does this rendition disappoint in the slightest.

This release is a most important addition to the recorded Sibelius canon, and it is without a doubt Järvi's finest accomplishment on disc to date. The Gothenburg Symphony is in peak form: The string playing is particularly pleasurable, while the performer of the seemingly unending bass-drum part deserves a medal for sheer physical endurance. Thanks to fabulous sonics on the CD issue, the bass drum delivers an impact hardly ever hinted at previously, while bal-

ances possess optimum clarity, and dynamic range is nothing short of awesome. One of the finest CDs yet to appear in the entire catalog. Playing time: 49:24. (BIS CD 294. Distributed by Qualiton Imports, 39-28 Crescent St., Long Island City, N.Y. 11101.)

B.Z.

FAVORITE BRITTEN WORKS FOR STRINGS ON CHANDOS

THE BOURNEMOUTH SINFONETTA CONDUCTED by Ronald Thomas plays all of Britten's original music for string orchestra on this Chandos CD, the major work being *Variations on a Theme of Frank Bridge*. Also included are the *Prelude and Fugue*, Op. 29, and the delightful *Simple Symphony*; it is good to have the latter on CD, particularly when it is played as well as it is here. Although there is a slight touch of tape hiss from the 1977 analog source of these performances, it is minimal, and the string sound matches the best I've heard on recordings. Indeed, the richness, clarity, and warmth of sonority achieved by producer Brian Couzens are extraordinary. This is one of eight recordings of English music sponsored by Harveys of Bristol. The company's patronage is to be commended. Playing time: 51:07. (Chandos CD 8376. Distributed by Harmonia Mundi, U.S.A.)

R.E.B.

SZELL AND THE CLEVELAND IN STRAUSS TONE POEMS

THESE INTERPRETATIONS OF RICHARD Strauss's *Don Juan*, *Till Eulenspiegels lustige Streiche*, and *Tod und Verklärung* well deserve their "Great Performances" designation. Recorded in the early Sixties, they are played with the utmost virtuosity by the Cleveland Orchestra under George Szell. The sound quality is, to me, superior to that of many of today's digital recordings, with a natural perspective and wide stereo spread. Occasionally, in some of the dramatic moments, Szell's vocal exhortations to the orchestra can quite clearly be heard. By any standard, an outstanding collection for Straussians. Playing time: 54:20. (CBS MYK 36721.)

R.E.B.

MOZART SONATAS FOR PIANO AND VIOLIN

THE GRACE RAINEY ROGERS AUDITORIUM IN New York's Metropolitan Museum of Art has become a favorite place for the activities of Robert Mann, now celebrating his 40th year as the one and only first violinist of the Juilliard Quartet. Mann recently joined forces there with the Soviet-born, Israeli-reared pianist Yefim Bronfman to perform half a dozen Mozart sonatas very suitable to those "artistic" surroundings. Unlike some other masters, Mann honors the composer's friendly feelings for the keyboard, even to the extent of playing in what would have to be called the obbligato tradition. The first disc of this two-CD set contains the Sonatas in B flat, K. 454; G, K. 301; and F, K. 376. I find it less interesting than the other disc, which offers the Sonatas in E flat, K. 302; G, K. 379; and A, K. 526. Bronfman, whom I first heard in Israel in the mid-Seventies, is ascending the ladder to prominence, but insofar as chamber music is concerned, he relishes fortés somewhat more than the best pianists should. Playing time: 114:09. (Music Masters MMD 60077/8.)

I.K.

FROM LINCOLN CENTER, WIND MUSIC OF POULENC

THE CHAMBER MUSIC SOCIETY OF LINCOLN Center is so efflorescent an entity on the New York musical scene that, to those without audible access, it must seem like an invisible equivalent of unavailable unreality. Now, however, the release of this two-CD set devoted wholly to Francis Poulenc's chamber music for winds invites a personal participation with the ensemble that the medium renders impeccably exciting. In addition to being rarely heard (especially at the level attained here by the group's regular participants), the pieces are treasureably embodied, a central factor in a majority of them being the fanciful contribution of pianist Charles Wadsworth (who is also the ensemble's artistic director). He does the honors for Ger-vase de Peyer in the Sonata for Clarinet (1962), flutist Paula Robison in the *Villanelle* (1934) and the Sonata for Flute (1956),

hornist Robert Routh in the *Elège* (1957), and Leonard Arner in the Sonata for Oboe (1962). For a masterly example of Poulenc's extraordinary agility and ability in this mysteriously Mozartean mode of expression, listen to the Clarinet Sonata and the *Villanelle*—as well as the excellent Sextet (1932–39), performed by the five players identified above, with Loren Glickman on bassoon. Recorded at St. Bartholomew's Episcopal Church in White Plains, New York, the material is superbly reproduced. Playing time: 98:28. (Music Masters MMD 60040/1.)

I.K.

VIVALDI DOUBLE CONCERTOS FROM MARRINER

A DELECTABLE ARRAY OF CONCERTOS FOR paired instruments by Antonio Vivaldi, one concerto each for trumpets (with violin, R.V. 563), horns (R.V. 539), mandolins (R.V. 532), flutes (R.V. 533), and oboes (R.V. 536), plus a concerto for oboe and bassoon (R.V. 545), all with strings and continuo. The high performance quality we have come to expect from Neville Marriner and the Academy of St. Martin-in-the-Fields is evident throughout. Philips's reproduction is warm and full-bodied; the soloists are pleasantly placed among the ensemble instead of unduly spotlighted. Surely one of the finest collections of its kind. Playing time: 50:29. (Philips 412 892-2.)

R.E.B.

RICHTER IN CONCERT: SCHUBERT SONATAS

DOES THE APPEARANCE ON CD OF TWO Schubert piano sonatas (No. 13, in A, D. 664, and No. 14, in A minor, D. 784) performed by Sviatoslav Richter, following the death last year of Emil Gilels, suggest that cultural regeneration may bring to America the last great living example of Soviet pianism? The probability is hardly great, which is made all the more regrettable by the excellence of the present release. Both works are infused with the mood and manner Richter brought to them in a 1979 recital in Japan. If there is another approach to Schubert as satisfying as his, its identity is hard to recall. Playing time: 50:29. (Melodiya MCD 10030. Distributed by Moss Music Group.)

I.K.

HOGWOOD AND HAYDN ON OISEAU LYRE

THE MAGIC THAT CHRISTOPHER HOGWOOD and the Academy of Ancient Music brought to Haydn in their first sampling of London symphonies (Nos. 100 and 104, Oiseau Lyre CD 411 833-2) continues unabated in this second installment. Symphonies Nos. 96 (*Miracle*) and 94 (*Surprise*) are treated to the most sparkling, transparent performances they have received on disc.

The Academy of Ancient Music, an original-instrument ensemble, favors lean textures and crisp articulations, which allow individual lines to emerge with startling clarity. Orchestral balance is perfect, the pungent winds and martial brass never over-

whelmed by the strings. And the playing itself is virtuosic, each artist showing a soloistic touch.

It is Hogwood's distinctive approach that allows these symphonies to shine. Conducting from the fortepiano, he selects characteristically brisk tempos that are exhilarating without ever seeming uncontrolled. He chooses to stress these symphonies' Beethovenian power, not the perfumed elegance all too often emphasized. Moreover, the wide dynamic range he achieves—the startling fortissimos leap forth from the wispy pianissimos—allows us to experience the drama and shock value of the "surprise" as never before. No wonder Haydn's drowsy London audience was so rudely awakened! Playing time: 49:22. (Oiseau Lyre 414 330-2.)

K.R.S.

DUTOIT AND MONTREAL IN OVERTURES OF SUPPÉ

CHARLES DUTOIT AND THE MONTREAL SYMPHONY offer a generous collection of Suppé overtures in performances that are sprightly, if not particularly dynamic. Included are *Light Cavalry*, *Fatinitza*, *The Jolly Robbers*, *The Beautiful Galatea*, *Poet and Peasant*, *Pique-Dame*, and *Morning, Noon, and Night in Vienna*. The Decca/London recording team's reproduction is an example of its best achievements in Montreal and should contribute to making this a popular CD. Program notes are skimpy, but they are provided in three languages. Playing time: 56:47. (London 414 408-2.)

R.E.B.

SCHUMANN'S FOUR SYMPHONIES FROM THE CONCERTGEBOUW

BERNARD HAITINK'S INTERPRETATIONS OF THE four Schumann symphonies, recorded with the Concertgebouw Orchestra between 1981 and 1984, are masterful. Although one might wish for a more propulsive approach to the finale of Symphony No. 2, these are strong, magnificently played readings, performances that one should be able to live with very comfortably. They are sonically excellent—perhaps a bit thin in violin sound, but with warmth and depth. Good value in playing time, too, but I hope the overtures to *Manfred* and *Genoveva*, which are included on the LP and cassette counterparts to these two discs, will eventually appear on CD. Playing time: 130:52. (Philips 416 126-2.)

R.E.B.

THE KROUMATA PERCUSSION ENSEMBLE REVISITED

IF YOU EVER WISH TO BREAK YOUR LEASE, JUST play Sven-David Sandström's *Drums*, a 15-minute piece scored for four musicians playing drums, one playing timpani. This is a work of increasing intensity that reaches a shattering climax, quite spectacularly captured on this intriguing CD featuring the Kroumata Percussion Ensemble. Manuela Wiesler is flute soloist in Lou Harrison's Concerto No. 1 for Flute and Percussion and Jolivet's *Concert Suite* for the same forces;

Richard Pilar plays prepared piano in John Cage's *Amores*, for prepared piano and percussion. Except for the avid contemporary music buff, listeners may find that musical values are somewhat limited here. Still, the fascinating percussion textures should have wide appeal. In addition to the sonic blast of *Drums*, the recording is equally effective in capturing the tintinnabulation of the more delicate percussion instruments. This is an appropriate sequel to the Kroumata Ensemble's remarkable initial CD (BIS CD 232), offering works of Cage, Cowell, Lundquist, and Taïra. Playing time: 48:57. (BIS CD 272. Distributed by Qualiton Imports.)

R.E.B.

"RUNNIN' WILD" WITH JAMES P. JOHNSON

AS A TITLE, *SYMPHONIC JAZZ* HARDLY SUITS THE kind of piano music William Albright produces in this sequence of James P. Johnson pieces recorded in 1985 at Hill Auditorium on the University of Michigan campus in Ann Arbor. However, Albright does have a sense of purpose in devoting himself to that great rag man's output. Best are "Runnin' Wild" and other creations Johnson often played with Ethel Waters and Bessie Smith on tour. Playing time: 35:43. (Music Masters MMD 60066.)

I.K.

LITTLE-KNOWN RESPIGHI SCORES CONDUCTED BY SIMON

RESPIGHI'S *BELKIS, QUEEN OF SHEBA* SUITE AND *Metamorphoseon modi XII* are here recorded for the first time. *Belkis, Queen of Sheba* is an 80-minute ballet scored for a massive orchestra, chorus, vocal soloists, and a narrator who relates the biblical legend of Solomon and Sheba. Leonide Massine arranged the tableaux and ballet sequences for the La Scala premiere in 1932, which was widely acclaimed as a lavish spectacle. The five sections included in this orchestral suite (arranged by the composer) are highly attractive and vividly orchestrated. The brief *War Dance*, heavily scored for percussion, doubtless will be a favorite audio demonstration excerpt.

Metamorphoseon was commissioned by Serge Koussevitzky and the Boston Symphony for the orchestra's 50th anniversary season, in 1930, and is almost a concerto for orchestra, with many solos for various instruments and one variation ("Modus III") that consists entirely of accompanied cadenzas for no fewer than ten different instruments. While the performances of both scores by the Philharmonia Orchestra are excellent, some of the more sensuous elements of *Belkis* seem to elude conductor Geoffrey Simon. Sonically, this CD is first-rate, although not as outstanding as the finest issued by Chandos. While the music will hardly replace Respighi's Roman trilogy in most listeners' affections, it is well worth hearing—and it is unlikely there will be another recording in the near future. Playing time: 48:12. (Chandos CD 8405. Distributed by Harmonia Mundi, U.S.A.)

R.E.B.

The Auspicious Beginning of a New Mahler Cycle

GIUSEPPE SINOPOLI
ALLOWS NO DUST TO SETTLE
ON HIS MAHLER FIFTH.



COURTESY FUGÈRE/DEUTSCHE GRAMMOPHON

MAHLER:

Symphony No. 5, in C sharp minor.

Philharmonia Orchestra, Sinopoli. Guenther Breest, prod. Deutsche Grammophon 415 476-2 (D). © [2; includes six early orchestral songs].



THIS IS ONE OF THE FINEST RECORDED PERFORMANCES of Mahler's Fifth that I have ever heard; indeed, it reminds me (especially in the first movement) of Hermann Scherchen's celebrated Westminster LPs, a supreme reference for many years.

With each new recording, with each new concert, Giuseppe Sinopoli seems to grow in stature. At thirty-nine, he is the strongest

personality among the younger generation of conductors (next to him, I would place only Simon Rattle), and if his performances at times unleash strong controversy, it is because they do not hesitate to overthrow obsolete traditions in order to take a fresh view of scores on which routine performances have allowed the dust to settle. The young Toscanini was a similarly controversial figure for similar reasons. And it was Mahler himself who uttered the celebrated dictum "*Tradition ist schlamperei*," meaning that tradition all too often stands as an excuse for negligence.

Sinopoli studied composition and con-

ducting in Vienna, and many ties—psychological, spiritual, cultural—link him to Mahler, one of the first composers whose music he conducted. That is part of the reason why, although I am an enemy of countless duplications in the catalog, I welcome Deutsche Grammophon's initiative in launching a new Mahler symphony cycle (the label's fourth) with Sinopoli and the Philharmonia Orchestra (No. 2 is also in the stocks, and No. 6 should follow soon). Here is something definitely original and different.

The Fifth is one of the most popular Mahler symphonies; it is also one of the most difficult to perform, both technically and ar-

chitecturally, for the balance of its formal and psychological elements is a perilous one. Sinopoli meets the challenge. Without ever indulging in cheap sentimentality, he brings to the opening funeral march a perfect blending of rigor (even austerity) and expressive intensity. Attacks, nuances, and articulation are of matchless precision, and the balance of Mahler's complex contrapuntal fabric is perfect: I have never heard a better realization. And these high standards are preserved through almost the whole piece—even when Sinopoli takes some (calculated) risks as he drives the orchestra to the edge of the abyss by taking breathless tempos at the end of the Scherzo and the Finale.

The acoustics could have been a little drier and less reverberant, the *Rite* in the Scherzo more biting and incisive, the runs of the double basses a little more distinct in the last movement. But these are very minor details, and as a whole, this stands out as the most recommendable Mahler Fifth available at the moment, superior to those by Herbert von Karajan, Georg Solti, and Klaus Tennstedt (to name the leading contenders on Compact Disc). I only hope CBS Masterworks will release the Bruno Walter performance on CD. . . . *Harry Halbreich*

ALKAN:

Works for Piano.

Smith, David Groves, prod. Arabesque Z 6523 (D). □ □ 7523.

Gigue et air de ballet dans le style ancien, Op. 24; Gigue. Vingt-cinq préludes, Op. 31; Cantique des cantiques. Trois marches, quasi da cavalleria, Op. 37; Marche No. 1. Recueil de chants, Op. 38; Allegretto ("Fa"). Le Tambour bat aux champs, esquisse, Op. 50, No. 2. Quarante-huit motifs (Esquisses), Op. 63; Delire; Morituri te salutant; Le premier billet doux; Les Cloches; Les Enharmoniques; Incepatio; Les Soupirs; En Songe. Troisième recueil de chants, Op. 65; Barcarolle. Cinquième recueil de chants, Op. 70; Barcarolle. Les Mois, Op. 74; Carnaval; Promenade sur l'eau; Gros temps. Toccatina, Op. 75. Petit conte.

FOR ANYONE NOT ALREADY FAMILIAR WITH THE piano music of Charles Henri Valentin Alkan (1813–1888), the titles listed above will offer some idea of both the scope of his fancies and the brevity of his compositions. He did attempt some major works, including two concertos, a cello sonata, a piano trio, and a symphony, but he's known today almost solely for his light, bright "character" pieces for piano.

The obvious influence is that of Chopin, who first visited Paris when Alkan, three years his junior, was seventeen; in Alkan's later work, produced when he had all but withdrawn from public life, one finds a denseness of texture and Mephistophelian darkness reminiscent of the music of Liszt, who regarded the Frenchman as one of the leading piano virtuosos of the day. But as Ronald Smith points out in his lucid liner-

note essay, Alkan's music *does* sound different: In general, it's efficient in its evocations of all sorts of moods, yet almost always it's driven by a disturbingly restless rhythmic energy, and often it's colored by bold shifts of harmony that seem startling even to 20th-century ears. One could quibble with Smith's comparison of the 19th-century Bach revival with the interest being paid Alkan as the centennial of his death approaches. However, we can easily enough agree with his opinion that Alkan was one of those "hidden geniuses out of joint with their own time."

The author of an Alkan biography appropriately subtitled *The Enigma*, Smith probably knows more about the composer than anyone else alive. And he probably plays the music better than anyone else, too. This is his fourth Arabesque recording of Alkan repertoire; the interpretations seem guided by real understanding, and the execution is consistently brilliant. *James Wierzbicki*

BERIO:

Sinfonia; Eindrücke.

The New Swingle Singers, Orchestre National de France, Boulez. RCA Erato ECD 88151 (D). □ NUM 75198. □ MCE 75198.

BERIO HIMSELF CONDUCTED HIS *SINFONIA* WITH the New York Philharmonic for a pioneering Columbia record of 1969, made at a time when the piece still lacked its fifth and final movement (which was added after the Donaueschingen performance the same year). Here, with superlative sound quality that the earlier issue cannot match, is the first complete recording of this seminal piece of contemporary music, the importance of which appears all the more fundamental in light of Berio's subsequent and rather disappointing development as a composer.

Written during the great wave of student protest that swept both sides of the Atlantic in the late Sixties, and of which the May 1968 Paris uprising is the most striking symbol in Europe, the *Sinfonia* has all the fascination and appeal of a "time piece," and perhaps the limitations. It faithfully reflects the ebullient atmosphere of youthful subversion so typical of those days. The presence of the Swingle Singers adds a touch of color perfectly in accord with Berio's "baroque" personality. I am afraid the spoken bits—and in the extended Scherzo, that extraordinary medley, or collage (based on the third movement from Mahler's Second Symphony), that amounts to far more than bits—are the most dated element of the work, often blurring musical textures that already are complex enough. I have a feeling that Bernd Alois Zimmermann handled that sort of thing better . . . and earlier.

This being said, *Sinfonia* remains a thoroughly enjoyable and fascinating piece, displaying a wealth of invention bordering on prodigality. Its exhilarating extroversion

and colorful, Italianate tonal tapestry still make it a most stimulating listening experience. The present performance, while lacking some of Berio's own relaxed and sunny geniality, impresses through playing and singing of the utmost polish and perfection, Pierre Boulez's conducting giving the score a maximum of clarity and readability. The sound quality of the recording is simply fabulous.

As the complete *Sinfonia* lasts only 35 minutes, there is a bonus on this disc: an orchestral piece entitled *Eindrücke* (1974). Unfortunately, it is a rather drab composition of a curiously haunting grayness, whose self-centered monotony at times recalls the sullen introversion of Boulez's own *Rituel*. Even with *Eindrücke*, this is a pretty short CD, and I would have welcomed an additional, more heartening testimony of Berio's recent creative development—for instance, the beautiful *Requies*. This should not deter you from acquiring an important issue of contemporary music, a definitive performance of one of the least esoteric and most readily accessible works of our time. *Harry Halbreich*

CAGE:

Sonatas and Interludes for Prepared Piano.

Takahashi, Yoshiharu Kawaguchi, prod. Denon C37 7673 (D).

SILENCE IS THE TITLE OF JOHN CAGE'S BEST-known book, the collection of essays and articles from 1961 in which he first put into literary form the concept of indeterminacy that had been the guiding force of his thinking since at least 1952, the year in which he "composed" his famous 4'33" for nonplaying pianist. But silence had been an element in Cage's music for almost a quarter century prior to the publication of the book. His earliest work for prepared piano—the 1938 *Bacchanale*—derives its character as much from the empty space that surrounds the various metallic-, wooden-, and rubbery-sounding piano sonorities as from the notes themselves. The ratio of silence to sound increased with such works from the early 1940s as *Prelude for Meditation* and *A Valentine Out of Season*, and by the time Cage began his landmark *Sonatas and Interludes* project, in 1946, he had reached the opinion that the precisely measured absence of sound was every bit the equal—in terms of not only structural significance but also expression—of carefully calculated pitch and timbre.

There's nothing at all indeterminate about the 16 sonatas and four interludes that make up the collection: each piece is based on a numerical sequence that generates both micro- and macrorhythmic units, and the whole thing is notated meticulously. The music was intended to convey such "permanent emotions"—as the Indian philosopher Coomaraswamy described them—as heroism, surprise, lust, joy, sorrow, fear, and an-

ger. Cage's notes do their part in accomplishing that lofty goal, to be sure, but they succeed only when they ring out in exactly the right proportion to their enveloping silences.

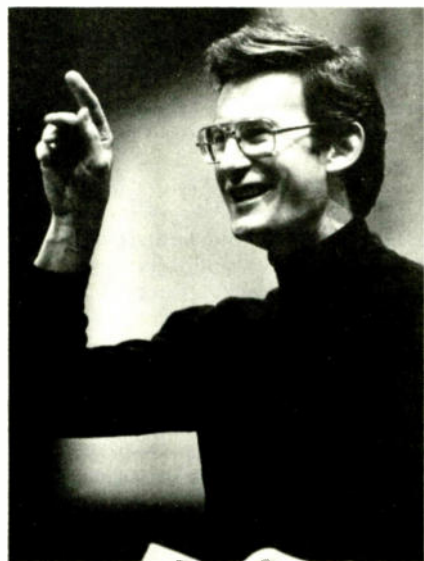
The wonderful thing about listening to a good performance of the *Sonatas and Interludes* on Compact Disc is that the silences are so pure. Yüji Takahashi's 1975 reading of the music is not significantly different from the excellent versions recorded by John Tilbury for Decca (Headline 9) or by Joshua Pierce for Tomato (TOM 2-1001). But the experience of it is enormously more pleasurable, if only because the format eliminates the needle noise that's apparent to a certain extent even when the best turntable and cartridge are used. The ideal match is, of course, digitally recorded sound and digital playback equipment—after all these years, it's finally here.

James Wierzbicki

HANDEL:

Solomon.

Watkinson, Argenta, Hendricks, Rodgers, Jones, Rolfe Johnson, Varcoc; Monteverdi Choir, English Baroque Soloists, Gardiner. Wilhelm Hellwig, prod. Philips 412 612-4 (D, 3). © (3). © (2).



AUTHENTIC HANDEL FROM JOHN ELIOT GARDINER

AT LONG LAST, WE CAN HEAR WHAT HANDEL intended us to hear in the richest, if also the most unusual, of his oratorios, a work that Paul Henry Lang has termed "part pageant, part idyll, part allegory," an "incessantly vivid panorama": the *Solomon* of 1748-49.

It has been recorded before, but always—beginning with Sir Thomas Beecham's monstrously cut and rescored 1956 mono travesty for Columbia (later on Angel)—with the title role given to a man rather than the female contralto specified by the composer. Even in the better of the two previous stereo versions (conducted by Johannes Somary for Vanguard and still listed in *THE NEW SCHWANN*), the personality differentiations among the three remaining principal female roles—Solomon's Queen, the

First Harlot, and the Queen of Sheba—were lost by giving all three roles to a single soprano, even one as fine as Sheila Armstrong. And never before on records has this magically colored score been heard in the authentic timbres of the instruments of its own time.

To be sure, even with this new *Solomon* there are a few cuts, but only of material that Handel experts unanimously believe is inferior to the rest—like the original ending, here replaced, as is usually the case nowadays, by the far more effective chorus "Praise the Lord with Harp and Tongue!"

In the past, I may have been less enthusiastic than most of my colleagues in evaluating the conducting of John Eliot Gardiner, but either I was wrong then or he outdoes himself now: This is as close to an ideal, quintessentially Handelian performance as one could hope for. It features uncommonly alluring period-instrument playing by a properly modest-size orchestra (just listen to its intoxicating bite in the familiar Entrance of the Queen of Sheba that opens Act III) and no less striking aural charms in the singing of the 30-voice Monteverdi Choir (especially in the work's most famous choral movement, the so-called "Nightingale Chorus" that closes Act I). There also is uniformly lovely, yet always dramatically individualized, solo singing by Carolyn Watkinson as a gravely eloquent Solomon, Nancy Argenta as a delectably girlish Queen, Barbara Hendricks as a more mature and regal Queen of Sheba, and Joan Rodgers and Della Jones as the vividly contrasted good and evil harlots who both claim to be the true mother of the disputed baby in the Act II judgment scene. The two males, Anthony Rolfe Johnson (Zadok) and Stephen Varcoc (a Levite), are less distinctive, but they are given scant scope by the composer.

Add crystalline, yet never icy, digital sound with an exceptional degree of theatrically effective stereo separation, a 72-page trilingual booklet that provides complete personnel and instrument identifications, an interview with Gardiner on his performance principles for the work, scholarly notes by preeminent Handel-oratorio authority Winton Dean, and full libretto, and you have the most dazzling Handel recording of this, or perhaps any, year.

R. D. Darrell

HAYDN:

Symphonies: No. 94, in G ("Surprise"); No. 96, in D ("Miracle").

Academy of Ancient Music, Hogwood. Morton Winding and Peter Wadland, prods. Oiseau-Lyre 414 330-4 (D). © ©

CHRISTOPHER HOGWOOD AND THE ACADEMY of Ancient Music continue their Haydn symphony project (launched last year with Nos. 100 and 104) with a digital coupling of the *Surprise* and *Miracle* symphonies. The playing is tangy and beautifully balanced; the interpretations, led from the fortepiano by Hogwood, are consistently stylish. Anyone who finds the idea of Haydn on original instru-

Format Key

- Ⓛ LP
- Ⓜ Cassette
- Ⓢ Compact Disc
- Ⓥ Videocassette
- Ⓦ Videodisc
- Ⓡ Open reel

RECORDING INFORMATION

- (A) analog original
- (D) digital original

Large symbol beneath title indicates reviewed format. Small symbols following catalog number of reviewed format indicate other available formats (if any).

Catalog numbers of all formats of a particular recording usually are identical except for differing prefixes or suffixes. Catalog numbers of formats other than the reviewed format are printed only if their basic numbers differ substantially from that of the reviewed format.

Arabic numeral in parentheses indicates number of items in multi-item set. Unless otherwise indicated, all multi-LP sets are in manual sequence.

ments appealing will enjoy this excellent recording. Richard Gwilt's liner notes offer a pointless discussion of "form, drama, and rhetoric in Haydn's London symphonies" while saying nothing about either the instruments heard on the recording or the principles on which Hogwood's new performing editions are based.

Terry Teachout

MOZART:

Don Giovanni.

Ⓢ Siepi, Grümmer, Schwarzkopf, Arié, Berger, Berry, Dermota; Vienna Philharmonic Orchestra, Furtwängler. The Bruno Walter Society MORG 003 (A, 3). (Distributed by Music and Arts Programs of America, Inc., P.O. Box 771, Berkeley, Calif. 94701.)



ELISABETH GRÜMMER: SUPERB ARTISTRY AS ANNA

FOR REASONS MORE POLITICAL THAN MUSICAL, Wilhelm Furtwängler never won the acclaim in this country that he deserved and that he did enjoy, in full measure, all over Europe, including those countries with far more im-

mediate reason than we to hate Germans. Globally, Furtwängler alone occupied the same empyrean as Arturo Toscanini. (It surprises most Americans to learn that many European experts rank Victor De Sabata alongside, if not above, Toscanini.) This air-check release, electronically rejuvenated in Japan by Denon, adds an important auxiliary to Deutsche Grammophon's newly released series of Compact Discs commemorating Furtwängler's 100th birthday this year. [The DG discs will be reviewed in a forthcoming issue of HIGH FIDELITY.]

The sound at the very beginning may disappoint you, but it soon gets (and remains) much, much better. Cesare Siepi, one of our age's greatest Dons, brings an ideal silken machismo to the title role. Elisabeth Grümmer (another superb artist who never conquered America) radiates fitting, fast-vibrato righteous indignation as Anna, and Elisabeth Schwarzkopf, in glorious voice in this 1953 Salzburg Festival performance, retains all the girlish bloom in the part of Elvira that characterized her in her Mozartean days. Raphaël Arié (Commendatore), Erna Berger (Zerlina), Walter Berry (Masetto), and Anton Dermota (Ottavio) complete this truly all-star cast. The Vienna Philharmonic play their hearts out for their adored Furtwängler, and although the stateliness of some of his tempos ("Ah! fuggi il traditor" and "Il mio tesoro," for example) will astonish you, the performance overall stands as an important monument to an exceptionally great conductor working with other first-rate artists.

Paul Moor

TIPPETT:

Sonatas for Piano, Nos. 1-4.

Crossley, Simon Lawman, prod. CRD 1130/31 (D, 2). □ (2). (Distributed by Qualiton Imports, 39-28 Crescent St., Long Island City, N.Y. 11101.) FROM THE BEGINNING, THE CAREER OF THE young British pianist Paul Crossley has been associated with Michael Tippett's music. Back in 1973, Crossley gave the first performance of the composer's Third Sonata, which he himself had commissioned; a year later, Philips released a record containing his accounts of all three of Tippett's piano sonatas. Since then, Crossley's career has extended in various directions, with a predilection for the French school (Fauré, Ravel, Messiaen . . .), but he has remained a Tippett devotee and the composer's own favorite exponent of his piano music.

So when Sir Michael completed his Fourth Sonata at the end of 1984, he naturally asked Crossley to give the first performance. This took place in January 1985, on the occasion of Tippett's eightieth birthday, which he celebrated in Los Angeles. London concertgoers heard the new piece a few weeks later, and before the year was over, the present recording of all four sonatas appeared on the English CRD label.

It is a most remarkable and unusual fact that a performer should rerecord contemporary pieces at a ten-year interval: One would

have thought a recording of the new Fourth Sonata would have been enough. But comparing the two performances shows an immensely matured outlook that more than justifies CRD's initiative. Indeed, the new sonata is a crowning achievement, a consummation and synthesis of its predecessors, on which it sheds a revelatory light. Similarly, Crossley's performances of the earlier sonatas benefit from his work on the latest. The four sonatas now add up to a 93-minute cycle whose complete audition is a most illuminating experience. It begins with the early No. 1 of 1937, one of Tippett's very first published works (alongside his String Quartet No. 1) and one that has lost nothing of its youthful freshness and ebullient high spirits. From there, the road leads through the tough, highly compressed one-movement structure of No. 2 (1962), written in the aftermath of *King Priam* (whose steely energy and virile aggressiveness it shares), and through the radiant lyricism of the three-movements-in-one No. 3 (1973), a close follower to the Third Symphony, before reaching the monumental climax of No. 4. This new work started life as a set of five bagatelles and ended up as an immense five-movement composition lasting more than 36 minutes: a sonata of Beethovenian proportions. Indeed, it is a true milestone in contemporary piano literature, encompassing a whole world of moods and emotions, by turns lusciously romantic, lean and sinewy, crystalline and nimble—all culminating in a set of slow variations that is a testament of serene wisdom. This undoubtedly will be a standard repertoire piece of the future, and next to Elliott Carter's *Night Fantasies* and Brian Ferneyhough's *Lemma-Icon-Epigram*, it stands out as the most significant piano work of the last 20 years.

Crossley, who gave Sir Michael some valuable advice about new tonal devices (such as resonances achieved by using the third pedal), here offers definitive readings of all four sonatas, posing a challenge to all future performers of the pieces, of which I feel there will be many. This, then, is one of the most exciting and important issues of the year.

Harry Halbreich

WEBER:

Der Freischütz.

① Adam, Goldberg, Smítková, others; Dresden State Orchestra and Opera Chorus, Hauschild. Eberhard Geiger, prod. Denon C37 7433/5 (D, 3).

STRAUSS, R.:

Der Rosenkavalier.

① Adam, Walthers, Pusar-Joric, others; Dresden State Orchestra and Opera Chorus, Vank. Bernd Runge, prod. Denon C37 7482/4 (D, 3).

AS IT HAPPENS, I ATTENDED THE GALA OPENING of the rebuilt Dresden State Opera House [see MUSICAL AMERICA edition, September 1985], so I find myself in the unusual position of comparing recordings with the event recorded, for Denon taped both these sets from those performances. I don't mean to

Critics' Choice

The most noteworthy releases reviewed recently

BACH:

Works for Solo Violin, B.W.V. 1001-6. Mintz. Ⓞ Deutsche Grammophon 413 810-2, May.

CANTELOUBE:

Songs of the Auvergne (18). Gomez; Royal Liverpool Philharmonic Orchestra, Handley. □ Angel 4AE 34471, May.

CHOPIN:

Piano Music. Perahia. □ CBS Masterworks IMT 39708, Mar.

DEBUSSY:

Préludes, Bk. 2. Rodriguez. □ Élan 1206, Mar.

FAURÉ:

Requiem; Cantique de Jean Racine. Ashton, Varcoe, Scott; Cambridge Singers, City of London Sinfonia, Rutter. □ Collegium COLC 101, Apr.

GINASTERA:

Piano Music. Rodriguez. □ Élan 1202, Mar.

REICH:

The Desert Music. Reich, chorus, members of the Steve Reich Ensemble, members of the Brooklyn Philharmonic Symphony Orchestra, Thomas. Ⓞ Nonesuch 79101-1, Apr.

ROSSINI:

Overtures (8). Orpheus Chamber Orchestra. □ Deutsche Grammophon 415 363-4, Apr.

STRAUSS, R.:

Guntram. Tokady, Goldberg, Sólyom-Nagy, Gáti, Bándi, Gregor, others; Hungarian People's Army Male Choir, Hungarian State Orchestra, Queler. Ⓞ CBS Masterworks I2M 39737, Mar.

RECITALS AND MISCELLANY

THE RECORD OF SINGING, VOL. 3.

Various vocalists, orchestras, and accompanists. Ⓞ Seraphim IM 6143, May.

sound either flip or cynical when I voice the one question that immediately arises: Why?

Anticipation of the reopening festivities ran high, especially among the few survivors who had known the Dresden State Opera's glory days before the Nazis took over in 1933—or even, in diluted form, until Allied bombers destroyed the entire city 12 years later. The political aspects of the reopening attracted many foreign opera buffs and dignitaries; even West Germany's former Chancellor Helmut Schmidt attended. The house itself, reconstructed (and improved) at enormous expense, emerged triumphant as probably the most beautiful opera house in the world today. The company's chief stage director, Joachim Herz, one of the greatest working in opera anywhere, staged both

these opening works, both of which had their world premieres in this house. The *Rosenkavalier* production finally realized the sets and costumes by Rudolf Heinrich, one of our era's finest designers, who had completed them before his tragically early death.

Musically, matters stood on a less exalted plane. Because of an intricate economic situation (deriving from pegging the German Democratic Republic's currency to the ruble, not to the dollar), the Dresden State Opera, like every other such organization within the Soviet bloc, lacks the hard currency to engage the world's leading singers—unless, as with Peter Schreier and Theo Adam, they happen to live there. Also, protocol demanded that on opening night a German mount the podium, an East German—at a

time that finds outstanding East German conductors in conspicuously short supply.

Denon has recorded these operas superbly, but all those various concomitants of the performances conspire to make both these sets interesting primarily as sentimental souvenirs of an event more important for nostalgic and political reasons than for musical ones. I can't help feeling that Denon's eagerness to record the occasion had more to do with events half a century earlier than with the realities of the present day.

The Dresden State Orchestra, one of the world's greatest, plays superbly, with the chorus on the same very high level. Of the soloists, the best known is Adam (the hermit in *Freischütz*; and an outstanding Baron Ochs in *Rosenkavalier*), and you probably know the name of Reiner Goldberg (Max in *Freischütz*), but I doubt that any of the others singing leading roles—Andrea Ihle, Ana Pusic, Joric, Jana Smitková, Margot Stejskal, Ute Walther, Ekkehard Wlaschiha—will ring bells in American minds, and they include, alas, no noteworthy discoveries. Wolf-Dieter Hauschild, in the Weber, and his Dutch colleague Hans Vonk, in the Strauss, conducted solid, workmanlike performances.

If the thought of the Dresden reopening makes your eyes mist over, you will want these recordings, with their superb sound. Otherwise, they simply do not stand up, musically or vocally, to extant competing sets conducted by the likes of Carlos Kleiber and Herbert von Karajan. *Paul Moor*

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RECITALS AND MISCELLANY

JOAN MORRIS:

Blue Skies.

☐ Morris, Bolcom. Teresa Sterne, prod. Nonesuch 9 79120-4 B (D). ©

BERLIN: Remember; That Mesmerizing Mendelssohn Tune; Blue Skies; Russian Lullaby; You'd Be Surprised; Say It Isn't So; Let Yourself Go; Lazy; Falling Out of Love Can Be Fun; What'll I Do?; Manhattan Madness; Let's Face the Music and Dance; The Song Is Ended; Let Me Sing and I'm Happy.

JOAN MORRIS:

Black Max—The Cabaret Songs of Arnold Weinstein and William Bolcom.

☐ Morris, Bolcom. Leroy Parkins, prod. RCA Red Seal HRE 1-5477 (D). ©

Over the Piano; Fur (Murray the Furrier). He Tipped the Waiter; Waitin'; Song of Black Max; Amor; Places to Live; Toothbrush Time; Surprise!; The Actor; Oh Close the Curtain; George.

MEZZO-SOPRANO JOAN MORRIS, WORKING within the unlikely confines of the classical song recital, has made herself into the single most satisfying interpreter of American popular song around, a more-than-worthy successor to the likes of Fred Astaire and Frank Sinatra. *Blue Skies*, her new album for Nonesuch, is an astutely chosen program of 14 Irving Berlin songs in which Miss Morris's musical virtues are on continuous display: unaffected simplicity, radiant charm, and

diction so lucid that every lazy soprano who has ever complained about the impossibility of singing in English should listen and hang her head in shame. William Bolcom's period piano-playing is stylish and enthusiastic. Owners of *The Girl on the Magazine Cover* (RCA AGL 1-3704), Morris's 1979 Irving Berlin recital, won't need to be told twice to pick up a copy of *Blue Skies* right away. For anyone who *doesn't* know about Joan Morris, this is a perfectly wonderful way to start making up for lost time.

Black Max, on the other hand, is a radical departure from Morris's previous recorded work. Taped at a pair of 1985 performances in Ann Arbor, Michigan, this RCA album is devoted to the cabaret songs of Bolcom and Arnold Weinstein. Brecht and Weill are the obvious points of departure for these extremely *louche* miniatures, which range from dourly atonal waltz parodies to an oddball calypso called "Amor," which sounds like it came straight out of *The Blossom Dearie Songbook*. Morris is unfazed by the parade of socially aberrant types that Weinstein's lyrics require her to evoke, while Bolcom (as usual) is the ideal accompanist. Morris's singing on *Black Max* reminds us that Andrew Porter, writing in *The New Yorker* a few years back, suggested in all seriousness that she consider performing *Pierrot Lunaire*. Clearly there is a lot more to Morris than "Love's Old Sweet Song."

Teresa Sterne's studio production on *Blue Skies* is good; Leroy Parkins's live digital sound on *Black Max* is slightly tubby but quite serviceable. *Black Max* is Morris's first live recording, by the way, and you can hear the audience's delighted reactions loud and clear. They *should* have been delighted: They were listening to one of America's finest concert singers, classical or otherwise, at the top of her very considerable form.

Terry Teachout



CAROL WINCENC SAMPLES THE AMERICAN FLUTE REPERTORY.

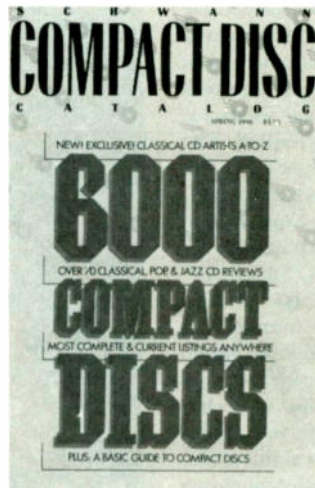
HIGH FIDELITY ARCHIVES

Only Aaron Copland's 1971 *Duo for Flute and Piano*, a lovely, beautifully crafted three-movement work, requires no apologies.

Wincenc, a skilled technician with a rich tone, plays everything in this rather mixed bag with impeccable musicality. (She is not always careful about her intonation, though, and producer Judith Sherman would have done well to call for retakes here and there.) Samuel Sanders is an excellent partner in the Copland, an appropriately discreet back-drop elsewhere; Foss and Del Tredici accompany their own pieces quite competently. Ara Guzelimian's liner notes have been butchered on cassette; his remarks about Del Tredici's *Acrostatic Song* and Griffes's *Poem* are omitted completely.

Terry Teachout

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CAROL WINCENC:

Flute Recital.

Wincenc, Sanders*, Foss†, Del Tredici*. Judith Sherman, prod. Nonesuch 79114-4 (D). ©

BARBER: Conzone*. COPLAND: Duo for Flute and Piano*. COWELL: Two Bits*. DEL TREDICI: Acrostatic Song*. FOSS: Three Pieces†. GRIFFES: Poem*.

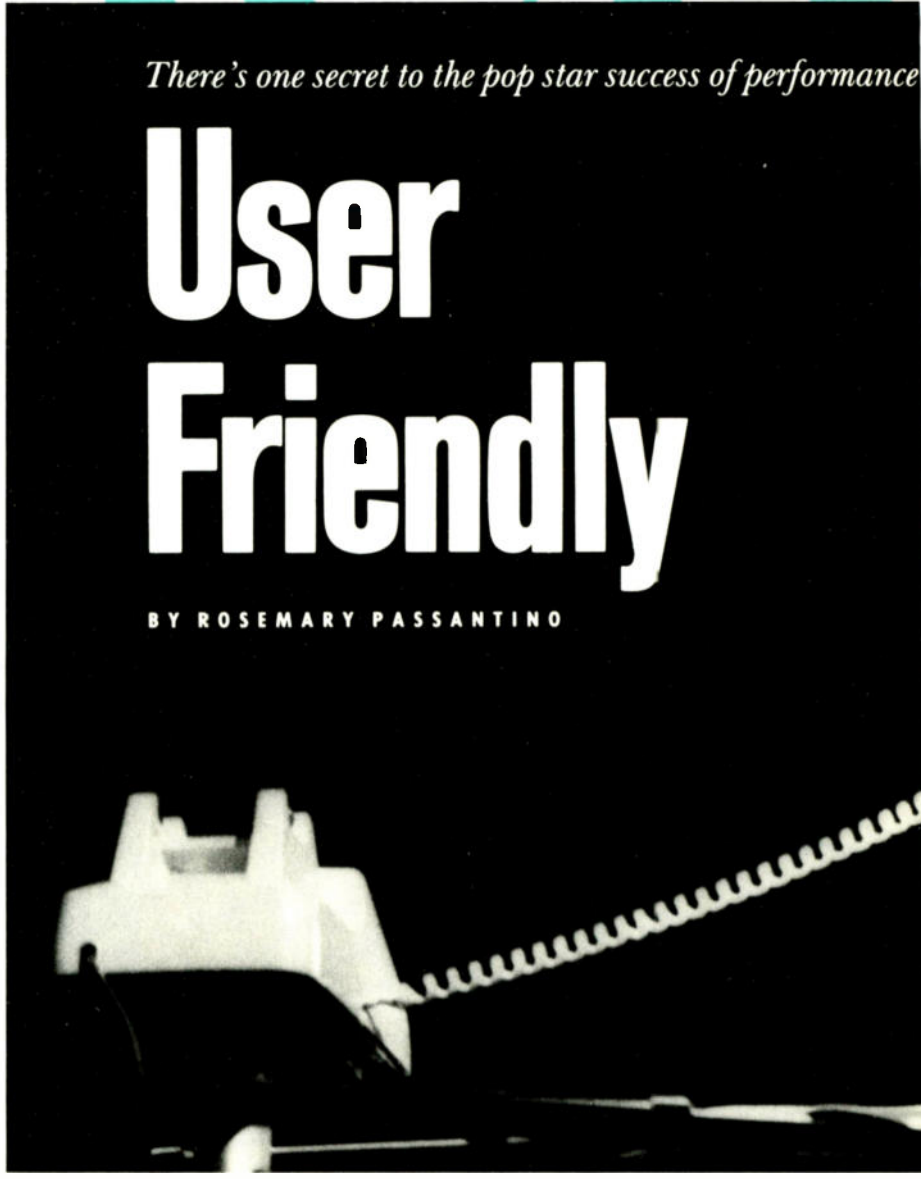
CAROL WINCENC, A 1978 NAUMBERG AWARD winner and former principal flutist of the St. Paul Chamber Orchestra, makes her debut on Nonesuch with a diverse program of American flute music that reads better than it plays. David Del Tredici's *Acrostatic Song*, an arrangement of the finale from *Final Alice*, and Samuel Barber's *Canzone*, arranged from the slow movement of his 1962 Piano Concerto, are saccharine exercises in the accessible; Lukas Foss's *Three Pieces* and Henry Cowell's *Two Bits* are encore-type bonbons. Charles Tomlinson Griffes's 1918 *Poem*, a first-rate piece by one of America's most underrated composers, is heard here in the inept arrangement for flute and piano that Schirmer brought out after Griffes's death.

BACK

IN 1980, A STRANGE SINGLE HIT NO. 2 ON the British charts. A fragment from Laurie Anderson's massive *United States*, then in progress. "O Superman (for Massenet)" opens with a computer sample of a syllable that ticks through the song like a metronome. Depending on who or what is taking the lead—a conscience, a mother, a nationalist slogan—the beat is a Zen chant, a child's phonetic sing-song, an ominous laugh. "O Superman" links primitive desires to contemporary anxieties. Incorporating a mock answering-machine message, it humorously points at one of the ways communication has become plasticized. At the time, Anderson had a reputation as a provocative performance artist in Europe, where the trappings of high-tech capitalism, particularly nuclear weapons, have been more stridently critiqued. The record crossed over to the U.S., and suddenly, a well-regarded, Manhattan-based, avant-garde eclectic who funded an experimental record with a \$400 grant was a pop star.

The overnight success of "O Superman" was actually the result of a lifetime of musicianship and an eleven-year performance art career. Born in 1947 and raised in a Chicago suburb, Anderson took up her mother's instrument, the violin, as a child, when her parents and seven siblings decided to put together a family orchestra. At sixteen, she played with the Chicago Youth Symphony Orchestra, although she abandoned classical music soon afterward. During graduate school, where she acquired an M.F.A. in sculpture, she discovered, in a printmaking class, a mechanical aptitude that complemented her quirky aesthetic. A notorious insomniac, Anderson remembers taking catnaps in art history class, her dreams segueing with flashing slides. "It wasn't a surprise to me that she began performing once she finished school," one professor told me. It's unlikely, though, that anyone could have predicted the combination of music, gadgetry, and pictures that she was about to put together.

Performance art, which dates back to the Italian Futurists and French Dadaists, who in the 1920s declared "everything is art," is a genre that attracts serious professionals looking to break with tradition by recombining different media, as well as eccentric dilettantes. Anderson is often the former and



There's one secret to the pop star success of performance

User Friendly

BY ROSEMARY PASSANTINO

sometimes the latter. Her persona—tense and ingratiating, whimsical and authoritarian—is unique, as are her electronically modulated voices. Orchestrating slides, lights, film clips, songs, stories, and special effects, her concerts are dense with sensation and information. But her segmented format, which breaks up space, time, visual stimulation, and ideas like a series of three-dimensional television commercials, allows the audience easy access. Almost everyone is hooked by at least one riff or image.

Often Anderson's bits recode reality. Like pop art, they make commonplaces re-

markable or beautiful just by calling attention to them: a tape loop of traffic streaming down the F.D.R. Drive or a 16mm film of a revolving radar outside Newark Airport. She can also create striking juxtapositions, such as an opera singer delivering arias beneath a black-and-white animation of a garbage-strewn tide. Few humans mingle so blithely with machines; Anderson likes to play her instruments, and to play with them. Favorites are a mike stand wired as a percussion instrument, a violin bow fitted with prerecorded audio tape that is played back through contact with a tape head on the violin's

BREAT

artist Laurie Anderson: Give the audience easy access.



bridge, and a gimmicky keyboard tie. She says, "It's a lot of fun, building something that's about to totter and then seeing if you can make it all work."

Though she poses questions only Einstein would inspire ("Is the speed of darkness faster than the speed of light?"), Anderson eyes the nuclear silos and digital appliances cluttering our world with the fascination of a child. "It sounds hopelessly hokey," she told me, "but one of the strongest things in my life is being able to put myself back into childhood. My most powerful memories are of nature, looking up at trees,

the sky. When I'm losing contact with this world, I use those memories very consciously. I try to be innocent and appreciative, and that really does clarify things." Her content is often complex, but her lyrics are not. One of her vocoded voices is high-pitched, like a little girl's.

Her simply-staged anecdotal skits relieve the tension of her more elaborate arrangements. "I dreamed I had to take a test in a Dairy Queen on another planet," she muses in concert—and you indulge her, as if she were a good friend rambling on. You know it's an act, but Anderson's voice conveys an

undercurrent of vulnerability. Then there are moments when she turns her wit inward. During her seven-hour "opera" *United States*, performed in 1983 at the Brooklyn Academy of Music, she recited her biographical program blurb skeptically, her tone suggesting to the audience, "I wouldn't believe this if I were you." Then she mimicked a jealous lover: "Are you talking to me? Or are you just practicing for one of those performances of yours?" In her new concert film *Home of the Brave*, she conducts a telephone conversation on stage with keyboardist Joy Askew; they talk about how they're too busy to talk because they have to set up their instruments for the next song. Spoken in her natural voice, these autobiographical moments say "Like me, as well as my art: The two are congruent."

Surprisingly, Anderson is less adept in two dimensions than in three. *Home of the Brave* intends to approximate the experience of a live show. "I wanted to see if it would all translate," she told me, adding that when she approached directors like Martin Scorsese (*The Last Waltz*) and Jonathan Demme (*Stop Making Sense*) with completed story boards, despite the fact that she had never made a film before they suggested she direct it herself. But the exhilarating immediacy of her multimedia extravaganzas is flattened in a form that so easily accommodates special effects. The camera angles are ordinary, and awkward editing cuts up the hypnotic rhythm she creates live. It's always a pleasure, for instance, to hear author William S. Burroughs's craggy voice, or enchanting to watch the two of them waltz across the stage. But here, when he appears only to recite a couple of lines from "Sharkey's Night," his presence seems token. Applause does re-sound during the blackouts hyphenating the songs and skits, but hearing it in a movie theater while staring at a blank screen is disengaging. Anderson's tours usually visit just a sprinkling of major cities, and tickets (\$25 for an orchestra seat) are prohibitively priced. So at least *Home of the Brave* will enable more people to get a glimpse of her work. Until now she has attracted a rather conservative-looking bunch of middle- to

(CONTINUED ON PAGE 77)

Rosemary Passantino writes about music for *The Village Voice* and other publications.

What Keeps a Man Alive

VARIOUS ARTISTS:

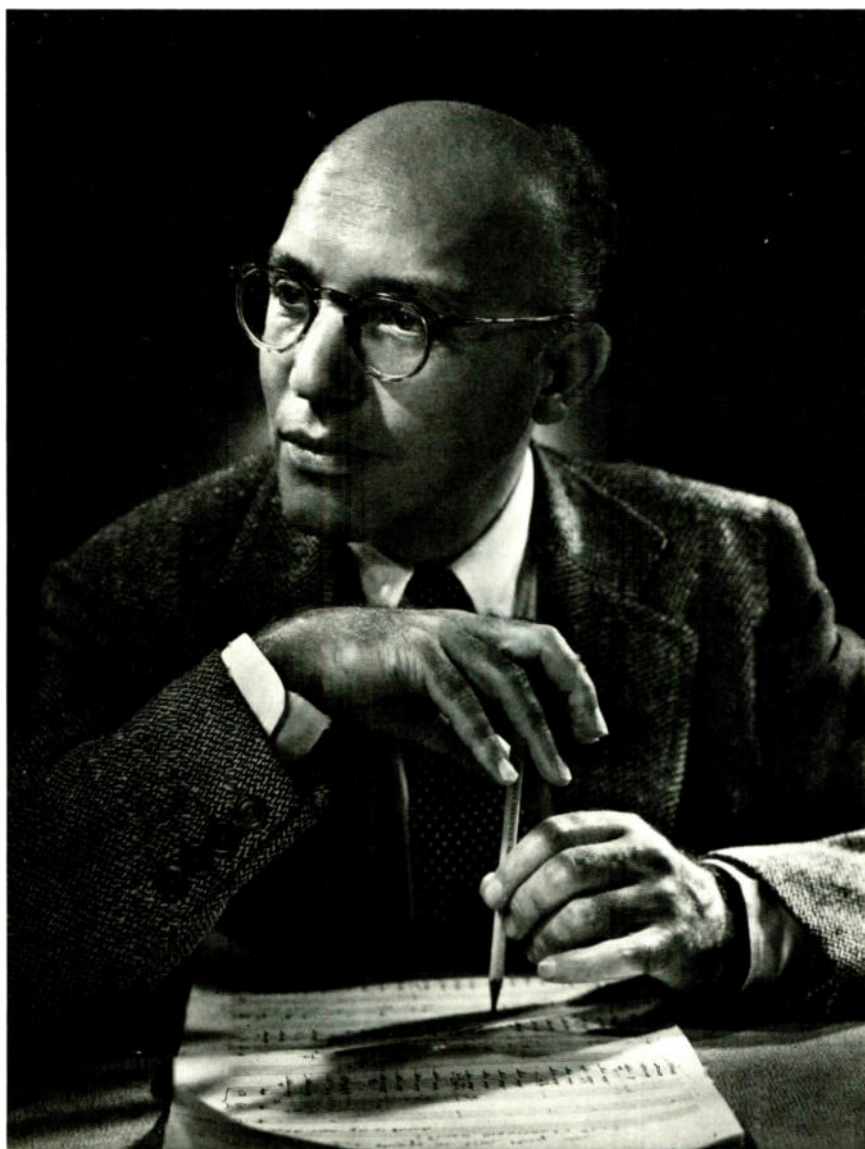
Lost in the Stars: The Music of Kurt Weill.

Hal Willner and Paul M. Young, prods. A&M CD 5104. 

ON *LOST IN THE STARS*, HAL WILLNER ASSEMBLES everyone from Carla Bley to Aaron Neville to interpret the work of Kurt Weill. Even more than two previous, similar projects (1982's *Amarcord Nino Rota* for the Italian soundtrack composer, 1984's *That's the Way I Feel Now* for Thelonious Monk), this installment has a conceptual force that extends beyond the spark of inspired matchings. The Rota homage presents his scores as previously unclaimed musical treasures, proving that his melodies are as ripe for jazz improvisation and pop interpretation as familiar standards. The Monk set [reviewed in the September 1984 issue of *HIGH FIDELITY*] demonstrates that artist's complexity, allowing each performer to explore his own layer of songs that combine the candor of the blues, the compactness of pop, the playfulness of jazz, and the rigor of the classics.

But Weill, especially in collaboration with lyricist Bertolt Brecht, casts a longer shadow than Rota or even Monk. Weill's tunes blurred the usual distinctions between high and low culture, letting jazzy discords ring out of passages of classical symmetry and drawing on German and American folk tunes as a reminder that the humble can be as elegant as the lofty. As experimental as he was idealistic, Weill insisted on working in the popular idiom of the theater; his realism and accessibility, in fact, anticipated another popular idiom, rock 'n' roll. The best of Brecht and Weill can often make the social complaints and slice-of-life sketches of the pop songwriters most influenced by them (who include anyone from Randy Newman to the late D. Boon of the Minutemen) sound insular and sentimental, even callow.

The finest selections on *Lost in the Stars* transcend easy nostalgia, rejecting safe copies for thoughtful reworkings that match the zest and irreverence of the compositions themselves. Marianne Faithfull's version of "Ballad of the Soldier's Wife," arranged by guitarist Chris Spedding, might be the



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toughest performance of her life, full of suppressed fury and a bottomless sadness. As her craggy, weighted-down voice ticks off a list of packages a wife receives from the front (culminating in the inevitable widow's veil), you get a powerful sense of how that war is made to seem exotic and thrilling to the young poor and how the soldier's gifts are finally inextricable from his death. John Zorn's tempestuous destruction of "Der Kleine Leutnant Des Lieben Gottes (The Little Lieutenant of the Loving God)" distorts the original score into a violent spray of German, Japanese, and gibberish lyrics, stray repetitions of Weill's melodic lines, and the clattering whir of a kitchen-sink-full of instruments. Elliot Sharp's brief dismantling of "Klops Lied (Meatball Song)," available only on the Compact Disc, is an analog exercise. On "Speak Low," which has often been elaborated upon by jazz musicians, pianist Sharon Freeman arranges a delicate setting of strings and reeds against which bassist Charlie Haden slowly dissects the song's elegiac melody, evading almost as many notes as he plays.

Two of the album's clearest successes come from performers whose selections are self-referential. Lou Reed's version of the old chestnut "September Song," which Weill and lyricist Maxwell Anderson wrote for *Knickerbocker Holiday*, has the expansive, meditative warmth of Reed's recent work. For this plaint about a not-so-young man who has long tired of growing up in public, he tosses out the song's usual sway in favor of a midtempo rocker that slides along on clanging guitar and silvery horns. Van Dyke Parks's arrangements for selections from the score to *Johnny Johnson*, which Weill based on American folk motives, have the sweet melodicism and lush orchestrations of Parks's own reworkings of traditional Southern music. (The CD includes Parks's equally eloquent treatment of "Johnny's Speech." There's also "The Hurricane," a spirited instrumental preface to Mark Bingham's arrangement of "Oh Heavenly Salvation" that sets up the yearning entrance of singers Johnny Adams and Aaron Neville. And the finest of the extra tracks, Henry Threadgill's conducting of "The Great Hall," is a swirling, stately, often chaotic workout for strings, horns, and rhythm section, highlighted by trumpeter Lester Bowie and tenor saxophonist John Stubblefield.)

The failures on *Last in the Stars* are failures of nerve in the presence of some of Weill's most famous material. Despite Dominic Muldowney's acidic arrangement, Sting's bloodless reading of "The Ballad of Mac the Knife" airbrushes all of the song's menace. Richard Butler's vocal on "Alabama Song" is one long, inappropriate mannerism, a dumbfounded gloss on David Bowie's version. And Tom Waits worked Weill's influence into his recent *Rain Dogs* with greater conviction than the way he coughs up "What Keeps Mankind Alive?" But these overly polite lapses are an inevitable part of Willner's

Format Key

- ⊙ LP/EP
- Ⓜ Cassette
- Ⓛ Compact Disc
- Ⓜ Videocassette
- Ⓛ Videodisc
- Ⓛ 12-inch single
- Ⓛ Open reel

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project, an indication that a composer as masterful as this one inspires as much mindless awe as he does passionate revisionism. With all the different takes extracting different messages from his work, *Last in the Stars* becomes a good, vigorous argument on the meaning of that work. Weill, who relished free speech as both a political and an aesthetic necessity, would understand.

Mark Moses

CREEDENCE CLEARWATER REVIVAL:

Chronicle.

Ⓛ John Fogerty, prod. Fantasy FCD 623-CCR-2.
Ⓛ CCR-2 (2). Ⓜ

THE ROCK 'N' ROLL RECORD BIZ HAS NOT EXACTLY embraced the Compact Disc technology with enthusiasm. The overwhelming majority of CDs now available are identical to their LP versions, leaving empty as much as 30 minutes of available space. Disc prices are high and, like the Dow, show no sign of weakening. Even worse, forces in the marketplace are extremely conservative at present, so none of this is likely to change for a while.

All of which makes Creedence Clearwater Revival's *Chronicle* at least the very happiest of accidents, ensconced for well over seven months on *Billboard*'s sales charts. A digital remastering of a ten-year-old double-LP greatest-hits package, *Chronicle* offers, on a single CD, almost 70 minutes of nonstop vintage John Fogerty. From 1968's psychedelized rockabilly and r&b covers, "Suzie Q," and "I Put a Spell on You," to the final Creedence single, '72's melancholy "Somebody Never Comes," all the important songs are here. For completists and collectors, several of the band's albums also are on CD, but *Chronicle* is all that most listeners will need or want (or be able to afford, since Fantasy just upped the price).

The "20 Greatest Hits" trumpeted on the sleeve really are both hits and great: Creedence had more double-sided airplay than any other band but the Beatles. Singles like "Bad Moon Rising"/"Lodi," "Down on

the Corner"/"Fortunate Son," "Travelin' Band"/"Who'll Stop the Rain," and "Up Around the Bend"/"Run Through the Jungle" left program directors little choice but to go with both tunes, so the B-sides on *Chronicle* all had real exposure in their day. Even the 11-minute version of "I Heard It Through the Grapevine," included here, was in heavy rotation in 1970.

But the joyous surprise of *Chronicle* is the extraordinary difference digital audio makes in the presence of Fogerty's characteristically simple, clean guitar sound. "Proud Mary," one of the greatest American songs of all time, is by itself worth the purchase price. That voice . . . those vowels. And the clarity of the details: ringing acoustic chords on "Who'll Stop the Rain," supercharged guitar signature and perfect handclaps on "Up Around the Bend," raw guitar harmonies and doubled and tripled vocals on "Hey Tonight," making each song new again, a truly wonderful feat. So while you're hoping for rock 'n' roll to come to terms with its digital future, pick up *Chronicle*. At the very least, it will make a long wait more bearable.

Jeff Nesin

COLONEL ABRAMS:

Colonel Abrams.

Ⓛ Colonel Abrams, Richard Burgess, Cerrone, and Sam Dees, prods. MCA 5682. Ⓜ

AT A TIME WHEN SLICK HOMOGENIZATION IS too often the primary ingredient for black pop success, New Yorker Colonel Abrams is a welcome break from a stifling trend. "Music is the Answer," his 1984 underground smash, deftly parlayed a bustling electro-funk track and frenetic backbeat against his roughhewn, rumbling baritone. This engaging gruffness overcame obvious, cumbersome lyrics and indicated that Abrams might actually inject some fresh blood into a drooping scene. His self-titled debut LP packs a far more potent wallop than a host of more ambitiously promoted and packaged material.

Abrams's major weapon is his versatility—as both a singer and a writer. He's equally adept at the swaggering boasts of the rap/strut generation, the posturing politeness of the m.o.r. cabaret bunch, and the earthy gutsiness of red-clay Southerners. When he outlines on "Trapped" the icy dilemma of someone caught in a sticky interracial love affair, there's genuine fear, alienation, and despair in his delivery. He moves from a defiant aggressiveness on "I'm Not Gonna Let You" into an earnest plea for racial and social justice on "The Truth" and (unfortunately) assumes the wine-and-cheese formality of the upwardly mobile set on "Table for Two." But what's invigorating is not only his willingness to explore divergent scenarios but his ability to master them as well. Abrams's powerful tone isn't compromised or hampered by rhythm, either; he handles the thinking Eurodisco beats provided by Cerrone on "Never Change" just as smoothly as he does the Latin percussive breaks on

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"Trapped" or the torrid textures on "Speculation."

Since Abrams isn't exactly a rapper, doesn't necessarily come across as a love man, and hasn't yet catapulted up the video ladder, he's still a few steps away from certified stardom. But based on his output thus far, Colonel Abrams is one of a tiny number of contemporary vocalists potentially able to unite audiences across the fragmentary strains of '80s black pop solely on talent, rather than looks or personality.

Ron Wynn

JOHN LENNON:

John Lennon Live in New York City.

Steve Gebhardt and Carol Dysinger, dirs.;  Bob Fries, Yoko Ono, and Gerard Meola, prods. Sony Video Software RO172BE (Beta Hi-Fi), RO172VH (VHS Hi-Fi), RO1728M (8mm); \$29.95. © Pioneer Artists PA 86-162; \$24.95. © Capitol SV 12451.  4XV 12451. © CD 7-46196-2.

LARA WAS SO SEVERELY HANDICAPPED SHE couldn't lift her head. Shocked by the institutional atrocities publicized by Geraldo Rivera and others, parents worked to place children like her in small group residences in the community. In 1972 at the "One to One" benefit at Madison Square Garden, John Lennon and Yoko Ono played their last concert together to raise money for that cause. As a result of that benefit, the Geraldo Rivera Children's Residence was opened. I was working there the night Lennon was killed. And the day after I watched my review videocassette of the "One to One" performance, *John Lennon Live in New York City*, I heard that Lara had died in her sleep. Instant Karma.

"I'm just beginning to understand what this song's about" is the way Lennon introduces a shaky but spirited version of "Instant Karma" that ultimately finds him apologizing, "We'll get it right next time." Fighting prejudice and inhumane public policy was just one of John and Yoko's causes. They also gigged for peace, politics, and publicity, but not for profit, and they rarely rehearsed. Backing was provided by all-star Plastic Ono jams or by their perpetual pickup group, Elephant's Memory, as in this videotape. Like their 1972 studio album, *Some Time in New York City*, it sacrifices popcraft for agitprop, medium for message. Yet John's charisma, as enduring and fragile as ever, turns the event into something like entertainment. It's fascinating to watch the reconstituted Lennon on this stage, finally comfortable with himself, trying to get comfortable with Yoko's ideas about performing, politics, and feminism. Trying to get comfortable most of all with her feelings and the way she expressed them, which was beyond the limits of acceptable public behavior—where Lennon longed to be.

"Woman Is the Nigger of the World" stands up as his masterpiece of pop Yokoism. But when Yoko takes the stage for her B-side spotlight, "Sisters, O Sisters," his "Right on, baby . . . reggae, baby, reggae!"

betrays both his nervous encouragement and his embarrassment. And when she gathers the will for an extended scream-off at the end of "Born in a Prison," he jokes, "She never tells me about that." Yet John's tenuous leap of faith toward her naked values energizes his presence here, as it had since he left the Beatles. In the primal psychodrama of "Mother" and "Cold Turkey," in the conceptual politics of "Instant Karma" and "Imagine," in the life-as-art documentaries of "New York City" and "Well, Well, Well," he speaks to and for her. But if Yoko's aesthetics freed John from pop conventions, it was his music's roots in the blues that made her influence click. His electric blues riffs on "Cold Turkey," "Well, Well, Well," and "Come Together" set up his intense, Yoko-derived screams of pain; his self-accompanied melodies and melismatic gospelise deliver "Mother"'s primal therapy and "Imagine"'s *Grapefruit*-like directives.

I learned to play guitar, grew my hair, protested the war, took drugs, discovered feminism. I made one career out of being a rock fan and another working with handicapped children, and I anticipate a new one as a househusband. All in some measure because of the subculture John Lennon hooked me on. Watching *John Lennon Live in New York City*, I realize all the ways his life affected mine. But I'm not the only one. . . .

John Piccarella

JANET JACKSON:

Control.

Jimmy Jam and Terry Lewis, prods. A&M SP  5106. 

I'VE BEEN THINKING ABOUT MAKING A JIMMY Jam/Terry Lewis party cassette. As producers of the S.O.S. Band, Alexander O'Neal, Cherrelle, and Thelma Houston, they've become one of black music's tastiest flavors. Of course, their latest, Janet Jackson's *Control*, will head up the sequence. It's a tense, tough beat treat that swiftly bores into the hip pocket. It's also a coherent message that reflects this nineteen-year-old's new independence: Janet wants to get down, but she also wants to get her own.

A typical teenager, Jackson, out of her tomboy suits, started looking for freedom two years ago. She got her driver's license, bought a Mercedes, and, against her family's wishes, married James DeBarge (though the union lasted only a few months). Bucking the clean family image (Michael's her older brother), she started sniffing stink Minneapolis funk, introduced on 1984's *Dream Street* and elevated on *Control*, the punchiest album so far this year.

On the title track, which pumps and jumps like a hyped-up "No Parking on the Dancefloor," Jackson purrs, "This time I'm gonna do it my way." The tune sustains energy with explosive drum patterns and transparent synth layerings and ends with a cheery backup chorus stuttering the hook for maximum sparkle. "Nasty" deserves the name for its stripped-down grind alone; airy

and stompy, it's a dancer's delight. Ms. Jackson ("My first name ain't 'baby'") confesses a disgust for slick jive-talkers. If you want to rap to me, she implies, say it with flowers. But she still expects to be in charge ("You Can Be Mine").

Janet heads for the door when her needs stop being satisfied. "What Have You Done for Me Lately," a recent No. 1 single, is a simple bass groove studded with sharp keyboard lines, joyous electro-blurts, and vitamin-enriched percussion. And to expound on "The Pleasure Principle," this heretofore nice girl moans and groans come-ons like "my lips are wet." She's got a sexier whisper than Vanity. Smoother but no less frisky, "When I Think of You," another popular radio cut, is bright—white-hot, in fact.

Two ballads, "Funny How Time Flies (When You're Having Fun)" and "Let's Wait Awhile," are texturally interesting ("Funny" has an Art of Noise-ish hook that, at one point, works into a perfect quote of Michael's "The Lady in My Life"), but they're also schmaltzy to the max: Their sway never really swings. This mood shift may have seemed a necessary contrast. For me, though, Jam and Lewis could have left the pulse pitch peaked. *Havelock Nelson*

LIL GREEN:

Chicago 1940-1947,

Forerunners, Vol. 5.

 Rosetta Reitz, prod. Rosetta RR 1310. (115 W. 16th St., New York, N.Y. 10011.) 

ALTHOUGH ALMOST COMPLETELY FORGOTTEN now, Lil Green was arguably the last great female blues singer and the first crossover casualty. Born in Mississippi in 1919 and raised in Chicago, Green was a product of diaspora. While carnal knowledge and assault and battery in the name of love were generally the subjects of the songs she sang (including the few she wrote herself, among them her biggest hit, "Romance in the Dark"), her moan also captured the urgency and uncertainty of a period in which the blues and the communal values it embodied were in a state of flux.

On her 1941-42 Bluebird tracks with guitarist Big Bill Broonzy, Green sounds like a city girl reluctant to scrape the lucky country mud from her shoes; listening to her now, one can appreciate why new arrivals to Harlem and other Northern enclaves felt such an immediate bond with her. For race records, as they were unfortunately called, by virtue of being aimed at an exclusively black listenership, allowed performers and audiences the greatest confidentiality. By 1945 Green was singing run-of-the-mill pop (albeit singing it beautifully) in front of non-descript jazz orchestras. Her death from cancer in 1954 was especially tragic: She had signed with Atlantic, then a fledgling independent that would succeed in marketing unadulterated Ruth Brown and Laverne Baker—two of the countless &b singers she influenced—to white audiences.

Chicago 1940-1947 duplicates six perfor-

mances (including hits like the prefeminist lament "Why Don't You Do Right?" and the evocative "Romance in the Dark") from the out-of-print RCA Vintage collection *Romance in the Dark* (RCA Vintage LPV 574). As the only Green album currently available domestically, *Chicago 1940-1947* can be enthusiastically recommended, though I question producer Rosetta Reitz's wisdom in selecting four post-1945 numbers when so much superior material from the first half of that decade presumably was hers for the leasing. Still, Reitz's strategy at least gives a rounded picture of Green's RCA years, which the Vintage album, despite its greater listenability, did not. And Reitz has unearthed glorious obscurities, among them "Hello Babe" and "If You Want to Share Your Love," both of which feature surprisingly advanced counterpoint between Broonzy and pianist Simeon Henry.

But even though this represents some of Broonzy's most captivating playing on record, it's finally the depth and dimension of Green's voice that draws the ear. If you've never heard her before, you're in for a treat.

Francis Davis

THE NYLONS:

Seamless.

Ⓞ Peter Mann, Sean Delaney, Val Garay, and the Nylons, prods. Open Air OA 0304. ⓂⓄ (Distributed by A&M.)

DOO WOP MET DRUM MACHINE ON ONE SIZE FITS

All, the Nylons' first U.S. LP. *Seamless* collects another batch of fresh remakes from this Toronto quartet that got its start as a cabaret act. Imagine canned percussion, with its campy charm, throbbing behind shimmering harmonies. It's hysterical to hear four grown men re-create the Shangri-Las' teen-queen anguish on "Remember (Walking in the Sand)"—love those sea gulls in the background.

The Nylons (Marc Connors, Paul Cooper, Claude Morrison, and former Platter Arnold Robinson) also compose. Cooper's pretty ballad, "The Stars Are Ours," recalls the Chordettes' "Mr. Sandman." And after hearing his "Perpetual Emotion" back to back with the quartet's cover of the Motownish "Stepping Stone," I'm convinced that these guys are today's answer to the Four Seasons and the Temptations, respectively. Their own material stands up, but *Seamless* plays it safer with fewer originals than were on *One Size Fits All* (which, incidentally, credited the lead on each track). All four singers alternate; *Seamless*, though, declines to identify them anywhere. Presumably that's Morrison's falsetto darting through the doo-wop gem "Oo-Wee, Oh Me, Oh My," while Robinson imitates a string bass.

A street-corner treatment of Lennon and McCartney's "This Boy" successfully clones the '50s onto the '60s, but the same fusion idea flops on Annie Lennox and Dave Stewart's recent "Take Me to Your Heart."

Though the foursome's soulless delivery of "Up on the Roof" pales next to the Drifters', the Nylons are in top form on another classic, "The Lion Sleeps Tonight." Best of all, this stuff isn't a nostalgic refash. If the Nylons have a future sprucing up oldies, it's proof that good rock never dies: It just gains new audiences.

Kate Walter

JAZZ

PAT METHENY AND ORNETTE COLEMAN:

Song X.

Ⓞ Geffen GHS 24096. ⓂⓄ

PAT METHENY MADE HIS FIXATION WITH Ornette Coleman public on his 1975 debut, *Bright Size Life*, when he cut a "Broadway Blues"/"Round Trip" medley. Since then he has covered other Coleman tunes, recorded with topflight Colemanites, and even imitated the master's writing style respectably. The only problem is that Metheny is no bluesman. You want psychedelic pastoralism, then look no further, but grit has never been his thing. Metheny is a noodler who uses his advanced harmonic sophistication and finger-flying technique to dazzle with excess. When he wants to get down and dirty he turns to synthesizer effects that muck up his sweet tone without obscuring his emotional distance. Coleman, on the other hand, is jazz's answer to Muddy Waters; his roots are so deep that no matter what context he places himself in, he's always playing the

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blues.

Despite the lack of chemistry between grand sorcerer and overeager apprentice, *Song X*'s old-fashioned mood is unusually inviting. Metheny's synths may gurgle and blurt, but the overall feel is sparse, acoustic, and swinging. The best of the new compositions—two of which Metheny cowrote—have the lyrical spark of Ornette's classic work, fitting in snugly next to "Rambling" and "Peace." Not that *Song X* is easy going every step of the way. The title cut and "Endangered Species" are nasty, relentless, free-form wailfests that weigh Side 1 down like granite. These tracks may be uncompromising, but they are also unconvincing, because they bring out the worst in the co-leaders. Ornette understands the value of space in a solo; pacing and dynamics are as important to him as tonal manipulation and rhythmic displacement. Full-force energy playing, complete with simultaneous soloing from all involved, dissolves the disciplinarian in him. Instead of making each note count, as he does everywhere else, he just plugs the holes with stock phrases. Unfortunately, this brings him down to Metheny's level and devalues the power of the expressionist form itself.

"Mob Job," "Kathelin Gray," and "Song X Duo" are strong, compact performances: Metheny, doing what he does best, casually tosses off skewed c&w chords and echoes Coleman's lines back to him. "Video Games," "Trigonometry," and "Long Time No See" are faster riff tunes that spotlight the inside/outside responsiveness of the rhythm section (where has Jack DeJohnette been all Ornette's life?). "Long Time" is a particularly inspired and pointed example of how the two leaders approach free improvisation. Where Metheny turns up the juice for a very credible killer-bee imitation, Ornette floats over the rhythm, his relaxed, spacious phrases maintaining an inherent tension.

Backtracking to an earlier sound doesn't date Coleman; it only gives him a chance to play what he loves best in relatively uncluttered surroundings. The horn/guitar/rhythm setting provides a midpoint between the electric collision of his own Prime Time band and a retreat to the acoustic quartets that originally brought him fame. New guitarists like Kelvyn Bell and Jean-Paul Bourelly may not have Metheny's cachet, but it's nice to know they're around if Coleman ever feels like repeating this experiment.

Steve Futterman

JOHN SCOFIELD:

Still Warm.

⊙ Steve Swallow, prod. Gramavision 18-8508-1. □

MARC JOHNSON:

Bass Desires.

⊙ Manfred Eicher, prod. ECM 25040. □

I SHOULD STATE MY PREJUDICES UP FRONT. *Still Warm* is a by-the-numbers fusion album, and I really don't care much for the genre, particularly what it has become—the way it



JOHNSON, ERSKINE, SCOFIELD, AND FRISELL (FROM LEFT): ADVENTURESOME COHORTS

has evolved from the early and often exciting attempts at an actual fusion of rock and jazz to a formula prescribing a languorous, Muzak-y compromise. And though *Bass Desires* rises above such clichés, I have reservations about the famous ECM sound, too: The airy spaces and polished surfaces favored by Manfred Eicher are undeniably pretty, but "pretty" can often take the mick out of improvised music, as the soothing gloss becomes an oppressive presence. But my third prejudice is the strongest, which is that I think John Scofield (featured on the Johnson album) is one of the finest jazz guitarists around.

Scofield has always struck me as the kind of musician who couldn't will himself to play badly. On his early sides (made for small labels like Inner City and Enja), his fleet-fingered and thoughtful style was a joy to those who delighted in the pleasures of the soloist's art. And it still is, even though he has come a long way from those sincere trio and quartet sides of the late '70s and early '80s: The already full tone has been enlarged, the already measured phrasing has become more assured. With his ambition no doubt piqued after passing through Miles Davis's star-making machine, he's now reaching out to an audience larger than just those who appreciate the beauty of a well-turned improvisational line. On *Still Warm* (the title is a rejoinder to the charge that fusion is often cold and distant), Scofield deals with the dilemma facing the conscientious improviser who wants his music to make a dent in the marketplace: The arrangements delegate the schlock to the backup group. So while his rhythm trio remains restricted by the dictates of VH-1-bound e-z listening "jazz," Scofield remains his old self. Such inspired moments as the intensity achieved by the long, slowly unraveled lines of his solo on "High and Mighty" and the thinking man's funk he unfurls on "Picks and Pans" (all of the album's seven compositions are Scofield originals) subvert the prevailing rules of contemporary fusion.

On the ECM record (a quartet: two guitars, bassist Johnson, and drums), our hero finds himself with more adventuresome cohorts. And even though that old lily-gilder Eicher's production is still perceived by this listener as an intrusion, and though a little of Bill Frisell's guitar synthesizer goes a long

way (the soulful swells are pleasant, but too often it tends toward a pinched, whiney sound), Scofield plays as if he has been set free. On such uptempo cuts as Coltrane's "Resolution" and drummer Peter Erskine's title composition, he can snap out his quick-witted phrases knowing that the rhythm will respond. On a slower one like his own "Thanks Again," he can place his emphatic lines against the changing colors of the accompaniment (no monochromatic fusion here).

Scofield is a whiz. A consummate stylist, not an innovator, a subtle improviser, not a showboater, he's the kind of jazz voice that too often gets lost in the shuffle. Myself, I'd go to hear the guy in a mariachi band. And I think mariachi bands are the pits.

Richard C. Walls

DON JOSEPH:

One of a Kind.

⊙ Robert Sunenblick and Mark Feldman, prods. Uptown UP 27.23. (276 Pearl St., Kingston, N.Y. 12401.)

THERE'S OBSCURE, AND THEN THERE'S DON JOSEPH. A section trumpeter for Buddy Rich and Lucky Millinder in the Forties and a Greenwich Village jamming partner of Charlie Parker's, Joseph also recorded with Gerry Mulligan and Chuck Wayne before retiring in 1957. If Joseph had an underground reputation because of these brushes with fame, I never heard about it.

But the periodic exhumation of marginal characters from past eras has been a venerable tradition ever since Bunk Johnson was given a new set of teeth and told to resurrect New Orleans jazz. Ultimately it doesn't matter who Joseph was, for his belated debut as a leader is a terrific little record regardless. With a style that freely mixes bop, swing, and even pre-swing elements into an unself-conscious whole, Joseph resists categorization. He has a draftsman's sense of musical design and studiously avoids any flashy or overstated playing. This style must have been invented of necessity, as Joseph has little technique to speak of: His tone, range, and speed are limited. His trick, I think, is to skillfully reject fragility or romantic introspection, the usual escape routes for technically weak trumpeters. There's certainly nothing ephemeral about him. His solid midregister melodies have more in common with the confidence of Ruby Braff than the diffidence of Miles Davis.

One of a Kind's brace of standards and key personnel make it look like a stock mainstream session, c. 1956. But looks are deceiving. Each tune is sparked by sharp ensemble work, especially Al Cohn's booting and perfectly contrasting tenor and Red Mitchell's nappy bass. Don Sickler, Uptown's resident arranger, gives shape and surprise to each piece without imposing himself. On "It Might as Well Be Spring," he dismantles the convention of successive extended solos by having Joseph and Cohn tail each other with concise statements; on



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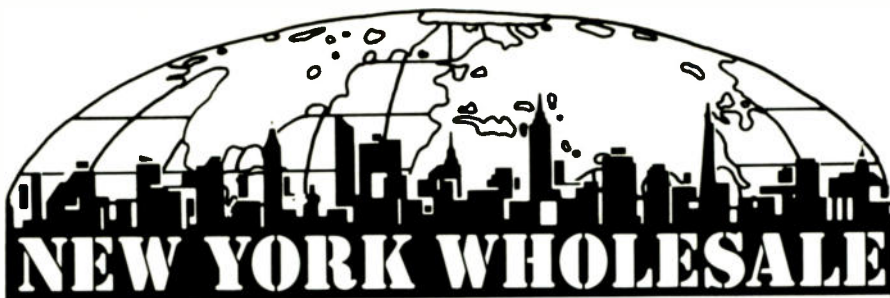
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"Stumbling," Joseph goes one-on-one first with Mitchell and then with Joey Baron's lightly brushed drums, instead of soloing against the expected full rhythm accompaniment. The rediscovery of Don Joseph isn't about to alter the established trumpet canon; *One of a Kind* is hardly the Rosetta stone. But Joseph is lucky: Falling between the cracks of jazz history has helped him to preserve an individual and affecting voice unlike that of anyone else playing today.

Steve Futterman

RALPH TOWNER AND GARY BURTON:

Slide Show.

Manfred Eicher, prod. ECM 25038-1. ON THEIR OWN. GUITARIST RALPH TOWNER AND vibist Gary Burton each play with a combination of precision and reserve unbecoming a jazz musician. Yet when they duet, they're like occasional lovers reuniting after a long separation. They converse; they anticipate and surprise each other. They chase each other around the room. On *Slide Show*, their first album together since 1975's *Matchbook*, these two "chamber jazz" vets perform with an exuberance that belies their usual restraint. Not that they get funky, wild, or atonal, but the frenetic guitar that opens "Maelstrom" sounds more like Larry Coryell's high-speed cascades than the subtle (even taciturn) Towner. Even when they settle into a more understated mode on the subdued yet swinging version of Miles Davis's "Blue in Green" and the almost baroque "Charlotte's Tangle," their rapport is often stunning and always extremely pretty. Whether comping for each other on the Oregon-like "Vessel" or spinning webs around themselves on "Continental Breakfast," these guys project.

Ever the virtuoso, Burton veers wildly from the stormy twelve-tone vibe runs in "Maelstrom" to the quiet lyricism of "Beneath an Evening Star." His festive marimba and Towner's percussive classical guitar turn "The Donkey Jamboree" into a four-minute carnival. Burton's four-mallet technique, from the extended trills of "Around the Bend" to the lush chords of "Innocenti," gives Towner a medium for his spare solos. In turn, the guitarist's twelve-string offers just enough body to complement Burton's shimmering riffs. Still, the most sublime stuff occurs when they're folding riffs around each other, reacting to melodic ideas, and working in unison. And maybe smoking a cigarette after. *Hank Bordowitz*

MULGREW MILLER:

Keys to the City.

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the trio version of "Every Time We Say Goodbye" and a solo take on Ellington's "Warm Valley," the most magical cut here. Sticking close to the Duke's melody, Miller finally releases a series of fleet runs in a virtuosic display made more effective by his former restraint. He demonstrates his power elsewhere, on two of his own compositions, "Song for Darnell" (which is dedicated to his son) and "Saud's Run," his tribute to McCoy Tyner. The latter track begins with several thumping, aggressive left-hand chords, to which Miller adds the steely right-hand trills and heavily accented runs that are

Tyner's contribution to contemporary piano playing.

The accompanying musicians are sympathetic, though anonymous to those Compact Disc buyers who cannot read Japanese. For the record, bassist Ira Coleman is a solid player who distinguishes himself on "Every Time" by anticipating Miller's slight distortions of tempo. And melodic drummer Marvin Smith is simply one of the best young percussionists around. Mulgrew Miller is already an exciting pianist. As he continues to move away from Tyner's shadow, he'll become a more original one, too.

Michael Ullman

User Friendly

(CONTINUED FROM PAGE 75)
highbrows with avant-garde leanings: people who appreciate references to German filmmaker Rainer Fassbinder as well as cartoon images of umbrellas, airplanes, and pink flamingos raining down over a suburban development. At her recent New York show, I saw a lot of suits and sweaters, but not one blue haircut.

Clad in a clinical white suit and a hood that's a cross between a gas mask and a burglar's stocking, stalking around with her tape-bow violin, Anderson displays an uncharacteristic athleticism in *Home of the Brave* that also is evident in her latest live shows. Choreography has been an important component in the work of other performance artists, like Meredith Monk, but early in Anderson's career her movements were restrained, to say the least. In a street performance, "Duets on Ice," she played her instrument while wearing skates imbedded in ice blocks. She walked, stood, knelt, or sat through most of *United States*; her voice and visuals did the dancing. It's invigorating to watch her taut, evenly proportioned body mime slide and karate kick. "A lot of that began as hand signals to technicians," she recalls. "Once Synclavier helped me design a remote for the violin, I wanted to untie myself more from the keyboards as well." For *Home of the Brave*'s "Drum Dance," she designed a suit outfitted with electronic drum heads that reverberate on contact, directly and powerfully connecting body to rhythm.

On the film soundtrack album, Anderson sets most of her songs to effervescent Latin polyrhythms that, unlike the electrotribal beats of *Big Science* and *Mister Heartbreak*'s tropic sway, inspire movement. It's the first time her music has been more striking than her lyrics. Setting white middle-class words and techno-noise mamboing to Third World syncopations could have been an off-putting maneuver; why not listen to Tito Puente and take your salsa straight? Still, in Anderson's hands, the mix is an enticing integration. On the re-arranged "Sharkey's Day" (originally from *Mister Heartbreak*),

Adrian Belew's guitar trumpets along with the brass while synthesizer whacks and whines mesh with pulsing acoustic percussion. On the instrumental "Credit Racket," a synth chorus that sounds half like horns, half like kazoos, is lit by hot timbales.

Scanning the book *Laurie Anderson: Works from 1969 to 1983* (by Janet Kardon; University of Pennsylvania Institute of Contemporary Arts, 1983), I was impressed by the quantity of art she has produced. There are books, sculpture, prints, a jukebox installation filled with 25 original singles, even an invention: Her Handphone Table, a precursor to the suit created for "Drum Dance," sends vibrations from elbow rests through the arm bones to the ears. One 1973 photo essay, documenting a series of men who accosted her in the street, was surprising; Anderson's current work rarely comments directly on feminism. It rarely deals in polemics of any kind. "I'm terrified of being dogmatic and didactic, because the ideas I am working with are hot and heavy social, political, and economic issues," she commented recently. "Here come the planes. They're American planes. Made in America." Sssshhh. Perhaps Laurie Anderson has found the best way to get a message across: Pretend that there isn't one. ■

Selected Discography

Big Science.

Warner Bros. BSK 3674; 1982. ☐ M5 3674. ● 2-3674.

Mister Heartbreak.

Warner Bros. 25077-1; 1984. ☐ ●

United States Live.

Warner Bros. 25192-1 (5); 1984. ☐ (5). Book: *United States* (Harper & Row).

Home of the Brave.

Warner Bros. 25400-1; 1986. ☐ ●

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