

Stereo Review

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Stereo Review

35

35TH ANNIVERSARY



11



SONY

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SONY



120Hz. What does it mean?

The fact is, to the average person, 120Hz means diddy. What's important is how a speaker sounds. But, in truth, the sonic range around 120Hz is a big deal when it comes to the sound of the SubSat7.

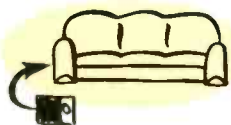
Here's why. After having a look at a



The SubSat7 satellites come in two of the most popular colors in the history of speakers. Black. And white.

number of other three-piece systems, we found that many were using small midrange drivers—some as small as two inches. And we asked ourselves, "How can they use such small midranges and still hope to create a smooth transition between midrange and bass?" The answer: they can't. In fact, several of the units we tested had an obvious dip in the 100 to 200Hz range—a range that, it so happens, contains much of your music's fundamental information.

So, in designing the SubSat7, our primary goal was to create a system that didn't sacrifice sound



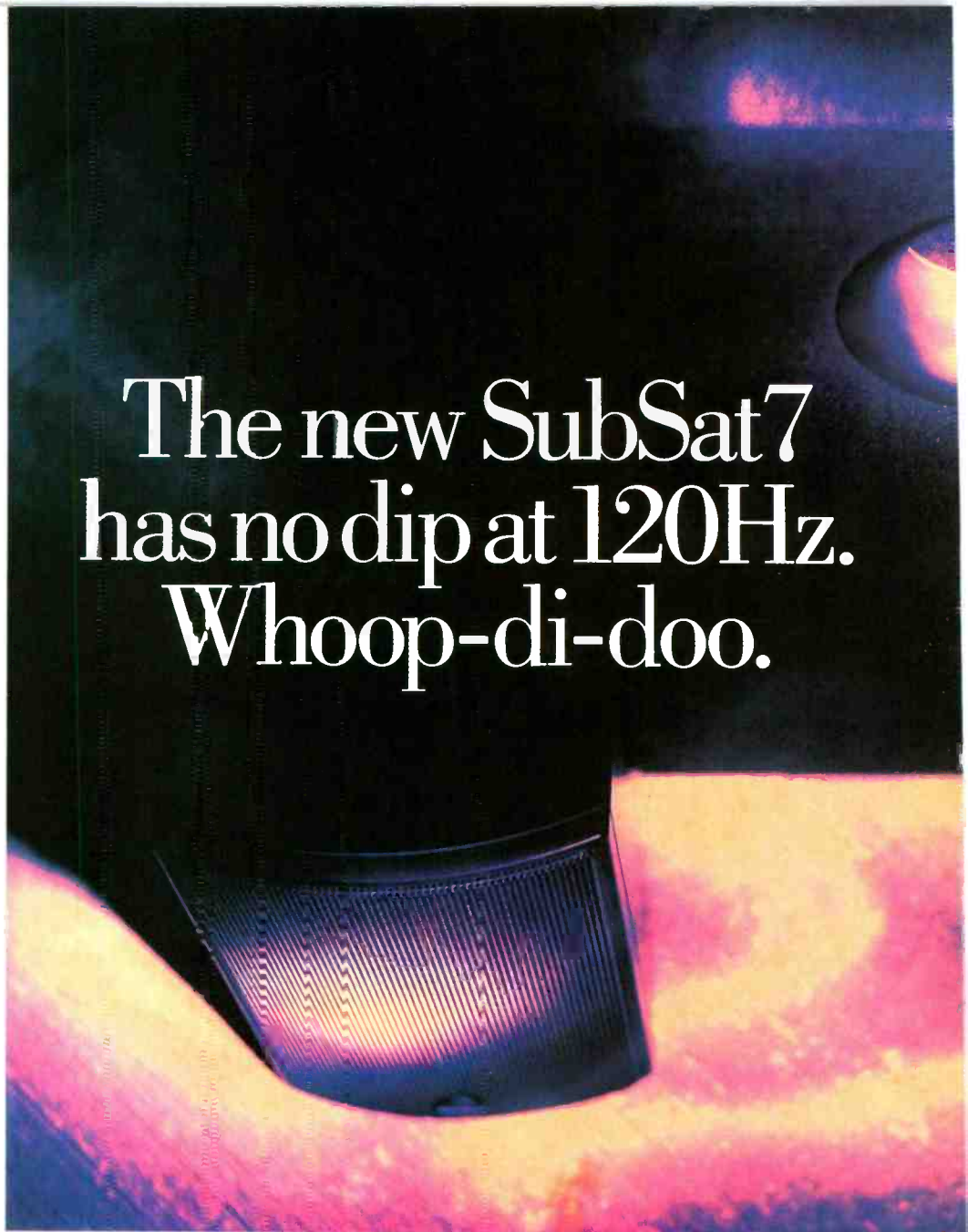
The PowerVent bass unit, placed behind furniture, sounds fantastic without drawing attention away from your Picasso.

quality for a convenient size. Or vice versa. We started in the satellites with our famous 1-inch, soft-dome tweeter, which plays lower than competitive ¾-inch tweeters and has excellent dispersion.

Then we designed a mighty 4-inch copolymer mid-bass driver with a more-than-ample frequency range.

So it meets the SubSat7's PowerVent™ 14 Bass Unit, with its two, powerful, 7-inch drivers, to create a smooth transition. At the infamous 120Hz. The result: a three-piece system with seamless, natural, audiophile sound. And satellites so small, your house guests will be dumbfounded.

The new SubSat7 has no dip at 120Hz. Whoop-di-doo.



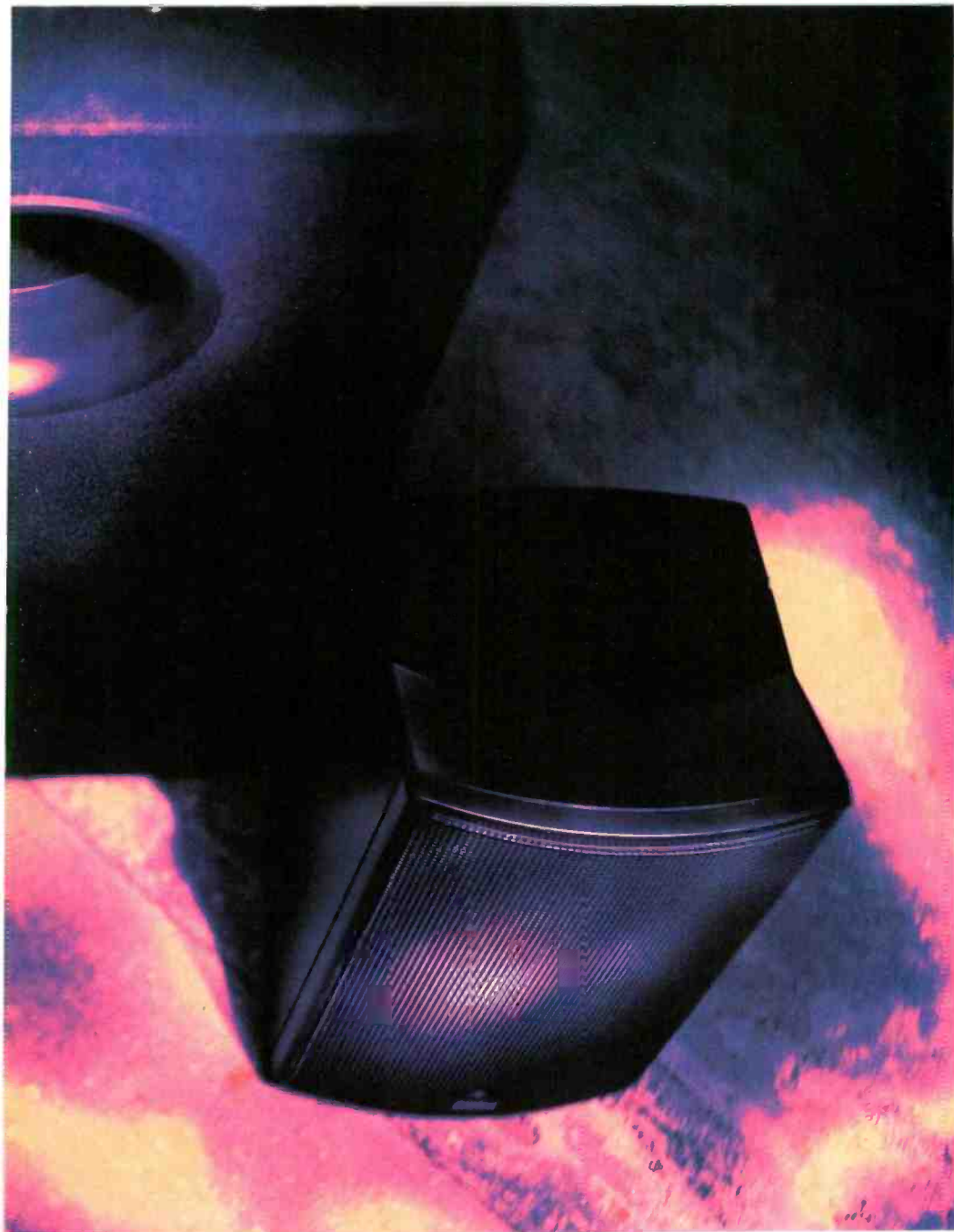
You need stereo-separated bass chambers. Really.

Let us explain. Until recently, most bass info was mixed in mono. But then digital audio came along and made more realistic stereo bass possible. A great idea, but a problem for ordinary three-piece



Subwoofer drivers don't play well with others. So we sent them to their own rooms. The result: clean stereo-separation in the bass.

systems with an all-in-one subwoofer. Such systems typically place left and right woofers in one chamber. When these two woofers encounter stereo-separated bass, they push against each other, cancel each other out, and bass becomes muddy and anemic. The SubSat7, however, places left and right woofers in separate chambers in a push/pull configuration. So they work independently of each



with dual active drivers. So everyone gets the best seat in the house, not just one person. The SurroundSat



To see how a large, flat TV screen can distort dialog from an ordinary speaker, have a friend talk to you like this. The SubSat Center Channel speaker is tuned to compensate for this effect.

rear-channel speakers look just like the SubSat7 satellites and can be mounted in the back of the listening area facing up or to the side using our optional mounting bracket. The net result: a one-room studio apartment becomes a gigantic concert hall (we won't tell the landlord if you won't).



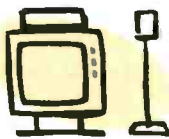
Available now: *Number*, a new mini-magazine about music, movies, sonics, and free (almost) music on CD (does not contain perfume samples). To reserve a copy, write to: Boston Acoustics, Dept. N3, 70 Broadway, Lynnfield, MA 01940

It sounds good. Duh.

Actually, the SubSat7 doesn't just sound good. We think it's the best sounding system ever created for the price. Three-piece. Or two. But don't take our word for it (after all, we could be a tiny bit biased). Bring your favorite CDs and your ears to a Boston dealer and compare the SubSat7 to any speakers in the listening room. We think you'll find the SubSat7 to be amazing. Especially around 120Hz.

other and give you tight, clean bass with accurate stereo imaging. In addition, the SubSat7's Bass Unit handles more power than other subs. So it can reproduce everything

What's on TV? The SubSat7 Center Channel speaker. To the rear: matching SurroundSat speakers. Now the only thing missing from your home theater is the gum stuck to the seat.



from a triple fortissimo timpani roll to a slapped low B on a five-string bass with ease and clarity.

Most people watch about 40 hours of TV per week. But few actually hear it.

This kills us: people buy a bigger TV to get a bigger, more dramatic picture. And they listen through the scrawny speakers that come with it. But to get sound that equals the picture in depth and emotion, all they need to do is add a Dolby® Pro-Logic™ receiver to the SubSat7 and its matching home theater

companions—the SubSat Center Channel Speaker and a pair of SurroundSats—each tonally matched and balanced to play with the SubSat7 system. The Center Channel Speaker features our 1-inch dome tweeter and a dual 5¼-inch active/passive mid-bass driver system. It provides a broad horizontal sound dispersion instead of the beaming sound common with other center channel speakers

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Cover

More and more power amplifiers, like the NHT MA-1, NAD Model 906, and Parasound HCA-1206 shown here, are being designed with home theater in mind. See page 70 for details.

Photograph by Dan Wagner

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BULLETIN

BY WILLIAM LIVINGSTONE
AND BOB ANKOSKO

ROMANCING THE BUYER

Manufacturers of MiniDisc (MD) and Digital Compact Cassette (DCC) hardware are engaged in a promotional war of sorts to win over prospective customers. For the rest of 1993, buyers of home and portable MD machines from Aiwa, RCA, Sanyo, Sharp, or Sony receive an MD sampler and thirty discount coupons, each of which is good for \$2 off the regular price of a prerecorded MD.

Several incentives are available to those who buy DCC machines before the end of the year. Buyers of Philips home and portable decks receive twelve coupons, good for one prerecorded DCC each month. Those who buy a Technics home recorder get to pick ten free prerecorded DCC's from a list of about twenty-five titles, while those who purchase Panasonic's portable player receive a DCC sampler and two free prerecorded tapes of their choice. Buyers of Radio Shack's Optimus home deck receive several coupons, each redeemable for a prerecorded DCC.

BANDLEADER MASUR

U.S. Presidents Harry Truman and Richard Nixon both played the piano, and, as everyone knows, President Clinton plays the saxophone. Now there are rumors that the conductor Kurt Masur, the music director of the Leipzig Gewandhaus and the New York Philharmonic orchestras, is being considered for the presidency of Germany. In a

DINO-SOUND

Jurassic Park, a \$60 video game based on the hit movie of the same name, is the first U.S.-produced game to feature a Dolby Surround-encoded soundtrack. Developed by Ocean of America for the Super Nintendo Entertainment System, the action/adventure game features the sounds of man-eating dinosaurs from the movie soundtrack.

recent editorial, the *Christian Science Monitor* commented that politics is often described as an art and said, "A politician does not have to conduct Beethoven's 'Eroica' in order to be a leader, but it just might help."

A/V ODDITIES

Casio's CMB-10B Wrist Controller is being billed as the world's first wrist watch/universal remote control. Designed to operate TV's, VCR's, and cable boxes, the otherwise ordinary-looking \$90 watch has a tiny panel with four micro buttons that can be used to select channels, adjust volume, and turn power on and off. Dick Tracy, eat your heart out. . . . Soon-to-be mothers can now hear what junior's up to without visiting the doctor's office. Unisar of New York City is offering a prenatal listening kit called FirstSounds (\$60 with external speaker, \$40 without) that includes a built-in amplifier and microphone, a listening "cone," and headphones. . . . A line of Barbie Electronics products is now available from KIDdesigns of Jersey City. Highlights include the BE 100 cordless-phone-style walkie-talkie (\$25) and the heart-shaped BE 400 cassette player with sing-along microphone (\$30). Each electronic device comes with a miniature version of the product to add "extra fun to doll play." Ken's sure going to be jealous.

PRIZES & AWARDS

The gospel singer Marion Williams is the first vocalist to win one of the "genius



RDS RADIO OPTION FOR '94 GM CARS

A Delco Electronics cassette receiver equipped with a Radio Data System (RDS) decoder will be offered as a dealer-installed option in GM vehicles beginning next spring. The decoder enables the tuner to receive RDS text and audio broadcasts, including automatic traffic and emergency reports. Text broadcasts can include a station's call letters or music format, or a longer message that scrolls across the receiver's LCD panel. Denon is the only company currently selling RDS car head units, although Jensen, Sony, and Blaupunkt have shown prototypes. Onkyo recently began selling the first home RDS tuner. About sixty U.S. stations are now broadcasting with RDS.

grants" (\$340,000) from the MacArthur Foundation. . . . Williams is also among those scheduled to receive this year's Kennedy Center Honors (for lifetime contributions to American culture), along with the TV host Johnny Carson, Arthur Mitchell (founder of the Dance Theater of Harlem), the Broadway composer and lyricist Stephen Sondheim, and the conductor Georg Solti. . . . The innovative jazz artist Dizzy Gillespie was elected to the American Academy of Arts and Letters only two days before his death at the age of 76. Also elected to the Academy this year was the composer William Bolcom. . . . On Broadway, *The Who's Tommy* won five of this year's Tony Awards, and *Kiss of the Spider Woman* (with music and lyrics by John Kander and Fred Ebb), won seven, including the Tony for best musical. . . . Judges at House of Guitars in Rochester, New York, are still struggling with the surfeit of awful entries in

their World's Worst Guitarist contest. At press time a winner had not been chosen, but the award is expected before the end of the year.

GOLD & PLATINUM

Recent certifications by the Recording Industry Association of America confirm Barbra Streisand's place as the female performer with the most RIAA awards. Her "Back to Broadway" album brought in her thirty-first Gold and twenty-first Platinum awards. . . . Michael Jackson's "Thriller" got a new Platinum certification for U.S. sales of 22 million, making it the highest-certified title in RIAA history. . . . Jackson's "Bad" reached total sales of 7 million, and his sister Janet Jackson's "janet." went to triple-Platinum.

Newly certified Platinum albums include "Blind Melon" (Capitol) by Blind Melon and "America's Least Wanted" (Stardog) by Ugly Kid Joe.

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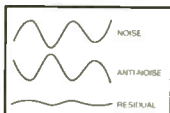
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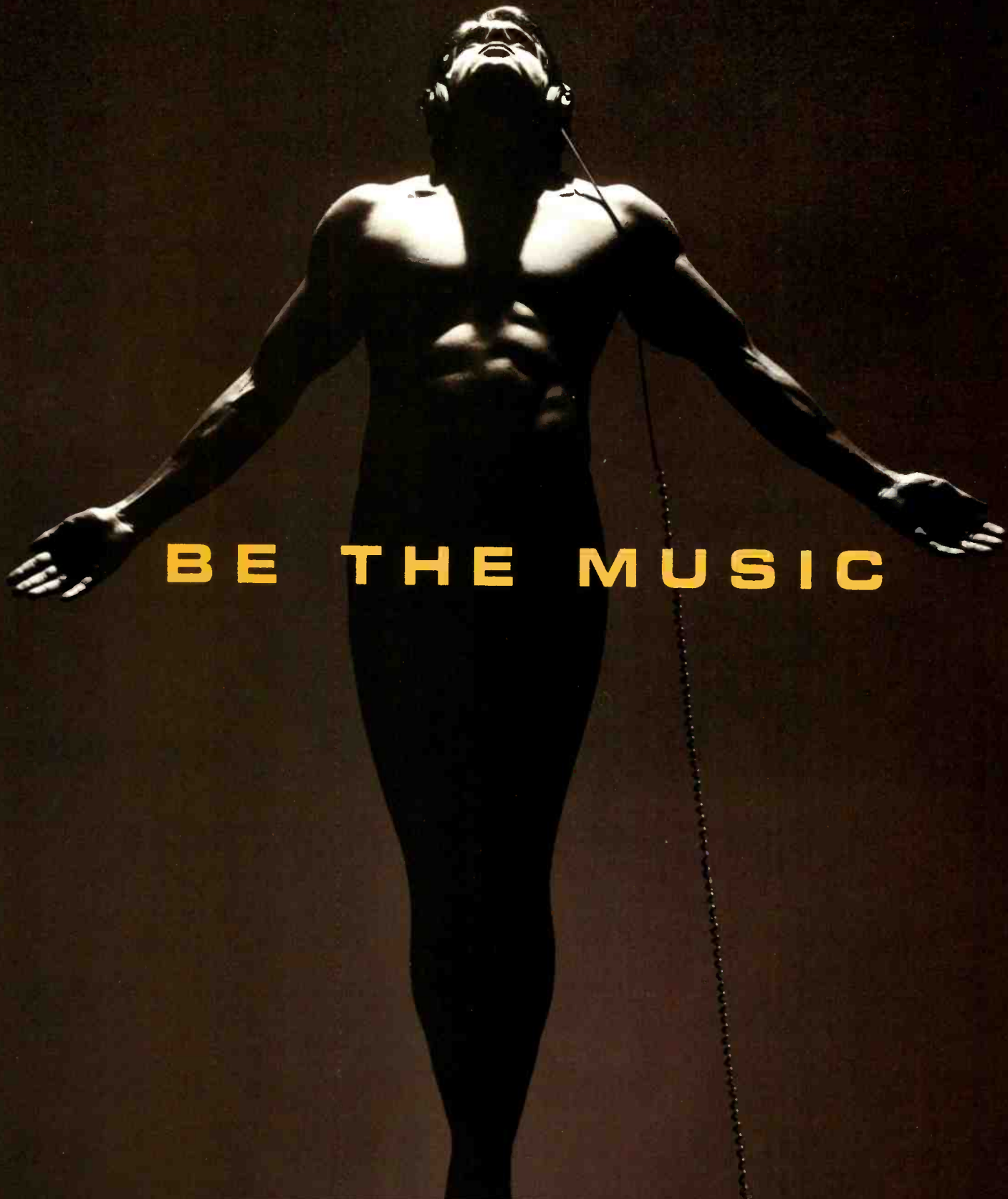


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LETTERS

How Long Will CD's Last?

In the *Science and Technology Desk Reference* from Gale Research (1993), it says that CD's may last only "three to five years" because "the aluminum substratum on which the data is recorded is vulnerable to oxidation." Is there any way to stop the oxidation?

P. E. LILEY
Lafayette, IN

In general, CD's have a very long lifespan. Most properly made discs that have been well cared for seem to last indefinitely. Any defect or damage that exposes a disc's aluminum reflective layer can lead to destructive oxidation, however, especially in tropical environments or near oceans.

Dolby vs. DTS

I was about to buy a Dolby Pro Logic A/V receiver for my planned home theater system, but here comes the incredibly successful *Jurassic Park* encoded with a surround system called DTS. Is DTS compatible with Dolby Surround? Will existing Dolby-equipped receivers need an outboard accessory to decode movies recorded with DTS? Are the thousands of Dolby A/V receivers or the millions of Dolby-encoded tapes in danger of becoming obsolete?

HERB GOLDMAN
Tustin, CA

Digital Theater Sound (DTS), which is intended for commercial theaters, puts the soundtrack on an optical disc synched to the film. Jurassic Park will undoubtedly be released on video with a Dolby Surround soundtrack, just as movies with Dolby Stereo Digital soundtracks have been (the conversion is not difficult). Eventually Dolby Surround Digital, using the same AC-3 encoding system as Dolby Stereo Digital, will probably be incorporated into video media, but that will take some time, and the new format will coexist with analog Dolby Surround. DTS and Dolby Stereo Digital use essentially the same six-channel layout, so moving soundtracks from one system to the other should be straightforward.

Dolby Names Names

There was some understandable confusion about Dolby nomenclature in the "Surround-Channel Bass" sidebar to the September article "Speakers for Home Theater." Dolby "SR-D" is not a film-sound format but identifies 35mm release prints that carry both a Dolby Stereo SR analog soundtrack and a Dolby Stereo Digital optical soundtrack. When referring just to the digital soundtrack and its presentation in the theater, only the term Dolby Stereo Digital should be used.

Dolby "AC-3" is the multichannel perceptual-coding algorithm that is used for Dolby

Stereo Digital film soundtracks and is being extended to consumer formats. Dolby Surround Digital will identify the consumer software and hardware that will use the AC-3 coding to provide the home equivalent of Dolby Stereo Digital film sound. This parallels the current use of the term Dolby Surround to identify the home equivalent of Dolby Stereo analog film sound.

The confusion, however, did nothing to detract from the important message about bass and surround channels. By the way, the listener will instruct a Dolby Surround Digital decoder as to which of the system's speakers are full-range and whether there's a subwoofer. The decoder will route bass below 100 Hz accordingly, much as today's Pro Logic decoders can route center-channel bass to left and right full-range speakers to enable the use of a limited-range center speaker.

JOSEPH HULL
Marketing Communications Manager
Dolby Laboratories
San Francisco, CA

Billy Ray's People

In her "review" (to be generous) of Billy Ray Cyrus's "It Won't Be the Last" (September), Alanna Nash isn't satisfied to trash his second album but has to take "cheap shots" at Mr. Cyrus. Not satisfied with that, she says he is an embarrassment to Nashville. Not content with that, we have a condescending "put down" of those who like and purchased his albums. Whether he can sing or write to her standards is irrelevant. Ten million people think he can.

IAN G. DARRACH
Halifax, Nova Scotia

As I read through Alanna Nash's thoroughly mean-spirited and poisoned article on Billy Ray Cyrus, I kept wondering: Why? It is so waspish at the personal level that one gasps at the indignities.

LARRY L. STONE
Bluefield, WV

Alanna Nash's recent article on Billy Ray Cyrus is absolutely disgusting and an insult to our native singer from Kentucky and to our State of Kentucky. I suspect [Ms. Nash] sits in her New York office, with four walls surrounding her, a computer or typewriter to key in dead-head, trash-one's-life negative articles such as this. Billy Ray is a human being! Is she? Kentucky is beautiful horses and bluegrass and friendly people, not concrete walls with a negative writer behind the pen.

ROBERTA TIPTON
Ashland, KY

For the record, long-time country-music fan and critic Alanna Nash is a "born and bred Southerner from Tennessee hillbilly stock on both sides" who has lived in Louisville, Kentucky, all her life.

Having It Both Ways

Can I buy an audio system that will provide excellent conventional stereo sound as well as surround sound? Or are these capabilities mutually exclusive?

DAVE A. KOENIG
Beavercreek, OH

You can very definitely have both. A good surround-sound system should provide fine stereo music reproduction. Many A/V receivers, integrated amps, and surround processors incorporate ambience-enhancement circuits for music as well as Dolby Pro Logic decoding for Dolby Surround movies and TV.

Levine's Secret?

The September "Best of the Month" review of a Wagner recording by James Levine and the Met Orchestra praises Mr. Levine for transforming the orchestra from a "workmanlike" ensemble to "one of the best." If I can believe the photo, I know how he accomplished it. Maestro Levine conducts with his baton in the "wrong" hand, and his string players play their instruments "backwards." To do this must require great concentration from all involved, and thus we get superb playing.

If you merely printed the photo backwards I will be disappointed, as that will shatter my theory.

RICHARD A. FERRIS
Edison, NJ

Sorry, but the photo was "flopped."

Corrections

We reported erroneous power measurements for the Onkyo TX-SV515PRO in October's comparison tests of three \$500 surround-sound receivers. The results on page 86 for 1-kHz output at clipping should have been 112 watts into 8 ohms and 171 watts into 4 ohms—0.4 and 3.1 dB better, respectively, than shown. We have also discovered that the TX-SV515PRO can generate a very impressive 297 watts continuously into 2 ohms.

There were some minor inaccuracies in "Thirty-Five Years of Tape Recording" (September). The first recorder to use Dolby B noise reduction was the KLH Model 40 open-reel deck (not the Model 42), which was introduced in 1968 (not 1970). And the first cassette deck to feature both Dolby B and CrO₂ capability was not the Advent 201 but its predecessor, the Advent 200, introduced in 1970. □

We welcome your letters. Please address correspondence to Editor, Stereo Review, 1633 Broadway, New York, NY 10019. You should include your address and telephone number for verification. Letters may be edited for clarity and length.

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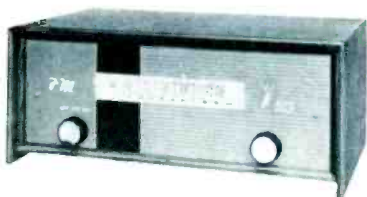
metal bowls for 360-degree tweeter dispersion.

Wait till he hears the CD: Reviewing RCA's stereo LP of Fritz Reiner and the Chicago Symphony performing Bartok's Concerto for Orchestra, critic John Thornton wrote, "Take good advice—get the recording, take it home, turn out the lights, take the phone off the hook, and lock the door. Listen to it several times and gain a memorable music experience you are not apt to forget—ever."

35 Years Ago

In his "The Flip Side" column in the November 1958 issue, Editor Oliver P. Ferrell pondered the gerontological implications of loudness controls and hi-fi standardization. "How would the engineer, as well as the originator of standards, compensate for gradual loss of hearing?" he asked. "Frankly, we need an amplifier with an Age Compensator rather than a loudness control."

Among the new products noted this month were the Altec Lansing Model 307A FM tuner (\$96), the Scott Model 209 36-watt monaural amplifier, and the Heathkit RP-3 build-it-yourself record changer, complete with G. E. phono cartridge. Equipment tested this month included the Gonset 3239 car FM adaptor, described as "the first realistic attempt at mobile FM reception," and the Kingdom Compass-1 speaker system, which employed two shallow



Altec Lansing's 307A FM tuner



20 Years Ago

In Best of the Month, George Jellinek minced no words in his review of London's Sutherland/Caballé/Pavarotti recording of *Turandot* ("The best *Turandot* ever available on records"), and Peter Reilly was equally enthusiastic over Diana Ross's "Touch Me in the Morning" ("a stunning performance"). Elsewhere in the review sections, Richard Freed compared dueling records of Prokofiev's complete *Romeo and Juliet* ballet—Lorin Maazel on London versus André Previn on Angel—and declared Maazel's the winner. Chris Albertson raved over a live Charles Mingus album on Columbia ("A rousing artistic success!"). And a nervous



Diana "Touch Me" Ross, 1972

Peter Reilly, mindful that the cover of Bonnie Bramlett's latest pictured her holding a shotgun, concluded a pan of the album by noting, "Noel Coppage—got that? C-o-p-p-a-g-e—wrote this review."

New products this month included the Shure 3009 Series II Improved tonearm, the Kirksaeter RTX 85.55 stereo receiver (65 watts per channel), and the Advent/2 speaker "for use in audio systems of moderate cost and power." Meanwhile, in test reports, Julian Hirsch examined the Kenwood KA-8004 integrated stereo amp and "found nothing significant to criticize in its design, and no unhappy surprises in our listening tests."

Someone call Stevie Wonder: Editor William Anderson, lamenting the dearth of truly "golden ears" involved in quadrasonic sound research, suggested recruiting them from the ranks of the blind. After all, he noted, "for many of them, music is already a profession."

10 Years Ago

Letters to the Editor: Outraged readers continued to respond to Laurence Greenhill's August article about listening tests showing that expensive speaker cable had no sonic advantages over zip cord. A typical reaction came from Gilberto Regules of Montevideo, Uruguay, who dismissed Greenhill's findings as "a statistician's conclusion—a statistician



being defined as someone who drowned in a lake with an average depth of one foot."

New products this month included the Technics SL-P8 second-generation CD player; Sanyo's VCR7300 portable Beta Hi-Fi VCR, which could record up to 5 hours of high-quality audio (without video) on an L-830 cassette; and the Niles Audio MM-1 Music Minder, which shut off your entire system 5 minutes after a record or tape ended. In test

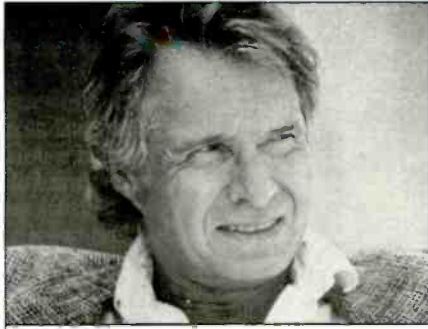


The Niles MM-1 Music Minder

reports, Julian Hirsch thought highly of Sennheiser's very sensitive, lightweight MS 100 headphones, but he cautioned against using them at extreme volumes. "Prolonged listening at the highest levels these phones can develop," he warned, "could be dangerous to your hearing."

Dude, take your lithium: Reviewing Quarterflash's "Take Another Picture," a depressed Steve Simels called it "a metaphor for everything that's wrong with the record business, and maybe even the world." —Steve Simels

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Chat Baker/Gerry Mulligan—Carnegie Hall Concert (CTI) 423-251
Nat King Cole—Jumpin' At Capitol (Rhino) 421-982
The Best Of Horace Silver (Blue Note) 419-416
Miles Davis—Birth Of The Cool (Capitol) 414-425
The Best Of John Coltrane (Atlantic) 412-114
Sarah Vaughan—The Divine (Columbia) 374-280/394-288
Duke Ellington—Ellington At Newport (CL Jazz Masterpieces) 354-662
Glenn Miller Orchestra—In The Digital Mood (GRP) 347-492
Dinah Washington—Dinah Jams (Emarcy) 441-709
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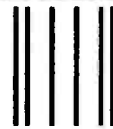
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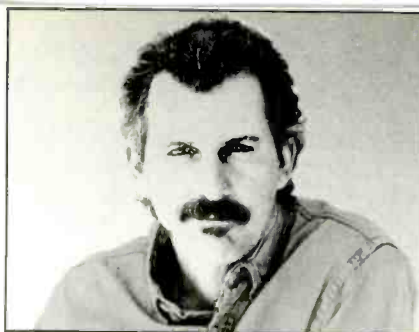
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- Abbey Lincoln—*Devil's Got Your Tongue* (Verve) 454*900
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- Arturo Sandoval—*I Remember Clifford* (GRP) 436*105
- Yellowjackets—*Like A River* (GRP) 454*165
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Boston Acoustics' first THX-certified speakers include the Model 555x (\$300), a front-channel system that combines two woofers and two tweeters in an 18 $\frac{1}{4}$ -inch-tall cabinet, the wall-mountable Model 757x surround (\$500 a pair), which has

a midrange/tweeter on each side and a forward-firing woofer, and the Model 595x subwoofer (\$500), about 18 inches square and rated down to 20 Hz. All are available in black-ash vinyl. Boston Acoustics, Dept. SR, 70 Broadway, Lynnfield, MA 01940.

▼ NHT

The Model 3.3, NHT's new flagship speaker, combines a 12-inch side-mounted woofer, a 6 $\frac{1}{2}$ -inch mid-woofer, a 4-inch midrange, and a 1-inch aluminum-dome tweeter in an asymmetrical 42-inch-high enclosure finished in an Italian laminate with a brushed-

aluminum texture. The speaker's front baffle is angled to improve clarity, stereo imaging, and tonal balance. In-room frequency response at 1 meter is given as 23 Hz to 26 kHz \pm 2 dB. Price: \$4,000 a pair. NHT, Dept. SR, 535 Getty Ct., #A, Benicia, CA 94510.

• Circle 122 on reader service card



▲ MARANTZ

The Marantz SR-73 A/V receiver is equipped with a Dolby Pro Logic decoder and five amplifier channels: three rated at 75 watts each for the front left, right, and center speakers and two at 35 watts each for the surround

speakers. There are four audio and three video inputs, five line-level outputs, and a Bass EQ control. Price: \$649. Marantz USA, Dept. SR, 1150 Feehanville Dr., Mount Prospect, IL 60056.

• Circle 121 on reader service card



NEW PRODUCTS



▲ SHERWOOD

Sherwood's DD-6030 dual-well cassette deck automatically switches from one transport to the other to simplify the process of making an extended recording. Features include autoreverse in both wells, Dolby B and C, an electronic tape counter, a

memory-stop function for quickly locating the beginning or end of a recorded segment, and high-speed dubbing. Price: \$325. Sherwood, Dept. SR, 14830 Alondra Blvd., La Mirada, CA 90638.

• Circle 123 on reader service card



▲ PARASOUND

Parasound's AWM-380G two-way outdoor speaker features a 9½-inch-tall, hermetically sealed aluminum enclosure. Frequency response is given as 48 Hz to 20 kHz \pm 3 dB and maximum power handling as 80 watts continuous. Available in creamy white or dark green. Price: \$345 a pair.

Parasound, Dept. SR, 950 Battery St., San Francisco, CA 94111.

• Circle 124 on reader service card



◀ SANUS SYSTEMS

Sanus uses a steel frame and fiberboard shelves finished in black-ash vinyl or oak veneer for its Basic Audio and Basic Video racks. Respective prices are \$229 and \$209 in black, \$269 and \$239 in oak. Casters are optional. Sanus Systems, Dept. SR, 1973 W. County Road C2, Roseville, MN 55113.

• Circle 125 on reader service card

▼ PSB

PSB's Model 100C center-channel speaker has a ½-inch tweeter flanked by two 4-inch drivers in a 17 x 7½ x 6-inch cabinet designed for TV-top placement. Frequency response is given as 95 Hz to 21 kHz \pm 2 dB. Price: \$179. PSB, Dept. SR, 633 Granite Ct., Pickering, Ontario, Canada L1W 3K1.

• Circle 126 on reader service card



◀ CLIF DESIGNS

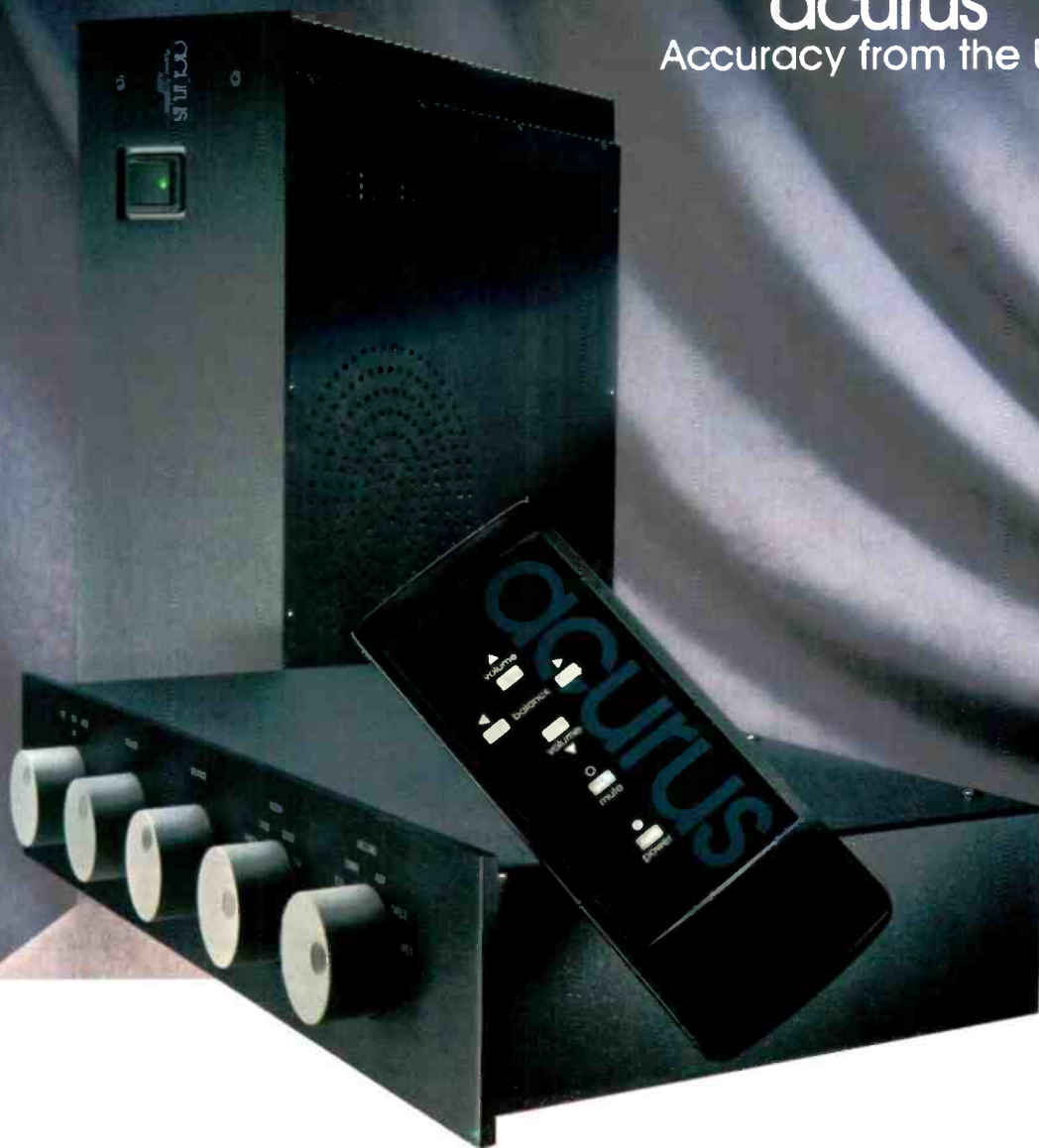
Clif Designs' Softdome CoAxial line of car speakers includes 4-, 5-, and 6-inch round models and 6 x 9-inch oval sizes—all designed to fit standard cutouts. Each speaker features a ¾-inch silk-dome, neodymium-magnet tweeter suspended over a carbon-

fiber woofer. Respective prices (per pair) and peak power handling are \$139 (60 watts), \$169 (100 watts), \$199 (125 watts), and \$219 (150 watts). Clif Designs, Dept. SR, 1602 Babcock St., Costa Mesa, CA 92627.

• Circle 127 on reader service card



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NEW PRODUCTS



▲ SONANCE

Designed for home theater and custom installations, Sonance's Sonamp 2120 stereo power amp is rated to deliver 120 watts per channel with no more than 0.05 percent distortion from 20 Hz to 20 kHz. It features input-level controls and an auto-on mode

that switches it on whenever a signal is detected at its input. Dimensions are 16¼ x 5½ x 12½ inches. Price: \$575; rack-mount version, \$585. Sonance, Dept. SR, 961 Calle Negocio, San Clemente, CA 92673.

• Circle 128 on reader service card



▲ AQUA TUNES

The Aqua Tunes belt from SportValise is for water-sports enthusiasts and swimmers who don't want to leave their music behind. It features a waterproof plastic pouch that is said to accommodate most Walkman-

type tape players, patented earphones that fit snugly into the ear canals, and an adjustable nylon waistbelt. Price: \$45. SportValise, Dept. SR, 1020 Bera Dr., Boulder, CO 80303.

• Circle 131 on reader service card

▶ SIGNET

Signet's 15½-inch-tall SL260B/U speaker (rear, \$450 a pair) and 25-inch-tall SL280B/U (\$700 a pair) team the same aluminum-dome tweeter with a 6½-inch woofer and an 8-inch woofer, respectively, in vented enclosures. Low-frequency limits are given as 45 and 35 Hz. Signet, Dept. SR, 4701 Hudson Dr., Stow, Ohio 44224.

• Circle 129 on reader service card



▲ JENSEN

Jensen's JS9335BBE car cassette receiver features a detachable faceplate to deter theft and a defeatable BBE processor that is said to enhance musical clarity by correcting phase anomalies and restoring the proper balance between midrange and high

frequencies. The head has a four-channel amp that delivers 60 watts total, four preamp outputs, and two subwoofer outputs. Price: \$370. Jensen, Dept. SR, 25 Tri-State Int'l Office Center, Lincolnshire, IL 60069.

• Circle 130 on reader service card



▶ GEMINI

Gemini's SMART15 is a hybrid universal/learning remote control. In addition to being able to "learn" the infrared control commands of audio/video components, the unit is preprogrammed to control most TV's, VCR's, and cable boxes. Price: \$40. Gemini, Dept. SR, P.O. Box 1115, Clifton, NJ 07014.

• Circle 132 on reader service card

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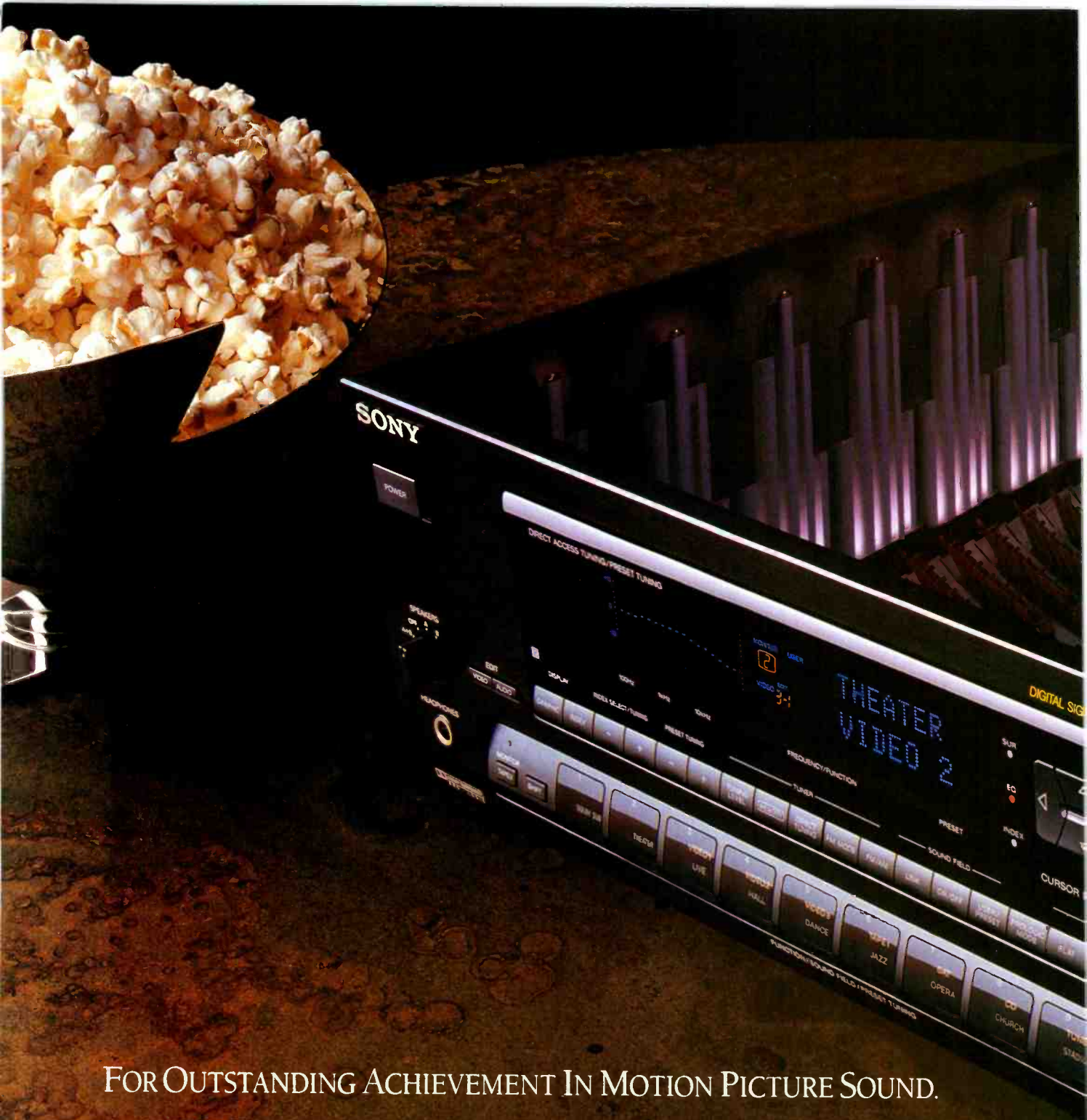
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SONY



MUSIC MAKERS

BY ROBERT RIPPS,
MARYANN SALTZER,
AND STEVE SIMELS

SOCIAL NOTES FROM ALL OVER

Glimpsed recently at a Manhattan performance by avant-rock avatars Pere Ubu: Actor **George Wendt**, famous for his portrayal of calorically challenged barfly Norm Peterson on the in-reruns-forever sitcom *Cheers*. Turns out that Wendt (pictured here backstage with Ubu singer and Norm lookalike **David Thomas**) is a long-time fan of the band. In fact, he was slated

SANDY SAWOTKA



to appear in the first video from Ubu's current "Story of My Life" album, until somebody at Ubu's label—Imago—remembered that Wendt had already appeared in Michael Jackson's splashy *Black or White* video, rendering him, in Imago's judgment, "too mainstream" for Pere Ubu.

CAROL WEINBERG/BMG CLASSICS



The violinist **Marla Bachmann**



TAKE THAT, MICHAEL CRICHTON

Japanese pop star Nokko may want to make it here in America—her new Sony album "Nightlife" is in English, after all—but apparently there are limits to what she'll do. For instance, she drew the line at appearing with Sean Connery and Wesley Snipes in the hit film adaptation of the (allegedly Japan-bashing) novel *Rising Sun*. Seems that Nokko, whose late-Eighties albums with her band Rebecca went multi-Platinum in her homeland, was offered a major role in the picture but turned it down after reading the script. "I don't want to focus on problems between Americans and Japanese," she said. "That's for car companies and governments."

CATALYST FOR CHANGE

According to Tim Page, executive producer of BMG Classics' new Catalyst label, "... the only excuse for creating yet another record label in the 1990's is to take a fresh approach..." and that's just what he and BMG seem to be doing. Committed to expanding the public's perception of the contemporary-music scene, the first Catalyst release contains eleven world premieres on five CD's. One disc represents the recording debut of the violinist **Maria Bachmann**, the first artist signed exclusively with Catalyst. Titled "Fratres," it includes works Bachmann commissioned from Paul Moravec and Albert Glinsky, as well as pieces by John Corigliano, Arvo Pärt, and Olivier Messiaen. Other discs in Catalyst's first release feature the percussionist **Evelyn Glennie**, the organist **Donald Joyce** (performing music of Philip Glass), the composer/performer **Alvin Curran** presenting a multimedia solo work, and the *Musica Sacra* chorus in an *a cappella* program conducted by **Richard Westenburg** and recorded in Dolby Surround.

A WOMAN IN CHARGE

The conductor **Marin Alsop** founded Concordia, a fifty-piece orchestra whose concerts combine classic American symphonic works with orchestral jazz and newly commissioned music, back in 1984. Concordia's first Angel CD, conducted by Alsop, features the world-première recording of Gershwin's *Blue Monday*, his Piano Concerto in F (in the Ferde Grofé arrangement) with Leslie Stiefelman as soloist, and Oscar Levant's *Caprice*.

New York-born, Juilliard-trained Alsop also founded String Fever, a fourteen-piece swing band (she plays violin), and the band's CD "Fever Pitch" is available on Koch International. Alsop has conducted numerous American orchestras and made her European debut this summer at the Schleswig Holstein Festival in Germany.

The conductor
Marin Alsop



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MUSIC MAKERS



¿QUÉ ES GONZALO RUBALCABA?

Yet another reason to be glad the Cold War is over: Cuban jazz pianist Gonzalo Rubalcaba—who's been compared to Thelonious Monk, Art Tatum, and Bill Evans—can now perform in the United States. In fact he did, for the first time, on May 14, as part of the Jazz at Lincoln Center series. Prior to that the twenty-seven-year-old Havana native, like most Cuban musicians, had been denied entry to America due to a 1988 decision by the Reagan-Bush state department. But music-biz heavyweights, including Wynton Marsalis, urged the Clinton administration to change the rules and grant Rubalcaba a visa. "It's very important—and not just for my own sake—to create the link between the United States and Cuba," says the pianist, whose latest album, "Suite 4 y 20," is out on Blue Note. "I hope I'll be the person to start it off."

BLUE NOTE RECORDS



STUART OSHIELDS/ELEKTRA NONESUCH

GOODE FOR BEETHOVEN

When Elektra Nonesuch released Richard Goode's ten-CD set of the Beethoven sonatas in September, Goode became the first American-born pianist to record the complete cycle. To celebrate, Goode will perform all thirty-two sonatas in concert this season in San Francisco/Berkeley (November and February), Chicago (December), Berlin, Frankfurt, Bonn (Beethoven's birthplace), and London.

LEARNING AS YOU LISTEN

Dudley Moore is the host of RCA Victor's new audio/video "Concerto!" series on VHS and laserdisc. The recordings capture several of the label's top artists as they rehearse and perform famous—what else?—concertos. Featured are the flutist James Galway, the pianists Alicia de Larrocha and Barry Douglas, the clarinetist Richard Stoltzman, the cellist Steven Isserlis, the harpist Marisa Robles, and the violinist Kyoko Takezawa, all with the London Symphony conducted by Michael Tilson Thomas.

Each "Concerto!" presentation combines an informal discussion of the music by Moore with the soloist and conductor, followed by a complete performance. Hoping the series would appeal to young viewers, the Learning Channel aired it in late August. A three-CD set with the performances only is also available.



BRAIN DAMAGE, AMERICAN STYLE

Back in 1977, you may recall, punk pioneers the Ramones sang the praises of destroying their cerebellums with "Carbana, not glue." These days, however, the venerable quartet is waxing nostalgic about headier sorts of substance abuse. The group's latest album—"Acid Eaters," on Radioactive/MCA—finds them covering some of their fave songs of the psychedelic era, including Love's *Seven* and *Seven Is*, the Who's *Substitute*, Ted Nugent's *Journey to the Center of the Mind*, and Max Frost and the Troopers' immortal *Shape of Things to Come*. Guests along for the trip include the suddenly ubiquitous Pete Townshend and, in an inspired bit of casting, porn-star-turned-miniseries-actress Traci Lords subbing for Grace Slick on Jefferson Airplane's *Somebody to Love*.

Meanwhile, on the literary front, St. Martin's Press has just released the group's authorized biography, *Ramones: An American Band*. Written by rock critic Jim Bessman and illustrated with scads of black-and-white photos, the book is unlikely to be confused with David McCullough's *Truman*, but we found it as intellectually challenging as any Ramones album.



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The portable comes with a built-in rechargeable battery that gives you about 2½ hours of playback. There's even a wired remote for controlling all major functions, including tape direction.

The car deck has a removable front panel for extra security. It also has a wireless remote control and CD changer control capability.

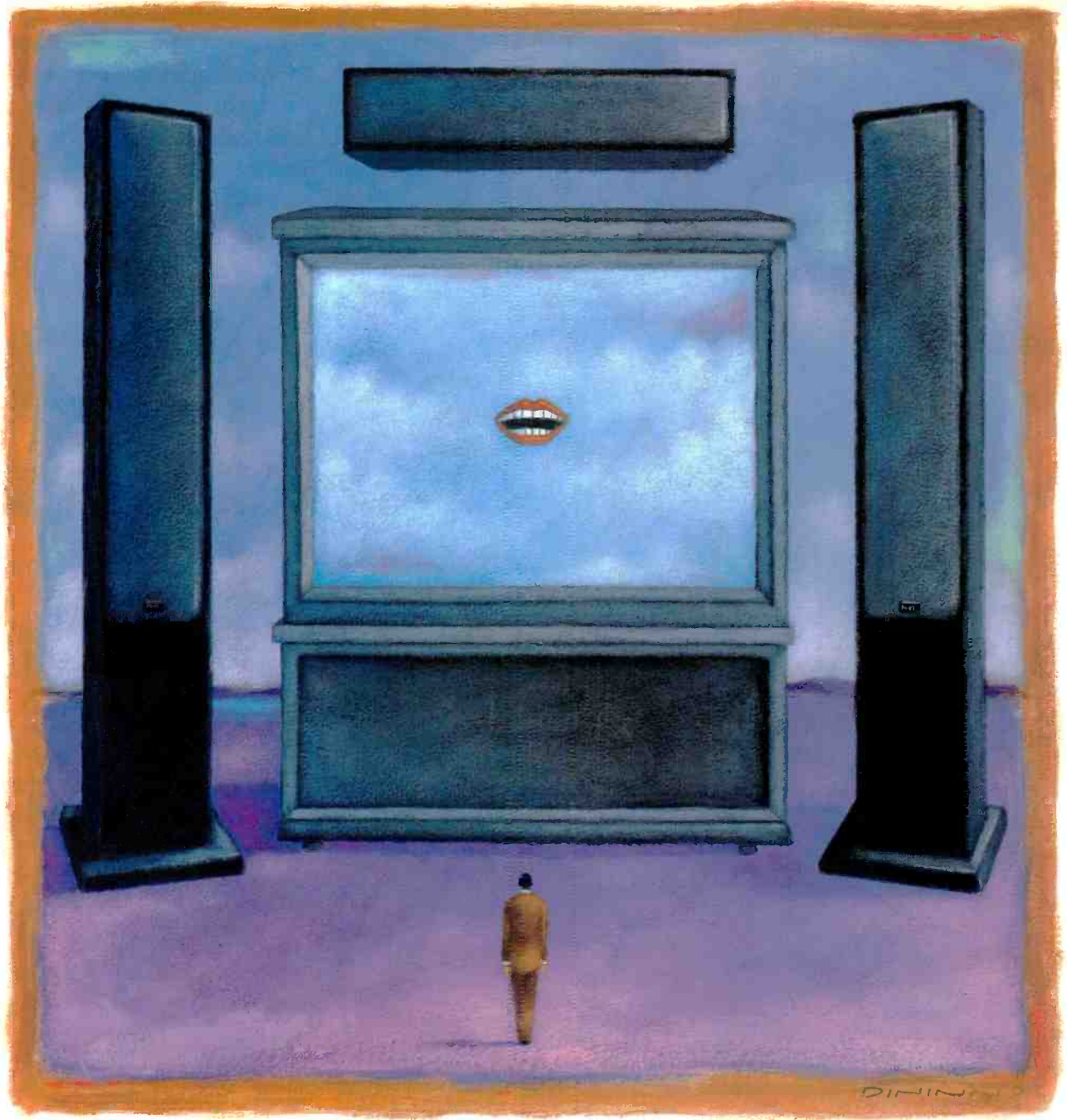
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AUDIO Q & A

BY IAN G. MASTERS

DCC vs. DAT

Q I'm trying to determine which digital recording format would be best for me, but I haven't been able to find an answer to one question. Why does a DCC of 120 minutes duration have to use data-reduction technology while a DAT of the same length does not?

JOHN PRICE
Pasadena, CA

A The two are very different beasts. Basically a DAT recorder is a miniaturized video transport, using a rotating head drum to realize a high tape-to-head writing speed while maintaining a slow linear tape speed. That enables you to fit a very wide bandwidth onto a small tape, so it's suitable for recording a standard 16-bit digital audio signal without data reduction. The downside is a complex—and thus inherently fragile and expensive—mechanism.

The aim of DCC is, in part, to be compatible with ordinary analog cassettes in terms of shell dimensions, tape width, tape speed, and so on, so that analog cassettes can be played in a DCC deck. But if it had been possible to fit a CD-type digital signal onto a conventional cassette, there would never have been DAT. As it turns out, even using multiple tracks and highly refined tape, the developers of DCC could fit only about a quarter as much data on a DCC as there is on a CD. By deleting all the data pertaining to sounds we can't hear, however, it is possible to encode a signal virtually indistinguishable by ear from that on DAT, but in a quarter of the space.

DIY Crossovers

Q I took a look inside the cabinets of my ten-year-old "state-of-the-art" speakers and found that the crossover networks consisted of just a couple of capacitors. Is that common practice? And is there any way I can upgrade the crossovers to improve performance?

RAYMOND FENTON
Baldwin, NY

A A speaker designer does what he must to match the various drivers and to make sure that each reproduces only what it's intended to, and that almost always involves the use of some kind of a crossover network. But a basic principle is that simpler is usually better, and it is sometimes possible to achieve smooth crossover transitions mainly, or even entirely, with the natural rolloffs of the drivers. In such cases, there may be no need for any intervention beyond some capacitors to keep low frequencies out of high-frequency drivers that might be driven into distortion or damaged by them. Your chances of improving the speaker by tinkering with its crossover are slim in any event. Speaker design is an intri-

cate juggling act, matching drivers, enclosure, and crossover circuits; second-guessing almost always results in worse sound.

Vinyl EQ

Q I collect Beatles records, and I have read that the master tapes recorded at EMI used the [European] CCIR equalization curve, so they sounded terrible when the band worked at other studios that used the [American] NAB curve. I remember that some early preamplifiers offered a range of equalizations—RIAA, NAB, CCIR, AES, Ortho, and so forth. If I had one of these, would it make some of the early Beatles LP's sound better?

KEN SMITH
Hamilton, Ontario

A Maybe, but it would be accidental. Analog audio is full of instances of pre- and post-equalization being applied to signals, mostly to reduce noise. In the case of professional tape recorders, the standards were set by the radio industry: the National Association of Broadcasters (NAB) in the United States and the International Radio Consultative Committee (CCIR) in Europe. The main difference is that the NAB standard calls for a bass boost when recording and a corresponding cut in playback, whereas the CCIR curve is flat at the low end. Because of that, a CCIR tape played with NAB equalization would lose most of its bass, as the Fab Four discovered.

But theoretically that should have no effect on the commercial version of a recording. A master tape is supposed to be equalized properly to a flat signal before being fed to an LP cutting lathe; then a new equalization curve is applied. For more than thirty years, the equalization for vinyl records has followed a standard set by the Recording Industries Association of America (RIAA), but during the LP's first decade—well before the Beatles—there were competing curves, and some preamplifiers made provision for them.

Cable Direction

Q I purchased an expensive pair of interconnect cables for my CD player and noticed directional arrows on them. The salesman cautioned me to install them the right way around, but an electrician friend laughed and said that the direction of the cable couldn't possibly make any difference. Is there any evidence that direction matters?

JEFFREY S. BERENDS
Grand Rapids, MI

A Cable directionality is one of those concepts dear to the hearts of audio's outer fringe, but it strikes me as goofier than most. As your electrician friend knows, an audio signal is a form of alternating current, in

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which the electrons move through the cables in one direction about half the time and in the other direction the rest of the time. It seems hard to imagine creating a type of wire that would not be correct for both halves of an audio signal, even assuming that direction plays some role.

Digital Videocassettes?

Q I'm confused about the labeling of the videocassettes I rent and buy. For instance, if a cassette says "Dolby Stereo" rather than "Dolby Surround," can it be decoded by a Pro Logic decoder? And what does "digitally mastered" mean? FRANK A. CRESCI
Walnut Creek, CA

A I admit that videocassette labeling is one of life's little annoyances. Not only is there no consistency to the designations given to various processes (Dolby Stereo and Dolby Surround are identical, incidentally, and can be reproduced in mono, stereo, or with a Dolby Surround or Pro Logic decoder, surround), but the labels are printed in the smallest possible type, if at all. And if you rent a tape, chances are you take it home in a plain box with no description on it; if you forgot to look at the original box in the store, the label on the cassette itself will certainly not tell you the process.

That rant over with, let me point out that almost all tapes issued in the last five years or so (of movies, anyway) are encoded in something that can be decoded by Dolby Pro Logic. They're nearly all digitally mastered, as well, which means that the film is first transferred to digital videotape, instead of analog videotape, as was the previous practice. Digital recording at that stage preserves the quality of the film image better. What you rent is, of course, analog.

Mail-Order Speakers

Q The speakers I am considering have only a few local authorized dealers but are available by mail order at somewhat lower prices. The mail-order houses I have talked to say that the speakers are factory-fresh and carry full manufacturers' warranties, but my local hi-fi dealer says that this isn't so. In any event, he won't service what he doesn't sell. Are the mail-order products the real thing?

CHAD A. RHOADES
Medina, OH

A Equipment from a reputable mail-order house is almost always straight goods, and if it carries the manufacturer's warranty, you can count on it. The lower price is usually possible because the company can sell in large volumes and doesn't have to bear the high overhead of a retail store serving a relatively small market.

About the only defense the local dealer has against your buying by mail is to refuse to fix your purchase if it breaks, which means you will have to go through the hassle of returning it to an authorized service center that might be halfway across the country. Another disadvantage of buying by mail is that you will be stuck with what you choose—it's very unlikely that the mail-order house will take your

purchase back simply because it sounds lousy in your room. Many dealers will, however, and that might be worth the extra money it would take to buy locally.

Amplifier Magnetism

Q I recently bought a Carver amplifier and preamplifier, and the instructions suggest that, because of the magnetic field produced by the amplifier, the preamp should be at least 3 inches away. I know that a TV monitor can be affected by the magnetic field radiated by a speaker, but I'm not sure about an amplifier. I have very limited space; could I damage my TV if it's too close to the amplifier?

BRIAN TODD
River Forest, IL

A I've never encountered this as a problem, but the Carver amps are unorthodox, and there is a chance that your TV picture might be affected. The only way to find out is to try it—put the amp where it's most convenient and see whether it disturbs your picture. If it does, move the amplifier; it won't have permanently affected your monitor, even if the color impurities take a while to go away (up to a day, sometimes). If there's no immediate disruption, fine, but keep your eye on it over time—sometimes the effects are very gradual and take months to show themselves.

Long-Distance Radio

Q I have a portable AM/FM radio, and some time ago I noticed that I could pick up foreign stations on the AM band. Is there any reason this happens only at night? Are radio waves somehow restricted during the daytime?

JAVIER A. GONZALEZ
Miami, FL

A Ah, youth! Those of us who grew up in the pre-FM era know that AM signals really travel at night. The fascination of the phenomenon is that you can sometimes hear stations thousands of miles away. The downside is that the signal from the transmitter across town might be screwed up by that distant signal if the frequencies are the same—only a handful of stations are on "clear channels" and have their frequencies all to themselves.

The effect is caused by the ionosphere, which is the part of the atmosphere about 30 miles up that is made up of ions and free electrons. This layer has the ability to reflect back to earth radio waves that would otherwise be lost to space, and sometimes these come down very long distances from their points of origin. Only relatively low-frequency waves—such as AM signals—are affected; higher-frequency FM and TV signals simply pass through and disappear into space. The ionosphere tends to hang out on the dark side of the planet, which is why the effect is more pronounced at night.

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TECH TALK

BY JULIAN HIRSCH

Good, Better, or Best?

Have you ever wondered what qualities justify describing a loudspeaker as "good," "better," or even "best"? Obviously, I have to face that question (or somewhat similar ones) regularly. I rarely feel justified in calling any product "the best," however, especially when its perceived qualities are mostly subjective and therefore not definable in rigorous terms. Different people have different tastes, after all.

This is especially true in the case of loudspeakers, by far the most important component of a hi-fi system. (There are some who would challenge that statement, but I'll leave that discussion for another time!) Most of us, when we listen to sound reproduced through loudspeakers, form some sort of opinion of what we are hearing. For me, the first impression of the sound is whether it is *believable*—does it sound like it is being performed and heard in some sort of hall or other space that is commonly used for musical performances? On that level, I am not considering whether it sounds the way it would in a specific seat of a specific hall (even if it was actually recorded there). I am not concerned at that point with the actual program material or whether it appeals to me or turns me off.

Personally, I think most of that aspect of the program has already been established by the recording engineers. The speakers (and the listening room—the two cannot really be separated) can, and do, modify the recorded characteristics but (assuming these were reasonably good in the first place) cannot improve on them to any significant degree. Any changes in the sound are likely to be in the wrong direction.

But let's assume we have a CD (or a good LP or tape) of music we enjoy listening to and play it through a system formed of competent electronic components. What can we expect our

loudspeakers to do to, with, or for the recorded performance as heard over our own system? Can we be satisfied with the sound we have been living with, or should we perhaps smash the family piggy bank and start looking for better speakers (which are always out there to be bought, if you have the wherewithal).

Like many of you, I have often wondered about that question. Recently our speaker-testing schedule found me in simultaneous possession of several pairs of loudspeakers sharing fairly comparable driver complements (one or two 6-inch woofers and a single 1-inch dome tweeter) but with widely dissimilar price tags. All were from reputable, well-known companies, although their prices ranged from less than \$500 a pair to more than \$1,200. Some were floor-standing models, others were small enough to be used on shelves or on stands.

We listened to and measured each of these speakers independently of the

**What can we expect
our loudspeakers
to do to, with, or for
the sound of a
recorded performance?**

others. They all acquitted themselves admirably, with remarkably similar response measurements and other performance data. When I compared the test data, I was struck by their similarity (the measurements were not *identical*, mind you, but definitely more alike than those of most speakers I have tested).

Surely, speakers whose measured performance was so similar must sound pretty much alike. It was easy to find out, and to this end I did a fair amount of comparative (A/B) listening with various sources of program material, including "real world" sources such as FM radio (scorned by the most

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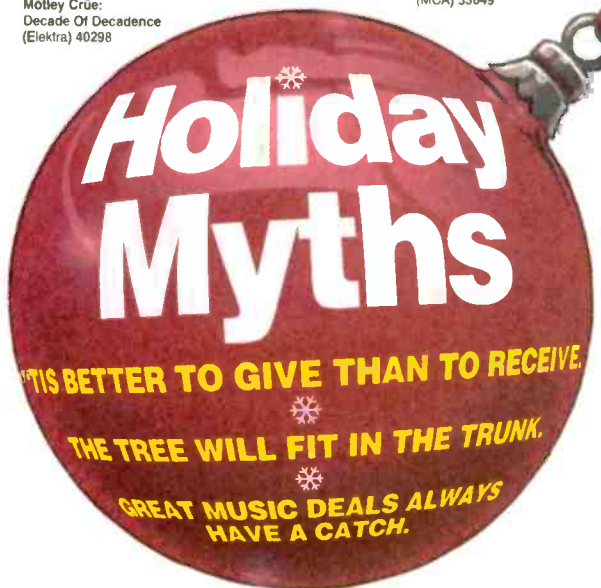
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selective audiophiles, but still a staple source for most of us). Although most of the speakers had similar sensitivities, our switching comparator was able to match them precisely to eliminate level changes.

To my amazement, they sounded so similar that it was usually difficult (or impossible) to judge by their sound which was being played. This depended on the program material, of course, but the differences were principally of two types. Some of the speakers were a tiny bit brighter than others—not to the point where one could say that either was better—merely different (often the case with speaker judgments, if the listeners' minds are as open as their ears).

There were also some differences in the bass, not surprising in view of the fact that some of the speakers had two woofers instead of the single one in others. This sort of difference was usually detectable only on program material with *real* deep-bass content (below 40 Hz).

But, frankly, 99 percent of the time the quality differences among these speakers were quite negligible, if not totally undetectable. Do I hear you saying the listener has a "tin ear"? Perhaps, but in that case so does our Bruel & Kjaer 4133 microphone and Audio Precision System One test set, which first revealed the amazing similarities among these speakers.

Does this mean that no one should spend more than \$500 for a pair of speakers? Not at all—every one of these products was clearly worth the asking price. For a low price, you usually get speakers with limited low-bass capability in rather plain black wooden boxes that should be placed on stands (not included). At the other end of the spectrum are pieces of finely finished furniture, usually capable of being placed directly on the floor. The latter are also likely to deliver an additional half-octave or more of bass extension and less low-frequency distortion.

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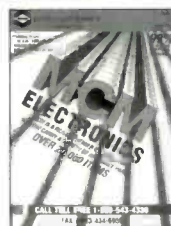
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TEST REPORTS



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Heading Technics' new line of audio/video receivers, the SA-GX650 is a powerful and versatile component that should be equally at home in surround-sound, home theater, or conventional stereo applications.

The SA-GX650 has three 100-watt amplifiers, for the front left, center, and right speakers, and a 45-watt amplifier for driving a pair of rear (surround) speakers in a Dolby Pro Logic surround-sound setup. There are also line-level outputs for driving one or two subwoofers through an external amplifier. In the Dolby 3 Stereo mode, the surround-channel signal of a Dolby-encoded soundtrack is folded into the front and center speakers. This mode is recommended for home theater systems with a center speaker but without surround speakers. In the receiver's conventional stereo mode, only the left and right front channels are operative, and their power rating increases to 125 watts per channel into 8 ohms from 20 Hz to 20 kHz with no

more than 0.05 percent total harmonic distortion (THD).

The SA-GX650 is a fairly large receiver whose front panel contains a central display window and a considerable number of pushbutton controls. The eleven preset buttons, in a row just below the window, can store and retrieve the frequencies of up to thirty FM or AM stations. Underneath is a second row of buttons that select the operating mode (Dolby Surround, Dolby 3 Stereo, or stereo), activate the Dolby Pro Logic calibration tone, adjust the relative levels of the center and surround speakers, select the Pro

Logic center-channel mode (Phantom, Normal, or Wide), adjust the Pro Logic delay line (from 15 to 30 milliseconds in 5-ms increments), and switch the loudness compensation on and off. Small round buttons select AM or FM and stereo or mono reception (the reception mode is normally set automatically).

Large square buttons near the bottom of the front panel select the program source. Inputs are provided for two VCR's (one of which is also accessible from the front panel), audio recording (with monitoring), CD, and phono. There are also a front-panel headphone jack and small knobs for the bass and treble tone controls and balance adjustment.

Although there are quite a few buttons on the receiver's panel, most are small and inconspicuous, and they are arranged in a logical pattern, making the SA-GX650 more comfortable and less confusing to operate than most other A/V receivers we have tested. The display window is exceptionally clear and informative, providing all relevant information on the receiver's operating status without unnecessary confusion.

The receiver's two most conspicuous controls, which overshadow the

DIMENSIONS

17 INCHES WIDE, 6 1/4 INCHES HIGH,
13 7/8 INCHES DEEP

PRICE

\$530

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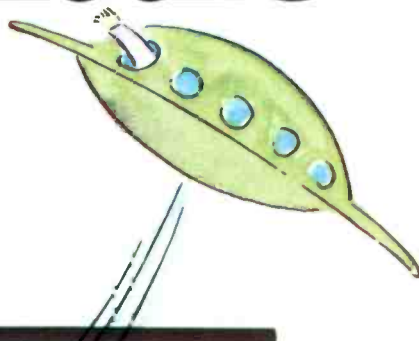
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many smaller ones, are the large knobs flanking the window. At the right is the volume control, which is motor-driven when operated from the remote. A muting button next to it reduces the volume by about 20 dB. To the left of the window is the tuning control, easily the handiest we have seen on a receiver in recent years. It can be operated in two distinctly different modes, selected by a nearby button. In the automatic mode, a slight movement of the knob initiates a scan of the currently selected radio band, up or

down in frequency depending on which way the knob is turned, until a station is acquired. In the manual mode, the tuning action resembles that of an analog tuner (very few of which approach the smoothness of the SA-GX650), with a very light "feel" and a swift coverage of the entire tuning range. Since the slightest touch can shift the tuning knob's setting, a third mode (lock) disables it when desired. A single small button next to the knob toggles between the tuning modes, which are clearly identified in the win-

MEASUREMENTS

TUNER SECTION

All figures are for FM only except frequency response; all measurements referred to 300-ohm input.

50-dB quieting sensitivity

mono	19 dBf
stereo	37 dBf

Signal-to-noise ratio (at 65 dBf)

mono	75 dB
stereo	70 dB

Distortion (THD + N at 65 dBf)

mono	0.25%
stereo	0.29%

Capture ratio (at 65 dBf)

	1 dB
--	------

AM rejection

	37 dB
--	-------

Selectivity

alternate-channel	46 dB
adjacent-channel	3 dB

Pilot-carrier leakage

19-kHz	-40 dB
38-kHz	-50 dB

Hum

	-76 dB
--	--------

Channel separation

100 Hz	31 dB
1 kHz	50.5 dB
10 kHz	42 dB

Frequency response

FM	30 Hz to 15 kHz +0.2, -0.65 dB
AM	90 Hz to 2.8 kHz +0.7, -6 dB

AMPLIFIER SECTION

Except as noted, all figures are for main front channels only.

Output at clipping (1 kHz)

8 ohms	165 watts
--------	-----------

Clipping headroom

(relative to rated output)	1.2 dB
----------------------------	--------

Dynamic power

8 ohms	188 watts
4 ohms	264 watts



Dynamic headroom (8 ohms, relative to rated output) 1.8 dB

Distortion at rated power 0.015%

Sensitivity (for a 1-watt output into 8 ohms)

CD 18 mV

phono 0.32 mV

A-weighted noise

(referred to a 1-watt output)

CD -78.5 dB

phono -76.8 dB

Phono-input overload

(1-kHz-equivalent levels)

20 Hz 165 mV

1 kHz 180 mV

20 kHz 210 mV

Phono-input impedance

44,000 ohms in parallel with 94 pF

Tone-control range

100 Hz +9, -10 dB

10 kHz +9, -10 dB

RIAA phono-equalization error

(20 Hz to 20 kHz) +0.5, -0.8 dB

Frequency response (with tone controls

centered) 20 Hz to 20 kHz +0.2, -0.3 dB

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 GA- Stereo Shop: Martinez • Stereo Video Systems: Marietta.
 HI- Maui Audio Center: Kahului.
 IA- Audio Logic: Des Moines • Camera Corner: Davenport • Custom A/V: Cedar Rapids • Hawkeye: Iowa City, Cedar Falls.
 ID- Good Ear: Boise.
 IL- United Audio Centers: Chicago & Suburbs • Cars & Stereos: Rockford • Jon's Home Center: Quincy • Stereo Studio: Palatine • Select Sound: Naperville • Sterling Elect.: Sterling.
 IN- Ovation Audio: Clarks Summit, Indianapolis.
 KS- Accent Sound: Overland Park • Advance Audio: Wichita • Audio Junction: Junction City.
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dow. Another button lets you tune in a frequency by sequentially pressing the numbered preset buttons.

Finally, there are two small speaker-selector buttons. In stereo mode, they channel the signals to either or both of two pairs of main speakers. Normally, the SA-GX650 is rated for operation only with loads of at least 8 ohms. But if you wish to use one pair of 4-ohm speakers (which require more operating current), the receiver can be set for this heavier load by simply pressing and holding one of the speaker-selector buttons (it is not possible to use two pairs of 4-ohm speakers simultaneously).

As our test results show, the SA-GX650 can deliver very high outputs under some conditions. In addition to electronic overload protection, which instantly shuts down the receiver when its survival is threatened, a cooling fan draws outside air in through slots on the top cover, passes it over the fins of the internal transistor heat sink, and exhausts the hot air from the rear apron. The fan is thermally operated and comes on only when needed, so that its noise (which is audible, though not to an annoying degree) will not be intrusive. Normally, the fan will operate only when the system is playing at a level that would completely mask its sound. But even at lower levels, when it is not operating, the top of the cabinet becomes quite warm.

Although the rear apron of the SA-GX650 has all the necessary input and output connectors, it seems almost sparsely populated in comparison with other A/V receivers we have tested. In addition to the obvious input jacks (and outputs for one of the VCR's and the audio recorder), there is a TV-monitor output, two subwoofer line outputs, and an output for a remote-control connection to a compatible Technics tape deck or CD player.

Surprisingly for a receiver of its power capabilities, all of the SA-GX650's speaker outputs except the one for the center speaker are snap clips that accept only stripped wire ends. The center-speaker connector is a spring clip. Although these connectors are probably adequate, they don't allow the use of heavy-gauge wire, spade lugs, or other conventional high-power connectors such as banana plugs. There are two switched

SURROUND PERFORMANCE	
All measurements are referred to 1-kHz levels at the VCR2 input of 200 millivolts for the front channels and 141.4 mV for the center and surround channels, all producing 2.83-volt outputs into 8 ohms (1 watt). All measurements in Normal center-channel mode.	
Frequency response	
left, right	20 Hz to 20 kHz +0.37, -0.6 dB
center	100 Hz to 20 kHz +0, -3 dB
surround	-3 dB at 65 Hz and 6 kHz
A-weighted noise	
left, right	-73.6 dB
center	-74.7 dB
surround	-76.2 dB
Distortion (THD + N)	
left, right	0.06%
center	0.04%
surround	0.61%
Surround decoder input-overload levels	
left, right	+17 dB
center	+17 dB
surround	+21.7 dB
Surround-channel-delay indicator error	
	2 milliseconds short
Surround-channel noise-reduction calibration error	
at 1 kHz	+3 dB
at 3 kHz	+5 dB
Separations (100 Hz to 7 kHz)	
left from right	>45 dB
left from center	>30 dB
center from surround	>51 dB
surround from left	>47 dB
left from surround	>34 dB
surround from center	>37 dB
center from left	>44 dB

AC outlets on the rear of the receiver.

The SA-GX650 comes with an AM loop antenna that mounts on the rear apron and can be pivoted over a 180-degree arc. Binding posts are provided for 75- and 300-ohm FM antennas, but there is no F connector.

The receiver has a versatile remote control that not only duplicates most of its key front-panel features but serves as a system control for associated compatible Panasonic or Technics components, including CD players, VCR's, and TV receivers, as well as VCR's and TV's from Zenith and RCA. (We tried it with an RCA TV we have had for a number of years, and it worked perfectly.) In addition, the re-

mote can "learn" to control TV's and VCR's from other manufacturers.

The performance of the FM tuner section was comparable to that of many moderate-price stereo tuners and receivers. Although its distortion was not particularly low, it should not be audible with music (and wasn't, in our tests). Interstation muting is on during FM tuning, but while a station is tuned in, a reduction of signal strength or removal of the antenna will produce the familiar hiss of an unmuted tuner. In stereo reception, the 19-kHz pilot-carrier leakage into the audio was very high (evidently there is little or no filtering), inflating stereo noise and THD plus noise measurements. The leakage could also cause problems if you record stereo FM broadcasts onto analog tape or reduced-bit-rate digital media such as MD or DCC.

Most other FM-tuner performance characteristics, including image rejection and selectivity, were typical of receivers today. Interestingly, the SA-GX650's best and worst measurements were of the two characteristics having the most to do with an FM tuner's ability to reject interference on the same frequency. The AM rejection was a mediocre 37 dB, and the capture ratio was a superb 1.0 dB, as rated. The AM frequency response, like that of almost every tuner and receiver we have tested, was very limited at both low and high frequencies.

The tone controls had good characteristics, although the tiny knobs and the lack of clear index markings made it difficult to determine their settings. Particularly for the treble control, we found that turning the knob halfway up or down had an insignificant effect on the response. The loudness control boosted the frequencies below several hundred hertz by about 10 dB at volume settings of -20 dB and below.

The main (left and right front) power amplifiers easily met and surpassed their ratings. Their 125-watt stereo rating is conservative: We measured 165 watts into 8 ohms at the clipping point, and at 125 watts into 8 ohms the distortion remained well below the rated 0.05 percent from 20 Hz to 20 kHz. If the receiver is used with speakers having much less than 8 ohms impedance, however, it should be set for low-impedance operation.

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We succeeded in blowing an internal fuse near the clipping point with a 4-ohm load (evidently the electronic protection did not take effect in time). Fortunately, the receiver was not damaged by this abuse and required only a fuse replacement (it is not considered "user replaceable" since that involves removing the cover).

We used the SA-GX650 with very good results in a surround system with two front speakers and two side-mounted ambience speakers. Unlike some considerably more elaborate (and expensive) receivers, the SA-GX650 makes no attempt to simulate a

number of acoustic environments. In a normal room, with reasonably good stereo recordings (not specially encoded ones), there was a worthwhile amount of ambience enhancement. We did not use the receiver with Dolby-encoded movies (which presumably would be a major application for it), but the sound with a Dolby Surround-encoded CD clearly demonstrated its suitability for home theater use. And its ease of operation—a quality notably absent in many more elaborate receivers—is a significant bonus. At its moderate price, the SA-GX650 is certainly an excellent value. □

SECOND OPINION

PROVIDED you don't want or need any synthesized-ambience music-enhancement modes, the Technics SA-GX650 is a nice, easy-to-use A/V receiver. But don't assume that the lack of a specific button for music enhancement means it can't supply any. Dolby Pro Logic decoding of some types of music can be very entertaining, if not true high fidelity. It would have been relatively easy for Technics to include one "pure" enhancement mode using the Pro Logic delay line (other manufacturers have), so it's strange there isn't one.

To my surprise, I didn't find the cooling fan—which is necessary in order to reduce the size and cost of internal heat sinks—as audibly distracting in this case as I usually do, probably because it doesn't even turn on unless the receiver is putting out about a steady 1 watt or more in any channel. With speakers of 90 dB sensitivity, that means there's going to be about 90 dB of sound in the room before the fan starts turning. At those sound levels, the fan noise is completely masked.

Interestingly, the SA-GX650's audio-recorder input also bears a designation for DCC, promoting the new format of which Technics' parent company, Matsushita, is co-developer. But MD recorders and analog cassette decks will hook up just as easily to this input.

Another input on the vertically arranged rear panel, VCR2, is less fully equipped than might be hoped, since it is an A/V input only and has no corresponding A/V outputs for recording. This input might have been better labeled "laserdisc," which is what it's best suited for, and I hooked up our test equipment there to perform

our videodisc-oriented tests on the receiver's surround circuits.

Our first set of new test procedures for Dolby Pro Logic mostly showed very good results. Of particular note are the high signal-to-noise ratios and low distortion. Separation and frequency-response figures were all adequate. Surround overload levels, while not stellar, were par for the course, as was the surround-channel calibration error (it is not yet clear how audible calibration errors of this magnitude are with normal program material). Listening tests turned up no anomalous sound-steering behavior while simultaneously demonstrating that the low measured noise levels produced audible benefits.

As is customary with A/V receivers, the SA-GX650's remote control is overloaded with buttons for other components. Although there was an admirable attempt to differentiate buttons by shape and size, the remote is still difficult to master. Receiver-related buttons are located in clusters separated by controls for a CD player and surrounded by buttons for an audio recorder and only one VCR (no hint of a videodisc player here, either), and the overall layout is too regular, without enough tactile distinction between sections. Also, the button for muting is too prominent in relation to the more important buttons for volume and channel selection.

Still, you'll eventually learn to navigate around the remote, and because it has all the controls necessary for Dolby Surround adjustment, it will help you take full advantage of the SA-GX650's high power and high-quality surround decoding. —David Ranada

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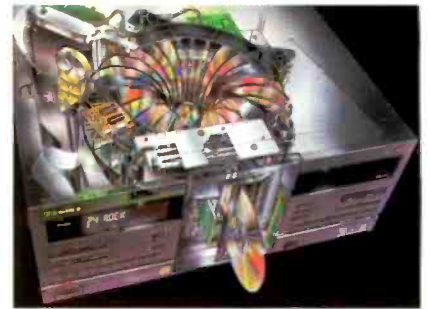
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Ref. No. 123



TEST REPORTS



MB Quart Quart Three Loudspeaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

The products of MB Quart, a major German loudspeaker manufacturer, have been well received in the United States since their introduction here a number of years ago. The Quart Three, a recent addition to the company's line, is assembled in the United States using components made in both North America and Germany.

The Quart Three is a floor-standing columnar loudspeaker with two 6-inch woofers. One is at the top of the speaker panel, with a 1-inch metal-dome tweeter immediately below it. The other woofer is just below the mid-

point of the panel, with a vent opening below it.

The installation instructions supplied with the Quart Three (and the

DIMENSIONS

8 INCHES WIDE, 36 INCHES HIGH, 10 INCHES DEEP

FINISH

BLACK VINYL, REMOVABLE BLACK GRILLE

PRICE

\$799 A PAIR

MANUFACTURER

MB QUART™ ELECTRONICS USA, INC., DEPT. SR,
25 WALFOLE PARK S., WALPOLE, MA 02081

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TEST REPORTS

smaller Quart Two and Quart One) are minimal, consisting only of general placement suggestions. The only technical information furnished is on a label affixed to the bottom of the speaker cabinet, which indicates a rated impedance of 4 ohms, a power-handling capacity of 90 watts (170 watts of music program), and a frequency range of 33 Hz to 32 kHz.

The input terminals, recessed into the bottom of the enclosure, are gold-plated binding posts, but they're spaced too widely for use with dual banana plugs (they will accept single banana plugs, however). A clearance gap is provided for the connecting wires, though it is not large enough to pass most specialty speaker cables other than flat ones.

Our initial measurements indicated somewhat unusual impedance and response characteristics, which led us to make separate frequency-response measurements of the two woofers. Those revealed that the upper cone had an effective range from well below 100 Hz to at least 2 kHz. Its response fell off at a steady 12 dB per octave below 100 Hz, indicating that it was operating in a sealed enclosure. The output of the lower cone, on the other hand, reached its maximum at 100 Hz and rolled off both above and below that frequency. A response null at 36 Hz showed that this driver was operating in conjunction with the vent, whose output augments that of the cone below about 50 or 60 Hz.

The room-response curve had the usual (and unavoidable) fluctuations in the midrange but was extraordinarily flat between 2 and 11 kHz (roughly ± 0.5 dB over that range). When we joined the room response with the combined close-miked responses from both cones and the port, the resulting curve was within ± 2.5 dB from 40 Hz to 20 kHz, with the output slightly emphasized from 100 to 200 Hz and at about 13 kHz, where there was a small tweeter-resonance peak. A slight level change at about 2 kHz suggested that the crossover from the upper woofer to the tweeter was in that vicinity. A group-delay measurement showing a pronounced jog at 2 kHz reinforced that conclusion.

Quasi-anechoic MLS measurements confirmed the remarkable flatness of the Quart Three's response. At

The Quart Three speaker's response was extraordinarily flat and had very good deep-bass extension.

middle and high frequencies, where it is possible to effectively exclude room reflections from the measurement, the on-axis response was within ± 1.5 dB from 500 Hz to 17 kHz. The tweeter's high-frequency dispersion was also excellent, with less than 2 dB drop in output at 6 kHz measured 45 degrees off its central axis, increasing to 3.5 dB at 10 kHz and just 7.5 dB at 20 kHz.

The system impedance remained between 3.5 and 7 ohms from 20 Hz to 20 kHz except for a rise to 11.5 ohms at 70 Hz. Sensitivity was high, 93 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input of pink noise. At 2 volts (corresponding to a 90-dB reference SPL), distortion remained between 0.7 and 2 percent from 2 kHz down to 45 Hz, increasing to about 9 percent at 30 Hz. In single-cycle burst tests, the Quart Three absorbed the full output of the amplifier (1,240 watts) at 1 and 10 kHz without damage or significant distortion. At 100 Hz, however, the woofers began to sound slightly "hard" at about 30 watts input, bottoming audibly at 280 watts.

The Quart Three's measured performance essentially confirmed the manufacturer's somewhat sparse specifications. This moderately priced speaker not only had one of the flattest overall response characteristics that we have measured, but combined that with bass extension rarely found in its price range. Organ pedal notes were reproduced at useful levels down to the 30-Hz region. At the other end of the spectrum, the tweeter (which has what appears to be a diffusing plate in front of its dome) had unusually wide angular dispersion at the highest audio frequencies. Together with considerably higher than average sensitivity, these qualities make the Quart Three a strong contender in its price class. □

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2. Entries must be called in or postmarked no later than Nov. 15, 1993, and sent to Stereo Review Magazine's Innovative Technologies Sweepstakes, Stereo Review Magazine, 1633 Broadway, New York, NY 10019. Stereo Review Magazine will not be responsible for lost, misdirected or late entries. The winner will be selected in a random drawing from all toll free calls (answering questions is optional) and written entries. The drawing will be conducted by an outside agency, under the direction of Hachette Filipacchi Magazines. The judge's decision is final.
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TEST REPORTS



Jamo 507 Loudspeaker System

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

The Danish-made Jamo 507 is next to the top of the company's new "07" line of loudspeaker systems. That it is not just another me-too design is immediately apparent: Standing 36 inches high and weighing a solid 42 pounds, the speaker has front and back panels only 5 inches wide. Curved sides, finished in mahogany, give the cabinet a maximum width of 8¾ inches, and a ¼-inch-thick glass plate covers the top. The speaker is supplied with spikes whose use is optional but recommended by Jamo. Rubber feet are also furnished for installation on hard floors such as wood or stone.

The front is covered by a two-sec-

tion black cloth grille. The lower part, which is purely decorative, is not removable. The upper grille, retained by small built-in magnets at its sides, lifts off easily to reveal two 4-inch cone drivers flanking a 1-inch soft-dome tweeter. These drivers handle fre-

DIMENSIONS

8¾ INCHES WIDE, 36 INCHES HIGH,
14¾ INCHES DEEP

PRICE

\$1,200 A PAIR

MANUFACTURER

JAMO HI-FI USA, INC., DEPT. SR. 425 HUEHL RD.,
BLDG. 8, NORTHBROOK, IL 60062

quencies above 150 Hz, with a 3-kHz crossover between them.

The range below 150 Hz is handled by a pair of specially developed 6½-inch cone woofers mounted between two chambers within the enclosure. One chamber is closed, while the other radiates into the room through a ducted port on the rear of the cabinet. The two woofers are mounted in a push-pull arrangement, which Jamo says enables them to work as though they were in a much larger enclosure.

Also on the back of the cabinet is a recessed connection panel containing two pairs of gold-plated binding posts suitable for use with single or double banana plugs, lugs, or wire ends. They are normally strapped together with removable jumpers for conventional connection to the amplifier. With the jumper straps removed, the bass and upper-frequency drivers can be fed via separate cables from a single stereo amplifier (biwiring) or from two separate amplifiers (biampification).

Jamo rates the Model 507 for operation at power levels up to 150 watts (200 watts for short-term peaks). Its nominal impedance is 4 ohms, its frequency range 40 Hz to 20 kHz.

We measured the room response of the two Jamo 507's with the speakers installed about 7 feet apart, 1 foot from the wall behind them and 4 feet from the side walls. Jamo recommends placing their backs close to a wall for best bass performance and points out that their narrow front panels minimize high-frequency diffraction that could cause response irregularities.

The averaged room response of the two speakers was very smooth and uniform over most of the audio range. The woofer response spanned just over one octave, from approximately 40 to 115 Hz, falling at 24 dB per octave below 50 Hz and at about 30 dB per octave above 100 Hz. The output of the two midrange drivers joined the woofer output at 110 Hz, and their combined response was ±4 dB from 40 Hz to 3 kHz.

The system's composite response, based on close-miked measurements of the low-frequency and midrange drivers and the total room response of all of the drivers, was flat within ±2.5 dB from 700 Hz to 20 kHz and ±1.8 dB from 700 to 46 Hz. There was a

(Continued on page 57)



I COULD HEAR MY HEART

POUNDING IN MY EARS,

THE VOICES OF MY FAMILY

FADING IN THE DISTANCE AS

I WAS DRAWN TO A WARM,

BRIGHT LIGHT THAT SEEMED

TO FILL THE ENTIRE ROOM.

THEN, BEFORE I EVEN KNEW

WHAT HAPPENED, I WAS ON

THE OTHER SIDE.

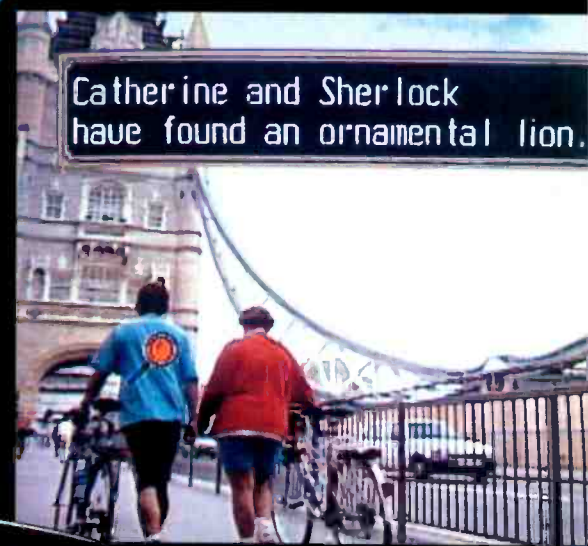
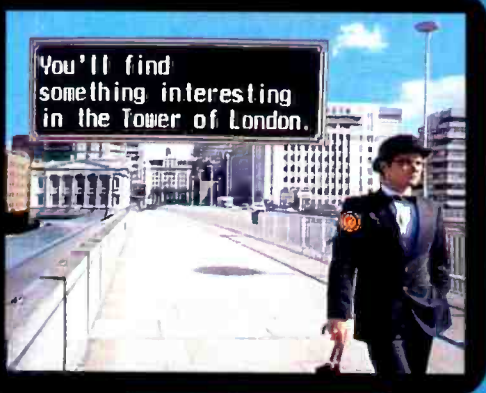
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THE CHAMBERS OF
AN ANCIENT PYRAMID.**





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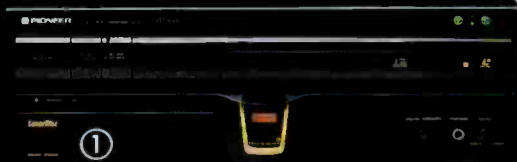
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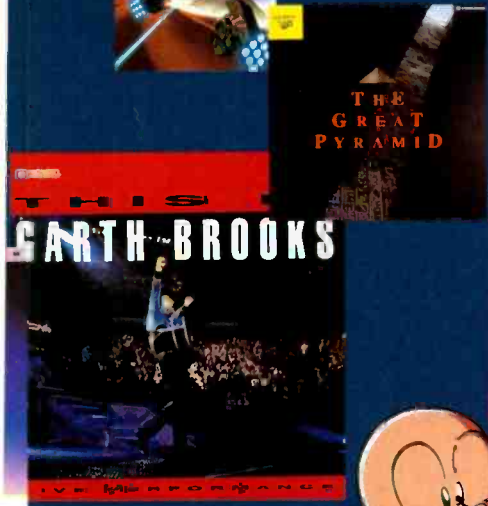
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TEST REPORTS

double-humped peak of 3 or 4 dB in the 12- to 16-kHz range that we later confirmed with quasi-anechoic MLS response measurements. The tweeter had the good high-frequency dispersion typical of 1-inch dome radiators: At 45 degrees off-axis, it was down 6 dB at 10 kHz and 10 dB at 20 kHz.

The system impedance fell to a rather low 2.6 ohms at 120 Hz but averaged close to 4 ohms between 100 Hz and 1 kHz. It climbed at high frequencies to about 12.5 ohms at 20 kHz. As with most other multicavity bass radiators we have tested, the phase component of the impedance measurement was ragged below about 250 Hz (probably not of any audible significance).

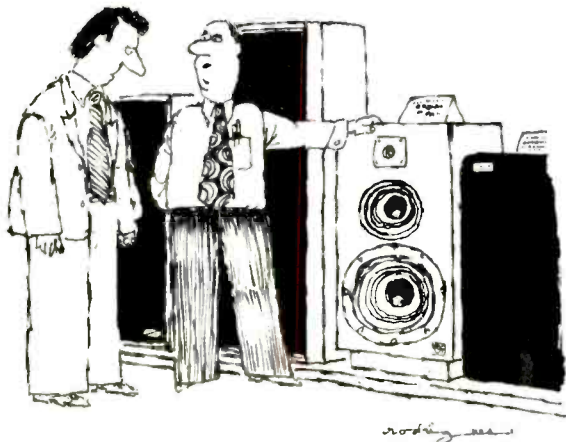
Sensitivity was, as rated, 90 dB sound-pressure level (SPL) at 1 meter with an input of 2.83 volts of pink noise. At that level, the woofer distortion was between 0.9 and 1.5 percent from 110 Hz to 42 Hz, rising to 9 percent at 30 Hz—impressive performance from a speaker with the Jamo 507's driver complement. The small drivers were also able to absorb large short-duration power peaks without damage or excessive distortion. The tweeter and midrange drivers were not harmed by single-cycle tone bursts of 650 watts at 10 kHz and 1,050 watts at 1 kHz. A 100-Hz burst of 645 watts drove the woofer cones to their limits, adding a "hard" quality to the sound, but caused no damage.

As is our usual practice, we listened to the Jamo 507's for some time before performing any measurements. Their

smoothness and wide range were obvious from the first moment. After several days of listening, the measurements were not too surprising, merely confirming this unconventional speaker's excellence. It was interesting to feel the sides of the cabinet while it was reproducing low frequencies. When we played a 31.5-Hz test tone at a room-filling level, there was hardly a trace of vibration to be felt on the exterior of the cabinet, yet the output was obviously mostly the fundamental, not harmonics of it—something not usually experienced from a pair of 6-inch cones.

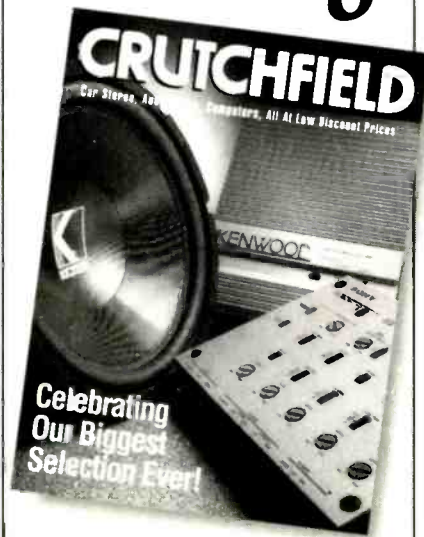
Jamo says the cabinet's sides are a sandwich of grooved chipboard and conventional medium-density fiberboard (MDF). When the two boards are glued together, they form an arch-shaped, extremely rigid structure with thoroughly damped resonances. As our listening confirmed, that results in a "dead" cabinet with a minimum of sound coloration.

Over the years, I have seen and heard, and sometimes tested, quite a few unconventional, innovatively designed and constructed speakers. Unfortunately, their sound quality has rarely correlated with their special features, or with their often high prices. The Jamo 507 is a happy exception—a tastefully styled, ingeniously designed, and thoroughly listenable speaker. All things considered, it is not unreasonably priced, and we were very impressed with its performance. Hear it if you can. □



"The crossover frequency of this speaker is higher than in some speakers selling for three times as much."

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TEST REPORTS



Yamaha DSP-A2070 Audio/Video Integrated Amplifier

DAVID RANADA • TECHNICAL EDITOR

A veritable tour de force of digital signal processing, Yamaha's new top integrated amplifier, the DSP-A2070, shows what can be done when a company takes a good hard look at the connection, switching, and signal-processing demands of an elaborate home theater setup. The A2070 has, for example, connections and switching for eleven inputs: phono, CD, tuner, laserdisc, two audio recorders, satellite decoder, and three (!) VCR's, plus a rear-panel auxiliary audio/video input duplicated on the front panel.

Some rare or unique features useful in home theater systems are included. For example, along with the test signal required for Dolby Pro Logic channel balancing, there are provisions for using the signal to set the levels for the additional speakers that can be used in some of the amplifier's other modes. Furthermore—and this can be extremely valuable—there are several

subwoofer-balance test tones to help you set a system's subwoofer level properly. An input-trim control enables you to match the levels of all the inputs to that of the CD input. Finally, there's a five-band graphic equalizer—adjusted by means of the amplifier's front-panel control buttons and display—for the center channel.

For those not satisfied with the output power provided by the DSP-A2070, which should be sufficient for all but the largest listening rooms or truly lease-breaking levels, every pos-

sible speaker output signal is also provided at line level for feeding external power amplifiers. That includes the two main channels, the two surround channels, the two "front-effect" channels, the Dolby Pro Logic center channel (yes, the A2070 contains seven power amplifiers), and the three subwoofer outputs (one mono and a left/right stereo pair), which are filtered to remove frequencies above 200 Hz. A switchable Bass Extension circuit provides a slight boost centered at 75 Hz and a relatively steep rolloff below that frequency, which may help extend the bass response of some small main-channel speakers.

All back-panel line-level audio connections are via phono jacks, unfortunately in a vertical array. Composite-video inputs and outputs are also phono jacks, but every video connection, even the auxiliary one on the front panel, also has a corresponding S-video connector. Speaker outputs are multiway connectors that accept stripped wires or banana plugs most easily. There are three AC convenience outlets, two of them switched.

Pride of place among all the DSP-A2070's features must go to its digital signal processing (DSP) facilities, which Yamaha says are significantly more powerful than those of its highly

DIMENSIONS

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18½ INCHES DEEP

PRICE

\$1,999

MANUFACTURER

YAMAHA, DEPT. SR, 6660 ORANGETHORPE AVE.,
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We are now pleased to announce Cambridge SoundWorks' Model Six, a two-way system named in honor of Henry Kloss' first ground-breaking two-way system.

Not An "Extension Speaker."

Model Six is not an "extension speaker." It's a serious *main* speaker with sufficient frequency range and power-handling to satisfy serious listeners. Model Six speakers, when combined with a good receiver and CD player, comprise a music system for \$500-\$600 that seriously outperforms typical pre-packaged "shelf" or "rack" systems.

Two-Way Design Advantages.

We believe that when lowest cost is not the ultimate consideration, the best speaker design is a subwoofer-satellite system like our Ensemble® and Ensemble II systems. But a properly designed subwoofer-satellite system requires three-way design, which entails the cost of two more drivers and a third cabinet. While neither Ensemble system is "high end" in price, a complete stereo system starts at about \$800, still too much for music lovers on a budget.

"...the Model Six is truly a high-quality speaker...It has an 'all there' sound quality that belies its amazingly low price and does credit to its heritage...At only \$119 each, the Model Six is an exceptional value."
-Stereo Review



Model Six continues a long tradition of best-selling, high performance, high value, two-way speakers by Henry Kloss. Very natural, accurate, wide-range sound—only \$119 each!

What does Model Six give up compared to our Ensemble systems? With big amplifiers in large rooms, Ensemble and Ensemble II can play louder, and they have greater low-bass extension. They also give you tremendous room-placement flexibility, which allows you to optimize performance, with little impact on the decor of your room.

Costly Components. Thoughtful Design.

At the heart of Model Six are its drivers, a 1 1/4" cone tweeter with center 3/8" dome (the same tweeter we use in Ensemble), and a newly-designed 8" acoustic suspension woofer. While classic in their simplicity, these drivers differ greatly from other moderate-cost speakers.

Model Six's crossover frequency is 2,000 Hz, much lower than many other two-way designs. This makes it possible to ensure smooth, uncolored upper midrange with wide dispersion. Such a low crossover frequency would not work with conventional tweeters. But Model Six's tweeter uses a suspension that allows the "long throws" necessary to reproduce music in this range.

The 8" woofer cone is larger than those usually found in speakers of Model Six's size and price, allowing it to move substantial amounts of air at low frequencies. And Model Six puts emphasis on very low frequencies instead of the mid-bass "rise" common in many speakers. The result is bass that is more accurate and extended than similar systems.

But most important is how Henry Kloss went on to "voice" the system—painstakingly

fine-tuning the octave-to-octave balance. This is the most important factor in determining the overall sound of a speaker.

Elegant Cabinet Design.

We devoted considerable time and effort to making Model Six visually appealing. Convincing simulated wood finishes were chosen—in oak, teak and black ash. A subtly rounded "bullnose" molding frames a medium charcoal grey grill that was custom-woven for Model Six.

Factory-Direct Price: \$119 each!

Because we sell factory-direct, Model Six sells for *far* less than it would cost in stores. At \$119 each, in your choice of three finishes, it is *the* value in today's loudspeaker market. If you aren't satisfied, you can return Model Six within 30 days for a full refund.

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CIRCLE NO. 6 ON READER SERVICE CARD

The Critics Love Ensemble And Ensemble II. What's The Difference, Anyway?

Cambridge SoundWorks changed the audio world when we began direct-marketing Ensemble® by Henry Kloss. Ensemble is a revolutionary dual-subwoofer/satellite speaker system offering all-out performance, without cluttering up your room with huge speaker cabinets. Available *only* factory-direct from Cambridge SoundWorks, with no expensive middle-men, Ensemble is priced at hundreds less than it would have sold for in stores. *Audio* magazine says Ensemble "may be the best value in the world."

And Then There Were Two.

Now Cambridge SoundWorks has introduced Ensemble II, a more affordable version of Ensemble using only one cabinet to hold both subwoofer drivers. Ensemble II has joined Ensemble in the ranks of the country's best-selling speak-



The real difference is in the subwoofer.

ers. We believe Ensemble II is a better system than its best-known competitor. And because we sell it factory-direct, it's half the price. *Stereo Review* said "Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices." We agree with the writer who said, "It's hard to imagine going wrong with Ensemble." The question is, which Ensemble system is right for *you*?

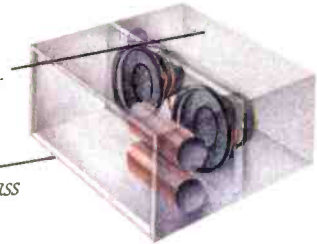
The Same Satellite Speakers.

When you listen to either Ensemble system, almost 90% of the music you hear is being reproduced by the satellite speakers. Both Ensemble and Ensemble II use satellite speakers that are virtually identical.* Unlike many competing systems, Ensemble's satellites are true two-

way speaker systems, each containing a high performance tweeter and a 4-inch woofer. *Stereo Review* said, "The Ensemble satellites delivered a smoother output than

True acoustic suspension, sealed subwoofer cavity.

Cavity acts as acoustic band-pass filter.



"Ensemble may be the best value in the world."
Audio



many larger and more expensive speakers."

Small (8½"×5¼"×4") and unobtrusive, they'll fit into the decor of any room. They're available in scratch-resistant gunmetal grey Nextel, or primed so you can paint them any color you wish.



Ensemble satellite speakers are available primed for painting, so they can match your decor exactly.

The Same Overall Sound.

In many rooms, Ensemble II sounds virtually the same as Ensemble, especially when Ensemble's two subwoofers are placed right next to each other. The real difference between the two systems is that Ensemble, with its two ultra-compact subwoofers (12"×21"×4½"), gives you *ultimate placement flexibility*.

The Same Attention To Detail.

Ensemble and Ensemble II are constructed with the very best materials and no-compromise workmanship. Their subwoofers use heavy-duty woofers in true acoustic suspension enclosures. The satellites are genuine two-way systems with very high quality speaker components. Individual crossover networks are

built into every cabinet for maximum wiring flexibility. Robust construction is used throughout, featuring solid MDF cabinets and solid metal grilles.

The Same Factory-Direct Savings.

Cambridge SoundWorks products are available *only* factory-direct. By eliminating the middle-men, we're able to sell Ensemble and Ensemble II for hundreds less than if they were sold in stores.

The Same 30-Day Total Satisfaction Guarantee.

Choosing a loudspeaker after a brief listen at a dealer's showroom is like deciding on a car after one quick trip around the block. So we make it possible to audition our speakers the *right way*—



Stereo systems featuring Ensemble and Ensemble II speakers with Pioneer or Philips electronics start at only \$799, including CD player. Dolby Surround Sound systems start at only \$999.

in your own home. You get to listen for hours without a salesman hovering nearby. If within 30 days you're not happy, return your speaker system for a full re-

fund. We even reimburse original UPS ground shipping charges in the continental United States.



The only difference in satellites is that the original Ensembles use gold-plated connectors that allow use of even the heaviest gauge wire.

The Real Difference: The Ultimate Placement Flexibility Of Dual Subwoofers.

Placement of bass and high-frequency speakers in a room—and how those speakers interact with the acoustics of the room—has more influence on the overall sound quality of a stereo system than just about anything. As an alternative to spending hundreds (or thousands) of dollars on this or that "latest" amplifier or CD player design, you should invest some of your time experimenting with various speaker positioning schemes. Ensemble's two ultra-slim (4½") subwoofers give you more placement flexibility than any speaker system we know of (including Ensemble II), and is most likely to provide the performance you want *in the real world...in-your room*.

How To Order.

The dual-subwoofer Ensemble system is available in two versions. With handsome black-laminate subwoofers for \$599. Or with black vinyl-clad subwoofers for \$499. Ensemble II is priced at \$399. For more information or to order call our audio experts, 24 hours a day, 365 days a year. We'll send you our 64 page color catalog with stereo and surround sound components and systems from Cambridge SoundWorks, Pioneer, Philips, Denon and others. Because we sell factory-direct, eliminating expensive middle-men, you can save hundreds of dollars.

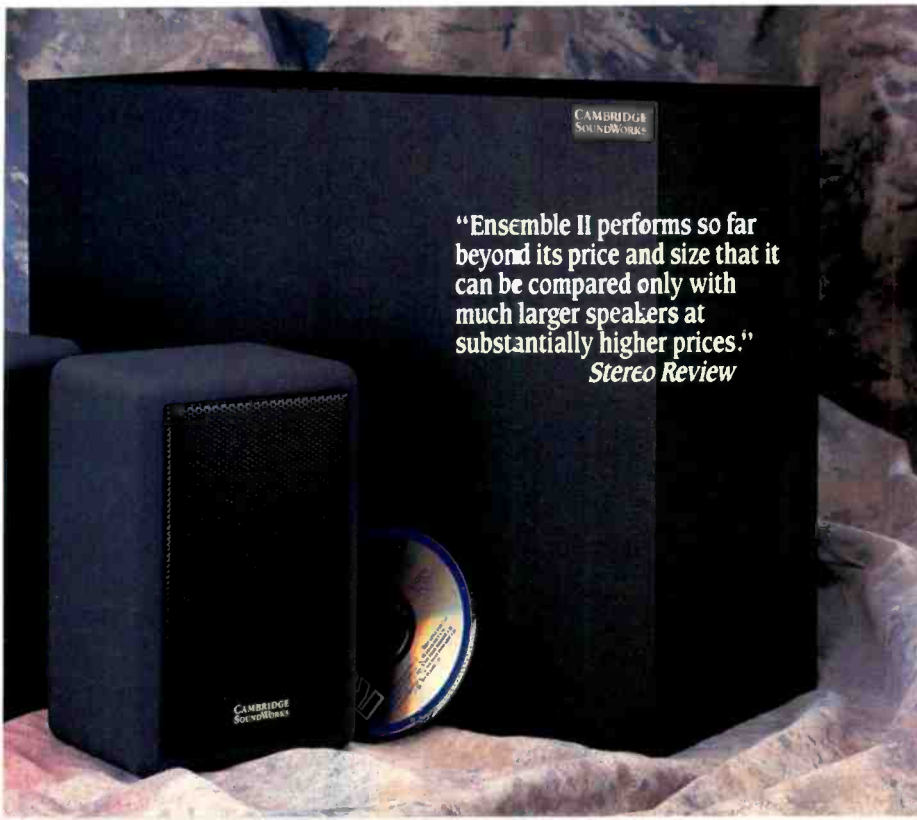
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CIRCLE NO. 6 ON READER SERVICE CARD

**"Ensemble II performs so far beyond its price and size that it can be compared only with much larger speakers at substantially higher prices."
Stereo Review**



TEST REPORTS

regarded DSP-A1000 amplifier. They add, through extra speakers placed around the room, artificial "reflections" derived from the original signals. When placed and timed properly, such reflections can go quite far in acoustically mimicking a real performing space, transforming the sound of a home listening room into something else altogether.

When fully configured, the DSP sys-

tem provided with the A2070 requires seven speakers (plus one or two optional externally amplified subwoofers): front left, center, and right, two standard surrounds, and an additional pair placed toward the front of the listening room, farther apart than the main left and right speakers. These last are the front-effect speakers, which emit only DSP-generated reflection signals. If your budget or de-

cor won't allow for front-effect speakers, their signals can be mixed into the main left and right speakers, but with a distinct loss of realism in the music-processing modes.

Yamaha was the first manufacturer to introduce a multiple-echo ambience-recovery/synthesis system, and by now the company is a master of this form of sonic enhancement. The DSP-A2070 is endowed with a host of ambience-enhancement modes, many of which are said to be modeled after real acoustic spaces. For processing music there are five different concert-hall settings (based on the early-echo patterns of one American hall and four European ones), two churches (one in Tokyo and the cathedral of Freiburg, Germany), two rock-concert environments (the Roxy Theater in Los Angeles and a "Warehouse Loft"), and two jazz clubs (the Village Gate in New York City and a "Cellar Club").

As befits a home theater component, the DSP-A2070 has several modes specifically intended for enhancing audio/video program material. There are two settings for classical-music videos (Opera and Recital), two for pop and rock music, and two for TV (Mono Movie and Variety/Sports). In addition to standard Dolby Pro Logic decoding, there are five modes that can take the basic decoder outputs and subject them to a variety of added ambience effects: Enhanced Pro Logic and four "70mm" modes (Spectacular, Musical, Adventure, General).

All of these processing modes, the music- as well as the video-oriented ones—can have most of their basic sonic parameters altered and then stored as a separate user-programmed setting. With such adjustability, the potential number of settings is practically infinite.

Although the labels Yamaha has given the music modes are useful for differentiating them, it's best not to take them too seriously as application guides. It has been my experience with earlier Yamaha sound-processing devices that every mode is suitable for a wide variety of music and that the apparently classical-oriented modes can often be used with pop and rock, and vice versa. The DSP-A2070's music modes proved to be no exception, and its 70mm movie modes can also be used for music, with or without Dolby

MEASUREMENTS

AMPLIFIER SECTION

Figures are for main front channels only unless noted otherwise. Power measurements for center, front-effect, and surround channels were made by driving them directly from their own rear-panel inputs.

Output at clipping (1 kHz)

8 ohms 126 watts

Clipping headroom

(relative to rated output) 1.9 dB

Dynamic power

main (8 ohms) 132 watts

main (4 ohms) 210 watts

center (8 ohms) 126 watts

center (4 ohms) 175 watts

front-effect and surround (8 ohms) ... 45 watts

front-effect and surround (4 ohms) ... 78 watts

Dynamic headroom (relative to rated output)

main 2.2 dB

center 1.9 dB

front-effect and surround 2.6 dB

Distortion (THD at 1 kHz, 8 ohms)

120 watts 0.0166%

1 watt 0.007%

Sensitivity (for a 1-watt output into 8 ohms)

CD 14 mV

phono 0.28 mV

A-weighted noise

(referred to a 1-watt output)

CD -81.5 dB

phono -78 dB

Phono-input overload

(1-kHz-equivalent level) 148 mV

Phono-input impedance

..... 47,000 ohms, 260 pF

RIAA phono-equalization error

(20 Hz to 20 kHz) +0.4, -0.3 dB

Frequency response (with tone controls centered) +0, -0.4 dB, 20 Hz to 20 kHz

Tone-control range

100 Hz ± 7.5 dB

10 kHz ± 7.5 dB

Bass Extension response

..... +5.5 dB, 60 to 80 Hz

DOLBY PRO LOGIC OPERATION

All measurements were made at factory settings in the Normal center-channel mode through the videodisc input. All results are referred to 1-kHz input levels of 200 millivolts for the front channels and 141.4 millivolts for the center and surround channels, all producing 2.83 volts into 8 ohms (1 watt).

Frequency response (at reference level)

left, right +0, -0.36 dB, 20 Hz to 20 kHz

center +0, -0.36 dB, 20 Hz to 20 kHz

surround +0, -3 dB, 21 Hz to 7.1 kHz

A-weighted noise

left, right -76.7 dB

center -72.7 dB

surround -77.2 dB

Distortion (THD + N)

left, right 0.066%

center 0.056%

surround 0.069%

Surround decoder input-overload levels

left, right +22 dB

center +22 dB

surround +22 dB

Surround-channel-delay Indicator

error none

Surround-channel noise-reduction

calibration error (see text)

at 1 kHz +6 dB

at 3 kHz +6 dB

Separation (100 Hz to 7 kHz)

left from right >66 dB

left from center >56 dB

center from surround >60 dB

surround from left >55 dB

left from surround >65 dB

surround from center >35 dB

center from left >55 dB

DESIGNS BY HENRY KLOSS

Our new Center Channel and Center Channel Plus speakers are magnetically shielded, so they won't cause video interference, even when placed very near a TV screen.



Our Center Channel Speakers Deliver Optimum Pro Logic Performance At Factory-Direct Prices.

Cambridge SoundWorks sells two speakers designed by Henry Kloss specifically for use as center channel speakers in Dolby Surround Pro Logic systems—the Center Channel and Center Channel Plus. Our experience with Dolby Surround Pro Logic systems has shown that the center channel is *very* important. A significant portion of movie soundtracks is directed to the center channel. It's crucial to use a speaker that reproduces that material



accurately, with the proper volume level and dispersion pattern.

Center Channel by Henry Kloss.

Center Channel is a compact, two-way acoustic suspension speaker with a 4" woofer and a ring radiator tweeter. Because of its compact size (8 1/8" x 5 1/4" x 4"), it's simple to place Center Channel directly on top of or below your TV screen, so that dialog and sound effects will seem to emanate from their on-screen source.

Center Channel is well shielded magnetically so that it can be placed very close to your TV without causing video interference. Acoustically identical to our Ensemble satellite speakers, it's ideal for center channel use in a Pro Logic system. The factory-direct price of Center Channel is \$149.

Center Channel Plus by Henry Kloss.

The Center Channel Plus is a larger speaker recommended for achieving theater-like playback levels in the most sophisticated and powerful home theater systems. It uses

four 3" long-throw woofers and a tweeter that perfectly matches the acoustics of our Ensemble® and Ensemble II systems. The frequency range of the outer pair of 3" woofers is intentionally limited to maintain proper dispersion characteristics.

Because of its wide, low profile (25" wide, 4" high, 6 1/2" deep), Center Channel Plus is ideal for placement directly on top of or, uniquely for a product of its type, *beneath* a TV—with optional support unit, it can act as a base for your TV. We don't know of any speaker, at any price, that outperforms Center Channel Plus. The factory-direct price of Center Channel Plus is \$219.

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Place our low-profile Center Channel Plus above your TV or, with optional support, use it as a base for your TV.

TEST REPORTS

Pro Logic sound steering. Experiment: If you don't like the results with one setting, try another. Somewhere in the amplifier is one that will work extremely well.

Still, I have always had difficulty accepting the true usefulness of any ambient-field processing beyond pure Dolby Pro Logic for the playback of Dolby Surround movie soundtracks. I have no quarrel with Yamaha's including so many options; once the DSP circuitry is there, the addition of a few more processing modes adds little to the cost of the component. Sometimes they are even fun. But while the special movie modes may make for spectacular demonstrations with carefully selected program material, they aren't as appealing in everyday use. During movies I often found myself switching out of a 70mm mode back to pure Pro Logic.

The reason for that is easy to explain. Movie soundtracks are extremely complex audio creations. The balances between front- and surround-channel sound effects, music, and the all-important dialogue are often very finely calculated. Misadjust the level for the surround speakers by just a couple of decibels, and you might have too many starships zooming by—or no apparent surround at all. Add just one artificial reflection to the signals coming from the front of the listening area, and at climactic points in the movie—when the soundtrack is at its most complex and active—the dialogue may turn into an unintelligible babble. And in its movie modes, the DSP-A2070 goes well beyond adding just one reflection.

Blurring of dialogue is precisely what I experienced with the DSP-A2070's various beyond-Dolby movie modes. Before switching back to pure Dolby Pro Logic, however, you might want to experiment with switching off or reducing the level of the front-effect signals, especially if they are being mixed into the signals to the main speakers. Again, feel free to experiment, and be glad that the DSP-A2070 has an excellent-sounding Dolby Pro Logic decoder to fall back on.

Despite the DSP-A2070's wealth of features, its front panel is remarkably uncluttered. There are four reasons for this. First, most of its few controls are hidden behind a flip-down panel.



Second, the remote control carries most of the burden of command. Third, many features are operated via display-oriented menus that require very few buttons to navigate. And fourth, the display is small—too small, in fact, and too dim to be always visible from across the room. Yamaha does, however, provide an on-screen display system that expands the front-panel readout, literally and figuratively, by superimposing menus on the TV picture—unless, I found, the picture happens to be one of those blue screens many VCR's and laserdisc players put up when there's no other video signal. I've never liked blue-screen outputs, and apparently neither does the A2070.

For all its multibuttoned complexity, the programmable remote is rather easy to use. That's because the monotony of the regular button layout is broken by a nice arrangement of the amplifier menu controls and the larger-than-usual volume buttons. Except for the power and input-selector buttons, all of the amplifier controls are on the lower half of the handset. They include everything you'll need for listening-seat adjustment of surround-speaker levels as well as an extremely useful on/off button for DSP effects that makes it easy to hear the results of mode and parameter changes.

The DSP-A2070 was one of the first components to undergo our new (and still expanding) array of Dolby Pro Logic tests. As you can see from the lab results, there was much to be measured. The A2070 did very well in every category except one, and even that can literally be adjusted to perfection. Right out of the box, the A2070's surround-channel noise-reduction calibration level was 6 dB too high (based

on an expected -20 -dB output of 141.4 millivolts from a laserdisc player). That would make a typical laserdisc player's output 6 dB too low for the A2070's internal level-setting of its surround-channel Dolby B noise reduction, which means that the noise reduction would kick in 6 dB too soon, possibly dulling the surround-channel sound. But adjusting the input-level trim for the videodisc input to $+6$ dB put the A2070 right on the mark. Unfortunately, you give up 6 dB of Dolby-decoder overload margin in the process, which might audibly affect some very dynamic soundtracks.

The A2070 also fared very well in traditional audio measurements. It is good to see the important center channel receiving so much attention and power. The amplifier had ample continuous and peak power reserves; we never ran out of juice during our listening tests. The tone controls have a nice range of operation, except that moderate settings of the bass knob had a substantial effect in the upper bass and lower midrange as well: A 5-dB cut at 20 to 40 Hz also reduced the 300-Hz level by 3 dB. The calibrations of the center-channel equalizer proved to be accurate, and it produced a maximum cut or boost of 6 dB at the indicated band-center frequencies (100 Hz, 300 Hz, 1 kHz, 3 kHz, and 10 kHz). Although I did not always find it useful for matching the sound of a center speaker to that of the main speakers, it's a good first step in ameliorating a nonideal situation.

Inveterate button-pushers should be in seventh heaven with the DSP-A2070. The music-processing modes offer such versatility that you can easily spend an entire listening session setting and resetting modes. That's good not only for didactic reasons—you can learn a lot about ambience from such experiments—but because the sonic results can be so very satisfying. Classical music can sound extraordinarily realistic, and pop music can gain immensely in vividness and movies in excitement with the right settings of the controls. The Yamaha DSP-A2070 is the only integrated amplifier that gives you such comprehensive control of such formidable processing power. Once you experience it, going back to your old two-speaker system will be a big letdown. □

The Powered Subwoofer That Has The Audio And Video Press Jumping Out Of Their Seats.

DESIGNS BY HENRY KLOSS

A jet roaring in *Top Gun*. The heavy-footed killer robot in *Robocop*. A semi hitting concrete after a 20 foot fall in *Terminator 2*. These are examples of the substantial, very low-frequency effects on the soundtracks of today's movies. Such frequencies are rare in music, and are beyond the capabilities of most speakers designed for music.

The Cambridge SoundWorks Powered Subwoofer by Henry Kloss was created to reproduce those ultra-low, ultra-strong bass signals with the power and impact you would experience in movie theaters with the very best sound systems. It's designed to *supplement* (not replace) the subwoofer(s) of Ensemble or Ensemble II. It will also work with speakers from other companies.

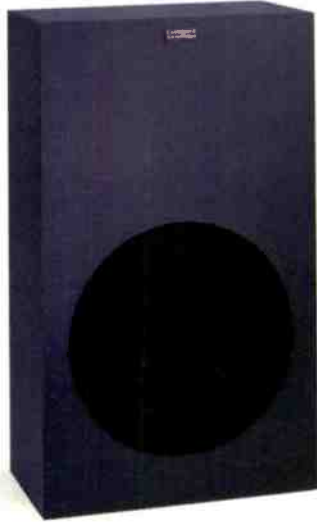
Remarkable bass performance.

The Powered Subwoofer consists of a heavy duty, 12 inch long-throw acoustic suspension woofer integrated with a 140



watt amplifier—all in a high-pressure black laminate cabinet. Its control panel includes a bass level control and an 18dB per octave, four-position electronic crossover frequency selector (to match the subwoofer to your other speakers).

Additionally, an optional electronic crossover* will provide 18 dB per octave,



Powered Subwoofer



Slave Subwoofer

high-pass, line-level filters for the main and center amplifiers. These filters allow you to keep strong, low frequencies of sound effects out of the front speakers. These signals can cause distortion, even in speakers designed for full-range music.

The Powered Subwoofer's bass performance is simply *awesome*. It reproduces accurate bass to below 30 Hz. You'll hear soundtracks the way they were meant to be heard. In fact the bass is *better* than most

Our Ultimate Home Theater Speaker System consists of our dual-subwoofer Ensemble system; our low profile Center Channel Plus speaker; a pair of our critically acclaimed surround speakers; The Surround; our Powered Subwoofer; our Slave Subwoofer; Factory-direct price: \$1,999.

theaters! At the press event when we introduced our Powered Subwoofer, we had startled members of the audio and video press literally "jumping out of their seats" during demonstrations of movie soundtracks. The factory-direct price of the Powered Subwoofer is \$599.

Optional "slave" subwoofer.

For all-out home theater performance, you can add our optional Slave Subwoofer, which is identical to our Powered Subwoofer except that it lacks the amplifier and controls. It uses the amplifier and controls built into the Powered Subwoofer. Amplifier output jumps from 140 to 200 watts when the Slave Subwoofer is connected.

The combination of the two speakers can reproduce a 30 Hz signal cleanly to a sound pressure level of over 100 dB in a 3,000 cubic foot room! That's enough clean, deep bass for the largest home theaters, and the most demanding listeners. The factory-direct price of the Slave Subwoofer is \$299.

No compromises. No apologies.

The combination of our Ensemble speaker system, Center Channel Plus speaker, The Surround rear/side speakers, Powered Subwoofer and Slave Subwoofer (see photo at left) creates a home theater speaker system that we believe is the best of its kind.

Although you can spend thousands more on competing systems, we don't know of *any* that outperform this \$1,999 package. If you'd like more information, a free catalog or our new booklet, "Getting The Most From Your Dolby Surround System," call our toll-free number any time.

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CIRCLE NO. 6 ON READER SERVICE CARD

CAR STEREO



Kenwood KDC-C800 CD Changer

KEN C. POHLMANN • HAMMER LABORATORIES

Car CD changers are a lot like fax machines. When you're considering whether to buy a fax machine, it seems like a luxury item, something slightly frivolous and, yes, yuppie. Your mom and dad never needed gadgets like that, so why should you? Then, about twenty-four hours after you've taken the plunge and bought one, you wonder how you ever survived without it. That's the way you'll feel about a car CD changer. Once you've installed one and loaded it with your favorite discs, you won't believe you were able to drive to work without it.

Especially if it's like the Kenwood KDC-C800, a sleek ten-disc model measuring approximately 11 x 3 x 6 3/4 inches. It isn't the smallest changer available, but it's compact enough to fit in the tightest trunk, and possibly under a seat or in a glove compartment. Compared with many other car changers, it's also extremely rugged, sporting a thick metal chassis, a metal-skin exterior, and a plastic front panel.

As with most car changers, a sliding door covers the loading slot. To load a

CD cartridge (magazine), simply slide the door to the side and insert the cartridge with a firm push until it clicks. To retrieve it, hit the eject button. Because changers are usually hidden, they don't contain much in the way of displays. The KDC-C800, however, does have a red LED on its front panel that lights when the changer is powered and blinks when discs are changing.

There is a screw on the bottom of the changer that lets you select one of two spring positions for the internal suspension system, one for vertical mounting, the other for a horizontal position. A thirteen-pin DIN socket on the right side of the chassis accepts

control and power leads from a head unit or CD controller and sends an analog stereo signal to a pair of phono jacks on the head unit's rear panel. A 16-foot umbilical cable is supplied.

A peek inside the KDC-C800 revealed an array of springs and dampers that isolate the transport mechanism from the outer chassis, absorbing jolts that might otherwise interrupt playback. A temperature sensor protects the laser if the temperature rises above 140 degrees (entirely conceivable in a car trunk on a sweltering summer day). Like most CD players these days, the KDC-C800 employs 1-bit digital-to-analog (D/A) converters.

The disc cartridge, as sleek as the changer itself, has no sliding, hinged, or pull-out drawers, which makes it infinitely easier to use than most. Simply slip your CD's into the slots (label side up), starting at the bottom of the stack. A corner of the cartridge is cut away to make unloading discs easier.

Like any other remote-mounted CD changer, the KDC-C800 won't work without a separate controller. Kenwood offers three basic options: the KCA-R20 package (\$150), which includes a freestanding LCD panel and a wireless remote control; the KDC-9000 CD tuner/changer controller (\$550); or any of five cassette head units with changer controls (\$330 to \$580). I tested it with the KRC-660 cassette receiver (\$370).

Thanks to multipurpose buttons, the KRC-660 provides all standard CD controls. To play a disc, you tap the source button, which toggles the unit between tuner, tape, and CD modes, until a flashing "Cd" appears on the display. The first disc in the cartridge cues up automatically, and track and disc numbers appear on the display when playback begins. A pair of arrow keys is used to skip from one track to the next; when one is held down, it initiates fast search in that direction. Discs are selected using the FM (up) and AM (down) buttons.

A bank of large buttons labeled 1 through 6—which double as presets in tuner mode—handle a variety of functions. Buttons 2 and 5 engage track and disc scan. To play tracks from the selected disc in random order, you hit Button 3; when all of the tracks on that

DIMENSIONS
11 INCHES WIDE, 3 INCHES HIGH, 6 3/4 INCHES DEEP
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Home Theater Speaker Systems.

There's A Right Way And A Wrong Way.

We'd like to clear up some misconceptions on the subject of speaker systems for use in Dolby Pro Logic home theater systems.

Misconception #1: *You can use any speakers for the surround and center channels.*

The center channel is *very* important because a large portion of soundtracks is directed to the center in systems with Pro Logic. That speaker should have smooth frequency response, good power handling—and it *must* match the tonal balance of the main speakers. Also, a center channel speaker should be magnetically shielded to prevent video interference.

Surround speakers should also match the tonal balance of the front speakers. Indeed, all five speakers should have matching tonal balances for proper sound. But unlike front speakers, surround speakers should create a diffuse sound field. So the best systems with Pro Logic use "dipole radiating" surround speakers (e.g. *The Surround II* and *The Surround* speakers in our \$797 and \$1,117 packages).

All the systems on this page consist of speakers designed to match each other tonally. (Identical timbre).

Misconception #2: *Use five identical speakers in a system with Pro Logic.*

A number of companies have released speaker packages consisting of five matching mini-speakers (some with a subwoofer). This ignores the fact that the surround channels serve different purposes than the front channels.

Misconception #3: *A good home theater speaker system costs thousands and thousands of dollars.*

A number of retailers regularly sell \$10,000 Pro Logic speaker systems. This is just not necessary.

We believe that the two more expensive systems on this page compete head-on with combinations selling for *thousands* more. Add our Powered Subwoofer (\$599), and we'll compare them to anything on the market.



\$463 Model Six Speakers, Model Ten-A Speakers (3)

\$463 Home Theater Package Features Model Six And Model Ten-A.

Our most affordable speaker package for systems with Pro Logic is centered around the new Model Six two-way acoustic suspension speaker by Henry Kloss. Model Six offers smooth, natural sound over a wide frequency range. The center channel and surround speakers are our new Model Ten-A magnetically shielded two-way acoustic suspension speakers. Tonally balanced to match Model Six, they are ideal for this affordable system.

Channel, a magnetically shielded version of our Ensemble satellites. The surround speakers are *The Surround II*, the most affordable dipole radiating speaker we know of (see previous ad). You could spend thousands more without improving on this package.

\$1,117 Home Theater Package Features Our Best Speakers.

This system is built around our dual-subwoofer Ensemble speaker system (*Audio* magazine said it "may be the best value in the world"). The center channel speaker is our *Center Channel Plus*, a unique five-driver speaker that can be placed above or below your TV monitor. The surround speakers are *The Surround*, our best dipole radiating surround speaker. This system, especially when matched with



\$1,117 Ensemble System, *Center Channel Plus* speaker, *The Surround* speakers

our Powered Subwoofer, delivers awesome sound—far better than most theaters.

Cambridge SoundWorks products are not available in stores. Because we sell factory-direct, eliminating expensive middle-men, you can save thousands of dollars. And our 30-day return policy means you take no risk.

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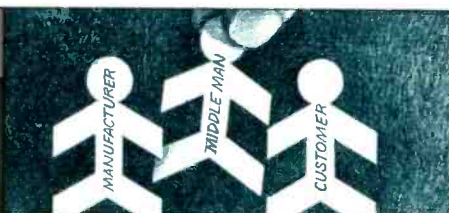
\$797 Ensemble II System, *Center Channel* speaker, *The Surround II* speakers

\$797 Home Theater Package Includes Ensemble II, *Center Channel* & *The Surround II*.

Our best value Home Theater speaker package features our critically acclaimed Ensemble II subwoofer-satellite system. With its natural, balanced sound and powerful subwoofer, it provides the heart of a terrific home theater system. The center channel speaker is our *Center*

No Other Loudspeaker Company Can Run This Ad.

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CAR STEREO

disc have been played, the changer randomly selects another disc. Button 6 randomly selects tracks from all of the discs. Finally, Button 4 lets you select track or disc repeat.

Beyond its CD controls, the KRC-660 also offers all of the tape and tuner features you're likely to need, as well as a detachable face to deter theft.

Lab Tests

Before hitting the garage to install the KDC-C800, I ran a battery of bench tests using the line-level outputs of the KRC-660. Maximum power output was a very healthy 2.2 volts—enough to drive any equalizer or power amplifier. Frequency response was okay, although there was a 1.88-dB dip at 20 kHz, which is a somewhat larger deviation than most current CD players exhibit. Channel separation was more than adequate, and both dynamic range and signal-to-noise ratio exceeded 90 dB.

Curiously, total harmonic distortion plus noise (THD + N) measured higher at 0 dB than at -20 dB (it usually rises at lower signal levels), but both numbers were plenty low. D/A linearity was excellent, and interchannel phase shift and de-emphasis error were both low. When it came to tracking, the changer was able to handle a 1,250-micrometer defect, which is okay, but I like to see better.

Installation

Unless you have experience with installing car stereo equipment, it's probably better to let a professional do the honors. (Anyone who's fiddled under the dash and accidentally blown the air bags will attest to this!) If a Kenwood head unit with changer controls is already in your dash, however, you may want to tempt fate and have a go at installing the KDC-C800 yourself—it's not all that difficult. Kenwood even helps out by supplying all the mounting hardware and cables.

The basic procedure goes something like this: First scope out a suitable mounting location. Then attach two metal plates to a secure surface (the trunk floor in my case) using double-sided tape. Attach two plastic brackets (one of which has a hole for the DIN cable) to the metal plates using the supplied nuts, and reinforce the whole shebang with a couple of

MEASUREMENTS

All measurements of the KDC-C800 changer were made at the line-level outputs of the KRC-660 cassette receiver/controller.

Maximum output level	2.2 volts
Frequency response	
..... 20 Hz to 20 kHz +0.20, -1.88 dB	
De-emphasis error (16 kHz)	-0.10 dB
Channel separation	
1 kHz	72.4 dB
20 kHz	60.3 dB
Maximum interchannel phase shift	
(at 20 kHz)	2.2 degrees
Signal-to-noise ratio (A-wtd.)	92.9 dB
Dynamic range (A-wtd.)	92.2 dB
Distortion (THD + N at 1 kHz)	
at 0 dB	0.079%
at -20 dB	0.042%
Linearity error (at -90 dB)	-0.5 dB
Defect tracking	
(Pierre Verany #2 test disc)	1.250 μ m

sub-brackets. Next, set the suspension screw to the correct position (horizontal in my case), and attach the changer to the brackets using the supplied bolts. Finally, plug in the DIN cable and run it to the back of the head unit, where it plugs into the wire harness. That's it. If you don't mind drilling holes in your car, you can skip the metal plates and screw the mounting brackets directly into the car's chassis—just watch out for the gas tank.

Of course, for this review I had the added chore of installing the KRC-660 head unit. I secured its mounting sleeve in the dash of my 1968 Porsche 911 and slid the head into place. Then I snaked the umbilical cable to the changer and tethered the line-level outputs to an outboard amplifier (I ignored the speaker outputs). After completing the last of the wiring tasks—connecting the battery, ignition, illumination, and ground leads—I loaded ten of my favorite discs into the changer and hit the road.

Road Tests

The first thing I check on any changer is disc-swapping speed. Even the best-sounding changer will eventually wear out its welcome if disc-access time is slow. The KDC-C800 changed discs in less than 8 seconds, which, while not extraordinary, is faster than

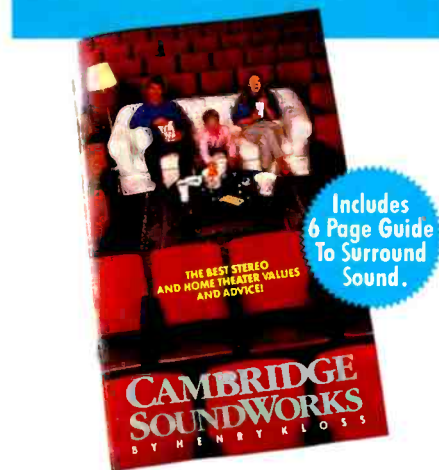
some changers I've reviewed. Next I focused on the control interface. Everything worked as advertised, and there were no bugs. When I advanced quickly through a series of tracks, the transport mechanism was always able to catch up and start playback in short order. (Some changers get confused if you enter commands too quickly.)

I was disappointed that the KRC-660 doesn't provide track-time readouts—but that may be a bit much to ask considering its otherwise healthy feature complement and modest price. I also noted, with a frown, that when the disc in Slot 10 was playing, the display rather awkwardly identified it as disc "0." On a positive note, I really liked the detachable face, whose spring-loaded magnetic mechanism makes it extremely easy to use.

Preliminaries aside, I parked in my garage and settled back to do some serious listening. Certain traits are essential to a good CD player: First, it must have a low noise floor so that quiet passages are not muddied, and it must be able to deliver the loudest passages without overload distortion. Second, there cannot be any hint of speed inaccuracy. Finally, the sound must be smooth and free of any harshness or fatiguing artifacts. In all these respects, and others, I was very pleased with the KDC-C800's performance. Its reproduction of the most demanding music was transparent.

Satisfied with the changer's sonic abilities, I was ready for the fun part—the shock test. I drove to nearby Coral Gables, turned onto my favorite stretch of curved, pothole-infested pavement, and gunned it. The changer's disc transport never flinched, even on repeated runs at various speeds and even while I was cornering at high speeds—the ultimate test. Its suspension system is excellent.

There's no doubt about it: Kenwood's KDC-C800 has its act together. It was able to shrug off most physical abuse, and it sounded very good. Moreover, its performance was in no way hindered by the KRC-660, a very capable head unit that provides smooth changer control—and brings radio and tape to the party. If you're new to the car CD game, this duo will make you wonder how you ever lived without it. Now, if only you had a fax machine in your car. . . . □



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AMPLIFIERS FOR

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SYSTEMS.**

**BY MICHAEL
RIGGS**

Home theater has changed the way we think about hi-fi. Where two channels used to suffice, now we want four or five or six—or sometimes even more. The change is most obvious in receivers. Above the lowest prices, almost all of them on the market today are multichannel models with built-in surround decoders and video as well as audio switching. The reason is simple: People buying component audio systems increasingly want and expect them to function as part of an integrated audio/video system with surround sound, and an A/V receiver (or A/V integrated amplifier) is usually the easiest and most economical way of tying all the parts of such a system together.

It is not always the best way, however. Trying to put so much into a single box can create significant limitations. One of the most important is power. A typical A/V receiver incorporates five power amplifiers (for left, center, and right front loudspeakers plus a pair of surround speakers), an AM/FM tuner section, a Dolby Pro Logic surround decoder, and a full preamplifier section, with numerous user controls and connections for a large number of audio and audio/video sources. Since the receiver is the system's main control center,

SURROUND SOUND

Four power amplifiers designed with home theater in mind. The Parasound HCA-1206 (bottom, \$1,850) and the McIntosh MC-7106 (\$3,000) are THX-certified six-channel models, respectively rated at 120 and 100 watts per channel into 8 ohms. NAD's Model 906 (\$699) has six channels rated at 30 watts each. The NHT MA-1 (\$300) is an 80-watt mono amplifier with a built-in subwoofer crossover and a level control.





Kenwood's six-channel Home THX power amplifier, the KM-X1 (\$899), is rated at 100 watts per channel into 8 ohms. It has separate power and speaker on/off switches and can be connected to Kenwood's KC-X1 and some other Home THX controllers with a single multiconductor cable.



The Adcom GFA-2535 (\$600) boasts four channels rated at 60 watts each into 8 ohms or 90 watts each into 4 ohms. One of the two pairs can be bridged for 200 watts mono into 8 ohms. The amplifier has individual gain controls and overload indicators for each channel and power and protection indicators for each pair.



Carver's AV-634 (\$600) is rated at 60 watts into 8 ohms or 100 watts into 4 ohms for each of its four channels, and one pair can be bridged to provide 150 watts mono into 8 ohms. It also has individual level controls for each channel and an adjustable 18-dB-per-octave subwoofer crossover.



Audio Design Associates' MPA-6 (\$1,680) has five channels rated at 90 watts each into 4 ohms as well as a 250-watt subwoofer channel (also rated into 4 ohms) with a variable-frequency electronic crossover and a dedicated single-band parametric equalizer.

it needs to be readily accessible and usually close to the various source components. All those internal amplifiers tend to make the receiver hot, heavy, and bulky, however, and the more powerful they are, the bigger the receiver tends to be—not necessarily the easiest thing in the world to find shelf room for.

An A/V receiver may also limit your flexibility in assembling the rest of the system. For example, you may not be able to use a subwoofer to best effect unless the receiver provides preamp-out/main-amp-in connections for at least the front left and right channels.

Finally, there's performance. If you want the very best surround-processing circuitry available or amplifiers that can push the most difficult-to-drive loudspeakers to room-shaking levels, you're not going to find them in a receiver. Careful shopping and flexibility on your part can minimize these difficulties, and on a pure bang-for-the-buck basis, A/V receivers and integrated amplifiers (essentially A/V receivers without tuner sections) are hard to beat. But home theater clearly strengthens the case for separate components, at least to the extent of getting the power amplifiers out of the box containing the switching, control, and signal-processing circuitry. Then you can have as much power in as many channels as you want tucked conveniently out of the way, while the preamp, tuner, and surround-processor functions sit up where they need to be for ease of operation. The price/performance tradeoffs are entirely up to you, instead of in the hands of engineers and product planners who have to fit X features into a receiver that can sell for Y dollars. And if you need to insert something like a speaker equalizer or an electronic crossover ahead of one or more amplifier channels, it's easy to do. Long-time audio buffs will recognize these as the classic arguments for separate components over receivers—power and flexibility—times five or six (Dolby Pro Logic) instead of just times two (conventional stereo).

Luckily, separates manufacturers are catching up with the trend, enabling you to choose from a steadily growing array of surround processors, A/V preamplifiers, A/V tuner-preamp-processors, and power amplifiers designed with home theater expressly in mind. Once you've made the decision to go with separates, choosing a

power amplifier (or amplifiers) might seem the easiest part of the buying process. What you'll quickly find, however, is that there are lots of alternatives and that you have to think about all the things you normally would in selecting an amplifier for an ordinary stereo system, along with a few more.

Configuration Considerations

For example, you have to figure out how many amplifier channels you need—more than two, definitely, but how many more? And how much power do you need from each one? The answers to such questions depend ultimately on the loudspeaker complement you use, which in turn depends at least partly on the room in which they will be placed and the surround processor you've selected, since some processors have ambience-enhancement modes that can make use of more speakers than a basic Dolby Pro Logic setup requires.

In a basic Pro Logic system, you can get by with as few as four amplifier channels: one for each of the three front speakers and, since the surround channel is mono, one driving the two surround speakers in parallel. That's easy to accomplish with a pair of stereo power amplifiers, one for the front left and right speakers, the other for the center and surround speakers. On the other hand, many processors include modes other than straight Dolby Pro Logic that send different signals to the two surround speakers, and the new digital surround systems for movie sound provide two discrete surround channels, so in the long run you're probably better off giving each surround speaker its own amplifier channel.

Notice that's five channels. You could use three stereo amplifiers, leaving one channel of the third amp unused, or you could "bridge" the third amp for mono operation (if its design permits) and use it for the center channel. A few years ago, those would have been your only options unless you were prepared to invest in some very big, very costly high-end mono amplifiers. Today, however, you can go out and buy a five-channel amplifier if you like. Or you could use a pair of stereo amplifiers plus a small, reasonably priced mono amp, or a stereo amplifier plus a four-channel model with one pair bridged to mono—attractive alternatives if you already have a good stereo amplifier

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that you want to continue using. Going the four-plus-two route is especially appealing if you think you might want to add a subwoofer eventually, since you could just undo the bridging and have all the amplifier channels you need.

In fact, one of the most popular and practical configurations for a surround system is a subwoofer with five satellite speakers (this is the way Home THX systems are normally set up, for example), which undoubtedly accounts for the recent proliferation of six-channel power amplifiers. As with

most of the multichannel amplifiers on the market, they typically allow for bridging pairs of channels to create various combinations of output channels and power. The benefit of packing so many channels into a single amplifier arises from their sharing a common chassis and power supply, which usually results in a more compact and less costly package than would be possible with the same number of channels offering the same performance split up into multiple units. And you have just one power cord and one power switch to worry about.

What it all boils down to is flexibility. The power amplifiers now on the market give you a lot of choices in configuration, power, and price. And that's good because it opens up your options for designing the rest of the system to give you the best possible sound.

How Much Power?

The fundamental question in choosing any amplifier is how much power you need. It's hard not to sound wishy-washy when trying to answer it on paper, because so many variables are involved. But we can give some general guidelines:

- Too much is usually better than too little. Yes, you can damage speakers by overdriving them, but most modern designs will handle quite a lot of power on normal program material without severe distress. Unless you abuse them—pushing small speakers with high levels at very low or very high frequencies, for example—they will usually be fine. Too little power, on the other hand, will cause compression or even audible distortion of program peaks, robbing the sound of impact and clarity. Better to have some reserve power when you need it.

- All else being equal, you need more power in a large room than in a small one and more power in an acoustically dead room than in an acoustically live one. At the extremes, a large dead room will soak up a lot more output than a small live one will.

- All else being equal, the more speakers used in the system, the less power needed for each one.

- A corollary of the above: A separately powered subwoofer can significantly reduce the power required for the other speakers in the system, especially if the crossover between the subwoofer and the rest of the system

includes a high-pass filter to keep low frequencies out of the amplifiers driving the satellites (not all do). Some surround processors and all powered subwoofers include crossovers, though not always with a high-pass section, and they're even starting to show up in some power amplifiers designed for home theater use.

- High-sensitivity speakers need less power than low-sensitivity ones. Sensitivity is normally specified according to the sound-pressure level (SPL) at a distance of 1 meter from the speaker with a 2.83-volt input signal (equivalent to 1 watt into 8 ohms). Measured that way, sensitivities in the range of 90 dB are about average for most modern speakers. Such a speaker would require about half as much power (in watts) to generate a given sound level as one rated at 87 dB and twice as much as one rated at 93 dB, so the difference is not subtle.

- Given equal sensitivities for all speakers in the system, the surround speakers will normally require significantly less power than the front speakers—perhaps a quarter to a half as much. The increasingly popular quasi-dipole designs for surround speakers, such as those specified for Home THX systems, typically are relatively low in sensitivity, however, and may therefore need as much power as the front speakers. (Note that all the current Home THX certified six-channel amplifiers deliver the same power to all outputs.)

- Given equal sensitivities for the three front speakers, the center speaker should usually get at least as much power as the front left and right speakers. In a Dolby Surround mix, the center channel is the main channel; it is full-range and contains, on average, more energy than any other. Switching a Pro Logic processor from Wide to Normal mode relaxes this requirement somewhat, however, since the Normal mode splits center-channel bass to the left and right front channels, reducing the burden on the center speaker accordingly.

Evaluating Performance

Clean power only, please. All the usual high-fidelity requirements apply—low distortion, flat frequency response, and so on. Most amplifiers from reputable manufacturers are fine in these respects. But one performance category that demands special attention in surround systems is noise. Consider an ordinary stereo system

THE THX AMPLIFIER STANDARD

More and more power amplifiers designed for home theater applications bear Lucasfilm's Home THX logo. Although much has been written about the design of Home THX processors and loudspeakers, there has been very little discussion of what is required for an amplifier to receive Home THX certification. With that in mind, we called Lucasfilm's technical director, Tomlinson Holman, who provided us with a basic rundown of what Lucasfilm looks for in an amplifier.

People sometimes assume that Home THX is an all-or-nothing proposition, in which one Home THX component will not work properly unless used with other Home THX components, but that is not really the case. A Home THX processor can be used beneficially with non-THX speakers, for instance, and vice versa, and many Home THX systems incorporate amplifiers that are not Home THX certified. But, not surprisingly, Lucasfilm does think that a complete Home THX system will be superior to a partial one, and the Home THX specifications for all component categories include provisions designed to make putting together a complete Home THX system as straightforward and foolproof as possible.

Examples from the Home THX amplifier specification would be the requirements that amplifiers not invert signal polarity from input to output and that they have a certain input sensitivity. Those provisions insure that you can remove a Home THX amplifier from a system and replace it with any other Home THX amplifier without having to readjust anything. The specification also insures that Home THX amplifiers will be able to drive load impedances within the range permitted for Home THX loudspeakers, and it sets minimum output voltages and currents into specific loads, a minimum dynamic

headroom, and a maximum output impedance (minimum damping factor) over the full audio band.

Other parts of the specification cover the traditional basics of good amplifier design: low distortion, low noise (an unusually tough spec, with individual limits for hum at the power-line frequency and its harmonics up through the seventh), stability, DC offset at the output, and frequency response. The frequency-response portion of the specification gives amplitude-deviation limits over the frequency range from 20 Hz to 20 kHz for an 8-ohm resistive load and for complex loads over a wide range of impedances and phase angles, including all those permitted for Home THX loudspeakers. The specification also covers more esoteric, but nonetheless important, aspects of amplifier performance, such as overload recovery (which should be clean and fast) and reaction to clipping asymmetrical signals, which can cause some amplifiers to misbehave. There are even limits for such mundane things as operating temperature and mechanical noise (transformer buzz, for example).

The Home THX amplifier specification does not include any exotic design requirements, and undoubtedly there are non-THX amplifiers on the market that meet it (or most significant portions of it) even though they have never been certified. Others might be well outside the specification in certain respects and still provide fine performance in most systems. For amplifiers, Home THX certification amounts primarily to a seal of approval for use in Home THX systems, but it can also be taken as assuring that an amplifier is fundamentally well designed and should therefore perform well in most audio and audio/video systems, THX or not. —M.R.

with two amplifier channels. Then add three more amplifier channels with exactly the same noise outputs driving speakers of the same sensitivity. In this scenario, the fixed background noise in the system will increase 3 dB for each doubling of the number of amplifier channels, so adding three channels to go from two speakers (conventional stereo) to five (Dolby Pro Logic) will add at least 3 dB of noise. Subjectively, that can make a significant difference. Where once there was silence, you may find that you can hear a little bit of hiss or hum when the room is quiet.

There are two ways of evaluating noise. One is via specifications. What you want to compare is A-weighted signal-to-noise ratio (S/N) with a 1-watt output. The higher the number, the better. Just beware of noise ratings based on the amplifier's maximum output, which will artificially inflate the S/N. A 100-watt amplifier, for example, would have a 20-dB better S/N measured at full power than it would measured at the standard 1 watt, simply because 100 watts is 20 dB greater than 1 watt. Any power-amplifier S/N rating much above 100 dB is probably based on full power. (An A-weighted noise level, as sometimes seen in our test reports, is the same as an S/N figure except for the minus sign. Look for amplifiers with lower—more negative—noise levels.)

The other way to check noise is by ear. Using the same speaker throughout, and with all the power amplifiers' inputs disconnected and any level controls turned all the way up, attach each one in turn to the same loudspeaker, put your ear close, and listen for hiss and hum. There will always be at least a little noise, but you will probably hear distinct differences in noise level and character between amplifiers. In fact, you should check every channel of an amplifier, since there can be big differences among them in some cases.

Another thing worth looking into is an amplifier's ability to drive low-impedance loads. Loudspeakers are usually more difficult loads than the pure 8-ohm resistors used for most basic power measurements. A good rule of thumb is to look for at least as much power into 4 ohms as into 8 ohms, and preferably about 50 percent more. You won't see many 2-ohm power specifications, but if you do, and it shows the amplifier holding up well, that's a very good sign. (Some ampli-

fiers will deliver almost twice as much power into 4 ohms as into 8 ohms, and perhaps almost twice again as much into 2 ohms.)

You may find yourself reading and hearing a lot about the "sounds" of various amplifiers. You can pretty much ignore all of it. Except in peculiar circumstances—a really badly designed amplifier or an amplifier with a high output impedance (a tube amplifier, for example) driving a difficult loudspeaker load—modern high-fidelity power amplifiers operating at levels below overload are sonically neutral devices. A good amplifier's only audible effect on the signals coming into it, except possibly for the



The Marantz MA-500 (top, \$299) is a THX-certified single-channel power amplifier rated at 100 watts into 8 ohms. Each MA-500 has a switched AC convenience outlet, and two of them can be bridged for 300 watts into 8 ohms. Yamaha's MX-35 (lower photo, \$299) provides four 20-watt or two 40-watt channels of amplification.

addition of a small amount of noise, is to increase their level. Among other things, that means you can generally mix amplifiers of different brands and designs without worrying about creating sonic mismatches between channels as a result. Just be sure to follow your surround processor's channel-balance calibration to eliminate any level differences arising from differences in amplifier sensitivities.

Useful Features

Power amplifiers tend to be rather featureless devices. Some have input-level controls, which can be handy at times. Surround processors invariably provide means for balancing the outputs of the various channels, however, so such controls are hardly a necessity. Power meters, too, can be nice to have sometimes, but they're even less

essential. More useful in most cases are clipping indicators that light when an amplifier goes into overload, a pilot light to indicate that the amplifier is turned on, protection lights that come on if the amplifier turns itself off because of overheating or some other fault, and a power switch. None of these features is a big deal, though, and the presence or absence of any of them is seldom more than a secondary consideration.

In short, choosing amplifiers for multichannel surround sound is like choosing amplifiers for two-channel stereo, only more so. And with all the new home-theater-oriented amplifiers coming on the market, your range of choices is getting progressively wider and more diverse. The separates solution has never been more attractive than it is today. □



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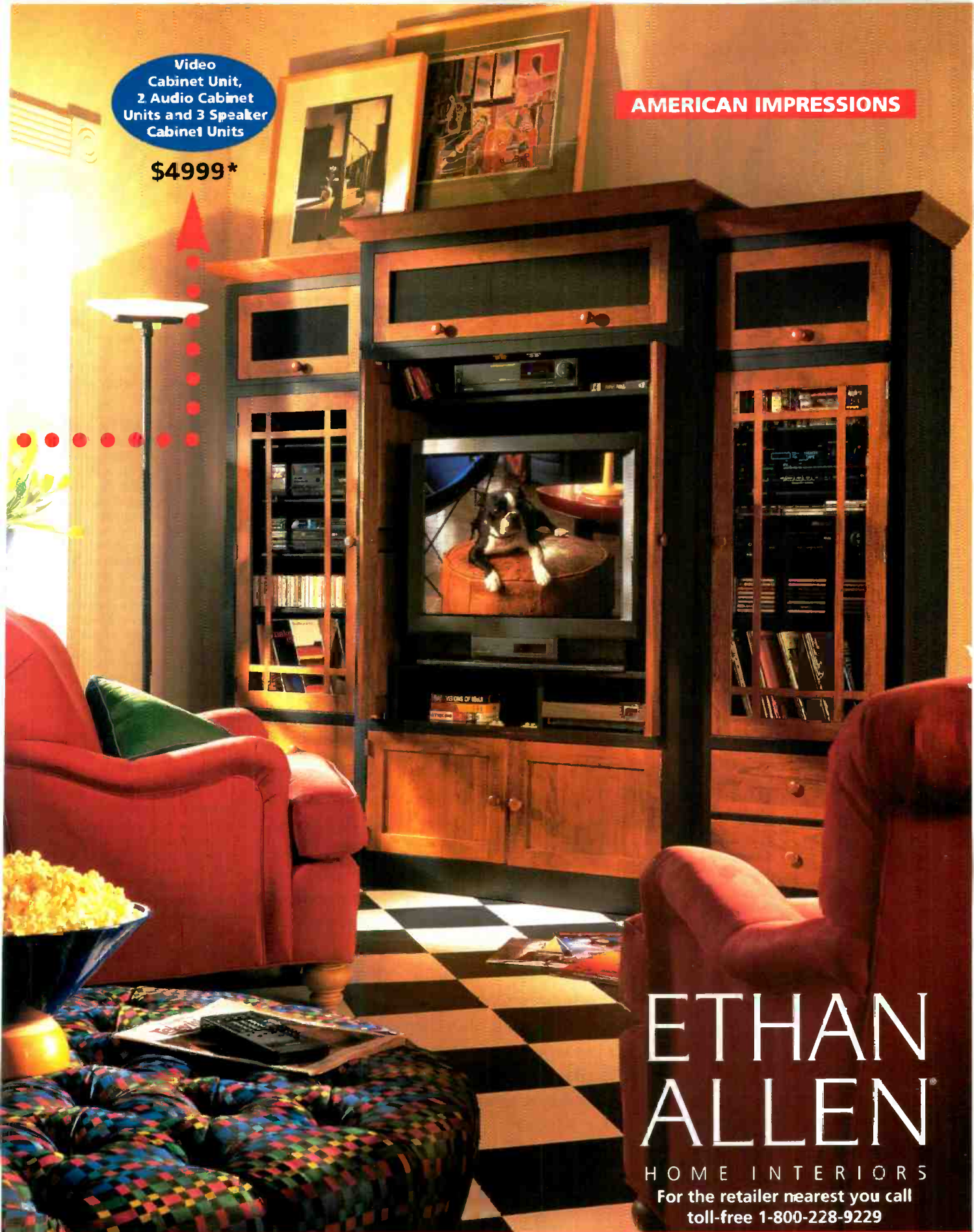
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VIOLIN CONCERTO IN D MAJOR. Vladimir Spivakov's fresh, brightly recorded performance with Ozawa and the Philharmonia (EMI Ⓟ 67790, with *Francesca da Rimini* and a dazzling *Capriccio Italien*) is a great value, though his remake with Temirkanov and the Royal Philharmonic may be even more appealing (RCA 60990, with the Prokofiev Concerto No. 1). David Oistrakh's performance with Ormandy and the Philadelphia Orchestra is a best buy (Sony Ⓟ 46339, with the Gilels/Mehta Piano Concerto No. 1). The most appealing of Itzhak Perlman's recordings of the work is also with Ormandy and the Philadelphia (EMI 47106, or in a five-CD Tchaikovsky box, Ⓟ 67700). The Jascha Heifetz recording on RCA 5933 is still the touchstone, but it's due for remastering in RCA's Living Stereo series.

1812 OVERTURE. The best all-round combination of musical energy and sound now is Mehta's remake with the Israel



P yotr Ilyich Tchaikovsky died on November 6, 1893, little more than a week after conducting the première of his Sixth Symphony, the "Pathétique." The circumstances of his death continue to be debated, but there has never been any uncertainty over the extraordinary popularity of his music, which has probably accounted for a greater number of solid "converts" to classical music than the works of any other composer. Many special performances and recordings have been planned for this fall to mark the centenary of his death. Our own contribution is to recommend the best currently available recordings of his great orchestral works. All CD's are full-price unless indicated Ⓜ for midprice or Ⓟ for budget.

by Richard Freed

Philharmonic (Teldec 90201, with *Capriccio Italien*, *Marche Slave*, and a *Swan Lake* suite). Solti's Chicago recording is a fine buy on London Ⓜ 430 446 (with the Mussorgsky/Ravel *Pictures* and Prokofiev's "Classical" Symphony).

THE NUTCRACKER. For the complete score, Ashkenazy's set with the Royal Philharmonic wins on points (London 433 000, two CD's, with Glazunov's ballet *The Seasons*). Dorati's energetic version with the London Symphony is the midprice choice (Mercury Ⓜ 432 750, two CD's, with the *Serenade for Strings*). Ansermet's atmospheric performance with the Suisse Romande Orchestra comes with Solti's vivacious one with the Israel Philharmonic of the Rossini/Respighi *La Boutique Fantasque* (London Ⓟ 425 509, two CD's). The composer's concert suite is brought off with enchantment by Solti/Chicago Symphony (London Ⓜ 430 707), Rostropovich/Berlin Philharmonic (DG Ⓜ 431 610), and Mehta/Israel Philharmonic (London 410 551).

ROMEO AND JULIET. Monteux's live recording with the London Symphony strikes me as all-surpassing (Vanguard Ⓜ 8031/32, two CD's, with the Piano Concerto No. 1 and Symphony No. 5), though Litton's perhaps matches it (Virgin 59239, with the Symphony No. 6). Solti's noble reading with the Chicago Symphony, available in no fewer than four different couplings, is most attractive on London Ⓜ 430 707.

SYMPHONIES. Markevitch's recordings of the six numbered symphonies, with the London Symphony, are in a four-CD set that is one of the best buys in the catalog, well worth having even if you duplicate some works (Philips Ⓟ 426 848). Nos. 2 and 5 are split between discs, but the sound, from the 1960's, stands up beautifully (Nos. 4, 5, and 6 are also in Ⓟ 438 335, two CD's). Mravinsky's Leningrad performances

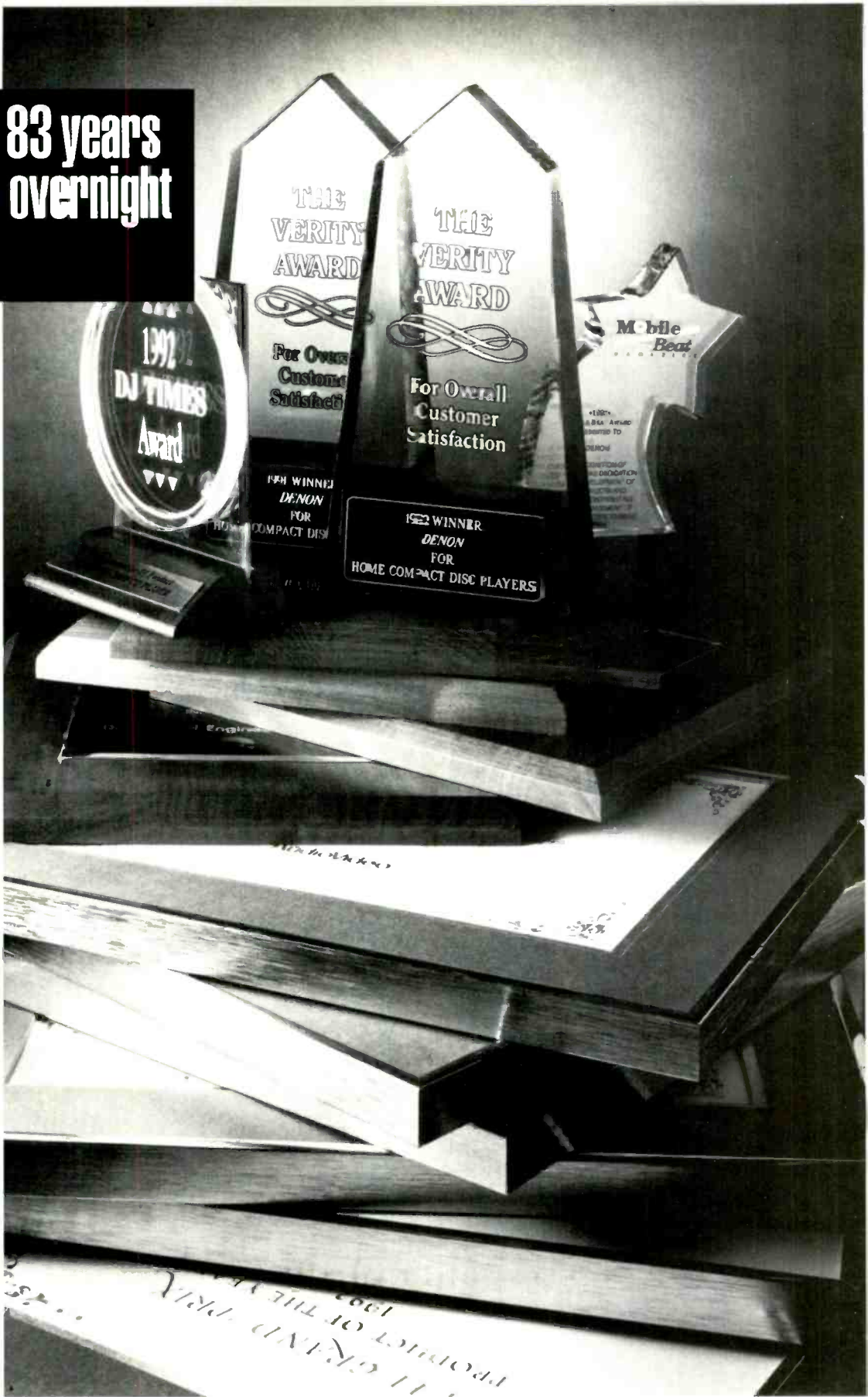
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sensation.**

In 1992, professional equipment magazine readers bestowed awards on Denon such as "Best New Sound Product" and "Most Innovative DJ Product." In 1993, a panel of magazine reviewers selected 5 Denon products for the 1993 Design & Engineering Exhibition.

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"Best New Sound Product" and "Most Innovative DJ Product" DJ Times, 1992
Consumer Electronics Design & Engineering Exhibition, 1993
Auto Sound Grand Prix Audio/Video International, 1993
Consumer Satisfaction Index Verity Research, 1991, 1992

of Nos. 4, 5, and 6 call for similar attention (DG 419 745, two CD's).

SYMPHONY NO. 2, IN C MINOR ("LITTLE RUSSIAN"). Markevitch's account of this work, perhaps the finest single performance in his big set with the London Symphony (Philips 426 848, four CD's), has yet to be matched. Both Jansons with the Oslo Philharmonic (Chandos 8460, with *Capriccio Italien*) and Litton with the Bournemouth Symphony (Virgin 59588, with Symphony No. 1) come close, and their versions benefit from fine sound.

SYMPHONY NO. 4, IN F MINOR. Maazel's Cleveland performance on Telarc reclaims top honors as repackaged now with *Romeo* (82002). Jansons's refreshingly straightforward Oslo account (Chandos 8361) and Masur's somewhat warmer and darker one from Leipzig (Teldec 43339) are also of special interest, though each has the disc to itself. Slatkin's expressive reading with the Saint Louis Symphony comes with the seldom-heard *Fatum* and *The Voyevoda* (RCA 60432).

SYMPHONY NO. 5, IN E MINOR. Jansons and the Oslo Philharmonic are perhaps even more "refreshingly straightforward" in this symphony than in the Fourth (Chandos 8351), but Dutoit's Montreal recording goes to the top of the list for his balance of warmth, depth, and elegance, the superb

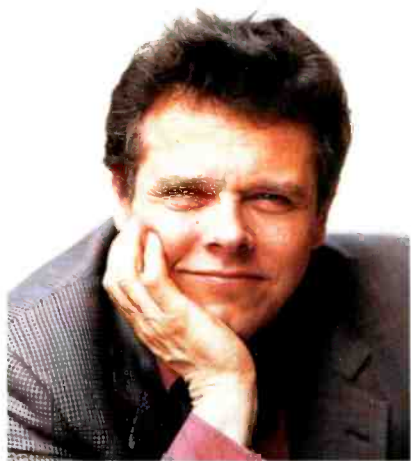


Left, the conductor Andrew Litton; below, the conductor Mariss Jansons and the pianist Martha Argerich

sound, and the appended performance of *Hamlet* (London 425 503). Monteux's 1963 live recording with the London Symphony is up there, too, and no allowances need be made for the sound (Vanguard 8031/32, with *Romeo* and Piano Concerto No. 1). The one by Szell and the Cleveland Orchestra is fiery and compelling despite dated sound (Sony 37767). Slatkin and the St. Louis Symphony offer superb sound and another rarely heard tone poem. *The Tempest* (RCA 60425).

SYMPHONY NO. 6, IN B MINOR ("PATHÉTIQUE"). Markevitch's "Pathétique" is another especially strong part of his London Symphony set (Philips 426 848, four CD's). Litton's new recording with the Bournemouth Symphony, which completes his Tchaikovsky cycle, is absolutely in the same class: The approach is similar, the orchestral playing is first-rate, and so is the digital sound (Virgin 59239, with *Romeo*).

Richard Freed is the author of STEREO REVIEW's "The Basic Repertory on CD." The updated 1994 edition of the pamphlet will be published by the end of this year.



MORE GREAT TCHAIKOVSKY

CAPRICCIO ITALIEN. Ozawa's brilliant Philharmonia recording is a best buy (EMI 67790, with the Violin Concerto and *Francesca da Rimini*).

EUGENE ONEGIN. Tchaikarov conducted a beautifully idiomatic performance of Tchaikovsky's most popular opera with Tomowa-Sintow, Gedda, Mazurok, and the Sofia Festival Orchestra (Sony 45539, two CD's).

MANFRED. Svetlanov really got to the core of this splendid unnumbered symphony, and his 1971 Moscow recording with the U.S.S.R. Symphony comes up surprisingly well on CD (Melodiya 10-00199).

MARCHE SLAVE. Fiedler and the Boston Pops are wonderful in this piece, and so is RCA's refurbished 1956 sound (61497).

THE QUEEN OF SPADES (Pique Dame). Ozawa is persuasive

in this opera, with Freni, Atlantov, Hvorostovsky, and the Boston Symphony (RCA 60992, three CD's).

SERENADE IN C MAJOR FOR STRING ORCHESTRA. Barbirolli's 1964 recording with the London Symphony is glorious (EMI 63962, with Symphony No. 5).

THE SLEEPING BEAUTY. Gergiev and the Kirov Orchestra are mostly wonderful in the complete ballet (Philips 434 922, three CD's).

SWAN LAKE. Dutoit and his Montreal Symphony are the clear choice for this beloved ballet (London 436 212, two CD's).

VARIATIONS ON A ROCOCO THEME, FOR CELLO AND ORCHESTRA. Rostropovich's superb 1963 performance with Rozhdesivensky and the Leningrad Philharmonic (Melodiya 10-00238, with the sextet *Souvenir de Florence*).

How to turn an evening at home
into a night at the movies.



A guide to getting full, rich movie theater sound
from a Virtually Invisible[®] speaker system.

BOSE



Remember when watching a movie was more than a way to pass the time? When it was fun? When it fired your imagination?

That's because the big screen provides a larger-than-life view of the world of make believe. And the true-to-life sound that goes along with the picture is what turns make believe into reality. It turns characters into real people, pulls us into the action, sets the pace, and summons our emotions. And it does it so effectively, we are

transformed from mere observers into participants in the drama that unfolds before us.

Until recently, even though re-creating the excitement of the movie theater at home was possible, it was available to only a few – those who could afford the expensive electronics, those who were not intimidated by the complex components, and those who had enough room to contain it all.

But now, with the availability of affordable, high resolution big screen TV's, hi-fi VCR's and laser disc players,

and advanced speaker technology, the ability to re-create the fascination of the movies – right in our own homes – is well within the grasp of many more families.

Beginning with the following article, written by Tim Holl, Manager of Research Operations at Bose Corporation, this guide describes how you, too, can enjoy the excitement of the movies in your home. □



The most exciting part of your video could be the audio!

By Tim Holl

Excitement. That's what I felt when I took home an early laser disc player, hooked it up to my sound system and settled back to watch *Raiders of the Lost Ark*. I was totally absorbed – until I was jarred out of Indiana Jones' world by the sound of his voice somewhere off-screen, when I saw him speaking on-screen. Audio for video clearly wasn't as simple as the "audio only" material I was used to.

Over the years, work on high quality audio for video has been almost

exclusively in movie theater sound – very different from home sound. In the theater, the listening space is larger. More importantly, the larger screen matches the sound stage size exactly. At home, even rear-projection screens provide comparatively small images – much smaller than the audio image delivered by normal stereo systems. So, when you design your home system, you must take care to seamlessly integrate the sound with the small screen video.

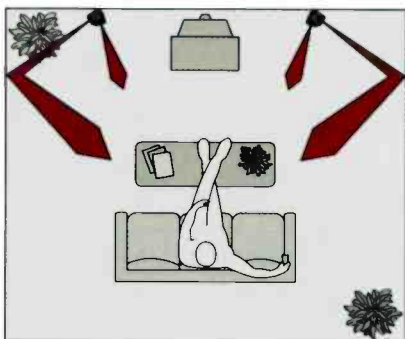
But don't be daunted. We'll examine the benefits and drawbacks of various approaches, from the simplest use of a current stereo system, to a full multi-channel system. You'll soon understand home theater's requirements, potential pitfalls, and what's available to build with. And you'll see that it can be done with surprisingly inconspicuous equipment.

The first step is to connect your video sound to your stereo system and place your TV screen midway

between the speakers. This immediately improves the tonal balance and extends the audio image to the width of the space between the speakers.

Although on-screen vocal localization is not as good as with the TV sound, the system is much better than TV alone, particularly on video material with a musical soundtrack.

If your speakers produce deep bass, you'll hear another benefit. Movies



Connect the video sound to the stereo system and place the TV between the speakers for improved tonal balance. (Effect illustrated with Bose® Direct/Reflecting® speakers.)

often use bass to provide clues to the overall atmosphere of scenes. A deep, continuous bass note imparts danger, such as when enemy spaceships come into view. Without good bass performance, loudspeakers literally don't produce these notes – and the effect is totally lost.

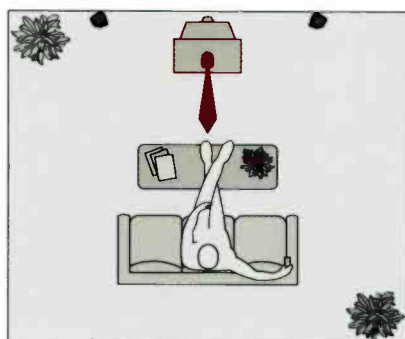
The second step is to improve vocal localization. On TV much of the sound is speech, which we expect to be localized on the screen. However, the phantom center image produced by wide-spaced speakers doesn't provide on-screen localization.

Turning up the TV's volume a bit can help. A better solution is to move your stereo speakers next to either side of the screen. (They must be magnetically shielded so they don't interfere with the picture.) This narrows the sound stage, but provides high quality sound with excellent on-screen vocal localization.

Slightly more complex audio-video systems include a steering logic surround decoder. They can provide many benefits, even if you do not intend to use a surround channel in the

rear. They let you enjoy on-screen vocal localization without sacrificing a wide stereo image. Front channel steering is effective on most material, even if it isn't surround encoded.

In most video material, speech is recorded monophonically for good on-screen localization. A steering logic surround decoder directs the monophonic content of the program to the center channel only. (Surround decoders with-



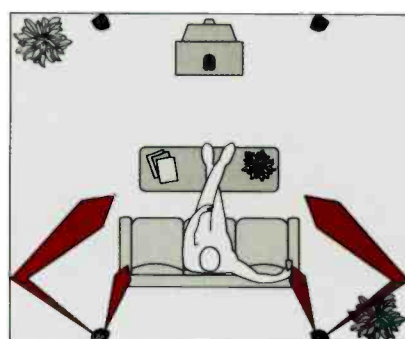
Second, add a steering logic sound decoder and an acoustically matched center channel for on-screen vocal localization.

out steering logic don't provide this benefit. Even if they have a center channel, they feed monophonic signals equally to the right and left channels.)

Now you need a center channel loudspeaker on top of or adjacent to

Place them high on the rear wall where furniture won't interfere between the speakers and the viewer. If deep bass wasn't necessary, any number of speakers would work. But, most surround encoded movies include bass in the surround channel, which must be adequately reproduced by the surround speakers to get the full impact.

If you use a three-piece system with a separate bass enclosure for the rear



Third, complete the system with rear channel speakers with deep bass to get the full impact of surround encoded material. (Effect illustrated with Bose Direct/Reflecting® speakers.)

channel, be sure you put the bass unit well away from the speakers reproducing bass for the front channel. If the two bass units are too close together, the time delay in your surround decoder will cause the bass notes from

The system will be much better than the TV alone, particularly on video material with a musical soundtrack.

the TV. It must be magnetically shielded; but, since its purpose is to localize speech, it does not have to produce deep bass.

Finally, a complete audio-video system should include rear channel speakers. And, since there are now several speakers in the room, it's a good idea to select inconspicuous models..

front and rear to interfere with each other and produce severe and unwanted effects known as comb filtering.

In a full surround system, the rear effects are only correctly reproduced on surround encoded material. However, the left-right-center steering produced by the decoder will be effective on most material, encoded or not.

So it is a good idea to switch the rear speakers off for non-encoded material but to leave the decoder active. You'll still get excellent on-screen localization, even on the non surround-encoded material, but arbitrary rear sounds will not detract from your enjoyment.

Whether you build your home theater system all at once, or one step at a time, always build with an overall plan in mind.

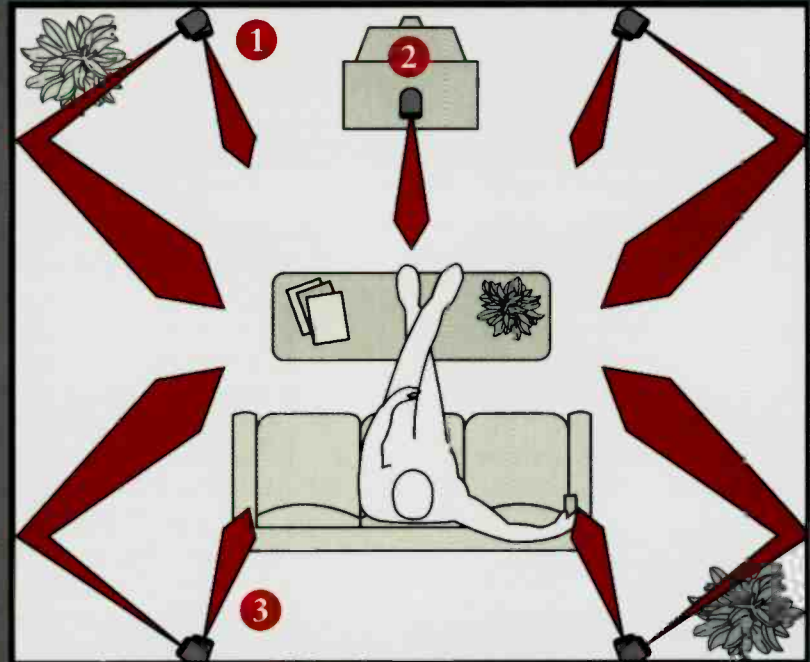
- To maintain a consistent tonal quality as the sound moves from channel to channel, choose front, center, and rear channel speakers that are as acoustically matched as possible.

As *Stereo Review* said, "If the center speaker doesn't match the sound of the left and right front speakers, imaging and clarity will be impaired."

- To capture all the impact of today's sound tracks, choose front and rear speakers with full range response and wide dynamic range.
- Be sure the radiation pattern of the front and rear speakers provides a wide sound stage. This is important in reproducing the fullness of musical scores and the ambient sound accompanying large visual fields.
- Remember, in most cases, more than one person will be watching. This will put viewers at different angles and distances from the speakers. When you audition speakers, listen to a movie sound track from several locations to be sure you can hear all the channels at each location.
- And, finally, make sure the sound system you select will fit into your room with enough space to allow comfortable viewing.

Choosing a system that meets all these criteria can be daunting. But recent breakthroughs in sound reproduction technology, combined with proven speaker design, now makes selecting a home theater sound system easy. Once you take that first step, you may wonder how you put up with ordinary TV sound, and find yourself renting those old favorites again to hear what you missed the first time. □

Home Theater Speaker System Placement Using Bose® Direct/Reflecting® Speakers.



1. Front Speakers

Should be placed above furniture for a wide, uniform sound stage to allow the fullness of the music and sound effects to reach a variety of listening locations.

2. Center Channel

Should fit on top or just underneath the TV and localize on-screen voices to on-screen action.

3. Rear Speakers

Should have the tonal characteristics of the front speakers, including full bass response and wide dispersion.



With Acoustimass® speaker technology in your home theater system, your eyes won't believe your ears.

Patented Bose® Acoustimass speaker technology delivers sound so clear and lifelike, it can rival the best movie theaters. When the first Acoustimass speaker was introduced, *Stereo Review* said "...side by side with speakers costing three to five times as much, the AM-5 (Acoustimass-5) consistently produced the more exciting and listenable sound..."

The part you see.

While Acoustimass technology puts you in the center of the action by enveloping you with sound, that doesn't mean you're surrounded by bulky equipment. The Virtually Invisible® speaker design takes care of that with speakers so small they fit in the palm of your hand and a bass module you can slip behind or under furniture.

All you see is the Virtually Invisible® speaker arrays. Their surprising size is made possible by the extended range

of the hidden Acoustimass bass module. You'll think all the sound is coming from the arrays, including the bass. And each array can be rotated to reflect a portion of the sound off the walls of the room to help re-create the spaciousness of a movie theater and a uniform sound field throughout the listening area.

As *Stereo Review* said "...its powerful, room-filling sound emerges from satellite speakers which could easily be held on the palm of one's hand..." Each no taller than a video tape, they can be placed conveniently on a shelf or mounted on a wall or ceiling with optional mounting brackets. (Floor stands are also available.)

The part you don't see.

What you don't see is the hideaway Acoustimass bass module. Its patented technology was developed by Bose to radiate sound directly into the room via an air mass rather than a vibrating cone. The result is a deep, pure bass response with no audible distortion.

The Acoustimass bass module is designed to produce bass so efficiently that a conventional bass system would need four times the size to deliver the same bass response. The result is a bass module small enough to hide behind a curtain or under a chair. And because the module produces no audible distortion to give away its location, it can be placed almost anywhere in the room.



Acoustimass Speaker Technology

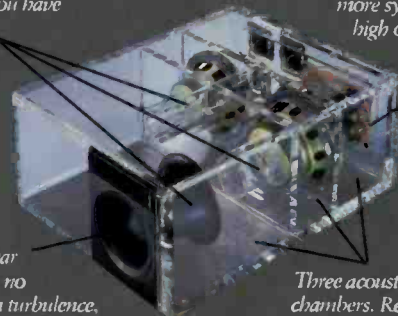


You can hide an Acoustimass bass module nearly anywhere in the room. All the music, even the lowest bass notes, appears to come from the tiny cube speakers, regardless of where the bass module is hidden.

Three acoustic masses provide 36dB/octave acoustic crossover rolloff! You have complete freedom to hide the bass module anywhere in the room.

System protection circuit for more system protection at high output volumes and increased reliability.

Elliptical toroid conduit for the radiating air mass provides for laminar air flow so there is no audible noise from turbulence, even at high loudness levels.



Three acoustic compression chambers. Reduced cone motion eliminates audible distortion.

Build your home theater speaker system in one or two easy steps.



Acoustimass-7 home theater speaker system.

Acoustimass® systems are available with either two or three cube speakers, each precisely matched in sound quality. So you can buy your entire system now, or just the front channel system now and rear channels later. Either way, you're assured of complete compatibility because each system is acoustically matched to the other.

By combining acoustically matched systems, you can create a complete five-speaker system that takes less space than many televisions, yet sounds like many of the best movie theaters.

Acoustimass-7 home theater speaker system.

The solution for lifelike, movie-sized sound from a Virtually Invisible® speaker system, these three tiny front speaker arrays deliver lifelike, spacious sound. Hidden anywhere you like is the compact bass module. Yet all the sound appears to come from the arrays.

With its Bose® Direct/Reflecting® speaker design, this system re-creates a natural balance of reflected and direct sound that conventional speakers cannot



match. By swiveling the top cube of each speaker, you can tailor the mid- and high-frequency pattern to your preference. Magnetic shielding inside the arrays allows you to place the center channel speaker on or near your TV, to accurately position on-stage dialogue.

Add the acoustically matched Acoustimass-5 speakers for a five-

speaker system with total sound quality consistency. Every seat in the house becomes the best seat in the house.

Acoustimass-4 home theater speaker system.

The solution for big screen sound from an even more compact and affordable system, the Bose Acoustimass-4 speaker system shares much of the technology of the Acoustimass-7 system. Yet its smaller cube speakers and even more compact bass module make its big screen sound fit into the smallest screening areas. And it won't crowd your budget.

Engineered to take full advantage of Acoustimass speaker technology, the Acoustimass-4 system features three tiny, magnetically shielded cube speakers. Each is less than 4 inches high, yet together they fill the room with clear mid- to high-frequency sound. From the center channel, you hear crisp dialogue. Left and right channel speakers project their wide stereo image far beyond the limits of your screen. Hidden from sight, the bass module establishes the lows that set the mood.

For a five speaker system, add the acoustically matched Acoustimass-3 speaker system for the rear channel.

Check your local newspaper for special offers.

Then go look. And listen. You'll find there's an Acoustimass home theater speaker system to fit your needs and your budget. Or call us toll free for more information and the names of authorized dealers.

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home theater means a room full
of speakers the size of movie posters...

Think again.



With Bose® Acoustimass® home theater speaker systems you'll no longer just watch a train cross your TV screen. You'll feel it rumble right through your living room.

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Theater
Made
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Acoustimass® Systems

*"In fact, the more I use Acoustimass speakers,
the more amazed I am."*

Julian Hirsch, Stereo Review

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DO CD'S COST TOO MUCH?

BY IAN G. MASTERS

My powers of prophecy are, I suppose, on a par with those of most other journalists: lousy. In the summer of 1982, just before the compact disc hit the market, I wrote: "It has been estimated that there are fifty billion conventional records in circulation around the world, and as long as they exist, there will be a market for turntables to play them on, and as long as turntables are being sold, there will be a demand for LP's. The compact disc is too good not to win in the end, but that's probably going to take several decades."

That seemed reasonable at the time, given the horror with which record companies greeted the idea of the CD. But then a peculiar thing happened: Once the CD had become a reality, the record industry embraced the new format with unseemly fervor and initiated what appeared to be the premeditated demise of the vinyl record.

We have all benefited sonically from the decision to embrace CD, but over the years the feeling has grown in many quarters that the compact disc became the darling of the record industry not because of its technical merits but as a way to rip off the music-buying public.

The first CD's were quite expensive, about \$18 to \$20, but most people expected that of a new technology. They

also expected that prices would come down as techniques were refined, costs were recovered, and enough units were sold to let economies of scale kick in. That proved to be true of the players: The first machines bore price tags of close to \$1,000; now you can get a player for less than a tenth of that without much sacrifice in sound quality. But the prices of the discs themselves have exhibited no comparable reduction: In many stores, a hot new recording costs nearly as much as it would have a decade ago. Certainly there are budget discs and reissues, and these do bring the average down, but the big sellers still carry top prices.

For years, consumers' organizations, publications, and even legislators in a number of countries have accused the industry of keeping CD prices artificially high and of phasing out the LP to force consumers to buy the more expensive digital discs. The most vocal criticisms have come from Great Britain, where the question of pricing is often called "the CD scandal." Gerald Kaufman, an opposition Member of Parliament who recently headed a highly publicized inquiry into the cost of CD's, has called for an across-the-board reduction in wholesale prices that could knock £3 (about \$4) off the cost of a full-price CD.

While consumer groups in the United Kingdom ap-

plaud this suggestion, not everyone agrees. Some observers contend that reducing the record companies' profits will lead to fewer new releases. Predictably, the record industry is outraged, with some executives even claiming that British prices should be raised to bring them in line with other European countries.

The irony is that the Brits point to the United States as a sort of digital Valhalla, where CD's cost something like 30 percent less than in the U.K. "CD prices in the U.S. are the lowest in the world," according to Russ Solomon, founder and president of the Tower Records chain, "but most of the differences have to do with exchange rates and taxes. In Europe the Value Added Tax (VAT) can be as high as 21 percent. In Japan the sales tax is only 3 percent, but the yen has appreciated tremendously against the dollar. A few years ago, when a dollar was worth about ¥200, a top-of-the-line pop CD cost ¥2,500, or about \$12.50. Today a top CD costs ¥2,800, but at today's exchange rate that's almost \$27."

However the prices may vary from country to country, people everywhere seem to feel they are high. And the availability of the same music on analog cassette for substantially less, sometimes as little as half the CD price, is an unpleasant reminder.

No one claims that the price premium has anything to do with the actual cost of making a CD—in fact, the difference in manufacturing cost between CD's and cassettes or LP's is negligible these days. The business of making CD's is very competitive, and costs have moved downward in the last couple of years because new pressing plants opened and existing ones expanded, creating an oversupply of capacity. Large and small plants alike currently charge the record companies around \$1.25 apiece to manufacture a mid-volume pop CD (at least 50,000 units), which includes making the glass disc master, pressing the discs, printing the inserts, and collating the finished CD's and inserts in shrink-wrapped jewel cases. Even three years ago, when CD's cost almost twice as much to make as they do today, the financial analyst Harold L. Vogel wrote that "the profitability of the CD compared to the other [formats] is most impressive" (*Entertain-*

ment Industry Economics, Cambridge University Press, 1990).

Within the CD format, price variances rarely have anything to do with audio quality; budget recordings often sound similar—if not identical—to higher-priced discs. For example, an informal survey by the Hartford, Connecticut, *Courant* compared the prices in local stores of six CD versions of Gershwin's *Rhapsody in Blue*. Surprisingly, prices ranged from \$5 to \$17, depending on the store and the version. In one case, the same recording was available in two different packages, one selling for \$13, the other for \$7. Clearly, large price differences can be a matter of marketing, not manufacturing or royalties.

No Apologies

The record industry remains unapologetic about the prices of CD's and offers a number of arguments in their defense. Perhaps the least persuasive is the suggestion that the record companies are still—after eleven years!—recouping development costs for the compact disc.

The record companies also point out that CD prices haven't risen with inflation but have actually come down in real dollars: Based on the changes in the federal government's Consumer Price Index from 1983 to 1993, if a top-price pop CD back then cost \$17.98, a comparable CD should cost \$26 today, which is clearly not the case. David Leibowitz, the executive vice president of the Recording Industry Association of America (RIAA), argues that in terms of inflation, "CD prices compare very favorably with those of other entertainment media, such as books and movies."

While CD manufacturing costs have fallen, the record companies argue that all other costs associated with record production have risen, especially in the marketing area. A decade ago, for instance, the main promotional tool was free records for reviewers and radio stations, to generate print reviews and air play. Today, a record company can easily drop more than a million dollars on music videos to promote a release from a major star.

And even releases by major stars can go nowhere despite the best marketing efforts. The record companies argue that the 10 percent of releases that become successful must subsidize the 90 percent that don't, and that's true. Harold Vogel comments

that the record industry's "enormous 'wastage' . . . is even worse than in films, where, on average, seven of ten projects are losers." Tower's Russ Solomon agrees that the record labels "do have a lot of marketing and promotional expenses to get new product off the ground, and the money has to come from somewhere." Nevertheless, he notes, "the record labels and CD manufacturers make far more [profit] than retailers do."

Royalty payments to artists have certainly risen in recent years, partly because of zillion-dollar megastar deals. But in the final analysis, it's unlikely that they put much of a dent in a record company's bottom line. In 1992, for instance, the gross revenue of Time Warner's Music Group was some \$3.2 billion; anything Sire/Warner Bros. had to fork over to Madonna was peanuts in comparison.

Much of the negative reaction to CD prices is based on comparison with the analog formats, but is that entirely fair? Regarded simply as plastic objects that cost roughly the same to manufacture and distribute, the CD, the cassette, and the LP should, by rights, sell for the same price. The formats are clearly *not* equivalent, however. The RIAA's David Leibowitz, for instance, considers CD's "very reasonably priced for what the consumer receives. Even if CD's and cassettes do have similar manufacturing costs, look at the products in terms of added value; the CD gives you more." If CD's offer more to the consumer, the argument runs, the record companies are justified in asking more for them.

Some record execs believe that CD-pricing complaints are restricted to crybabies and activists, and will eventually die out—especially as those pesky, low-priced analog recordings disappear. For all the complaining, the music-buying public hasn't exactly refused to pay the going rate for the iridescent little discs: Last year more than 407 million CD's were sold in the U.S., up from 207 million in 1989.

How High Is High?

As the RIAA's Leibowitz says, "In the end, the marketplace determines prices." Selling music is a business, after all, and it's difficult at best to determine what might be "excessive" profit in the sale of *luxury* goods—

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Stereo Review, November 1992

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THEN AND NOW

TODAY'S PRICES	CD	CASSETTE	LP
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Barbra Streisand: "Back to Broadway" (Columbia)	\$16.98	\$10.98	NA
U2: "Rattle and Hum" (Island)	\$16.98	\$10.98	NA
EARLY EIGHTIES' PRICES	CD	CASSETTE	LP
Genesis: "Genesis" (Atlantic, 1983)	\$17.98	\$8.98	\$8.98
Bruce Springsteen: "Born in the U.S.A." (Columbia, 1984)	\$17.98	\$8.98	\$8.98
Talking Heads: "Speaking in Tongues" (Sire/Warner Bros., 1983)	\$17.98	\$8.98	\$8.98

Note: In most cases the record companies do not set "suggested retail prices" for CD's but simply identify releases as full-price, midprice, or budget. The CD prices given here are based on the prevailing wholesale prices plus typical retail markups.

we're talking Mariah Carey here, not bread or shelter.

Brian Robertson, president of the Canadian Recording Industry Association, contends that CD's are not overpriced but, rather, that LP's and cassettes have been *underpriced* for years. He maintains that while the costs of producing a recording and marketing it rose dramatically in the 1970's and early 1980's, in the declining record market of those years LP and cassette prices were not able to keep pace. The CD gave the record companies an opportunity to establish a pricing structure that included what they considered a fair profit.

The higher prices also enable the record companies to offset what they see as the erosion of their royalties. For years they've bemoaned home taping—hence their strenuous efforts to stall the introduction of digital audio tape (DAT). Now it's the sale of used CD's. The major record companies are so disturbed by the boom in secondhand CD sales, which produce no revenue for them or their artists, that some have cut off co-op advertising funds to any retailer selling used CD's as well as new ones. Selling used CD's cannot be prevented under present U.S. law, only discouraged, so maintaining high prices is one way to counter what the companies consider a "loss" in royalty revenue.

About the notion that the record industry made a decision to support the more-profitable CD and ditch the existing formats, though, one insider calls it "patent stupidity to suggest that an industry would phase out a successful product merely to enjoy supposedly higher margins on a second." But surely that's exactly what a good businessman *would* do. On the other hand, Tower Records' Solomon suggests that "the only reason the record companies haven't raised cassette prices [to match CD's] is that they don't want to kill off tapes completely."

In any case, the ignominy of the LP is confirmed by Tower's analysis of recordings released in June of this year. Out of a total of 323 recordings, only *five* were released on vinyl (comparable figures three years ago were 100 LP's out of 621 releases). That vinyl has all but disappeared is no surprise; what may be more significant now is that only about half the new releases are available even on cassette, hitherto the king of the formats in terms of unit sales. And if cassette releases drop to the vinyl level, the last of the old pricing structure will disappear.

Perception Is All

Fair or not, the impression that the record industry has engaged in preda-

tory CD pricing is widespread, and the companies involved have been extraordinarily inept at explaining their position to the public. There's no question that CD's cost relatively little to manufacture, yet it's also true that the business of producing and—mainly—marketing recordings has become much more complicated and expensive in a world where sound recordings have to compete with videocassettes, vastly expanded cable programming, Nintendo, and a host of other entertainment options.

And, although it may be impossible to quantify, the compact disc does offer more value to the user than the analog formats: It has much better sound, it's more reliable, it's virtually indestructible (as long as the tiniest modicum of care is taken), it's generally more convenient to use, and on and on. The only question is how much of a price premium these advantages justify.

It may be perfectly good business to sell \$17 CD's. But perception is all, and the discrepancy with \$11 cassettes will continue to draw the ire of consumers and retailers alike for as long as the discrepancy—or the cassette—exists. Whether the record companies have kept CD prices artificially high (as their critics maintain) or have kept prices for the analog formats artificially low as the market for them eroded (as *they* claim), by creating and maintaining a big price gap between formats they themselves laid the basis for a perception of predatory pricing. And that perception will be very difficult—if not impossible—to change.

As with many issues, there's no simple answer to the question, "Do CD's cost too much?" As consumers, we would always prefer to pay less for what we buy, but in a market economy, any price consumers are *willing* to pay is "fair." If you hesitate to buy a new CD and decide to borrow it or get the cassette version instead, the price is too high—for you. And if enough people feel that way, the record company will lose money on that release. But if you pay the price because the CD's advantages make it worth it to you, is the price "unreasonable"?

Will the debate continue? Definitely. Will the record companies lower CD prices across the board? Don't hold your breath. □



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BY BOB ANKOSKO

If you've ever attempted to knock a mediocre car stereo system into shape, or hired a pro installer to do so, then you know that getting it to sound good is hard work. You have to move speakers around (not the easiest of tasks), upgrade the power amp to one that delivers enough *clean* wattage to put the music above ambient noise, perhaps add a woofer or two, and—if you want to really get it right—use a real-time analyzer and parametric equalizer to tweak away response problems caused by the car's interior.

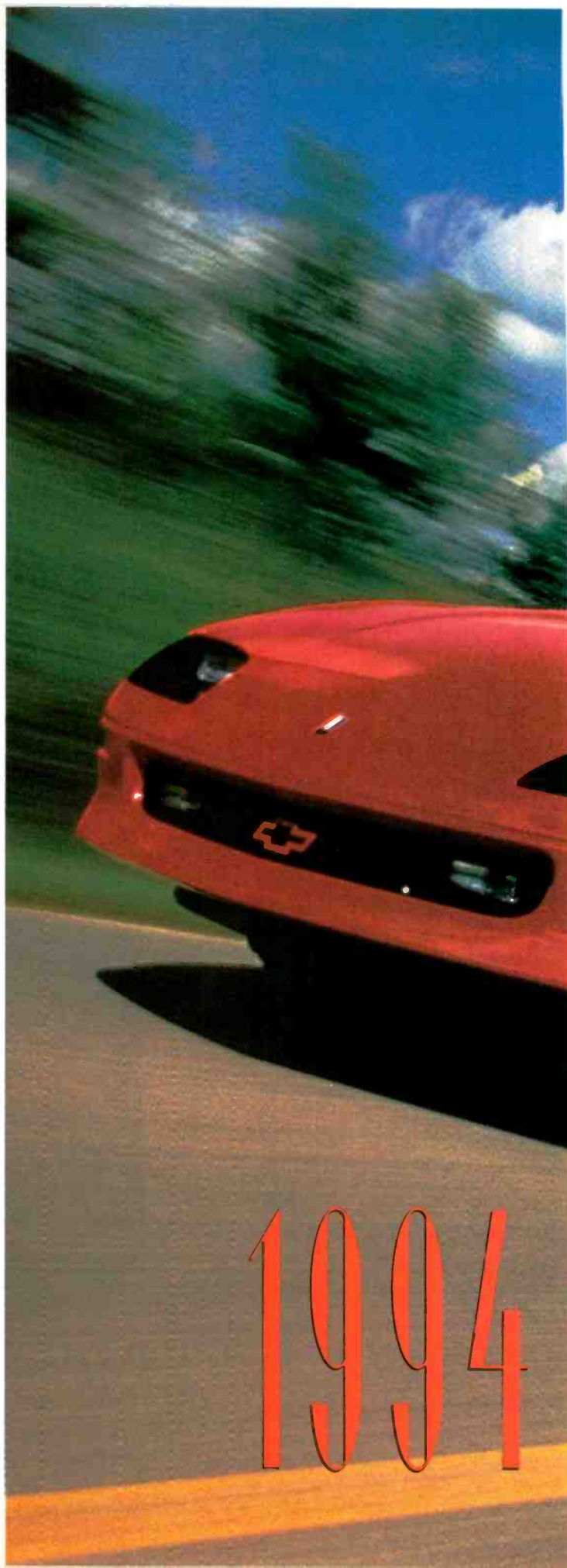
Those are precisely the kinds of things that automakers have been paying increasing attention to ever since Delco Electronics and Bose introduced the automobile industry's first "high-end" stereo option in the 1983 Cadillac Seville. Today, nearly all automakers have formed alliances with audio companies to enhance the music systems they offer in many makes and models.

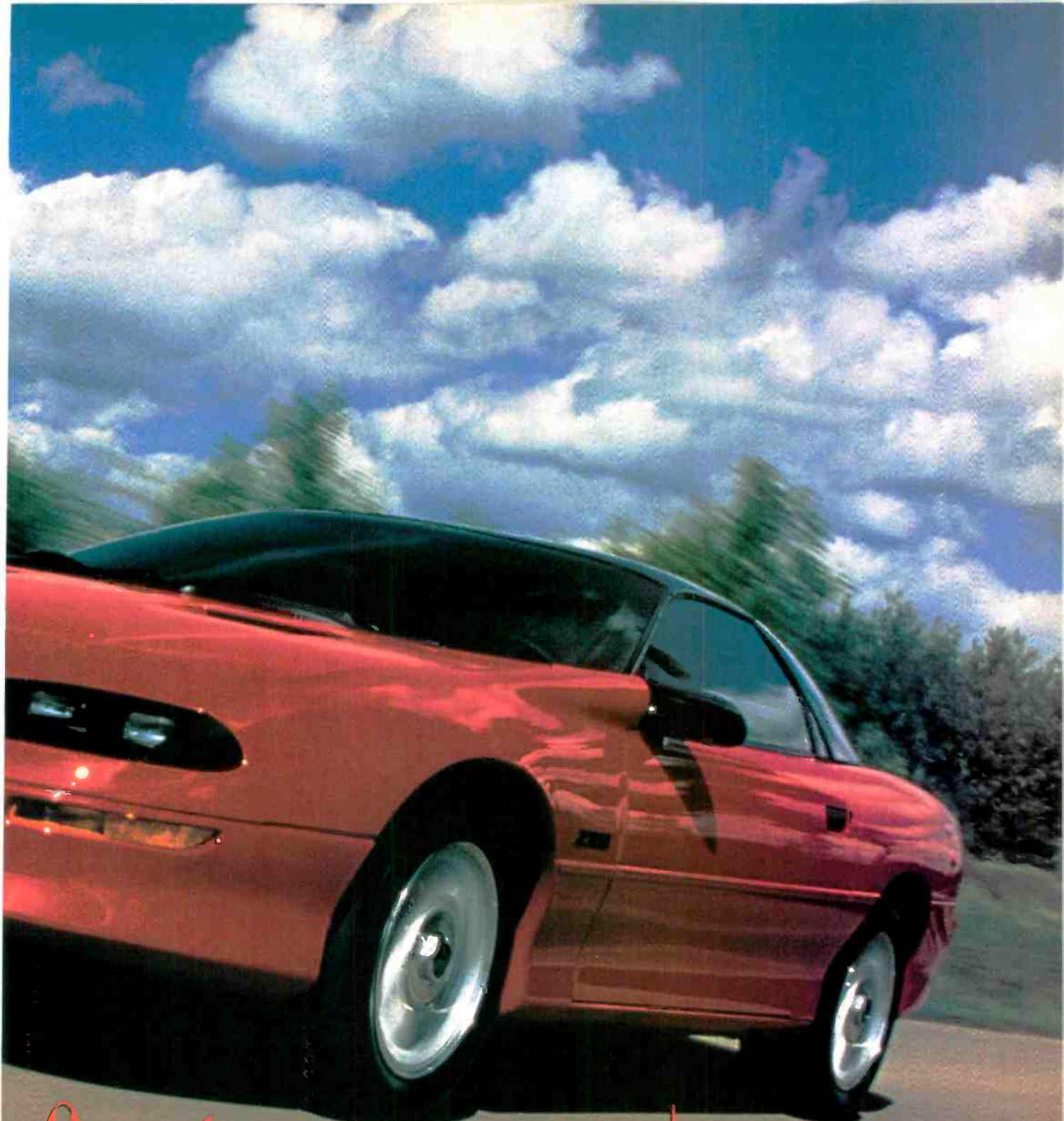
Take a look at some of the sonic accoutrements carmakers are offering in the '94 model year. What you'll find—here and in the showroom—may surprise you: high-power systems with separate woofers and strategically placed tweeters, generously equipped head units with antitheft "lockout" codes, abundant CD options, steering-wheel-mounted audio controls, image-enhancing center speakers, and more. In our preview, option prices are given where they were available, and power specs are "continuous" ratings unless otherwise noted.

Of particular note are GM's announcement that it will offer a Delco head unit equipped with RDS (Radio Data System) as an option next spring (see "Bulletin," page 8) and Ford's announcement of the auto industry's first MiniDisc player—offered in the new Mustang.



A 150-watt Delco/Bose system with a CD tuner (above) is a \$531 option in Chevy's 1994 Camaro Z28 (right). With a cassette tuner, the system is a \$275 option.





AUTOSOUND

**Automakers
pump up the
volume for the new
model year**



Ford's revamped 1994 Mustang (top) offers a 230-watt sound system featuring eight speakers and a cassette tuner with Dolby B (middle photo) as a \$700 to \$800 upgrade. A Sony-built in-dash MD player (bottom photo) is about \$700 extra.

ACURA/HONDA. The redesigned Acura Integra GS-R hits the showroom with a standard package that includes an 80-watt (maximum power) Pioneer cassette receiver and six speakers: a 1-inch tweeter on the top of each door, a 6½-inch driver in each front door, and a rear pair of 6 x 9-inch drivers (sedan) or 6½-inch drivers (hatchback). The GS-R's lower-price siblings—the LS and RS—have a similar speaker configuration, except that the tweeters are available as a dealer-installed option and the RS has a 50-watt (maximum power) Alpine cassette receiver. A trunk-mounted six-disc CD changer is available in all three models for about \$660.

Acura's Vigor GS is now equipped with an Alpine CD player (it replaces the digital ambience processor that had been offered). The player is part of a standard 80-watt (maximum power) Panasonic system featuring two dash-mounted tweeters, four 6½-inch full-range drivers, and a pair of separately powered 2-inch center-channel drivers mounted in the headliner.

On the Honda side, a six-speaker Panasonic system (same configuration as in the Integra) featuring an 80-watt (maximum power) cassette receiver is standard in the Accord EX coupe, sedan, and wagon. Standard equipment in the Civic EX Coupe is an 80-watt (maximum power) Alpine cassette receiver and six Acoustic Research speakers, including door-mounted 2-inch tweeters. Options include a dealer-installed six-disc changer and an in-dash CD player.

AUDI. A 200-watt Audi/Bose system with a Blaupunkt cassette tuner is optional in the Audi 100S station wagon. Representing Bose's first crack at a wagon, the system features an en-

closed 4½-inch full-range driver in each front door and a 2-inch tweeter and a 3½-inch midrange/tweeter in each rear door. Bass chores are handled by an 11-liter, ported module with two 4½-inch drivers in the wall of the rear storage area. A Blaupunkt ten-disc CD changer is optional.

BMW. Every model from the 325i on up to the top-of-the-line 8-series comes standard with a 150-watt, ten-speaker system; 8-series cars boast twelve speakers. The front speaker layout includes two 1-inch soft-dome tweeters (in the front doors on 3-series cars and in the A-pillars in 5-, 7-, and 8-series models), two 2½-inch midrange drivers (in the front doors in 3-series cars and in the dash in all other models), and two 5¼-inch woofers in the kick panels. The rear deck contains two tweeters and two woofers (same as up front); 8-series cars also have two midranges in the rear. A Pioneer cassette tuner with a diversity-tuning dual-antenna system is standard except in 3-series vehicles, which have an Alpine head. A trunk-mounted six-disc CD changer is standard in the 750iL, 840ci, and 850ci and an \$800 option in all other models.



A Delco cassette receiver equipped with an RDS decoder that receives special text and audio broadcasts (traffic reports, etc.) will be offered as an option in GM vehicles next spring.

CADILLAC. The Delco Electronics Active Audio System featuring 160 watts of power is standard in the new De Ville Concours luxury sedan (\$396 to add CD) and optional in the redesigned Sedan de Ville (\$274 with cassette). It has a 5¼-inch woofer and cloth-dome tweeter in each door, a coaxial speaker in the center of the dash, and a pair of 6 x 9-inch woofers in the rear deck.

The 200-watt Delco/Bose Gold Series system introduced several years ago, which offers a CD/cassette tuner and six speakers, is available as a \$972 option in the Seville Luxury Sedan, the Seville Touring Sedan, the Eldorado, and the Eldorado Touring Coupe. A trunk-mounted six-disc CD changer is also available as an option in any Cadillac.

CHEVROLET. The Camaro enters its twenty-seventh year with an optional 150-watt Delco/Bose system featuring only three 6½-inch drivers—two full-ranges in the doors and one woofer in a 12-liter, ported enclosure that's concealed in the hatch area. Each speaker has a dedicated amp and an EQ circuit that automatically balances bass output. The option price is \$275 with cassette, \$531 with CD.

CHRYSLER/DODGE. The Chrysler/Infinity Spatial Imaging System is standard in Chrysler's retooled LHS and New Yorker luxury sedans and optional in the Chrysler Concorde, Dodge Intrepid, and Dodge Eagle Vision sports sedans (about \$708 with a cassette tuner/five-band equalizer, \$877 with a CD tuner/equalizer). The heart of the system is a 120-watt amp/processor that feeds eleven speakers (each coaxial counts as two speakers): two dash-mounted 3½-inch coaxials and a central 2½-inch midrange/tweeter play above 250 Hz, two front-door-mounted 5¼-inch woofers operate between 60 and 250 Hz, and a pair of rear-mounted 6 x 9-inch coaxials are rated down to 30 Hz. The rear coaxials are biamped and have a 2½-inch midrange designed primarily to reproduce spatial information.

A 100-watt Infinity system is optional in the Dodge Ram pickup. Said to be the first brand-name audio package for a truck, the cassette system features a 2½-inch midrange/tweeter and 6 x 9-inch woofer in each door and two 5¼-inch biamped coaxials in the rear.

FORD. To match the muscle of the revamped Mustang's 215-horsepower V8, Ford is offering a host of stereo upgrade options, including the automobile industry's first MiniDisc (MD) player and the Mach 460 System—an



eight-speaker rig powered with 230 watts (460 peak). Available as a \$700 to \$800 upgrade, the system features Ford's top cassette tuner, four 2½-inch midrange/tweeters—two in the front door's sail panel and two in the rear (quarter panels in convertibles, package tray in coupes)—and four 5½ x 7½-inch woofers—two in the doors and two in a rear-deck-mounted 15-liter enclosure (convertibles have two 5¼-inch woofers in the rear quarter panels instead).

You can add a CD tuner to the

Buttons to control volume and channel selection are embedded in the steering wheel of the 1994 Mazda 929 sedan, which is equipped with a six-speaker Panasonic cassette system.



package for an extra \$400 to \$500 or the Sony-built MD player for an additional \$700 or so. On top of all that, a ten-disc CD changer is also available for between \$450 to \$550.

As for the status of Ford's alliance with JBL, inside sources say that new Ford/JBL systems are being developed for the Mercury Mystique and Ford Contour sedans (replacements for the Topaz and Tempo) and the Windstar minivan—all 1994½ models scheduled for introduction next year.

INFINITI. A pair of A-pillar-mounted 2-inch tweeters has been added to the 200-watt Bose system that comes standard in the Q45T and Q45A. The system also features two 4½-inch drivers in the front doors, a pair of 6 x 9-inch drivers in the rear package shelf, and a Clarion cassette tuner. A dealer-installed Sony ten-disc CD changer is available for about \$850 (the changer is standard in the Q45A). The J30's stan-



A 150-watt sound system with ten speakers is standard equipment in the 1994 BMW 530i. The system includes a cassette receiver (above) that has controls for an optional CD changer.

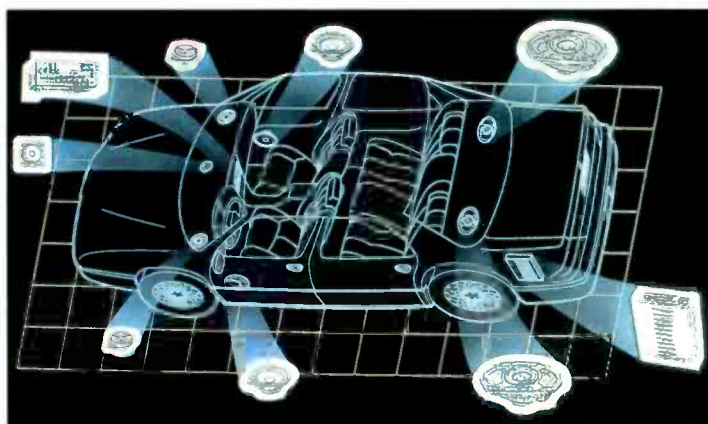


A 200-watt Audi/Bose system featuring eight speakers, including a bass module, and a Blaupunkt-made cassette tuner (above) is optional in the 1994 Audi 100S station wagon.

standard-equipment roster includes the same speaker lineup and an in-dash Sony CD player.

JEEP. The Infinity Gold system is standard in the Grand Cherokee Limited and optional in the Laredo and SE models. The system revolves around a 120-watt amp/processor that powers eight speakers: two dash-mounted tweeters that play above 5 kHz, two front-door-mounted 6½-inch woofers that operate in the 40-Hz to 5-kHz range, and a pair of 6½-inch full-range coaxials in the rear doors.

LEXUS. An updated version of the Nakamichi system first offered in the 1990 LS 400 sedan and SC 400 coupe is now available as a \$2,100 option (including a twelve-disc CD changer) in



The 120-watt Chrysler/Infinity Spatial Imaging System, depicted above, is standard in Chrysler's LHS and New Yorker and optional in other Chrysler and Dodge vehicles.

the GS 300 luxury sedan. The 170-watt system features a compression button for CD playback, two door-pillar-mounted soft-dome tweeters, a 4¾-inch full-range driver in each of the four doors, and a rear-deck-mounted 12-inch subwoofer. Besides Nakamichi's precision tape transport and diversity FM tuning, the cassette tuner also offers Dolby B and Dolby C noise reduction and a midrange tone control—rarities in factory heads.

The Pioneer cassette system offered as standard equipment in the Lexus is

not too shabby, either. The 74-watt package features two hard-dome tweeters, four 4¾-inch drivers, and a 10-inch subwoofer. A twelve-disc CD changer is available for \$1,000.

MAZDA. The 929 luxury sedan now has steering-wheel-mounted audio buttons (volume and channel select) to help control its standard six-speaker Panasonic cassette system. You can add a CD player for about \$700, and a six-disc CD changer is available as part of a luxury package.

The Bose Acoustic Wave system introduced in the redesigned 1993 RX-7 sports car continues to be offered as part of a "touring" package. The system features a CD player and cassette tuner, a folded-tube bass enclosure with two 6½-inch woofers, a dash-mounted center speaker, and two door-mounted 4½-inch drivers.

MERCEDES-BENZ. All SL roadsters—the SL320, SL500, and the limited-production SL600—roll off the assembly line with a 200-watt Bose Acoustimass system featuring a specially designed bass module that's rated to play down to 30 Hz. The subwoofer, which uses a single 5¼-inch woofer and is hidden under a panel behind the driver's seat, is joined by a pair of 2½-inch midrange/tweeters—one on each side of the storage compartment. A 2-inch tweeter and 6½-inch driver in each door and an Alpine cassette tuner complete the system.

A 200-watt Bose system is also standard in the C280 Benz and optional in the C220. In the speaker lineup are two dash-mounted 1½-inch tweeters, a 4½-inch driver in each door, and two 6½-inch woofers in the rear.

OLDSMOBILE. The new Aurora luxury sedan, a V8-equipped 1995 model due out next spring, will be offered with an optional 200-watt Bose Acoustimass system. The package features a Delco/Bose cassette tuner, a 1½-inch tweeter in each kick panel, two front-door 6½-inch woofers, two rear-door 3½-inch midrange/tweeters, and a specially designed bass enclosure with a 6½-inch woofer vented through the rear deck. A twelve-disc CD changer will be optional.

Back to the '94 model year, an eight-speaker Delco cassette system with steering-wheel controls is standard in the Ninety Eight Elite and offered as part of an options package in the Ninety Eight Regency. A six-speaker system with steering-wheel controls is standard in the Eighty Eight Royale LS. You can add a CD player for \$396. In the Achieva, Cutlass Supreme S, and Cutlass Supreme convertible, a

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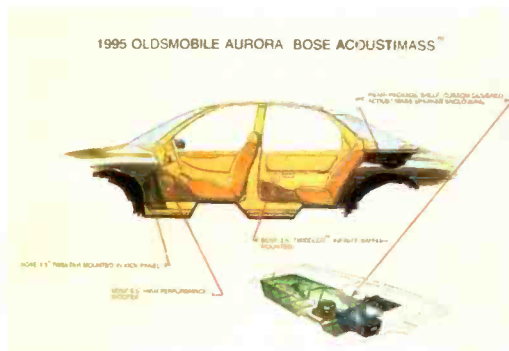
Audio Observatory #5, 1993

"Laser-discs were delivered with stunning clarity, precision and realism... handclaps sound like real applause, not like lead shot on a tin roof... Convergence is a very, very good speaker."

The Sensible Sound Issue #47

CIRCLE NO. 76 ON READER SERVICE CARD

Oldsmobile's all-new Aurora luxury sedan, which is scheduled to make its debut next spring as a 1995 model, will be offered with an optional seven-speaker Bose Acoustimass system featuring 200 watts of power and a custom bass module (sketch) that vents through the rear deck. The package will include a Delco/Bose cassette tuner that has controls for an optional twelve-disc CD changer.



CD player is available as part of an options package.

PONTIAC. A ten-speaker system featuring Delco's new 54-watt 2001 Series cassette or CD receiver, a seven-band equalizer, and steering-wheel controls has been reserved for the popular Firebird sports coupe. The speaker lineup includes a 6½-inch woofer/tweeter pair in each door, a 4-inch midrange/tweeter pair in the rear sidepanels, and a pair of separately powered 6½-inch woofers in the rear. The system is

in-dash cassette tuner is standard in the 928. A cassette-based eight-speaker Alpine system is standard in the 911 series (the Cabriolet has six speakers), and the 968 series comes with a similar six-speaker package. Options for 911 and 968 include an in-dash CD player and a six-disc CD changer.

SUZUKI. A four-speaker system with a 24-watt (maximum power) Clarion cassette receiver is standard in the Swift GS and GT and the Sidekick JS, JX, and JLX, optional in the Swift GA. Dealer-installed options include a Clarion CD player (\$500) and a Clarion six-disc changer that mounts under the driver's seat (\$700).

VOLKSWAGEN. A Blaupunkt speaker package is standard in all Golf and Jetta vehicles. It features four 1-inch dome tweeters—two in the dash and two in the rear—and four 6½-inch full-range drivers—two in the front doors and two in the rear. Each tweeter is mounted on an angled bracket to improve imaging. Standard equipment in the Golf GTI and Jetta GLS and GLX includes an 80-watt (maximum power) Panasonic cassette receiver with controls for an optional six-disc CD changer (\$495). A 40-watt (maximum power) Panasonic cassette receiver with a front-panel CD input is optional in the Golf GL and Jetta GL.



A 160-watt Delco Electronics system is standard in Cadillac's new De Ville Concours. It features twelve speakers, including a coaxial in the center of the dash to enhance imaging.



available as part of an options package for \$450 with cassette, \$676 with CD. The cassette package is standard in the Firebird Trans AM GT.

An early adopter of steering-wheel controls, Pontiac now offers this feature as an option in the Firebird, Grand Prix, Bonneville, and Trans Sport minivan. It's standard in the Firebird Trans Am GT, Grand Prix SE Coupe, and Bonneville SSE.

PORSCHE. A ten-speaker Alpine system featuring a six-disc CD changer, a 160-watt Blaupunkt amplifier, and an

The next time you go shopping for a new car, don't forget to take a few tapes and CD's along and ask for a stereo demo. Who knows, a sweet-sounding system may be all it takes to push you over the edge. □



The soldier on the right has it.

So does the soldier on the left. In fact, all the soldiers in this picture have the

**Can you find the \$30,000
in this picture?**

opportunity to earn \$20,000, \$25,000, or up to \$30,000 for college, for a two, three or four year enlistment respectively.

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DIGITAL ON THE AIR



In the decade since the first CD's arrived in stores, digital audio has become nearly ubiquitous. Digitally encoded sound is available in a variety of disc formats: regular CD, CD Interactive (CD-I), recordable CD (CD-R), CD-ROM for computers, MiniDisc (MD), and optical videodisc (laserdisc). And digital tape comes in almost as many varieties for both consumer and professional applications: digital audio tape (DAT), Digital Compact Cassette (DCC), DMR (Sony's tiny "Scoopman"), several VCR-based formats, and reel-to-reel studio systems.

With so many disc and tape systems, what's missing? The third medium—radio. In the past, whenever a new disc format came along, a broadcasting system of comparable fidelity arose at about the same time. With the 78-rpm shellac disc we had AM radio. The arrival of the vinyl microgroove LP in 1949 was accompanied by the rise of high-fidelity FM radio. When the LP converted to stereo in 1958, it was followed within five years by stereo FM. But today, in the second decade of CD, most of us are still listening to radio technology that is three decades old. There has been no fundamental change in radio's quality since the advent of stereo.

Happily, the picture is finally changing: Radio is going digital. In fact, digital radio is already available to several million U.S. homes via a cable-TV connection. Digital Cable Radio arrived in my home several months ago, and I enjoy listening to it every day. Its sound is so much better than that of FM that I have completely stopped listening to FM radio at home.

**Whether
broadcast or on
cable, digital
radio is emerging
as an exciting
new alternative
to FM.**



by

Peter W. Mitchell

I still enjoy FM in the car, and I make a point of catching NPR's "Car Talk" on weekends, but I no longer own a home stereo FM tuner. I now listen mainly to digital radio—even more than to my large collection of CD's, LP's, and tapes.

If cable-borne digital radio hasn't arrived in your town yet, odds are that you'll be able to sign up for it soon. Meanwhile, tests will begin this summer to select a U.S. standard for over-the-air digital audio broadcasting (DAB), which could commence as early as next year. The Canadian Broadcasting Corporation (CBC), which has already selected a standard for Canada, expects to begin digital broadcasts this fall in Montreal and Toronto and will have coast-to-coast digital radio within two years. Several U.S. companies are also developing methods for direct broadcast from satellite (DBS), which could provide nationwide service, including isolated rural areas and automobiles.

In the Beginning

The first experimental digital radio broadcasts began in Boston in 1986 and continued for several years. They didn't use the FM band, because 16-bit stereo digital audio has a data rate of about 1.4 million bits per second. When error-correction codes are added this number increases to more than 2 megabits per second, corresponding to a bandwidth ten times greater than that of an FM channel. Only one existing broadcast medium handles such frequencies with ease: television. NTSC TV signals occupy a 4.2-MHz bandwidth, and even the cheapest

VCR's have an effective bandwidth of about 2.5 MHz.

Any video medium can easily accommodate a digital audio signal in place of the TV picture. Until recently most professional and semi-pro digital recordings were made through a processor that converted analog audio to 16-bit digital codes and formatted the resulting bitstream as a pseudo-video signal for recording on a videotape recorder. Most CD's are mastered this way, using a U-matic ¾-inch professional VCR.

For several years WGBH-FM in Boston had been using such processor/VCR combos to record concerts on location for later broadcast and to relay the Boston Symphony's summer concerts from Tanglewood in western Massachusetts to Boston. For digital radio broadcasting, the video-format digital signal from a Sony PCM-F1 or PCM-701 processor was simply transmitted on TV Channel 44 via WGBH-TV's UHF sister station, WGBX-TV. The digital signal was broadcast for several hours each day when WGBX wasn't being used to air educational TV programs and the sessions of the state legislature.

Anyone in the area who tuned a TV set to Channel 44 during a digital radio broadcast saw the digital code itself on the screen—a dancing pattern of black and white dots, dashes, and bars. To hear these broadcasts, you had to select the channel with the TV tuner in a VCR and connect its composite-video output to a PCM-F1 or equivalent processor to decode the signal.

In addition to the usual FM fare (music played from LP's and CD's), the digital broadcasts included live in-studio performances of chamber music and digital recordings of Boston-area concerts. These remained in their original digital form until they were received and decoded in listeners' homes. For one concert the microphone signals were digitally encoded in Tokyo, relayed by a satellite video link from Japan to Boston, and then broadcast unaltered on Channel 44.

The digital broadcasts were simulcast with WGBH's highly regarded FM service, providing an ideal opportunity to do digital versus FM sound comparisons. I had excellent reception for this purpose, with a direct line of sight from my roof antenna to WGBH's transmitter. The digital sound was noticeably clearer and qui-

eter than the best FM, with strikingly better definition of details. The difference in clarity was particularly obvious in an announcer's voice, close-miked in an acoustically dead studio. The digital version was dead silent, and every little vocal-cord resonance was distinct. The FM version sounded like the playback from a tape, slightly veiled and accompanied by a constant low-level shushing noise. (Few FM stations achieve a signal-to-noise ratio of better than 70 dB in stereo, and all FM stations employ 75-microsecond treble pre-emphasis followed by a limiter to prevent overmodulation, which squashes high frequencies during high-level transients and climaxes.)

Technically, the WGBH digital radio experiment was a great success. But it also illustrated three reasons why this method of digital broadcasting could not become widespread:

1. Multipath interference (from reflected signals) produces distortion in FM and ghosts in TV, but it may corrupt a digital bitstream so badly that the decoding fails and the sound is interrupted. I had excellent reception of WGBX, but many at other locations were less fortunate. For digital radio to succeed it must be designed to be multipath-proof.

2. UHF transmitters are costly to build and operate. A UHF TV station needs a million-watt transmitter to cover the same geographic area as a 50-kilowatt FM station. The monthly electric bill alone exceeds an FM station's entire annual budget.

3. There are not enough spare UHF slots to permit allocating twenty or thirty channels for digital radio in every city, especially since the Federal Communications Commission (FCC) wants to reserve some UHF slots for high-definition TV (HDTV). For digital radio to be practical, it must employ a coding scheme with a reduced bit rate, so that a dozen or more digital radio programs can be squeezed into a single TV channel.

Digital Radio via Cable

Not surprisingly, the first widely available system of digital radio is avoiding these obstacles by employing satellite relays and cable-TV hookups. The distribution system that provides ghost-free television to two-thirds of the nation's households is equally able to deliver a digital bitstream that is free of multipath-induced dropouts. And as local cable companies increase their capacity to fifty or more channels, they can add digital radio signals without sacrificing any other service.

Two companies are delivering digital radio now to listeners around the country via cable-TV systems. Digital Music Express (DMX) is a service of International Cablecasting Technologies in Los Angeles. Founded by former ABC Records and HBO executives, it uses technology from Scientific Atlanta, a major manufacturer of the satellite uplink and downlink equipment that many cable systems use. The competing service that I'm enjoying, Digital Cable Radio (DCR), is a division of Jerrold in Hatboro, Pennsylvania, the well-known manufacturer of television antennas and cable decoders. These services are available to about ten million households now, and dozens of local cable companies are adding the service each month.

In many ways DCR and DMX are similar. Each plays CD's twenty-four hours a day without a break on racks of players that yield thirty continuous programs of music. The 16-bit pulse-code-modulation (PCM) outputs from the players are recoded at a lower bit rate, and the programs are multiplexed together to form a composite bitstream that is uplinked to a satellite. The DMX broadcast is produced in Atlanta (the home of CNN), while the DCR signal originates in New York. Local cable-TV companies receive the digital signal from the satellite, amplify it, and put it on the cable (along with local and national TV programs) for distribution to subscribers' homes. Portions of the digital radio signal are assigned to unoccupied channels at the edges of the cable band that aren't used for TV because of noise or interference that would affect the picture. Other portions of the digital signal may be squeezed into the narrow gaps between cable-TV channels. This tactic enables digital radio to be added to a cable system without sacrificing existing TV channels.

In a subscriber's home, a splitter feeds the combined signal to the cable-TV decoder and to a digital-radio tuner. In the tuner the composite digital code is unscrambled, so that you can choose any of the thirty programs, and the signal for the selected program is decoded for listening. The analog stereo output from the tuner is fed to an auxiliary line-level input on your stereo amplifier.

The result is like being able to choose among thirty top-quality radio stations, all with uniformly strong signals and consistently excellent reception—with no hiss, static, fading, interference, or multipath distortion. And because the signal remains digital

DCR AND DMX: THE CABLE CONNECTION



THERE are many similarities between the two current cable digital radio services, Digital Cable Radio and Digital

Music Express, but there are also some differences. They use different digital compression systems, with the result that they sound very slightly different (DMX is probably a little quieter and more transparent), and until recently DMX offered more channels of music—thirty versus DCR's nineteen. In May DCR changed to a different satellite transponder and now offers thirty-channel service, but in some old cable systems with restricted capacity DCR is still limited to nineteen channels. In the future, as cable systems expand, both DMX and DCR will provide many more channels, including nonmusic formats focused on information, sports, etc.

Following are the current channel lineups for DMX and DCR:

- DMX: Symphonic, Chamber Music, Opera, Light Jazz, Classic Jazz, Big-Band and Swing, Classic Rock, 50's Oldies, 60's Oldies, Folk Rock, Modern Country, Traditional Country, Latin Ballads, Latin Rhythms, Soul Ballads, Blues, Dance, Reggae, Rap, Love Songs, Great Singers, Easy Listening, New Age, Hot Rock Hits, Album Rock, Heavy Metal, Alternative Rock, Show Tunes, World Beat, and Contemporary Gospel.
- DCR: Brief Classics, Full-Length Classics, Classical Adventures, New Age, Easy Listening, Love Songs, Contemporary Jazz, Mainstream Jazz, Blues, Classic Album Rock, Solid-Gold Oldies, Soft Rock, Progressive Folk-Rock, Modern Rock,

Heavy Metal, Top Hits, Dance Rhythms, Rap, R&B Beat, Reggae, Latin Pop, Latin Rhythms, Contemporary Gospel, Modern Country, Traditional Country, Gold Country, Big-Band/Nostalgia, Show Tunes, Kids Only, and Spectrum (varied formats, including bluegrass, Cajun, Mexican, Dixieland, and "Audiophile Auditions").

As these lists illustrate, one advantage that a nationwide broadcast system has over local stations is its ability to serve very specialized audiences. In any major city the audience for Top-40 rock is large enough to support several FM stations, but few cities can support more than one or two classical stations and perhaps only one jazz station. DMX, by contrast, gives you three classical stations, three jazz stations, eight varieties of old and new rock, and even a station devoted to Broadway musicals. Ditto for DCR. In an average city only a few thousand listeners may want to hear opera or chamber music on a typical day, but the combined audiences in a hundred cities add up to a substantial total. And both DMX and DCR are expanding—today into Mexico and Canada, tomorrow the world.

So, just as cable TV now has a channel devoted just to science-fiction programs and another channel just for comedy, DMX has a channel just for opera—and one for rap, one for heavy metal, one for folk-rock, one for big-band jazz, one for chamber music, and so on. In addition to such special-interest formats, both DMX and DCR offer (at each cable system's option) the soundtracks of premium TV channels in digital form. In my system, for example, DCR's nineteen channels of music are supplemented by six channels of digital TV sound—premium movie services plus the music-video channels MTV and VH-1.

The digital sound of HBO and Showtime is very much like that from laserdiscs.

Compared to MTS analog stereo TV, the digital soundtrack delivers clearer details, more brilliant highs, deeper and cleaner low bass, a wider stereo soundstage, and more spacious Dolby Surround decoding. These benefits could make digital radio via cable a worthwhile investment for A/V home theater owners even if they have little interest in music.

There are no DJ's and no program guides, so you can't know in advance what music will be played when. Besides providing music without interruption, this arrangement is intended to discourage home taping—and to avoid lawsuits from record companies. How can you know what you're listening to? The current title, performer, composer, and record label are displayed on the remote control. (DCR is just now upgrading to this option; in the past DCR provided song ID's only via a toll-free phone number.)

DMX has also been the more audiophile-friendly of the two services. The DMX tuner has a smooth-sounding MASH 1-bit digital-to-analog converter and also has an optional coaxial digital output for the benefit of anyone who prefers to use a separate D/A converter. (A new DCR tuner with a digital output will be available this fall.) This output can also be used for digital recording, if you don't mind recording blind without knowing what will be played next.

Ultimately the differences between DMX and DCR may not matter much, since you're not free to choose between them. Your local cable-TV company will offer either DMX or DCR, but probably not both. What really matters most is that each system is playing more than 8,000 selections every day through thirty channels of near-CD-quality sound. If you like CD's, you'll like digital radio. —P.W.M.

until it is decoded in your living room, every program has clarity, brilliance, and dynamic range approaching that of a CD.

For many people the greatest attraction of digital radio via cable is that it is a pure-music service—around-the-clock commercial-free music with no advertising jingles, no boring public-service announcements, no interruptions for news and weather, and no chattering disk jockeys. Just music, all music, all the time. In a nutshell, DMX and DCR do for radio what HBO and Showtime did for TV.

The price for twenty or thirty channels of nonstop near-CD-quality music is similar to that of a premium-movie service such as HBO: about \$10 a month, give or take a dollar a two. (The exact amount is decided by your local cable company.) This price includes the programming and the rental of the required digital tuner. Of course, since the digital radio signal is piggybacked on the same coaxial cable that is carrying dozens of TV channels, you must also subscribe to basic cable, even if you never watch TV.

I think the best reason to subscribe to digital radio is that it provides an excellent way to preview CD's before buying. Reviews are helpful, but I like to hear recordings and make up my own mind. You can judge the musical appeal of a disc fairly well from FM, but digital radio provides a far clearer impression of its sound quality.

Digital Radio via Local Transmitters

Cable delivery is limited to homes, but many people have more time to enjoy music in their cars than in their living rooms. Moreover, DCR and DMX are national networks, but the U.S. has a long tradition of locally originated broadcasting. So there are strong incentives to develop methods of digital audio broadcasting (DAB) from local stations.

The essential groundwork that will make DAB possible was established in a \$40-million development project that was sponsored by the European Broadcasting Union (EBU), with technical input from Philips, Grundig, the Munich Institute for Radio Technology, and the BBC. Named the Eureka-147 project, its aim was to develop a cost-effective all-digital successor to FM radio. The first on-air broadcast demonstrations took place

during 1988-1989 in Geneva, Switzerland. The dramatic success of these experiments led to further refinements and to test broadcasts by the CBC in 1990 and 1991.

The Canadian tests were so impressive that the National Association of Broadcasters (NAB) decided to try to establish the Eureka system as the U.S. standard as well. But then another approach surfaced, called Project Acorn. This system was developed by USA Digital, which is a consortium of three existing broadcast-radio networks (CBS, Gannett Radio, and Westinghouse's Group W). Project Acorn demonstrated that digital radio could operate not only within the FM band, but even within the bandwidth of a single FM station. Just a couple of years ago this was widely thought to be so totally impossible that it would not even be worth attempting.

Eureka-147, Project Acorn, and other proposed systems of digital radio are based on three remarkable advances in technology:

1. Perceptual coding. Digital radio fits into cable TV systems with only a modest reduction in bit rate. But a far more drastic compression of the bitstream is needed to fit digital radio into the 200-kHz bandwidth of a single FM channel. This involves "perceptual coding"—digitizing only the sounds you can hear. Typically this begins by dividing the audio spectrum into about thirty narrow bands, then omitting sounds in each band that are either below the threshold of audibility at that frequency or momentarily "masked" (drowned out) by louder sounds at adjacent frequencies.

The Eureka and Acorn systems employ Musicam perceptual coding, whose bit rate of 192,000 bits per second for stereo is only one-seventh of CD's 1.4 million bits per second. Musicam is technically similar, though not identical, to the PASC system used in DCC. At the April 1993 NAB convention, AT&T engineers demonstrated a new perceptual audio coding (PAC) system with an even higher 8.8:1 compression ratio, yielding just 160 kilobits per second. In an impressive A/B comparison, I found that it was exceptionally difficult to distinguish PAC-processed copies from original recordings.

2. Frequency diversity. Multipath interference causes amplitude modulation of an FM carrier—rapid variations of 10 to 50 dB in signal strength. On a city street the resulting "fade notches" may be only a few feet wide, spaced less than 100 feet apart, and

they also vary according to frequency. So to avoid data losses, a digital radio bitstream won't be transmitted at a single frequency. Instead, the code is split up and interleaved among dozens of closely spaced carrier frequencies. When bits are corrupted by multipath cancellation at one frequency, redundant portions of the code will be received clearly at adjacent frequencies. As the code is reassembled in the receiver, the undamaged data fill in most of the missing bits, leaving only small gaps in the code that can be reconstructed easily by error correction. This system of frequency interleaving for digital radio is similar to the spatial interleaving that is used in the CD system to prevent data loss from small scratches and dust particles.

In the case of the Eureka-147 system, multipath resistance is enhanced by combining signals from a half-dozen digital radio stations in a composite code that is divided among many frequencies spanning a band 1.5 MHz wide. For its part, the Project Acorn system sends, forty times per second, a standard bit pattern that is known to the receiver, which adaptively equalizes the incoming signal (in the digital domain) to optimize its reception.

These methods really work. Project Acorn splits its code among twenty-one carrier frequencies, and in tests on the West Side Highway in New York City and on hilly San Francisco streets—two of the toughest reception areas in the country—severe multipath interference took out only a few of the carriers at a time. In Eureka demonstrations in Geneva, Toronto, and Las Vegas, FM and digital programs were transmitted simultaneously while observers listened on headphones in mobile vans. The digital signal was received clearly even in tunnels and underpasses, while the FM signal became noisy or distorted, or collapsed to mono.

3. Low-power digital modulation. As I mentioned earlier, UHF TV transmitters typically require a megawatt of transmitter power to cover a normal-size reception area. But DAB developers have discovered one of the great advantages of digital broadcasting: Even a very weak signal may be received well enough for flawless decoding with full signal-to-noise ratio. (This characteristic was essential to the operation of the Voyager space probes that sent digitally coded pictures back from Uranus and Neptune, their signals having been attenuated to less than a trillionth of a watt by the time they reached Earth.)

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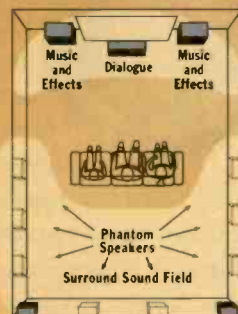
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GETTING THE HUM OUT



THE first day I had DCR in my home I enjoyed the clarity of the sound. The next day I began to be bothered by the fact

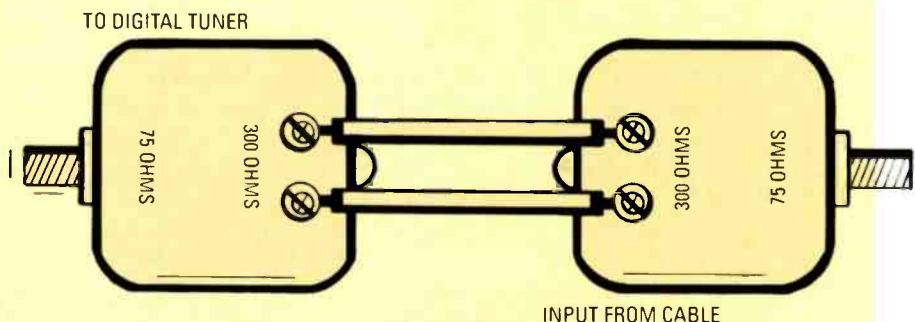
that every channel was accompanied by low-level hum and buzzy midrange harmonics of the 60-Hz power-line frequency. Such hum is a frequent problem when stereo components are connected to cable-TV systems. Some part of your stereo is likely to be grounded, perhaps through the third pin of an AC power cord. The cable-TV hookup is also grounded somewhere in your neighborhood, preferably not too far from your house, and there may be other signal amplifiers in the path between you and the cable company's "head-end." When you connect the digital cable tuner to your stereo, the physically separated grounds may create what's called a ground loop, causing a small amount of power-line leakage current to flow in the shields of the cables connecting the digital tuner to your amplifier. Result: hum and buzz. There are several possible ways to cure this problem.

1. Your cable-TV company may be familiar with the problem. If you're really lucky the installer who brings the digital tuner to your house may be conscious of the need to identify and eliminate ground loops, perhaps by regrounding the cable-TV hookup outside the wall of your house. (In fact, the National Electrical Code requires, for safety, that the cable be grounded where it enters the building.) Or he may install a ground-loop isolator where the cable is split to feed both the digital tuner and the TV or cable converter.

2. You may be able to isolate the

grounds by connecting two baluns back to back. A balun (balanced/unbalanced) adaptor contains a small transformer that converts from the screw-type F connector of a 75-ohm unbalanced coaxial cable to a 300-ohm balanced twin-lead antenna connection. Such adaptors are commonly included with FM tuners, VCR's, and TV sets. If you have been collecting audio and video equipment for a few years, you may have a couple of these adaptors in your accessories box. Simply connect the 300-ohm sides of two baluns together, as shown in the sketch. This worked for a friend of mine but not for me.

3. In my system the cure was a dose of



MAGIC—the Mondial Antenna Ground Isolation Circuit. This little box from Mondial Designs of Ardsley, New York, has gold-plated F connectors for input and output, plus a threaded stud for an optional ground wire. Connecting it ahead of the splitter that feeds my cable converter and DCR tuner eliminated the hum and buzz. But it also introduced a line of white static floating up the TV screen every few seconds. This line of interference is related to the difference between the 60-Hz power-line frequency and the 59.94-Hz vertical-scan rate of NTSC color TV, and it disappeared when I connected a wire from the ground post of the MAGIC box to a good electrical ground.

Later, when I replaced my audio preamp

with another model that has a different internal grounding scheme, the hum and buzz came back. In this case the cure was to *disconnect* the ground wire from the MAGIC box, but at occasional intervals the floating line of 60-Hz interference reappeared in the picture. The final solution was to connect the ground isolator between the cable splitter and the digital tuner. Now only the tuner is ground-isolated (my TV, cable converter, and VCR are connected directly to the cable), and the picture is fine.

I also experimented with ground isolators produced by Sonance, the well-known maker of in-wall speakers. The

Sonance devices are sold by dealers who specialize in custom A/V home theater installations, which often involve connections from cable TV to wide-range audio systems. The Sonance RFGI-1 connects at the cable input in the same way as the MAGIC box, and both devices eliminated the hum and buzz with equal success (yielding a 20-dB improvement).

The Sonance AGI-1 takes a different approach: It is a line-level ground isolator intended for connection between audio components. When installed between the DCR tuner and my preamp, the AGI-1 produced a useful degree of hum reduction, but the RFGI-1 and MAGIC isolators, installed at the cable input, totally eliminated the hum and buzz. —P.W.M.



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Digital radio is subject to a very sharp threshold effect. If the received signal and the noise are at the same level, the error rate in decoding is so high that no listenable signal can be obtained. But when the received signal is just slightly stronger than the noise, decoding becomes completely reliable and the decoded signal exhibits the medium's full 90-dB signal-to-noise ratio (S/N).

This is very different from FM, which requires about one microvolt (millionth of a volt) into 75 ohms for recognizable but noisy reception. Above that level, the S/N of the recovered audio signal improves gradually as the signal strength increases. FM tuners typically need several hundred microvolts of input signal to reach what is known as full quieting—their maximum S/N.

The CBC's experimental Eureka broadcast in Toronto, operating in the UHF band, used a 500-watt transmitter for the combined signals of six digital programs, or less than 100 watts per program. Similarly, the Project Acorn system is said to need only 100 watts to cover the same geographical area as a 50-kilowatt FM station. The Acorn digital signal would be centered at the same broadcast frequency as a station's FM transmission but would be 30 dB lower in level, effectively buried under the analog signal. In a demonstration at last year's NAB convention, the Acorn DAB receiver successfully canceled out the analog FM signal in order to extract the digital signal buried beneath, using techniques borrowed from military communications. At this year's convention Project Acorn provided an even more amazing demonstration: digital stereo buried under an AM broadcast, contained within AM radio's standard 10-kHz channel bandwidth!

Choosing a Standard

As mentioned earlier, the Canadian Broadcasting Corporation has already selected the Eureka-147 system for nationwide digital broadcasts that are scheduled to commence by 1995 in a band of frequencies near 1,500 MHz. Since the Eureka system is also being adopted in several European countries, and tuners for it will be widely available, Thomson Consumer Electronics is sponsoring a proposal to make it the U.S. standard as well.

Meanwhile, though Project Acorn demonstrations have gained the most attention, several other DAB systems have also been proposed for operation in the FM band. Two of these would

**Nationwide
digital radio
service could be
provided via
direct satellite
broadcasts to
palm-size
antennas.**



place signals in the blank spaces between existing stations. And five companies are proposing to provide nationwide digital radio service to both car and home via satellite relays in the 2,300-MHz band. At that frequency the receiver could use a palm-size hemispherical antenna resembling half a grapefruit. Installed round side up on the roof of a car, it could pick up signals from satellites anywhere in the sky—and wouldn't have to be reaimed when the car turned a corner.

Beginning this summer a committee of the Electronic Industries Association (EIA), assisted by the National Radio Systems Committee (NRSC), will conduct tests of all of these proposals and attempt to identify the best one. The tests will evaluate each DAB system's sound quality and resistance to multipath, static, and various forms of interference (including any interference between FM and digital signals at the same or adjacent frequencies).

The EIA's hope is that a voluntary standard for DAB may be adopted by both broadcasters and receiver manufacturers—a standard that the FCC would simply endorse, similar to the way the MTS system of stereo TV sound was adopted in 1984. Broadcasters are hoping that the best system will turn out to be one like Project Acorn whose digital code is buried under analog FM and AM signals. In that case existing radio stations would be able to simulcast their programs in both analog and digital form, and there might be no need for any FCC authorization process at all. Digital broadcasting could commence next spring.

If the best system turns out to be one that can't be buried under existing signals, or if the industry fails to unite behind a standard, the FCC may have to become involved in choosing a system or assigning frequencies. That would delay the start of DAB until 1996 or later, giving the cable systems DMX and DCR a clear field. Congress may also get involved. Fearing that the combination of digital radio and home digital recording will stimulate more home taping and undercut sales of new recordings, the recording industry wants Congress to pass laws inhibiting digital recording off the air. Such laws would prohibit album-length digital broadcasts and would require SCMS subcodes in digital broadcasts, so that digital-to-digital copying of off-the-air recordings would be blocked.

Stay tuned. Meanwhile, call your local cable-TV company. If they're not providing a digital radio service now, how soon will they add it? □



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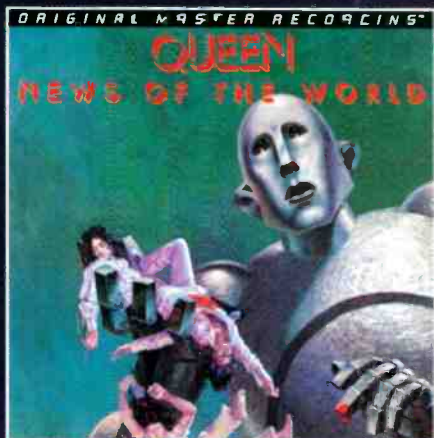
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ULTRADISC II



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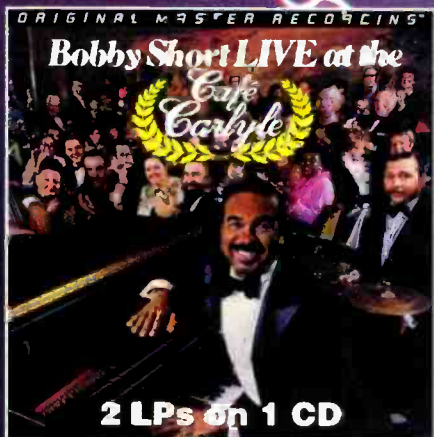
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CURRENT RELEASES

The Triumphant Return of Billy Joe Shaver



Twenty years ago, Billy Joe Shaver looked as if he might lead the Nashville pack. A full-fledged Texan and part-time poet, Shaver drifted up to Music City the first time he heard Waylon Jennings sing. Jennings was so impressed with Shaver's tender-tough songs of bad breaks and frayed dreams that he recorded an entire album of his songs ("Honky Tonk Heroes") and later remarked that "What Waylon Jennings's image is, Billy Joe Shaver really is." Still, though he was the embodiment of the Seventies Outlaw music movement credited to Willie Nelson and Jennings, and though for a while everybody from Dottie West to Bobby Bare covered his eloquent songs of hope and desperation, Shaver was ultimately too raw-boned, too independent, and just too real to last long in Seventies Nashville.

"Tramp on Your Street," his new album on Zoo, is only Shaver's second in ten years, and it was worth the wait. A stunning and deeply affecting collection

ODE TO BILLY JOE

None of Billy Joe Shaver's previous albums are currently on CD. Should "Tramp on Your Street" attract the attention it deserves, however, look for these LP's as likely reissues.

Old Five and Dimers Like Me
MONUMENT, 1973

When I Get My Wings
CAPRICORN, 1976

I'm Just an Old Chunk of Coal
COLUMBIA, 1981

of honky-tonk and gutbucket rock-and-roll, it is the finest country album of the Nineties so far. From the opening song, *Heart of Texas*, which paints a prideful portrait of a boy abandoned by his father and raised by a mother who picked cotton in the Texas sun to get her family by, to the closing *I Want Some More*, a blood-curdling blues about abandonment of the romantic kind, this album is a cold stare into the face of reality. Along the way, it peels back America's facade as the land of prosperity, equality, and opportunity to expose a nation of dramatic extremes—of wealth and wrenching poverty, of guaranteed civil rights and generations of Native Americans still waiting for their fair share, of clear-cut class struggles.

Throughout, Shaver is backed by a stripped-down, four-piece roadhouse band led by his son, Eddy, who plays a raving, lunatic guitar with the same emotional directness his father employs in writing songs. It is a perfect marriage of musical and verbal economy, even if Eddy's overwhelming guitar effects distract from the business at hand on *When the Fallen Angels Fly*, a love song of rejuvenation and pain that harks back to Shaver's brief period under the spell of Kris Kristofferson.

That Shaver can turn out an album like this so long after his (near) glory days and subsequent disappearance from even the fringe of commercial country music is a wonder. That he can write an autobiographical song like *If I Give My Soul*, in which a sinner searches for renewed dignity and restored love not only from God, but also from himself, is even more impressive. And that an album this real came out of Nashville in 1993 is simply a miracle.

Alanna Nash

BILLY JOE SHAVER Tramp on Your Street

Heart of Texas: Oklahoma Wind; Georgia on a Fast Train; Live Forever; If I Give My Soul; Tramp on Your Street; Good Ol' USA; The Hottest Thing in Town; When the Fallen Angels Fly; Take a Chance on Romance; Old Chunk of Coal; I Want Some More; Heart of Texas (reprise)
ZOO 72445-11063 (48 min)

BEST OF THE MONTH REVIEWS

"Death and the Maiden" Meets "Black Angels"

ELECTRA CLASSICS



The Brodsky Quartet

The concept behind the Brodsky Quartet's CD pairing of Schubert's most popular string quartet, the moving "Death and the Maiden" (No. 14), and the extraordinary *Black Angels* for Electric String Quartet by the American avant-garde master George Crumb is the use in both of the same melody, the song from which the Schubert work takes its name. "Death and the Maiden" gives voice to a poignant individual tragedy. *Black Angels*, subtitled "Thirteen Images from the Dark Land," sets forth what Crumb calls "a parable on our troubled contemporary world." (And that was back in 1970!)

The character of the Brodsky's Schubert performance befits its coupling. It is stern and unrelenting, and the drive and precision of the playing is Toscaninian. In the famous variations on the title melody, the inner balances are exquisitely calculated. The hectic finale comes through with unmatched ferocity. In short, this is not your typical Schubert recording.

Black Angels receives its fifth recording here, the second with digital technology—which is necessary for its fullest realization. The whole armamentarium of

post-Bartok chamber-music writing is brought into play: The four string instruments are electronically amplified and subjected to reverberation. The players contribute vocalizations from time to time in a rainbow of languages and provide additional sonorities from maracas, tam-tam, and tuned water-glasses. The result is eerie, indeed chilling.

The CD booklet includes Crumb's account of the numerological symbolism behind the thirteen "images," which are

in three groups evocatively titled "Departure," "Absence," and "Return." Yet for all the intricacy of the work's construction, the impact of hearing *Black Angels* is soul-shattering, particularly in the Brodsky's extraordinary performance.

The recorded sound in both works is absolutely top-of-the-line. Whether you opt for this Teldec CD or the rival digital recording of the Crumb by the equally formidable Kronos Quartet, on a Nonesuch CD with more varied (even oddball) programming, is a matter of taste. I definitely lean toward the Teldec—it adds up to a sonic experience you won't easily forget.

David Hall

SCHUBERT: String Quartet No. 14, "Death and the Maiden"

CRUMB: *Black Angels*

Brodsky Quartet

TELDEC 76260 (67 min)

B.B. King: Serious Blues

Ever since the 1960's, when his gritty voice and guitar entered the mainstream, B.B. King has reigned over the blues. Now he reaffirms his majesty on "Blues Summit," a new MCA album that presents him in a series of inspired duets with eleven major blues and R&B figures whose styles range from the traditional Mississippi drone of John Lee Hooker to the new-fashioned urban plaints of Robert Cray.

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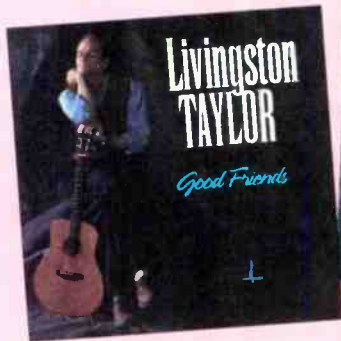
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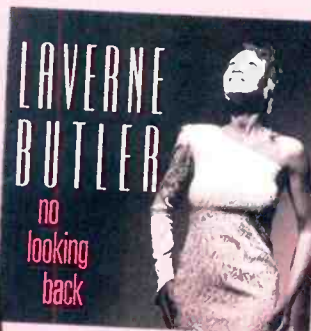
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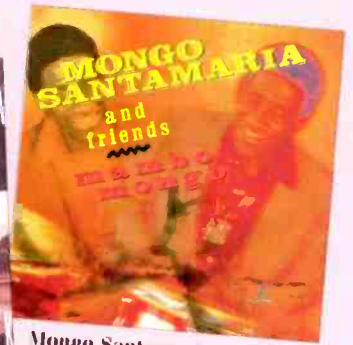
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BEST OF THE MONTH REVIEWS

sessions in Memphis and Berkeley, the dozen selections here reflect the spirit of the occasion, in which the artists were free to contribute their own ideas. This led to some exceptional (and deceptively spontaneous-sounding) collaborations, as on *Call It Stormy Monday*, where King's searing vocal rendition gives way to a cool but razor-sharp reading by Albert Collins before the two trade guitar links. Magic. Repartee also comes naturally in such a setting, and King is at his best matching wits with some formidable blueswomen. Katie Webster extols him as "the man who will treat me like the B.B. King queen I am, the swamp-boogie queen," and Ruth Brown warns that she's been after him for years but might be able to catch up with him now since "you runnin' slower than you used to . . ."

The album will offer broader exposure to deserving artists like Koko Taylor and Lowell Fulson, but it clearly belongs to King. That is underscored on *I Gotta Move Out of This Neighborhood/Nobody Loves Me but My Mother*, the sole track featuring him alone with his band. It's the sort of material that no one else does as well as he does, especially when he feigns tears and comes up with the line "Nobody loves me but my mother . . . and sometimes I think she could be jivin' too . . ." B.B. King has been making records for more than four decades, but he's still at his peak. *Phyl Garland*

B.B. KING

Blues Summit

Playin' with My Friends: Since I Met You Baby; I Pity the Fool; You Shook Me; Something You Got; There's Something on Your Mind; Little by Little; Call It Stormy Monday; You're the Boss; We're Gonna Make It; and two others
MCA 10710 (63 min)

In Tune with Schumann

Heinrich Schiff is not the first cellist to record all of Schumann's works featuring that instrument in a single package, but he must be the first to bring all of them to life in such a compelling and utterly Schumanesque way. On his new Philips CD Schiff is partnered in the Cello Con-



The cellist Heinrich Schiff

certo by the Berlin Philharmonic under Bernard Haitink, whose Schumann credentials were glowingly presented in his recordings of the four symphonies with the Concertgebouw Orchestra. In the three works for cello and piano—the Adagio and Allegro, Op. 70, the Op. 73 *Fantasiestücke*, and the *Fünf Stücke im Volkston* (*Five Pieces in Folk Style*), Op. 102—his keyboard associate is Gerhard Oppitz, who has presented his credentials in numerous recordings of several of Schumann's works for piano solo. There is more than a general mutuality of approach evident in these performances: There is an altogether uncommon sense of the most joyous stimulation, of real, exhilarating give-and-take, in response to music all these performers not only respect but genuinely love.

Refinement comes so naturally to all these musicians that there is never any question of their enthusiasm getting out of hand; it makes itself felt in the most positive ways, in the caressing of songful passages as well as the enlivenment of fast ones. In the latter respect the finale of the concerto should be an especially happy surprise to listeners who may have found just a touch of the ceremonial in the way it is sometimes presented to us. Schiff and Haitink make the music—or, rather, *let* the music—smile and dance.

They acknowledge an earthy quality in it that sets off the lyricism of the preceding sections to the greatest advantage.

And so it is throughout this wonderful hour, with everyone at the top of his form and remarkably attuned to that undercurrent of nervous intensity that makes Schumann's particular sort of spontaneity so personal and so unmistakable. Every movement of the three duo works is superbly characterized, and they are laid out on the CD in a sequence that does not merely conform to chronology but builds to a real culmination of warmhearted good humor in the *Five Pieces*. No condescension here, no fussing or posturing—and no slacking off of the aforementioned refinement, either—and yet we do not often get to hear performers on any level so clearly (and infectiously) enjoying themselves.

In this case we hear them—Schiff in particular—a little closer in focus than might be ideal. But I suspect many listeners may simply find that in keeping with the overall warmth and robustness of the musicmaking. *Richard Freed*

SCHUMANN: Cello Concerto; Adagio and Allegro, Op. 70; Fantasiestücke, Op. 73; Fünf Stücke im Volkston, Op. 102

Schiff; Oppitz; Berlin Philharmonic, Haitink
PHILIPS 422 414 (60 min)



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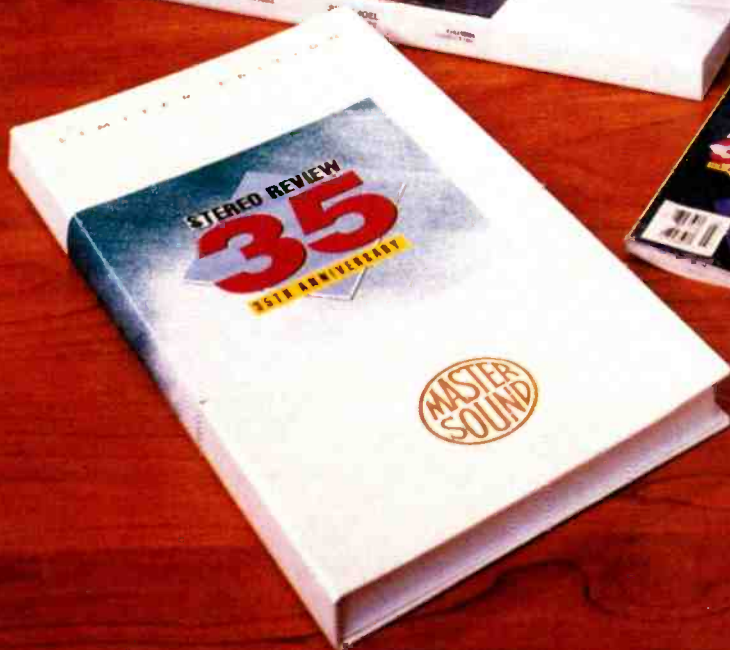
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(from the "Blonde On Blonde" album)

Janis Joplin, *Me & Bobby McGee* (from the "Pearl" album)

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RON GIVENS, ROY HEMMING,
ALANNA NASH,
PARKE PUTERBAUGH, AND
STEVE SIMELS**

DEBORAH ALLEN

Delta Dreamland
GIANT 24485 (42 min)

Performance: Bobbi Gentry meets Cher
Recording: Very good

Deborah Allen's had a strange ride. She first hit the country charts in 1979 singing a dubbed duet with the long-dead Jim Reeves, and then carved out quite different territory with hits of her own (the emotional *Baby I Lied, I've Been Wrong Before*, and *I Hurt for You*). Now, after a long hiatus from recording, she's back with an album that draws equally on the Memphis sound—some evocative, if contrived, Delta mood setting in the title song and in *Rock Me (In the Cradle of Love)*—and on her big, caterwauling pop pretensions (*Chain Lightning*).

Along with husband Rafe Van Hoy, who produced this album, Allen has written hits for Tanya Tucker and Patty Loveless, and she's had her songs recorded by Diana Ross, Sheena Easton, and Brenda Lee, with whom she shares some vocal similarity in the hillbilly shuffle of *Emotional Moon*. As long as she keeps to the smaller moods, Allen is most effective. When she wades out into Deep Pop Waters, however, not even Moses can touch her for drama.

A.N.

BABES IN TOYLAND

Painkillers
REPRISE 45339 (51 min)

Performance: Riotous
Recording: Chaotic

It used to be that objectifying members of the opposite sex was something only male rockers got away with. That's all changed with female groups like Babes in Toyland, who proudly and fiercely sing, "He's my thin-n-g-g-g, stay away from my thing" (Patti Smith as punk brat without beat-poet illusions). Babes in Toyland play their instruments as if they just discovered them—i.e., badly—but it doesn't matter, 'cause attitude's what they're about. *He's My Thing* is the one song here where it all works—post-feminist militancy, punky bloodletting, chewing and spitting out mass quantities of gender-based frustration into a tidy 2:51. The rest of "Painkillers" sounds like harpies fulminating at full throttle, making less sense the shriller they get. You've come a long way, baby.

P.P.

BROTHER PHELPS

ASYLUM 61544 (36 min)

Performance: Healed!
Recording: Appropriate

Ricky Lee Phelps was much of the magic in the Kentucky HeadHunters, his lead vocals and, ahem, unusual appearance (Ricky Lee was the one who wore a hunting knife strapped to his leg) giving the band its dangerous abandon. Last year, Phelps and his bass-

playing brother Doug left the HeadHunters in a disagreement over musical direction. The Phelpses wanted to do some Crosby Stills & Nash-style country-rock and occasional love ballads, instead of just screaming down-home blues and rock all the time.

Now, on their debut as Brother Phelps, Ricky Lee and Doug live up to their own expectations—the title song is very reminiscent of CS&Y in both structure and harmonic approach, which isn't all that exciting, since CS&Y continue to do CS&Y better than anybody else.

Past that, however, the Phelpses come up with some wonderful material. Some of it they wrote with their former band members (the

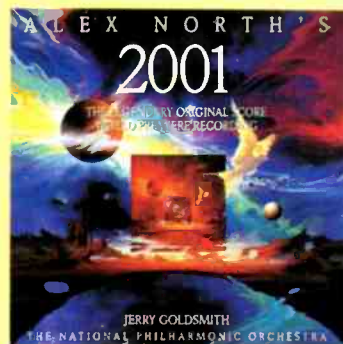
country-jazz *Everything Will Work Out Fine*), or on their own (the boogie-country of *Were You Really Livin'*), or were just lucky enough to find (*Eagle over Angel*, the world's first love song to a tattoo). As before, the brothers combine bits of old-style country or bluegrass with Sixties and Seventies rock, as on *Watch Your Step*, an anti-racism plea with an updated Everly Brothers via Steppenwolf and Bo Diddley sound. The Phelpses continue to make tame, yet captivating authentic country on the rousing *Hot Water*, an old-timey sounding tune with bluegrass harmonies, and on *Ever-Changing Woman*, a terrific, country-to-the-bone song they copped off a Merle Haggard album. The surprise of this record is not how beautifully the Phelpses take up where the HeadHunters left off, but how well they perform a variety of subtle subgenres of country and country-rock. Except for the CS&Y groove. That's too mellow for anyone who ever wore a hunting knife on his leg—and not just for show.

A.N.

What the ?!?! of the Month

Ever wonder what Stanley Kubrick's classic *2001: A Space Odyssey* might have been like if the director had used original music rather than existing classical selections? Well, it seems that at MGM's insistence, Kubrick actually hired the great composer Alex North (*Spartacus*) to write a score—without telling him he had no intention of using it. Now, at long last, North's *2001* has been recorded, and what a fascinating artifact it is, in part because some of it resembles, eerily, what Kubrick finally chose. In the end, of course, Kubrick knew what he was doing—postmodern irony and all that—but if you want a truly psychedelic experience, try listening to "Alex North's 2001" (Varese/Sarabande 5400) while running those famous spaceship visuals past your mind's eye.

S.S.



DEEP PURPLE

The Battle Rages On
GIANT 24517 (50 min)

Performance: Grow up!
Recording: Heavy

The problem with Deep Purple isn't that they can't play (chops are intact, as you might expect) or that they're too old to rock and roll. The truth is, after all these years, they don't really have an identity. Although all hands are on deck from the primo Purple lineup of the Seventies (Gillan, Lord, Blackmore, Paice, and Glover), they thunder and plod as derivatively as any nameless crypto-metal combo, leaving dinosaur tracks in the muck. *Lick It Up* not only steals a Kiss title, but Ian Gillan sings it in lascivious and ludicrous mimicry of AC/DC's Brian Johnson. *Anya*, with its guitar-recital intro and sterile pseudo-classical bombast, invades Yngwie Malmsteen territory. The guitar/drum interplay on *Talk About Love* is all hoary Led Zeppelin brontosaurus stomp. And the title track is a pompous epic worthy of Spinal Tap, boasting such bon mots as "Some

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live in fear / Some do not." Put quite simply, there is something unseemly about adult men spouting lines like "I'm a ramshackle man / That's what I am" and "I'm a nasty piece of work" to music that rumbles with the pacing of a piece of farm equipment caught in a rut. *P.P.*

FISHBONE

**Give a Monkey a Brain and He'll Swear
He's the Center of the Universe**
COLUMBIA 52764 (65 min)

**Performance: Hard to take
Recording: Really loud**

War once opined that "the world is a ghetto," and Fishbone emphatically seconds that opinion on "Give a Monkey a Brain . . ." But while they win title-of-the-year kudos for their anti-anthropomorphic aphorism, the album itself is an unrelieved downer—like being sucked into a whirling vortex of hopelessness and contempt. Fishbone has unfortunately opted for Living Colour's gambit, going down grungy, metal-infested alleyways that arrive at dead ends. In its evocation of decline and fall, "Give a Monkey a Brain . . ." depicts urban grimness with an almost tactile fury. But save for the chant of "We've all been tamed by our world," from the ska-like *Unyielding Conditioning*, the album is virtually amusical and all but unlistenable except to the most fanatical devotees of the Seattle school of noise-as-music. *P.P.*



**ZIGGY MARLEY
AND THE MELODY MAKERS**

Joy and Blues
VIRGIN 87961 (46 min)

**Performance: Rich
Recording: Very good**

The music on "Joy and Blues," the latest from Ziggy Marley and the Melody Makers, flows like a hearty, sustaining broth. It tastes great and makes you feel even better. From the melancholy, steady rocking meditation of the title cut, which opens the album, to the jazzified pop of *This One*, which closes the album, the Marley band works ear-popping changes on the basics of reggae. Bob Marley's *There She Goes*, for example, puts the bitterness of a lyric about an ex-lover together with a dazzling array of sweet-almost-cute Sixties-pop guitars and keyboards. This combination of fading naiveté and blunt sensuality, held together by a throbbing and pulsing rhythm section, is rapturous. Not everything on the album works this wondrously—some of the political sentiments still sound callow and Stephen Marley's vocals obscure as much as they express. Nevertheless, with "Joy and Blues," the children of Bob Marley continue to take reggae in fresh new directions. *R.G.*



Fishbone: Noyz N the Hood

MATTHEWS, WRIGHT & KING

Dream Seekers
COLUMBIA 53198 (36 min)

**Performance: Group mentality
Recording: Very good**

Matthews, Wright & King released a bland and eminently forgettable first album ("Power of Love") last year, and now they've followed it with a misbegotten ode to schizophrenia. The first half of "Dream Seekers" rocks like a mama and coos like a turtle dove,

while the second half slips into radio-ready somnambulism. The promotional material plays up the group's three-part harmonies and bluegrass sensibility, which suggests we're talking acoustic country-folk. Don't believe it. That might have been somewhat true with their first album, but with the exception of *Every Step of the Way*, which features something akin to a high lonesome vocal, this is high-energy rock and pop. Oh, yeah—country style. *A.N.*

TALES FROM THE VAULTS

Here are two exemplary, long overdue boxed-set tributes to groups that deserve nothing less. The Beach Boys package, designed for casual fans and faratics alike, is the most revelatory; along with all the hits, there are mind-boggling outtakes and instrumentals (including some healthy chunks from the legendary unreleased "Smile" album), as well as long tracks showing how individual songs (such as *Goa Only Knows* from "Pet Sounds") evolved in the studio. For sheer gorgeousness, there's precious little in pop or rock that can touch this stuff, and what "Good Vibrations"

proves—conclusively—is that if Brian Wilson wasn't the musical genius his most fevered boosters have claimed for years then the word is probably meaningless.

The Yardbirds box is not quite as epochal, but compiler Phil Cohen (a former letter writer to this magazine gone on to better things) has done a magnificent vault-research and remastering job that renders the competing Sony and Rhino reissues permanently obsolete. Heavy metal and psychedelia begin here (no purist blues band was ever as innovative as these guys), and even though the package (a Brit import available at cooler stores) cuts off around 1967—before the group's final studio triumphs with Jeff Beck and, later, Jimmy Page—there's still an astonishing amount of visionary rock-and-roll to be heard. Miss either of these sets at your peril. *S.S.*

THE BEACH BOYS

Good Vibrations/Thirty Years of the Beach Boys
CAPITOL 81294 (five CD's, 384 min)

THE YARDBIRDS

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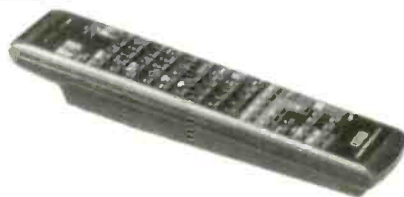
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Joey Ramone Is Listening . . .

What CD's has the Ramones' eternally leather-clad lead singer been digging of late?



EODIE MALUKIDA LANGSAM

CAGED/UNCAGED

CRAMPS/ARTIS 097 (Italian import)

"A tribute album with me, David Byrne, Debbie Harry, Richard Hell, Jello Biafra, and Lou Reed. . . . I found out that John Cage was a big Ramones fan, which blew my mind."

RAMONES

Acid Eaters

RADIOACTIVE/MCA 10913

"Can I talk about our album? It's real eclectic and pays homage to the people that inspired us."

KING MISSILE

Happy Hour

ATLANTIC 82459

"I think John Hall's cool. He's real clever and witty, and the album is very visual and full of character and personality."

LARRY McCRAY

Delta Hurricane

VIRGIN 87784 (49 min)

Performance: Strong

Recording: Good

Larry McCray's first album, appropriately entitled "Ambition" (and now deleted), was recorded in a primitive basement studio. And yet it was hindered not by poor sound so much as a certain stiff quality that said more about McCray's inexperience than his lack of musical skill. Now, two years later, he has returned with an explosive album that captures the effortless wallop of his live performances. McCray is, above all, a superb blues-guitar player, combining the lyricism of an Eric Clapton with the power of a Son Seals. In other words, he can float like a butterfly and sting like a bee. Whether grinding home his pain on *Delta Hurricane* or squeezing out his

sorrow on *Hole in My Heart*, McCray teaches us something about his life while teaching us something about how to wrench feeling out of a guitar. But he also shows a little resilience as a vocalist, too, supplementing his B.B. King bellow with warmth on the gospelish *Soul Shine* and sly soulfulness on *Blues in the City*. Although he sounds a little too derivative at times, Larry McCray still has enough raw talent to become his own man. And when that happens, watch out. *R.G.*

MICHAEL McDONALD

Blink of an Eye

REPRISE 45293 (58 min)

Performance: Smooth

Recording: Expensive sounding

I know who Deep Throat is. It's Michael McDonald, whose soulful croon originates somewhere south of his larynx. Even if that means he doesn't always articulate those pesky little words he has to sing, McDonald can make a mournful noise with the best of them. And generally, starting with his days with the poppier version of the Doobie Brothers, McDonald has warmed up his pipes for softer, L.A.-style music. That's certainly true of "Blink of an Eye," where the tunes combine mild rock and mild funk and mild soul for music that is, well, mild. As pleasant as all of this is, a little more energy here would have been a good thing. The album's opener, *I Stand for You*, sounds punchy only in comparison to what follows. If aging boomers are truly as low-key as this music—clearly intended for them—seems to indicate, we should all buy stock in vitamin companies. *R.G.*

TRACY NELSON

In the Here and Now

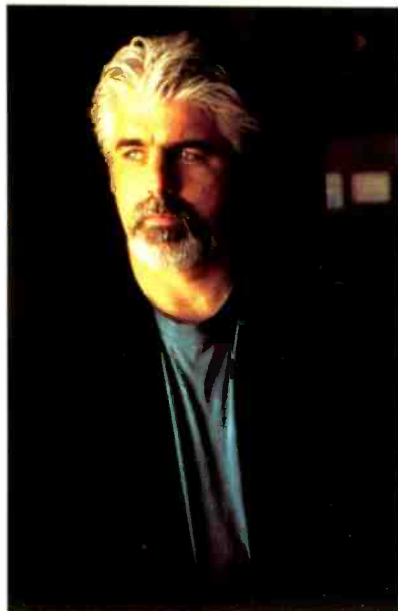
ROUNDER 3123 (45 min)

Performance: Power-packed

Recording: Very good

Tracy Nelson isn't so much a singer anymore as she is a force field. On this album, her first in thirteen years, she delivers thrill after vocal thrill, her enormous voice powerful enough to blow down a house. Yet this collection of the Delta and urban-style blues that inspired her also finds her indulging in some vocal overkill. She insists on singing full-tilt where a little vulnerability would go a long

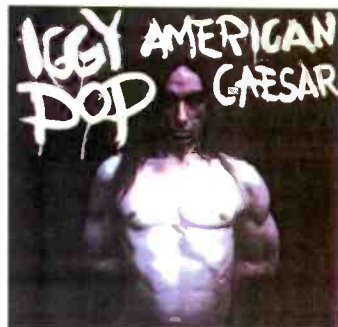
Michael McDonald: Call of the Mild



Larry McCray: blues power

way, delivering softer nuance and shading here only once (Elvie Thomas's *Motherless Child Blues*). And despite many fetching moments (the joyful blues of Will Jennings's *When It All Comes Down*, the domestic tension of Willie Dixon's *Whatever I Am You Made Me*, the Beale-Street balefulness of *Go Down Sunshine*), there are several missed opportunities, namely the duet with Irma Thomas on Percy Mayfield's *Please Send Me Someone to Love*, where it's obvious the two weren't in the studio at the same time and they mostly just trade stanzas instead of singing together.

That said, Nelson's gained a considerable amount of authority through the years, which she now imparts with welcome middle-aged rue. But then any Tracy Nelson album is a cause for celebration—because she is such an underexposed talent, because so few singers can muster this much raw emotion, and because her songwriting has yielded some of the most memorable "hurtin'" blues in contemporary music. There's nothing quite as lay-down-and-die miserable here as her torchy signature tune *Down So Low*, but *Living the Blues* (co-written with Gary Nicholson) cuts to the quick: "Woke up this morning, my pillow was wet / I guess I knew it was as good as it would get." And that, friends and neighbors, is the blues. *A.N.*



IGGY POP

American Caesar

VIRGIN 39002 (72 min)

Performance: Iggish

Recording: Fair

"A foolish consistency is the hobgoblin of little minds." When Ralph Waldo Emerson said those immortal words, he didn't have Iggy Pop in mind. But the sentiment certainly applies to the musical philosophy of our Mr.

Pop. When Iggy turns his attention to something, whether silly or scabrous, you never know what will come out of his mouth. He can be loopy, as in the 7-minute-plus skit about Caesar which concludes his new album. A set of phrases—"Throw them to the lions! Ha ha ha ha!"—set to a relentless guitar riff, this Caesarian section is supposed to be a comment on our own depraved time. Much more successful is *Perforation Problems*, a terrifying song about trying to just say no to drugs. "Every time I hope it was my last / I watch my future become my past" (he delivers each line of the song twice, as if trying to convince himself, and us, about what is right).

Fortunately, most of "American Caesar" skews toward the personal side of the Iggy equation, whether it's the nightlife explored on *Wild America* or the strung-out coming to terms with *F—ing Alone*. During the latter, we get an epiphany about epiphanies: "They got to figure out something / They got to figure out themselves / They got to figure on their own /



Iggy Pop: punk epiphanies

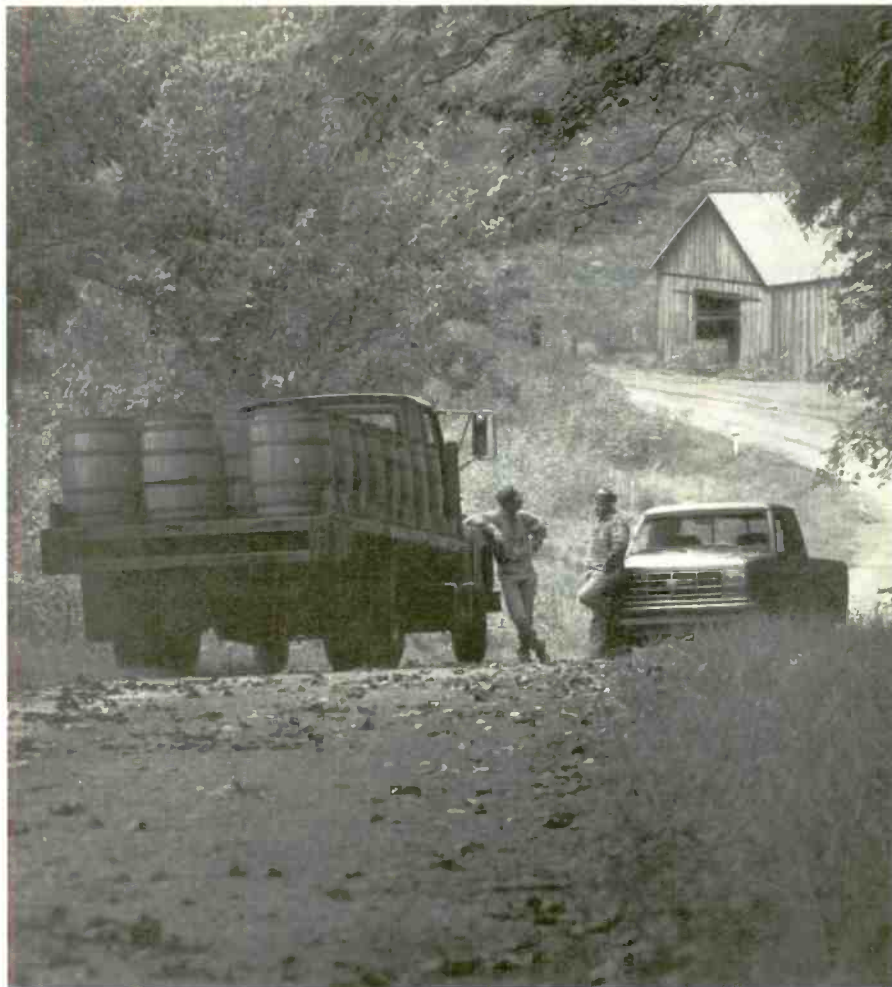
They got to figure out okay / Okay, okay, okay." Iggy's last album, "Brick by Brick," showcased him as a classic rocker, with plenty of loud but clean guitars. "American Caesar" lets him play in the dirt. The solos here are nasty, brutish, and short—distortion and reverb rule. Iggy is definitely back, the noblest punk of them all. *R.G.*

SAWYER BROWN

Outskirts of Town
CURB 77626 (42 min)

Performance: Improved, but . . .
Recording: Very good

The hype on Sawyer Brown says that there's a new maturity about this bubblegum country act, and that their years as the Rodney Dangerfield of Nashville are over. Well, let's not get carried away. The title tune, in which a romance and the growth of the main characters are reflected by a sense of place, is a big step forward compared to Sawyer Brown's



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usual girls-and-cars motif. And lead singer Mark Miller's duet with Dana McVicker, *Drive Away*, is a decent romp. But how does this esteemed group honor the American farmer and seek relief for his financial and agricultural plight? By talking about his tan! Boy, Rodney, that ought to earn 'em some respect. *A.N.*



PETE TOWNSHEND

Psychoderelict
ATLANTIC 82494 (63 min)
Performance: Muddled
Recording: Good

In the immortal words of Captain Beefheart, "Someone's had too much to think." Pete Townshend's "Psychoderelict," a brainy sci-fi concept album, is muddled at best and mean-spirited and preposterous at worst. It may not seem fair to fault someone of Townshend's stature for excessive ambition, but he's been tipping the scale that way for so long now that the beauty of rock—its cut-the-crap directness and muscular economy of form—all but escapes him these days. In any case, the album's over-the-top design is a recipe for commercial, if not artistic, disaster. Few listeners will get past the unspeakably vulgar dialogue, the convoluted plot line, or the reductive stereotyping of its three key characters (a crude and debased media mogul, a dissolute rock star fallen on hard times, and a manipulative, money-hungry manager). Scrape away all the surrounding debris and



UB40: politics and bubblegum

there are a few diamonds in the rough: a gorgeous, reflective ballad called *Now and Then*; *Outlive the Dinosaur*, which sounds an environmental alarm over edgy, rippling keyboards; *Early Morning Dreams*, where the Beach Boys meet the Who on some futuristic wavelength; and the jaunty, anthemic *English Boy*. But by and large "Psychoderelict" is for the birds. *P.P.*

UB40

Promises and Lies
VIRGIN 88229 (47 min)
Performance: Slick
Recording: Transparent

For all of the seriousness that UB40 brings to some of the tunes here—and, believe me, they can stretch a political thought to the breaking point—"Promises and Lies" seems weightless. The arrangements are so light and repetitive that they sound like Jamaican music boxes (this may not be the reggae equivalent of bubblegum pop, but it comes close). Only two songs are relaxed enough to avoid seeming entirely programmed. On *Bring Me Your Cup*, the keyboards and horns massage the beat just enough to give the music a sweet elasticity.

And on their hit single, *Can't Help Falling in Love*, the group plays it as straight as they can, which means that the song becomes a hybrid Anglo-Caribbean novelty tune. But this clash of sensibilities is successful, unlike most of the attempts at political commentary here. *Sorry*, for example, shakes a finger at oppressors with lines like "You can't hold us any longer with your chains / Time to compensate us for our claims." Not only are sentiments like these ham-handed, the music that is bouncing along in the background sounds more appropriate for a TV commercial. And that, unfortunately, is true for nearly all the cuts on "Promises and Lies." *R.G.*

LOUDON WAINWRIGHT III

Career Moves
VIRGIN 88273 (75 min)
Performance: Overdrive
Recording: Live remote

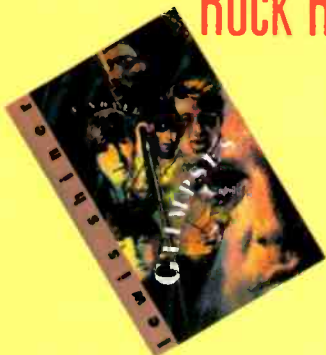
Loudon Wainwright III has four speeds—funny-revved, poignant-slow, racing his motor, and crapped out. On this live set, recorded last January at New York's Bottom Line, Wainwright races his motor and craps out a surprising number of times, but otherwise cruises along fine. As for subject matter, Wainwright does family tragedy best, hitting on all cylinders with *Thanksgiving*, *Your Mother and I*, and *Unhappy Anniversary*, songs so depressing you'll hope God takes you tonight. He also turns up the silly factor with good results on *The Acid Song* and *A Fine Celtic Name*. But too many of his songs are near misses, which probably explains why his twenty-five-year career never really kicked into high gear. *A.N.*

ROBERT JAMES WALLER

The Ballads of Madison County
ATLANTIC 82511 (39 min)
Performance: Amateur hour
Recording: Professional

Robert James Waller is the author of the mega-selling novel *The Bridges of Madison County*, a kind of Iowa soap opera. If you enjoyed it, then this album. Waller's recording debut, which includes *The Madison County Waltz* and four other Waller originals, will either (A) Seem like the bees' knees, or (B) make you feel guilty you liked the book. *P.S.:* If you picked "A," you probably shouldn't tell anybody. *A.N.*

Rock Read of the Month



A troubled baby boomer, grieving over his recently dead father, hears a legendary, never-completed Beatles album on his stereo system; later, he finds he can will other "lost"

albums into existence and eventually winds up time-traveling back to the Sixties to help Beach Boy Brian Wilson finish "Smile" and save Jimi Hendrix from an OD. That's the premise of cyberpunk novelist Lewis Shiner's *Glimpses* (William Morrow), and though he's dealing with a somewhat strained metaphor here—the unfinished business of a generation—Shiner is enough of a storyteller that you're never put off by the underlying sentimentality. Even more impressive, he makes you believe the albums his (admittedly autobiographical) protagonist conjures up are the masterpieces they're supposed to be. Quite a performance. *S.S.*

It's the
little
things
that
keep
you
home.

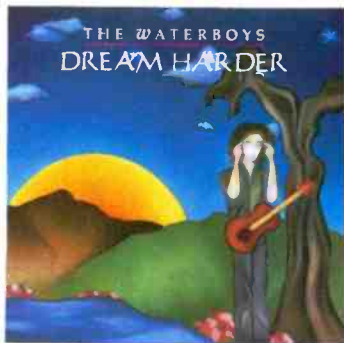


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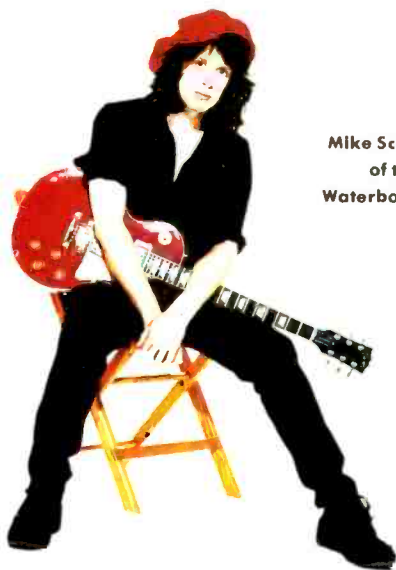
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THE WATERBOYS
Dream Harder
 GEFEN 24476 (43 min)
Performance: Passionate
Recording: Good

"I've burned my bridges and I'm free at last / All my chains are in the past / The new life starts here," announces Mike Scott of the Waterboys in the first track from "Dream Harder," and his declaration of renewal has a limber and liberating spirituality. The album also reconciles the vastly different halves of the band's career. The sound of early Waterboys—dark, dense, and driven forward in march-like tempos—finds expression in numbers like *The New Life* (reminiscent of the first album's *A Girl Called Johnny*) and *The Return of Pan*. The lightness of touch, traditional instrumentation, and pantheistic-minded celebrations that have typified the Waterboys from "Fisherman's Blues" forward are evident here in *Glastonbury Song* ("I just found God where he always was," Scott exults over transcendent, climbing piano chords), the droll, folkish *Corn Circles*, and the grand, early Genesis-style aural landscape of *Love and Death*, wherein Scott sets music to an obscure W.B. Yeats poem. Moving to New York City from rural Ireland has apparently given him a jolt of psychic energy and, ironically, clarified his spiritual bond to nature. In such exalted company, a cranky kissoff song like *Suffer* seems earthbound and out of place, and *The Return of Jimi Hendrix* is an altogether overblown bit



Mike Scott
 of the
 Waterboys

M. HALLSAND/GEFFEN RECORDS

TRACK RECORDS

Neil Young

Neil Young has made so many albums (released and otherwise) that we'll believe the long-threatened self-compiled retrospective boxed set only when we see it. In the meantime, here are some of his best efforts.



MICHAEL OCHS ARCHIVES

Buffalo Springfield Again

ATCO 33226
 Perhaps the pinnacle of Sixties L.A. folk rock, with the classic *Mr. Soul* and a killer guitar duel (with Stephen Stills) on *Bluebird*.

Neil Young

REPRISE 6317
 Some prefer the folkier "Harvest," but this gorgeous 1968 solo debut marks one of the last times budding purist Young deigned to overdub in the studio.

Everybody Knows This Is Nowhere

REPRISE 2282
 Young's first album with Crazy Horse (1969). His and the late Danny Whitten's guitar work was years ahead of its time.

Tonight's the Night

REPRISE 2221
 From 1975, a woozy, haunted, dark night of the soul that's Young's version of the blues. Unsettling and unforgettable.

Live Rust

REPRISE 2296
 1979's in-concert response to (among other things) punk rock. Grunge begins here.

of mythopoeia. Otherwise, "Dream Harder" stands as a positive-minded, listener-friendly call for a better world that Scott is deliriously dreaming into music. *P.P.*

NEIL YOUNG

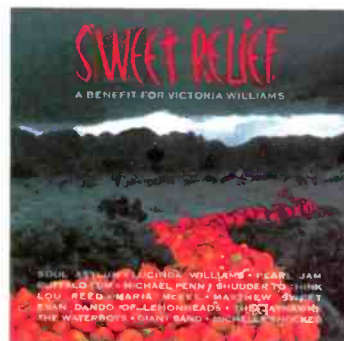
Unplugged
 REPRISE 45310 (73 min)

Performance: Solid
Recording: Very good

The "Unplugged" series has become the musical equivalent of FDR's fireside chats—weekly sessions that have helped steer rock and rap away from the shoals of faddish mediocrity in these rudderless times. The inherent conservatism of the format might have been an opportunity for sabotage by a maverick like Neil Young, but once again he delivers the unexpected by playing it pretty straight on "Unplugged." Seven tunes are performed unaccompanied, seven with an unamped band. Young is in a mellow mood that borders on

melancholic, celebrating what solace can be taken from love and the family while refusing to flinch from reality's uneasy and unending intrusions. There are no hidden meanings or oblique strategies; even *Transformer Man* is shorn of its computerized "Trans" trappings and played without irony or obfuscation. Like a *Hurricane* finds Young alone at the pump organ; without its usual guitar tantrums, the song focuses squarely on the words he's singing and the inflections he gives them. Time seems to stop and cares vanish in *Harvest Moon*, the title cut from Young's most recent album, in a performance that is sweet in temperament and uplifting in character. Intuitively knowing what the times call for and how far he can push the envelope has always been one of Neil Young's gifts. On "Unplugged" he offers one of the most honest and affecting performances of his career. Obviously, this one's a keeper. *P.P.*

Collection



SWEET RELIEF—A BENEFIT FOR VICTORIA WILLIAMS
 THIRSTY EAR/CHAOS/COLUMBIA
 57134 (55 min)

Performance: Charming
Recording: Good

If you blinked at the wrong times you could have easily missed the recording career of Los Angeles folk-popster Victoria Williams. Due to the changing fortunes of the music business, her recent (1987 and 1990) Geffen and Rough Trade albums have already come and gone. So, if you want to experience her offbeat, lyrical-musical vision, you'll have to settle for this glorious tribute album, which also benefits musicians who are seriously ill (Williams herself has been diagnosed with multiple sclerosis).

A bunch of musicians ranging from the well known (Lou Reed, Pearl Jam, Soul Asylum) to the semi-obscure (Buffalo Tom, Shudder to Think, the Jayhawks) have covered Williams's tunes here, and nearly all of them have found a way to make her delicate epiphanies their own. Reed's dashing version of *Tarbally and Featherfoot* brings out all the poignancy of Williams's downtrodden characters. And Matthew Sweet's majestically grungy reworking of the folk-country *This Moment* captures all the sad immediacy of living in the now. There are many other highlights, enough to make this album a near-perfect expression of affection for Williams and a definite must for your music collection. *R.G.*

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QUICK
FIXES**ARTHUR ALEXANDER****The Ultimate Arthur Alexander**
RAZOR & TIE 2014 (42 min)

A long overdue best-of by the influential Sixties soul pioneer (the Beatles and the Stones recorded his songs) who died this year on the verge of a major comeback. If *Anna, You Better Move On*, *Everyday I Have to Cry*, and *Soldier of Love* don't make your heart flutter, you'd better have an EKG. S.S.

**SHERYL CROW****Tuesday Night Music Club**
A&M 0126 (50 min)

Former Don Henley back-up singer debuts with a likably quirky album that (thanks to Wilbury-esque production and instrumental assists from Davids Baerwald and Ricketts) could pass for alternative Bonnie Raitt. Great opening line: "She was born in November, 1963, / the day Aldous Huxley died." S.S.

**DRACULA/CLASSIC SCORES FROM
HAMMER HORROR**

SILVA 1026 (55 min)

Forget Lugosi and Gary Oldman; for my money, Christopher Lee remains the definitive Dracula, and this newly recorded collection of James Bernard's music for three of Lee's Drac flicks is as cool and creepy as the star himself. Delightfully lurid stuff that embodies the Hammer studio's ambience of Technicolor blood and discreet sex. S.S.

MICHAEL FEINSTEIN**Forever**

ELEKTRA 61423 (51 min)

Feinstein emerges here as an engaging, stylish crooner who can relate to songs by Van Morrison and Jimmy Webb as well as to the older show-music legends he's primarily championed up till now. Unregenerate rockers may find Feinstein's romantic approach too soft-hearted or squishy, but others will find it refreshing. R.H.

BUTCH HANCOCK**Own the Way Over Here**
SUGAR HILL 1038 (60 min)

Butch Hancock has written many of Joe Ely's most powerful songs (*Boxcars, If You Were a Bluebird*), and there are plenty more where those came from. This fine collection of eleven fatalistic tunes is a good place to start, and once you get over Hancock's Dylan/Guthrie guitar-and-harmonica fixation you'll find layer upon layer of sad and profound beauty. Hear 'em and weep. A.N.

TOMMY KEENE**The Real Underground**

ALIAS 045 (75 min)

Tommy Keene, who recorded this stuff before and after a late-Eighties stint on Geffen, is not quite power-pop and not quite alternative (the liner notes call him "the thinking man's Replacements," which sounds about right to me). In any event, his own songs are memorable, and his covers (the Who, the Flamin' Groovies, Alex Chilton) strike the right balance between authenticity and re-imagining. Conclusion: classic American rocker. S.S.

MEAT LOAF**Bat Out of Hell II... Back into Hell**

MCA 10699 (76 min)

Is it just me, or does anyone else detect a certain paucity of imagination here? S.S.

**THE ROCK CLUB****Wet Money**

HOMBURG 001 (40 min)

These pop/rock formalists clearly see Lennon/McCartney and Brian Wilson as the Holy Trinity, and they probably haven't bought a new album since Badfinger broke up. So this stuff is, yes, retro, but it's also terrific; in fact, though the lyrics are often wimpy, the best songs here—like the unexpectedly clever *She's Alright* or the megagorgeous *'Til the End of Time*—live up to their influences and then some. Which means anyone who ever swooned to "Beatles VI" or "Pet Sounds" should dig this the most. [\$14.99, postpaid, from Vampire Records, 220 Jericho Turnpike, Floral Park, NY 11001.] S.S.

JAMES TAYLOR**(Live)**

COLUMBIA 47056 (two CD's, 123 min)

In which the pop/folkie icon reprises just about every song he's ever been associated with and demonstrates an unimpaired winsomeness that's positively inspirational in an old geezer. My guilty pleasure of the year. S.S.

JAZZ
REVIEWS**DOC CHEATHAM****The Eighty-Seven Years of Doc Cheatham**

COLUMBIA 53215 (60 min)

Performance: Remarkable**Recording: Very good**

He is approaching ninety, but Doc Cheatham plays the trumpet with the strength and vigor of a twenty-year-old. In his seven decades on the scene, he has worked with some of the biggest stars of jazz, but it is only in recent years that his name has really been established. One reason is that he was for a long time more closely associated with the Latin bands of Tito Puente, Ricardo Rey, and Perez Prado. On this new album, Cheatham also sings on several tracks, and his soft, perfectly enunciated vocals are as delightful as his playing. There had apparently been talk of pairing him with Wynton Marsalis for this recording, but Cheatham had the good sense to insist on playing with his own New York Quartet. The result is a straightforward set of unpretentious jazz, fourteen familiar tunes rendered in a style both lyrical and imaginative. Pianist Chuck Folds contributes more than mere accompaniments: his chameleonic style ranges from polite and generic to mad stride of the Cliff Jackson variety. The liner notes, poorly written and full of historical inaccuracies and assumptions, fail to do this remarkable artist justice. But Cheatham's music is as genuine as it is honest. C.A.


BUCK CLAYTON**The Complete CBS****Buck Clayton Jam Sessions**

MOSAIC 144 (six CD's, 341 min)

Performance: Memorable**Recording: Very good**

Forty years ago, when the long-playing record was young and many of the great jazz pioneers of the Twenties and Thirties were playing as vigorously as ever, someone at Columbia thought it would be a good idea to stage a jam session. The idea was to give the players—used to the three-minute limits imposed by 78-rpm records—the opportunity to stretch out. Altogether, seven such sessions were held between December 1953 and March 1956, all under the leadership of the trumpeter and former Count Basie star Buck Clayton. The collective personnel comprised thirty musicians, a singer (Jimmy Rushing), and a tap dancer (Jack Ackerman). Jazz fans have long awaited the reissue of these recordings, but no one expected the windfall that this new Mosaic boxed set represents. It contains all the previously released sessions as well as available alternate takes, and even bits and pieces that had originally been edited out by producer George Avakian.

A drawback of the issue-everything policy is that one has to sit through several takes of the same selection (unless one programs the CD around it), and in this case one has to wonder why there were alternate takes at all, jam sessions being, by their very nature, spontaneous affairs. I am more inclined to think of these recordings as extended "blowing sessions," that being the tag commonly given



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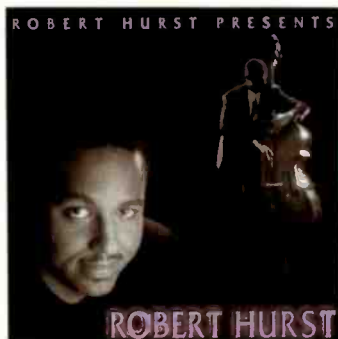
unrehearsed, small-group recordings. Call them what you will, the music's the thing, and, staged or not, these sessions had at least one real jam session quality: They brought together musicians who might not ever have shared a stage otherwise. The result is uneven, to be sure, but there is enough extraordinary jazz here to fill your ears with wonderment for years to come. As usual, Mosaic includes an LP-sized illustrated booklet containing lots of pertinent information and a critical essay, by Dan Morgenstern, that does a splendid job of giving the historical background. C.A.

ROBERT HURST**Robert Hurst Presents**

COLUMBIA 57298 (67 min)

Performance: Hurst rate**Recording: Very good**

We used to call it bop or bebop or just modern jazz, but I guess the current term for contemporary performances of post-WWII jazz is "neoclassical" music. Whatever we call it, it sounds great in the hands of Robert Hurst, a young bass player who has surrounded himself with some of the best of the new crop of jazzmen: trumpeter Marcus Belgrave, reed players Branford Marsalis and Ralph Miles Jones III, pianist Kenny Kirkland, and drummer Jeff "Tain" Watts. In a way, this group is a contingent from Marsalis's *Tonight Show* band, but—network television attitudes towards jazz being what they are—don't expect to hear Jay Leno introduce the



kind of music found on this album. Jazz may not be going anywhere today, but there are a good number of young musicians around who can breathe fresh air into the old forms, and we have six of them here. Hurst's solo reading of Thelonious Monk's *Evidence* is a highlight, but it's all above average. C.A.

Collection

DELMARK 40TH ANNIVERSARY JAZZ

DELMARK 0001 (72 min)

Performance: Memorable mixture**Recording: Good to excellent**

Delmark, one of the few long-lived independent jazz labels not yet swallowed up by some larger record company, was founded in

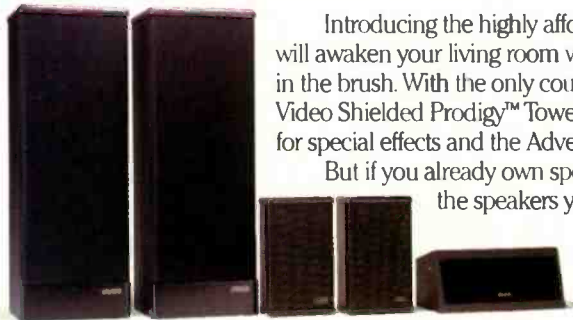
Chicago forty years ago by Bob Koester. Its catalog is virtually a history of jazz since World War II, especially the jazz of the Windy City in all its diversity, and that's what we get on this release celebrating the label's fortieth anniversary.

The anthology begins with the blues-rooted, tenor saxophone of Jimmy Forrest, who once shared with Charlie Parker a place in Jay McShann's reed section, and ends with a contrasting statement from Zane Massey, whose tenor is just as virile as Forrest's but less traditional. Bebop fans should enjoy vibist Jim Cooper's *Bemsha Swing*, trumpeter Ira Sullivan's *Wilbur's Tune*, and Mike Smith's hard-bopping alto; traditionalists are treated to pianists John Young and Art Hodes, the latter in a wonderful performance of *Sweet Lorraine* with New Orleans clarinetist and long-time Ellingtonian Barney Bigard. And if you like smooth ballads, tenor saxophonists Eric Alexander and Lin Halliday will make you purr.

While Chicago is recognized as an urban-blues center, it is also the home of the Association for the Advancement of Creative Music (AACM), an organization known for taking jazz to its outer limits. It is to Koester's credit that (despite his personal taste) he recorded such outré AACM groups as the Art Ensemble of Chicago, and if mellow sounds are not your cup of tea, you will undoubtedly want to hear AACM disciples Roscoe Mitchell's *Ornette* or Joseph Jarman's *Little Fox Run*, which is palatably chaotic and not unlike Mingus. C.A.



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DAVID PATRICK STEARNS

BEETHOVEN: Missa Solemnis

Studer, Norman, Domingo, Moll; choruses:
 Vienna Philharmonic, Levine
 DEUTSCHE GRAMMOPHON 435 770
 (two CD's, 84 min)

Performance: Monumental
Recording: Superb

James Levine's realization of Beethoven's choral masterpiece, recorded in concert at the Salzburg Festival's Grosses Festspielhaus in August 1991, is on the most grandly monumental scale, with three choirs, the Vienna Philharmonic, and a star-studded complement of vocal soloists. From the very first minutes of the performance one is struck by the distinctive timbres of those soloists—Plácido Domingo's brightly plangent tenor, the silvery and beautifully controlled quality of Cheryl Studer's soprano, the rich contralto of Jessye Norman, and the magisterial bass of Kurt Moll (most memorably at the opening of the *Agnus Dei*). The famous solo-violin passages that interlace the *Benedictus* are played by the Vienna Philharmonic's concertmaster, Gerhart Hetzel, and seem even more poignant than usual given his tragic death some months later in a mountaineering mishap.

Levine has an awesome command of his forces and of the vast structure of Beethoven's visionary score, which encompasses both the cosmic and the profoundly human, especially in the *Agnus Dei* with its terrifying plea for inner and outer peace. One bit to which I take exception is the sledgehammer delivery, at very deliberate tempo, of the "*Quoniam tu solus*" at the very opening of that section. But

the orchestra plays like angels possessed, and the precision of attack and rhythm of the huge choral forces beggars description.

Deutsche Grammophon's production team has captured the sonic panorama very well in terms of both lateral stereo imaging and presence. Listening at full room volume on excellent equipment, I was nearly overwhelmed by the sumptuousness and impact of the sound. At least half a dozen large-scale versions of the *Missa Solemnis* stand high in the annals of interpretive and recording art. Certainly this one can be added to the honor roll, though the distracting applause at the close strikes me as an aesthetic gaffe. *D.H.*

BRAHMS: Lieder

Marjana Lipovsek
 SONY 52490 (66 min)

Performance: Lush
Recording: Resonant

Marjana Lipovsek, a relatively young Yugoslavian mezzo-soprano, could hardly be in fresher voice than she is here, and she sings these twenty-two Brahms lieder with character, feeling, literacy, and precision. So why is this first solo recording slightly disappointing? Is it possible for such an inexhaustibly lush voice to become too much of a great thing in a single sitting?

Most of the songs here, from the middle and late parts of Brahms's career, set poems that observe rather than participate in the emotional state they describe, leaving Lipovsek without characters to interpret. And since she isn't one to fuss over the words like an Elisabeth Schwarzkopf or Dietrich Fischer-Dieskau—preferring a more contemporary, natural delivery—the songs sound too much alike. In small doses, the performances border on the sublime. Played all the way through, the disc might put you to sleep. Lipovsek is clearly one of the most exciting vocalists to come along in the past few years, and I hope she'll receive better guidance in programming future recorded recitals. *D.P.S.*

BRAHMS: Serenade No. 1; Haydn Variations

Atlanta Symphony, Levi
 TELARC 80349 (63 min)

Performance: Engaging
Recording: Natural

To say that Yoel Levi responds more to the lyric qualities of the Brahms Op. 11 Serenade than to its robust ones is by no means to suggest his performance is wanting in vigor. Perhaps mindful of the work's origin as a nonet, perhaps simply careful to avoid bluster, he has scaled his unfussy interpretation to a fairly intimate level, letting the sun shine through and letting the abundance of good tunes and intriguing colors make their points

with charming directness. A similar directness yields similarly engaging results in the Variations on a Theme by Haydn, set forth here without a hint of the monumentalism that threatens to become the norm in performances of it. The players are on their toes in both works, and the recording does them proud: a very safe bet if this combination of titles is appealing. *R.F.*

DUKAS: The Sorcerer's Apprentice; La Péri; Symphony in C Major

Netherlands Radio Philharmonic, Fournet
 DENON 75284 (75 min)

Performance: Evocative
Recording: Warm

Jean Fournet, who turned eighty last April, was music director of the Netherlands Radio Philharmonic from 1960 to 1978. He must have enjoyed this reunion with his former associates, who for their part seem to share his commitment to Paul Dukas's less familiar symphony as well as the two better-known works, rewarding Fournet and the composer with splendid playing. Their realization of the symphony in particular is a hugely successful rescue mission, presenting the usually sprawling work with unprecedented cogency as well as unquestionable conviction. Fournet's tempos in this case vary from the supposed norms: The opening movement gains from his cohesive drive, and the middle one is taken very expansively (but with a steady pulse) to let its remarkable content reach full bloom.

The pacing of *The Sorcerer's Apprentice*, too, is on the broad side, but it never seems to lag because the narrative purpose is so well served (and Denon has indexed no fewer than twenty meticulously described musical turning points). Only *La Péri* disappoints in any way, and not because of the performance: The preceding fanfare's crisp brilliance is dimmed by murky sonics, and the voluptuous climaxes in the work itself tend to overload just a tad. This CD is far more than a convenient package of Dukas's orchestral masterworks, even if not every one of the recordings can quite be considered "definitive." *R.F.*

HANDEL: Semele

Battle, Horne, Ramey, Aler, others:
 Ambrosian Opera Chorus; English Chamber
 Orchestra, Nelson
 DEUTSCHE GRAMMOPHON 435 782
 (three CD's, 175 min)

Performance: Excellent
Recording: Excellent

When Italian opera lost its public support in London around 1740, Handel took up the cause of the English oratorio. Thus *Semele* (1743), as dramatic an oratorio as can be imagined, was not intended for the stage. Nevertheless, the musicologist and critic Paul

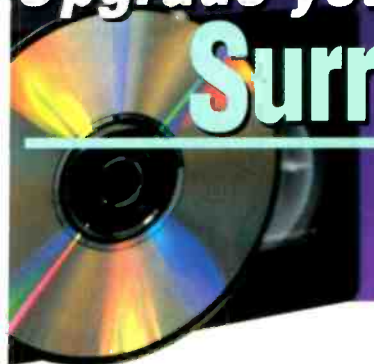


Mezzo-soprano Marjana Lipovsek

PHOTO: SONY CLASSICAL

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Bernstein Early and Late



As a conductor, Leonard Bernstein was rarely one to let the message of the music take care of itself. He was a compulsive teacher, particularly with his own music, which tended to be laden with literary allusions to begin with. This is illustrated by Bernstein's own rather fussy 1978 Deutsche Grammophon recording of his *Songfest* for six singers and orchestra, a cross section of American poetry and musical styles that is perhaps the single finest summation of his talent as a composer. On a new RCA disc, Leonard Slatkin and the Saint Louis Symphony offer a crisp, tight alternative performance.

Slatkin treats *Songfest* like a piece of abstract music, not a song cycle, striking a more even balance than its creator did between the meaning of the words and how they're handled musically. Folk and serial elements intermingle easily, and the tremendous rhythmic vitality of the music has never been more apparent than it is here. On the other hand, because Slatkin keeps his sing-

ers on a tighter rein than Bernstein did his, the vocal performances are less distinctive than in the earlier recording, but also more precise.

Along with the new version of *Songfest* the CD features a reissue of the little-known, long-out-of-print first recording, from 1945, of Bernstein's *Symphony No. 1* ("Jeremiah"). The composer himself conducts the Saint Louis Symphony, and the vocalist in the final movement is the mezzo-soprano Nan Merriman. While it is not the most polished performance imaginable, the blush of first discovery and Bernstein's youthful earnestness (in both the conducting and music) give this version a special place in his discography. And the presence of Merriman, who didn't do many recordings, makes the reissue even more of a treasure.

The CD also offers Slatkin's performance of one of Bernstein's *Seven Anniversaries* for piano solo, a brief memorial of Nathalie Koussevitsky (the first wife of the conductor Serge Koussevitsky, one of Bernstein's mentors), included because it's a thematic cousin of the symphony. If you buy only one Bernstein CD amid the reissue frenzy of his seventy-fifth anniversary year, make it this one. D.P.S.

BERNSTEIN: Songfest—A Cycle of American Poems

Soloists; Saint Louis Symphony, Slatkin
In Memoriam: Nathalie Koussevitzky
 Slatkin (piano)
Symphony No. 1 ("Jeremiah")
 Merriman; Saint Louis Symphony, Bernstein
 RCA 61581 (66 min)

enough, without challenging some celebrated past interpreters, and reaches greater heights in the third act.

Semele's nemesis is the goddess Juno, whose jealous rage and crafty scheming bring about her rival's downfall. Marilyn Horne sings the role with gleeful vehemence and a florid command that recalls her best days. She also interprets the part of Ino. *Semele*'s gentle sister, and differentiates the two characters with knowing skill. The bass Samuel Ramey also appears in two guises, as the placid Cadmus and the grave Somnus, the entertainingly drawn god of sleep. He brings both characters to life with rich sonority and, in the case of Somnus, some comic sense. The soprano Sylvia McNair sings the aria of Iris. Juno's messenger, so prettily that one regrets the brevity of her role.

Semele is a long opera, and earlier recordings—notably the one on Vanguard—presented it with sizable cuts. This version restores some 49 minutes of music, more than half of it in Act I. Not all the additions are top-grade Handel, but the role of Athamas, sung by a countertenor, is considerably enlarged, and gains importance here by Michael Chance's elegant singing. G.J.

PROKOFIEV: Romeo and Juliet (highlights)

Philharmonia Orchestra, Flor
 RCA VICTOR 61388 (58 min)
Performance: Serious
Recording: Good

PROKOFIEV: Romeo and Juliet (highlights)

Liverpool Philharmonic, Pesek
 VIRGIN 59278 (71 min)
Performance: Perky
Recording: Bright

Prokofiev made three short symphonic suites from his ever-winning ballet score for *Romeo and Juliet*. These new recordings both aim to make a single larger excerpted version. Libor Pesek's is closest to the full score; he has taken twenty-two of the original

Henry Lang's assessment of it as "the first full-length English opera" seems valid—and gains added strength from this vitally dramatic performance. John Nelson and the English Chamber Orchestra prove that period instruments are not necessary to Handelian style: The textures are transparent, the tempos brisk, the execution precise. Lyrical passages are sometimes expansively rendered, but without Romantic indulgence, and the strings play with a restrained vibrato.

Happily, too, the singers are operatic stalwarts who know how to bring dramatic presence to *Semele*'s richly characterized personalities. The title role—a woman infatuated with Jupiter, blinded by ambition to seek divinity for herself, and paying for it with her life—is ideal for Kathleen Battle. She combines sensuous tone and technical virtuosity in all her arias, and she delivers "No, no! I'll take no less" in Act III with persuasive power. Jupiter, who appears in most of his scenes as a very human philanderer, is interpreted by the tenor John Aler with convincing lyricism. He sings the ravishing "Where'er you walk" well

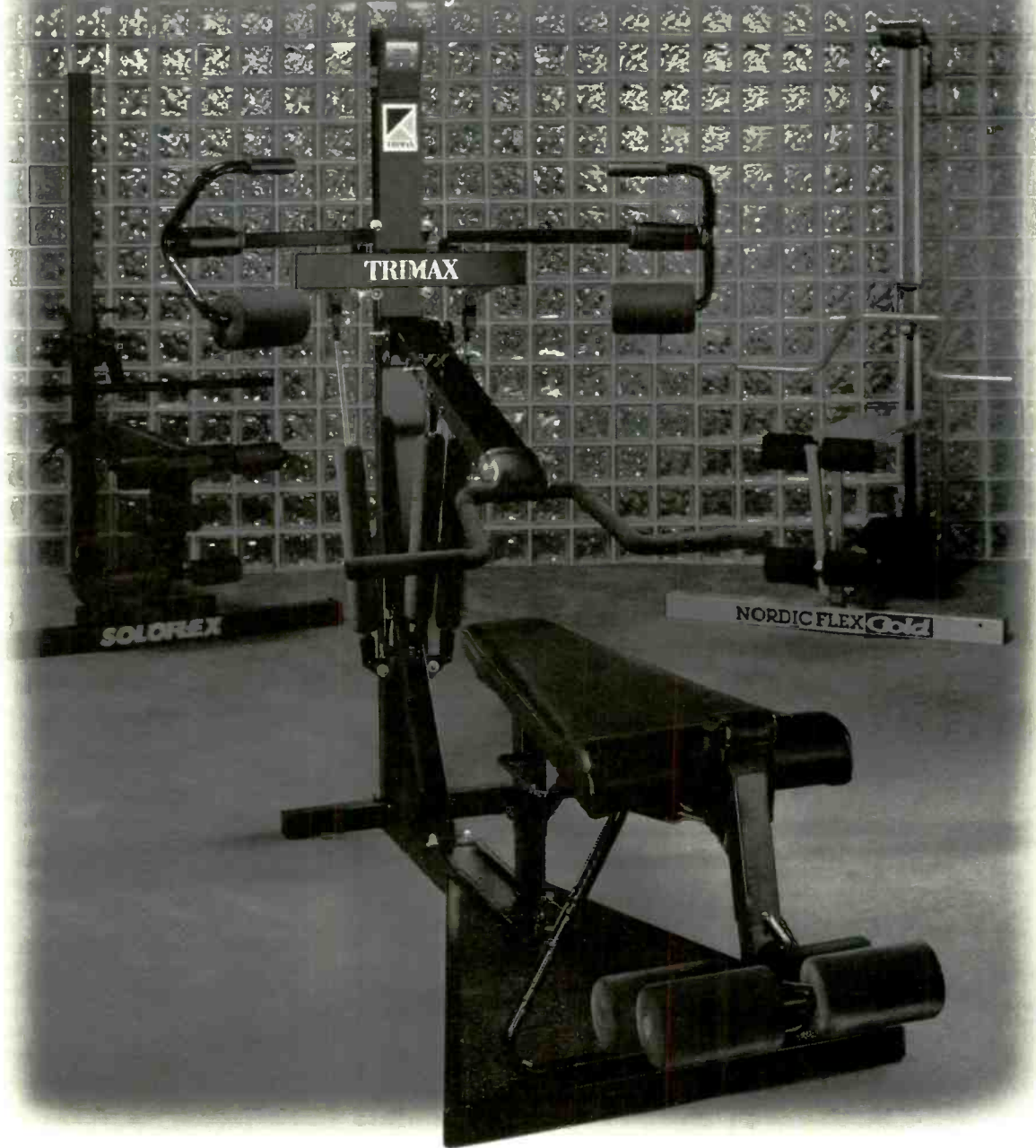


Kathleen Battle as Semele

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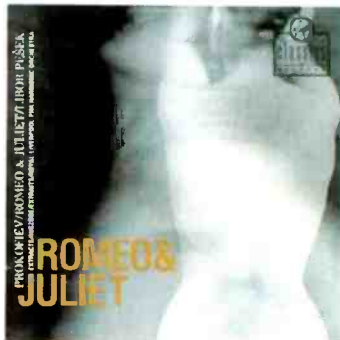
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November

fifty-two numbers, in the original order and orchestrations, and made a kind of shorter, synoptic version of the ballet. Claus Peter Flor, on the other hand, has drawn from the composer's suites to make a twelve-number, hour-long super-suite.

Both of these conductors hail from Eastern Europe. Flor, a relatively young East German, is rapidly becoming known in Western Europe and the United States. This recording explains why. His "highlights" are more unified, more symphonic, and, in many ways, more dramatic than Pesek's—for example, he opens with the strong "Montagues and Capulets" number, plunging us right into the middle of the action. This is a serious and somewhat Germanic version of the music that gives it real stature to match its symphonic dimensions.



Pesek, from the Czech Republic, gives a more classical version: cooler, perkier, wittier, more objective, and yet, in many ways, more gutsy and, for that matter, more Slavic—Slavic à la Stravinsky or Janacek. He has a feeling for the larger movement of the piece—not as symphonic form but as dance theater. And he gets in a lot of less familiar music, much of it very striking. Both performances and recordings have a lot to recommend them, but, short of the complete ballet, I would say that Pesek's version gives the more rounded picture of Prokofiev's genius, in terms of the larger amount of music included, greater fidelity to the original ballet, and the way he captures the composer's wit and style. *E.S.*

SCHÜTZ: Six-Part Motets from the Geistliche Chormusic, 1648

Chorus of Emmanuel Music, Smith
KOCH 3-7174 (67 min)

Performance: Sincere
Recording: Church-like

Recordings of Heinrich Schütz's music can be heavy-going, but this one certainly isn't. Though Craig Smith's Boston-based Chorus of Emmanuel Music doesn't have the vibratoless "white" sound of more authentic groups, the singers respond to the music's quicksilver inventiveness with such precision and sincerity that it's hard to imagine why it isn't performed more often. From Schütz's 1648 collection *Geistliche Chormusik* ("Spiritual Choir Music"), the motets here seem to anticipate Brahms with their rich, six-part harmonies, and their remarkable range of expression draws from both the rich, imitative counterpoint of the Renaissance and the more direct textual dramatization of the early Baroque. All these styles are fused effortlessly thanks to Schütz's clear but flexible forms.

Three of the motets use texts that also found

their way into Handel's *Messiah*, and while Schütz's settings aren't as melodically engaging as Handel's, his more pliable style enabled him to pay far closer attention to meaning in setting the words. There is also some fine musical imagery, such as when the voices leapfrog over one another in "every mountain and hill shall be made low." Similar touches of astonishing insight and grace are everywhere here, and I'm glad that Smith has plans to record more from this collection. *D.P.S.*



R. STRAUSS: An Alpine Symphony; Die Frau ohne Schatten, Symphonic Fantasy

Chicago Symphony, Barenboim
ERATO 45997 (71 min)

Performance: Very good
Recording: Could use more space

Daniel Barenboim and his formidable Chicago Symphony do not lack for strong competition in recordings of Richard Strauss's musical "movie" of the Bavarian alps. Herbert von Karajan on DG, Bernard Haitink on Philips, and Zubin Mehta on Sony have all captured the symphonic element of this extravagant score along with its picturesque aspects, including the big storm with wind-machine obbligato. Interpretively, Barenboim more than holds his own in this company. The clarity of inner detail is especially felicitous here, stemming from an acoustic envelope more confining than is usually provided for this music. The full-bodied sonics are sufficiently accurate that I can detect (or think I can) that the offstage horns in Section Four emanate from the outer reaches of the Orchestra Hall parquet rather than from backstage as in Haitink's recording (still my first choice).

The Symphonic Fantasy on music from *Die Frau ohne Schatten* (*The Woman Without a Shadow*) represents the aging composer's effort to give that difficult and originally unsuccessful opera a new life in the concert hall. There are lovely bits, but I remain unconvinced by the piece as a whole, and I do not sense any passionate conviction in Barenboim's conducting, either. *D.H.*

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Performance: Best since Lotte Lenya
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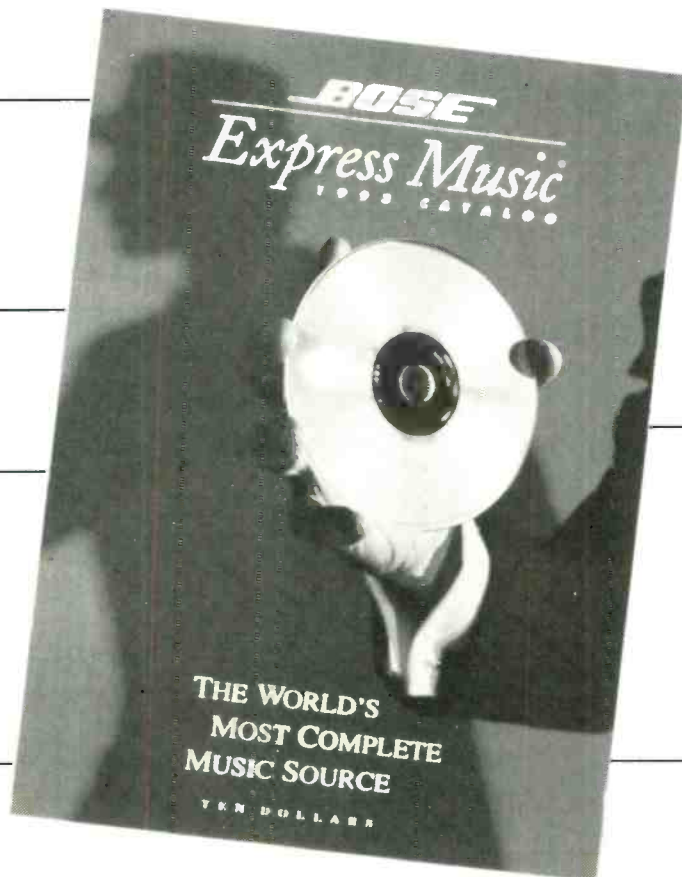
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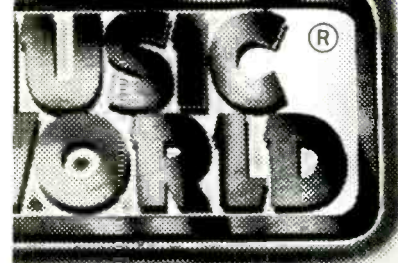
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former category, though even my patience was tried by her recent "Illusions" collection of songs made famous by Marlene Dietrich and Edith Piaf. But in this second Kurt Weill collection she's back at what she does best, and it's even better than Vol. 1, recorded five years ago. Her lapses in taste are minimal, and the years have added grit to her voice without forcing the sort of interpretive compromises that Weill's celebrated widow, Lotte Lenya, had to make eventually. Lemper is an extremely rare bird: an artist with a cabaret singer's voice but a lieder singer's subtlety and resourcefulness.

Lemper's interpretations of five songs from *Happy End* (including *Bilbao-Song* and *Surabaya-Johnny*) are pure genius. I can't say the same for all five selections from *Marie Galante*, a product of Weill's brief Paris period.

but the material itself is not terribly inspiring. The three selections from *Lady in the Dark* are, however, and though when singing American music in the past Lemper has seemed to ape Barbra Streisand, here she maintains her identity completely. Granted, she makes little attempt to portray the character these songs were written for, the prim magazine editor Liza Elliott, but her own randy sensibility is equally engaging and suits the songs well. John Mauceri is a sympathetic conductor, but it's curious that he allows her to drag *A Saga of Jenny* (from *Lady in the Dark*). D.P.S.

PAULA ROBISON
Brasileirinho
 OMEGA 3016 (56 min)
Performance: Superb
Recording: Excellent

Before sambas there were *chôros*, the old form of Brazilian popular instrumental music, dating back to the nineteenth century and made famous in the rest of the world by Villa-Lobos (who wrote stylized concert versions) and Carmen Miranda (*Tico-tico* is a classic fast *chôro*, or *chôrinho*). Since the classic *chôros* band uses flute lead (with guitars and percussion), and since the flutist Paula Robison has a wonderfully rhythmic feel for this kind of music, "Brasileirinho" is obviously a marriage made in heaven.

The heaven under which this music was created is a southern sky—a vast southern sky. There are pieces here that go back to the

nineteenth and early twentieth centuries (by Ernest Nazareth, Pixinguinha, Benedito Lacerdo, and others), with titles—*Coconut Candy*, *André of the New Shoes*, *Sparrows in the Flour* (*Tico-tico* itself no less)—as delicious as the music itself. There are dance tunes from the Thirties, two *bossa nova* songs from the movie *Black Orpheus*, Brazilian versions of Bach, and a younger Brazilian's homages to Vivaldi, to the Rio airport, and to a ninety-year-old pianist known as Tia Amélia.

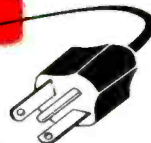
Brazilian music is a compound of flash, rhythmic jump, high style, physicality, and intensity. Although its roots are in a particular soil, it has grown enormously over the years, and, like European classical music and like jazz, it has become increasingly attractive to non-natives. Robison is not slumming; she never plays down or patronizes but is always inside the genre, performing without a trace of affectation and with real joy.

Part of the success of the album is certainly owing to her Brazilian collaborators: Sergio Brandão, who plays the cavaquinho (a twangy kind of old Brazilian guitar), the guitarists Romero Lubambo and Tiberio Nascimento, and the excellent percussionist Cyro Baptista. Another collaborator, the composer and guitarist Stanley Silverman, is credited with the album concept. Both concept and execution are swell, and Robison sounds as though she would be right at home leading a carnival band down the streets of Rio. I can't think of a bigger compliment. E.S.

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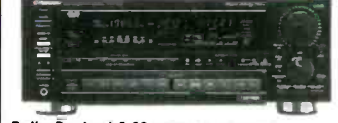
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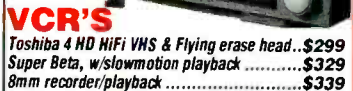
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BOCCHERINI: Cello Concertos in D Major and C Major; Overture; Octet; Sinfonia in C Minor

Bylsma; Tafelmusik, Lamón
SONY 53121 (69 min)

That Boccherini was a serious composer of great ingenuity is well demonstrated here by the exquisite, divertimento-like Octet in G Major, the quirky C Major Concerto, and the dramatic C Minor Sinfonia. It's too bad that the cellist Anner Bylsma and the Tafelmusik ensemble under Jeanne Lamón, having accepted the notion that Boccherini was a minor *galant*-style composer, go ahead and perform him that way. Their cool, elegant, and perfectly sound readings are just a little too brisk and even-tempered. *E.S.*

RACHMANINOFF: Piano Concerto No. 3; Vocalise; Prelude in B-flat

Kissin; Boston Symphony, Ozawa
RCA 61548 (54 min)

Sad to say, the quality of this release is in inverse ratio to its advertising hype. Evgeny Kissin proves to be a subdued soloist, and not even his use of the long cadenzas

for the concerto redeems matters. The orchestra sounds as though it had been miked under a wet blanket, a huge disappointment for a live recording in Boston's Symphony Hall. In the two solo encores, Kissin is up to form only in the Prelude in B-flat Major, Op. 23, No. 2. *D.H.*



VARÈSE: Amériques; Offrandes; Hyperprism; Octandre; Arcana

Orchestre National de France; Nagano
ERATO 92137 (58 min)

One shudders to think what Kent Nagano went through in getting this reputedly unruly French orchestra to play these bracing, fiercely difficult works so well. But while the performances also reflect Nagano's formidable interpretive intellect, Pierre Boulez's sometimes messier readings in a similar lineup on Sony are more dazzling in terms of orchestral color and have a steely, intractable quality that suits this machine-age music. *D.P.S.*

JOHN BAYLESS

The Puccini Album—Arias for Piano

ANGEL 54801 (78 min)

A number of modern musicians are bent on reviving the art of transcription. Some try electronics (Thomas Willibrandt), others humor (the Canadian Brass), but few are as endearing as the pianist John Bayless, whose only gimmick is sincerity. This album of great moments from Puccini operas exudes respect, affection, and understanding of the music. People with an aversion to the operatic voice might consider it a god-send. *D.P.S.*

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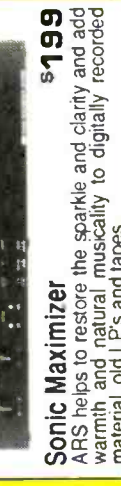


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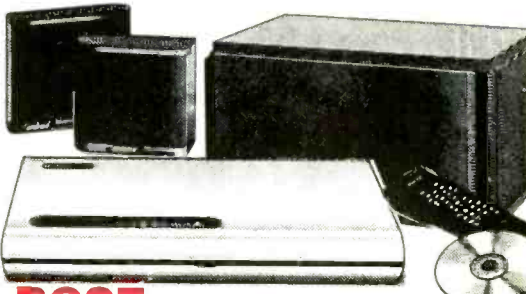


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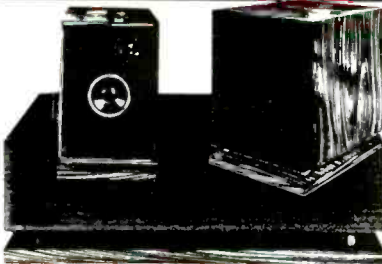
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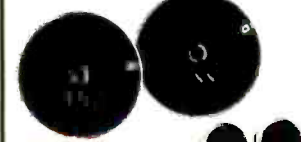
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Anne-Sophie Mutter

a thoroughly modern fiddler

BY K. ROBERT SCHWARZ



"Once you're in the public eye, everybody has a different perspective on how a classical musician should behave."

ANNE-SOPHIE MUTTER appears to possess absolute control over her life. When I met the twenty-nine-year-old German violinist at her Manhattan hotel earlier this year, she was supremely self-assured and unfailingly energetic even though she had played a recital at Carnegie Hall the night before and was about to play another one that very evening. Handling faxes and phone calls to Germany, carrying out financial transactions, ordering a room-service lunch, she was brisk, capable, and multilingual. It was hard to believe that not too long ago this elegant, poised woman was a teenage prodigy basking in the limelight of her mentor, Herbert von Karajan. Now the limelight is of her own devising.

At age thirteen, in 1977, Mutter made her

debut with Karajan in Salzburg, and in that same year she recorded with him a disc of Mozart concertos. From then until his death in 1989, the two collaborated on a series of concerto recordings, all of standard repertory. "The pieces we recorded were his choice," she recalled. "Otherwise, I would never have played the Beethoven concerto at the age of fifteen, no question about that. But I worked at the Beethoven with him for two years, and then he decided that he wanted to record it. And if he was going to take responsibility, I could do it as well!"

Today, although Mutter continues to perform the standard concertos, much of her attention has turned toward music of this century. Her recent Deutsche Grammophon CD's have paired the Stravinsky concerto with Lutoslawski, the Bartok No. 2 with Norbert Moret, and the Berg with Wolfgang Rihm. Such programming would not be countenanced by most topnotch violinists, who seem content to rehash the Romantic warhorses. But Mutter is not your average fiddler. Articulate and perceptive, she can examine music on an intellectual as well as an emotional level—an approach that is ideal for twentieth-century works.

"I've come to feel very strongly about contemporary music," she declared. "Also that the key role that a musician has must be used in a really meaningful way. You can put pieces onto a program which might not be appealing to the public, but they come because they like the artist, and slowly you educate them. You have an obligation to do this; otherwise, our already small repertoire of violin music will stay always like that. And you need a reflection of our time in what you are playing."

Unlike most performers, who play a work's premiere and then leave it to gather dust, Mutter really champions her new pieces. In fact, the works by Lutoslawski, Moret, and Rihm (together with an upcoming concerto by Penderecki) were all written at her request, and she feels it is her duty not only to premiere them but also to tour with them and then record them. "I did Lutoslawski's *Chain 2* and the Bruch concerto throughout Germany—thirty-three concerts in thirty-five days. Of course, sometimes people came up to me and said, 'Thank God you played Bruch,' but even more people came and said, 'That Lutoslawski was a wonderful, interesting work.'"

Mutter's interaction with living composers has had an unexpected impact on every-

thing she plays. "For once you get the feeling that you can be part of a creative process. It's not a question of altering a score, but of having this kind of dead body, and being the first one who gives life to it. And I learned a lot from Lutoslawski and Rihm about the coloring of sound, about bringing music out of silence and putting it back again. This band between *piano* and complete silence is something very beautiful, which you could very well find in the Beethoven concerto."

It's precisely that remarkable coloristic range, from the hushed and breathy to the steely and brilliant, that is the hallmark of Mutter's playing. But her timbres are not applied placidly, like the pastels of a watercolor. Mutter deals in vibrant colors that are charged with energetic attacks and sweeping physicality.

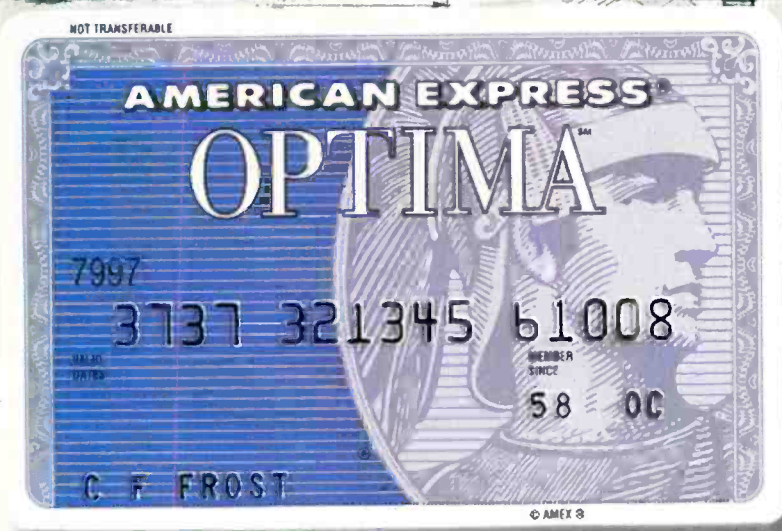
That same forceful persona has characterized her public image, one of glamorous low-cut gowns and a luxurious, even regal lifestyle. Today, however, she'd like to put that image behind her. "The problem is that once you're in the public eye, everybody has a different perspective on how a classical musician should behave. What is most important is that you project who you really are. Of course, it's more interesting to read about an artist who drives a Porsche and drinks Dom Perignon than about a working mother who likes to mountain-climb and drinks beer. But both are true for me."

Indeed, during the past year Mutter has been more the mother than the artist. She took a season's sabbatical from the concert circuit, spending it at home with her husband, Detlef Wunderlich (who was Karajan's lawyer), and their new baby girl. And she has cut back her concert appearances from 120 a year to 60 or 80. "You are here not only to live in music, but to live as a human being, to use your brain for other things than just learning a score," she said. "Now I will do less performing, but with no compromises. Just what I think is important to me."

By now, the international calls had resumed, and lunch had been wheeled in on a silver cart. Mutter sprinted toward her pre-concert meal, but not before insisting that her sabbatical has had nothing to do with fatigue. "It's not easy to burn me out," she said cheerfully but with conviction. "Especially not when I eat pasta!" □

K. Robert Schwarz is a free-lance music journalist who frequently appears in the *New York Times*, *Stagebill*, and other publications.

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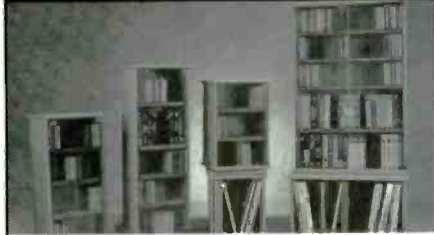
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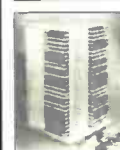
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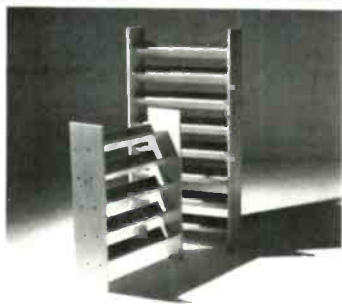
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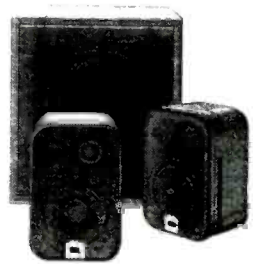
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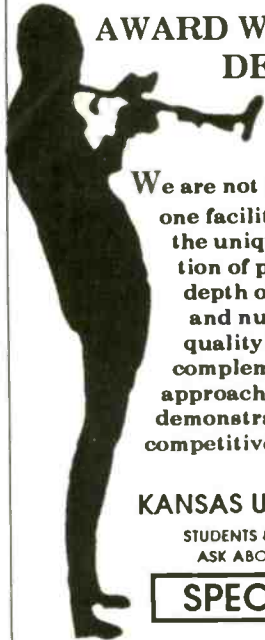
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THE HIGH END

BY RALPH HODGES

Repercussions II

Returning again to the tumult occasioned by this column last August, "Movie Sound at Home," I've checked in this time with Floyd E. Toole, formerly chief of acoustics studies at the National Research Council of Canada and now corporate vice president of engineering at Harman International, the parent company of JBL. The argument, for those of you coming in late, has to do with whether "general-purpose" hi-fi loudspeakers of good quality and adequate muscle can serve the needs of a home theater installation, or whether special characteristics are required to present the theater experience satisfactorily. I have taken the former position, at least on a "try it and see if you like it" basis. Dr. Toole has joined with others in vigorous dissent.

To begin, I'll pass over his insistence on timbral accuracy, wide bandwidth, and high power handling without dynamic compression, since I doubt any audiophile would take exception to his views. The remaining criterion that concerns him, and evidently the one on which our differences have arisen, is that of auditory perspective, or "imaging." He writes, "The issue of 'high-end' interest is the *range* [emphasis added] of spatial effects that can be created by a multi-channel sound system.

"... An important distinguishing characteristic of sound in *good* cinemas," Toole continues a bit later, "is that the front loudspeakers can create the impression of considerable intimacy. Due to the combination of directional loudspeakers and relatively 'dead' room acoustics, the reflected sounds are well controlled." What's clearly being said here is that nondirectional loudspeakers—a category that includes many, if not most, hi-fi speakers—cannot generate the sort of intimacy a movie soundtrack may call for. The numerous room reflections such speakers engender make them

sound too spacy—often a good (and deliberate) thing in music reproduction, but not always in cinema sound, where the dramatic context and the director's intention may call for something else.

Of course, if nondirectional loudspeakers are handicapped by too much spaciness, directional designs would seem to be limited by too little. But Toole is right on top of this one: "Impressions of space, reverberation, and surround, when they are appropriate, are generated [in a theater] mainly by the numerous surround-channel loudspeakers dotted along the side and rear walls of the auditorium. This means that listeners can experience a considerable range of spatial illusions, from an intimate whisper in the ear, through conversations in a reverberant room, to immersion in a crowd of cheering fans at a game." Well, so far it all makes perfect sense, although it does raise some disquieting thoughts about the ultimate viability of our conventional hi-fi loudspeakers.

Writes Toole, "The forward-firing

designs that perform with remarkable fidelity, especially at very high sound levels."

As current JBL catalogs show, Toole really means what he is saying. JBL's top-of-the-line Synthesis multimedia speaker systems incorporate both horn and cone-and-dome driver configurations. The horns are switched in for cinema, and the cones and domes replace them for music. I find I am a bit unhinged by this approach, but if one must have horns for cinema sound, I suppose it is the most cost- and space-effective way to get them. Where Toole and I continue to differ, however, is on whether cinema sound is truly deserving of a high-end equipment assault. He says yes, and advises that if it doesn't receive one, we'll never know what a film's director really meant. I, on the other hand, keep harking back to the time I asked Lucasfilm's Tom Holman why, on film, a punch to the jaw always sounds like overripe fruit being smashed by a heavy paddle. "It's a cartoon!" he replied. Well, I take a back

Can good hi-fi loudspeakers with adequate muscle serve the needs of home theater, or are special characteristics required to present the theater experience satisfactorily?

loudspeaker design that provides the greatest control of both vertical and horizontal sound radiation [the greatest control of directionality, in other words] is the horn." Now here is a proposition that will probably take many of us aback. With all due respect to Paul Klipsch, not too many audiophiles have encountered horn drivers in audio showrooms in the memorable past, and some of us, thinking way back, can remember why we're glad of their absence. Still, I can agree with Toole that "Notions that horns have distinctive sounds are slowly being put to rest by new [horn]

seat to no one in my appreciation of cartoons, but I am not sure how willing I am to spend big bucks on a vain attempt to bring nonlife to life. (I say this while realizing that some films have gone to extraordinary lengths to provide utterly realistic soundtracks. But that's only *some* films.)

So ends the debate for now. Although I have had the last word, I certainly don't claim any sort of victory. Instead, I submit that the triumph belongs to those who have understood that they have many options, and that the consequences of their choices are not altogether clear. □

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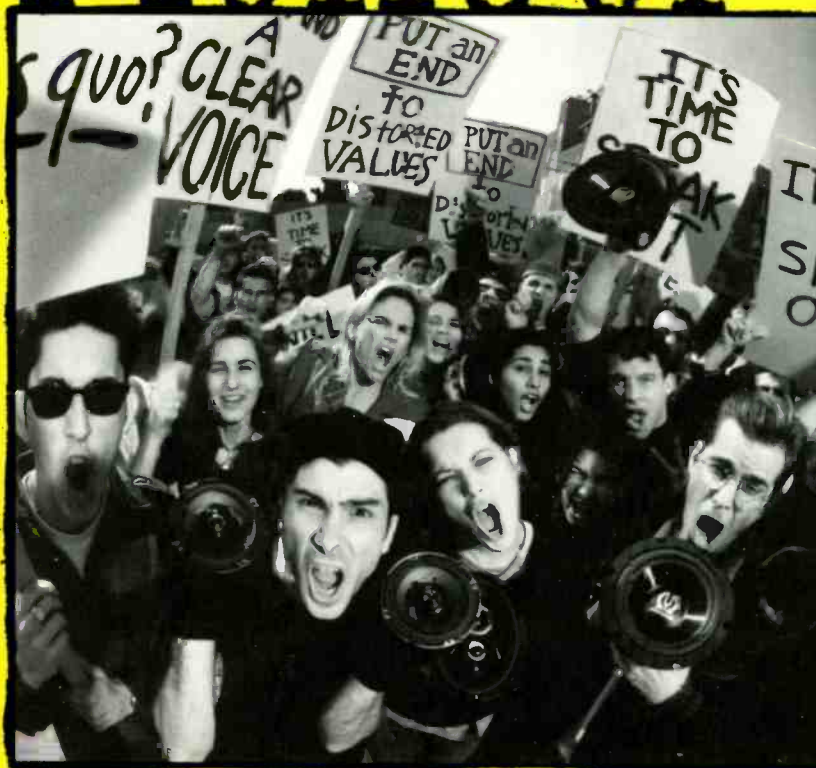


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