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THE CD SOUNDTRACK BOOM
A/V FURNITURE SHOWCASE
Man's best friend may also be his toughest stereo critic. But then you don't have to be able to hear a cat at a hundred yards to tell if your car stereo needs help. If it does, why not put in one of Pioneer's six or twelve disc CD changers. They let you play compact discs through your car's FM radio and give you hours of music in perfect digital sound. So if the stereo in your car hasn't exactly been making your ears perk up, give us a call at 1-800-Pioneer, ext. 102, for a dealer. And get the system that won't just sit in your dash and play dead.
Cinema DSP blurs the line between watching a movie and actually being in one.

Yamaha Cinema DSP gives dialogue more definition. Music, more dimension. And sound effects, far greater realism, more graphic detail and superior placement. This breakthrough in realism is no small feat.

It's accomplished by multiplying the effects of Digital Sound Field Processing and Dolby Pro Logic. Digital Sound Field Processing is Yamaha's unique technology that electronically recreates some of the finest performance spaces in the world.

While Dolby Pro Logic places sound around the room, precisely matching the dialogue and sound effects with the action on the screen.

Together, these two technologies allow Yamaha to offer a complete line of home theater components that outperform other comparatively priced products on the market.

After reading this ad, if you get the feeling that watching a movie with Cinema DSP makes a world of difference, you're absolutely right.

But don't just take our word for it. Hear it for yourself. Stop by your local Yamaha dealer for a demonstration today. It's one demo that's bound to change the way you look at movies forever. Or at least for a very, very long time. For the dealer nearest you, call 1-800-4YAMAHA.

©1994 Yamaha Electronics Corporation, USA. Cinema DSP is a trademark of Yamaha Electronics Corporation. Dolby Pro Logic is a registered trademark of Dolby Laboratories Licensing Corporation. Yamaha Electronics Corporation, USA. P.O. Box 6660, Buena Park, CA 90622.
Just unpacked, the Audio Control C-101 Series III equalizer, Sherwood CDC-5030R CD changer, Pioneer VSX-D25 receiver (reviewed in this issue, page 35), and ADS 5700 speaker are not quite ready for action—the way components are hooked up can make a big difference in their performance. See our cover story, page 64, for some invaluable tips.

Photograph by Jeffrey Krein
FOR THE LOVE OF MUSIC
How much do Americans love music? Last year we spent about twice as much on CDs and tapes as we did going to the movies or attending sporting events. Specifically, we bought 503 million CDs and CD singles (that's two discs for every man, woman, and child), 425 million prerecorded cassettes (album-length and singles), and about 16 million vinyl LP's, EP's, and singles, according to the Recording Industry Association of America (RIAA). Throw in another 11 million music videos and we plunked down $10 billion to keep the tunes flowing.

The RIAA reported that rock and country were the reigning genres of 1993, respectively grabbing 32.6% and 17.5% shares of the overall market. Pop was next in line with 11.7%, followed by the 9.9% share garnered by the urban-contemporary category. Rap, which was broken out as a separate category for the first time, picked up a 7.8% share.

TAPING STATISTICS
CBS-TV claims that the largest U.S. audience in television history (113.2 million people) watched the women's figure-skating finals in the Winter Olympics in Norway this year. A survey by Fuji Photo Film USA indicates that one out of six Americans taped portions of the Olympics, and 80% of the video-tapers recorded women's figure skating. Only about 43% of those surveyed admitted that the Tonya Harding/Nancy Kerrigan controversy influenced their taping decisions. New antipiracy statistics from the RIAA show a decline in the retail sales of counterfeit prerecorded audio cassettes. Two million counterfeiters were seized in 1993, down from 2.5 million in 1992.

COSMIC TURNTABLE
Wondering what to do with that old turntable in your attic? Scientific American recently noted that a turntable is "the ideal device" for making a parabolic telescope mirror. You put a mixture of resin and hardener in a plastic container, place it on the platter, and set the table in motion. The faster the rotation, the shorter the focal length. Oh, and don't forget to remove the phono cartridge. Guess the guys who designed the Hubble space telescope should have used a high-end turntable. Speaking of turntables, after a five-year hiatus Mobile Fidelity has resumed production of hall-speed-mastered vinyl LP's, this time under the ANADISQ 300 banner. Three numbered, limited-edition LP's are now available for $25 apiece: Manhattan Transfer's "Extensions," Pink Floyd's "Atom Heart Mother," and "Tales of Mystery and Imagination/Edgar Allan Poe" from the Alan Parsons Project.

CLASSICAL NOTES
Sony Classical has released on MiniDisc thirteen of its best-selling recordings by such artists as Vladimir Horowitz, Murray Perahia, Jean-Pierre Rampal, Midori, and John Williams and the Boston Pops. In the Classical Music Awards in England, the New York Philharmonic was chosen as Orchestra of the Year in recognition of both the excellence of its playing and its initiatives in taking classical music to wider audiences. In observing the 400th anniversary of the death of the composer Giovanni Pierluigi da Palestrina (1525-1594), Harmonia Mundi is distributing a four-CD set of his music as performed by the Tallis Scholars, a British group devoted to a cappella music of Renaissance masters. Total playing time is 4 hours, 9 minutes.

A/V TIDBITS
Philips plans to phase out the Sylvania brand—one of the oldest names in TV—by the end of the year in an effort to focus its marketing efforts on the Magnavox line. The Grand Alliance, the consortium of manufacturers and research concerns that's been working on a high-definition TV broadcast system for the U.S., has selected Zenith's digital VSB transmission system in what is said to be its final major technical decision. The complete HDTV system is scheduled for final field testing in early 1995, which means it could go on line as soon as 1996.

BACKWARD GLANCES
Chesky Records has released a treasurable souvenir of the late Astor Piazzolla, the Argentine composer, conductor, and master of the accordion-like bandoneon. It is a live recording (in excellent sound) of a concert given by Piazzolla and his quintet in Central Park in 1987. Those hungering for a revival of the New Wave music of the early 1980's will find it on Oglio Records' series of Flashback Favorites chosen by the West Coast DJ Richard Blade. The first three volumes include cuts by ABC, Adam and the Ants, Bananarama, and others.

HIGH ACHIEVERS
The soundtrack recording of The Bodyguard and Whitney Houston's hit song from it, I'll Always Love You, swept the 1994 Grammy Awards. According to the RIAA, sales of the album reached 11 million by March 1, which means that it tied with Saturday Night Fever and Dirty Dancing as the best-selling soundtrack in history. Houston also won in seven categories in this year's American Music Awards. The Rhythm-and-Blues Foundation gave its Lifetime Achievement Award to Little Richard Penniman.
CAN ANY LOUDSPEAKER EVER DELIVER TRUE HIGH FIDELITY IN A CAR?

An automobile's interior is the worst place for a loudspeaker, bar none. It gets hot and it bounces around. People smoke things in it, leave their dogs in it... and that's not even the worst of it.

Car designers leave little or no room to place the speakers where they might sound right. Instead we get foot wells, rear decks and dashboards facing glass, door panels by your feet...

All of this led to the development of the patented Uni-Q driver, the heart of KEF's new KAR Series automotive loudspeakers. By cleverly placing the tweeter directly at the center of the woofer, KEF's KAR Series lets high and low frequencies reach your ears at the proper time, regardless of where the speakers are placed or where you are sitting.

If you thought true car high fidelity was just an ideal, listen to the KAR Series and hear why KEF are the best drivers on the road.
Making Good Tapes

I'm glad Steve Schwartz ("How to Make Good Tapes" in March) thinks the term "total wuss" applies to those who put entire CD's or LP's on tape. Every tape I make on my three-head, three-motor cassette deck is painstakingly, lovingly created from varied sources, such as my Billboard "Hot 100" compilations. HARRY S. ANCHON

Calgary, Alberta

I disagree with Steve Schwartz's assertion that metal tape isn't worthwhile. I like the extended treble and lower hiss of metal (4 dB less than chrome), especially with surround sound. Also, I've found very good metal cassettes for the same price as the best chrome tapes, around $2 apiece for C-90's, and excellent metal cassettes for $3.

Tip: Country music with bass beat, steel guitar, and twangy vocals is ideal test material for fine-tuning bias. NIGEL LITTLEJOHN

New York, NY

his descriptive and fluent writing. His "High End" columns were down to earth, without too much techno-jargon, clear and meaningful, always pulling me in with wit and style. I'd like to offer my sincerest and deepest condolences. DEWayne Murphy

Portland, IN

Record of the Year Reviews

I look forward to your "Record of the Year Awards" each February. I laboriously cross-referenced the 1993 awards against the annual Editorial Index so that I could read the reviews. Lo and behold, only five of the twelve best were listed, and only seven of the twenty-four honorable mentions.

I assume you reviewed all of them in the past twelve months (am I wrong?), but I don't want to go through a year's issues to find them. Couldn't you indicate the issue and page of the original reviews so readers can check them and decide if they want to buy the recordings? KENNETH M. JACKS

East Haven, CT

Good idea, and we'll keep it in mind for next year. All of the winners were reviewed at some point, but not all of the honorable mentions. Only "Best of the Month" reviews and featured reviews are included in our annual index. Remember, though, that a review represents only one critic's opinion: Record of the Year winners are chosen by the editors and all of our critics.

Double Royalties?

As a professional composer, I'd like to correct an inaccuracy in Alan Applegate's letter, "Used CD's," in February. He said, "If I record a selection off the air onto MD ... the artist gets paid several times: for the original recording, for the broadcast, and as part of the purchase prices of my MD system and blank MD." If that were true, then the MD royalty would violate the "first-sale doctrine" of the Copyright Act, thereby cheating consumers. But what Mr.
"Nothing less than a steal."
—Robert Harley, Stereophile

There's something in this review of our GDA-600 digital-to-analog converter that the competition doesn't want you to see. Maybe it's the fact that the GDA-600 makes digital formats sound richer and more musical. Or that it has advanced 20 bit conversion architecture and a Class "A" analog output stage. But what they really don't want you to see is that the GDA-600 costs much less than you might expect. For the full review see Stereophile, Volume 17, No. 3, (March '94). Or, if your copy has been stolen, give us a call.
Applegate is overlooking is that recording off the air violates the doctrine in the opposite direction, cheating the artist/composer/publisher out of his one-time “mechanical royalty” from a record purchase. Perhaps Mr. Applegate reasons that the broadcaster has already paid the mechanical royalty, but not many broadcasters actually purchase the recordings they air. In most such cases, the artist/composer/publisher gets mechanical royalties only when the listening public buys the recordings they’ve enjoyed hearing for free on the air.

The only situation in which the royalty is effectively collected twice is when someone makes, for his own use, a digital copy of a recording he has already purchased. While the present system doesn’t make allowance for that, in the situation Mr. Applegate described, the royalty is only collected once, as it should be.

Danny Baker
Newbury Park, CA

Audio Cables

In “Technical Talk” in January, Julian Hirsch says the only properties of audio cables that can affect a signal are resistance, capacitance, and inductance. In an AC circuit, such as an audio circuit, those properties vary with frequency. A cable’s values at 100 Hz may be different than at 10 kHz.

If a cable has a higher resistance in a certain frequency range, it will sound colored. Together, capacitance and inductance cause a phase change. All musical sounds are combinations of many frequencies. If the phase of each one is altered, a noise that should arrive coherently (like a drum beat or a guitar strum) will arrive slightly spread out over time, making it sound duller, fuzzier, and less focused. This has been verified both on the oscilloscope and in double-blind listening tests.

Keith Weiner
New City, NY

At audio frequencies, the resistive, capacitive, and inductive properties of a good cable (such as heavy-gauge zip cord) are constant. Their combination creates an impedance that does vary with frequency and will interact with the amplifier’s output impedance and the speaker’s input impedance to create small but measurable frequency-response changes at the speaker terminals. The changes usually occur, however, at ultrasonic frequencies or otherwise fall below the threshold of detectability by human hearing; hence their inaudibility during all of the scientifically controlled cable listening tests we know of. A cable’s phase distortions are even less audible, because the ear is amazingly insensitive to rather huge phase distortions. A “duller, fuzzier, and less focused” sound could easily be caused by a slight high-frequency rolloff—which you can correct with greater predictability and at far less cost with a treble control.

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.

Nature can put the Bose® 151™ environmental speaker to the test. But not like our engineers. Consider the following. The Salt Fog Test: the 151 speaker survived 66% longer than the Marine Industry Standard with hardly a paint chip. Then they froze it. Thawed it. Immersed it in water. It still played. And played on at temperatures ranging from 140° to -22°. Conditions on your boat don’t get any more grueling than that.

Of course, what really makes a speaker worth its salt is the sound. We invite you to put the 151 speaker to the ultimate test. And hear for yourself the quality of sound you’d expect when the name is Bose. Call for the dealer nearest you.

1-800-444-BOSE Ext. 411

Better sound through research.
There are times when my music leads me from this world of parking fines and idiot drivers.

I just pop in a disc and head out, free from care, unwinding in bumper to bumper music.

But hold on tight when I crank it. This high power Jensen CD receiver's 6 audio outputs let me easily add extra amplifiers. Plus subwoofers for bass that quakes the bones.

Sometimes it's just me and my music.

I never know when I'll have to escape with my music again. Could be tonight. Could be tomorrow. I'll be ready. Because with a detachable face Jensen, no one can take the experience from me.

For some free info about Jensen products and the dealer nearest you, call 1-800-67-SOUND.
FOR OUTSTANDING ACHIEVEMENT IN MOTION PICTURE SOUND.

A Sony A/V Receiver brings the magic of movie soundtracks home.

With a Dolby Pro Logic® system that literally wraps you in sound bigger than life.

So we ask, heard any good movies lately?
JUST ADD
BACARDI

TASTE THE FEELING.


NEW PRODUCTS

**ATLANTIC TECHNOLOGY**
Atlantic Technology's Model 253 C center-channel speaker has two rear-panel equalization controls designed to help match its tone to that of "most reasonably accurate" main speakers. One control adjusts tweeter level, the other the contour and level of critical midrange frequencies. The controls can also compensate for tonal shifts that occur when the speaker is on top of a TV. The 253 C combines two 4-inch woofers and a 3/4-inch tweeter in a black wood cabinet with an adjustable base.
Circle 120 on reader service card

**YAMAHA**
The KX-580 is the first cassette deck from Yamaha to offer Dolby S noise reduction as well as Dolby B and C and HX Pro headroom-extension circuitry. The two-head deck has a manual bias control and a play-trim control to adjust high-frequency response for more accurate Dolby decoding. It also performs automatic bias adjustment. Infrequently used controls are behind a flip-down panel. Signal-to-noise ratio with Dolby S is given as 80 dB. Price: $399. Yamaha, Dept. SR, 6660 Orangethorpe Ave., Buena Park, CA 90620.
Circle 121 on reader service card

**TERT**
Terk says its AM-FM Q powered indoor antenna is capable of pulling in up to 25 percent more listenable stations than the company's previous top antenna, the AM/FM Pi. The AM-FM Q has wide- and narrow-band reception modes, an adjustable "pre-tuning" circuit that is said to minimize noise and interference in the narrow-band mode, and an LED signal-strength indicator. Price: $100. Terk, Dept. SR, 65 E. Bethpage Rd., Plainview, NY 11803.
Circle 122 on reader service card

**KENWOOD**
Kenwood's DPC-741 portable CD player uses a 3-second buffer memory to minimize skipping and offers five ambience/EQ listening modes. A supplied Ni-Cd battery extender/charger is said to increase running time to 6 hours and achieve a full charge in 2 hours; batteries are recharged whenever the player is operating. A wireless remote control and headphones are included.
Price: $279. Kenwood, Dept. SR, P.O. Box 22745, Long Beach, CA 90801-5745.
Circle 123 on reader service card
NEW PRODUCTS

▲ SHARP
The MD-M11, Sharp's first portable MiniDisc recorder, which weighs in at only 10.6 ounces, has a 10-second buffer memory to minimize skipping as well as several editing functions, track/title labeling, and digital and analog inputs and outputs. Headphones are included. The lithium battery is said to provide 2 hours of recording time. Dimensions are 3 1/4 x 1 1/4 x 4 3/8 inches. Price: $750. Sharp, Dept. SR, Sharp Plaza, Mahwah, NJ 07430-2135.

▲ LUXMAN
Luxman's A-383 integrated amplifier is rated to deliver 100 watts per channel into 8 ohms and provides switching for five audio and three video sources. It has a video buffer amplifier and terminals for an optional infrared sensor, which can be installed in a secondary listening room. Remote control included. Price: $1,500. Luxman, Dept. SR, 915 Washington Ave, S., Minneapolis, MN 55415-1245.

▲ LINNAEUM
Linnaeum's Extreme speaker has a 7-inch woofer and a patented tweeter—with two Mylar diaphragms and an etched-circuit voice coil suspended between two magnets—that is said to provide extended response without distortion. Bandwidth is given as 60 Hz to 30 kHz and sensitivity as 90 dB. The 14-inch-tall ported cabinet is finished in black-ash vinyl. Price: $300 a pair. Linnaeum, Dept. SR, 1238 NW Glisan, Suite 404. Portland, OR 97209.

▲ GOLDSTAR
Goldstar's top VHS Hi-Fi VCR, the four-head GVR-3468, supports the VCR Plus recording system, which lets you automate TV-show taping by keying in codes given in many newspapers and in TV Guide. Features include on-screen programming, automatic head cleaning, front-panel A/V jacks, a wireless remote control, and effects like slow motion, double-speed play, and freeze-frame. Price: $450. Goldstar, Dept. SR, 1000 Sylvan Ave., Englewood Cliffs, NJ 07632.

▲ SHERWOOD
Sherwood's XA-4200Q car amplifier is rated to deliver 30 watts continuous (50 watts peak) into four channels, or 75 watts into two channels, with 0.5 percent distortion into 4 ohms. Said to be stable into 2 ohms, it has an active two-way crossover, a bass-boost switch, and an internal cooling fan. Price: $250. Sherwood, Dept. SR, 14830 Alondra Blvd., La Mirada, CA 90638.
Ask any other company what they're doing about loudspeaker distortion and they'll take the fifth. But we object.

That's why Velodyne's engineered the new DF-661, a remarkable loudspeaker that reduces distortion by a factor of ten.

So what's reproduced is purely music, with all the integrity and beauty the artists intended you to hear.

Check out the evidence. Audition a pair today. Call 800-VELODYNE for the location of a convenient Velodyne dealer.
NEW PRODUCTS

**PHAZE ONE**
Phaze One’s Directional Standz can be rotated 360 degrees and are said to support speakers weighing up to 500 pounds. The platforms use 12-inch bearing races, are made of ¾-inch plywood finished with a black high-pressure laminate, and come in 16 x 16-inch ($70 a pair) and 8 x 8-inch ($50 a pair) sizes. Available by mail order (add $9.95 for shipping) from Phaze One Inc., P.O. Box 439, Jasper, IN 47547-0439.

**JVC**
JVC’s TV-top RG-M10 X’Eye system plays regular CD’s, CD+G karaoke discs, Sega format CD’s, and, with an optional module, electronic books on CD-ROM and Sega Genesis game cartridges. Features include vocal masking for non-karaoke CD’s and on-screen menus. Price: $500 (including Compton’s Interactive Encyclopedia). JVC, Dept. SR, 41 Slater Dr., Elmwood Park, NJ 07407.

**VELODYNE**
The DF-661, Velodyne’s first full-range speaker, teams two specially designed “low-distortion” 6-inch aluminum-cone drivers and an aluminum tweeter in a 18¾-inch-tall cabinet. Frequency response is given as 60 Hz to 20 kHz ±2 dB. Price: $2,245 a pair in rosewood, $1,695 in black vinyl. Velodyne, Dept. SR, 1070 Commercial St., #101, San Jose, CA 95112.

**McINTOSH**
The MC420 four-channel amp, one of McIntosh’s first-ever car stereo components, delivers 50 watts per channel into 4 ohms and employs the company’s Power Guard anticlipping circuitry. The fan-cooled amp has a built-in two-way active crossover and accepts an optional parametric-EQ module. Price: $690. McIntosh, Dept. SR, 2 Chambers St., Binghamton, NY 13903-2699.

**SONY**
Weighing in at 10.9 ounces, Sony’s second-generation MZ-R2 portable MD recorder provides basic recording functions and features a 10-second buffer memory, digital and analog inputs and outputs, and a lithium battery said to provide 2 hours of recording time. Headphones are included. Dimensions are 4¼ x 1¼ x 3½ inches. Price: $750. Sony, Dept. SR, 1 Sony Dr., Park Ridge, NJ 07656.
Buy this.

Get a free trunk and glove compartment.

The 3-CD in-dash changer receiver.

Having a multi-disc CD changer in your car has always meant giving up valuable space in your trunk or glove compartment. Until now.

JVC scores with a triple play, a three-disc CD changer receiver that fits smartly into your dashboard to give you everything in car stereo without sacrifice.

With the KD-GT7, you've got it all. Three CDs totally out of sight but right at your fingertips, brilliant sound reproduction, JVC quality, and a place to keep your gloves.

MOBILE

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CIRCLE NO. 25 ON READER SERVICE CARD
**NEW PRODUCTS**

**NSM**
Designed to provide a rock-solid speaker base, the 42-pound Sandbag stand from NSM is made of medium-density fiberboard and filled with sand. It is 24 inches tall, with an 8½ x 9-inch top plate, and comes with adjustable spikes and plastic putty for attaching a speaker. Price: $295 a pair. NSM Loudspeakers, Dept. SR, P.O. Box 326, Garden City, NY 11530-0326.

**THE LAST FACTORY**
Ready to revisit those dusty old LP's? The Last Factory claims its new Power Cleaner (an “environmentally friendly” solution) can remove dust, fingerprint oils, record-pressing compounds, and other sound-degrading residues from the grooves of an LP. Price: $30 for a ½-ounce bottle. The Last Factory, Dept. SR, 2015 Research Dr., Livermore, CA 94550.

**TECHNICS**
The RS-DC8, Technics’s second-generation DCC recorder, has a MASH 1-bit D/A converter, a new dual-motor drive system said to cut fast-wind times in half, a powered cassette-loading mechanism, and a scrolling fluorescent text display for titling contained on both prerecorded and homemade DCC's. Price: $600. Technics, Dept. SR, One Panasonic Way, Secaucus, NJ 07094.

**TRIAD**
Triad's Thunder Gold/6 dual in-wall subwoofer system includes two sealed enclosures and an outboard 250-watt power amplifier. Designed to fit into a 6-inch-thick wall, each 14¾ x 19 x 5⅞-inch enclosure contains a 10-inch driver. The amp uses a feedback loop to optimize performance and has an adjustable low-pass filter and a dynamic high-pass filter to prevent clipping. Frequency response is given as 20 to 280 Hz ±0, -3 dB. Price: about $1,500. Triad, Dept. SR, 9106 NE Marx Dr., Portland, OR 97220.

**BLAUPUNKT**
Blaupunkt's V250 car amplifier, rated to deliver 50 watts per channel into 4 ohms, combats distortion and noise with two patented circuits designed by Rocktron Corp., the THDL circuit, said to prevent clipping at high volumes, and the HUSH circuit, which suppresses background noise by muting output during quiet musical passages or when no signal is present. The HUSH circuit has an adjustable threshold and is said to be capable of reducing noise by 15 to 20 dB without the audible artifacts that plague many “noise-gate” devices. The V250 also has a two-way crossover. Price: $320. Blaupunkt, Dept. SR, 2800 S. 25th Ave., Broadview, IL 60153.
The Big Chill

As I write this, the Northeast is frozen in yet another bitter winter snowstorm. Winter winds howl through gray skies, cars careen across ice-covered pavement, and arctic temperatures attack even the most carefully bundled pedestrians. After watching the snow pile up for three months, everyone is wondering whether it can possibly be true that every snowflake is different. But I'm stretched out on a lounge chair beside the swimming pool behind my Miami home. The sun is warm, the sky is blue, and I'm wondering whether I'll finish this column in time to make Happy Hour at the local cantina.

Fortunately, by the time you read this even Stereophonic Signals' Vermont subscribers should be well thawed and ready for all the redeeming qualities of summer, including, of course, the floods from all that melting snow. Unfortunately, the compact disc collections of a few audiophiles may, at this very moment, be enduring conditions so extreme they'd make even a resident of Los Angeles shudder.

You see, yet another modern audio myth has apparently popped up again. It all started about five years ago, when a certain audiophile company tried selling the idea. Like many fads, it enjoyed a brief vogue, then melted away. But now, perhaps encouraged by this winter's brutal cold, the idea has returned. It goes like this: If you give your CD's a very cold bath, in liquid nitrogen, say, their physical properties will be altered, and their sound quality will improve. The different materials in a CD do respond to temperature changes differently, but experiments suggested that with a cycle time of several hours, CD's would not sustain any obvious damage.

That question answered, the next task was explaining exactly what was going on at -200° C. Their imaginative theory, the researchers say, is far too technical to explain to most people. Very generally, they say, the cold alters the crystalline structure of a CD in a way that permanently reduces its moldable nature. When a CD is manufactured, its plastic substrate material must be melted, injected, then cooled, so the data surface is not ideal. The cryogenic treatment is said to correct the surface by smoothing it out, thus allowing the laser to retrieve numerical information with less jitter.

Fact or fantasy? Proponents say it is remarkable. Treated CD's sound smoother, with cleaner detail and improved imaging. Harsh "CD sound" is alleviated. The improvement is said to be so apparent that it's audible even with very modest playback equipment.

My bottom line? Anyone who believes this theory needs a little treatment of his own. The CD is a reflective diffraction surface. Data is recovered from it by passing a laser across topographical formations. Specifically, pits modulate the intensity of the reflected beam, conveying data from the disc. The modulation occurs because diffraction from the pits causes cancellations in the reflected light. Error-correction algorithms in the circuitry that "reads" the reflected light are designed to correct errors at a rate of up to 220 per second. Most CD's have error rates of 10 to 20 per second. The idea of changing the molecular properties of the disc is very nice, but it will not affect the quality of data output. On the other hand, plunging your CD collection into temperatures colder than a night on Saturn might cause cracks, clouding, or separation between the layers. Freezing CD's for better sound quality makes as much sense as freezing newspapers to get funnier comics.

If anyone can prove that freezing CD's provokes an audible improvement in music playback, I promise to pay all expenses to have my swimming pool filled with liquid nitrogen. Then I will strip down to my Speedos, jump in, and swim 44,100 laps. One thing—be sure and bring lots of nitrogen. It's a big pool.
In The Mid '70s We Now We've Created

The people who work at Cambridge SoundWorks - including our cofounder Henry Kloss (who also founded AR, KLH and Advent) - have been involved with the concept of home theater from the beginning. In 1969 (years before VCRs and cable TV), Henry Kloss founded Advent, the company that introduced the first home theater audio/video systems - complete with big-screen TVs and digital surround sound. We have had an ongoing relationship with the people at Dolby Laboratories, creators of Dolby Surround Sound, since Henry Kloss introduced the first consumer products with Dolby noise reduction over 20 years ago. And now at Cambridge SoundWorks we believe systems factory-direct, with no expensive middlemen, you can save hundreds of dollars. We believe the products on these pages represent the country's best values in high performance home theater components. Audio critics, and thousands of satisfied customers, agree. Stereo Review said “Cambridge SoundWorks manufactures loudspeakers that provide exceptional sound quality at affordable prices.” Audio suggested that we “may have the best value in the world.”

Center Channel Speakers
Cambridge SoundWorks manufactures three speakers for use as center channel speakers in Dolby Pro Logic home theater systems. All three are magnetically shielded so they can be placed near a TV or computer monitor. Model Ten-A is a small, affordable two-way speaker. $75. Center Channel is identical to a

Surround Speakers
Cambridge SoundWorks makes two “dipole radiator” surround sound speakers. Dolby Laboratories recommends dipole radiator speakers for use as surround speakers. The Surround has a very high power handling capacity and is often selected for “high end” surround sound systems. Audio, describing a system that included The Surround said “In many ways the surround sensation was every bit as good as far more expensive installations.” $399 pr. The smaller The Surround II is arguably the country’s best value in a dipole radiator speaker. $249 pr.

Our Center Channel Speakers

Our Surround Speakers

Our EXO-1 Electronic Crossover
Created Home Theater. A New Way To Buy It.

Powered Subwoofers
The original Powered Subwoofer by Cambridge SoundWorks consists of a heavy-duty 12" woofer housed in an acoustic suspension cabinet with a 140-watt amplifier and a built-in electronic crossover. *Stereo Review* said it provides "deep powerful bass...31.5 Hz bass output was obtainable at a room-shaking level... they open the way to having a 'killer' system for an affordable price." $599. Our Slave Subwoofer uses the same woofer driver and cabinet, but does not include the amplifier or crossover. It can only be used in conjunction with the Powered Subwoofer. $299. The new Powered Subwoofer II uses a 120-watt amplifier with an 8" woofer. $399.

Our EXO-1 electronic crossover can be used with either of our powered subwoofer systems, or with powered subwoofers made by other companies. Its high pass filters keep strong, low bass signals out of the main stereo speakers, and directs them to the powered subwoofer. $299.

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Home Theater Speaker Systems
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Is It Real, or . . . ?

It's often said that the goal of music reproduction is to render sound indistinguishable from that of a live performance. But once you move to the realm of amplified or electronic instruments, every piece of equipment has an effect on the sound. I have heard live performances that didn't come close to the quality of a CD studio recording played on my home system. Has the sonic Holy Grail become the sound of previous studio recordings? In the day of electronics, can there even be a true standard?

JERRY PARKER
Tampa, FL

A

It's one of those philosophical questions that may never be answered. Nobody would argue with the idea that the aim of high fidelity is realism, but "live sound" is a loaded phrase. I may think I know what an instrument sounds like, but I am unlikely to know exactly what every instrument on every recording I own sounds like—and they're all different. To have a proper "live" reference, I would not only have to be aware of the precise characteristics of whatever hall the instrument was playing in, but I would also require a much better sound memory than most of us have. In reality, the best any listener can hope for is that a particular recording played on a particular system achieve a plausible sound.

With most nonclassical music, there is no live reference at all. What with signal processing, multitracking, synthesizing, and the like, there is no acoustic original to compare a recording to. As you note, many live performances of pop music seek to duplicate the sound of the artist's records, rather than the other way around. Usually they don't come close—if even a modest hi-fi system sounded as bad as most live performances, it would be unacceptable.

Even if live music were a reliable reference, relatively few audiophiles have much experience of it. Consequently, to compare audio components, listeners must evaluate their characteristics with reference to each other rather than to a theoretical ideal.

Center-Channel Power

I understand that in a Dolby Pro Logic setup the center channel is used almost exclusively for dialogue. Since most amplifiers, regardless of their rated power, normally produce only a few watts output most of the time, with the rest of their power reserved for brief peaks, why is it now often recommended that the center-channel amplifier have a power rating equal to that of the main front channels? Are we anticipating an increase in films in which the characters spend most of their time yelling at each other?

DANIEL L. WILLIAMS
Portland, OR

A

The center channel does carry most of the dialogue, but there's lots of other material conveyed by that speaker as well. Disconnect the left and right front speakers in a Pro Logic system, and you'll be amazed at how much comes out of the center. In effect, Pro Logic creates three-channel stereo sound (ignoring the surround channel for a moment), and, as in any stereo system, those channels should match. That means the speakers should have the same tonal qualities and the amplifiers should have equal capacity to handle peaks. Otherwise, as sounds move—through the center—from one side to the other, they will change in character.

Parametric vs. Graphic EQ

For many years I have used and enjoyed an equalizer. I understand that mine is called a "parametric" equalizer as distinct from a "graphic" model. What are the differences and similarities between the two types?

LOUIS BURKHARDT
Middleton, NY

A

Both permit detailed manipulation of a system's frequency response and are thus elaborate tone controls. The more common variety divides the audio frequency range into a fixed number of bands—from five to thirty—with fixed center frequencies and a sliding control for each. The positions of the controls gives a visual (graphic) representation of the changes the equalizer is creating in the response curve. A parametric equalizer has fewer bands, typically two or three, but it offers more control over each band, including selecting the center frequency and the range of frequencies each one affects. Both types of equalizer can be useful.

A Ham Next Door

I have an amateur radio operator living next door, and my audio and video systems pick up his signals when he broadcasts. I'm not sure where the interference is entering my system. What can I do to block them or filter them out?

GREG THOMPSON
Denver, CO

A

Radio-frequency interference (RFI) is notoriously difficult to deal with, and there are usually no easy fixes, but at least you have the advantage of knowing
where it’s coming from. It’s really the duty
do it. Its the duty of your neighbor not to generate RFI, but
since he is, the two of you will probably
have to work together to eliminate it. Coop-
eration is the key, but if your ham neighbor
is unwilling, a call from the nearest FCC
office should persuade him. The FCC can
also provide some useful technical tips on
dealing with the problem.

Pre-Echo (Echo)

When I listen closely to my tapes, a mo-
moment before the opening notes of a song
I can sometimes hear them very faintly
in the background. I have even heard this
on a few CD’s. Should I be considering re-
paring my equipment?  

BRIAN LOWY
Portland, OR

Nope, it’s just good ol’ print-through.
The magnetic patterns on a tape have a
tendency to transfer themselves to adja-
cent layers. Normally the effect is masked
by what is recorded there, but at silent
points like the beginning of a tape or be-
tween songs, you can sometimes hear it. If
you hear this effect on a CD, the flaw is in
the analog master tape rather than the disc.

Hum Dinger

When my turntable is connected to the
phono inputs of my receiver, I get a loud
hum. and if I tap anywhere near the
base I can hear it from my speakers. Con-
ecting the turntable to a high-level or tape
input corrects those problems, but then I
have to crank up the bass and drastically
reduce the treble to get something close to a
proper balance. Changing cartridges does
not help. How do I fix this?  

BRIAN HANSEN
St. Charles, MO

Tracking down hum involves pretty much
the same steps regardless of which par-
ticular input is involved, although there
are a number of connections to check in a
phono system. First, check the ground wire
from your turntable. If it’s not securely at-
tached to your receiver’s ground lug (nor-
mally near the phono inputs), connect it. If
it is connected, try detaching it. If the hum
persists, then a ground connection has come
apart somewhere between the cartridge and
your receiver’s phono preamp. To find the
problem, you’ll have to trace the connec-
tions one by one. Because it happens with
other cartridges, it’s safe to rule out the
cartridges themselves and the wiring in
their headshells. If your tonearm’s head-
shell is removable, the discontinuity might
arise at the point where the four tiny con-
tacts meet; a speck of dirt or corrosion is all
that’s needed to break the circuit. Lightly
rubbing the ends of the contacts in the shell
and the tonearm with a pencil eraser should
clean them. “Erasing” the cartridge-con-
necter pins of the turntable’s RCA plugs is
also a good idea.

The tiny wires that conduct the signal
down the tonearm usually lead to a terminal
strip somewhere in the base, where they
join a heavier shielded cable for the trip to
the receiver. That is a likely location for the
break, but since getting at it requires open-
ing the turntable, I would leave it till last.

The RCA plugs that connect to the re-
ceiver’s inputs may be at fault, and you can
often confirm this simply by flexing the
wires carefully to see if there’s a position
where the hum disappears. (Turn the vol-
tume way down to avoid damaging your
speakers.) If the problem is there, either the
connectors or the cables can be replaced.
Because the problem doesn’t occur when
you use the line inputs, the fault may lie
in the receiver’s phono-input jacks them-
selves. If so, consult a qualified technician.

The noise you hear from the speakers
when you tap near the turntable is probably
mechanical vibration transmitted through
the base to the phono cartridge’s stylus. Re-
silient mounting feet or a slab of foam un-
der the turntable might help.

If you have a question about audio,
send it to Q&A, Stereo Review,
1633 Broadway, New York, NY 10019.
Sorry, only questions chosen
for publication can be answered.
THE STATE OF THE ART

VIDEO CD

BY GEORGES MANNES

Most people expect no more from CD’s than to play back great-sounding music. But because CD’s store music like a computer—as a collection of binary digits, or bits—they’re not limited to sound. CD-ROM (read-only memory) discs store programs and data for computers. CD-1 (interactive) discs store programs for TV-top CD-1 players. Photo CD’s store still photographs. As the saying goes, bits are bits, and they can store anything.

The CD spinoff that’s getting a lot of attention these days is known generically as Video CD—an ordinary-looking disc that contains up to 74 minutes of digitally encoded audio and “VHS-quality” video. You just put the disc into a special player hooked up to your TV and watch a movie, or perhaps navigate your way through an interactive video program. The big question is, how does this new technology fit in? Is Video CD the next videocassette, or just another new format in search of a market?

That depends on what you expect from it. In late 1992, JVC introduced CD-based digital video in Japan in the form of its Digital Vision karaoke (sing-along) system. Sold to bars and other commercial establishments, the system is similar to the laserdisc-based karaoke systems marketed by Pioneer and others, but the mood-setting video images (which include superimposed lyrics) are stored in compressed digital form on a CD (see “Digital Squeeze”) instead of in analog form on a 12-inch laserdisc. Both formats offer features like random access and deliver CD-quality sound. In terms of picture quality, however, the laserdisc format is a few cuts above Digital Vision.

In the U.S., where karaoke doesn’t have quite the grip on the national psyche that it does in Japan, the expected applications for CD-based video are very different. Moreover, it appears that two overlapping formats will be vying for your attention this year, one from Philips and another backed by a consortium of big-name electronics companies including Philips itself.

Late last year, Philips began selling a plug-in Digital Video cartridge for $250 that enables its CD-I machines ($399 and up) to play a new generation of CD-I Digital Video (DV) discs. Instead of fairly crude video in a small window, DV discs bring full-screen video of much higher quality to the interactive party.

As of early March, Philips had released eighteen CD-I DV titles, ranging from movies, such as Patriot Games and Naked Gun 2½ ($24.98 each), to interactive titles like Caesar’s World of Boxing ($49.98), which lets the viewer control a prizefighter from a ringside perspective or partake in the match from a boxer’s point of view. Philips has signed deals with two big Hollywood studios, Paramount and MGM/UA, to make their movies available on CD, and it says more original interactive CD-I DV titles are being developed. One of the most in-

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(If we've been there, you'll know it.)
trigging works-in-progress is Kathy Smith’s Personal Trainer, in which an exercise routine is tailored to the user’s individual physical condition, goals, and preferences.

Meanwhile, another CD-based video format—dubbed “Video CD” but known formally as Compact Disc Digital Video—is percolating in the wings. Based on the “White Book” technical standard endorsed last year by JVC, Philips, Sony, and Matsushita (the parent company of Panasonic and Technics), Video CD is essentially CD-I DV without the interactive capability—in other words, a straight playback format for movies and other forms of “passive” programming. It’s essentially the same technology as the JVC Digital Vision karaoke system.

Several manufacturers are working on Video CD players. Panasonic plans to offer a plug-in video adaptor for its FZ-1 REAL 3DO Interactive Multiplayer, which uses the games-oriented interactive CD-based system, rivaling CD-I, developed by and licensed from the 3DO Company. And at the Winter Consumer Electronics Show (WCES) in January, Technics, Goldstar, Sansung, and Fisher showed prototype Video CD players. As we were going to press, Technics announced plans to market a mini-component system this fall that will include a Video CD player, and MCA Music Entertainment said it will support the format.

But most of these companies appear to be playing the classic chicken-and-egg game, delaying the release of their players until software suppliers agree to make a variety of Video CD programs available. “We won’t jump into the market and bring our player out until there is a decent selection of software,” says Phil Petescia, Goldstar’s marketing director, “and we haven’t seen any movement yet.”

“The software support should [follow] when you look at the hardware companies that have come to agreement in Video CD,” observes Andrew Nelkin, assistant general manager of Technics’s audio division. “You have Matsushita, Sony, JVC, and Philips—all of which have vested interests in movie companies. So it’s a matter of bringing everything together and letting one half of the company know what the other half is doing.”

Because Video CD is a subset of the CD-I standard, Video CD’s will be playable on CD-I machines. But because the Video CD format doesn’t include certain CD-I software, the CD-I DV movies mentioned earlier will not be playable on Video CD players. Both types of players, of course, can play standard audio CD’s.

Complicating the matter, however, several manufacturers have designed Video CD-type playback devices that are able to play CD-I DV movies despite Philips’s statement that they are designed to play only on CD-I machines. For example, the CD-I DV movies can be played on Commodore’s new Amiga CD32 multiplayer (when it’s loaded with a video cartridge) and computers equipped with a CD-ROM drive and an MPEG-1 video decoder from Sigma Designs of Fremont, California.

Bringing yet another wrinkle to the Video CD scene, Wales-based Nimbus Technology and Engineering demonstrated last year that it is possible to play Video CD’s on a conventional CD player that has a digital output if an outboard video decoder is connected to it. The problem is, many CD players are programmed to shut down when a “data flag code” is detected in order to protect speakers from damage. In a nutshell, MPEG-1 reduces the data stream necessary to capture moving video from about 165 megabits (165 million bits) per second to less than 1.2 megabits per second.

The goal for the video quality in Video CD is to be VHS quality, not laserdisc quality,” says Technics’s Nelkin. “From what I’ve seen, the things that were encoded thirty days ago [in early December] are much worse than the things that were encoded today. And things that were encoded sixty days ago are almost unacceptable. . . . It’s real hard to comment about what the final quality will be, because we haven’t quite gotten there yet.”

In the meantime, Philips is working on higher-density discs that will offer the possibility of longer running times and improved picture quality. But company officials say it’s still too early in the development cycle to talk specifics. One thing’s for sure: a 120-minute Video CD with better-than-VHS picture quality would be a heck of a lot easier to sell.

George Mannes is a free-lance writer whose work has also appeared in Video magazine, Popular Mechanics, and Entertainment Weekly.
The all-weather Boston® Voyager thrives in the toughest environments (including the critic's listening room).

When it comes to the ruggedness necessary for indoor/outdoor use, most loudspeakers are about as helpless as a kitten up a tree. But not the Voyager speaker from Boston Acoustics. It brings impressive sound to your living room, patio or your Swan-53 custom-built sloop. In fact, Stereo Review says that Voyager "...sounds better than many highly regarded home speakers."

Not an easy feat. Here's how we did it. First, the housing of the Voyager is made of Lexan® resin—the same stuff used to make bulletproof glass. So Voyager is tough enough to withstand anything this side of a small meteor shower. In front, the Voyager's grille is a highly resilient grade of stainless steel. So are its mounting bracket, hardware and screws. Its cone and tweeter dome are made of moisture-, heat- and cold-resistant copolymer. Even the speaker terminals are plated with 14K gold—a material that resists corrosion and looks pretty darn snappy, too. Finally, to ensure that moisture on the outside of the Voyager stays there, we use specially designed gaskets to create a watertight seal. As a result, the Voyager actually floats. And there's more; the Voyager is part of a family of indoor/outdoor speakers, including the Runabout I and Runabout II. Both Runabouts feature the resiliency of a tough polypropylene enclosure, plus corrosion-resistant grilles, brackets and hardware. More importantly, they feature the Boston Sound—a sound that is tight, clean and smooth. But don't take our word for it. Check out the entire line of indoor/outdoor speakers at your local Boston dealer. But, please, bring your own Johnny Mathis records.
Speaker Testing II

Last month I outlined my approach to loudspeaker testing and described how we measure the room response of a speaker. As described, the measurement is valid only at frequencies above a few hundred hertz, not at lower frequencies, where room standing waves cause huge variations in the readings.

To determine true bass response, we measure the low frequencies with the microphone close to the woofer cone, effectively removing the room from the measurement to yield an essentially anechoic response plot. If the system is vented, we make another measurement at the port opening. These readings, corrected for the relative diameters of the cone and port, are combined with the room response. The resulting plot is what I call the speaker's "composite corrected frequency response."

Except for room response, we make most speaker measurements with the Audio Precision System One (AP One), a versatile digital test instrument that is astounding fast and precise. Even so, plotting a full family of directional response curves would be impractical, but we do measure the system's response on the axis of the tweeter and at 45 degrees off-axis (horizontally). The test signal consists of one-third-octave pink noise, sweeping through the full audio range, and the two response curves are plotted on the same axes. For most conventional forward-facing speakers there is little difference between the two curves up to perhaps 6 or 8 kHz, but the off-axis output typically falls off by perhaps 4 or 5 dB at 10 kHz and 10 to 15 dB at 20 kHz.

We plot each speaker's impedance as a function of frequency to establish its resonance points and its minimum impedance over the audio range, which can affect its interaction with the driving amplifier. Sensitivity is measured by driving the speaker with 2.83 volts of pink noise (corresponding to a 1-watt input to an 8-ohm resistive load), regardless of its actual or rated impedance. A sound-level meter, 1 meter in front of the tweeter, measures the sound-pressure level (SPL).

We measure woofer distortion at an input level corresponding to a 90-dB SPL acoustic output, which enables a convenient direct comparison between different speakers. We place the microphone close to the woofer and plot the distortion over the frequency range from 20 Hz to 2 kHz.

The AP One also has the ability to measure a speaker's frequency response with greatly reduced room-boundary influence. The MLS (maximum-length sequence) measurement is based on a digital processing technique that drives the speaker with a short burst (a second or two) of pseudorandom noise, which sounds much like true random noise but is actually a repetitive signal. The speaker's reproduction of this signal as picked up by our test microphone is returned to the AP One, where it is compared with the driving signal and digitally processed to generate a response curve that is essentially unaffected by room reflections at frequencies above a few hundred hertz. We make several such measurements at different microphone distances and angles (usually from 1 to 2 meters from the speaker).

When we compare the MLS response with the room response, there are usually numerous similarities (and some differences). To the extent that the two curves are similar, the comparison tends to confirm the validity of our room-response measurement.

**Our measurements are really a back-up to the extended listening we do, mostly before making any lab tests.**

Significant differences (fortunately rare) simply confirm what I pointed out last month—that one cannot characterize a loudspeaker as having a single unambiguous frequency response.

We also measure group delay (related to a speaker's phase linearity), which in practice is relatively unimportant—at least, we have never encountered a speaker that had any serious problems in this regard. But the test is easily done, and we never know what the next one will show.

Our final test attempts to establish the maximum short-term peak power input a speaker can withstand without damage or severe audible distortion. The Carver Mono-Block amplifier that we use for this purpose has a prodigious short-term current-delivery capability: With the single-cycle toneburst signal we use it will deliver about 2,000 watts into a 2-ohm load at the clipping point. We increase the level of the burst until the amplifier's output clips or the speaker distorts audibly, whichever occurs first. This test is most significant for the woofer, for which we use a 100-Hz signal. Most woofers can be driven to their mechanical limits, producing an unmistakable rasping noise, and at that point we measure the peak-to-peak voltage of the burst on an oscilloscope and compute its equivalent power based on the measured (not rated) impedance at 100 Hz. The test is helpful, for instance, in judging the suitability of a small speaker for use with a powerful amplifier.

All of this measurement is really a back-up to extended listening tests, conducted mostly before we make any lab tests. We listen first primarily so that our auditioning will not be biased by the measurements, but the practice also has the benefit sometimes of giving us clues about where to probe for the causes of anything peculiar or unexpected we might have heard. There is also a listening period after the measurements, partly to try to hear the effects of any special qualities turned up in the measurements. But it is always easier to hear something that you already know is present.

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**TECH TALK**

**BY JULIAN HIRSCH**

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30 STEREO REVIEW MAY 1994
Understanding why the new 575x is a superior surround speaker takes some reflection.

Think about it: The 575x from Boston Acoustics.

Call us crazy, but we think a surround-sound speaker should be designed to surround you with sound. To make your ears think they're inside a submarine. Or a baseball park. Or a heavily armored Petrusian galactic battle fortress.

No problem for the Boston 575x dipolar surround speaker. It takes full advantage of reflected sound to create a realistic movie experience. Here's how. In front of the 575x is a single woofer re-creating low frequencies that the human ear can't localize. On either side is a specially designed combination tweeter/midrange— one firing forward, the other back. These drivers are dipolar, or "out of phase" with each other (when one is pushing air out, the other is pulling air in). As a result, sound from the 575x reflects off several things—walls, ceiling, floor, your prized swizzle stick collection— before it reaches your ears. When it gets there, it sounds like it's coming from all around you. Eureka. With conventional speakers pointed toward the listener, sound is easily localized, and this effect is lost. A few other points on the 575x: One, it handles 125 watts of power cleanly, with nearly zero distortion. Two, it comes with a handy wall mounting bracket. And, three, it's available in two popular designer colors: black and white. See for yourself at your local Boston dealer. Once there, your ears can witness firsthand the impressive sound of the entire line of Boston Acoustics home theater components. We bet you've never heard anything like it. Unless you've actually been inside a heavily armored Petrusian galactic battle fortress before.

Let's clear up the confusion. Use the 575x in a THX* system, and it sounds great. Use it in a DOLBY® Pro Logic setup, and it also sounds great. Sound good? Great.
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TEST REPORTS

Pioneer VSX-D2S Audio/Video Receiver

JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES

In recent years we have seen a growing tendency toward blending audio, video, and computer technology in consumer electronics. The most extreme illustration of this trend to come to our attention so far is the VSX-D2S audio/video receiver from Pioneer. To me, the VSX-D2S is a computer that has some interesting audio capabilities, not merely a deluxe receiver that happens to have some unconventional operating and control features.

At first glance, it may not even be obvious that the VSX-D2S is a receiver, since the usual display window is located unconventionally at the bottom of the panel, behind a tinted flip-down door that also covers a number of infrequently used control buttons. The exposed portion of the panel contains only a single large volume knob, buttons to select the program source, and four larger System Selector buttons.

On closer examination it is apparent that the visible controls, including those behind the hinged door, are not sufficient to operate the receiver. Time for the manuals.

Although it is always a good idea to study the instructions for a complex piece of equipment, in this case it is imperative. The VSX-D2S actually comes with two manuals. The main one has sixty-five fully packed pages, and almost every one of them should be mastered if you expect to use more than the receiver’s most basic features.

The second manual, “Your Invitation to a New Sound Field Experience,” has only sixteen pages, but it attempts to lead you through some of the intricacies of the unit’s operation, especially its extensive ambience-enhancement capabilities.

The VSX-D2S has five amplifier channels, three of them, for the front speakers in a home theater installation, rated at 70 watts into 8 ohms, and two, for the surround speakers, rated at 45 watts each. When the receiver is used for ordinary (two-channel) stereo programs, its main left and right channels are rated at 125 watts each into 8 ohms. Amplifier connections for the three front speakers are binding posts that accept single or dual banana plugs but not flat lugs. There are two sets of connections for the center channel, allowing the use of two “center” speakers at the sides of a small screen. The surround-channel speaker connectors are of the snap-grip variety.

There are three AC convenience outlets, two switched, as well as an FM F-connector jack and binding posts for both AM and FM antennas. Access to all the processed line-level signals and power-amp inputs is provided by a set of preamp-out/main-amp-in connectors. There are also inputs for a CD player, two tape decks, an auxiliary video source (via front-panel connections), a satellite-TV source, two VCR’s, and a laserdisc player. All video inputs and outputs are in both composite and S-video formats.

The VSX-D2S incorporates a powerful digital signal processor, which not only decodes Dolby Surround material but can also simulate a very large number of acoustic environments by generating delayed “reflection” signals fed to all the speakers in a surround setup. Three groups of preset ambi-
ence-processing modes—called “systems” by Pioneer—are supplied (Movie, Concert, and Sports) as well as a more widely adjustable Advanced Soundfield Controller (SFC). The Advanced SFC can individually adjust to one’s taste (and patience) the acoustic properties of nine simulated environments (Theater, Hall, Club, Lounge, Arena, Dome, Church, Stadium, and Studio) in respect to initial delay, liveliness effect (number of reflections), environment size, and the listening room’s size, its acoustic “hardness,” and the physical hardness of its walls.

In addition to surround-sound decoding and ambience simulation, the VSX-D2S can digitally perform the operations of a three-band parametric equalizer or a seven-band graphic equalizer (both with different settings possible for main front and center speakers), a dynamic-range compressor/expander, bass and treble controls, and a bass-boost function. If the settings for those features all had to be adjusted by knobs or pushbuttons, the controls would never fit on a front panel of practical size, much less a remote handset. Therefore, the designers of the VSX-D2S borrowed a technique from personal-computer programs, in which a series of on-screen menus are navigated via a keyboard or a “mouse.”

Cursor controls for the receiver’s on-screen menus are incorporated into the remote, which also has controls for other Pioneer components. The remote can learn the infrared commands for other makes of components, too, and some of the most common are already in its memory and can be selectively activated. The remote can also be programmed to emit a series of commands (up to seven) by pressing its Multi Command button once.

About half of the receiver-specific remote-control buttons duplicate or supplement those of the VSX-D2S’s front panel. But the key to the successful use of the receiver is a group of buttons at the bottom of the handset that function like a computer’s cursor controls and Enter key.

These buttons control the unit’s graphical user interface, or GUI, which requires a video monitor to be hooked up and running to use it. Although some receiver adjustments can be made with the front-panel display alone, that display consists of little more than tiny indicator lights. It is not possible to fully use the capabilities of the VSX-D2S without a video monitor, at least at first. Fortunately for lovers of the simple life, a Direct button on the receiver’s front panel bypasses all its special features and converts it to a conventional, though powerful, stereo AM/FM receiver.

When the graphical interface is used, the video display shows a stylized representation of the front panel of the selected input component (tuner, CD player, record player, etc.). The remote’s cursor controls are used to “push” the on-screen “buttons” of that component, and if programmed to do so, the remote will emit the appropriate command. The same on-screen-button concept holds for the VSX-D2S’s own digital-processor functions (graphic and parametric equalizers, ambience enhancer, Dolby Pro Logic decoder, etc.).

The various digital-processor functions can be assembled into customized “systems” of internal “components,” with each system capable of offering different processing capabilities (not all internal “components” can be used at once). Four memories dedicated to such systems, designated A, B, C, and D, can be selected by front-panel pushbuttons or on the remote.

Although we tested the VSX-D2S with the aid of a video display, our measurements were limited to its operation as a stereo receiver.

The main (front left and right) amplifiers proved to be rated with great conservatism. With both channels driving 8-ohm loads, they delivered between 150 and 160 watts per channel with 0.1 percent distortion from 70 Hz to 20 kHz (and “only” 136 watts at 20 Hz). Into 4 ohms, the output was between 150 and 160 watts from 20 Hz to 20 kHz. The 1-kHz total harmonic distortion plus noise (THD+N) was in the range of 0.03 to 0.06 percent for power outputs between 10 and 130 watts (into 8 ohms). A spectrum analysis of the output at 125 watts with a 1-kHz signal, which eliminated noise from the measurement, showed even lower distortion. The THD+N measurements were somewhat higher because of several relatively large spurious signals well above the audible frequency range, apparently leakage from the receiver’s digital or video circuits.
TEST REPORTS

The frequency response through the preamplifier and power amplifier, with the digital tone-control circuits operating, rolled off slightly above 10 kHz, to -2 dB at 20 kHz. But in Direct mode the response was flat to within less than 0.2 dB over the full range. We also noted a channel-level imbalance of about 1.3 dB (there is no channel-balance control in the VSX-D2S's Direct mode).

The FM tuner characteristics were good, although a fairly high signal level was needed for full quieting in either stereo or mono. The stereo distortion (THD+N) readings were high because of numerous spurious signals related to the multiplex decoder, all well above the audible range. The FM frequency response rose slightly at very high audio frequencies, although the 1.8-dB rise up to 15 kHz would be audible to very few listeners.

According to Pioneer, the design of the VSX-D2S involves many features whose cumulative effects result in audible superiority over more conventional receivers. Among those features are a very rigid (nonmicrophonic) chassis, shortened signal paths, separate power supplies for the analog and digital sections, and even a rubber coating on certain capacitors to minimize their sensitivity to vibration.

I spent the better part of a week experimenting with the operation of a few (by no means all) of the VSX-D2S's many features. The experience left no doubt in my mind that it is one of the most versatile receivers I have ever used. With enough time and patience, its sonic characteristics can probably be matched to the requirements of any room, taste, and music.

But you should also be prepared to spend a lot of time learning what it can do, and how to make it do it. No doubt most people will be happy to settle for something less than its ultimate performance—which will still probably surpass anything that might be achieved with a more conventional receiver. It is the most remarkable A/V receiver I have yet seen and will yield rich rewards for those who master it, but it is definitely not for the faint of heart or thin of wallet!
TEST REPORTS

which is more accurate (more like a dubbing stage in its effect) for playing movie soundtracks than any other setting this receiver offers. You must either use the Movie system and reset all of its parameters to neutral (about thirty button pushes) or "construct" a Pro Logic-only system (about nine button pushes).

Finally, having to use a video monitor (which must have a composite- or S-video input) to adjust processing parameters could prove a serious drawback for those who want to take advantage of the VSX-D2S's ambience enhancement—the most sophisticated that Pioneer offers—in a music-only system. But even the monitor is really not enough. You also have to watch the alphanumeric display on the receiver's front panel, which provides numerical values for some of the settings that appear on screen only as pictograms.

After all that, it is nice to report that the surround system's measured and audible performance was generally good. The noise level in Pro Logic mode was slightly higher than I am used to seeing, but it was relatively benign. Throwing in additional processing, such as ambience enhancement and parametric equalization, did not significantly increase the noise.

The surround-channel noise-reduction calibration error was excessive, even referred to Dolby Labs' recommended spec (which is already higher than the THX spec we have previously used). But the Pro Logic decoder's bass response did not roll off below 100 Hz as many others do. And its signal steering operated well with soundtracks as long as I didn't use it in conjunction with the ambience enhancer. Although that combination might make for an impressive showroom demonstration, it stands a good chance of messing up the intelligibility of dialogue and the clarity of sound effects. (The problem is not unique to the VSX-D2S but is inescapable when you add reflections to a signal that was balanced in and for a fairly nonreflective environment.)

The receiver's most serious potential problem is in any mode of operation except Direct, the line-level inputs will overload above 2 kHz with maximum CD-level (2-volt) signals (the tiny front-panel overload indicator will light up if that occurs). It never happened with any of the music CD's or soundtracks I played, but it may be an audible problem with synthesizer music on CD's or some laserdisc digital soundtracks.

After that inventory of idiosyncrasies, you may be wondering why I said I like the VSX-D2S. Because it is, for all its peculiarities, just one unit. To equal its signal-processing versatility, you could spend the better part of a weekend installing the equivalent separate components and a month or two learning how to operate them. Limitations of the VSX-D2S's processing power prevent you from having all of its "virtual components" available at all times. For example, the parametric and graphic equalizers cannot be switched on simultaneously. Nonetheless, all the special processing is held in the computer's memory and can be activated in seconds. The VSX-D2S's unification of many functions in a single chassis operated via a single—albeit awkward—interface saves immense amounts of aggravation during installation, and it will continue to save you grief as the rest of your A/V system changes.

The receiver's other pluses are less significant but do bear on audio and video performance. For starters, the ambience-enhancement capabilities are considerable, and they provide adjustment ranges wide enough to suit all types of music. The ambience effects themselves are done well, with the reservation that a recording's sonic image may be altered in apparent depth and positioning. That happens with most delayed-reflection ambience-enhancement processing (not just Pioneer's) that sends the echoes for the front half of the listening area through the front speakers themselves and not through a separate set of auxiliary speakers.

Hint for pop music: If the added ambience sounds too spacious or echoey, try the Club, Lounge, or Studio "mode" and the Jazz, Country, and Rock "categories." (All these names bear no rational relationship to the types of music they suggest.) Changing "mode" alters the basic reflection pattern, whereas changing "category" modifies that pattern's overall timings and levels. Don't be afraid to experiment; there's always the general-reset button conveniently located on the front panel.

The compressor/expander is a useful feature. A high compression setting, or using the automatic digital level control, gives very good results for background-music playback or late-night listening. Unfortunately, the compressor/expander cannot be used together with the Dolby Pro Logic decoder.

Other nice features include the handy equalizers and the built-in conversion between S-video and composite-video signals. A qualified thumbs-up for the ambience-enhancement system's use of the center-channel speaker. That helps to anchor the image, but for best results the center speaker should match the other two front speakers tonally.

The Pioneer VSX-D2S is a fascinating component and an important first step for Pioneer as it explores the audio/video/computer ménage à trois. It takes some getting used to, but I'd estimate that in less than a week you'll be so adept at working around its quirks that you'll be avidly exploring its many useful processing options. And such familiarity will breed respect.

—David Ranada
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McIntosh LS330 Loudspeaker System

McIntosh's LS330 might be called a "two-and-a-half-way" speaker system since it has two 8-inch woofers, one above the other in a sealed enclosure, crossing over to a 1-inch aluminum dome tweeter at 3.5 kHz. The upper woofer handles frequencies up to the crossover frequency, while the response of the lower one is rolled off above 350 Hz.

Both woofers feature the patented McIntosh Low Distortion/High Performance (LD/HP) magnet structure, for which the company claims a tenfold reduction in bass distortion compared to conventional woofers. The woofer cones are formed of a coated laminated-cellulose fiber to provide the correct combination of stiffness, low mass, and internal damping. The cone edge surrounds, made of a treated butyl rubber, are said to be immune to moisture and not subject to deterioration in a humid climate. A die-cast aluminum frame provides the necessary rigidity and dimensional stability.

The crossover, an in-phase (Linkwitz-Riley) design, is intended to provide a seamless transition at the crossover point. The tweeter is protected against overload by an automatically resetting solid-state device.

The LS330's enclosure is made of ¾-inch MDF (medium-density fiberboard) veneered with either walnut or black ash. Extensive internal bracing provides structural rigidity to reduce resonance and possible sound coloration. The enclosure is finished on all surfaces, and its beveled edges help minimize diffraction. Its slightly tapering sides and the quarter-round molding on its top side edges give the speaker a distinctive and attractive appearance. Most of the front panel is covered by a removable black cloth grille.

Separate multiway binding-post connectors for the bass and treble sections, normally joined by gold-plated jumpers, are recessed into the lower portion of the rear panel. Removing the straps permits the speaker to be bi-wired or bi-amplified.

System response is given as 55 Hz to 20 kHz ±2 dB, with a sensitivity of 88 dB sound-pressure level (SPL) at 1 meter in free space with a 2.83-volt input. The speaker has a nominal impedance of 4 ohms, and it is recommended for use with amplifiers rated between 75 and 300 watts per channel.

Following our usual procedure, we listened to the McIntosh LS330's for several days before making any measurements. Another pair of speakers set up in the listening room at that time, roughly the same size as the LS330 but considerably lower in price, had previously impressed us with its sound quality. When we compared the two, we were struck by the similarity of their overall sound character (frequency balance), but the LS330 was unmistakably smoother and "easier" sounding, especially in the bass and lower midrange.

Room-response and close-miked woofer measurements confirmed what we were hearing. Overall response was ±4 dB from 38 Hz to 20 kHz, with a slight emphasis at 80 Hz and an impressively flat ±1.5-dB response through the upper woofer range, from 150 Hz to 1.5 kHz. The close-miked response of the lower woofer rolled off above 400 Hz, falling very steeply above 500 Hz; the upper woofer's response extended to several kilohertz.

The system impedance reached a minimum of 3.9 ohms at about 140 Hz and 8.5 ohms at the 55-Hz bass reso-
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These features couple ideally with the GTP-600’s advanced, programmable remote which lets you command up to eight additional system components for complete home theater control.

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Roy Allison's research produced a tweeter with uniquely wide and uniform dispersion even at the highest audio frequencies. Consequently the high-frequency sounds in music are present in the correct amount everywhere in the listening room, and all listeners hear a similar sound balance. The enriched reverberant field also creates an impression of spaciousness akin to that perceived at a live performance."

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**Listening Test Results**

The system's horizontal dispersion was typical of 1-inch dome tweeters. At 45 degrees off-axis the response dropped by about 5 dB at 10 kHz and by 10 dB at 20 kHz. Quasi-anechoic MLS frequency-response measurements confirmed some of the features of the room-response measurements, showing the LS330 to have an impressively flat axial frequency response, ±2 dB from 300 Hz to 20 kHz and ±1 dB from 2.5 to 20 kHz.

At 92 dB, the measured sensitivity was considerably higher than the LS330's 88-dB rating. The manufacturer's rating was based on a free-field (anechoic) measurement, but our measurement was made in a normally live room, which probably accounts for much of the difference.

In view of McIntosh's claim of very low woofer distortion, we were especially interested in the results of our low-frequency distortion measurements. With a 2.26-volt drive level (corresponding to a 90-dB SPL in our tests), the LS330's bass distortion was indeed unusually low, less than 1 percent (typically about 0.7 percent) at frequencies above 45 Hz and only 3 percent at 30 Hz and 4.5 percent at 20 Hz.

Listening-test results were entirely consistent with McIntosh's claims and our measurements. At all frequencies and listening levels, the LS330 had an ease and smoothness that were clearly audible in side-by-side comparisons with other speakers.

Curious about the difference between the manufacturer's low-frequency response rating of 55 Hz and our measurements, we listened to some organ recordings containing very low frequencies (between 20 and 40 Hz). Normally, we use subwoofers to appreciate the full content of those recordings, but to our amazement the LS330 reproduced them very capably on its own. Only with the lowest organ notes (under 30 Hz) did the subwoofers contribute audibly to the overall listening quality, and even then to a modest degree.

That is impressive bass performance for a speaker rated down to "only" 55 Hz, and it was complemented very nicely by a superb soundstage. The LS330 produced what may have been the most accurate lateral and even vertical positioning we have yet experienced with the Chesky JD37 test disc.

While the McIntosh LS330 is not inexpensive, its sound is fully commensurate with its price. Compared with some other very good, but more moderately priced, speakers, it differs primarily in its exceptional sonic ease and smoothness—and, on another level, in its beautiful cabinet finish.
Since their introduction about seven years ago, CD changers have achieved popularity thanks to their enhanced convenience with little or no increase in cost and no sacrifice in performance compared with single-disc players.

The first CD changers used interchangeable magazines holding five or six discs (ten or more in typical automotive versions). For some users, however, especially those with large disc collections, the advantages of these changers were offset by the cost of multiple magazines or the bother of frequently changing the discs in a single magazine. When carousel (rotary-tray) changers appeared, their lower cost and ease of use soon led them to dominate the market.

Recently we have seen the appearance of several CD changers with greatly increased disc-storage capacity. The first of these were relatively expensive "CD juke boxes" derived from commercial designs and holding 100 discs in a more or less permanently loaded magazine. At last January's Winter Consumer Electronics Show in Las Vegas, I even saw a 240-disc computer-controlled changer that cost as much as a luxury automobile. Fortunately, more practical and affordable consumer-oriented mega-changers are now available.

The JVC XL-MC100 is one of these. Clearly directed toward the needs of an audiophile, it has jacks for interfacing with compatible JVC components for unified control of many system operations. It consists of a control unit and a player unit, which are connected by two 6-foot cables. The control unit resembles a typical CD player without a disc drawer and has the same attractive gray satin finish as other JVC audio products. The player is a roughly cubical black box, just under 15 inches on a side (it actually resembles a small subwoofer). The front hinges open at the touch of a button (but not while the player is operating) to reveal 100 slots, each containing a thin removable plastic tray that can hold one CD.

All the operating controls of the XL-MC100 are on the control unit and its wireless remote. The front-panel display window is much like that of a conventional CD player, showing disc and track numbers and elapsed time on the disc. Two buttons, used in conjunction with a ten-key numerical array, select the desired disc and track. Other buttons operate the play/pause and stop/clear functions. A group of buttons at the right of the panel oper-
ate the disc-skip and fast-search functions and a number of programming functions. Below them are a head-phone jack and its volume knob.

The changer has extensive programming functions, most conveniently operated with the wireless remote control. The handset is relatively large, with few visible buttons (mostly associated with conventional operation). But its center section hinges up to reveal some twenty-eight programming buttons. A small LCD panel on the remote control aids in these operations.

The XL-MC100 can be programmed to play a single disc or track or to repeat a track, a disc, or all 100 discs indefinitely. It can play a program of all the desired tracks in all the discs in any order or all the tracks on any selected disc in random order. Up to ten 100 disc slots in the player can be assigned an alphanumeric disc title up to eight characters in length. After a title is in memory, keying it in will identify its slot location on the control unit's display. Conversely, keying in the slot number will display the title of the disc in that slot.

We tested the JVC XL-MC100 as we would any other CD player. Many of its characteristics were outstanding, even by single-disc player standards. For example, the frequency response was ruler-flat, within ±0.01 dB from 15 Hz to 6 kHz on one channel and to 12 kHz on the other. The variation from 12 Hz to 20 kHz on either channel was only ±0.05 dB.

JVC's 1-bit digital-to-analog (D/A) converters, which we have previously found to be outstanding, produced a near-perfect linearity of the audio output over the full range from 0 to −90 dB, with an amplitude error of less than 0.06 dB over that range. The measured distortion levels and channel separations were all excellent.

The only significant performance "penalty" one must pay for this changer's exceptional versatility and overall audio quality is the disc-change time. There is considerable mechanical action (and sound) during the change cycle, which required 13 seconds when the player was changing between adjacent slots and around 17 seconds between Slot 1 and Slot 100. Long change time is probably unavoidable in a large changer like this one, and it is a small price to pay for the changer's benefits.

It must be said that programming some of the changer's features, such as its disc-title memory bank, can be tedious. But none of that is really necessary for enjoying convenient, smooth access to such a large number of discs. And a bonus (thanks to the 30-plus pounds of the disc magazine) is the changer's virtual immunity to physical shock and impact. We found it quite impossible to cause skipping or any other effect (other than brushed hands) by pounding the player unit on all sides.

Probably not everyone will need, or want, a 100-disc CD changer. For those who do, however, the JVC XL-MC100 is certainly one to look into.
“Bipolar Systems are as Close as We’ve Come to Finding the Holy Grail of Home Theater.”

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Definitive’s remarkable new PowerField™ 1500 250-watt powered 15" subwoofer is now available ($995).

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Sonance is probably best known for its in-wall loudspeakers, but in recent years the company has been making more and more complementary products, including various electronic accessories and power amplifiers. Its new Sonamp 2120 was designed especially for home theater, multiroom sound distribution, and custom installations. For convenience of installation, it has an "auto-on" circuit that turns it on when a signal appears at its input terminals and switches it off after a few minutes without an input signal (this feature can be bypassed if desired). To simplify large sound-distribution installations, it also has two sets of parallel-connected signal input jacks, enabling daisy-chaining of two or more amplifiers without the use of Y-connectors, which might compromise reliability.

Another reliability factor is the amplifier’s conservative circuit design. It uses only discrete, high-speed output transistors, fully protected against turn-on surges, overload, short circuits, and overheating. The power supply is built around a heavy-duty toroidal power transformer and rectifiers, with oversized heat sinks.

The Sonamp 2120's back panel holds the AC line fuse and two pairs of insulated five-way binding-post speaker connectors (accepting dual banana plugs, lugs, or stripped wire leads), as well as the line-in and line-out RCA jacks. A slide switch enables or disables the amplifier's automatic turn-on feature.

On the front panel are a pushbutton power switch and red and green LED indicators that glow when the amplifier is connected to an AC power source and when it is active, respectively. There are also two small holes through which the level of each channel can be adjusted with a screwdriver.

Although the Sonamp 2120's rear-apron markings indicate that it is to be used with 8-ohm speakers, the specifications in the instruction manual include power and distortion ratings for both 8- and 4-ohm loads, and we tested it accordingly. With both channels driven, the amplifier substantially exceeded its specified power into both load impedances. Encouraged by these results, we added a 2-ohm load in our dynamic-power measurements (20-millisecond bursts, twice per second). Even into that very low impedance, the Sonamp 2120 continued to pump out more power.

The Auto-On switching circuit turned on the amplifier with a very
"Definitive's Subwoofers Deliver Ultimate Bass Performance!"

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To ensure optimum performance, the PF 1500 has high and low level inputs and outputs plus adjustable high pass, low pass, volume and phase controls to allow perfect blending with any system and ultimate bass response in any room.

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The PowerField 1500 ($995) has been honored by winning Sound & Vision's highly coveted 1994 Critic's Choice Award
small input signal (about 1 millivolt), and it remained on for about 4 minutes after the input was removed. The switching action was completely silent, detectable only by watching the panel lights (or hearing the program that triggered the switch). The amplifier's top cover became only faintly warm in normal operation, and we found that even sustained high-power tests did not make it uncomfortably hot to the touch.

Very few power amplifiers in the Sonamp 2120's price range can match its performance. Despite its moderate price and conventional external appearance, it is a very powerful and rugged amplifier. Add to this its compact size and operating convenience, and it is plain that the Sonamp 2120 would be an excellent choice for any serious home audio installation, and not necessarily limited to the multiroom and home theater installations for which it was primarily designed.

We found its Auto-On feature especially handy for use with a tuner/pre-amplifier, whose output controlled the Sonamp without requiring more than an audio signal connection between the two.

### Camber 1.0ti/SM Loudspeaker System

**JULIAN HIRSCH • HIRSCH-HOUCK LABORATORIES**

The 1.0ti/SM is the smallest and least expensive of the five loudspeakers in Camber's premium ti series. It is a two-way system with a 6½-inch woofer operating in a vented enclosure. The woofer cone, made of a mineral-filled copolymer, has a rubber surround. The crossover, at 3 kHz, is to a 3/4-inch dome tweeter whose diaphragm is stamped from a single sheet of titanium. The dome has an integral spiral-shaped titanium surround that also serves as a heat sink (the tweeter is cooled and damped by magnetic fluid as well). Camber says that the drivers in its speakers are designed to complement each other, simplifying crossover design.

The 1.0ti/SM's front panel is largely occupied by the two drivers and the bass port. It is covered with a black cloth grille retained by plastic posts. The input connectors, recessed into the back of the cabinet, are multiway binding posts on ¼-inch centers, usable with dual banana plugs as well as wires or lugs.

Camber specifies the 1.0ti/SM's frequency response as 60 Hz to 20 kHz ±3 dB. The system's nominal impedance is 8 ohms, with a minimum value of 7 ohms, and its rated sensitivity is 89 dB sound-pressure level (SPL) at 1 meter with a 1-watt input. The 1.0ti/SM is recommended for use with amplifiers rated between 10 and 100 watts per channel.
The mobile CD changer has finally evolved. Nakamichi proudly introduces the seven-disc MB-7 Mobile MusicBank System. The magazine changer is history. Now loading discs is as simple as placing one on a tray and pushing a button.

Three versions are available to address any installation situation. The MB-7 can be paired with your choice of head units, the TD-7 designed for interfacing with your choice of head units, or CD-7. The MB-7FM is with existing OEM systems. For more elaborate component systems, the MB-9, with dual 18-bit D/A converters and digital output, is also available. Sound quality, of course, is pure Nakamichi. Price, however, is comparable to ordinary magazine players. Choose one and witness the extinction of an obsolete technology and the birth of a new one.

Nakamichi
TEST REPORTS

For room-response measurements, we placed the Camber 1.0ti/SM speakers 7 feet apart on 26-inch stands, about 2 feet from the wall behind them and several feet from the side walls. With the microphone on the axis of the left speaker, and some 12 feet from it, the room responses of both speakers were measured and averaged on the same graph coordinates. The driving signal was a swept-frequency sine wave with a one-third-octave superimposed.

The resulting averaged response was within about ±3 dB from 300 Hz to 20 kHz. Floor reflections produced somewhat greater variation at lower frequencies, but the overall response was still within ±5 dB from 70 Hz to 20 kHz.

We measured the woofer response separately, with close microphone spacing to remove room effects. Combining the measurements from the cone and port, corrected for their relative dimensions, produced a woofer curve that varied only ±1 dB from 50 to 250 Hz, sloping off smoothly at higher frequencies. Splicing this curve to the room measurement yielded a composite response curve that showed a smooth, elevated output between 50 and 300 Hz, about 5 or 6 dB higher than the range from 1 to 20 kHz. That was reasonably consistent with what we heard from the speakers, which sounded very smooth overall, with a slightly warm lower midrange and excellent bass.

Measurements at 1 meter with a swept one-third-octave noise signal indicated an axial frequency response of ±1 dB from 60 Hz to 10 kHz, falling to −4 dB at 20 kHz. The off-axis response was within 2 dB of the on-axis reading up to 5 kHz, falling off to −3 dB at 10 kHz and −11 dB at 20 kHz. A quasi-anechoic MLS response measurement showed a ±1.8-dB variation from 300 Hz to 3 kHz, a 2-dB increase between 5 and 7.5 kHz, and a return to the average midrange levels from 8 to 16 kHz followed by a drop to −4 dB at 20 kHz.

The system's sensitivity was 87 dB, slightly lower than rated. With a 4-volt drive level (equivalent to a 90-dB SPL) the woofer distortion averaged about 1 percent from 2 kHz to 80 Hz, rising to 4.5 percent at 50 Hz and 8.5 percent at 40 Hz. The speaker's highly uniform group delay (less than 0.3 millisecond variation from a few hundred hertz to 20 kHz) attested to its excellent phase linearity.

The minimum impedance of 7 ohms was measured at 180 to 200 Hz. There were impedance peaks at the two bass resonances—34 ohms at 25 Hz and 40 ohms at 75 Hz—and the maximum impedance of 50 ohms occurred at 1.5 kHz.

The woofer cone bottomed noisily on a burst of 385 watts at 100 Hz. At higher frequencies the speaker was able to take anything our test amplifier could dish out into its relatively high impedance: 240 watts at 1 kHz and 575 watts at 10 kHz.

Listening to the Camber 1.0ti/SM, we thought it sounded very much the way its measurements looked—a musical-sounding speaker with excellent imaging, a smooth, nonsizzling treble, and a slightly warm low end. Overall, compared with other small speakers we have tested, it seemed to fit neatly into its price niche. We found it superior to most of the lower-price mini-speakers and not quite the equal of costlier models, but a clear competitor in its own price range. It is also smaller than most other speakers at its performance level. If you're in the market for a compact, reasonably priced, high-performance loudspeaker, the Camber 1.0ti/SM deserves a place on your audition list.
In a movie theater, the speaker you never see is the center channel. That's because it's located directly behind the screen, so dialogue sounds as if it's coming directly from the actor's mouths. Although movie screens have tiny holes in them to allow the soundtrack to pass into the theater, the screen material absorbs so much high frequency information that filmmakers are forced to boost the treble content of the soundtrack. Unfortunately, when a film is transferred to videotape or laserdisc, this high frequency boost remains, resulting in dialogue that is unnaturally harsh and much too "up front" for home theater. While most speaker manufacturers design their center channel systems to be acoustically flat—a noble goal, they completely ignore the question of overly bright dialogue reproduction.

To overcome this problem, Atlantic Technology's Model 153 C Center Channel Speaker gently rolls off the high frequencies for smooth reproduction of center channel dialogue information. When designing the 153 C, our R&D team spent countless hours listening to a wide variety of film and television soundtracks. These tests allowed us to perfectly tune the Model 153 C for extended listening, without the brittle, misdirected and harsh sound often associated with center channel loudspeakers. The result is rich, natural sounding vocal reproduction. Simply put, the right tone of voice.

At Atlantic Technology, we specialize in home theater. We listen to our customers and to movies with equal excitement, then deliver components that are as much about value as they are about performance. That's why Video Magazine said "In its price range, Atlantic Technology's currently very hard—if not impossible—to beat.”

Call 617-762-6300 and refer to Dept. B for more information and the name of your nearest Atlantic Technology dealer.

Atlantic TECHNOLOGY
343 Vanderbilt Ave. Dept. B
Norwood, MA 02062
CIRCLE NO. 5 ON READER SERVICE CARD

"Deserve's got nothin' to do with it."

If you can name the movie the above quote is from, the character who said it, and the actor who played the role, you can be entered in a drawing to win our Center Channel Speaker. Send your answers on a postcard to Atlantic Technology, Contest Dept., 343 Vanderbilt Ave, Norwood MA 02062. Contest ends 3/31/94
I put the top down on my audio system and got blown away.

Great sound is always in the air when there's a Delco Electronics Sound System nearby. Maybe it's because we're obsessed with reproducing high quality sound. From the subtle "ping" of the cymbal to the deep "throbbing" bass. So breeze by your local car dealer and check into it yourself. Because hearing is believing.
AUTOSOUND
PROS MAP OUT
BUDGET SYSTEMS
FOR 3 POPULAR
VEHICLES

AUTOMAKERS have come a long way in improving the quality of the sound systems they put into new vehicles. Even so, if you listen to a lot of music on the road, if you’re a real enthusiast with high audio expectations, the standard system that comes with a car probably won’t satisfy you for very long. Dull highs, boomy bass, hole-in-the-middle imaging, gnawing distortion—these are just a few of the common complaints. Of course, you could have gotten better sound by opting for the premium package your dealer offered you when you bought the car. But you didn’t. So now what do you do?

WE asked experts from three respected autosound shops to recommend the “best-sounding” aftermarket system for three popular vehicles, the Acura Integra, the Dodge Caravan, and the Ford Taurus. The catch was that we also asked them to include CD in their plans and to hold the ticket (including installation) to $1,500 or so. Our final request was to suggest an upgrade option that would take the system to the next level of performance. While the following systems were formulated with specific vehicles in mind, they can be adapted to other makes and models. All prices given are what these dealers actually charge.

BY BOB ANKOSKO
Autosound guru Rich Inferrera, the owner of Rich’s Car Tunes in Watertown, Massachusetts, mapped out a system for the 1994 Acura Integra sedan that’s designed to deliver “extremely clean sound and accurate bass.” Phase one of his plan calls for replacing the factory cassette receiver with a Pioneer DEH-45 CD receiver. In addition to a theft-deterrent detachable faceplate, “it’s got an incredibly smooth transport and super-sounding preamp and D/A [digital-to-analog] sections,” says Inferrera, who’s been installing car stereo systems since the days of the eight-track tape player.

Next he’d replace the factory speakers in the front doors with a pair of Alpine Model 6663RD coaxial speakers, which would be concealed by the existing grille covers. “The 6663HD is the best-sounding 6 1/2-inch two-way speaker we sell for anything that’s close to that price,” Inferrera says. “It has great midrange/midbass performance and a smooth-sounding soft-dome tweeter.” The 6 x 9-inch speakers in the rear deck would be left intact and powered by the Pioneer DEH-45 CD receiver.

To fulfill his promise of extended, accurate bass performance, Inferrera turns to the EQ250 subwoofer from Advanced Composite Audio (ACA), a company founded by the former director of loudspeaker development at ADS. Rated “honestly” down to 15 Hz, the EQ250 packs a single 10-inch driver in a peculiar pentagonal enclosure that has a flexible tube coming out of it. Inferrera would secure the compact box in the back of the trunk and run the tube, which serves as the system’s port, up to a 4-inch-diameter hole he’d cut in the rear deck; the hole would be concealed by the deck’s fabric covering or, if necessary, an inconspicuous grille cover. “The EQ250 is very smooth-sounding and has a lot of accurate impact,” says Inferrera. “It also has a thermal-shutdown circuit so you don’t damage the woofer.”

For power, Inferrera would run a set of RCA cables from the Pioneer DEH-45’s line-level outputs to an ADS Power Plate 4.25 amplifier, rated at 4 ohms to deliver 25 watts into each of four channels, which he’d bolt to the floor under the passenger seat. Two channels would power the Alpine door speakers and two would be bridged to feed 50 watts to the subwoofer. Inferrera would use the amp’s variable crossover to match the subwoofer to the front speakers and use the head unit’s fader control to adjust the level of the rear speakers to complement—not overpowernothe front speakers.

The installation would take 8 hours, which at the shop’s rate of $45 per hour works out to $360. Add that to $1,146 for components and $100 for cables and miscellaneous parts, and the grand total is $1,606. “Lots of people will claim to be able to install this system in less time,” warns Inferrera, a stickler for detail. “But don’t be fooled by low labor charges. You always get what you pay for. We would install this system for the life of the vehicle, using proper wire, connectors, and shrink tubing to protect the wire.”

Inferrera’s component combo will work in any car that has 6-inch front-door speakers and a rear deck. “If your car has 4-, 5 1/4-, or 5 x 7-inch door speakers,” he says, “buy the best speaker you can afford that fits and follow the rest of the system exactly.” For a hatchback, he’d go with ACA’s SW160 subwoofer (at a saving of $110), a more conventional design that could be placed anywhere in the hatch area.

For those who want to take the system to the next level, Inferrera suggests stepping up to Pioneer’s more fully featured DEH-P65 CD receiver ($549), which has CD changer controls and dual line-level outputs, and ADS’s six-channel Power Plate 6.25 amplifier ($359). He’d use the extra amplifier channels to power the rear speakers. “We’d be able to balance the system using the amplifier’s gain controls instead of the head’s fader control.” Going with these components from the starting gate would bump the ticket up an additional $290 to $1,896 (labor charges would be the same), while adding them at a later date would cost $1,088, which includes $180 in labor charges.

Bottom Line
Rich’s Car Tunes
Watertown, Massachusetts

<table>
<thead>
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<th>Component</th>
<th>Cost</th>
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<tr>
<td>Pioneer DEH-45 receiver</td>
<td>$359</td>
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<tr>
<td>ADS Power Plate 4.25 amplifier</td>
<td>$259</td>
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<tr>
<td>ACA EQ250 subwoofer</td>
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<tr>
<td>Alpine 6663HD speaker (pair)</td>
<td>$179</td>
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<td>Cables and miscellaneous parts</td>
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<td>Labor</td>
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<td>Total</td>
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Doug Ide, the installation manager at Paradyme Car Audio in Sacramento, California, apologized for going over our budget, but he insists that his plan for the 1994 Dodge Caravan represents "the best system you can buy for the price without sacrificing sound quality."

The system begins with a Sony CDX-5060 CD receiver, a detachable-face head that Ide says is very easy to operate. "It has the most features for the price, and its buttons are big and well illuminated for nighttime use," he notes. The CDX-5060's line-level outputs would feed a Soundstream Granite 180.6 amplifier, rated at 4 ohms to deliver 30 watts into each of six channels. Ide would mount the amp under the driver's seat and use four of its channels to drive the front speaker complement and a pair of coaxials in the rear of the van. The other two channels would be bridged, delivering 110 watts to a custom-built subwoofer under the rear passenger seat.

Primary sound would come from Soundstream's P51 two-way component speaker system, consisting of two 5½-inch woofers and two 1-inch soft-dome tweeters. Ide would drop a woofer into the stock cutout in each front door and mount a tweeter above it, flush with the door trim. Each channel has its own passive crossover box, which Ide would tuck away under the driver's seat next to the amplifier. The factory speakers in the van's tailgate door would be replaced by a pair of Alpine Model 6297 6 x 9-inch coaxials, which Ide terms "adequate" for rear-fill use.

To fill in the bottom end with "clean, tight bass," Ide recommends a custom-made subwoofer enclosure made of sturdy ¼-inch Medite and covered with carpeting.

Once everything was in place, Ide would set the low-pass section of the amplifier's built-in crossover at 75 Hz and cross the front speakers over at 150 Hz. He'd let the rear coaxials run full range.

"I picked Soundstream's Granite series amplifier and speakers because they're durable, reliable, and flexible, and they offer great sound for the money," Ide says. "For the price, you just can't beat the performance."

The component tab comes to $1,311, including $100 for the custom subwoofer enclosure. Ide's fee for installing the rig would be $250, bumping the total up to $1,561. For those who want a stealth system, Ide would paint the speaker grilles to match the van's interior for an extra $45. "This system is an overall good performer that is fairly simple to install," he says, adding that it's also perfect for the Caravan's siblings, the Plymouth Voyager and the Chrysler Town & Country, and easily adaptable to Ford's Aerostar van.

Ide is so confident in the performance of the system that his upgrade plan is quite simple, calling only for replacing the Sony CDX-5060 CD receiver with a CDX-5460 ($429). He prefers the 5460 over the 5060 because it has a wireless remote control and dual line-level outputs, which provide front-to-rear fading capability. In truth, Ide would do his best to convince you to go with the CDX-5460 from the get-go. Doing so would tack on only $100 to the system ticket, compared to the $449 (including labor) it would cost to replace the head unit at a later date.
Soundstream Granite Pro 8 woofer
Soundstream Granite 180.6 amplifier
UPGRADE
SONY
FF
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C0N-5110
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Sony CDX-5460 CD receiver
Alpine Model 6297 coaxial speakers
Soundstream Granite 180.6 amplifier
Sony CDX-5060 CD receiver
Soundstream P51 speaker system
Sony CDX-5060 CD receiver
Don't expect virtual reality or a rolling concert hall for $1,500," says Paul Papadeas, the owner of Sound Crafters in South Daytona, Florida. "What you can expect is excellent performance—provided the system is properly designed and installed." The component lineup he recommends for the 1994 Ford Taurus is "aimed at the value-conscious consumer who wants a nice-sounding system. I chose all Clarion components because they offer good value and upgrade potential and they're reliable," explains the twenty-three-year autosound veteran. "I've also learned over the years that people tend to feel more comfortable buying a one-brand system."

The system would revolve around Clarion's Model 5780CD CD receiver, chosen for its relatively high-power amplifier, which is rated to deliver 14 watts continuous power to each of four channels. "Using the self-contained power helps keep the cost down because we can use the factory wiring harness and we don't have to run new wires from an outboard amplifier to the speakers," says Papadeas. With the help of a Metra installation kit and wiring-harness adaptor, he would be able to slide the deck neatly into the dash and tap directly into the factory harness without having to splice any wires, which would void the vehicle's factory warranty. Among the operating features that make the Model 5780CD attractive are a detachable control panel to ward off thieves and the novel Zero-Bit Detector circuit, which automatically mutes system output in the absence of an audio signal to reduce background hiss.

For speakers, Papadeas turns to the Pro Audio series Clarion introduced last year. The challenge with the Taurus is to find a speaker capable of delivering acceptable highs from a front-door mounting location that is partially obscured by the dashboard. His choice: a pair of SE3603-61/2-inch triaxials, with a 1-inch soft-dome midrange and a 11/2-inch tweeter suspended over a 61/2-inch woofer. He'd replace the rear-deck speakers with a pair of SE3905 6 x 9-inch triaxials. "Both speakers are very efficient [their sensitivity ratings exceed 90 dB], and they present no installation obstacles," he says.

Bass—and plenty of it—would be delivered by a trunk-mounted AT8 powered subwoofer that's rated down to a tooth-rattling 25 Hz. Fed by the 5780CD's line-level output, the AT8 combines an adjustable low-pass crossover, a 22 watt-per-channel amplifier, and an 8-inch dual-voice-coil driver in a tube-shaped enclosure with integral mounting brackets. Papadeas would position the subwoofer in a corner of the trunk to maximize its output and would set the crossover at about 175 Hz to achieve a smooth transition between low and middle frequencies.

"This system offers a level of performance that would satisfy the audiophile in anybody at that price," says Papadeas, noting happily that Sound Crafters could install it for $160 under budget. "It would sound significantly better than the standard factory system, especially in terms of frequency response and clarity. The sound would be very full thanks to the subwoofer." Another key selling point of this line-up, according to Papadeas, is that it can be adapted to just about any four-door sedan—including, of course, the Mercury Sable.

To address "the beast within" that has been known to emerge once the novelty of owning a good car audio system wears off, Papadeas would double the power to 30 watts per channel (continuous) by installing a four-channel A1200 amplifier ($350) in the trunk. He'd also mount a Model 73EQ seven-band graphic equalizer ($150) in the dash to give the listener greater tone control. The cost of this upgrade: $580, including a very reasonable $80 for labor.
THE SOUNDTRACK BOOM

More and more hit albums are coming out of the movies.

Call it the Various Artists Syndrome. We're talking about the recent spate of movie soundtrack albums—the ones accompanying major commercial flicks in which the work of a lot of big-name pop music acts either figures in or comments on the action.

It's not a new idea, of course; in the rock era it's as old as the soundtrack to The Graduate (1967). Saturday Night Fever was a hit in the Seventies, Top Gun and Dirty Dancing in the Eighties. And you don't have to be a brain surgeon to figure out why record companies like these things—from a business standpoint they're relatively risk-free. Soundtracks are usually cheap to produce (a couple of pricey superstar tracks can be padded out with old, inexpensive-to-acquire material), and, more important, the movies function as ads for the albums. Sometimes a CD makes it even when the movie bombs. The soundtrack CD for 1993's Arnold Schwarzenegger vehicle The Last Action Hero, for example, sold quite respectably despite the film's untimely death in theaters.

To be sure, there are aesthetic reasons behind the soundtrack boom as well. Many of today's younger directors and writers are more comfortable with pop music than their predecessors were, so it's natural that they would try to integrate contemporary songs into the emotional framework of their material. And—if the filmmakers have done their job right—it's also natural that the moviegoing audience would want to hear the music at home on CD.

But striking a balance between what works in the theater and what works as a coherent album isn't an easy task. "Basically, you have to pick stuff that's going to serve the movie," notes Ron Fair, the RCA exec who supervised the music selection for Reality Bites with director Ben Stiller. "A great song itself isn't the only criterion; it's got to mean something in the context of the film."

Which means that a great movie soundtrack doesn't necessarily make a great soundtrack CD. That being the case (and given that this peculiar hybrid album genre seems likely to be a flourishing one for the foreseeable future), here's a look—in no particular order—at some examples you'll find prominently displayed in record stores this very moment.
very much in the spirit of the film itself.

**Miscalculat**on: Harry Connick, Jr. is on here too.

**The Bodyguard**

ARISTA 18699

Strictly state-of-the-art, Adult Contemporary mainstream pop crafted for maximum radio play—selections by Kenny G., Lisa Stansfield, Joe Cocker, the Jeff Healey Band, and (of course) Whitney Houston. After 26 million copies sold worldwide (and a slew of Grammys), this CD is all but impervious to criticism. But was it really such a good idea for Houston and producer David Foster to transform Dolly Parton’s intimate little “I Will Always Love You” into what sounds like an outtake from *Gotterdammerung*?

**Food for Thought:** More people have bought this CD than any single album by the Beatles.

**Grunmen**

MCA 10708

Eclecticism run appealingly amuck, from John Debney’s *Jungle Chase*, which sounds like the Gipsy Kings on speed, to a terrific Los Lobos version of Creedence’s *Run Through the Jungle*. And the hip-hop stuff is nicely atmospheric (love those Ennio Morricone quotes in Kid Frost’s theme song). A mishmash, but it works—this is one of those soundtracks that really has a sort of organic I-Am-an-Album feel to it.

**Missed Opportunity:** Although Patrick Stewart (chrome-domed Captain Picard on *Star Trek: The Next Generation*) has a small role in the film, he does not sing or rap here.

**Singles**

EPIC SOUNDTRACK 52476

The idea for this album, clearly, was to do for Seattle alternative rock what *The Harder They Come* did for Jamaican reggae—take it into the commercial mainstream—and as a sampler for a new ubiquitous rock genre, “Singles” is hard to beat. But what is surprising is that there’s so little variety from track to track, stylistically, a lot of these bands—Pearl Jam, Mother Love Bone, Mudhoney, Alice in Chains—sound like Led Zeppelin coughing up a furball.

**Reasons to Be Cheerful:** Coolest-humanoid-on-the-planet Paul Westerberg’s *Dyslexic Heart* and *Waiting for Somebody* remain irresistible despite serious radio overexposure.

**Reality Bites**

RCA 66364

Mixing late-Seventies nostalgia acts with current alternative faves would seem to guarantee jukebox play at bars catering to mildly alienated twenty-somethings, and in the case of this highly entertaining compilation it would be well deserved. The new Posies and World Party songs are lovely, Squeeze’s remake of *Tempted* lives up to the original, and almost everything else—even Juliana Hatfield’s typically arch *Spin the Bottle* and a woozy vocal turn by star Ethan Hawke—has its moments.

**Seven-Ties Preservation Alert:** The original master tape of the Knack’s “My Sharona” had deteriorated so badly it had to be baked (literally) and fitted with a new sampled drum track before it could be included on the soundtrack.

**Backbeat**

VIRGIN 39386

A brilliant idea—recreating the live repertoire of the early Beatles using alternative musicians (members of Soul Asylum, Nirvana, REM, and so on) who weren’t yet born when the Fab Four were hashing out these rock and R&B standards in sleazy German dives—and it’s brilliantly executed. The album’s relative lack of polish is more than authentic sounding, it’s an act of retroactive rock criticism that makes a believable case for the Beatles as the original punk band.

**Fun Fact:** According to producer Don Was, the idea to do the soundtrack this way came from Ringo.

Facing page: Mario Van Peebles in *Gunmen* and Whitney Houston in *The Bodyguard*; this page (top), Winona Ryder in *Reality Bites*. 

**Sister Act 2: Back in the Habit**

HOLLYWOOD 61562

It’s hard to imagine that the post-*Big Chill* vogue for recycled Motown standards has gone so far that people want to hear Whoopi Goldberg singing them—in theaters, maybe, but at home? Here, Aretha Franklin’s “A Deeper Love” does work up a genuine gospel head of steam. But when Whoopi and the cast start belting out *Ball of Confusion* you may get the feeling this is a highly sanctified novelty record. Rent the video instead—or, better yet, buy a real *Temptations* album.

**Bonus Points:** No vocals by Ted Danson.
Your room is a glorious mess. An artificial weather front has just dumped a good 3 inches of styrofoam snow. The floor is strewn with cardboard boxes. In the corner lie twist-tied baggage containing owner’s manuals you may not get around to reading. Remotes, batteries, and accessories are waiting patiently for you. But first, you’ve got this screaming urge to fire that bad boy up. Countdown, 5...4...3...2... Hold it! How do you have all that stuff installed and hooked up? If you don’t have the patience to wade through the instruction manuals, then at least read this article. Spending a few minutes now can save you lots of troubleshooting later.

**SETTING UP YOUR SYSTEM FOR GREAT SOUND**

If you don’t have the patience to wade through the instruction manuals, then at least read this article. Spending a few minutes now can save you lots of troubleshooting later.

**To Stack or Not to Stack**

One of the most important things to remember is that placement matters. Where you put various components can make a big difference in both performance and reliability. For example, heat is a normal byproduct of amplifier operation. Exactly how much heat an amp or receiver generates will depend both on its design and on how hard it is driven. Continuous operation at high levels, especially with the loudness-compensation switch on or the bass control turned up, may produce large, even excessive, amounts of heat—like a car’s engine when it’s going up a steep mountain road on a hot summer day. This tends to be especially true of A/V receivers, which typically have five or more channels of amplification packed into a single relatively compact chassis. If that heat isn’t dissipated rapidly enough, the amplifier may shut down to protect itself or perhaps even fail altogether. And since heat rises, anything placed on top of an amplifier or receiver will be warmed by it. So to prevent the lives of your components from being shortened unnecessarily by overheating, you need to be careful about how you stack and ventilate them.

If you have a basic audio system (receiver, CD player, etc.), it’s not necessarily a problem to stack your equipment. Just make sure there is some clearance between components (usually their feet will provide all that’s needed) and that no ventilation holes are blocked. If you like to listen at high volumes for extended periods of time, however, or you love to crank up the bass, or you own a separate power amp, it’s a good idea to set the amplifier apart. If you must stack the amplifier, try to put it on top so that the rising heat can escape easily. And if you experience a thermal shutdown on any occasion, you’d better reposition the equipment
NOW WHAT?
relay devices that enable you to operate remote controls through solid doors.

Next, the screen. Where it goes will be determined partly by how the speakers must be placed in relation to it (more about that later), but that's not all. There is an ideal seating distance from the screen. Remember, no matter how big your big screen, you'll have some trouble picking out the rose petals in Miss America's bouquet if you're sitting 50 feet away. But if you're too close, the scan lines that make up the picture will become obtrusive. Depending on who you talk to, practical. The center speaker must be as close as possible to the screen, preferably directly above or below it. The left and right front speakers should flank the screen at equal distances from it. Try to keep all three speakers as close to the same horizontal plane as you can. If you are not using a center speaker, try to put the left and right front speakers at about the same height as the screen. Any speakers that are not magnetically shielded should be kept at least a foot or two away from any direct-view TV set to prevent picture distortion.

Placement of the surround speakers is less critical. Best is usually on the walls to either side of the listening position and somewhat above seated ear level. But there are plenty of other possibilities. On the floor facing up works pretty well sometimes. Experiment. The goal is to create a diffuse sound field in which you are not specifically aware of the surround speakers.

Getting the Noise Out

Once you've figured out approximately where everything is going to go, you're ready to get down to the nitty-gritty of hooking it all up. There is seldom any great mystery to this process (though you may have to break down and consult a manual once or twice) as long as you pay attention to what you're doing. Do bear in mind, however, that hums, buzzes, and other odd, annoying noises are often the result of connection problems. Fortunately, most such problems can be prevented by following a few simple rules.

Connect electronic components (receiver, CD player, cassette deck, and so forth) with good cables. Nothing fancy is required, mostly good shielding and solid connection of the cable itself to the plugs at each end. The cables that come in the boxes with the equipment are usually just fine. Make sure that the plugs are inserted fully and snugly into the jacks on the components. Loose connections can cause intermittent sound or hum. They also invite build-up of corrosion between plug and jack, which can precipitate radio-frequency interference (see below).

You should also keep speaker cables and, especially, interconnects as far as possible from AC power cords to prevent induction of 60-Hz power-line hum. (The cables leading from a turntable are most susceptible to audible hum pickup, so be particularly careful with them.) If signal-carrying cables must be in close proximity to AC lines, avoid running them parallel to each other (best is to cross them at 90-degree angles). Don't lasso your AC cables into neat little bundles that rest or hang next to signal cables. And, for heaven's sake, never eat at a place called "Mom's."

RFI: The Hidden Saboteur

Another common problem is radio-frequency interference, or RFI. The world is awash in radio waves generated by such diverse sources as broadcast stations, high-voltage power lines, air traffic control, CB and ham radios, cellular phones, and on and on. Radio waves can also be emitted by common household items, including fluorescent lights, dimmers, TV sets, computers, CD players, and any appliance containing an electric motor.

Sometimes stray RF gets picked up by a cable or component in such a way that it gets reproduced through the system, resulting in hums, buzzes, clicks, squeals, or radio programs mysterious-
ment with varying amounts of attention to internal shielding, but there are some things you have control over. Preventing and eradicating RFI start with attention to cables and connections. Think "clean signal path." As you track where the signal is coming from and where it is going to, examine the quality of your cable. Look for surface corrosion at the point of cable connection—the plugs at the ends of your patch cables and the jacks on the back panels of your components. A standard pencil eraser or very fine-grade sandpaper will usually restore the shine to those metal contact points. If your cables are old and stressed, toss 'em and buy some new ones.

If you can isolate the cause of the interference (perhaps a nearby light dimmer) and do something about it, you're in luck. Otherwise, once you've located the point of injection, you'll have to treat the equipment. Cleaning, grounding, shielding, and inserting filters, capacitors, and traps are common cures. Occasionally something as simple as reorienting or moving the afflicted component will help. One warning: Contact the manufacturer's service department before whipping out the old soldering iron. You could damage your component (service departments have tons of documentation on the subject). If you are suffering from RFI, the trick is to identify the source and then isolate the point of entry into your system. Once you know this, a qualified service technician should be able to help you cure it.

Speaker Wiring

Hooking up speakers is also pretty straightforward. Use continuous runs of stranded, insulated copper wire. Usually, 16-gauge lamp cord from the hardware store is just fine, but long runs may benefit from heavier 14- or 12-gauge wire to keep the series resistance between the amplifier and speakers low. If you need to put wire under a carpet or up a wall, some companies make flat cable that can be run inconspicuously and painted over if necessary. To minimize opportunities for RFI, avoid splicing speaker cables together. Another no-no—or, at least, something that should be done only with great care—is putting metal staples or nails through speaker cables. If you short the two sides of the cable together, you could nuke your amplifier or receiver.

For the same reason, be careful when connecting the ends of the wires to the amplifier and speakers. Don't let strands from one conductor touch those from another. To get proper bass response and stereo imaging, your speakers must be wired in phase. That means the positive (+ or red) terminal of each speaker output on the amplifier should go to the positive terminal on its associated speaker; similarly, negative (− or black) goes to negative. Most dual-conductor cables have a ridge or stripe down one side to help you keep straight which is which.

A long run of speaker cable can act as an antenna. Don't coil extra cable—shorten the wire instead. If you've tracked an RFI problem to the speaker leads, try rerouting, shortening the distance, running a braided-metal shielding sheet over the entire length, or wrapping the wires in aluminum foil.

Antenna Placement

What about the RF you do want to receive—radio broadcasts picked up by your tuner? If you're getting a poor FM signal from a cable system, there's not much you can do except complain. Ideal off-the-air reception for FM is line-of-sight, meaning there are no obstacles (buildings, mountains, etc.) between the tower and your antenna. Things are not always so perfect, however. For example, if you live in a Manhattan apartment building, you're probably receiving a series of closely spaced reflections bounced from and between nearby structures. The same is true if you live in a canyon or even a valley. The duplicate signals arrive at your antenna at slightly different times, causing distortion, a condition known as multipath.

The key to good FM reception is getting a single strong signal from the tuned station, and that usually requires orienting an antenna in the proper direction. The best antennas are multi-element arrays mounted outdoors on a mast. Most people, however, make do with the T-shaped wire dipole that came in the box with their tuner or receiver. There is seldom any absolutely right way to position any antenna for all situations. There are, however, lots of wrong ways. Do not staple the antenna to anything, as you run the risk of shorting the two plastic-enclosed leads. Also, a fixed orientation may give you reasonable reception for a few stations, but not all. Probably the most sensible way to set up a dipole is to spread it out behind the receiver and adjust it for good reception of the stations you listen to most. That makes readjustment reasonably easy when necessary.

If you are having reception problems with a regular dipole, try using one of the many powered FM antennas on the market. They are relatively inexpensive and can be helpful in some situations. Just make sure you can get a refund in the event your reception doesn't improve. But before you spend the money, try one little trick: Sometimes if you disconnect one of the antenna leads from the receiver or tuner, you'll get a clearer signal.

Lightning: Expect the Unexpected

Lightning is common in many parts of the country. Nowhere is it unknown. As unlikely an event as it seems, you just never know where or when it will strike. A year ago we were in our backyard patio, watching the rain, when our neighbor's tree was hit by a bolt and exploded, taking out her power and our alarm system. There I was, with a garden hose, on the roof. Lightning doesn't even have to hit close to you to do damage. It can travel down power lines and zap anything plugged into the wall. Moral: Practice safe stereo—put surge protectors between all your electronics and the AC outlets powering them. They won't always save you, but sometimes is better than never.
The digital audio and video industries are driving recklessly toward technological problems that stand a good chance of becoming insoluble if they continue to be ignored much longer. What's at stake is the survival of high-quality audio and video in the age of digital program-delivery systems, from the DSS small-dish satellite TV system to digital VCR's, digital radio, high-definition television (HDTV), and the proposed information superhighway (the NII, for National Information Infrastructure).

Plans for all of these systems call for extensive use of "data reduction" to encode digital audio and video signals. This process, often mistakenly referred to as data compression, reduces the number of bits needed to carry such signals. The reduction is performed by specialized microchips called coders. (For a basic explanation of how audio coders work, see "What Is Data Reduction?" on page 72.)

Why Use Data Reduction?
Coders provide numerous technological and economic benefits. For broadcasters and cablecasters, the use of data-reduced signals greatly increases the number of stations that can be put on the air or carried over cable. Users of computer networks like data-reduced signals because they take less time to transfer, increasing a network's data capacity. Makers of audio and video equipment value the ability of coded signals to fit into smaller and more versatile storage media. Two examples near to the hearts of Stereo Review readers are Digital Compact Cassette (DCC) and MiniDisc (MD) recorders, both of which contain audio coders. Without data reduction, MD machines wouldn't be so small and DCC machines wouldn't be backward-compatible with analog cassettes.

The temptations of coding are so irresistible that intense development work on audio and video coders has been going on for years at the research centers of such technological leaders as Dolby Labs and AT&T, universities across the country, and overseas consumer electronics giants like Philips and Sony. With the necessary computer power now available in microchip form, this work is being embodied in professional and consumer products. In professional audio, use of coders is spreading, especially in radio broadcasting, which is where the first signs of digital chaos are showing up.

Garbage In, Garbage Out
Last fall at a joint meeting of the New York City chapters of the Audio Engineering Society (AES) and the Society of Motion Picture and Television Engineers (SMPTE), Herb Squire of WQXR, the city's only commercial classical-music FM station, demonstrated to a flabbergasted audience the sonic effects of connecting multiple coding operations in series, known in the business as coder "chaining" or "stacking." The decoded output of one coder was fed to the input of another coder whose decoded output was fed to yet another coder, and so forth. The various recordings Squire played were tapes of the decoded outputs of several multiple-coder chains.

The sonic changes wrought by such stacking ranged from none to innocuous to execrable. Among the worst problems Squire demonstrated were degradation of the stereo image, high-frequency "smearing," "flutter" on sustained notes, brittle-sounding transients, program-related "beat tones" and "birdies," vinyl ticks turning into chirps, and swishing background noises. Not all stacked-coder hookups produced such bad-sounding results. But many did, and most of them were typical of hookups used in the day-to-day operations of radio stations and radio networks.

The worst characteristic of these degradations is their unpredictability. Without actually trying it, you generally cannot tell when a typical music or voice signal will be audibly degraded, or by how much, by feeding it through stacked coder systems. It's even difficult to predict whether a sound will be degraded by a single pass through only one coder. A multiple-coder hookup may sound fine most of the day until one difficult-to-code saxophone note happens to cause a drastic breakup of the signal. Woe to the radio station if that note is part of a sponsor's jingle. What is absolutely certain,
WHAT IS DATA REDUCTION?

We cannot hear every sound that hits our eardrums, nor can we perceive everything that gets focused on our retinas. You can’t hear a nearby whisper while standing on a runway underneath a Concorde taking off even though the air still carries the whisper’s vibrations. Likewise, you can’t see the really fine details of a moving object even though a slow-motion camera can.

Psychoacoustical coding, the umbrella term for audio and video data reduction, takes advantage of such human limitations by reducing the amount of data needed in a digital audio or video signal to preserve the perception that it is supposed to produce when converted back to the analog domain.

Ideally, a coded signal would contain only the minimum amount of data necessary to do this—the whole truth and nothing but the truth. In practice, there is usually a safety margin between the perceptual minimum (which constantly varies) and the actual amount of data carried by a coded signal (which, for various technical reasons, usually must flow at a constant “data rate”).

The fundamental principle behind psychoacoustical coding is that of “masking”: the perceptual obscuring of one sound (the whisper) by another (the Concorde). If you can’t hear the whisper you don’t have to record it, and the data representing it and all other masked sounds can be removed from a digital recording of the flyby with no audible consequences. An audio coder analyzes an incoming digital audio signal and decides what is and is not audible on the basis of the coder’s built-in “perceptual model” of human hearing. Perceptual models can differ widely between coders, and a model’s sophistication (or lack of it) is in part responsible for the “sound” of a coder.

The coder’s subsequent calculations are designed not so much to remove sounds that are deemed inaudible as to preserve the surviving components with as little data as possible. Most coding “gain,” the ratio between the original and coded data rate, comes from the latter process.

Using fewer digital bits to represent an audio signal always increases that signal’s noise and distortion levels on playback. Psychoacoustical coding, however, is supposed to distribute such “artifacts” between incompatible coding formats—without decoding one format to “plain” digital audio (like the signal at a CD player’s digital outputs) and re-encoding that into another format—is difficult at best and totally impractical once there are more than a couple of formats to convert between. So multiple-coder hookups always take the decode-recode route, a route almost guaranteed to degrade the sound as one coder’s artifacts are misconstrued by the next coder as must-preserve signals.

The graphs below show how one pass through a PASC or ATRAC coder adds artifacts to a test signal. The original waveform produces a spectrum with only vertical lines running all the way down to the bottom of the graph, representing harmonics of its 1-kHz fundamental tone. The artifacts that PASC and ATRAC add to the original signal spectrum as the result of the data reduction are quite obvious. PASC’s are low enough in level not to be audible behind the signal. ATRAC’s artifacts add a slight roughness to the sound of the square wave, an effect so subtle that most listeners won’t notice it unless the original test tone is available for comparison.

But these graphs show what you get with only a single pass through good coders. Some are far worse. And when you start hooking them up in series the artifacts that used to be masked by the music may emerge in all their distorted glory. —D.R.
recorder.

original coding would be retained

Survive intact through all intermediate

encode-decode operations wouldn’t be

necessary. The initial coding would

survive intact through all intermediate

stages of transmission to be decoded

only at the last moment. For now, that

means right before normal AM or FM

radio transmission; in the future the

original coding would be retained

right through to the listener’s digital

receiver and even to a home digital

recorder.

Unfortunately, this scenario is un-

likely, for in some areas it may al-

ready be too late to standardize. As

Squire pointed out, the differing tech-
nical requirements and capabilities of

various signal links have led to coders

that are optimized for particular appli-
cations. One coder might be better

suited to a microwave studio-to-trans-
mitter link, another to standard phone-

company digital data lines, yet another

to satellite distribution.

In other fields, the haphazard intro-
duction of coders is accelerating. The

HDTV Grand Alliance has already

chosen Dolby’s AC-3 coder system to

carry multichannel soundtracks. AC-3

itself differs substantially from DCC’s

PASC and MD’s ATRAC, and all of

them differ in varying degrees from

the coder proposals for digital radio

and from the coder already embedded

in the DSS satellite-TV system. The

question is not whether audio quality

will suffer if it passes through more

than one of these media—it will. It’s

just impossible to predict how often

and by how much. Digital chaos!

Compared to the resources poured

into coder development, practically

nothing has gone into studying stack-
ing, although it has long been recog-
nized as a potential problem. Hierar-
chical coder schemes have been de-
veloped that allow a single decoder to de-
code signals encoded at different data

dates and at varying sound-quality lev-

els. For example, DCC’s PASC coder

is a member of the Musicam coding

hierarchy. Another Musicam deriva-
tive was proposed for HDTV, but after

testing it was rejected in favor of Dol-
by’s AC-3. Musicam still has a hope

with digital radio.

Moreover, everything said here

about audio coders also applies to the

stacking of video coders, which are at

the heart of digital VCR’s, all-digital

laserdiscs, HDTV broadcasting, and a

wide variety of computer-related vid-
eo media. Video CD’s, for example, will

use a version of MPEG-1 video

coding that is supposed to supply

“VHS-quality” pictures (talk about

underachievement!). Still, the video

field has the advantage of fewer com-

peting coding systems, at least for the

present.

Setting Standards

Like it or not, the only way to avoid

the chaos caused by the continued in-
troduction of new coder systems is

some degree of standardization. There

are several ways this can be accom-

plished:

- By free-market forces. We could

simply wait around for all the de-
dsigned-in and proposed coding sys-
tems actually to come into use. We

would then have a wasteful and con-
fusing format war that would make

VHS vs. Beta look like a mere differ-
ence of opinion. Business-as-usual

free-market forces have led us to the

brink of digital chaos in the first place.

- By technological consensus. Engi-

neers could be made to agree on stan-
dards or to come up with workable

compromises—if they were freed

from, among other things, their em-

ployers’ “not invented here” syn-

dromes. America’s unjustly maligned

NTSC color-television system was ac-

tually as outstanding a piece of collec-
tive engineering as one hopes the

Grand Alliance HDTV system will be.

- By universal hardware. There’s no

technical reason why reduced-data de-
coder boxes cannot be made universal,
capable of decoding several types of
coded signals. This wouldn’t sound so

unattainably utopian if the number of

different coders were somehow re-

stricted. In that case, home recorders

could become general-purpose “bit

buckets” used merely to store coded

data. Decoding into audio or video

would take place in a separate multi-

standard decoder.

- By government edict. If the Natio-

nal Information Infrastructure is to

mesh seamlessly with data/program

providers and with other digital net-

works and media, and if access to the

NII is truly to be open to all, there

must be some federally mandated cod-
er standardization for it. At the very

least, the consumer should not have to

bear the expense of multiple decoders.

But in the Clinton Administration’s

two most public descriptions of the

NII (statements released by Vice Pres-

ident Gore’s office last September 15

and on January 11 of this year), there

is not a single word concerning sound

or picture quality, and hardly a word

about technical standards of any kind.

All the talk is about deregulation and

free-market competition.

Who among us would want the NII—which

should become a source of national pride—deliberately to use

inferior coding systems? Artists and

musicians whose digitized works will

flow over the NII also deserve to

know that they will emerge intact.

Not that the government itself

should set standards: It need only re-
quire that coding standards be set, pos-
sibly by technological consensus on a

very small set of coders. As an exam-
ple of the difference that standards can

make, just compare stereo FM, where

there is a national stereo-encoding

standard, and the mess that is stereo

AM, where there is none.

Whichever roads toward standard-
ization are taken, it is clear that if digi-
tal audio and video coding practices

proceed on their present course, signal

quality will suffer. The comparatively

minor Copy Code brouhaha of a few

years back demonstrated that audio-

philes must remain vigilant and vocif-

erous if quality is not to take a back

seat to economics and politics.

We must insist that when order ar-

rives it will preserve the highest audio

and video quality. If we do, we may

eventually be able to look back on the

present chaos as actually beneficial,
having shocked the audio, video, and
data industries into realizing that the

technology was moving too fast for its

own good.

STEREO REVIEW MAY 1994 73
Odd as it may seem, most speaker companies don't make their own drivers, the fundamental components that produce the sound. Instead, they assemble their systems using other peoples' parts. Then, they try to compensate for the inevitable deficiencies and mis-matches.

For 70 years, Celestion has designed and built their own drivers and integrated them with straight-forward crossovers and proprietary enclosure technology. The result? Each system works cohesively as a unitary whole, rather than something that's been pasted together.

Audition any of the Celestion Unit Series Loudspeakers. Compare them to other speakers in the same price range. Immediately, you will hear...
Finding a home for audio equipment is relatively easy. Clear a space on a shelf or table top, pick up a couple of those "designer" milk crates, or spring for an audio rack that matches the decor of your listening room—from hardwood cabinets with smoked-glass doors to simple vinyl-coated wire racks, there are many to choose from. But cabinetry gets more complicated when you combine audio and video in one system. There's more wiring to conceal, and you have to find a place for the TV, the VCR or laserdisc player, and possibly a center-channel speaker and subwoofer.

The idea of grouping audio and video components together in an attractive wall unit or entertainment center is nothing new. You've probably seen A/V cabinets loaded with fake components in department stores and furni-

Can't get the idea of home theater past your front door? Check out what's happening at the furniture store.  

BY REBECCA DAY
RCA's 800 Series home theater package, top, includes custom wood cabinetry from LADD Furniture's American Drew division, an RCA 60-inch projection TV, and various RCA audio and video components. Pennsylvania House's Model 32-1619 home theater center, shown above and left in hunter green, has a ventilated 40-inch TV compartment and a wealth of storage space. The close-up shows its adjustable component shelves and eight sliding storage drawers.

Unfortunately, some of what you saw probably wasn't designed to accommodate a big-screen TV, let alone a center-channel speaker. In the past year or so, however, furniture makers have responded to the home theater call with a new generation of A/V cabinetry that not only accommodates big-screen TV's and speakers but provides a host of A/V-specific features as well—from built-in power strips and infrared repeaters to wire-management devices, lighting, and more.

This furniture awakening is great news for anybody who has shut the door on home theater because of the network of speakers and electronics that's required. Now that big-name furniture companies are taking the category seriously, it's possible to conceal a complete surround-sound A/V system—patch cords and all—in an elegant wall unit.

Walk into an Ethan Allen emporium or your local furniture store these days and there's a good chance you'll see real components—receivers, TV's, and speakers—in A/V cabinets that are made to order. While most of these displays are for show, a few electronics makers are actually selling home theater equipment through furniture outlets. RCA, for example, recently linked up with LADD Furniture to offer home theater systems that include custom-made American Drew cabinetry. Mitsubishi has a similar arrangement with Pennsylvania House.

Other affiliations have been set up for display purposes. The Lane Company, for example, is using Sony projection TV's to showcase its line of custom-built home theater cabinetry on retail floors. If you have trouble luring your spouse into an audio/video store to check out the latest home theater gear, the furniture store might be less intimidating. That's what Sony's betting on, at least.

While these arrangements involve cabinetry that is custom-built to accommodate specific components, furniture makers also understand the importance of offering cabinets that suit a wide variety of TV's and A/V components. Jasper Cabinet Co. and Denon have a mutual display agreement, for example, but Jasper executives are quick to point out that the company's Encore! line of traditional wall units and armoires is designed to accommo-
date equipment from most electronics manufacturers.

The Encore! line is built around a video cabinet that accepts 35-inch TV's and has a fabric-fronted compartment for a center-channel speaker (a solid wood door is available for those who want to skip the center channel). Three-piece Encore! wall units—available with either solid wood or glass end-cabinet doors—have several special A/V features including a built-in power strip, a ventilated back panel with cable slots, and a wire-management "clip" for organizing cables.

The Encore! lineup also includes a cabinet designed specifically for rear-projection TV's with screen sizes up to 53 inches diagonal. There is no back panel, so the TV can extend to the wall if necessary, and you can get trim kits that let you customize the opening for sets with smaller screens. Adjustable shelves above the TV can be used for a center-channel speaker or to store CD's and tapes; the shelf supports are even padded to absorb vibrations. Like all Jasper video cabinets, the unit has pocket doors that slide into the cabinet when the TV is on.

A couple of progressive options are available to Encore! buyers: a Panamax surge protector ($190) and a Xantech infrared repeater ($190). The repeater is useful if you want to be able to operate audio equipment via remote control even when the cabinet doors are closed; a 1/2-inch infrared "eye" mounts on the outside of the cabinet.

Jasper cabinets are available in solid cherry and oak, and prices range from $3,000 to $4,000 for armoires and from $7,000 to $7,500 for three-piece wall units.

Thomasville, one of the first traditional furniture makers to offer home theater cabinetry, has broadened the scope of its A/V offerings. Several years ago, the company joined forces with Philips to market cabinets filled with prescribed Philips components for customers in search of hassle-free home theater. While these $10,000 to $12,000 one-stop-shopping systems are still available, Thomasville now also offers a more affordable line of cabinets under the Home Theater Combinations banner for people who want to choose their own electronics.

Thomasville's A/V features include speaker compartments covered with acoustically transparent fabric, a ca-
Top left: The Model 9-100 Video Armoire, part of Jasper's Encore line, has eighteenth-century styling and holds a 35-inch TV. Top right: Techline's HT8480-25 cherry-veneer cabinet grouping is shown with optional speaker grilles (top corners) and glass doors. Above: An oak cabinet grouping from Mary Emmerling's American Country West collection features fabric-covered speaker compartments; available from Lexington Furniture Industries.

ble-box compartment, a built-in power strip, pocket doors for the TV compartment, and a perforated back panel. The cabinets also have adjustable shelving and storage compartments with pull-out trays for audio and video tapes and discs, and they can be ordered with a pull-out TV shelf that swivels. Thomasville offers five styles—from traditional Queen Anne to contemporary—and five configurations designed for 27-, 31-, and 35-inch TV's. Prices range from $2,000 to $8,000.

Hammary Furniture recently redesigned all of its wall units to accommodate 31-inch TV's. It is also offering a home theater grouping with a video cabinet that accepts a 35-inch TV; included are two audio cabinets, each with a speaker compartment, a built-in power strip, and a heat vent (to help amplifiers keep cool). The home theater cabinets are available in eight woods and finishes, including cherry, ash, and oak; prices start at $1,800.

Pennsylvania House offers about twenty A/V cabinets, several of which are designed to accommodate specific Mitsubishi big-screen TV's, including the 40-inch direct-view set (the largest direct-view TV on the market) and two rear-projection sets—a 45-inch tabletop model and a 60-inch model. Highlights include speaker compartments with cloth grilles, adjustable shelving, storage drawers with pullout trays and removable dividers for tapes and CD's, and a power-strip/wire-management device. Prices for the Pennsylvania House A/V cabinets start at $2,000.

Some Pennsylvania House dealers sell prepackaged sets of Mitsubishi equipment—for customers who'd rather leave the electronics decisions to someone else. The RCA and LADD Furniture program mentioned earlier is similar but more flexible, allowing customers to choose from a variety of American Drew cabinets and various configurations of RCA TV's, audio components, and speakers. There are three series of RCA Custom Home Theatre combos, each available in furniture styles ranging from traditional to contemporary.

The top-of-the-line 800 Series offers the choice of a 60-, 52- or 46-inch rear-projection TV or a 35- or 31-inch direct-view TV, plus a Dolby Pro Logic receiver, a combination laserdisc/CD changer, a hi-fi VCR, five speakers, and a subwoofer. The 600 Series subtracts the combi-player and subwoofer, and the 400 Series subtracts the receiver, speakers, and rear-projection TV. System prices range from $2,000 to $10,000, including cabinets.
equipped with infrared repeaters and fabric-covered speaker compartments.

RCA also sells built-in custom home theater packages through builders and custom installers. These include a flush-mount TV, a suite of audio components, and RCA’s Video Acoustics in-wall speakers—all housed in special in-wall cabinetry.

While much of the recent attention given to A/V furniture focuses on traditional furniture makers, many of whom are just now discovering the category, the familiar names in ready-to-assemble A/V cabinetry have been hard at work, too.

Custom Woodwork & Design (or CWD), for one, is offering a “telescoping bridge” cabinet in its Bradley Towers line. The patent-pending bridge ($475) adjusts to the width of rear-projection TV’s with screen sizes between 45 and 60 inches—flexibility is a must if you have a penchant for upgrading. The bridge is available in natural, whitewashed, black, or pickled oak as well as cherry and black finishes. CWD has also added occasional tables to complement its Rialto Southwestern-style entertainment center, which is available in cherry and mahogany finishes. Prices for the cocktail and end tables range from $350 to $400. It’s a safe bet that CWD will offer a complete A/V package in the near future now that it’s a sister company to Rotel and B&W, so stay tuned.

If “traditional” furniture, especially “traditional” A/V furniture, is simply not up your alley, check out the offerings of Bell'Oggetti, which specializes in contemporary glass-and-metal A/V racks that hold up to eighteen components and a 35-inch TV. The stylish racks feature a high-impact powder-coat finish and are available with either perforated metal or tempered safety-glass shelves. Bell'Oggetti’s four ready-to-assemble wall units are priced from $1,400 to $1,800.

When universal remote controls first hit the scene, there was a lot of talk about “coffee-table clutter.” Universal remotes, of course, were designed to alleviate that clutter by consolidating the functions of several remote controls into one handheld unit. Even that solution is only a partial one, though—there’s still a remote on the table. Several “motion furniture” companies—England/Corsair, Peop-Loungers, and Franklin Corp.—think they have a better solution: Take the remote off the coffee table altogether and put it in a storage pocket built into a reclining chair. Some of the recliners also have built-in drink trays.

England/Corsair has taken the concept even further with its line of armless recliners featuring wedge consoles that fit between chairs. Perfect for invertebrate couch potatoes, the wedge is a hinged, 5-inch-deep console with a built-in phone jack and plenty of space for remotes. A four-seat grouping with two wedges sells for $2,349.

And then, when you win the lottery, perhaps, you might consider the ultimate home theater, that “true” theater some of us fantasize about building at home—maybe a mini version of the vaudeville theaters of yesteryear? Theo Kalomirakis, owner of Theatre Design Associates (TDA), had such a dream and acted on it by developing a line of plush theater environments with the affluent movie buff in mind. TDA’s modular, ready-to-install theaters, in Art Deco, classic, traditional, and contemporary styles, seat from six to twenty-five people and are designed for rooms measuring from 12 x 21 feet up to 15 x 31 feet. The theaters typically include a box office with a neon marquee, concession stands and lobbies with vintage movie posters, motorized curtains, sconces, seats, and lighting controls. Prices—hold on to your popcorn—range from $19,000 to $64,000, and that’s before you buy even a watt’s worth of equipment.

But you don’t have to wait until you win the lottery to win over a reluctant spouse. The range of A/V furniture now available can appease even the most ardent designer without offending even the most ardent A/V enthusiast. From traditional to contemporary, affordable to unimaginable, there’s something for almost everyone. Just put the furniture store on your home theater shopping route.

You can conceal a complete surround-sound A/V system—cables and all—in an elegant wall unit.

Top: Thomasville’s Winston Court cherry cabinet grouping has pull-out storage shelves. Middle: Hammary’s VideoCenter TV cabinet is flanked by two audio pier cabinets, each with a built-in power strip. Bottom: CWD’s Rialto Theater System, shown in cherry, can hold a 35-inch TV; the top compartment of each side cabinet is available with glass panels or grille cloths as shown.
The magazine that knocks you on your ear

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Eugenia: Journey to the Center of Your Mind

Syd Barrett lives! Actually, a Scot named Eugene Kelly, who sounds amazingly like Barrett, and his band, Eugenia, have resurrected Barrett’s trippy, popadelic sound with early Pink Floyd on their new album, “Mary Queen of Scots.” Kelly’s band has changed names a few times (the Vaselines, Captain America), which might explain why Eugenia is not yet a household name despite having been endorsed by no less a fan than Kurt Cobain of Nirvana. But the foursome puts together enough innocence, imagination, and cunning to make a “Piper at the Gates of Dawn” for the Nineties—and that, to my mind, qualifies them for sainthood.

In the Sixties, people would have called “Mary Queen of Scots” a headphones album—one to contemplate and savor as it transports you to some exotic wonderland as evocative as anything Lewis Carroll ever conjured up. Its mood of airy altered consciousness derives primarily from Kelly’s boyish baritone and the squiggly rush of the band’s guitars, particularly on the solos. In Pebble, the guitars burn like a field of neon in a hypnotic drone on what sounds like one seriously distorted chord; in On the Breeze they squeal like some amplified insect from the prehistoric past. On top of it all, Kelly and Eugenia rock with a youthful abandon that even the nascent Pink Floyd was a tad too cerebral to attempt. Fans of unfettered pop surrealism will rejoice while ascending the stairway to heaven that Eugenia constructs—with a Cheshire-cat grin—on “Mary Queen of Scots.”

Parke Puterbaugh

EUGENIUS
Mary Queen of Scots
Pebble: On the Breeze; Blue Above the Rooftops; The Moon’s a Balloon; Mary Queen of Scots; Easter Bunny; Let’s Hibernate; Friendly High; River Clyde Song; Tongue Rock; Home Sick; Fake Digit; Love Bread and Beers
ATLANTIC 82562 (51 min)

Jarvi’s Outstanding Shostakovich

Neeme Jarvi’s survey of Shostakovich’s last five symphonies with the Gothenburg Symphony Orchestra on Deutsche Grammophon is nearly completed, and the latest installment is by all odds the finest yet—not only the capstone of his Shostakovich cycle but possibly the outstanding item to date in this busy conductor’s apparent attempt to record the Complete Works of Everybody.

The Fourteenth Symphony, for soprano, bass, and an orchestra comprising only strings and percussion, is presented here with an especially apt discmate, Shostakovich’s orchestral setting of Mussorgsky’s Songs and Dances of Death. Shostakovich himself was the first to point out the numerous connections be-
between these two works. He orchestrated the Mussorgsky cycle for the soprano Galina Vishnevskaya in 1962, and seven years later she sang in the première of the Fourteenth Symphony, which sets poems on this same basic subject by Garcia Lorca, Apollinaire, Kischelbecker, and Rilke.

Jarvi does not use the same singer in both works but assigns the Mussorgsky cycle to Brigitte Fassbaender, whose rich mezzo conveys more of the music’s dark quality than most sopranos since Vishnevskaya are likely to, and the soprano part in the symphony is sung by Ljuba Kazarnovskaya, whose name is new to me but who seems another inspired choice—as does her companion, the splendid bass Sergei Leiferkus.

It would be hard to think of another singer today—male or female, Russian or Western—more fully attuned to the Mussorgsky songs than Fassbaender, or to imagine a more successful partnership than hers with Jarvi. But Leiferkus and Kazarnovskaya interact with each other and Jarvi on the same level in the symphony, clearly relishing the poignancy, bite, and contrast Shostakovich provided for them.

In sum, neither work has had more effective advocacy in a recording, and the engineering team—the same people responsible for many of Jarvi’s Bis recordings—have surpassed themselves as strikingly as the performers, placing the voices in just the right balance with the orchestra and achieving a level of overall vividness that beggars description.

Richard Freed

SHOSTAKOVICH:
Symphony No. 14
MUSSORGSKY
(orch. Shostakovich):
Songs and Dances of Death
Fassbaender, Kazarnovskaya, Leiferkus;
Gothenburg Symphony, Jarvi
DEUTSCHE GRAMMOPHON 437 785 (73 min)

Sir Douglas and Friends Rock Out

Doug (Sir Douglas) Sahm has been a mainstay of Tex-Mex pop for so long, both on his own and as a member of the Texas Tornados with Freddy Fender, that it’s easy to forget he first claimed attention in the guise of a British Invasion-style rocker. Sahm’s original Sir Douglas Quintet, which hit in 1965 with She’s About a Mover, was as proto-punk as anybody back then—organist Augie Meyer’s rinky-tink stylings were later appropriated whole for Question Mark and the Mysterians’ Ninety-Six Tears, and punkier than that one does not get.

Now the classic garage-band side of Sahm is on display again. “Day Dreaming at Midnight” is anything but a Tex-Mex record; instead, it could easily be the work of some vaguely rootsy alternative act cruising on pure adrenaline. With Meyer’s distinctive Farfisa sound and rock-solid rhythm work by ex-Creedence drummer Doug Clifford (who also produced), the reconstituted quintet storms through a bunch of Sahm originals that he bellows out in his best gruff James Brown manner. And while the sound is right up to date, the spirit is pure 1965.

The songs are bluntly funny (Dylan Come Lately), occasionally poignant (Twisted World), and even mildly psychedelic (You Don’t Know How Young You Are). Throughout, the seriously loud metallic guitars of Sahm, his son Sean, and Nashville wiz John Jorgenson do some serious noise-making, and you can almost see Sir Douglas grinning above the racket. “Day Dreaming at Midnight” may not be profound, but it’s a genuine pleasure.

Steve Simels

SIR DOUGLAS QUINTET
Day Dreaming at Midnight
She Would if She Could, She Can’t So She Won’t; Twisted World; Darling Deloris; Day Dreaming at Midnight; Into the Night; Dylan Come Lately; Too Little Too Late; You Don’t Know How Young You Are; County Line; Romance Is All Screwed Up; Freedom Is Mine; Intoxication
ELEKTRA 61474 (48 min)

A “Don Giovanni” for Our Time

It may not be too much to say that Roger Norrington’s brilliant and unconventional new EMI recording of Mozart’s Don Giovanni, coming after an almost equally remarkable Magic Flute, propels him out of the gilded ghetto of Early Music and into a commanding position as one of the outstanding conductors of our day. Although some of the great performers of the past were associated with this work, it has always been a conductor’s opera. Norrington is a master of traditional musical and operatic values, but he has also rethought this masterpiece in a way that is startling yet
true to its historical roots, vividly alive, and almost completely successful.

There are many reasons why this Don Giovanni is both a reevaluation and a revelation. For starters, the work is just right for a Mozart-period orchestra like Norrington’s London Classical Players. The instruments are lighter in sound and more graceful than modern instruments, and they balance well; the style of playing—phrasing, bowing, accents, and so forth—is exactly the style set forth by Mozart’s father, Leopold, in a famous treatise. When this kind of thing is done right, as it is here, there is no loss of expression; quite the contrary, the expression is built in, internalized, instead of being applied from the outside in the Romantic manner. The balanced arrangement of the players, with the conductor in the middle, leading from a fortepiano, is also just right.

There’s more. The orchestra is tuned to a low A = 430 Hz, rather than the modern 440 Hz, producing a mellower orchestral and vocal sound and giving the singers more ease in their top registers. The tempos are unusual, too. For instance, Norrington adheres to the notion that “andante” means “moving right along.” There are almost no slow tempos, a lot of fast tempos that move like quicksilver, and a few fast tempos that are slower than usual. These departures from convention are surprising, but they all have a Mozartian logic behind them.

Most important, the singing style is also right—flexible and florid, light and witty, without much vibrato and without most of the plushy support and projection that modern opera singers prize. This Classical style of singing suited the individual and ebullient contributions of Andreas Schmidt and Gregory Yurisich as the Don and his servant Leporello, as well as John Mark Ainsley’s aristocratic Don Ottavio and a vigorous and youthful Masetto by Gerald Finley. Amanda Hallgrimson is a lighter-voiced Donna Anna than we are used to, but the role gains much from being de-Wagnerized (or de-Verdi-ized). Lynne Dawson’s Donna Elvira occasionally shows a tight vibrato, but it gives personality to an ambiguous and highly original character. The contrast between the three leading women is completed by Nancy Argenta’s down-to-earth Zerlina.

For anyone with open ears, this is a great Don Giovanni, perhaps the redefining performance of a generation.

Conductor Roger Norrington

Norrington’s use of a young, non-star-studded cast obviously has an artistic point. The voices are fresh, and the performers are at ease in this musical and dramatic world. Their Italian is uniformly excellent, and their phrasing, vocal color, and parlando play off of the language in the same way a Mozart-period violin bow bounces buoyantly and gracefully off of gut strings. The ornaments are graceful and have an expressive or improvisational feel that takes away the holier-than-thou feeling that reverential performers sometimes mistake for Classical style. Most surprising, especially for a recording that does not seem to derive from the stage, is that the performers achieve dramatic coherence in their recitatives, in the representation of character (through music, of course), and in their interaction.

Norrington, ever faithful to his musico-logical roots but not hamstrung by them, has recorded all the music Mozart ever wrote for Don Giovanni, and the variants are presented in a very cunning manner. The CD’s are set up so that you can program either the original (and much superior) Prague edition or the Vienna revision. All the repeated material here requires three discs instead of the usual two, so the set is expensive. That’s just about my only negative impression; everything else—the recorded sound, the annotation, the chorus, the orchestral playing, the casting—is exemplary.

Oh, yes, the cast. This team effort would obviously not be effective without the individual and ebullient contributions of Andreas Schmidt and Gregory Yurisich as the Don and his servant Leporello, as well as John Mark Ainsley’s aristocratic Don Ottavio and a vigorous and youthful Masetto by Gerald Finley. Amanda Hallgrimson is a lighter-voiced Donna Anna than we are used to, but the role gains much from being de-Wagnerized (or de-Verdi-ized). Lynne Dawson’s Donna Elvira occasionally shows a tight vibrato, but it gives personality to an ambiguous and highly original character. The contrast between the three leading women is completed by Nancy Argenta’s down-to-earth Zerlina.

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Eric Salzman

MOZART:
Don Giovanni
Soloists: Selitz Choir of London; London Classical Players, Norrington
EMI 54859 (three CD’s, 195 min)
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Custoc introduces an innovative series of Design Reference automotive power amplifiers, creatively designed and handcrafted in the U.S.A. The Design Reference amplifiers' unique HFXFET® PWM (Pulse Width Modulated) power supply utilizes ultra high-speed switching diodes and an oversized 10,000 uF capacitor per channel, bypassed with polystyrene film capacitors to provide an amazingly stable, continuous current while maintaining constant rail voltages even under heavy dynamic loads. The result is very refined sound quality with the dynamic power you all strive for!

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Once confined exclusively to high end home and studio components, Design Reference amplifiers make available an all discrete, class "A", balanced input circuitry for the first time in the automobile. This circuit is ideal for the noisy environment because of its high noise rejection and low transient distortion characteristics.

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Custoc's serious dedication to quality and performance assures that Design Reference amplifiers will set new standards for excellence.

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CIRCLE NO 17 ON READER SERVICE CARD
Tori Amos, whose 1992 "Little Earthquakes" evoked exactly that, is a bright, introspective woman who spent her youth as a piano prodigy. Now, at thirty, she doesn't want you to forget any of that for her latest album, "The Crying Tree," they till their fertile acreage like latter-day home-seekers with a sharp eye for love's blithe ironies ("Thank you for the memories I'm about to have." (from the witty opening track, "Halfway Around the World")) and a sharp blade that cuts through anything that gets in the way of cold, hard truths. "You should be looking to the left / You should be lookin' to the right / You should be lookin' over your shoulder "cause hell's half-ace's gonna burn tonight" goes the warning in the delirious punk-bluegrass reel "Hell's Half Acre," a don't-get-mad-get-even epistle sung with relish by bassist Cheri Knight. And in songs like the title tune and "This Old Town," they nearly make the ground shake from their gallow-humored face-downs with the fundamentals of existence. Having devised an ingenious musical alloy of bluegrass instrumentation, Appalachian folk harmonies, and hard-rock dynamics on earlier records, the Blood Oranges reprise a couple of the same themes as "Little Earthquakes," religious pretension and sexual repression. In God, she chastises Him for not always coming through, and with the feminist edge that cuts through many of her songs ("Cornflake Girl" tackles the tribal ritual of mutilating girls' genitalia) she suggests perhaps He needs a woman to look after Him. And in "Icicle," this guilt-tree protagonist masturbates while her parents say their prayers downstairs.

But there are big problems with this ambitious set, not the least of which is that while Amos is intensely emotional, her vocal and compositional style—breathy whispers escalating to fervid yips, thunder and lightning laid over melodies that start out fragile as flowers—rarely draws us in instead of just showing off, this album will be an embarrassment. A.N.

BLOOD ORANGES
The Crying Tree
ESD 80792 (44 min)
Performance: Lively
Recording: Good

Halfway between Richard and Linda Thompson and Timbuk3 lies a territory claimed solely by the Blood Oranges. On their latest album, "The Crying Tree," they till their fertile acreage like latter-day home-seekers with a sharp eye for love's blithe ironies ("Thank you for the memories I'm about to have." (from the witty opening track, "Halfway Around the World")) and a sharp blade that cuts through anything that gets in the way of cold, hard truths. "You should be looking to the left / You should be lookin' to the right / You should be lookin' over your shoulder "cause hell's half-ace's gonna burn tonight" goes the warning in the delirious punk-bluegrass reel "Hell's Half Acre," a don't-get-mad-get-even epistle sung with relish by bassist Cheri Knight. And in songs like the title tune and "This Old Town," they nearly make the ground shake from their gallow-humored face-downs with the fundamentals of existence. Having devised an ingenious musical alloy of bluegrass instrumentation, Appalachian folk harmonies, and hard-rock dynamics on earlier records, the Blood Oranges reprise a couple of the same themes as "Little Earthquakes," religious pretension and sexual repression. In God, she chastises Him for not always coming through, and with the feminist edge that cuts through many of her songs ("Cornflake Girl" tackles the tribal ritual of mutilating girls' genitalia) she suggests perhaps He needs a woman to look after Him. And in "Icicle," this guilt-tree protagonist masturbates while her parents say their prayers downstairs.

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COUNTING CROWS
August and Everything After
DGC 24528 (52 min)
Performance: Evocative
Recording: Very good

Give me a smart post-adolescent with a flair for metaphor anytime. Right now, I'm thinking of Adam Duritz, the guy who writes all the lyrics (and a lot of the music) for Counting Crows. As much as I like the sound of this band—their mix of alternative, classic, and folk rock pleases me a lot—I am even more impressed by the way Duritz writes. It seems trite to say that he understands the twenty-something mindset or that thinking rockers of his generation talk the talk about dysfunction. But Duritz walks the walk as well. He makes you feel his pain and confusion; he makes you understand how love can be a blessing and a threat at the same time. "August and Everything After" takes on youthful anomic from the get-go with "Round Here." The song starts with a bit of self-pity, shifts to a mini-drama about a depressed girl, and ends with a dead-on evocation of the slacker way. "Round here we're never sent to bed early / Nobody

THE BOO RADLEY
Giant Steps
CREATION/COLUMBIA (64 min)
Performance: Like, wow
Recording: Fine

There are studio bands and there are live bands, and some can do both things well. Unquestionably, the Boo Radleys' métier is the studio. They are disciples of that time and place (late Sixties/early Seventies) when musicians aspired to create unified albums that couldn't possibly be duplicated on the stage. Indeed, they aim for the stratospheric likes of the Pretty Things, the Small Faces, the Zombies. Todd Rundgren, the Beatles, and others who made giant steps in the art of recording who-is-greater-than-the-sum-of-the-parts song cycles. Every song on "Giant Steps" is like a turn of the kaleidoscope yielding some startling acid-pop refraction. A squeal of feedback, filtered vocals, and light reggae accents give "Upon 9th and Fairchild" its strange charm. One song later, the Boo Radleys are making like doe-eyed, winsome-voiced popsters on the strummy "Wish I Was Skinny." Then they're tearing your mind up with the loud/soft dynamic shifts of "Leaves and Sand," only to leave you deliriously happy in "Butterfly McQueen," a Garden of Eden for the ears with buzzing, bee-xing guitar. And on and on, through seventeen songs and an hour-plus of beautiful music. "Giant Steps" is a balm for the ears and a trip for the mind.
makes us wait. Round here we stay up very very very very late." The wonder of this album is that nearly every tune on it can stand up to this opener. Duritz may over-write, but the gush of scenes, characters, and symbols is a pleasure to swim through. And he doesn't just sing, he sings. At times he may remind you of Michael Stipe or Van Morrison or Eddie Vedder, but only for an instant. What really counts is the way emotions come rushing and rolling and quavering out of his throat. "August and Everything After" is a killer.

**FLESTONES**

**Beautiful Light**

**NAXED LANGUAGE 6116 (37 min)**

**Performance:** Retro cool

**Recording:** Good

The Fleshtones were the Standells of New Wave, supplying some much-needed garage-pop grease and scowling irreverence at a time when the scene was threatening to OD on zebra-stripe shirts and terminal cuteness. Those days are long gone, though, and the band is looking a little long in the tooth to pass for alternative torch-bearers. "Beautiful Light"—their first studio album since 1987's "Fleshtones vs. Reality"—does boast the hip cachet of a Peter Buck production, and he and fellow R.E.M.-er Mike Mills play here and there. But this is really do or die time, regardless of celebrity accomplishments, and fortunately the Fleshtones rise to the occasion with a hunka-hunka burning blue/psych originals and enough garage-bred mustiness to keep things honest. Singer Peter Zaremba is no Sinatra, and the band is looking a little long in the tooth, so the album unfolds, the all-acoustic instrumentation, superb musicianship, and extraordinarily angelic voices make up for that lapse tenfold.

**MATERIAL ISSUE**

**Freak City Soundtrack**

**MERCURY 314 518 894 (35 min)**

**Performance:** Mixed

**Recording:** Bright

Like a racehorse that comes strong out of the gate but tires in the home stretch, Material Issue has made an inconsistent album that starts great but soon runs out of steam. The band packs all their youthful musical punch and heart-on-sleeve lyrics into the trio of terrific tunes that open "Freak City Soundtrack," in jaw-dropping 1-2-3 fashion. There's Going Through Your Purse, in which guitarist/singer Jim Ellison pours his heart out in a shredded voice as he enumerates the pilfered contents of his girlfriend's handbag, searching for clues to her lack of devotion while the band dashes off with early Who-like venom. Kim the Waitress, an achting tale of adolescent desire and rejection, follows, with the same raging hormonal zeal, an electric sitar hook adding a mystical touch. And Funny Feeling is full of the exuberance of love in full blush, with slide-guitar licks playfully shadowing Ellison's kid-like vocal. Those three songs are a virtual operetta of teen angst. But from there the album tapers down to redundant variations on those same themes without much coherence or focus, the band churning away on automatic pilot. An entire album of songs as full of drive and zest as those that open "Freak City Soundtrack" would be amazing. Maybe next time? P.P.

**OTIS RUSH**

**Ain't Enough Comin' In**

**MERCURY 314 518 769 (64 min)**

**Performance:** Tight

**Recording:** Very good

Otis Rush is one of the most consistent blues performers around—and one of the most under-recorded. He just doesn't have it in him to make a perfunctory record, and the start-to-finish excellence of "Ain't Enough Comin' In" is another jewel in his crown. He sings with his guitar no less than his voice, and such choice cuts as "Don't Burn Down the Bridge to As the Years Go Passing By," a long slow blues that closes the album on a haunting note. The horn charts are outstanding, and Rush contributes sly, salty guitar work throughout. Particularly satisfying is the title track, with its savvy allusion to the bass line that drove Michael Jackson's "Billy Jean." In short, "Ain't Enough Comin' In" is a strong album by a master talent. Highly recommended.

**THE SMITHEREENS**

**A Date with the Smithereens**

**RCA 66391 (47 min)**

**Performance:** Bummed out

**Recording:** Very good

Pat DiNizio is having a bad day. Actually, the Smithereens' singer, songwriter, and rhythm guitarist sounds completely engulfed in a blue funk judging by the doomy lyrics and Beavis and Butthead-worthy
Richard Thompson’s Tales from the Dark Side

“Mirror Blue” is a particularly strong Richard Thompson album—certainly his best work to date with producer Mitchell Froom. Songs that pierce the veneer of failed or souring relationships without illusion are joined here with black-humored odes to everything from fast food to society’s perverse fascination with outlaws and celebrities.

The album opens on a disarming note with For the Sake of Mary, whose opening chords so resemble Neil Young’s Cinnamon Girl as to border on copy-right infringement. Between Thompson’s affected growl and Froom’s overarching musical exotica, the second number (I Can’t Wake Up to Save My Life) tries a little too hard to convey its original set in the Sixties’ “Summer of Love.” Ultimately, Thompson is a vital perpetuator of the folk tradition, seeing it not as musty old music for scholarly revivals but as living, breathing stuff. DiNizio and "Mirror Blue" is Beeswing, a folkish, traditional-sounding tune for guitar and fiddle about an untamable lass who escaped the singer’s grasp for a life of roaming freely. The moral, he chides, is that her ruined life may have been “the price you pay for the chains you refuse.” Part of what makes the song remarkable is that it’s not a centuries-old item lifted from the public domain but rather an original set in the Sixties’ “Summer of Love.” Ultimately, Thompson is a vital perpetuator of the folk tradition, seeing it not as musty old music for scholarly revivalists but as living, breathing stuff for the here and now. Between his own daring and Froom’s production, "Mirror Blue" manages to be both timeless and up-to-date.

Parke Puterbaugh

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Parke Puterbaugh
NEW RELEASE UDCD 591
The last official album, released days prior to Lennon's 1980 murder, displaying the renewed creative forces the duo had found, with hits like Woman, (Just Like) Starting Over and Watching The Wheels.

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POPULAR MUSIC

well as substance. That said, it's also lots of fun, with a couple of forays into bittersweet nostalgia. Add it to your collection, and you might even learn to manhuo. A.N.

ZZ TOP
Antenna
RCA 66317 (51 min)
Performance: Toppable
Recording: Good

I miss the car—and that's the basic problem here. Actually, what I'm saying is that I miss the videos—those cute ZZ Top mini-movies in which the guys were cast in character parts—more than the music. That's because the recent stuff by these folks—the postmodern, MTV-era work—was tantalizing ear candy, but didn't really hold your attention; it was easier to remember some of the videos than some of the songs.

Of course, the men of ZZ Top have remained true to their own selves. On this new album, Billy Gibbons flings out his share of nasty blues-inspired licks, and the Dusty Hill/Frank Beard rhythm section still keeps the room rotating. In fact, the Topsters haven't changed all that much from the old days of "Tush." They still come in only two flavors—boogie and gumbucker (or, to put it more succinctly, fast and slow). But after all these years, these guys could do this schtick in their sleep, and that's what they seem to be doing on a lot of "Antenna." Except for "Pincushion," which bursts at the seams with powerhouse riffing, much of this sounds a little too familiar, a little too tame. The more you listen, the less you hear.

Something is missing. Maybe something that a good video would supply. The car? R.G.

JAZZ REVIEWS

ANTONIO HART
For Cannonball and Woody
NOVUS 63162 (37 min)
Performance: Fine Hart renditions
Recording: Very good

Since catching the public's fancy as a sideman with trumpeter Roy Hargrove's group, alto saxophonist Antonio Hart has branched out on his own with considerable success. Hart's third album as a leader is just what the title implies: a tribute to fellow low altoist Cannonball Adderley and trumpeter Woody Shaw, both of whom had substantial influence on him. It features Hart on both soprano and alto in a variety of instrumental settings, with input from pianist Mulgrew Miller, trombonists Robin Eubanks, Steve Turre, and Slide Hampton, drummers Victor Lewis and Jimmy Crawford, and, on one track ("Suck O' Wise"), Cannonball's cornet-wielding brother, Nat. Apropos trumpets, expect to hear much more from Darren Barrett, whose solo on Jimmy Heath's Big "P" is matched only by the leader's intriguing calisthenics. This is a fresh, invigorating track, but the entire album is superb. C.A.

ANITA O'DAY
Rules of the Road
PABLO 950 (66 min)
Performance: Valiant effort
Recording: Good

Anita O'Day was wonderful in the early Forties, when she livened up the Gene Krupa orchestra, and later with Stan Kenton, when she established a new style of jazz singing that strongly influenced subsequent Kenton stars Chris Connor and Jane Christy. She was downright sensational at the 1957 Newport Jazz Festival, and jazz fans will continue to embrace her recorded legacy, which includes superb Verve albums and excellent performances on her own Emily label. Now, at the age of seventy-three, O'Day has reunited with Buddy Bregman, with whose orchestra she initiated the Verve catalog in 1956. Unfortunately, this nostalgia event is painful to listen to. O'Day has breathing problems, and her voice wobbles in the way all singers must fear. We do get flashes of the old Anita O'Day here and there, but the rest is pure torture, especially when we know how dazzling she used to be. Sadly, O'Day—like Sinatra and a few others I can think of—would have been better served leaving us to wonder how she might have sounded today. C.A.

NOT YOUR AVERAGE CHOIRBOYS

Back in 1966, every town in America had a locally well-known garage band obsessed with the Beatles, Byrds, Who, etc. In Cleveland, it was the Choir, and as anyone who heard their lone hit single, 'It's Cold Outside,' can attest, these guys were world-class great. But because they never made an album (and later mutated into power-pop icons the Raspberries), the Choir has attained almost legendary status. Now, some twenty-five years after packing it in, they finally get their due on "Choir Practice." (Sundazed 11018). Collected from demo tapes, rare masters, and acetates in the tapes, rare masters, and acetates in the collections of band members and fans, this is tough, melodic Sixties pop to make you swoon; sound quality is necessary variable, but this is a genuine find nonetheless. S.S.

JAMES "BLOOD" ULMER
Blues Preacher
COLUMBIA 57302 (62 min)
Performance: Different
Recording: Very good

Given the negative perception by some of Ulmer's quartet with second guitarist Ronnie Drayton as a harnomically Moghany Rush, what are we to make of it when we see Angel listed as the last of this CD's ten selections? Well, make of it what you will—it turns out not to be the Hendrix tune, but an overlaiden nouveau-retro disco love ballad sung by Ulmer and apprentice diva Irene Datcher, and quite fun in its own way. Everything else here is mind-bending as it genre-stretching, the resemblance to Hendrix finally boiling down to the contrast between Ulmer and Drayton's guitar fury and the mumbled come-hither of Ulmer's vocals.

In the noble tradition of early rock-and-roll, the words to some of the songs are so slurred and muffled as to be open to conjecture. "Blues Preacher" strikes me as an exemplary blend of several kinds of black music, including free jazz, blues, and funk; on Who Let the Cat Out of the Bag?, Ulmer and Drayton's off-the-beat guitar lines and the repeated interjections of a male backup singer (Ulmer overdubbed?) amount to what sounds like a hip-hop scratch track. And a raider like Let Me Take You Home, with Ulmer's half-spoken entreaties to a lover to "think it over," captures much of this disc's goofy joy. F.D.
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FIXES

BEASTIE BOYS
Some Old Bullshit
GRAND ROYAL 89843 (28 min)
Crudely recorded early-Eighties demos from the Beasties' youthful incarnation as a punk band, and, yes, the title is more than a little accurate. S.S.

V. M. BHATT
Gathering Rain Clouds
WATER LILY ACOUSTICS
ES-22-CD (52 min)
Along with the American guitarist Ry Cooder, Bhatt won the Grammy for world music with last year's "A Meeting by the River." Now he returns to traditional Indian music accompanied by the percussionist Sukhvinder Singh Namdhari, and the result is exotic but accessible to Western ears. Profound but not pretentious, it is meditative yet upbeat. William Livingstone

SOLOMON BURKE
Soul of the Blues
BLACK TOP 1095 (54 min)
Solomon Burke, a Sixties soul legend last glimpsed getting blown away in front of Dennis Quaid in The Big Easy, returns here with a set of R&B standards done in tribute to the likes of Roy Brown, Johnny Ace, and Willie Dixon. Good news: the arrangements by a crack New Orleans band are swell, and Burke's voice remains thrillingly intact. S.S.

THE CHARLATANS
Up to Our Hips
BEGGARS BANQUET 92352 (40 min)
Blatantly retro psychedelic pop, heavy on the Hammond organ, that could almost pass for a trippier version of the original Deep Purple. As such, pretty much a matter of taste, although the phrase "cute and insubstantial" is probably applicable. S.S.

LISA GERMANO
Inconsiderate Bitch
4AD 4003 (26 min)
John Mellencamp's former violinist returns with an EP's worth of her inimitable little-girl vocals and highly personal lyrical musings. The production is gorgeous, and you have to give Gemanoto credit for being defiantly her own woman. But too much of this calls to mind the great line from Repo Man: "Did you do a lot of acid back in the hippie days?" S.S.

JAMES MCCARTY
Out of the Dark
HIGHER OCTAVE 7057 (41 min)
James McCarty was the Yardbirds' drummer, for which he merits respect in perpetuity, and other worthies on this new album include Matthew Fisher (keyboard genius of Procol Harum) and Sixties cult hero Eddie Phillips (a guitarist so flash he was once asked to join the Who). Alas, despite the interesting pedigrees, this is little more than generic pop fluff, like Al Stewart on a (really) bad day. S.S.

NINE INCH NAILS
The Downward Spiral
NOTHING/TVT/INTERSCOPE 92346
(64 min)
Toneless noise, sex and violence, existential angst... yay, it's another fun-fest of an album from Trent Reznor and company. Proving, I suppose, that every generation gets the Leonard Cohen it deserves. S.S.

RARE ON AIR VOL. 1
MAMMOTH 0074 (61 min)
A wonderfully eclectic bunch of recent live performances culled from the archives of KCRW, an apparently terrific National Public Radio station in Santa Monica, California. Highlights: an intense Tori Amos solo, an unusually serene-sounding Nick Cave, and Evan Dando and Juliana Hatfield crooning about My Drug Buddy. S.S.

TALKING TIMBUKTU
HANNIBAL 1381 (60 min)
Having won a Grammy for world music with the Indian musician V. M. Bhatt (see above), Ry Cooder performs here with the African guitarist and vocalist Ali Farka Toure and other musicians, producing a very different tapestry of gorgeous cross-cultural musical threads that coexist happily and beautifully. W.L.

DAVID WILCOX
Big Horizon
A&M 0060 (30 min)
College acoustic favorite David Wilcox knows how to grab your attention, weaving a sassy blues in which he describes coitus as "like a needle against the vein." But he also knows how to tax an attention span the length of the Huey Long Bridge. And that's with such lines as "Take this cup of empty hope up to the well that's dry." Bill Morrissey he's not. A.N.
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Even more improvisational. Jarrett takes a real performer’s license only once or twice (check the sarabande of the G Major Suite). Apparently these performances are not about risk-taking (a great jazz tradition, after all) but about affirmation (Jarrett makes Bach his own).

Decently recorded in Jarrett’s own studio in New Jersey, they are—if not world-shaking—vigorously, up-beat, live-sounding, and life-affirming performances that never lose their stride.

E.S.

**BEETHOVEN: Symphony No. 9**
Soloists, Chorus; Orchestra of the 18th Century, Brüggen
PHILLIPS 438 158 (63 min)
**Performance: Light and joyful**
**Recording: Airy**

Beethoven’s Ninth is always an inspiration to performers, and this one is way above Frans Brüggen’s standard with the Orchestra of the 18th Century. The orchestral sound is the best to be heard in an authentic-instrument performance, and the recording is particularly clean and open. As usual, Brüggen doesn’t put a strong personal stamp on the music, but rarely have the brisk tempos and light textures associated with this school of performance seemed so natural in this work.

The articulate Gulbenkian Choir of Lisbon and the quartet of soloists—Lynne Dawson, Jard van Nes, Anthony Rolfe Johnson, and Eike Wilm Schulte—sail with an almost giddy effortlessness over the many treacherous passages of the final movement. Some may feel that the performance is a bit lightweight, but I found it to be among the most celebratory Beethoven Ninnths in recent years.

D.P.S.

**BRUCKNER: Symphony No. 5**
Royal Concertgebouw Orchestra, Chailly
DENON 75471 (71 min)
**Performance: Elegant**
**Recording: Resplendent**

Bruckner’s colossal Fifth Symphony is surpassed in scope and grandeur only by his Eighth. This latest recorded version, by Riccardo Chailly and the Royal Concertgebouw Orchestra, is the third distinguished one I’ve heard recently—the others being the superbly disciplined reading by Christoph von Dohnanyi and the Cleveland Orchestra (also on London) and Daniel Barenboim’s more expansive performance with the Berlin Philharmonic (on Teldec).

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movement and his highly volatile scherzo. He and Dohnanyi both set a deliberate pace for the adagio second movement, and I prefer their readings to Barenboim's. The tremendous final movement—in sonata form capped by a fugue—fares best under Dohnanyi. Chailly does splendidly with the fugal element, but I'm a bit unsettled by his overly legato treatment of the initial statement of the chorale theme by the brass.

Chailly's recording comes out ahead of all competition, however, in terms of sonic splendor. The Concertgebouw Orchestra players are at the top of their form, the brass especially, and the Concertgebouw itself is made to order for the huge climax in the finale and scherzo. If you want the big line above all, get the Dohnanyi recording; if you want big sound and a fine performance, you can't go wrong with the Chailly.

D.H.

GRIEG: Sonatas for Violin and Piano

Dumay; Pires

DEUTSCHE GRAMMOPHON 437 525
(70 min)

Performance: Enchanting
Recording: Exemplary

Augustin Dumay and Maria João Pires made their joint recording debut on a very appealing disc of the three Brahms Violin Sonatas last year, and they seem to be even more deeply responsive to the arguably lesser but here utterly enchanting ones by Grieg. Their performance of the C Minor Sonata (No. 3) takes its place beside the most memorable recordings of the past (by Kreisler and Rachmaninoff or Wanda Wilkomirska with Antonio Barbosa), and there is a cumulative impact in having that mature musisterwork preceded by the two early sonatas in readings that are not merely documentary but downright revelatory. The assertively youthful G Major (No. 2) is, after all, not less remarkable in its way than Grieg's Piano Concerto, which it preceded by a year, but that has never been made so clear before.

All three sonatas emerge as not merely "lovable" in some trivializing, condescending sense, but as music that inspires passion, joy, depth, and poetry—all of which Dumay and Pires bring to it, together with unfailing technical security and tastefulness. The sound is exemplary, too.

R.F.

JANACEK: String Quartets

FAURE: String Quartet

Medici String Quartet

NIMBUS 5379 (74 min)

Performance: Very good
Recording: Good

First issued on separate CD's in 1989, these recordings of three major chamber works by Britain's Medici Quartet offer top value combined as they are here. Leos Janacek's First Quartet, dating from his sixty-ninth year, was inspired by Tolstoy's Kreutzer Sonata, a tale of jealousy and murder involving Beethoven's "Kreutzer" violin sonata. In four tense and highly charged movements (the third referring to a theme from Beethoven's work), Tolstoy's protagonists are delineated by Janacek's highly compressed speech-rhythm idiom, as if

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Memento Bittersweet

A new Catalyst CD called "Memento Bittersweet" presents five attractive, accessible works by contemporary composers with two things in common: an audible joy at the ability to create music, and HIV disease (three have already died of AIDS). Not all of the works are fully formed, but there is a conspicuous lack of sentimentality.

The biggest piece in the 66-minute collection is the Piano Concerto by Kevin Oldham (1960-1993), which is gleefully derivative of those by Ravel, Gershwin, Rachmaninoff, and others. Oldham was the soloist at the premiere, with his home-town Kansas City Symphony, shortly before his death last year; on the CD, with the same orchestra, that part is sympathetically played by Ian Hobson.

Tango Bittersweet by Fred Hersch (b. 1955) is a Latin-flavored song without words for piano and cello. Chris DeBlasio (1959-1993) is represented by the tuneful God Is Our Righteousness for the unlikely combination of acoustic guitar and organ. Much more fully realized is the Variations on Amazing Grace for English horn and organ by Calvin Hampton (1938-1984), a surprise-filled work with some incredible sounds drawn out of the horn by Thomas Stacy.

The most substantial piece is Triad-0-Rama by Lee Gannon (b. 1960), performed by the Aspen Wind Quintet. That's appropriate since it seems to have been composed under the spell of Darius Milhaud, a frequent Aspen visitor, but Gannon's own distinictively playful voice comes through.

MEMENTO BITTERSWEET
BMG CATALYST 61979 (66 min)

he'd transcribed one of his operas for string quartet.

His Second Quartet, titled "Intimate Letters" and completed six months before his unexpected death from pneumonia, is an impassioned tribute to the woman who inspired all the masterworks of his last decade. If raw passion can be depicted on four stringed instruments, "Intimate Letters" achieves it, most memorably in the final movement. The appallingly difficult music is played very well by the Medici Quartet, which is excellently recorded, too. But the several versions of this work by Czech en-

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MENDELSSOHN: Violin Concerto
PERLMAN; Chicago Symphony, Barenboim
ERATO 91732 (53 min)
Performance: Masterly
Recording: Very good

MENDELSSOHN: Violin Concerto
Works by Vaughan Williams, Dvorak, and Massenet
Meyers: Philharmonia, Litton
RCA VICTOR 61700 (59 min)
Performance: Warmly lyrical
Recording: Appropriate

Itzhak Perlman’s previous recordings of the Mendelssohn and Prokofiev concertos in the mid-1980’s (released with different couplings) prompted comparisons with the great Jascha Heifetz versions. His new CD, recorded in concert with the Chicago Symphony, complete with applause, provides further proof that he is the complete master of both works. Throughout the first two movements of the Mendelssohn he gives us a true soaring lyrical line and finely gauged tension in the phrasing, and then he cuts loose with a dare-all finale that leaves one gasping (and applauding).

The Prokofiev seems rather too relaxed at the start, but that’s deceptive, as is proved by the brilliantly mercurial fiddling that fol-

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Anne Akiko Meyers takes a decidedly different approach to the Mendelssohn concerto. Though there is no significant difference between her performance and Perlman's in playing time, her vocal quality tends to emphasize the music's lyrical aspect. The opening bars alone tell all. If you like an introspective rather than extroverted reading, this one is for you.

Much as I love Vaughan Williams's ethereal, luminous The Last Ascending and Dvorák's emotional F Minor Romance, it was a little put off by their being coupled with the Mendelssohn, and throwing in Massenet's saccharine Thais meditation is really too much—it brings in an encore collection, not with works of substance. For me, the programming of the CD actually detracts from its appeal. The recorded sound, however, is fine. D.H.

Among recordings of Carmina Burana, this one is distinguished for its singing. Baritone Boje Skovhus sounds like Dietrich Fischer-Dieskau in his prime and has an artistic temperament to match; most of the solo numbers are his, and they are rousing. Sumi Jo's soprano is the musical equivalent of the virgin who tames the unicorn. Jochen Kowalski (whose credit reads “alto”) is the falsetto tenor who sings the memorable song of the roasted swan. The Southend Boy's Choir upholds the traditions of good English choral singing through the maze of dog Latin, German dialects, and old French in the bawdy medieval texts. The rather heavy-handed performance by the London Philharmonic led by Zubin Mehta is, like the recording itself, larger than life. E.S.
racy and musicality than for exciting drama. As Cavaradossi, tenor Giuseppe Giacomi finds it hard to modulate his tones for "Recondita armonia," nor can he always respect Puccini's dolcissimo markings. But he is no stentorian monochrome, either: His dark, steady tenor enfolds the notes comfortably, and Muti keeps him within firm and tasteful bounds.

Giorgio Zancanaro's cultivated baritone is best in Scarpia's gallant and insinuating moods, where his phrasing is always meaningful and his enunciation a model of clarity. Unfortunately, at the climax of his Te Deum he is overpowered by the orchestra and choruses (the Westminster Symphonic Choir and the Philadelphia Boys Choir). It's a tough balancing problem, and the Philips engineering team—like others before them—solve it only partially.

The supporting cast is uniformly good, and the Philadelphia Orchestra sustains its reputation. Cavaradossi's execution, however, is handled lamely, without the explosive sound of a firing squad, and there are other production devices that could have been employed with more imagination. While I am deeply respectful of the high interpretive skills involved here, and consider this one of the best of many—too many—versions of Tosca in the catalog, it strikes me as more of a faithful documentation of a concert than a vital, involving recreation of a theatrical event.

**Gould Variations**

A unique cinematic portrayal of the life of the legendary pianist Glenn Gould, titled Thirty-Two Short Films About Glenn Gould, is the award-winning product of a team of filmmakers from his native Canada. Echoing Bach's thirty-two "Goldberg" Variations, which Gould recorded twice, each of the short films explores a different side of his musical personality or a different aspect of his life before his untimely death at fifty. Filmed on location in Canada and Europe in 1992, the film stars Canadian actor Colm Feore as Gould. The U.S. premiere was scheduled for early April this year, and the soundtrack CD, containing Gould's performances of Bach and other composers, is available on Sony Classical.

**Rachmaninoff: Symphony No. 3; Symphonic Dances**

St. Petersburg Philharmonic, Jansons
EMI 54877 (72 min)
Performance: Fiery
Recording: Very good

Neither of these extremely personal masterpieces received rave reviews when they were first heard, but over the years both have taken places in the concert repertory and have been recorded many times. In this new recording Mariss Jansons and the St. Petersburg Philharmonic offer plenty of "Russian soul" without exaggerating that element. The performance of the symphony is intensely dramatic throughout the first movement and gorgeously colorful in the combined slow movement-scherzo, pointing up the newfound transparency that Rachmaninoff brought to these last works, and in particular his canny use of harp and pitched percussion. The fugal-textured finale comes off with exceptional brilliance. I confess great partiality to the Symphonic Dances, in which Rachmaninoff enriched his sonic tapestry with bits and pieces from his earlier scores as well as the oft-quoted Dies Irae plainchant theme.

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Actor Colm Feore as Glenn Gould
which provides the major substance of the danse macabre finale. Jansons has everything just right in the first and third movements, but he overdoes the rubato in the marvelous central waltz movement. The sound is bright and clean throughout. **D.H.**

**STRAVINSKY**: Petrushka; Orpheus
Philharmonia Orchestra, Salonen
SONY 33274 (64 min)
Performance: Fetching
Recording: Very good

Es a-Pekka Salonen’s recent recordings of Stravinsky with chamber orchestras in London and Stockholm have been unfailingly well-crafted but left something to be desired in the way of communicativeness. There is no shortage of that quality, though, in these fetching performances with the Philharmonia. While I admit to a strong bias in favor of the original 1911 score of Petrushka, Salonen does nobly by the 1947 revision, characterizing the respective sections so brilliantly that no one is likely to think of this version as less richly colored. There is a fine sense of dramatic movement as well as first-rate playing from the orchestral soloists and the whole band.

Orpheus, composed in the same year Petrushka was revised, has never approached the earlier ballet’s enormous popularity and remains one of Stravinsky’s least-known works. It represents, however, a peak of inspiration in his so-called Neoclassical period (or, with Apollo, one of the twin peaks). Salonen’s brisker-than-the-norm speeds for the four numbers that make up the first scene may yield little of what Stravinsky called “mimed stillness,” but his pacing has the advantage of getting things moving without in any real sense upsetting the delicate imagery. And in the elaborate Scene II and the brief but touching final scene he is as expansive as one could wish. **R.F.**

**TCHAIKOVSKY**: String Quartets Nos. 1-3; Quartet in B-flat Major;
Souvenir de Florence
Yurov; Milman; Borodin Quartet
TELDEC 90422 (two CD’s, 151 min)
Performance: Impassioned
Recording: Excellent

Just because Tchaikovsky’s string quartets tend to be frustrated symphonies doesn’t mean they deserve their neglect. The songful, relatively unambitious First Quartet receives decent exposure, but the other two do not. Even less often heard is the charmingly rustic but unfinished String Quartet in B-flat. While the quartets have some obvious formal idiosyncrasies and moments of clumsy writing for the four instruments, they are not among the rather large body of the composer’s works that seem filled with hot air rather than genuine passion. And even when the music lacks subtlety, the Borodin Quartet plays so convincingly that such lapses seem more like rhapsodic impulsiveness than failures of technique or intellect. The slow introductions to the Second and Third Quartets come across as intensely personal emotional outpourings. Tchaikovsky was apparently even less inhibited emotionally here than in his symphonies, but what might have seemed excessive twenty years ago sits just fine in an age enameled of Mahler.

The set includes one of the best available recordings of the sextet “Souvenir of Florence,” with the quartet augmented by violist Yuri Yurov and cellist Mikhail Milman. What could be more inviting? **P.D.S.**

**Collection**

**KATHLEEN BATTLE**
Bel Canto
London Philharmonic, Campanella
DEUTSCHE GRAMMOPHON 435 866
(56 min)
Performance: Brilliant
Recording: Excellent

A well-planned combination of relatively familiar and relatively rarely heard arias by Bellini, Donizetti, and Rossini, this CD is an impressive showcase for Kathleen Battle’s exceptional talents. She shines impressively as a convincingly youthful Giulietta (in Bellini’s I Capuleti e i Montecchi) and a coy Norina (in Donizetti’s Don Pasquale). Technically, everything she does disarms criticism: Her tones are pure; her singing accurate, with well-judged portamentos and discreet embellishments.

What is lacking? Perhaps a higher degree of involvement, warmth, and passion—an emotional differentiation between the respective plights of one bel canto lady and another, between, say, Amina in Bellini’s La Sonnambula, who hovers between mad depression and mad joy, and Rossini’s Contessa in II Viaggio a Reims, whose primary concern is a new bonnet from Paris. What we get here is a somewhat generalized near-perfection. But why quibble? Near-perfection, in whatever form, is hard to come by. **G.J.**
BOYCE: Symphonies, Op. 2
Academy of Ancient Music, Hogwood
L'OISEAU-LYRE 436 761 (61 min)
All but one of the "symphonies" of William Boyce are actually overtures to theater and choral works. A while back they were touted as precursors of the Classical symphony, but they are perfectly typical late Baroque. Mostly they make a glorious noise: fast and brilliant, sometimes dignified and stately. Taken one by one, they have appeal, especially in these fine early-music performances and recordings. E.S.

BRAHMS: Symphony No. 2
Dvorak: String Serenade
Cleveland Orchestra, Ashkenazy
LONDON 433 519 (73 min)
Recordings of both these works are legion, but this CD appears to be the first to couple them. Vladimir Ashkenazy's Brahms Second includes the exposition repeat, and the performance is both warm and spirited, with outstanding woodwind playing midway in the allegretto and a brilliant finale. The normally gentle Dvorak serenade gets a more than usually passionate treatment. Excellent sonics. D.H.

CHOPIN AND LISZT: The B Minor Sonatas; other works
Shura Cherkassky (piano)
NIMBUS 7701 (79 min)
Among the finest Chopin and Liszt performances, Shura Cherkassky has given us, these recordings have been circulating for several years in different couplings; they have even greater impact in this generous repackaging built around the two big sonatas. The sound is a little too reverberant, however, and the performances of the two big works on this disc are less compelling than those he recorded earlier for EMI—his earlier Gaspard, especially. The remake suggests something like, "I digested all this and mastered it long ago; it's an old story and holds no further mysteries for me." Impressive on the technical level, though, with thoughtful annotation. R.F.

PROKOFIEV: Romeo and Juliet, Suite; other works
RAVEL: Gaspard de la Nuit; Pavane pour une Infante Defunte
Andrei Gavrilov (piano)
DEUTSCHE GRAMMOPHON 437 532 (68 min)
Andrei Gavrilov's performances of the two big works on this disc are less compelling than those he recorded earlier for EMI—his earlier Gaspard, especially. The remake suggests something like, "I digested all this and mastered it long ago; it's an old story and holds no further mysteries for me." Impressive on the technical level, though, with thoughtful annotation. R.F.

CARNIVAL IN VENICE
Touvron: 1 Solisti Veneti, Scimone
RCA VICTOR 61815 (63 min)
Of course you recognize The Carnival of Venice, which used to be played on a wobbly comet at summer band concerts in the park. The question is, who wrote it? Jean-Baptiste Arban (1825-1889), who else? And who made the tarted-up, supremely awful arrangement here? Why, G. Herbst, of course. If you think that's a hoot, try the odd little Concerto in E-flat credit-ed to the bel canto opera performer Vincento Bellini. A whole album of music like it would have been at least unusual. Alas, the rest of this CD is dubious arrangements of highly uncamivalesque Baroque music performed in a completely serious and expressionless manner. E.S.

KIM KASHKASHIAN
Lachrymae
Stuttgart Chamber Orchestra, Davies
ECM 1506 (50 min)
Although this isn't the cheeriest collection of works for viola and orchestra, the instrument's inviting melancholy suits all three pieces—Hindemith's Trauermusik, Britten's Lachrymae, and Penderecki's Concerto for Viola and Chamber Orchestra. Listening to the CD feels like spending a cold, rainy day inside a warm, dry house. Kim Kashkashian plays the solo parts with her customary passion and virtuosity, but conductor Dennis Russell Davies emphasizes the overall mood at the expense of interpretive detail. D.P.S.
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30 Years Ago

Not with a Bang, but an Aria: In the May 1964 issue, reader A. Franklin Collier, of Montgomery, Alabama, took Editor Furman Hebb to task for a February column questioning the location of an Air Force radar base that was causing interference with hi-fi systems near Pittsburgh. "He thinks it's okay for us all to be blown to hell," Collier wrote, "as long as we can be sitting on our fat rear ends listening to La Traviata at the moment we enter eternity."

New products this month included the Lahti U-2 bookshelf speaker system, with a frequency response of 90 to 12,000 cps (Hz), the Trutone TV Sound Adaptor, designed to reproduce high-quality television audio through an external amp or receiver, and TRW's Bell T-367 four-track stereo tape deck. In test reports, Julian Hirsch examined the Rek-o-Kut R-34 belt-driven turntable (" Its performance left little to be desired") and the Eico 2536 receiver ("It can do a very creditable job as the heart of a medium-price stereo system.")

Reviewing "Meet the Beatles," the Fab Four's American debut, Gene Lees dismissed it as "[British] retaliation for our sending them rock-and-roll in the first place."

Among the new products were the Yamaha CR-1000 receiver, rated at 70 watts per channel, the Wollensak 8075 eight-track record-playback deck with Dolby noise reduction, and the Ultralinear 1000 speaker system, whose woofer had an "inertial equalizer." In test reports, Julian Hirsch examined the Dual 701 semi-automatic turntable ("merits the most serious attention"), the Realistic STA-150 stereo receiver ("a fine, well-thought-out job of design"), and the Scintrex 98 stereo headphones ("The overall sound, despite a distinct 'punch,' was well-balanced").

But with regular hormone injections they lead active, productive lives: In response to a female reader's complaint about a proliferation of ads featuring women in slinky dresses, Editor William Anderson noted, "According to last count, our readers are over 95 percent male."

20 Years Ago

In Best of the Month, Baroque specialist Igor Kipnis was uncharacteristically excited about a Van Cliburn disc of Rachmaninoff's solo piano works ("Simply stunning"), while Noel Coppage described The Beatles, 1964: England's revenge?

10 Years Ago

The Bang & Olufsen Beosystem 2000, an elegant receiver/turntable/cassette-deck combo ($1,270), made the new products pages, along with Sherwood's first CD player, the CDP-1000 with 16-bit digital-to-analog conversion, and the Concord HPST-90 car speaker with electrostatic transducer and rotating tweeter. Craig Stark tested the Tandberg TCD 3014 cassette deck ("A superbly sounding deck that's built to last"), and Julian Hirsch evaluated the Revox B 251 integrated amplifier ("A delight to use") and the B&W DM2000 speaker system ("We thoroughly enjoyed our all-too-brief exposure to these fine speakers, and hated to return them").

Touch Me, Feel Me: In "The Great Digital Debate," a point-counterpoint look at the then fledgling CD technology, equipment designer Michael Tapes weighed in against digital: "If you listen to an analog recording and a digital one, the brain responds positively to the analog and negatively to the digital. It's the emotion that digital takes out."

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