

Stereo Review

MARCH 1990 ● \$2.50

INCORPORATING HIGH FIDELITY

HOW TO BUY A CASSETTE DECK

TAPE BUYING GUIDE

CHOOSING A CUSTOM INSTALLER

TEST REPORTS: YAMAHA RECEIVER,
ROTEL CD PLAYER, BOSTON ACOUSTICS
SPEAKER SYSTEM, MORE...

#259B*****3-DIGIT 402
#BCH8900Y091#
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03#SR
MR DAVID S BUCHANAN
8900 YELLOW WOOD PL
LOUISVILLE KY 40242



BI-DIRECTIONAL AUTO REVERSE RECORD/PLAYBACK

R-919X Auto Reverse Stereo Cassette Deck

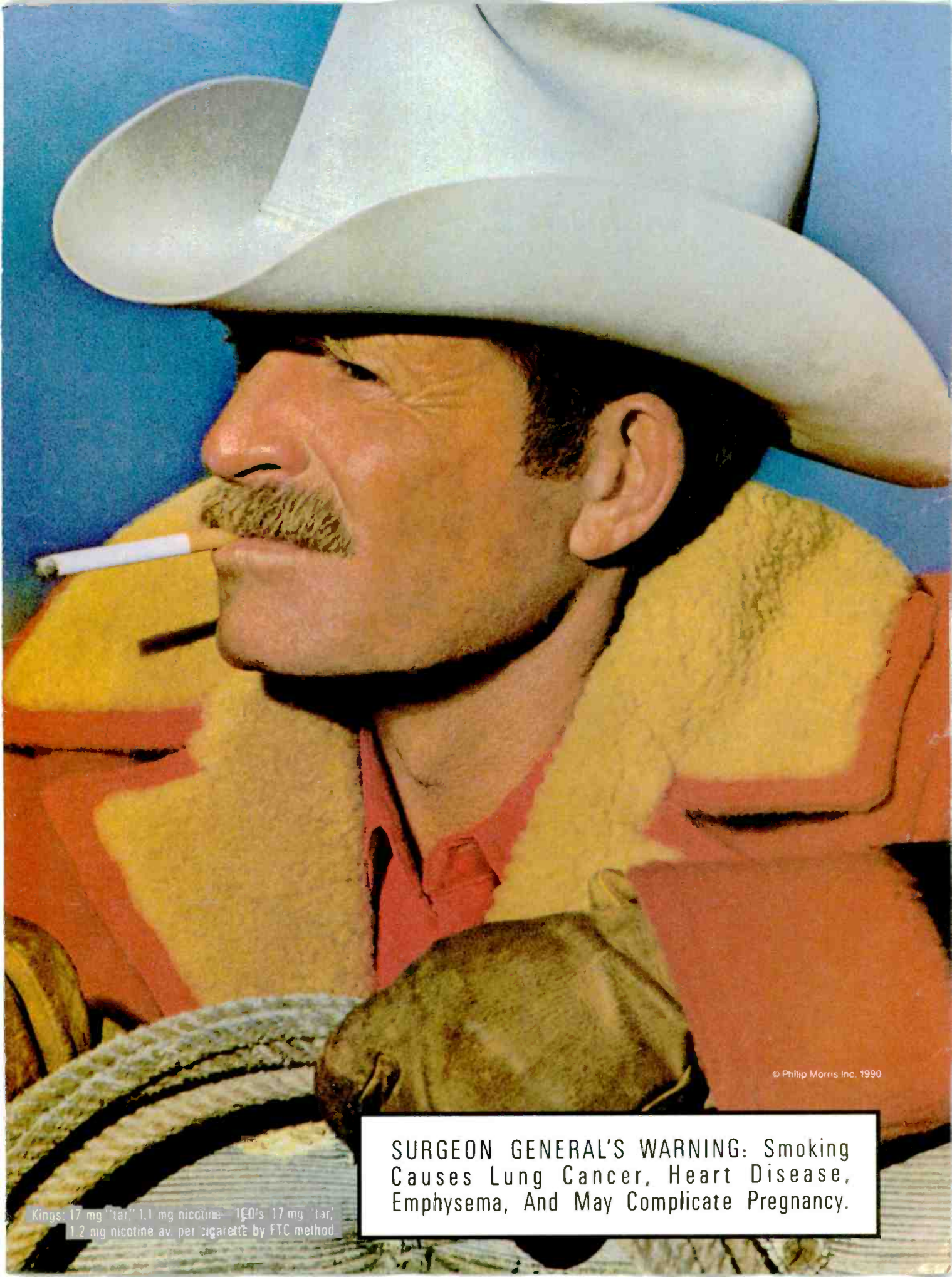
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Marlboro



Marlboro Red or Longhorn 100's—
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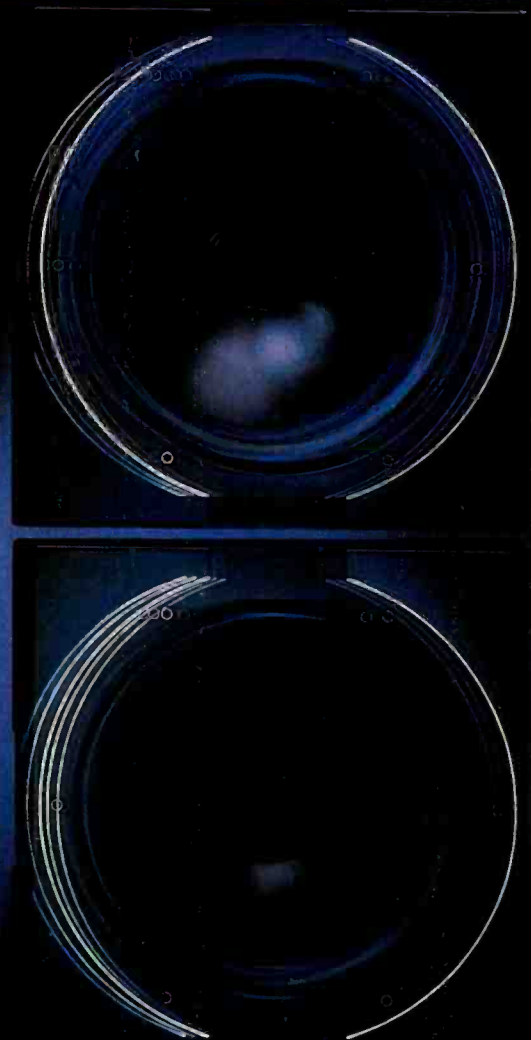


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Bacardi rum,
made in Puerto Rico.

Having good taste is knowing what tastes good.

Stereo Review

Incorporating High Fidelity®

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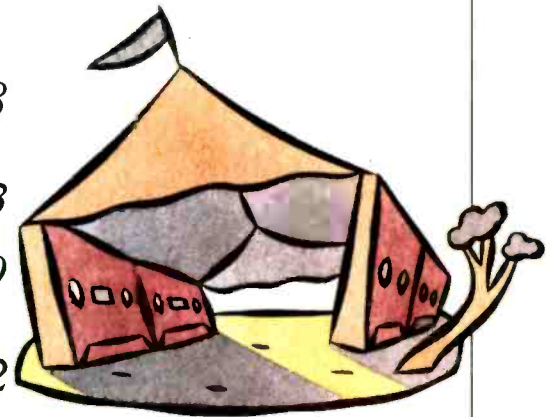
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Cover: Teac's top cassette deck, the R-919X, loaded with TDK's high-bias SA-X100, represents one of the many options for fine tape recording; see page 58. Design by Sue Llewellyn, photo by Roberto Brosan.

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Conceived in total dedication to the pursuit of excellence, the time required to develop the research program for this system has spanned at least two decades. The elusive combination of variables required to yield a uniform field has been tantalizing researchers for many years. Finally, after McIntosh built one of the most advanced and best instrumented acoustical laboratories in the world was it possible to follow the many theoretical leads to their conclusion. Then, after this extensive effort of analyzing so many different approaches to uniformity of field, was it possible to synthesize all of this knowledge and in one flash of intuitive genius the director of our acoustical laboratory saw a seemingly simple solution in the correct matching of diameters, masses and compliances and what evolved is a new measure of accuracy and realism. The intellectual and emotional experience of listening to the XR 1052 is something you simply must enjoy in your own home.



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CIRCLE NO. 29 ON READER SERVICE CARD

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Handcrafted with pride in the United States by dedicated, highly trained craftspeople.

by Rebecca Day and
William Livingstone

DAT AT LAST?

Following previous false starts by Marantz, Casio, and others, manufacturers of digital audio tape equipment are again poised to hit U.S. streets with DAT recorders in the next few months. At a press conference held a day before the Winter Consumer Electronics Show in Las Vegas in January, Sony said it would market a DAT recorder (at an undisclosed price) in the first half of 1990, with a portable to follow by the end of the year. Both machines will be equipped with the Serial Copy Management System (SCMS), which limits the making of digital copies of digital tapes.

The following day Technics said it would have its SCMS-equipped SV-DA10 DAT recorder in stores "by summer" at a price of \$1,200 to \$1,300. JVC and Denon followed suit, disclosing plans to introduce DAT recorders with SCMS at \$1,100 and \$1,000, respectively, early this summer.

DOLBY S UPDATE

Dolby S, the consumer version of Dolby Laboratories' professional Spectral Recording system, appeared in several prototype analog cassette decks at the Winter Consumer Electronics Show. Teac tentatively set this spring for introduction of a \$1,500 Dolby S deck in its Esoteric line, and Denon set June as the projected in-store date for its \$750 Dolby S deck. Pioneer and Harman Kardon also demonstrated Dolby S recorders but did not disclose prices or marketing dates. Sony, however, which manufactures the circuit for Dolby, said that it would not introduce a Dolby S recorder, choosing instead to concentrate on developing "a new generation of digital recording products."

MUSIC ON PBS

Music looms large in PBS programming for March, with many new shows and repeats of favorites from the past. Among

new shows are a concert by Joan Baez with Jackson Browne as guest star (March 3) and a special *Austin City Limits* featuring Lyle Lovett (March 8). The Great Performances Series will feature Mozart in Salzburg (March 9) with James Levine conducting the Vienna Philharmonic and soloists Jessye Norman, Anne-Sophie Mutter, and Murray Perahia. Patti Page will host *Jukebox Saturday Night II* (March 10) with such singers as Teresa Brewer, Julius La Rosa and Margaret Whiting. Many country artists, including Dwight Yoakam and Minnie Pearl, will perform on *The Hank Williams Tradition* (March 12), and a show will be devoted to *The Unforgettable Nat King Cole* (March 13).

Other new shows this month feature great moments from the Metropolitan Opera (March 14), music by Richard Rodgers (March 16), and a Julie Andrews concert (March 18). Among repeats are programs by Linda Ronstadt and Louis Armstrong (both March 2), Gregory Hines (March 8), and others throughout the month. For complete listings and show times check local PBS stations.

INCENTIVES

The Koss Gift Pack (\$19.99) couples the TD/20 stereophones with the Koss Classics cd of Beethoven's Symphony No. 9 performed by the Milwaukee Symphony. . . . Customers who buy two-, five-, or ten-packs of Memorex's 100-minute HBS II cassettes between March and June are eligible for a free Memorex car shade. A free cassette carrying case comes with 100-minute HBS II five-packs during the same period, and Memorex SL 40 headphones are free with the purchase of the company's MPS minispeakers. . . . The second in a series of Enigma Records/Fuji samplers is included with five-packs of Fuji's new FR-IIx cassettes and four-packs of FR-IIx Pro 90-minute cassettes. Customers who buy three two-packs of Fuji DR-I, DR-II, or FR-IIx cassettes will get a coupon

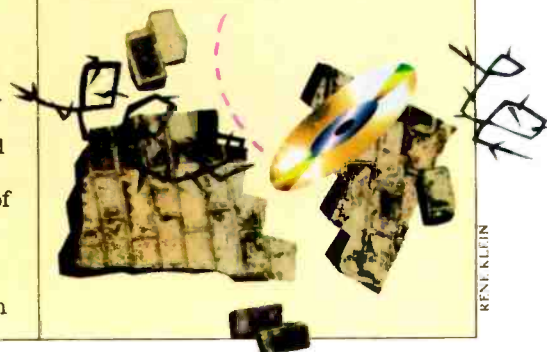
redeemable for a Fuji/Enigma T-shirt featuring Red Flag and XYZ. . . . BASF's "Playback-Payback" promotion will run from May through June, offering customers three chances to win cash (up to \$1,000) with the purchase of selected videocassettes.

MUSIC NOTES

Estonian conductor Neeme Järvi has been named music director of the Detroit Symphony. . . . Rumors persist that Lee Atwater, guitarist, Republican Party Committee Chairman, and lead vocalist, will be recording an album for a major company. . . . And are you ready for the return of Iggy Pop? According to authoritative sources, he will star in the movie *Crybaby* produced by Ron (*Cocoon*) Howard and directed by John (*Pink Flamingos*) Waters. The cast is said to include Polly Bergen, Patty Hearst, Troy Donahue, and ex-porn queen Traci Lords. The mind reels.

BREAKING BARRIERS ON CD

Daniel Barenboim conducted the Berlin Philharmonic in an impromptu concert when the Berlin Wall came tumbling down toward the end of 1989, and in December Leonard Bernstein conducted the Bavarian Radio Symphony, augmented by players from many other international orchestras, in an "Ode to Freedom" concert celebrating the collapse of the Wall and other East-West barriers. Both concerts were recorded live and have been processed for release on CD some time this month—the Bernstein on Deutsche Grammophon, the Barenboim on Sony Classical.



In designing the new LS 400 luxury sedan, Lexus engineers were as preoccupied with frequency response and harmonic distortion as horsepower and handling. Their aim, you see, was to create car audio as advanced as the LS 400 itself.

The Engineers At Lexus Were Just As Concerned With Impressing Stereo Review As Road & Track.

They began by setting performance goals beyond the best premium level systems available. In the end, they'd created two of the finest audio systems ever engineered for the automobile.

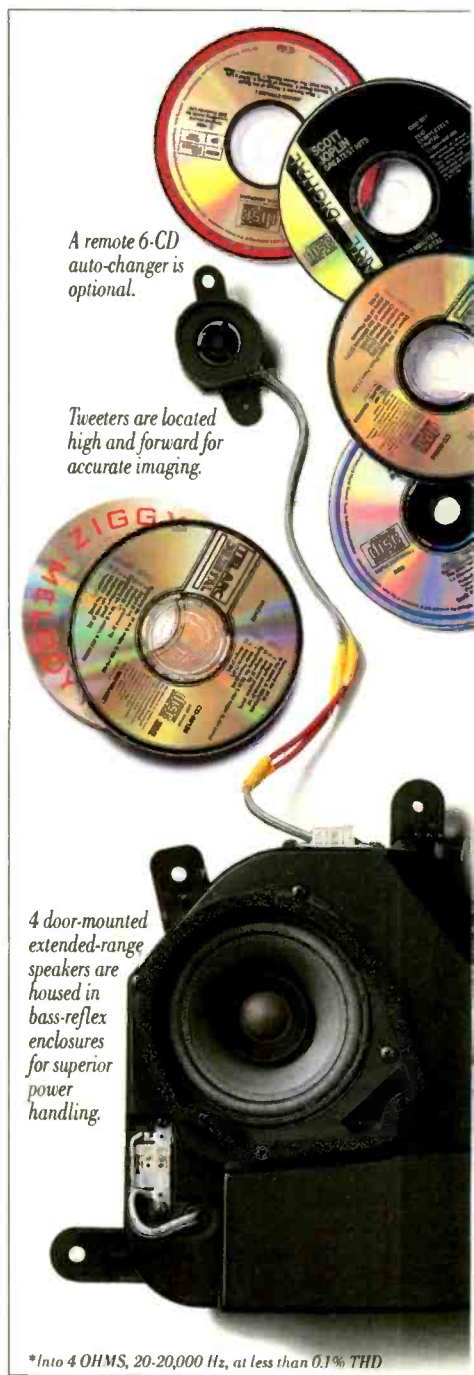
The first is the standard Lexus 7-speaker high-output audio system with bi-amplified subwoofer. Its

continuous average



The Lexus LS 400

output is 65 watts,* with a maximum of 140—enough power to please the ear



of both the casual listener and the confirmed audiophile.

The optional Lexus/Nakamichi Premium Sound System is simply car audio without compromise.



Car audio without compromise: the Lexus/Nakamichi Premium Sound System. Lexus is the first to offer Nakamichi as original equipment.

The power mast antenna even adjusts to 3 positions for ideal AM and FM reception.

The Premium ETR radio/auto-reverse cassette includes an FM diversity tuner with dual antennas.

The LS 400 audio system is pre-equalized to the interior's unique acoustics.

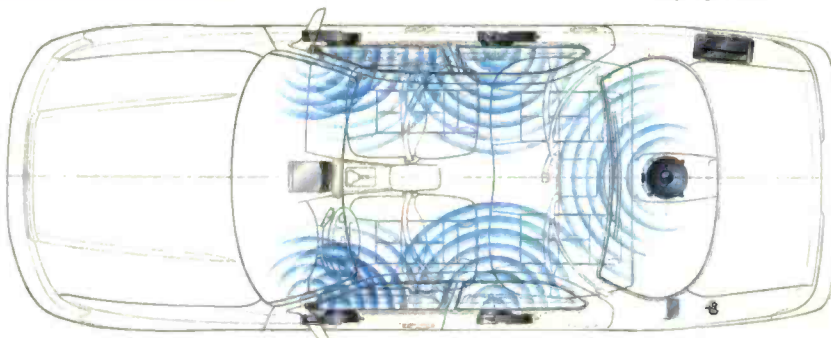


The Lexus/Nakamichi system is even equalized for the difference between cloth and leather trim.

BASS



A bi-amplified 8-inch subwoofer punches out deep, tight bass.



7 speakers are ideally-located for accurate balance and sound staging. Electronic cross-over networks feed specific frequencies to each.

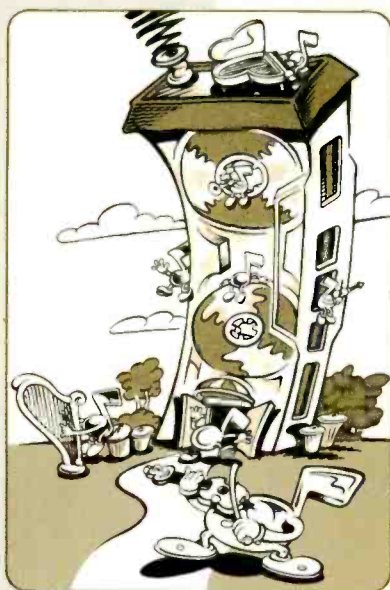


Its RMS output power is nearly doubled to 126 watts,* with a maximum of 220. The result? Bass response so deep, so tight, you don't just hear it. You feel it.

And with its more sophisticated specifications, refined circuit design and advanced speaker technology, you'll hear sound reproduction like you've never heard before in a car.

But then, doing what's never been done before is what Lexus is all about.


LEXUS
The Relentless Pursuit Of Perfection.



IS YOUR CLASSICAL MUSIC SUFFERING FROM POOR HOUSING CONDITIONS?

TDK *SO REAL*

High resonance housing will put any tape in a nasty mood. Especially when pests, such as modulation noise, gnaw on the purity of digitally sourced music.

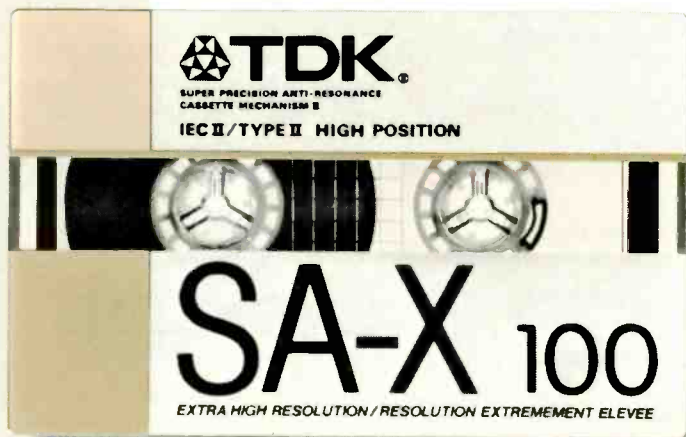
At TDK, we believe the formula for perfect reproduction includes not only technologically superior tape, but housing that enhances its performance.

Our incredible new SA-X, for example, features an ultra low resonance SP-ARII mechanism. By utilizing our unique co-molding technique, the unified two-layer shell realizes maximum total rigidity to improve reliability. Which drastically reduces modulation noise—an enemy of clear, pure sound that even noise reduction systems are powerless against.

This undesired "noise" is also attacked by SA-X's revolutionary magnetic characteristics and smooth, flat tape surface. First, there are the densely packed and uniformly distributed ultra fine Super Avilyn magnetic particles. Then, there is the advanced dual coating technology.

Together, the result is an unbelievably quiet tape with an exceptionally low bias noise of -61.0 dB. Plus, low and high frequency MOLS of +5.0 dB and -6.5 dB respectively.

And SA-X, which provides transparent reproduction of the most powerful digital sources, is available in convenient lengths of 46, 60, 90 and 100 minutes.



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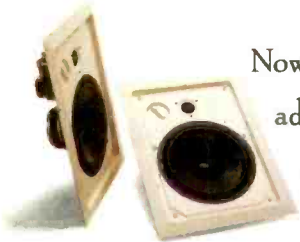
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CIRCLE NO. 59 ON READER SERVICE CARD

LETTERS

Making a Difference

Julian Hirsch's December "Technical Talk" column, "Does It Make a Difference?," was one of the very best I have ever read. He is a very wise man. Our society would be well served if everyone read and understood his thoughts, which pertain to much more than audio purchases.

CHARLES LEWIS
Buffalo, NY

Congratulations to STEREO REVIEW and Julian Hirsch for his December column. Sanity *does* make a difference!

CARLOS E. BAUZA
San Juan, PR

I wish I had read "Does It Make a Difference?" a few months ago. Anxious to upgrade an already good set of audio components, I launched into a spec-reading, brochure-ordering, price-comparing, audition-hungry frenzy. Why? Because I chose to swallow the elitist fodder of "underground" audio publications.

Now displayed in our living room is

the result of all that misguided research. Yes, it sounds fine. But do I, as a casual listener/hobbyist, need these expensive components to enjoy music? Frankly, I was just as pleased with my former components. The new ones are good, all right, but I'm no happier having spent the money.

Thanks to Mr. Hirsch's column, my peace of mind is once again more important to me than playing follow the leader. I am now going to undertake my new audio/video hobby my way, with my tastes, my ears, and my preferences.

M. WEBBER
Poplar Bluff, MO

Unfinished

On page 61 in the January issue, the Maxell Corporation presents an advertisement that would be very clever but for some errors. Schubert's reasons for never completing the *Unfinished* Symphony are still unknown, but it had nothing to do with his demise; it was left unfinished long before his death. And the symphony is not, as shown on

the CD in the ad, No. 7, in C Major, but No. 8, in B Minor.

JAY AUSTIN
Harker Heights, TX

Maxell's copywriter inserted a humorous parting shot implying that you need its hundred-minute cassettes to record Vivaldi's best-known work or else it will be the "Three-and-a-Half Seasons." I have two recordings of *The Four Seasons*, one by Ozawa on Telarc and the other by Hogwood on L'Oiseau-Lyre. Both last well under forty-five minutes, so you can fit either of them on one side of a standard ninety-minute cassette.

WILLIAM G. NABOR
Mission Viejo, CA

Rodrigues Rerun

May we conclude that the reappearance on page 50 in the January 1990 issue of the cartoon on page 78 in the December 1989 issue is the result of two-times oversampling?

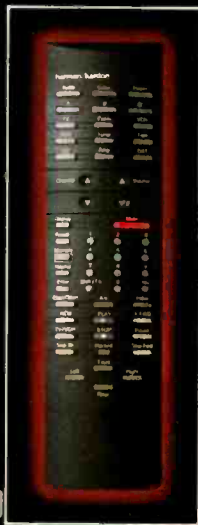
J. M. WHALEY
El Dorado, AR

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Before *MasterMind*, it took hours of frustration to program a universal controller for your system. Now you can kiss all your old remotes goodbye!

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needed to operate infra red controllers used with over 1000 top components. *MasterMind* can instantly control TV, CABLE, VCR, CDV, TUNER, AMP, CD and DAT.

No other controller is remotely comparable. For your nearest *MasterMind* dealer call 516-496-3400.

CIRCLE NO. 40 ON READER SERVICE CARD

TV CABLE VCR CDV TUNER AMP CD VCR CDV TUNER AMP CD DAT TV CABLE VCR
AMP CD DAT TV CABLE VCR CDV TUNER AMP CD DAT TV CABLE VCR
TUNER AMP CD DAT TV CABLE VCR CDV TUNER AMP CD DAT T
VCR CDV TUNER AMP CD DAT TV CABLE VCR CDV TUNER

Now that the digital Compact Disc is a musical triumph, Sony presents the encore.



Introducing the world's first Digital Signal Processing Receiver.

Sony has news for the millions of music lovers who hailed our invention of the Compact Disc. That was merely our first act in digital audio. Now comes the world premiere of Act II: Sony AM/FM Stereo Receivers with DSP.

DSP stands for Digital Signal Processing, a Sony revolution that gives you note-by-note control over every aspect of your music. Yet with all this control, DSP actually maintains the Compact Disc's sound quality throughout your high fidelity system. This is technology no analog component can equal, resulting in sonic purity no analog component can match.

On Sony's STR-D2010 Receiver, DSP replaces conventional tone controls with the pinpoint precision of a digital parametric equalizer. We've equipped our Dolby® Surround circuitry with digital delay and digital noise reduction for eye-opening playback of movie soundtracks. And DSP places your music into a choice of Hall, Stadium and Live soundfields. Direct digital inputs for your Compact Disc player, digital dynamic suppression, and 130 watts per channel (front) plus 15 watts per channel (rear) combine to reserve a place in hi-fi history for the D2010.*

To audition the STR-D2010 with DSP and the entire line of Sony Receivers, visit your Sony high fidelity dealer. And be prepared to applaud.

SONY
THE LEADER IN DIGITAL AUDIO™

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CIRCLE NO. 106 ON READER SERVICE CARD

NEW PRODUCTS

GOLDSTANDS

Goldstands speaker stands, made of medium-density fiberboard finished in satin black lacquer, come completely assembled. Rubber pads on top of the pedestals protect and grip speakers. The bases are available in walnut, oak, or white finish. Options include base spikes and sand or lead-shot filler for the uprights. The smallest stand is the 4-inch-high, single pedestal GSM-1 (lower right in photo), the largest the 22-inch-high, multipedestal GS-5 (lower left). Prices range from \$24.95 a pair for the GSM-1 to \$174.95 a pair for the GS-5 (plus shipping). Goldstands, Dept. SR, 229 Nassau Rd., Huntington, NY 11743.

Circle 125 on reader service card



CARRERA

The Carrera CD-3200 compact disc player uses a double-oversampling digital filter and has a digital output. The specifications give its frequency response as 20 to 20,000 Hz \pm 0.5 dB, signal-to-noise ratio as greater than 95 dB,

and total harmonic distortion as 0.01 percent. It can repeat a track or disc. Price: \$199.95. Distributed by Trans Pacific Marketing, Dept. SR, 1230 Calle Suerte, Camarillo, CA 93010.

Circle 126 on reader service card



ALTEC LANSING

Each satellite speaker in Altec Lansing's three-piece System 3 has two 3-inch woofers with polypropylene-carbon cones and a 1/2-inch ferrofluid-cooled dome tweeter. The nondirectional Multipath Subwoofer, which can be anywhere in a room, has two 8-inch long-throw polypropylene-carbon woofers. Frequency response of the system is rated as 30 to 20,000 Hz, sensitivity as

90 dB sound-pressure level at 1 meter with a 1-watt input. Nominal impedance is 4 ohms, and recommended amplifier power is 10 to 100 watts. Dimensions are 11 3/4 x 9 1/2 x 19 3/4 inches for the subwoofer and 8 1/2 x 4 x 4 1/4 inches for each of the satellites. System price: \$600. Altec Lansing, Dept. SR, Milford, PA 18337.

Circle 127 on reader service card



INFINITY

The ERS 800 is part of Infinity's Environmental Reference Standard series of flush-mount in-wall speakers. It uses a shallow, minimum-diffraction, injection-molded baffle and patented mounting hardware that's said to provide maximum rigidity and ease of installation. The driver complement includes Infinity's own 8-inch long-throw woofer and EMIT K tweeter, which can be rotated for optimum frequency response and dispersion whether the speaker is mounted horizontally or vertically. Frequency response is rated as 50 to 45,000 Hz \pm 3 dB and sensitivity as 85 dB sound-pressure level at 1 meter with a 1-watt input. Nominal impedance is 4 ohms. Price: \$552 a pair, \$48 for the bracket kit. Infinity Systems, Dept. SR, 9409 Owensmouth Ave., Chatsworth, CA 91311.

Circle 128 on reader service card

The SRS Series



SRS 2.3 II

polk audio

"The sound is superbly balanced and totally effortless." Stereo Review Magazine

“Matthew Polk’s SRS Speakers Bring You the Ultimate Listening Experience”

“Spectacular... it is quite an experience.” *Stereo Review Magazine*

The Joy of Owning the Ultimate Dream Speakers

Music lovers who are privileged to own a pair of SRSs will share in Matthew Polk’s dream every time they sit down and enjoy the spine-tingling excitement of listening to their favorite music. Demonstrating them to admiring friends ultimately increases their pride-of-ownership. “Awesome” is the word most often used to describe the sound of an SRS system. They are capable of playing at live concert levels for long periods of time, with a surprising lack of effort and without producing ear-fatigue.

The bass response can literally move your body any time the music requires it, yet they perfectly reproduce all of the subtle nuances of a string quartet and are just as enjoyable at a low volume level as when played loud. Music and ambience surround the listener in an almost 360-degree panorama of sonic splendor that is, in the words of *High Fidelity* magazine, “Mind-boggling... Astounding... Flabbergasting.” But words alone cannot possibly describe the experience of listening to these ultimate speaker systems, you simply must hear them.

SRS 1.2 tl

Two time Audio Video Grand Prix Winner

The ultimate expression of Polk technology, this limited production flagship model sets the industry standards for imaging, detail, dynamic range, and bass reproduction.

SRS 2.3 tl

Audio Video Grand Prix Winner

This scaled-down version of the SRS 1.2 tl incorporates all of flagship’s design innovations without significantly compromising its awesome performance.

Polk Audio’s SRS: The Quest for Perfection

The goal of Matthew Polk’s Signature Reference System (SRS) speakers is to bring an unparalleled level of life-like musical reproduction to your home. Perfect musical reproduction, long the dream of every speaker designer, is approached so closely by Matthew Polk’s SRS’s that it will seem as if the musicians are performing right in your listening room. This stunning achievement combines technology and creative insight to bring you a listening experience that you will never forget.

1. Patented SDA True Stereo Technology — The first and only speaker systems to maintain full stereo separation all the way from the source to your ears.

SRS speakers seem to disappear as musical images fill your listening room and seem to immerse you in a fully three-dimensional soundfield of startling realism.

2. Multiple Driver Arrays — The use of multiple drivers allows each separate element to work less hard and lowers distortion even at live concert levels. Power handling is increased to 1,000 watts per channel, providing a seemingly limitless dynamic range.

3. Time-Compensated Driver Alignment — Time-coherent driver placement insures that the entire spectrum of sounds reaches your ears at the same time. The sound is better focused, balanced and less fatiguing.

4. Wavelength Optimized Line-Source — Vertical driver arrays focus the sound waves into the room in a way which greatly reduces floor and ceiling reflections. Progressive reduction of the acoustical length of the arrays maintains constant vertical dispersion and eliminates “comb” filtering effects that limit other multiple driver systems. The result is extraordinary clarity and detail, great flexibility in room placement and precise stereo imaging from virtually any place in the room.

5. Planar 15” subwoofer — SRS bass performance is breathtaking. The use of small active drivers (eight in the SRS 1.2 tl, six in the SRS 2.3 tl) coupled to a huge sub-bass radiator achieves a bass response that is extraordinarily tight, fast (no boominess), deep and distortion free. In fact, the distortion at 25 Hz is lower than that of many audiophile-quality tube amplifiers.

6. Bi-amp Capability — The optional use of separate amplifiers for the high and low frequencies further improves clarity, lowers distortion and increases dynamic range.

7. Hand-Crafted Limited Production — The one-at-a-time attention that goes into the production of every Polk SRS speaker system means that your pair will sound and look as good as Matthew Polk’s own.



Matthew Polk with the ultimate expressions of loudspeaker technology: The SRS 1.2 tl and SRS 2.3 tl.

Where to buy Polk Speakers? For your nearest dealer, see page 104.

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NEW PRODUCTS



SANSUI

The remote-controlled Vintage AU-X611AV from Sansui is an 80-watt-per-channel integrated amplifier. The audio section has remote input and output switching, a source-direct switch to bypass the preamplifier, a high-gain phono equalizer, and a three-position record selector. There are four video inputs, two of them with parallel S-video terminals, and three video outputs with parallel S-video terminals. The use of a pair of wide-band (8-MHz) video buffer amps is said to insure a superb signal-to-noise ratio and exceptional picture brightness. There are separate transformer-coil windings for the audio and video sections for better isolation. Price: \$750. Sansui Electronics, Dept. SR, 1250 Valley Brook Ave., Lyndhurst, NJ 07071.

Circle 129 on reader service card



DYNASOUND

Dynasound Organizer's Model 53002 entertainment storage center is designed to hold up to sixty CD's, forty-two audio cassettes, or thirty Nintendo video game cartridges. Measuring 16½ x 10 x 4¾ inches, it can be placed on a TV set, shelves, a bookcase, or a desk. It is made of solid oak with a lacquer finish. Price: \$29.95. Dynasound Organizer, Dept. SR, 2516 Wabash Ave., St. Paul, MN 55114.

Circle 130 on reader service card



QED AUDIO PRODUCTS

QED's line of mini amplifiers is designed to provide several useful features that are often left out of today's better audio and video equipment. The headphone amplifier (top in photo), for use with preamplifiers or TV sets that lack a headphone jack, is driven from a tape or line-level output. The microphone amplifier (middle) provides microphone inputs for tape recorders that lack them, with switchable sensitivity and impedance characteristics to suit different microphones. The R.I.A.A. preamplifier (bottom) is designed to permit a turntable to be used with a passive preamplifier or other control component that lacks phono stages. It boosts a cartridge's output to line level and applies the correct phono equalization. All three amps measure 7 x 4¾ x 1½ inches, and all require a 12- or 24-volt external DC power supply. Prices: \$160 each. Distributed in the U.S. by May Audio, Inc., Dept. SR, P.O. Box 1048, Champlain, NY 12919.

Circle 131 on reader service card

BLAUPUNKT

The trunk-mounted CDC 01 is Blaupunkt's first car CD changer system. The trunk unit holds up to twelve CD's in two six-disc magazines. The remote Commander, measuring about 6¾ inches wide, 2 inches high, and 1 inch deep, is designed to be mounted almost anywhere inside the passenger compartment. Connected to the trunk unit by cable, the Commander operates and programs the changer. The CDC 01 features repeat and random-play modes and can be programmed to play up to

fifty selections in any order from any disc. The Commander also controls volume, balance, fader, bass, treble, and loudness compensation. A preamplifier control interface links the Commander and the trunk unit to the rest of the car stereo system. There are also preamp outputs for direct connection to a power amplifier. Prices: \$629.95 for the changer, \$249.95 for the remote Commander. Blaupunkt, Dept. SR, 2800 S. 25th Ave., Broadview, IL 60153.

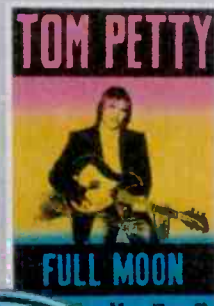
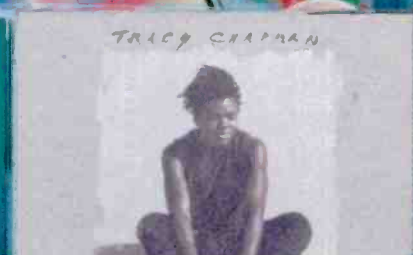
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Paula Abdul—Forever Your Girl. *Cold Hearted*; *Straight Up*; more. (Virgin) 374-637
Rolling Stones—Steel Wheels. Title cut plus *Bridges*; *Subcity*; etc. (Rolling Stones Rec.) 387-738
Tracy Chapman—Crossroads. Title cut plus *Bridges*; *Subcity*; *This Time*; etc. (Elektra) 387-951
Tom Petty—Full Moon. *Fever*. *Free Fallin'*; *I Won't Back Down*; etc. (MCA) 382-184
Cher—Heart Of Stone. *If I Could Turn Back Time*; plus more. (Geffen) 383-893
Mötley Crüe—Dr. Feelgood. Title cut plus *Without You*; *T.N.T.*; etc. (Elektra) 387-944

Belinda Carlisle—Runaway Horses (RCA) 400-788
The Front (Columbia) 400-903
Pia Zadora—Pia Z (CBS Associated) 401-703
Donne Warwick—Greatest Hits (1979-1990) (Arista) 401-679
Loverboy—Big Ones (Columbia) 401-661
Pat Benatar—Best Shots (Chrysalis) 401-646
Neville Marriner, Cond.—Handel: Water Music Academy Of St. Martin-In-The-Fields (Angel) 401-638
Yo-Yo Ma—Great Cello Concertos (CBS Master) 401-604
Best Of The Canadian Brass (CBS Masterworks) 401-596
Ars—Truth In A Structured Form (Imagine) 401-539
Survivor—Greatest Hits (Scotti Brothers) 401-521
Next Of Kin—Orig. Sound Track (Columbia) 401-323
Original Sound Track—Strait No Chaser Music from the Motion Picture *Thelouious Monk* (Columbia) 400-614
Georgia Satellites—In The Land Of Salvation And Sin (Elektra) 400-598
Charlie Daniels Band—Simple Man (Epic) 400-523
Reba McEntire—Live (MCA) 400-739
Melissa Etheridge—Brave And Crazy (Island) 388-090
Bruce Willis—If It Don't Kill You, It Just Makes You Stronger (Motown) 401-182
Do The Right Thing—Original Sound Track Featuring: Branford Marsalis (Columbia) 401-117
Bros—The Time (Epic) 400-895
Billy Ocean—Greatest Hits (Jive/RCA) 400-879
Carpenters—Lovelines (A&M) 388-942
Stephen Bishop—Bowling In Paris (Atlantic) 400-762
Paul Simon—Negotiations And Love Songs (Warner Bros.) 400-721
Bob Dylan—Oh Mercy (Columbia) 389-262
The Best Of The Dregs—Divided We Stand (Arista) 386-979
Best Of The Doors (Elektra) 357-616/397-612
Rolling Stones—Exile On Main Street (Rolling Stones Rec.) 350-652
Rolling Stones—Sticky Fingers (Rolling Stones Rec.) 350-645
Jethro Tull—Aqualung (Chrysalis) 345-157
Best Of Procol Harum (A&M) 344-457
The Byrds—Greatest Hits (Columbia) 342-501
Bad Company—10 From 6 (Atlantic) 341-313
A Decade Of Steely Dan (MCA) 341-073
Best Of Kansas (CBS Assoc.) 327-742
Joe Cocker—Greatest Hits (A&M) 320-911
Gold & Platinum Volume Six (Realim) 388-355
Rickie Lee Jones—Flying Cowboys (Geffen) 388-199
Eagles—Live (Elektra) 400-713
Elton John—Greatest Hits (MCA) 319-541
The Babys—The Babys Anthology (Chrysalis) 312-256
Creedence Clearwater Revival—20 Greatest Hits (Fantasy) 308-049
The Best Of Emerson, Lake & Palmer (Atlantic) 306-969
Best Of The Grateful Dead (Warner Bros.) 291-633
Best Of The Doobie Bros. (Warner Bros.) 291-278
Beethoven—Symphonies Revival—4 And 5. Norrington, London Classical Players (Angel) 400-184
Young Mc—Stone Cold Rhymin' (Delicious Vinyl) 400-085
Lee Ritenour—Color Rit (GRP) 400-051
Yellowjackets—The Spin (MCA) 388-173
Taylor Dayne—Can't Fight Fate (Arista) 388-017
Dave Grusin—Migration (GRP) 400-044
Jack Bruce—A Question Of Time (Epic) 389-981
SOS Band—Diamonds In The Raw (Tabu) 389-973
Ferrante And The Phantom (Bainbridge) 389-957
N.R.B.Q.—Wild Weekend (Virgin) 389-882
Harry Belafonte Live (EMI America) 389-775
Randy Travis—No Holdin' Back (Warner Bros.) 389-767
Molly Hatchet—Lightning Strikes Twice (Capitol) 389-346
The Isley Brothers—Spend The Night (Warner Bros.) 389-148
Maze—Silky Soul (Warner Bros.) 389-098
The Cars—Greatest Hits (Elektra) 339-903
Elton John—Sleeping With The Past (MCA) 387-993
Piaclido Domingo—The Unknown Puccini (CBS Master.) 387-829
The Best Of Tim Curry (A&M) 388-926
Barry White—The Man Is Back! (A&M) 388-843
Liszt: Piano Sonata; 3 Petrarca Sonnets; more. Vladimir Feltsman, Piano (CBS Master.) 388-538
Jethro Tull—Rock Island (Chrysalis) 388-157
Neil Young—Freedom (Reprise) 388-132
Lou Gramm—Long Hard Look (Atlantic) 388-108
Yo-Yo Ma/Stephane Grapelli—Anything Goes. Mostly Cole Porter Tunes (CBS) 387-845
Schumann: Carnival; Papillons; etc. Andrei Gavrilow (Angel) 387-837
Jimmy Buffett—Off To See The Lizard (MCA) 387-340
Foreigner—Records (Atlantic) 318-055
Joe Cocker—One Night Of Sin (Capitol) 387-084



Melissa Etheridge—Brave And Crazy (Island) 388-090
Bruce Willis—If It Don't Kill You, It Just Makes You Stronger (Motown) 401-182
Do The Right Thing—Original Sound Track Featuring: Branford Marsalis (Columbia) 401-117
Bros—The Time (Epic) 400-895
Billy Ocean—Greatest Hits (Jive/RCA) 400-879
Carpenters—Lovelines (A&M) 388-942
Stephen Bishop—Bowling In Paris (Atlantic) 400-762
Paul Simon—Negotiations And Love Songs (Warner Bros.) 400-721



Brahms: Violin Concerto; Bruch: Concerto No. 1. Nadja Salerno-Sonnenberg, Edo De Waart and Minnesota Orch. (Angel) 400-135
Michel Camilo—On Fire (Epic) 389-999



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Janet Jackson—Rhythm Nation 1814. Miss You Much; more. (A&M) 388-913

Aerosmith—Pump. Love In An Elevator; more. (Geffen) 388-009

Squeeze—Frank. Dr. Jazz; Rose I Said; Peyton Place; more. (A&M) 388-058

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George Clinton—The Cindarella Theory (Paisley Park) 387-134
Dave Edmunds—Closer To The Flame (Capitol) 387-126

Pat Metheny Group—Letter From Home (Geffen) 383-901

Michael Bolton—Soul Provider (Columbia) 383-083

Stravinsky: Firebird; Jeu de Cartes. Esa-Pekka Salonen, Philharmonia (CBS Master) 385-203

Yousouf N' Dour—The Lion (Virgin) 384-362

Anderson, Bruford, Wakeman, Howe (Arista) 384-115

Dr. John—In A Sentimental Mood (Warner Bros.) 384-040

Diana Ross—Working Overtime (Motown) 383-984

Tin Machine (EMI) 383-976

Batman—Original Soundtrack (Warner Bros.) 383-885

Beastie Boys—Paul's Boutique (Capitol) 383-786

Billy Squier—Hear And Now (Capitol) 383-760

Jackson Browne—World In Motion (Elektra) 383-752

Spyro Gyre—Point Of View (MCA) 383-737

Larry Carlton—On Solid Ground (MCA) 383-661

Reba McEntire—Sweet Sixteen (MCA) 383-562

Queen—The Miracle (Capitol) 383-547

Jean Luc Ponty—In The Fast Lane (Columbia) 383-521

Bonham—The Disregard Of Timekeeping (WTC) 383-497

Mozart: Flute Concertos; Adante; Rondo. Jean-Pierre Rampal And Zubin Mehta, Israel Phil. (CBS Master) 383-364

Haydn: Piano Sonatas 33, 38, 58, 60. Emanuel Ax (CBS Master) 383-331

Don Henley—The End Of The Innocence (Geffen) 383-802

On The Cutting Edge

The B-52's—Cosmic Thing (Reprise) 383-877

Paul Carrack—Groove Approved (Chrysalis) 401-257

Kate Bush—The Sensual World (Columbia) 401-232

Camouflage—Methods Of Silence (Atlantic) 400-929

Jonathan Richman (Rounder) 400-861

Jane Siberry—Bound By The Beauty (Reprise) 400-804

The Psychedelic Furs—Book Of Days (Columbia) 400-689

Exene Zervenka—Old Wives Tales (Rhino) 400-622

The Alarm—Change (I.R.S.) 400-465

Indigo Girls—Strange Fire (Epic) 400-333

Max Q (Atlantic) 400-077

The Residents—The King And Eye (Enigma) 400-036

Joe Strummer—Earthquake Weather (Epic) 400-010

Nick Lowe—Basher: The Best Of Nick Lowe (Columbia) 400-002

Vitamin Z—Sharp Stone Rain (Geffen) 389-601

David Byrne—Rei Momo (Sire) 389-494

Red Hot Chili Peppers—Mother's Milk (EMI) 389-205

The Ocean Blue (Sire/Reprise) 389-197

Debbie Harry—Def, Dumb & Blonde (Sire/Reprise) 389-130

Thompson Twins—Blg Trash (Warner Bros.) 389-114

Sugarcubes—Here Today, Tomorrow, Next Week (Elektra) 388-900

Big Audio Dynamite—Megalop Phoenix (Columbia) 388-215

John Hiatt—Y'all Caught (Geffen) 388-116

Campar Van Beethoven—Key Lime Pie (Virgin) 388-074

Syd Straw—Surprise (Virgin) 386-995

Chris Isaak—Heart Shaped World (Reprise) 386-144

Paul Kelly And The Messengers—So Much Water So Close To Home (A&M) 384-321

Bryan Ferry / Roxy Music—Street Life (Reprise) 384-230

Bodeans—Home (Reprise/Slash) 384-206

The Call—Let The Day Begin (MCA) 384-156

Peter Gabriel—Passion (Geffen) 383-810

Lloyd Cole & The Combinations—1984-1989 (Capitol) 383-778

Pixies—Doolittle (Elektra) 382-887

The The—Mind Bomb (Epic) 382-382

The Cure—Disintegration (Elektra) 382-093

10,000 Maniacs—Blind Man's Zoo (Elektra) 382-077

China Crisis—The Diary of a Hollow Horse (A&M) 381-897

Indigo Girls (Epic) 381-269

R.E.M.—Green (Warner Bros.) 375-162

Fine Young Cannibals—The Raw And The Cooked (I.R.S.) 379-214

Rachmaninoff: Piano Concerto No. 3; Rhapsody On Theme Of Paganini, Vladimir Fellsman; Zubin Mehta, Israel Philhar. (CBS Master) 383-315

Clarence Clemons—A Night With Mr. C (Columbia) 383-067

Johnny Mathis—In The Still Of The Night (Columbia) 383-042

Berlioz: Symphonie Fantastique. Norrington, London Classical Players (Angel) 382-747

Liza Minnelli—Results (Epic) 382-333

L.L. Cool J—Walking With A Panther (Def Jam / Columbia) 381-988

The Dirty Dozen Band—Voodoo (Columbia) 381-962

The Neville Brothers—Yellow Moon (A&M) 381-889

Brantford Marsalls—Trio Jeepy (Columbia) 381-830

Todd Rundgren—Nearly Human (Warner Bros.) 381-780

Miles Davis—Amandla (Warner Bros.) 381-756

k.d. lang And The Reclines—Absolute Torch & Twang (Sire) 381-624

Stevie Nicks—The Other Side Of The Mirror (Modern) 381-103

Jody Watley—Larger Than Life (MCA) 381-061

Dolly Parton—White Limozeen (Columbia) 380-725

Wynton Marsalls—The Majesty Of The Blues (Columbia) 380-394

Jeff Beck (Epic) 380-303

The Chick Corea Akoustic Band (GRP) 379-891

Milli Vanilli—Girl You Know It's True (Arista) 379-610

Steve Reich: Different Trains - Kronos Quartet / Electric Counterpoint - Pat Metheny(Nonesuch) 380-071

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How the Club works: About every four weeks (13 times a year) you'll receive the Club's music magazine, which describes the Selection of the Month—plus many exciting alternates, new hits and old favorites from every field of music. In addition, up to six times a year, you may receive offers of Special Selections, usually at a discount off regular Club prices, for a total of up to 19 buying opportunities.

If you wish to receive the Selection of the Month, you need do nothing—it will be shipped automatically. If you prefer an alternate selection, or none at all, fill in the response card always provided and mail it by the date specified. You will always have at least 10 days in which to make your decision. If you ever receive any Selection without having 10 days to decide, you may return it at our expense.

The CDs you order during your membership will be billed at regular Club prices, which currently are \$12.98 to \$15.98—plus shipping and handling. (Multiple-unit sets may be somewhat higher.) After completing your enrollment agreement you may cancel membership at any time; if you decide to continue as a member, you'll be eligible for our bonus plan. It lets you buy one CD at half price for each CD you buy at regular Club prices.

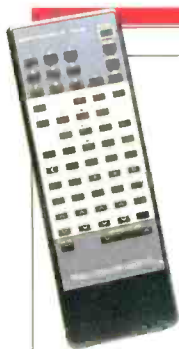
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NEW PRODUCTS



MARANTZ

The Marantz Century RS-3559 receiver has five channels of amplification. The main front channels are each rated for 125 watts rms, and the rear channels are each rated for 20 watts. There is also a mono center channel for dialogue. The receiver provides Dolby Pro Logic decoding and has Marantz's own Acoustic Variable Space Enhancement digital delay system. A CD Direct switch enables users to bypass all signal-processing circuitry. The tuner has thir-

ty station presets and a preset-scan feature. The three video inputs all switch composite video signals as well as stereo audio. The supplied remote control can also operate the Marantz Century CD player and cassette deck. Finish is brushed-gold aluminum with optional lacquered-rosewood side panels or matte-black aluminum sides. Price: \$1,000. Marantz, Dept. SR, P.O. Box 2066, Aurora, IL 60507.

Circle 133 on reader service card



JACKSON LOUDSPEAKER

Jackson's Auralight series of speaker systems all use a patented sealed enclosure that is said to provide better transient response than earlier "air-suspension" designs. The series consists (left to right in photo) of the two-way AU-3 and AU-6 satellites (the AU-6 includes a supertweeter) and the AU-20 subwoofer. Specifications include a sensitivity of 87 dB for the satellites, 90 dB for the subwoofer; frequency response (± 3 dB) of 85 to 20,000 Hz for the AU-3, 48 to 20,000 Hz for the AU-6, and 33 to 125 Hz for the AU-20; and average

impedance of 8 ohms for the satellites, 8 ohms per input for the subwoofer.

Dimensions are $13\frac{1}{2} \times 7\frac{1}{2} \times 4\frac{1}{4}$ inches for the AU-3, $17\frac{1}{2} \times 11\frac{1}{2} \times 7\frac{3}{4}$ inches for the AU-6, and $18 \times 17\frac{1}{2} \times 18\frac{1}{2}$ inches for the AU-20. Prices: \$929 and \$1,799 per pair, respectively, for the AU-3 and AU-6, \$899 for the AU-20 in the standard Navajo-white finish; optional satin, enamel, and custom finishes cost more. Jackson Loudspeaker Company, Dept. SR, 1326 N. 32nd St., Phoenix, AZ 85008.

Circle 135 on reader service card

SPEAKERLAB

The Auricle RD57 from Speakerlab is a planar-dipole ribbon driver rated for a response from 145 to 20,000 Hz ± 3 dB. A notch filter is recommended to shape a mild resonance at 6,000 Hz, and a total baffle width of 12 inches is required. The Auricle has a 54-inch-long Kapton diaphragm, corrugated to eliminate surface standing-wave resonances and laminated with pure aluminum; it uses ten pounds of ceramic bar magnets. The purely resistive impedance is 4.5 ohms, and sensitivity is rated as 90 dB sound-pressure level at 1 meter with a 1-watt input. Weight is 25 pounds. Price: \$499.95 each finished in dark-gray, catalyzed-polyurethane enamel; \$650 each in brushed stainless steel. Available factory-direct only. Speakerlab, Dept. SR, 6307 Roosevelt Way N.E., Seattle, WA 98115.

Circle 134 on reader service card



All product information is provided by the manufacturers and does not represent the results of tests or evaluations by STEREO REVIEW. Suggested retail prices were current as of press time but are subject to change without notice.

It stands to reason that the cassette decks built most like studio tape recorders will produce the highest quality home recordings.



Denon Studio A:
All our components
reflect lessons learned
in the recording studio.

The benefits of building home cassette decks with recording studio technology are even greater when the technology is your own.



Since 1910, Denon has been involved in every step of sound reproduction: recording music, making records and CDs, building studio tape recorders and producing open reel and cassette tape. In fact, Denon built the world's first digital studio tape recorder.

Denon builds this expertise into every cassette deck. Denon's proprietary clutchless Non-Slip Reel Drive produces constant tape tension, reduces distortion, wow and flutter and maintains superior performance over time. SF combination heads, in concert with Dolby B, C and HX Pro,[®] extract the most from today's digital sources by extending headroom and eliminating noise.

Lest you fear that Denon reserves this technology for its esoteric models, *all* these features are found for under \$400 on the three-head DRM-700, the DRW-750 Dual Cassette and the DRR-680 Auto-Reversing Cassette Decks.*

Why do Denon cassette decks sound better? Perhaps, it's because Denon has been making only one thing for over 80 years. Music.

DENON
DESIGN INTEGRITY

*DRM-700 shown with the optional side panels available for most Denon models. Prices quoted are manufacturer's suggested retail prices and may vary.

PROTON 600 SERIES

NOW almost ten years old, the Proton brand name first became known to audio/videophiles by way of the company's stunning, all-black 600 Series of video components. With exterior designs by industrial designer Reinhold Weiss and video performance on a level rarely seen before in consumer products, the Proton 600 Series established benchmarks both for utter simplicity of appearance and for technical excellence.

So it is very likely no accident that the firm's new audio system, which marks a reunion of Proton and designer Weiss, also carries a "600" designation. Consisting of four basic components—the AM-656 integrated amplifier, AC-620 CD player, AT-670 tuner, and AD-630 autoreverse cassette deck—plus a receiver, the AV-646 (which we did not evaluate), the series has the Proton hallmarks of dramatic appearance, simple, no-nonsense industrial design, and logical, high-bang-per-buck technical design.

The 600 Series is Proton's first audio line to provide seamless integration. First and foremost, the components are visually almost identical. Each is built on the same basic chassis, a bottom "pan" of sheet metal with a wrap-around metal top/side cover. On each front panel is the components' most salient common feature: a motor-driven, disappearing secondary control panel for less-often-used functions that rotates around a horizontal axis, concealing the "extra" controls.

The revolving control panel may seem rather a trick doodad for such high-tech designs, but the effect, when it is closed, is to give the components unusually sleek and clean front panels. Each has a single large knob (except the CD player, which is knobless), a central display window, and a few primary control keys. The amp has four smaller knobs for the tone and balance controls and some toggle switches. Its volume knob is also equipped with an LED-illuminated green stripe.

In general, control layouts are clear and well marked. Some people may find it difficult to read the



by David Simon

small white type on the black panels, but that is a labeling style that is endemic in hi-fi today. The multi-colored displays are quite legible, though the ones on both the amplifier and the cassette deck quickly become a bit busy-looking as multiple features are engaged and indicators light up. Several control markings seemed a bit cryptic at first, requiring a check of the manuals to decipher.

The rear panels are conventional enough, with standard RCA jacks for all audio connections. (The amp does not provide for switching of video signals.) A "mains control" linking system is provided: The units can be daisy-chained so that all respond to a single turn-on command from a designated "master" component.

Unique to the 600 Series is a small channel cut into the rear of each component. By running all of the cables through these center channels and then bolting on the

supplied back plates, you can obtain a neatly dressed cabinet back (see photo on page 22).

The remote controller, packed with the amplifier, is elegantly simple. It rests easily in the palm and provides control over the primary functions of all four components. Although it does not include a numeric keypad for direct track access on a CD or direct station tuning, it provides full CD search capabilities (except index search) and both tuner preset selection and up/down seek tuning. When a switch on the side is slid to the V position, the remote unit will control basic functions of Proton video components: volume, channel up/down, and mute.

The remote master volume control is a well-designed rocker switch joined by a mute key, a source selector, and an UNDO button. This last is a handy feature since source selection—both from the remote control and at the AM-656 amp itself—is a "paged" affair; you must cycle through each available source in order to reach the one you want. (This arrangement may be awkward, but it does save numerous buttons, both on the amp and the remote.) The UNDO button lets you quickly toggle back and forth between the current source and the previously selected one. Neat.

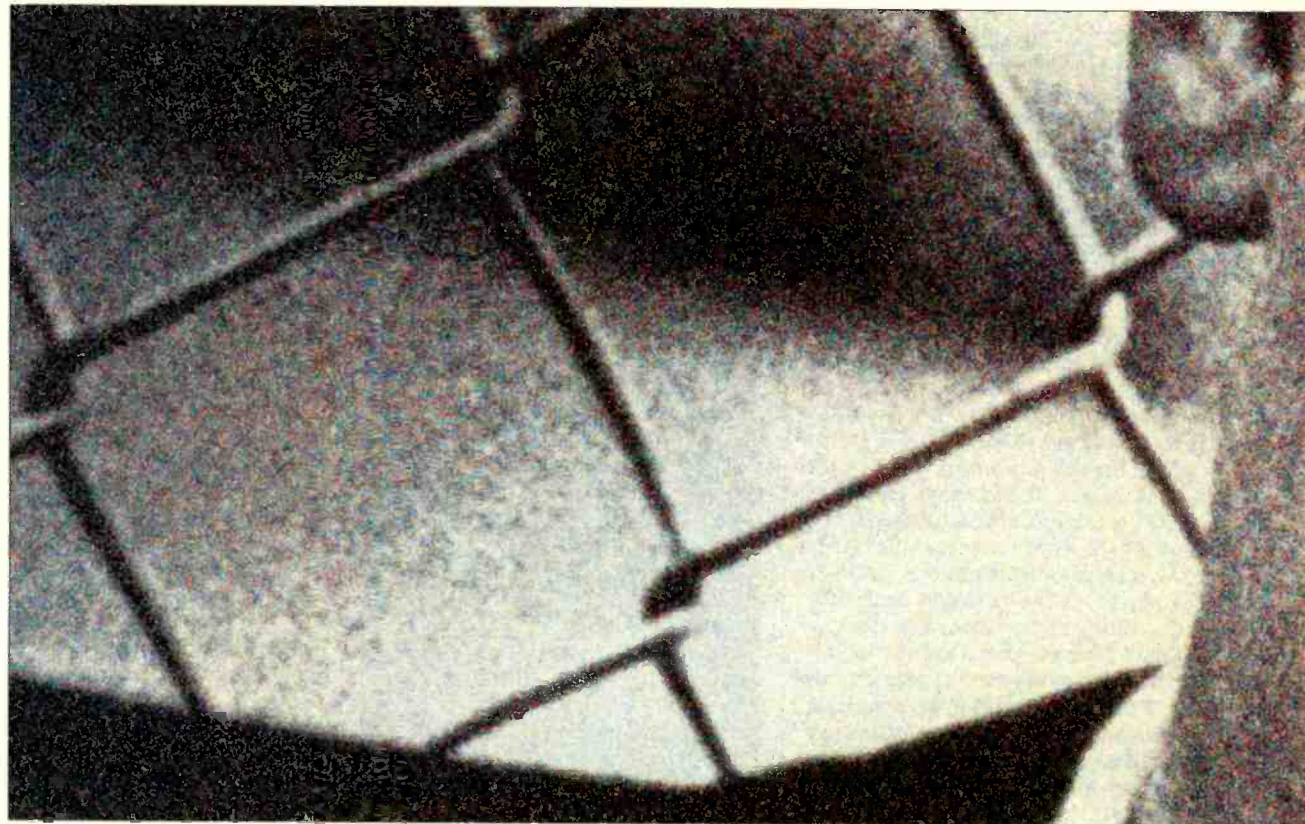
The Integrated Amplifier

Proton's new AM-656 integrated amp (\$700) is rated for 60 watts per channel from 20 to 20,000 Hz, both channels driven, into 8 ohms. It also has a whopping IHF dynamic-headroom spec of 6 dB thanks to Proton's Dynamic Power on Demand (DPD) power supply and amplifier design. This means that the amp should be able to provide up to four times its rated steady-state power for short peaks—20 milliseconds or less every half-second or so. The AM-656 even maintains this headroom into 4- and 2-ohm loads, for a maximum potential peak power of 600 watts.

We found nothing in our listening tests that would gainsay these claims. The AM-656 is quite a powerful little amplifier. It drove the rather inefficient Celestion SL-700's

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close to their maximum comfortable level with ease. The Snell Type A, which presents a rather severe and inefficient loudspeaker load, also played at surprisingly satisfying output levels.

Results with the Small Adverts—a notoriously reactive, low-impedance load—were equally fine, even played in parallel with the Snells at moderate levels. All this seemed to confirm Proton's claims of high-power and high-current capabilities and stability into low-impedance loads. When the amp did clip, it seemed to do so quite benignly, although the upper limits of available power were clearly audible. A horizontal bar in the AM-656's display window, which flashes at higher output levels, indicates operation of the DPD circuitry, though no reference to it appears in the user's guide.

Somewhat surprisingly, the AM-656's headphone-amp circuit was not up to the standard set by its main amp section: Driving a quite common Sony headphone during CD's of piano music, the AM-656 clipped rather hard and audibly at relatively modest listening levels. This engineering oversight, while fairly inconsequential, was disappointing nonetheless.

The Proton amp provides six inputs, including a phono input with a switchable moving-coil pre-preamp, two tape loops, CD, tuner, and audio/video inputs and outputs. There are pre-out and main-in jacks, joined by jumper bars, and two sets of speaker outputs—nice, five-way binding posts, my favorite type. As mentioned, a listening source is selected by keying through the available inputs. A similar key sets the source sent to the record-out jacks, so different programs can be heard and recorded at the same time.

Extra goodies include an infra-sonic filter, well-designed bass and treble controls, a bass-EQ circuit to boost signals below 60 Hz by 3 dB (helpful with small loudspeakers), and switchable loudness compensation. The most unusual feature of the Proton amp is its AX switch and associated mix knob, which engage the on-board Aphex Aural Exciter, a sonic "sweetening" circuit purported to enhance musical "presence and realism."

Curiously, Aphex processing is available only at the amp's record-



out jacks for creating preprocessed tapes. In order to listen directly to "live" Aphex-processed sound, you must set the AM-656's record source to the current playback source and monitor the tape deck. Doing so yields a noticeable increase in treble "liveness" and "air" as well as a perceptible increase in brightness. This may prove useful under some conditions, particularly with old or historic recordings.

I do have a few gripes. Most of the toggle switches, such as LOUDNESS and BASS EQ, caused audible pops—occasionally quite loud ones. A rather nasty turn-off thump occurred, oddly, every two or three turn-offs, and the motor-driven volume knob ran too fast during remote adjustment, making it tough at first to avoid overreaching the desired level. (Proton has told us that the control's taper has been redesigned.) Overall, however, the AM-656 was a fine-sounding, easy-to-use integrated amplifier.

The Tuner

The circuitry in the AT-670 tuner (\$400) is the latest creation of audio engineering wizard Larry Schotz. Dubbed a Schotz II tuner, the AT-670 has an RF front end based on a gallium-arsenide FET (field-effect transistor) in place of the commonly used MOSFET (metal-oxide-semiconductor FET). The GaAs FET is said to provide substantial gains in stereo sensitivity (3 dB) while at the same time improving selectivity and overload resistance (a 20-dB wider dynamic range) compared with conventional MOSFET front ends.

And the proof is in the pudding: The AT-670 was clearly one of the

best tuners to have crossed my threshold. With strong signals it furnished clear, musical reception, and it pulled in at least a half-dozen weak stations that few other tuners could make listenable.

Its superiority was particularly evident in the sub-92-MHz band, where noncommercial radio stations broadcasting with power levels ranging from a few kilowatts to the full 50,000 watts crowd together, often only 200 kHz apart. The AT-670 made stations I was barely aware of quite usable, even where a high-power station was 20 miles to the north of me and another station, only 0.2 MHz away on the dial, had its low-power transmitter 50 miles to the south.

I obtained these results in my semi-rural location with a multi-element, rooftop antenna. Results with a conventional dipole-type indoor antenna (rabbit ears), though less dramatic, were still remarkable. Either way, this is an impressive tuner. Several reception-optimizing features are included. A narrow/normal switch that modifies selectivity provided some dramatic improvements on weak signals adjacent to stronger ones. Another, labeled SNR for Schotz noise reduction, effectively reduced noise on very low signals, with only moderate audible changes in frequency response and stereo separation. Finally, when all else fails, a mono/stereo switch can throw the tuner into mono mode.

Convenience touches include twenty-seven presets, eighteen FM and nine AM, which can be mixed in any order, and both manual and auto-seek modes for the up/down tuning buttons. A conventional large, round tuning knob is also included. In the manual mode, the knob tunes in the usual way, but by 50-kHz increments to permit deliberate "off"-tuning, which sometimes improves reception of very weak signals with heavy interference. In the auto mode, a tweak of the knob clockwise causes the AT-670 to seek up the dial to the next station; counterclockwise motion starts a downward seek. A nice system, and my only complaint is that the knob should have a heavier, more flywheel-coupled feel.

Signal quality with reasonably strong antenna input was consistently excellent, with every indication of unlimited frequency re-

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sponse within the bounds of the FM system. Quieting was also excellent—the AT-670's rated A-weighted signal-to-noise ratio (S/N) is 74 dB in stereo (with a 65-dBf antenna input). Most of the rest of its specs are equally impressive.

The AM reception appeared to be rather better than usual from current hi-fi tuners, though it was less obviously superior than the AT-670's FM performance. Sound quality with strong signals was noticeably better than average.

All in all, it's a great tuner, free of glitches save one: Astonishingly, even when the tuner was turned off, tuner signal could be heard (admittedly, about 60 dB down) when the tuner was selected on the amp. This was a first in my experience. Nevertheless, the AT-670 is very well designed, and at its price it's an above-average value as well.

The Compact Disc Player

The CD player of the 600 Series, a straightforward, single-disc model, is the AC-620 (\$700). It's based on the familiar Philips TDA1541 dual 16-bit digital-to-analog (D/A) converter and SAA-7220 quadruple-oversampling digital-filter chip set, which are well known to provide excellent performance even compared with recent 18-bit (and higher) converters and eight-times-oversampling filters.

The single-beam disc-drive/pick-up-assembly is also made by Philips. Though a bit plastic and lightweight in appearance, this drive has good resistance to impact and vibration, and it demonstrated excellent tracking of disc defects up to and beyond 2 millimeters in size.

The AC-620 carries such specs as a frequency response of 20 to 20,000 Hz \pm 0.3 dB, an S/N of 100 dB, and total harmonic distortion of 0.003 percent at 1,000 Hz. A quick trip to the test bench confirmed that the Proton player easily met or exceeded these manufacturer's benchmarks, and others.

Convenience features include the standard set: twenty-track random-access programming, intro scan, shuffle play, and auto-repeat of either the entire disc or the programmed sequence. Controls are equally familiar. Front-panel keys manage play, pause, track skipping, and stop, and behind the revolving secondary panel are the programming keys, a ten-key numeric pad,

and up/down buttons for both audible fast search and index search.

Most controls worked as expected, though track access was a bit slower than on many competitive units. In addition, I found it a bit surprising that the unit's display indicates only track and index numbers and elapsed time on the current track; no provision is made to switch to elapsed time on the disc, remaining time on the track or disc, or total time.

The AC-620's sonics were entirely free of audible vices. Indeed, it appeared to be an excellent-sounding CD player in every respect, with silent backgrounds, fine dynamic reproduction, and an extended yet smooth and unexaggerated top end.

The Cassette Deck

The AD-630 cassette deck (\$800) is a bit unusual in that the tape is loaded horizontally in a motor-driven drawer, as in a CD player (or a DAT deck), rather than in the usual vertical cassette door. The two-head, autoreverse unit works with the drawer either open or closed, and it can extend or withdraw the drawer without interrupting playback or recording; it even shuts the drawer automatically if you power down while it's open.

Control layout on the AD-630 is somewhat different, too. The rather small transport-function keys are found on the drawer front, but all other controls reside on the disappearing secondary control surface. Record levels for both channels are set with a large knob at the right; a second ring manages record balance. This system is less common than dual level controls, but I prefer it since it discourages unintentionally misbalanced levels.

Buttons on the secondary panel include those for programming, reverse and repeat modes, an auto-bias optimization system, and noise reduction—Dolby B, Dolby C, and dbx are all available. The auto-bias system works by recording a series of test tones on a short section of tape, then repeatedly rewinding and playing it. This is a successive-approximation system, as is necessary with a two-head deck. The whole process takes a bit over a minute and seemed to work quite reliably.

A few other features of the AD-630 deserve mention. A Program Preset System (PPS)—managed

much like track programming on a CD player—can be set to play as many as twenty selections in any order. An A/B repeat function will continuously repeat a particular section of tape—an unusual feature for a cassette deck. Playback can be set for only one side, both sides, or a continuous loop, and there's a switchable auto-play/stop feature that kicks in when a tape returns to 00:00 on the AD-630's digital counter. The counter is a numeric display of elapsed time in minutes and seconds. It maintained fairly good accuracy through several rewinds but sometimes drifted off by 10 seconds or so.

Audio performance was generally good, confirming such specs as a 30- to 18,000-Hz frequency response (\pm 3 dB) and a 75-dB record/play S/N with Dolby C and chrome-type tape. Treble was open and clear, high-level peaks were recorded with minimal limiting or distortion, and flutter and modulation noise were both at acceptably low levels.

A rather unsettling sonic disturbance was caused by the deck's bargraph level display—an attractive, legible design calibrated to +16 dB. Unfortunately, it induced a pitched noise component at a few kilohertz in both channels that rose and fell in level as meter segments lit up and turned off with changing signal levels. Though low in level (about -60 dB to my ear), this interference was quite audible above the usual tape hiss with headphones—and even over loudspeakers at high volume settings in quiet musical passages. This effect is something I've never encountered before and quite possibly was a characteristic of our test sample, which was a very early production unit.

The Proton 600 Series represents technical achievements that provide a very high level of sonic performance, with excellent amplification, fine CD playback, outstanding radio reception, and competitive tape recording and playback. Individually, the 600 Series components offer pure hi-fi performance-per-dollar ratios ranging from well above the norm to rather below it. But taken as a complete, standalone system of audio electronics, the 600 Series offers a unique blend of dramatic appearance, unusual (and generally ergonomically effective) industrial design, useful system integration, and fine sound. □

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by Ken C. Pohlmann



THE MISSING LINK

MASTERING is one of the trickiest parts in the recording chain that stretches from the studio microphones to your home loudspeakers. During mastering, the finished recording is transcribed to a medium that will ultimately form the basis for the replicated copies made available to the consumer. It is also the last chance to perform any necessary signal processing. Mastering engineers work with record producers, subtly applying gain control, equalization, and compression. It is at this crucial point in the chain that CD recorders have made their debut in the audio marketplace.

Historically, producers and record-label executives have made cassette tapes or reference LP lacquers in the mastering studio and auditioned them over a variety of home, car, and portable systems to test their listenability in consumer environments. While that's okay for an LP or cassette release, neither type of working copy duplicates the sound of a compact disc. The problem isn't trivial: Some artists, keenly aware of potential problems, have clauses in their contracts prohibiting CD replication until a test run

is made. In many cases, this may take three to five weeks for turnaround from a commercial CD pressing plant. Although a digital audio tape could be used instead, DAT players are not yet commonly available, and producers feel most comfortable having an *exact* reference CD.

The solution may lie in the introduction of a professional CD recorder, using CD-R (compact disc-recordable) hardware invented by Philips and commercially developed by Yamaha. While optical recorders are commonplace in computer applications, they are not CD-compatible. Yamaha's Programmable Disc System (PDS) produces a CD that is functionally equivalent to commercial CD's, complete with subcode information. A test CD can be produced in the mastering studio in about two hours.

The PDS recorder mainly consists of two pieces of hardware, an encoder and an optical recorder, along with a computer controller. The encoder accepts stereo digital audio and control information (word-sync and SMPTE time code), then performs eight-to-fourteen modulation (EFM) coding and sends the audio data and control signals to the recorder. In addition, a controller card plugs into an IBM AT-class computer; it controls the encoder and hence the transfer of data to disc. The recorder contains a main laser to "write" data, a tracking laser to follow the pregrooved disc, and a third laser to detect any tilt in the disc.

PDS is a record-once system using ablative technology: The disc is made of several layers, including a metal recording layer and protective layers placed on a polycarbonate substrate. To record data, a laser (with a healthy 1/2 watt of power) blasts permanent pits directly into the metal recording layer. To begin a recording, the operator enters a table of contents containing the number of tracks and index points. This information is used to create a subcode file and to write data in the lead-in area on the blank disc.

After the lead-in area is written, the system instructs the source to begin sending data to the recorder, which writes the data on the disc in

real time using the standard CD-audio format. At the end of the recording, the system writes a lead-out area and ejects the finished disc. Errors are noted during recording, and the process is halted if the disc is diagnosed as defective.

As the system currently works, the recording must be made continuously; you cannot start and stop the disc once a recording is initiated. In addition, reports are that CD's recorded with PDS equipment are playable on only about 90 percent of consumer CD players; the reflectivity of a PDS disc is marginal relative to the Philips Red Book standard, and some players are unable to read the discs. But a new type of dye-polymer disc can also be used in a PDS recorder, after its laser power is decreased, and the higher reflectivity of these discs is said to make them virtually 100 percent compatible with existing CD players.

This audio mastering system is configured for the professional audio market by New York City's Gotham Audio (working with Harmonia Mundi Acustica). The Gotham system, called the CDR-90, sells for \$49,500, and blank discs, manufactured by Fuji, cost about \$80 each. Mastering studios charge the client about \$375 for a reference CD produced by the system—a relative bargain.

There are other applications for the system as well. For example, radio broadcast recordings are often distributed among stations in a bewildering variety of formats—PDS would provide an instant standard. Commercials and jingles could be easily produced and distributed on a PDS CD. With a couple of recorders, an optical-disc editing system could be designed. A consumer model? Surely that's only a matter of time—and volume.

For now, for the first time, producers and record executives can conveniently audition all of their future products as the consumer will hear them, then make optimal mastering decisions prior to mass replication. In short, with the introduction of professional CD recorders such as the PDS, the chain from recording studio to your home just got stronger. □

“Cambridge SoundWorks May Have The Best Value In The World. A Winner.”

David Clark—Audio Magazine Sept. '89

Cambridge SoundWorks has created Ensemble, a speaker system that can provide the sound once reserved for the best speakers under laboratory conditions. It virtually disappears in your room. And because we market it directly, Ensemble costs hundreds less than it would in stores.

where the speaker is placed in the room. If you put a conventional speaker where the room can help the low bass, it may hinder the upper ranges, or vice-versa.

Your listening room works with Ensemble, not against it.

Ensemble, on the other hand, takes advantage of your room's acoustics. The ear can't tell where bass comes from, which is why Ensemble's bass units can be tucked out of the way—on the floor, atop bookshelves, or under furniture. The satellites can be hung directly on the wall, or placed on windowsills or shelves. No bulky speaker boxes dominate your living space, yet Ensemble reproduces the deep bass that no mini speakers can.

“Very much in the Henry Kloss tradition... another hi-fi milestone.”

 **Review**



Henry Kloss, creator of the dominant speaker models of the '50s (Acoustic Research), '60s (KLH) and '70s (Advent), brings you Cambridge SoundWorks, a genuinely new kind of speaker company for the '90s.

The best sound comes in four small packages.

Ensemble consists of four speaker units. Two compact low-frequency speakers reproduce the deep bass, while two small satellite units reproduce the rest of the music, making it possible to reproduce just the right amount of energy in each part of the musical range without turning your listening room into a stereo showroom.

No matter how well a speaker performs, at home the listening room takes over. Room acoustics emphasize and de-emphasize various parts of the musical range, depending on

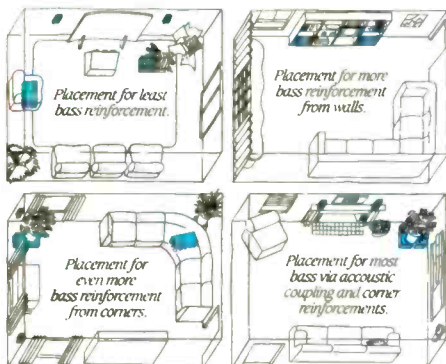
Unlike seemingly similar satellite systems which use a single large subwoofer, Ensemble uses two separate, compact bass units. They fit more gracefully into your living environment, and help minimize the effects of the listening room's standing waves.



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Not all the differences are as obvious as our *two* subwoofers.

Unlike seemingly similar three-piece systems, Ensemble uses premium quality components for maximum power handling, individual crossovers that allow several wiring options and cabinets ruggedly constructed for proper acoustical performance. We even gold-plate all connectors to prevent corrosion. An even bigger difference is how we sell it.



You can put Ensemble's low-frequency units exactly where they should go for superb bass. You can't do this with conventional speakers because you have to be concerned about the upper frequencies coming from the same enclosures as the low ones.

Thousands agree: the best showroom is your living room.

Choosing a loudspeaker after a brief listen at a dealer's showroom is like deciding on a car after one quick trip around the block. So we make it possible to audition Ensemble the *right* way—in your own home. In fact, Ensemble is sold *only* by Cambridge SoundWorks directly from the factory.

"They were designed to play music—and make it sound like music. This they do very well, in a most unobtrusive way, at a bargain price... it's hard to imagine going wrong with Ensemble."
StereoReview

You get to listen for hours without a salesman hovering nearby. If after 30 days you're not happy, return Ensemble for a full refund (we'll even reimburse the original UPS shipping charges in the continental U.S.).

At only \$499—complete with all hardware and 100' of speaker cable—Ensemble is *the* value on today's speaker market.

"You get a month to play with the speakers before you have to either return them or keep them. But you'll keep them."

Esquire



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by Ian G. Masters



Dried-Out Cassettes

Q I own a number of cassettes, and although the quality of the tape is fine, the cassette mechanisms are "drying out" and their plastic parts are very squeaky when I'm playing or rewinding them. Is there any substance I can apply that will eliminate this noise without gumming up the heads of my tape deck?

SHELTON R. WEBER
Louisville, KY

A Messing about inside a cassette, or squirting anything into it, is a risky business at best and should be avoided. There are replacement shells available into which you can transfer (carefully!) the contents of a faulty cassette, and you might give these a try.

If you decide to attempt repairs, begin with these steps. Before you even consider opening a shell, fish out enough tape to let you get at the pressure pad behind it; using a toothpick, try to loosen any oxide that may have been deposited on the pad and blow it away. Some squeaks are caused by friction between pad and tape, so removing oxide from the pad and fluffing up the felt often cures the problem. If that doesn't work, carefully open the shell, trying not to disturb the position of what's inside (if the shell is welded rather than screwed, forget it; you'd have to break the shell to open it). Put the tiniest drop of contact cleaner in the center of the roller tape guides, making sure that none of it can come into contact with the tape. Then flip the plastic slip sheets over and reassemble the cassette.

If none of that does the trick, you will probably have to go for a whole new mechanism. Often it's simpler, and not that much more expensive, just to replace the whole cassette.

Speaker Wear and Tear

Q Severe damage to a speaker system is usually obvious because one or more elements cease to work. But is it possible that operating a speaker near its limits could alter its response without actually causing it to fail? If so, is there any reliable way of detecting whether there is such damage?

PAUL G. ALTHAUS
Stony Brook, NY

A No, short of shipping the speaker back to its manufacturer for comparison with an engineering prototype. But it's very rare that damage will result in changes so subtle that they aren't immediately apparent. Sometimes a mechanical buzz will appear. Or some portion of the spectrum—usually the high frequencies—will become attenuated or distorted. Or the sonic characteristics of the two speakers in a stereo pair will suddenly become quite different (it's unlikely that the problem will affect both sides in exactly the same way). However it manifests itself, a problem caused by pushing your system to its limit will quickly make itself known.

On the other hand, alteration of a speaker's performance because of normal wear and tear is much more difficult to detect, because its onset is gradual and it does tend to affect both channels more or less equally. Although speakers are fairly hardy, certain elements (cone surrounds, for instance) can degrade over time, even with the most careful use, and that may eventually change the sound. If you suspect this is happening, the only solution is to return the speakers to the manufacturer for a checkup and, if necessary, a refit.

Equipment Placement

Q Is there such a thing as hi-fi equipment that is unaffected by room size or furniture placement?

DAVE BUELL
Quincy, MA

A Sure, almost all of it. As long as you take some precautions, such as making sure you can get at the controls and that there is adequate ventilation for the power amplifier, you can safely put most of your components practically anywhere. There are some exceptions, of course: Turntables should not be placed where floor vibrations can cause the stylus to skip or where a

speaker's sound can be picked up with sufficient intensity to cause feedback, and a video monitor should not be placed so close to unshielded speakers that their magnetic fields disturb the picture.

Positioning is always important, however, for speakers. Speakers and their surroundings form a single acoustic system, and how you position both your speakers and yourself can have dramatic effects on the sound quality you get. So far, no one has come up with a speaker that is completely insensitive to position, although a number of scientists and designers are working on just that. Until they succeed, you should experiment to find the optimum placement for your speakers, starting with the manufacturer's recommendations.

Amplifier Preservation

Q A local audio dealer has told me that leaving my amplifier on at all times will make it sound better and last longer. Is this true?

KELVIN BURTON
Fort Macleod, Alberta

A That's a firmly held belief on the part of many audiophiles and some manufacturers—there are even some amplifiers on the market that omit a power switch for this reason—but any difference the practice makes is likely to be small. Certainly the surge of power that courses through an amplifier when you turn it on does it no good, although whether it does it any harm is open to debate. But a good amplifier, properly handled, will last for decades; prolonging its life beyond that would seem to be pointless.

As for sound quality, any degradation that might be caused by switching the power on and off would be so minute, and so gradual, that you can safely ignore it. If you're worried that you might already have caused some damage, take the amplifier back to the dealer and compare its sound to a fresh sample. I doubt you will hear a difference even in a direct A/B comparison. And with modern designs, there is no reason that the sound might improve as the amplifier warms up. On the other hand, leaving an amplifier on usually won't hurt it, unless there is insufficient ventilation and heat is allowed to build up over time. That might well shorten its useful life. □

If you have a question about hi-fi, send it to Q&A, Stereo Review, 1633 Broadway, New York, NY 10019. Sorry, only questions chosen for publication can be answered.

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CIRCLE NO. 31 ON READER SERVICE CARD

by Julian Hirsch



THREE-PIECE SPEAKER SYSTEMS

MOST loudspeaker systems are, and always have been, designed as full-range reproducers, complete in a single unit. This is the most logical configuration for a speaker, as it places the various drivers in the correct physical relationship for a proper blending of their acoustic outputs. And it makes sense, both in convenience and acoustic performance, under most conditions.

Before stereo, good speaker systems tended to be large, heavy, and expensive. Audiophiles of the 1940's and 1950's were willing to put up with the expense and inconvenience of dominating the listening room (often the family's living room) with a large and not always attractive speaker cabinet. Stereo reproduction required two identical speakers, and the mono dinosaurs were soon replaced by much smaller (and frequently better) "bookshelf" speakers. Edgar Villchur's AR-1 acoustic-suspension speaker, and the competing products that followed, set the standards for the next couple of decades.

Actually, "bookshelf" was an inappropriate description of these

speakers, whose size and weight made them unsuitable for placement on ordinary bookshelves. Smaller speakers based on similar principles *would* fit on a real bookshelf, but inevitably the lower bass registers had to be sacrificed in the process, and such speakers have not been widely accepted for serious hi-fi listening. As a result, speakers today are usually placed on the floor (sometimes on stands), pretty much as their larger ancestors were. I would guess that a substantial majority of high-quality home systems today fall into this category.

Although dyed-in-the-wool audiophiles may find it hard to understand, there are many people who appreciate the sound quality of a good music system but are not willing (or able) to sacrifice the floor space required by a pair of full-range speakers or to adjust room decor to achieve the speakers' best acoustic performance. There are at least two ways to deal with this situation: built-in wall speakers and the so-called three-piece system. For a variety of reasons, many people are reluctant or unable to install speakers in their walls, although the quality of speakers designed for that purpose is constantly improving and can be quite satisfying to most listeners. A three-piece speaker system can be an attractive alternative.

The first three-piece system that I can recall was manufactured by Weathers Industries in 1959 or 1960, coinciding with the appearance of the stereo LP, which really created the need for such a development. It had a pair of tiny satellite speakers shaped and styled like books and small enough to fit on a

bookshelf; they were almost invisible if placed among real books. At 100 Hz there was a crossover to a "hideaway" bass module that could be placed anywhere in the room. I remember being amazed by the system's sound, especially since neither the satellites nor the bass module could be spotted without considerable searching!

Introduced at only \$119.50, the Weathers system was expanded to include larger components and even powered speakers when transistors became available. Unfortunately, it was not widely accepted, and the company was gone by 1964.

The next time I encountered a three-piece speaker was about twenty years after the appearance of the Weathers system. In the April 1981 issue of *STEREO REVIEW*, I reviewed a \$400 system from 3D Acoustics whose performance excited me in a way that very few speakers have, before or since. The satellites were somewhat larger than those of today's three-piece systems, and the bass module, whose finished cabinet stood 2 feet high, was obviously not a hideaway unit.

In January 1982 I reviewed the ADS SS-2300, whose powered bass module was large and heavy—and highly visible at 2 feet square and 16 inches high. The satellites were excellent minispeakers, and the system's price of \$1,650 clearly placed it in a different category from that of most previous three-piece systems. Although now out of production, the SS-2300 was the finest such system I had heard, easily rivaling comparably priced conventional speakers.

Over the years, despite the very creditable three-piece systems that have occasionally appeared, the concept never seemed to win widespread popular acceptance, and it was largely ignored by most speaker manufacturers. The logjam was finally broken by the appearance of the Bose Acoustimass 5 in 1987. The market impact of this system was so impressive that a number of other manufacturers have now entered the field with competitive products (and Bose has added another model in the same category).

In fact, hardly a month goes by without another three-piece system

Tested This Month

Yamaha RX-530 Receiver
Boston Acoustics SubSat
Six Speaker System
Rotel RCD-855
Compact Disc Player
Ortofon PPA600
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CIRCLE NO. 71 ON READER SERVICE CARD

being submitted for review. In recent months we have reviewed the Cambridge SoundWorks Ensemble (which has *four* pieces, with two separate bass modules, but the principle is the same), the Design Acoustics PS-3, the Boston Acoustics SubSat Six (see page 42), and the Polk Audio RM-3000, and we

All the three-piece systems we have tested are capable of delivering full-range sound quality rivaling that of conventional two-piece systems.

are in the process of testing others. Several of these systems, like the Bose models, employ very small satellites that are easily concealed or are inconspicuous if in the open, and most of the bass modules are simple black boxes that can be hidden from view under or behind furniture. Since they do vary in size, that is one of the specifications that should be checked if bass-module concealment is planned.

Every one of these systems, which carry list prices from \$500 to \$750, is capable of delivering full-range, musical sound quality rivaling that of conventional two-piece systems in the same or even much higher price brackets. That is not to imply that they sound alike—as with any speakers, they all sound different from each other. In particular, although most of them use dual-chamber bass modules (as do the Bose Acoustimass systems), there are numerous design variations that give different characters to their bass reproduction and the way it blends with the satellites' outputs.

I am pleased to see the three-piece concept finally catching on as it should. The versatility of these speaker systems makes their excellent sonic qualities available in even the smallest or most unusually shaped rooms, and their prices bring them within reach of anyone contemplating a music system. They should not be viewed as inferior systems, fit only for a den or child's room, but as legitimate variations on the more established forms of speaker construction.

THE SHOCKING TRUTH!

Speakers are *the most important part* of your stereo system. It is the speaker that turns amplifier signal into sound and so ultimately determines what you hear. If your speakers do not perform well, your stereo system will simply not sound like music.

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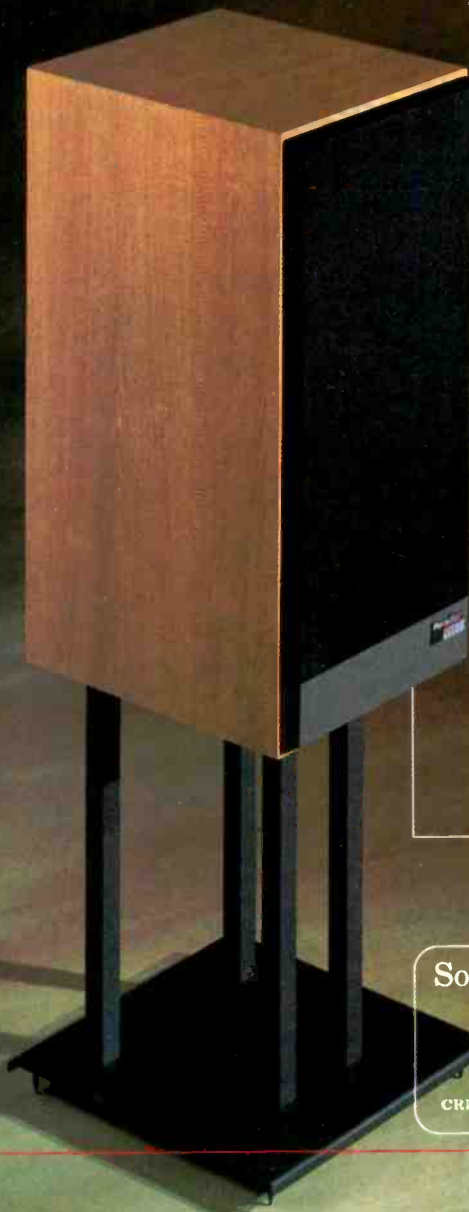
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- *Sound & Vision Magazine*

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- *Hi Fi Heretic Magazine*



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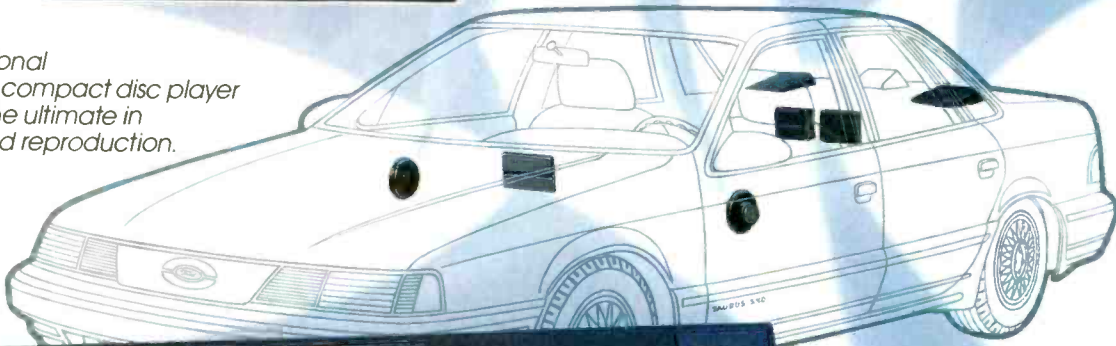
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TEST REPORTS



JOON LIFUNG

YAMAHA RX-530 RECEIVER

Julian Hirsch, Hirsch-Houck Laboratories

YAMAHA'S compact and moderately priced RX-530 has all the features one would expect in a modern stereo receiver. Its digital frequency-synthesis AM/FM tuner has eight preset buttons that are switchable for access to sixteen station memories, each assignable to an AM or FM channel. The tuner operates in manual mode (single-channel steps) or auto-scan mode. During manual tuning, reception is in mono, switching to stereo (if available) once a station is tuned in.

The input sources are identified as tuner, CD, phono, video/auxiliary, DAT/tape 1, and tape 2. There is also a CD Direct mode, which connects a CD player directly to the amplifier input regardless of the regular source selection. In CD Direct, only the volume control is in the circuit; tone controls and all other signal-modifying circuits are bypassed.

The power-amplifier section is rated to deliver 50 watts per channel into 8-ohm loads from 20 to 20,000 Hz with no more than 0.02 percent total harmonic distortion (THD). Its

EIA dynamic power ratings into loads of 8, 4, and 2 ohms are 81, 138, and 112 watts, respectively.

The RX-530 has center-detented knobs for the bass, treble, and balance controls, a large volume knob, and a loudness-compensation control of the type introduced by Yamaha in the 1970's (and still a feature nearly exclusive to Yamaha). Operating independently of the volume setting, the loudness knob's counterclockwise rotation reduces the midrange (1,000-Hz) level by as much as 40 dB, with a lesser reduction of bass and treble levels. The result is a family of curves resembling those of many conventional loudness controls, except that the system lets the compensation be applied to any desired degree without regard to the volume-control setting. In practice, it is capable of much more realistic sound at any listening level than the usual combined volume/loudness control.

A six-position REC OUT switch feeds any of the input sources to the tape-recording output jacks on the rear apron, regardless of the source selected for listening. All other con-

trols are either single or dual rocker-type pushbuttons.

Besides the functions already referred to, there is a pair of buttons that independently activate the two sets of speaker outputs on the rear apron and another that turns on the Bass Extension circuit, a low-frequency boost intended to enhance the deep-bass performance of most small speakers. Center-pivoted rocker switches step through the various input sources and tune the receiver in either direction. There is also a front-panel headphone jack and a power button.

The display window is informative without being confusing. The station frequency (and preset number, if applicable) are displayed in large red numerals. Smaller readouts indicate the tuning mode and reception of a stereo signal as well as the selected input source. A signal-quality indicator shows the relative strength of a received signal.

The rear apron contains two sets of speaker outputs whose spring-loaded connectors accept stripped ends of speaker wires, similar connectors for a 300-ohm FM antenna and the supplied wire-loop AM antenna, and the signal-input and tape-output phono jacks. One of the two AC outlets is switched.

The infrared remote control supplied with the RX-530 can be used

TEST REPORTS

to switch it on or off, select the input source or preset channel, and adjust the volume (the receiver's volume knob is motor-driven during remote operation). Available only through the remote control is a "sleep" mode that automatically shuts off the receiver after an hour. The remote also has a number of buttons that can be used to operate compatible Yamaha CD players, turntables, and cassette decks directly or through the receiver.

The black-finished Yamaha RX-530 measures 17 $\frac{1}{8}$ inches wide, 11 $\frac{3}{8}$ inches deep, and 5 inches high, and it weighs 12 pounds, 5 ounces. Price: \$399. Yamaha, Dept. SR, 6722 Orangethorpe Ave., Buena Park, CA 90620.

Lab Tests

The RX-530's FM tuner section had a usable sensitivity of 14.5 dBf (2.9 microvolts, or μV). As with most FM tuners, its frequency-syn-

thesis tuning and IF alignment were not precisely matched, so that a slight readjustment of the signal-generator frequency (to 20 kHz higher than the receiver setting) improved the usable-sensitivity reading to 13.5 dBf (2.7 μV). The 50-dB quieting sensitivity in mono was 13.5 dBf (2.6 μV), and in stereo it was 35 dBf (30 μV).

The FM tuner distortion with a 65-dBf (1,000- μV) signal was 0.1 percent in mono and 0.38 percent in stereo. The signal-to-noise ratio (S/N) was 81 dB in mono and 77 dB in stereo. Frequency response was down 0.7 dB at 10,000 Hz and 3.9 dB at 15,000 Hz. Channel separation was 47.5 dB in the midrange, 26 dB at 30 Hz, and 40 dB at 15,000 Hz. Although the capture ratio was on the high side at 2.5 dB, AM rejection was a very good 70 dB. Selectivity was average: 61 dB with alternate-channel spacing and 4 dB with adjacent-channel spacing. Image rejection measured a rather poor 43 dB. The AM tuner section's frequency response was +0.5, -6 dB from 50 to 2,300 Hz.

The preamplifier's bass control boosted the response by a maximum of 10 dB at 60 Hz and cut it by 10 dB between 20 and 40 Hz. The treble control had a maximum range of ± 10 dB at 20,000 Hz. Its response curves were hinged at about 3,000 Hz, while the bass control's turnover frequency varied from 50 to 300 Hz.

The loudness compensation provided fairly standard response curves as the control setting was lowered. At the minimum setting, the 1,500-Hz output was lowered by 42.5 dB while the output dropped only 18 dB at 20 Hz and 35 dB at 20,000 Hz. The Bass Extension circuit had no effect above 300 Hz but provided a 3-dB boost at 100 Hz and a maximum of 9 dB at 40 Hz; the boost returned to zero (reference level) at 20 Hz.

The RIAA phono-equalization error was only +0.2, -0.3 dB from 20 to 20,000 Hz. Phono-input impedance was 46,500 ohms in parallel with an 80-picofarad (pF) capacitance. We also measured the response through the regular CD inputs and in the CD Direct mode. The most obvious difference was a

FEATURES

- Digital frequency-synthesis AM/FM tuner with sixteen presets
- Detachable wire-loop AM antenna
- Manual or auto-scan tuning
- Inputs for tuner, phono, CD, video/auxiliary, and two tape decks
- CD Direct mode to bypass all controls except volume
- Dubbing from either tape deck to the other
- Independent selection of sources for recording and listening
- Front-panel headphone jack
- Bass and treble tone controls with center detents
- Continuously variable loudness compensation independent of volume setting
- Display of tuner frequency, preset number, relative signal strength, selected input, tuning mode, stereo reception
- Connections for two pairs of speakers with independent front-panel selection
- Wireless remote control for power, preset and input selection, and volume (using motorized volume knob); can operate some Yamaha tape decks, turntables, and CD players directly
- Sleep mode (from remote) to shut off receiver after 1 hour
- Supplied cables and connectors for Yamaha RS components to enable system control through remote unit

LABORATORY MEASUREMENTS

- Tuner Section** (all figures for FM only except frequency response; measurements in microvolts, or μV , referred to 300-ohm input)
 - Usable sensitivity: mono, 14.5 dBf (2.9 μV)
 - 50-dB quieting sensitivity: mono, 13.5 dBf (2.6 μV); stereo, 35 dBf (30 μV)
 - Signal-to-noise ratio at 65 dBf: mono, 81 dB; stereo, 75.4 dB
 - Harmonic distortion (THD + noise) at 65 dBf: mono, 0.1%; stereo, 0.38%
 - Capture ratio at 65 dBf: 2.5 dB
 - AM rejection: 70 dB
 - Selectivity: alternate-channel, 61 dB; adjacent-channel, 4 dB
 - Stereo threshold: 30 dBf (17 μV)
 - Pilot and subcarrier leakage: 19 kHz, -48 dB; 38 kHz, -80 dB
 - Hum: -76 dB
 - Stereo channel separation at 100, 1,000, and 10,000 Hz: 35, 47, 41 dB
 - Frequency response: FM, +0.1, -3.9 dB from 30 to 15,000 Hz; AM, +0.5, -6 dB from 50 to 2,300 Hz
- Amplifier Section**
 - 1,000-Hz output power at clipping: 62 watts into 8 ohms, 80 watts into 4 ohms, 100 watts into 2 ohms (one channel driven)
 - Clipping headroom (relative to rated output): 0.9 dB at 8 ohms
 - Dynamic power output: 110 watts into 8 ohms, 180 watts into 4 ohms, 248 watts into 2 ohms
 - Dynamic headroom: 3.4 dB at 8 ohms
 - Maximum distortion (20 to 20,000 Hz into 8 ohms): 0.024% at 20,000 Hz and 50 watts output
 - Sensitivity (for a 1-watt output into 8 ohms): CD, 20 mV; phono, 0.33 mV
 - Phono-input overload: 100 to 118 mV from 20 to 20,000 Hz
 - A-weighted noise (referred to a 1-watt output): CD, -83.6 dB; phono, -80.2 dB
 - Phono-input impedance: 46,500 ohms in parallel with 80 pF
 - Tone-control range: 100 Hz, +8.5, -7.5 dB; 10,000 Hz, +9, -8 dB
 - Bass Extension range: +8.5 dB at 60 Hz, 0 dB at 20 and 300 Hz

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TEST REPORTS

slight gain change (CD Direct signals were about 0.2 dB higher in level). There was also a minute difference in frequency response between the two, with a slight upward slope to the CD Direct signal across the full audio range as the frequency increased. The total relative change from 20 to 20,000 Hz, however, was a mere 0.02 dB, surely an insignificant amount. All the observed changes clearly derived from bypassing the tone-control, loudness, balance, and Bass Extension circuits—a testimonial to their inherent neutrality.

Audio sensitivity, for a 1-watt reference output, was 20 mV through the CD input and 0.33 mV through the phono input. The respective A-weighted noise levels (referred to 1 watt) were very low, -84.6 and -80.2 dB.

Harmonic distortion into 8-ohm loads was typically between 0.008 and 0.004 percent between 20 and 10,000 Hz at power outputs from 5 to 50 watts. The maximum distortion of 0.024 percent was measured at the rated 50 watts, with both channels operating, at 20,000 Hz. At 1,000 Hz, the distortion was less than 0.005 percent from a few watts to 60 watts, and the output clipped at 62 watts into 8 ohms. Driving 4-ohm loads, the amplifier clipped at 80 watts, and distortion remained less than 0.005 percent to beyond 70 watts. With a 2-ohm load, we drove only one channel, and the output clipped at 100 watts. Even under this severe condition, the distortion remained less than 0.01 percent to beyond 80 watts.

In dynamic power tests, the amplifier delivered 110 watts per channel into 8 ohms, for a dynamic headroom of 3.4 dB, increasing to 180 watts into 4 ohms and 248 watts into 2 ohms. The slew factor was greater than 25. In a power-bandwidth measurement (with both channels driven into 8 ohms), the output at 0.1 percent distortion was between 61 and 63 watts per channel from 45 to 20,000 Hz, falling off slightly to 56 watts at 20 Hz.

Comments

The Yamaha RX-530 is a lot of receiver for its price. It is safe to say that it would meet the needs of a

large majority of mainstream audiophiles. Although the measured performance of its FM tuner was not particularly outstanding, it sounded fine in our installation. In a couple of respects, such as image rejection and capture ratio, its measurements were marginal, and near an active airport its image rejection might not be adequate. On the other hand, the tuner noise level was very low for a product in this price range. In extended home use, I never found the slightest reason to criticize its performance. As a bonus, its AM quality was among the best I have heard in years, in spite of a characteristically limited bandwidth. The supplied wire-loop AM antenna (in contrast to the usual ferrite-rod antenna) did not pick up the noise and hash from nearby power wiring that plagues most AM tuners I have used. With a low noise level, even AM can be a listenable medium.

In these days of super-power amplifiers, 50 watts may not seem like much, but actually it is plenty for most people. Certainly that is the case if the amplifier can drive low-impedance speaker loads, and especially if it has the considerable dynamic headroom that we measured on the RX-530. With speakers of average or better efficiency (sensitivity of 87 dB or greater), this receiver can play as loudly and cleanly as one could wish.

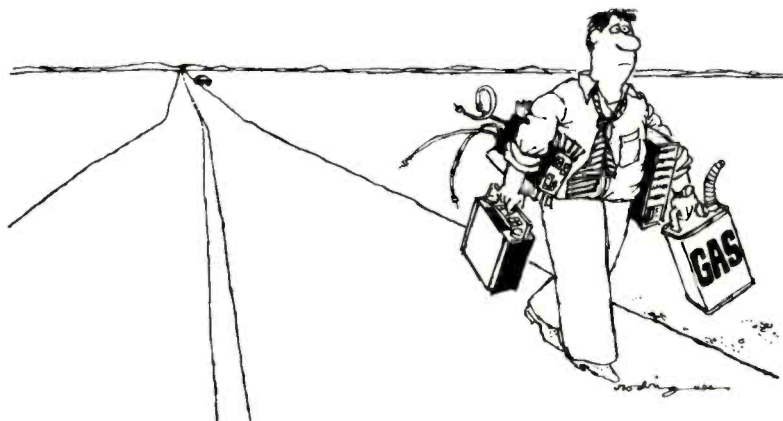
The RX-530 is well endowed with features. If you use a loudness control, it has one of the best. The Bass Extension circuit is superb for its

purpose. The low-frequency response of most small speakers rolls off below about 70 or 80 Hz, and this circuit injects enough boost below that range to add a feeling of bass without exceeding the amplifier's capabilities or adding any unnatural coloration. If you believe that a CD Direct connection is beneficial, you also have it in this receiver, but in our lab and listening tests it had essentially no effect on the sound.

Every bit as important as the RX-530's performance, though not so easy to quantify, is its ease of operation. I found its ergonomic aspects to be above average, with a reasonable mix of basic and extra features. You won't have to keep the instructions handy when using this receiver, since almost every control does exactly what you would expect, and they all had a smoothness and tactile feedback that appealed to me. The only shortcoming of its front-panel design is the placement of the tuning, band, mode, and other buttons. They are marked with very small, hard-to-see characters, and they are largely hidden by the protruding row of preset selectors above them unless viewed from directly in front.

With that as my most serious criticism of the Yamaha RX-530, it clearly ranks as an excellent value, an affordable receiver that does a lot, does it very well, looks and sounds great, and doesn't take up an undue amount of space.

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TEST REPORTS



BOSTON ACOUSTICS SUBSAT SIX SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE Boston Acoustics SubSat Six is a compact speaker system built in the increasingly popular three-piece format. It consists of a pair of small, two-way satellite speakers and a separate PowerVent bass module. Each satellite weighs 4 pounds and measures 8 inches high, 4 $\frac{7}{8}$ inches wide, and 4 $\frac{3}{8}$ inches deep, and each contains a 4-inch cone woofer operating in a sealed enclosure and a $\frac{3}{4}$ -inch dome tweeter. The black vinyl-finished particleboard enclosures have spring-loaded connectors on the back panels; normally meant to accept wire leads, they are also compatible with dual banana plugs. The black metal grilles are not readily removable.

The PowerVent module, also finished in black, weighs 17 $\frac{1}{4}$ pounds and measures 13 $\frac{1}{2}$ inches high, 7 $\frac{1}{4}$ inches wide, and 16 $\frac{1}{2}$ inches long. It contains separate 6-inch woofers for each channel, rear-loaded by a com-

mon sealed chamber and facing into a common vented chamber. The vents open through 2-inch-diameter tubular ducts that are flared at both ends to eliminate noise from turbulence at high levels. The PowerVent design provides a low-pass cutoff of 18 dB per octave without using any crossover components, and since each satellite contains its own high-pass crossover filter, the satellite and bass-module driver for each channel are simply connected in parallel and then to the amplifier output.

The system's specifications include a frequency response of 46 to 20,000 Hz \pm 3 dB, a nominal impedance of 4 ohms, and sensitivity of 87 dB sound-pressure level (SPL) at 1 meter with a 2.83-volt input. It is recommended for use with amplifiers rated to deliver between 15 and 100 watts per channel.

Like other three-piece systems, the SubSat Six offers great installa-

tion flexibility. The satellites can be placed on stands, tables, or shelves. Moreover, each satellite has a rear-panel keyhole opening for wall mounting as well as threaded inserts for use with an optional swivel bracket.

Because its output drops rapidly above about 150 Hz, the PowerVent module can be located almost anywhere without being heard as a separate sound source. In general, it is preferable to put it at the same end of the room as the satellites, and Boston Acoustics also suggests corner placement (with the vents facing the corner) for the deepest and most uniformly distributed bass output. Price: \$499.95 for complete system. Boston Acoustics, Dept. SR, 70 Broadway, Lynnfield, MA 01940.

Lab Tests

With the satellites on 26-inch stands and the PowerVent bass module about midway between them, the averaged room response of the SubSat Six was unusually uniform across the full audio range. There was very little difference between the response curves of the left and right channels (measured one at a time from a microphone position on the axis of the left channel), and from 500 to 20,000 Hz the averaged output varied only \pm 2 dB.

The close-miked response of the PowerVent module was flat within \pm 1 dB from 50 to 130 Hz, falling off at 18 dB per octave above that frequency and at a precipitous 60 dB per octave between 50 and 35 Hz. Output rose slightly from 35 to 26 Hz and then continued its descent to our 20-Hz measurement limit, where it was some 25 dB below the woofer's reference operating level.

To form a composite response curve, we used a close-miked measurement of the satellite cone (mid-range) driver to bridge the region between the bass and tweeter ranges. The resulting curve was flatter than could probably be justified in view of the numerous external variables that can affect the balance between lows and highs in any room. Suffice it to say that the response of each driver (bass, mid-range, and treble) in its operating range was flat enough to have passed for an amplifier response not

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"... I must say that I have never heard a speaker system in my own home which could surpass, or even equal, the Bose 901 for overall "realism" of sound."

—Julian Hirsch, *Stereo Review* 1968

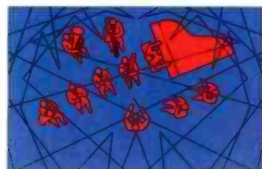
"There is no doubt that the much-abused and overworked term, 'breakthrough,' applies to the Bose 901 system and its bold new concepts."

—Bert Whyte, *Audio* 1969

"Many people swear by these speakers as the ultimate."

—*Complete Buyer's Guide to Stereo Hi-Fi Equipment* 1975

But this was just the beginning. Bose research continued to focus on the 901 system, incorporating the latest technology as it was developed. For example, in 1976 two new innovations were brought to the system



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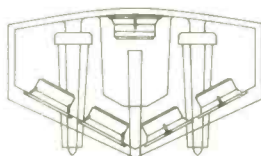
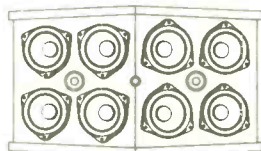
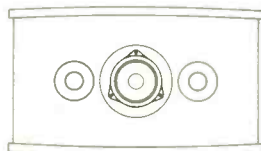
to dramatically improve its efficiency and power handling. These new technologies—the Acoustic Matrix™ enclosure and the Helical Voice Coil driver—alone represent a significant investment in research and development. As a result of this commitment, the rave reviews continued.

"... it has a total sound that soars, with a brilliance that defies description."

—*Modern Hi-Fi & Music* 1977

Bose engineers work continuously to develop and perfect new audio technologies with one common denominator: if they demonstrate the potential to improve performance, they

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—Daniel Kumin, *Digital Audio* 1988

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TEST REPORTS



ROTEL RCD-855 COMPACT DISC PLAYER

Julian Hirsch, Hirsch-Houck Laboratories

THE Rotel brand name is probably better known in Europe than in this country, but a broad line of Rotel hi-fi components is currently available in the United States. The RCD-855, manufactured in Taiwan, is a relatively low-priced CD player whose performance ratings and features make it comparable to many more expensive models.

Although notably free of the "bells and whistles" that adorn so many of today's audio products, the Rotel RCD-855 is by no means spartan or "minimalist" in its conception and execution. It has dual 16-bit digital-to-analog (D/A) converters and four-times (176.4-kHz) oversampling, and its specifications are the kind you would expect of a new CD player. For example, its rated amplitude linearity over the 20- to 20,000-Hz range is ± 0.05 dB, with a phase shift of less than ± 0.5 degree. The signal-to-noise ratio

(S/N) is specified as 100 dB, the dynamic range as 96 dB. Channel separation at 1,000 Hz is rated as 100 dB, and total harmonic distortion (THD) plus noise at 1,000 Hz is given as 0.0025 percent.

In the features department, the RCD-855 offers such amenities as shuffle play, a scan mode that plays the first 10 or 20 seconds of each track, programmed playback of as many as twenty tracks in any order, and repeat of an entire disc or a programmed sequence. The player also has the usual track-skipping functions and two-speed fast search with audible output.

The front-panel display window, unlike most, is small and monochromatic, but its white fluorescent numerals and letters are large and bright. The display normally shows only the current track number and elapsed time, along with a small box for the status of various operating modes. When a disc is first loaded,

the display shows its total number of tracks and total playing time.

The RCD-855 comes with a wireless remote control that duplicates all its front-panel controls except the power button and open/close button. In addition, it has numerical keys that provide direct access to any track. The rear apron contains a coaxial digital output as well as the usual pair of analog output jacks. The Rotel RCD-855 measures 17½ inches wide, 13⅝ inches deep, and 3⅜ inches high and weighs about 15½ pounds. Price: \$349. Rotel, Dept. SR, P.O. Box 653, Buffalo, NY 14240.

Lab Tests

The RCD-855's frequency response was flat within ± 0.025 dB from 15 to 20,000 Hz. Also well within the specified performance limits were the interchannel phase shift (between 0.35 and 0.25 degree from 5,000 to 20,000 Hz), the A-weighted noise level (-115 dB), and the dynamic range (98.8 dB). The quantization noise was a good -94.5 dB. Channel separation was 108.5 dB from 100 to 1,000 Hz, about 105 dB at 10,000 Hz, and 95 dB at 20,000 Hz.

Low-level linearity was good,

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RX-738 CAR RADIO/CASSETTE

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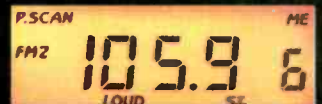
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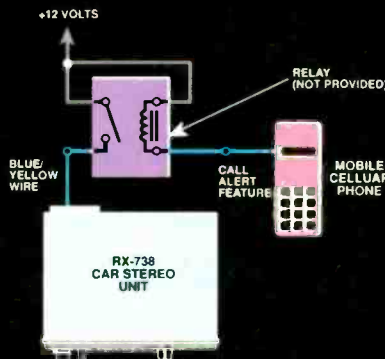
RX-738 LCD DISPLAY



RX-728 CAR RADIO/CASSETTE

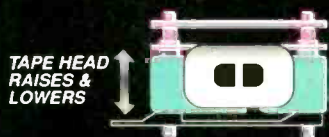
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CIRCLE NO. 173 ON READER SERVICE CARD

TEST REPORTS

with less than 1 dB error in the reproduced level of a -80-dB test signal. At -90 dB, however, the output was 5 dB low. The noise spectrum in the player's output was between -120 and -130 dB from 30 to 20,000 Hz. Distortion (THD plus noise) with a 0-dB signal was between -85 and -93 dB from 20 to 12,000 Hz, increasing to -55 dB at 20,000 Hz. At 1,000 Hz, the THD plus noise varied with level from a minimum of about -99 dB (0.001 percent) at -90 dB to -91.5 dB (0.0027 percent) at -10 dB and reached a maximum of -86 dB (0.005 percent) at 0 dB. The frequency (speed) error was +0.0025 percent.

The opening and closing of the disc drawer were somewhat leisurely compared with the pace of several other CD players we have tested recently. So was the slow time of the laser mechanism, which took about 4 seconds to travel from Track 1 to Track 15 of the Philips TS4 test disc. On the other hand, the RCD-855 was able to withstand moderate impacts on its top and sides without mistracking, and its error correction was exceptional. It played Track 36 of the Pierre Verany #2 test disc

(2,500-micrometer data interruption) without audible effects and mistracked only on Track 37 (3,000-micrometer interruption).

Comments

In past years, we found that Rotel products consistently offered a better than average value for the money, and the RCD-855 follows in that tradition. Not only did its performance live up to and usually exceed its specifications, but it ranked with some of today's best (and much costlier) CD players. It also sounded as good as any player we have heard.

The only things lacking in the RCD-855 that we occasionally find useful were a headphone jack, an "A-B" repeat function, and a display of the remaining time on a track or disc. These are admittedly very minor considerations, and they really emphasize how complete and versatile this unit is and how much it does without a complex or hard-to-learn array of controls. Our test results speak eloquently for the true quality of the RCD-855, which is certainly one of the best values we have seen in a CD player.

Circle 142 on reader service card

FEATURES

- Dual D/A converters
- Four-times-oversampling (176.4-kHz) digital filters
- Display of current track number and elapsed time in track, operating status of disc mechanism and other features (shows total tracks and time at loading)
- Programmable to play as many as twenty tracks in any order
- Track skipping and two-speed fast scan (with audible output) in either direction
- Shuffle play
- Intro scan of first 10 or 20 seconds of each track
- Repeat of entire disc or programmed sequence
- Analog and (coaxial) digital output jacks
- Infrared remote control with numerical keypad for direct track access

LABORATORY MEASUREMENTS

Maximum output level: 1.995 volts
Total harmonic distortion at 1,000 Hz: less than -94 dB (0.002%) from -40 to -90 dB, -86 dB (0.005%) at 0 dB
Signal-to-noise ratio (A-weighted): 115 dB
Channel separation: 108.5 dB below 1,000 Hz, 105 dB at 10,000 Hz, 95 dB at 20,000 Hz
Maximum interchannel phase shift (5,000 to 20,000 Hz): 0.35 degree at 5,000 Hz

Frequency response: ±0.025 dB from 15 to 20,000 Hz
Low-level linearity error: less than 1 dB down to -80 dB, -5 dB at -90 dB
Cueing time: 4 seconds
Impact resistance: top and sides, B+
Defect tracking: tracked 2,500-micrometer defects on Pierre Verany #2 test disc

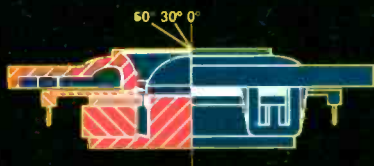
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Your power amplifier will be pleasantly surprised to find that **POLYIMIDE DIAPHRAGMS** are built into the tweeters to ensure structural integrity and significantly minimize distortion when subjected to high power.

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sound quality. This cone material is standard on all Power Logic component speakers.

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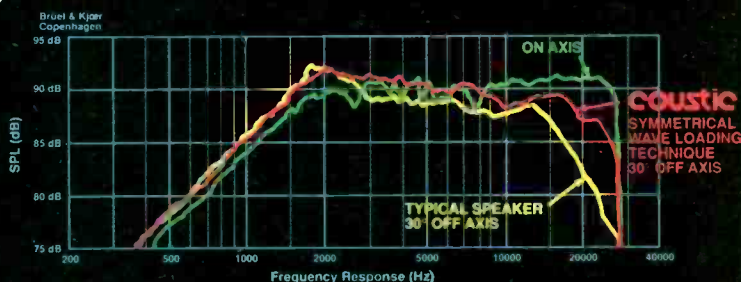
SUBWOOFERS: HT-610, HT-615, HT-608, HT-612



MID WOOFERS: HT-604, HT-606, HT-603, HT-605

sponse and lower distortion.

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JOOK LEUNG

ORTOFON PPA600 POWER AMPLIFIER

Julian Hirsch, Hirsch-Houck Laboratories

THE Ortofon PPA600 professional power amplifier is a rugged, powerful unit capable of delivering high-power outputs to low-impedance loads for extended periods without overheating or damage. Although it is relatively compact, the amplifier's weight of almost 50 pounds reflects its solid construction.

The PPA600 is built on a steel chassis and has a steel cover plate, retained by eighteen screws, that all by itself is as heavy as some full-size CD players. Handles about $\frac{3}{4}$ inch in diameter are mounted on both the front panel and the rear apron, where their 2-inch depth allows the amplifier to stand upright without damage to its output connectors. The front panel, slotted for rack mounting, measures 19 inches wide, $5\frac{1}{4}$ inches high, and $\frac{3}{8}$ inch thick (thinning to $\frac{3}{16}$ inch at the outer edges). The amplifier extends $13\frac{3}{4}$ inches behind the panel, and its rear apron contains two pairs of heavy-duty binding-post speaker outputs and line-level inputs through standard $\frac{1}{4}$ -inch phone jacks. Two paralleled jacks are supplied for each channel to simplify paralleling the

inputs of a number of amplifiers. The PPA600 has separate grounding terminals for the amplifier circuit and the metal chassis; these are normally joined by a wire link, but they can be separated for multi-amplifier installations that require isolated grounds.

A good fraction of the amplifier's internal volume is occupied by a huge toroidal power transformer. The manual indicates that the two channels operate as independent mono amplifiers, and from our examination of the interior it looked as if the power transformer has two windings connected to separate rectifiers and filter capacitors that supply the two channels.

Although the front panel is deeply grooved to resemble a heat sink, this is largely a matter of appearance. The power-output stages are assembled as a unit with a square cross section to form a horizontal chimney, one end of which is open to a 4-inch hole at the left side of the panel. Behind the rear opening of the chimney is the exhaust fan on the rear apron, which draws outside air through the chimney to cool the output transistors. The top cover is

also screwed to the chimney to help conduct heat away from the amplifier circuits.

The thermostatically controlled fan does not begin operating until the heat-sink temperature reaches 35°C (95°F). Its speed increases with temperature, and in the event that the internal temperature reaches 70°C (148°F) the affected channel shuts down, resuming operation when the temperature drops to 60°C (140°F).

The front panel has separate LED status lights for each channel. The green POWER lights come on when the amplifier is turned on. When a signal is applied, the green SIGNAL lights glow, and if the amplifier is driven into clipping, red OVERLOAD lights flash. They may remain on for a few seconds if the amplifier's current limits are exceeded and also remain on if a constant (DC) voltage appears at the output terminals. A pair of green BRIDGE lights show that the amplifier has been set to its bridged mono mode by a switch on the rear apron.

The front panel also has separate level controls for the two channels. They are detented, operating in 1-dB steps near their maximum settings, 2-dB steps over much of their range, and 5-, 10-, and 20-dB steps at their minimum settings.

The Ortofon PPA600 is rated at 225 watts per channel with both channels driven into 8 ohms from 20 to 20,000 Hz with no more than



RX-1130 RECEIVER

125 watts per channel into 8 ohms from 20-20,000 Hz at no more than 0.015% THD

Low impedance drive capability provides 360 watts per channel into 2 ohms dynamic power

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Eight audio inputs, three video inputs

Four audio outputs, three video outputs

S-VHS compatible

Separate front and rear pre-main coupling terminals

Eight-mode REC OUT selector

Continuously variable delay time control

CD Direct switch

Motor-driven volume control with LED indicator

Sleep timer

Center defeat bass/mid-range/treble tone controls

16-station random access preset tuning with multi-status memory

Absolute Linear Amplification (ALA) circuitry

Preset indicators with preset number and station frequency

Front panel headphone jack

Tone bypass switch

High-gain AM loop antenna

Manual or auto IF Mode selector (wide or narrow)

Auto search tuning

Manual up/down tuning

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TEST REPORTS

0.1 percent total harmonic distortion. The 4-ohm rated power is 350 watts per channel, and the 2-ohm output (with one channel driven) is rated at 600 watts. In the mono bridged mode, the rated 8-ohm output is 650 watts, increasing to 950 watts into 4 ohms. Other ratings include a 20,000-ohm input impedance, a frequency response of 10 to 60,000 Hz +0, -3 dB, and a damping factor of greater than 250. Price: \$2,000. Ortofon, Dept. SR, 122 Dupont St., Plainview, NY 11803.

Lab Tests

After its 1-hour preconditioning at 75 watts per channel into 8 ohms, the top of the Ortofon PPA600 was only slightly warm over the heat sinks and cool to the touch elsewhere. The fan, which was running most of that time, was virtually inaudible unless the amp was turned so that the rear apron faced the listener, and even then it was inaudible beyond a couple of feet.

The clipping power at 1,000 Hz into 8 ohms (both channels driven) measured 243 watts per channel, increasing to 378 watts per channel into 4 ohms. We drove one channel into 2 ohms, measuring a clipping power of 625 watts. Dynamic power measurements produced outputs of 288, 406, and 755 watts into respective loads of 8, 4, and 2 ohms.

The total harmonic distortion (THD) plus noise into 8 ohms was fairly constant between 20 and 2,000 Hz, with typical readings of 0.1 percent at the rated 225 watts output, 0.16 percent at half power, and 0.25 percent at 22.5 watts. The distortion increased slightly at higher frequencies, to a 20,000-Hz maximum of 0.37 percent at 225 watts, 0.17 percent at 112.5 watts, and 0.15 percent at 22.5 watts. At 1,000 Hz, the 8-ohm distortion decreased from 0.05 percent at 1 watt to 0.02 percent at 200 watts and reached 0.06 percent at 225 watts. Into 4 ohms, the readings ranged from 0.085 percent at 1 watt to a minimum of 0.037 percent at 300 watts and 0.058 percent at the rated 350 watts. The 2-ohm distortion ranged from 0.13 percent at 1 watt to 0.034 percent at 500 watts and 0.25 percent at 600 watts.

The input sensitivity for a 1-watt output was 95 millivolts, and the A-weighted noise level was -78 dB referred to 1 watt. The slew factor exceeded our measurement limit of 25. The frequency response was down 0.1 dB at 20 Hz and 0.45 dB at 20,000 Hz.

Comments

Our tests of the Ortofon PPA600 showed that it has the muscle and ruggedness to serve even in de-

manding professional applications. Not only did it withstand accidental output short-circuits with no ill effects, but it ran cooler (even during the grueling preconditioning period) than almost any tuner, CD player, or other component that we have tested. It is hard to imagine how it could become overheated under any operating conditions short of a lack of air for cooling (the installation instructions caution against impeding its fan-drive air flow).

Unlike some high-power audiophile amplifiers, the PPA600 can be lifted by one man without risk, although it does feel heavier than it is, possibly because of its compact dimensions. It is electrically stable and is one of the very few fan-equipped amplifiers we have used that is quiet enough to install in a music room.

Our examination of the amplifier's interior revealed that the input-level controls, which feel like step switches with rather light and vague detents, are actually continuously variable potentiometers (miniature volume controls). The detent is external to the control, and, in fact, the level can be set to values between the detent steps, although this requires some care. Under the circumstances, it would seem that the detents could have been omitted entirely without impairing the usefulness of the amplifier. We also noted that the heavy binding-post speaker connectors on our sample were spaced *almost* $\frac{3}{4}$ inches apart, but not exactly, so it was not possible to insert dual banana plugs. As the discrepancy was only about $\frac{1}{32}$ of an inch, we assume that this was a sample defect.

Although professional audio equipment is usually not particularly suited to home use, even without considering its high price, the Ortofon PPA600 appears to be an exception to that rule. It gives every appearance of being an indestructible battleship of an amplifier that manages to do everything expected of a fine home amplifier. In fact, it had no operating or listening vices that we could discover. And although it is capable of operating safely in closed spaces, it looks good enough to be placed in full view.

Circle 143 on reader service card

FEATURES

- Toroidal power transformer
- Separate power supply for each channel; can be bridged for high-power mono operation
- Cooling-fan speed proportional to temperature
- Front-panel level adjustments for each channel
- LED indicators for power on, bridged mode, overload, and presence of signals
- Able to drive 2-ohm loads safely

LABORATORY MEASUREMENTS

Sensitivity (for a 1-watt output): 95 mV

A-weighted noise (referred to a 1-watt output): -78 dB

Output at clipping (1,000 Hz): 243 watts into 8 ohms, 378 watts into 4 ohms, 625 watts into 2 ohms

Clipping headroom (relative to rated output): 0.33 dB into 8 ohms

Dynamic power output: 288 watts into 8 ohms, 406 watts into 4 ohms, 755 watts into 2 ohms

Dynamic headroom: 1.06 dB into 8 ohms

Slew factor: greater than 25

Frequency response: 20 to 20,000 Hz +0, -0.45 dB

Harmonic distortion (THD + noise at 1,000 Hz into 8 ohms):

0.026% at 22.5 watts, 0.02% at 112.5 watts, 0.09% at 225 watts

Maximum distortion (20 to 20,000 Hz into 8 ohms): 0.37 percent at 225 watts (20,000 Hz)



—Leonard Feather, Celebrated Jazz Critic for the L.A. Times, Washington Post News Service and Author of many books including "The Jazz Years—Earwitness to an Era."

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SR-3



LINN KABER SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

LINN Products, Ltd. of Glasgow, Scotland, named its newest loudspeaker, the Kaber, after the Scottish caber, a long, heavy pole tossed as a trial of strength at the traditional Highland Games. The name was not chosen arbitrarily, as I learned on a recent visit to Linn's modern facilities on the outskirts of Glasgow. The slim columnar Kaber is most easily moved by placing the fingers of one hand in the recessed portion of its bottom and cradling the speaker with the other arm, much as one starts to toss the caber.

The Linn Kaber stands 36¼ inches high, 7½ inches wide, and 11 inches deep. Despite its compact dimensions, each speaker unit

weighs about 53 pounds. Linn calls the Kaber a "two-and-a-half-way" speaker because it has two 6-inch bass drivers and a ¾-inch dome tweeter. The drivers are vertically aligned in the upper 19½-inch portion of the cabinet, which is normally covered by a removable black cloth grille. The lower part of the speaker's front is made of the same black composition material used for the speaker panel.

Unlike some other speakers using a similar driver configuration, the Kaber's woofers are at the top and bottom of the speaker panel, with the tweeter between them. The woofers, whose cones are made of carbon-loaded polypropylene, are identical but operate in separate

closed volumes within the cabinet (the tweeter's sealed rear housing isolates it from low-frequency pressure variations). At low frequencies, both operate together as woofers. Above 200 Hz the response of the lower driver is rolled off, leaving the upper driver to radiate the mid-range frequencies up to the 3,000-Hz tweeter crossover. This arrangement provides the maximum radiating cone area at low frequencies and eliminates the midrange interference between the drivers that could otherwise occur if both were operating over the same range.

The crossover network is constructed on two separate circuit boards, which are mounted in different parts of the cabinet (outside the enclosed volumes) to eliminate any stray coupling between their inductors as well as microphonic effects from the internal pressure changes. Each section of the crossover is brought out to separate terminals, normally connected by jumpers, making it possible to bi-wire or tri-wire the speakers, with separate cables from each section to the amplifier, or to biamp or triamp them, driving each section from a separate amplifier.

Linn places great emphasis on the rigidity of the speaker's structure. The front baffle is machined from a high-density composite material, about 1¾-inch thick, that's bonded with adhesives to the ¾-inch medium-density fiberboard cabinet front to form an exceedingly rigid 2½-inch-thick panel. The cabinet itself is made of ¾-inch material throughout, veneered on the inside as well as the outside for additional strength. In addition, internal partitions of ¾-inch material divide the cabinet into three separate sections and, with additional cross braces, further increase its rigidity. The Kaber also has a unique grille-mounting system. A conventional frame is not used; instead, the grille has elastic sewn into its periphery and is inserted into a slit between the molded speaker panel and the cabinet, then stretched to fit around the speaker's edge. The elastic is hidden in the slit when the grille is in place, and the system is free of edge-diffraction effects from a grille frame.

The Kaber includes an integral

TEST REPORTS

(but removable) base, or stand, that incorporates four spiked feet for a stable coupling to the floor. The base can be installed in two different ways to anchor the column against either side-to-side or front-to-rear forces. Since it is made of solid steel, it adds weight to the speaker, lowers its center of gravity, and improves its stability.

The performance specifications of the Linn Kaber include a frequency response of 60 to 20,000 Hz \pm 3 dB and a sensitivity of 86 dB sound-pressure level (SPL) at 1 meter with a 1-watt input. Price: \$1,995 a pair. Distributed by Audiophile Systems, Ltd., Dept. SR, 8709 Castle Park Dr., Indianapolis, IN 46256.

Lab Tests

The Linn Kaber is designed to be installed close to the back wall (within 4 to 12 inches) and at least 18 inches from a side wall. We did our listening and room-response measurements with the speakers about a foot from the back wall. The room response, averaged for both speakers at a single microphone position, was exceptionally flat in the tweeter range, with less than \pm 1 dB variation from 3,000 to 20,000 Hz. There were the usual minor response variations in the midrange. The close-miked woofer response was measured separately for the two drivers and then combined. The two had identical outputs up to 100 Hz, above which the lower woofer rolled off at 6 dB per octave. The upper woofer's output continued (with less than a 2-dB variation) as far as the close-miking technique was valid (a few hundred hertz).

The composite response curve had a \pm 3-dB variation from 70 to 20,000 Hz, almost exactly as specified. The actual low-frequency response in a normal room installation is almost always better than the composite curve indicates, as was demonstrated in this case by our listening tests.

Our FFT response measurements confirmed the excellent flatness and breadth of the Kaber's frequency response, with typical readings of \pm 2 dB from 400 to 20,000 Hz. With the microphone close to the tweeter, midway between the woofers, the response was \pm 2 dB from 60 to

1,300 Hz. The tweeter's horizontal dispersion was also very good, with negligible difference below 10,000 Hz between its response measured on-axis and 45 degrees off-axis. The group delay of the system, in the tweeter's operating range, was constant within 200 microseconds from 2,000 to 20,000 Hz.

The system impedance averaged between 5 and 6 ohms from 50 to 500 Hz, reaching its minimum of 4 ohms at 20 Hz and maximum of 30 ohms at 1,800 Hz. The sensitivity, with 2.83 volts of pink-noise excitation, was 88.5 dB SPL at 1 meter. At a drive level of 3.3 volts, equivalent to a 90-dB SPL at 1 meter, the lower woofer's distortion was 0.6 percent at 150 Hz, increasing at lower frequencies to 3 percent at 60 Hz and 10 percent at 35 Hz. The upper woofer gave similar readings in the low bass, but its distortion remained about 0.4 percent from 200 to 1,300 Hz.

In our pulse power tests, the woofer cones began to rattle with a 100-Hz input of 710 watts into their 4.5-ohm impedance. At 1,000 and 10,000 Hz the amplifier ran out of power before the speaker distorted (at approximately 500 and 700 watts, respectively).

Comments

The sound of the Linn Kaber was completely consistent with its measured performance. It was virtually uncolored, free of upper-bass heaviness, yet had a surprising lower-bass content when the program called for

it. The subjective lower limit to the speaker's response appeared to be about 45 to 50 Hz, but at still lower frequencies the output simply decreased to inaudibility without generating the high distortion levels that can create a false bass effect. The high frequencies were reproduced crisply, with no hint of brightness or emphasis of any part of the frequency range. The precautions taken to maximize cabinet rigidity were highly successful. Rapping any part of the cabinet with the knuckles resulted in a "click" more suggestive of a solid concrete or steel block than a semi-hollow wooden cabinet.

Overall, the Kaber was a natural, easy-sounding speaker. Like some other "two-and-a-half-way" systems, it delivered highly listenable sound quality from a relatively compact, inconspicuous cabinet. But it also had an exceptionally flat, widely dispersed sound and a distinct depth to its sound stage that set it apart from the rest. Another plus for some people is that it was at its best when placed near a wall; it does not intrude on living space the way many other free-standing or pedestal-mounted speakers do.

Finally, although it has nothing to do with its sound qualities, we had the opportunity to confirm that the Kaber is indeed easiest to handle and move in the style of a caber, instead of by attempting a bear hug on a relatively slender and slippery box. A really nice job all around.

Circle 144 on reader service card



"Aside from the speakers being nailed to the cabinet, how does it sound?"

HOW TO BUY A CASSETTE DECK

*Decide
what you want the
machine to do,
and be prepared to test
the candidates.*

◦ BY DAVID SIMON ◦

EVEN in today's digital age, stereo cassette decks present one of audio's best values. For a hundred dollars and up, you can buy a tape machine that will record and play back hi-fi sound in the most popular and least expensive tape format available. Cassette decks are uncommonly easy to use, and the best models are capable of sound that in most respects rivals digital media such as CD and DAT.

But the very diversity of the available cassette decks—there are hundreds of models on the market—makes choosing one difficult. Before you begin the hunt, have a clear idea of your priorities. Is flat-out sonic performance the most important factor? Or are convenience features primary? Will you make your own tapes from LP's? From CD's? From FM radio? Or will you play only prerecorded tapes from the record store?

If playing prerecorded tapes will be the only use for your cassette deck, keep in mind that most mass-market music tapes are of only moderate fidelity. Almost any deck from a reputable maker that's equipped with the features you want should suffice to play them. But if you plan to make your own recordings for serious listening, think about what types of music you will be recording, and from what sources, to determine just how high a performance level you'll need.

Performance Preferences

As with most hi-fi components, cassette-deck literature is specification-intensive. While specs are important, often they should be taken with a few grains of salt.

Frequency response is the first specification everyone looks at on a cassette deck. These days, a response spec of 40 Hz to 18 kHz \pm 3 dB is not at all uncommon. An often underemphasized factor, however, is low-end response—from 20 Hz up to about 120 Hz. Many recorders have less-than-ideal performance in this region. A moderately priced deck that's \pm 2 dB or so down to 20 Hz is well above average.

In the high frequencies, almost all of today's decks claim a response out to 18, 20, and even 22 kHz. But such extended response is usually achieved only with the most expensive type of tape, metal-particle (Type IV). Look just as carefully at



Denon's DRW-750 double deck (\$400) offers a fine-bias adjustment, automatic space and stop functions, and Dolby HX Pro.



Four heads and three motors are built into Teac's top-of-the-line R-919X (\$830). The deck also offers dbx noise reduction.



The Marantz DL-3507 (\$380), part of the new Century Collection, has a twenty-track, bidirectional music-search function.



Sony's TC-K730ES (\$850) uses a closed-loop, dual-capstan transport with three direct-drive motors.

a deck's performance with Type I (ferric) and Type II (chrome or ferricobalt) tapes. Recording level matters, too. The frequency response of a cassette deck is specified at -20 dB to give a realistic indication of its high-frequency performance when recording typical music, which contains much more energy in the mid-range than in the bass or treble. Sometimes the response is also given at a 0-dB record level, which provides information about how well the deck and tape handle unusually strong high-frequency signals. And remember that high-frequency response above about 17 kHz just doesn't matter for 90 percent of us. A deck that's ± 2 dB out to 17 kHz with Type II tape may serve you just as well as a much more expensive model claiming a response to 22 kHz ± 3 dB with metal tape.

Distortion is listed in so many different fashions that comparing decks in this respect can be troublesome. One method tells you how strong a recorded signal will produce 3 percent total harmonic distortion (THD); another indicates THD at a 0-dB recording level. Other methods that produce lower figures are often used, but these are not always easily compared either. Besides, the type of tape used is at least as significant as the deck itself. In general, don't expect a cassette deck to have distortion specs anywhere near those of, say, a CD player— analog tape is simply a higher-distortion medium. You may expect to find a mid-frequency distortion of close to 1 percent at a 0-dB record level even on the best decks using the best tapes.

A number of the best—and most expensive—decks have three separate tape heads, for record, playback, and erase functions, but most decks have only two heads, a combination record/play head and a discrete erase head. Three-head decks once had a clear edge in sound. Today, however, advances in the design of combination tape heads permit two-head decks to reach such a high level of performance that there is little difference from a purely sonic standpoint. Three-head models do maintain one indisputable advantage: They let you monitor off the tape while recording, allowing you to check the quality of your recording as you make it.

Cassette-deck transports, which

control the *speed* at which tape moves across the heads—a very important factor—come in several configurations. The most common is the single-capstan system, where a drive motor turns one capstan (a metal roller) and one rubber pinch-roller. Some more expensive decks employ dual-capstan, or “closed-loop,” systems for more precise control. Both DC and AC motors are used, and a deck may have one, two, three, or even more motors. The motor(s) may drive the capstan(s) and tape hubs directly or via an arrangement of belts.

THE use of a single- or a dual-capstan transport, the motor count and type, and the type of drive system used don't always predict how a deck will sound. The bottom line is *wow-and-flutter* performance. These small variations in record or playback speed cause pitch fluctuations that can seriously mar musical quality. The best kind of wow-and-flutter spec to look for is a DIN-weighted measurement, listed by all European cassette-deck manufacturers and many Japanese and American ones. Other specs, such as JIS-weighted and weighted-rms (wrms) flutter, are often quoted in place of the DIN number because they usually yield figures some 20 to 40 percent lower.

Wow-and-flutter below 0.1 percent DIN weighted is inaudible to most listeners. Note the emphasis on *most*—individual sensitivity to pitch fluctuations is quite variable. The type of program material matters, too. If you're shopping for a deck to record a lot of piano music, solo classical guitar, and other instruments that produce pure, steady tones, pay close attention to wow-and-flutter specs.

Signal-to-noise ratio (S/N) figures predict how noticeable background noise will be on your homemade tapes. This noise is tape hiss, which is unavoidable in any analog tape medium and is particularly problematic for cassettes, where a narrow tape travels very slowly.

Look at your deck's A-weighted S/N spec (the standard measurement method) with *no* noise reduction first. This will give you a good idea of its baseline performance, which will vary with tape type. With ferric (Type I) tape, about 55 dB is typical for a good machine.

A 55-dB S/N is unacceptable for hi-fi music listening, however, which is why tape noise-reduction systems were invented. Cassette systems work by “companding” the signal. They *compress* the signal before it is recorded on tape, reducing the level difference between the loudest and softest sounds. On playback, they *expand* it, restoring the original dynamic range. This process enables soft sounds to be recorded on the tape at a higher level than they could be without compression. When the playback signal is expanded, the level of the tape hiss in the background of soft passages is reduced by the same amount as the signal level, minimizing its audibility.

The most common of the cassette noise-reduction systems is *Dolby B*, which operates only on low-level high-frequency signals. *Dolby C* is similar but works more aggressively over a wider range of frequencies. The *dbx system* squeezes both high-level signals down and low-level signals up over the entire audio band.

What's best? That depends. *Dolby B* is what's used for most prerecorded tapes. An excellent deck with *Dolby B* engaged can provide close to a 65-dB S/N—good sound, almost as quiet as a well-made LP. *Dolby C* with the same quality of machine will do better—usually about 10 dB better, bringing the S/N up to around 75 dB, very quiet indeed. Under moderately noise-free conditions this level of quietness is nearly indistinguishable from CD's with most music.

With *dbx* noise reduction, cassette S/N can reach as high as 90 dB—digital quietness. Why don't all decks use *dbx*? First, the system is much more sensitive to tape drop-outs, or momentary signal losses caused by imperfections on the tape. Second, the *dbx* system's action is occasionally audible on cassettes in material having a wide dynamic range as “breathing” or “hiss pumping,” artifacts left as the system compresses and expands low-frequency signals. (To be fair, the *Dolby B* and *Dolby C* systems can cause frequency-response errors if the deck is not adjusted properly for the tape being used, but most audiophiles agree that the *Dolby* systems' audible artifacts are less egregious.)

A new noise-reduction system is on the horizon. *Dolby Labs* will soon release *Dolby S*, a consumer

version of its latest development, the acclaimed *Dolby SR* professional noise-reduction system. *Dolby S* should be even more effective than *Dolby C*, yielding about 25 dB total noise reduction and bringing a near-CD dynamic range to recordings made on premium cassette decks.

Almost half of all home cassette decks now include *Dolby HX Pro*. While not strictly a noise-reduction system, *HX Pro* belongs in this discussion. It's a dynamic biasing system that provides headroom extension (thus the “HX”) for high-frequency signals. A deck equipped with *Dolby HX Pro* can record higher levels of upper-treble signal without significantly increased distortion. As a result, signals rich in high frequencies can be recorded at higher levels, yielding quieter tapes. It's a good system, and coupled with *Dolby C* it can yield remarkable cassette sound quality.

Tape Tales

Just what is *bias*? It's an ultrasonic signal (100 kHz or so) that's sent along with the music signal to the record heads of any analog tape machine. It reduces tape distortion, particularly at low signal levels.

Bias must be adjusted for differing tape types. Each type requires a different combination of record pre-emphasis, or *equalization (EQ)*, and bias current. This can make for a certain amount of confusion. Fortunately, many home decks now include automatic bias and EQ settings. All blank cassettes come with tiny notches in their shells that identify the tape type. The machine “senses” the type and can then automatically set bias and EQ.

MANY cassette machines also provide *bias fine-tuning* facilities. These permit users to compensate for the slightly different bias settings that different brands of a single tape type, and even tape-to-tape variations within a single brand, may require for optimum sound. There are two kinds of bias fine-tuning systems. A manual system usually provides a simple knob. You can turn the bias up or down at will—but only considerable trial and error will yield a real improvement in sound. Automatic systems record a series of test tones onto an individual tape. The deck



The AD-R40 from Aiwa is a two-head, autoreverse deck with bidirectional rewind, Dolby B and Dolby C noise reduction, and Dolby HX Pro. List price: \$230.



Onkyo's TA-2800 (\$650) has three heads, three motors, and dual capstans. Features include a record-calibration function, a real-time counter, and a switchable MPX filter.



Harman Kardon's TD392 has a rated frequency response of 20 to 20,000 Hz ± 3 dB with all three popular types of blank tape. A bias fine-trim control with tone generator is included.

automatically rewinds the tape, then plays it back and measures performance. The bias is adjusted and the process is repeated a few times, along a successive-approximation curve, until the best results are obtained.

Some of the more costly three-head cassette decks provide automatic tape-head *azimuth-adjustment* systems. These use a scheme similar to that of automatic bias fine-tuning to correct the deck's tape-to-head alignment on a tape-by-tape basis, thus improving top-end response.

Features for All

Cassette-deck "features"—conveniences, automatic operations, and mere attention-getters—come in such variety that we can discuss only a fraction of them here.

Record-level meters convey essential information about what's happening on the tape as you record. They come in every size, shape, and color imaginable. These days, LED and fluorescent bar-type meters have just about replaced the old-fashioned kind with a swinging pointer needle. *Peak-reading meters*, which represent instantaneous signal levels, are found on most good decks. Other meters show the average level of the signal over a brief period and thus change more slowly. Look for clearly legible meters that offer good resolution—there should be enough individual segments to indicate the difference between many signal levels. The best meters will have a scale from about -40 dB up to $+8$ dB or so.

Autoreverse machines and dual-well decks have become extremely popular, and their convenience is inarguable. In either case, the same principles of good design and measures of excellent performance apply as to single-play, one-well decks.

Doing autoreverse "right" requires the manufacturer to spend considerably more money on transport components and, ideally, on some method of maintaining proper head alignment in both directions. Uninterrupted listening is great, but don't expect a \$300 autoreverse deck to outperform a \$250 single-direction deck. The same principle holds for double cassette decks. Before you commit extra funds for a dual-well or autoreverse deck, be sure you will really use the extra feature on a regular basis.

Many dual-well decks offer *high-speed dubbing*. While this feature can be a great time-saver in copying tapes, high-speed replication of any tape medium unavoidably compromises fidelity. If both high-speed dubbing and sonic quality are important to you, read the spec sheet very carefully and make a few high-speed test dubs to be sure the quality is satisfactory.

Program-search and *intro-scan* modes help you quickly locate a specific selection on your cassettes. Several decks now offer *tape counters* that can display elapsed time, and even remaining time, in minutes and seconds instead of showing simple reel turns.

A *multiplex (MPX) filter* is included in many decks. This control is often misunderstood; it is only for recording direct from stereo FM radio. It serves to eliminate the 19-kHz stereo pilot tone, which can play havoc with a tape deck's noise-reduction system. A *timer* for unattended recording will also prove handy to the radio recordist.

A few machines include audio *compressors* or other circuits to modify the sound of tapes made for use in the automotive environment. If a primary job for your deck will be making car tapes, such add-ons are worth looking into.

Shop Talk

A cassette deck is one component that's worth buying from an audio specialist shop, where you can actually listen to and play with the merchandise. If you buy your deck from a department store or by mail order, you probably will have little choice but to read the specs and take the plunge on faith.

Music recordings made on and played by a machine you are considering are the best evaluation tool at your disposal. Be prepared to spend some considerable time *listening*. Take your own source music with you to the store—equip yourself with a few familiar recordings that you feel are among your best-sounding, best-recorded albums. Musical variety is important, but stay within the genre you actually listen to for pleasure; don't run out and buy a Mahler Eighth if you never listen to classical music. "All-digital" CD's (DDD on the label) are preferable, if only because they are certifiably free

of flutter—any you hear on your test tapes must originate in the deck under scrutiny. Include some samples with a wide dynamic range and a wide frequency range (full orchestra, big band), some slickly produced pop music, and some more intimate, cleanly recorded music such as a string quartet, a folk ensemble, or a small jazz group. A quiet solo-piano recording is ideal for checking both flutter and noise performance.

Listening with headphones ruthlessly reveals noise and distortion, so if you have a good set you are familiar with, take them along. Otherwise, ask to use a high-quality pair from the store. You will be making a series of test recordings; it's vital that you make fresh tapes from scratch on each successive machine. Don't simply play prerecorded tapes or record on one machine and play back on several.

The deck under test should be connected to a good amplifier or receiver. Plug your phones into the amp or receiver so you can compare your tapes with the source by engaging and disengaging the tape-monitor switch. A good place to begin is with a recording of FM interstation noise, which is similar to a white-noise test signal. For this test, set the deck's record levels at -20 dB and record a minute or two of the signal with the deck's best noise-reduction system engaged. Rewind the tape, play it back, and listen while you switch between your recording and the "live" noise. This exercise will quickly reveal any gross frequency-response errors: If the tape sound is considerably brighter, duller, honkier, or bassier than the live source, try another deck—or a different blank tape. (In any case, be sure to use high-quality cassettes.)

When taping music, remember that the record-level setting is critical. Consult each deck's owner's manual for guidance, and ask a knowledgeable salesperson for recommendations. Correct level setting is crucial to making a good recording—many people routinely under- or overrecord their cassettes. (Keep the meters well below 0 dB except for the very loudest musical transients, which should peak several decibels above zero.)

On a pop or jazz recording, check the high-frequency response by comparing high-hat cymbal sounds against the source (cued up so that it plays simultaneously with the tape).

They should sound essentially the same, not softer, more rounded, or truncated. The same goes for any other bright sound such as cymbal crashes or piano and guitar attacks. Try a bass or drum solo, and listen for pumping around loud, low-pitched transients—it will sound like hiss rapidly appearing and vanishing with individual notes.

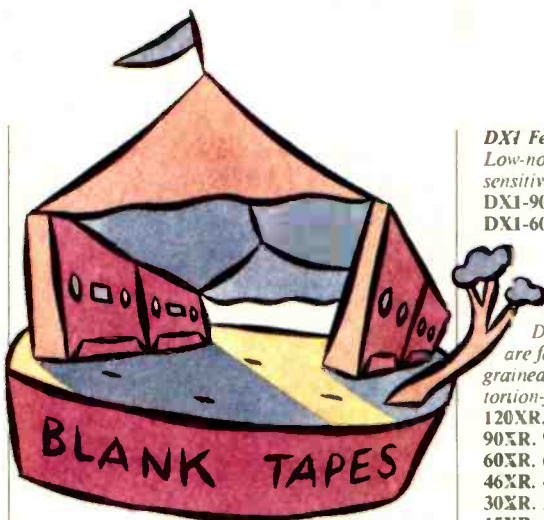
Your piano recording will quickly reveal any audible flutter. Record a slow, quiet section with plenty of long, slowly decaying notes. On playback, listen to the tape for any sign of pitch wavering, warbling, or shakiness. Solo-piano recordings are also ideal for checking noise. Using the best noise-reduction system on the deck, compare the tape with the source, listening hard to the background hiss. The tape will *always* be a bit noisier than a CD, but with a good deck using Dolby C or dbx, this should only be perceptible in the softest passages.

Recordings of a full orchestra, a big band, or another wide-range, large ensemble should tell you about a deck's overall fidelity. Listen for musical balance, paying special attention to the bass region, and transparency compared with the source. You should be able to pick out individual instruments and lines, just as in the original. The stereo image should remain identical, or close to it, perhaps just a touch narrower—make sure the channels aren't reversed in the hook-up!—and the sense of reverberant space or "air" in a good live recording should be preserved.

FEW if any cassette decks will pass each and every one of these tests without *some* audible compromise. You must decide for yourself which tests to count more heavily, considering your musical taste, hi-fi standards, and, of course, your budget. For example, a deck with good overall performance except for a bit of barely audible flutter might work fine if your primary objective is to make car tapes of rock music that never feature solo piano.

Taken as a whole, the best of today's cassette decks will make astonishingly good recordings at a reasonable cost. Given the almost endless variety of features, configurations, and styles, there is certain to be one that fits your needs, tastes, and budget. □

TAPE BUYING GUIDE



BASF

Digital Audio Tapes

Ultra-fine metallic pigment developed for helical-scan recording.

DAT C120. 120 min	\$11.99
DAT C90. 90 min	\$10.99
DAT C60. 60 min	\$9.99

Metal Maxima IV Cassettes

Metal-particle formulation with high-performance cassette mechanism.

C120. 120 min	\$6.49
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Chrome Maxima II Cassettes

High-density chrome formulation with high-performance cassette mechanism.

C90. 90 min	\$4.29
C60. 60 min	\$3.29

Chrome Extra II Cassettes

Pure chrome formulation with high-performance cassette mechanism.

C90. 90 min	\$2.99
C60. 60 min	\$2.69

Ferro Maxima I Cassettes

Dual-layered and "micro-coated" with proprietary megadium iron oxide. Provides maximum output level (MOL) of almost +4 dB.

C-90. 90 min	\$2.89
C-60. 60 min	\$2.59

Ferro Super I Cassettes

Iron-oxide formulation.

C90. 90 min	\$2.54
C60. 60 min	\$1.94

DENON

All Denon cassettes feature lifetime warranty and head-cleaning leader.

Digital Audio Tapes

Ultra-fine metallic particle formula with advanced back-coating technology and micron-order precision mechanism.

R-120DT. 120 min	\$12.99
R-90DT. 90 min	\$11.99
R-60DT. 60 min	\$9.99

High-Density Series

HDM Metal Cassettes

High-stability pure-metal tape formulation uses high-density dispersion technology that yields a residual magnetic flux density of over 3,500 gauss and a coercivity of 1,200 oersted.

HDM-100. 100 min	\$5.99
HDM-90. 90 min	\$5.50
HDM-75. 75 min	\$4.99
HDM-60. 60 min	\$4.50

HD8 High-Bias Cassettes

High-density Type II formulation combines pure metal particles with cobalt-doped ferric oxide to achieve flux density of 3,000 gauss yielding an MOL of +4.5 dB at 10 kHz.

HD8-100. 100 min	\$4.99
HD8-90. 90 min	\$4.75
HD8-75. 75 min	\$4.25
HD8-60. 60 min	\$3.75

THE advent of the digital era has spurred tape manufacturers to broaden their lines by adding new and improved formulations better able to handle the demanding digital sound being recorded on them, as well as to introduce many new blank tapes for digital audio tape recorders. Our buying guide lists most of the blank tapes currently available.

For more information, contact an authorized dealer or the manufacturer. Addresses and phone numbers are given on page 65.

HD7 High-Bias Cassettes

Type II formulation with extended high-frequency response and low noise. Residual flux density 1,850 gauss, MOL +6.5 dB at 10 kHz.

HD7-100. 100 min	\$4.25
HD7-90. 90 min	\$4.00
HD7-75. 75 min	\$3.50
HD7-60. 60 min	\$3.00

HD6 High-Bias Cassettes

Type II formulation with extended high-frequency response. Residual flux density 1,700 gauss, MOL +5.7 dB at 10 kHz.

HD6-100. 100 min	\$3.50
HD6-90. 90 min	\$3.25
HD6-75. 75 min	\$2.75
HD6-60. 60 min	\$2.50

DX Series

DX4 Ferric Normal Cassettes

Type I formulation with extended FR. Residual flux density 2,000 gauss, MOL +5.0 dB at 10 kHz.

DX4-90. 90 min	\$4.00
DX4-60. 60 min	\$3.00

DX1 Ferric Normal Cassettes

Low-noise high-output Type I cassette with high sensitivity and high MOL. +7.5 dB at 10 kHz.

DX1-90. 90 min	\$2.25
DX1-60. 60 min	\$1.75

DIC

Digital Audio Tapes

Digital audio tapes in a range of lengths are fabricated with densely packed, ultra fine-grained magnetic metal particles to provide distortion-free sound reproduction.

120XR. 120 min	\$13
90XR. 90 min	\$11
60XR. 60 min	\$10
46XR. 46 min	\$9
30XR. 30 min	\$8
15XR. 15 min	\$6

FUJI

Digital Audio Tapes

Super-Fine Metallix ultra-fine metal-particle formulation.

DAT (R-120). 120 min	\$12.95
DAT (R-90). 90 min	\$11.95
DAT (R-60). 60 min	\$10.95

FR Metal Series Cassettes

Metal tape with 70- μ s EQ.

FR (C-90). 90 min	\$5.99
FR (C-60). 60 min	\$5.49

FR-11X PRO Series Cassettes

High-bias tape featuring a temperature-resistant cassette shell.

FR-11X Pro (C-90). 90 min	\$4.99
FR-11X Pro (C-74). 74 min	\$4.79
FR-11X Pro (C-60). 60 min	\$4.49

FR-11x Series Cassettes

High-bias tape with 70- μ s EQ.

FR-11x (C-90). 90 min	\$3.99
FR-11x (C-74). 74 min	\$3.79
FR-11x (C-60). 60 min	\$3.49

DR-II Series Cassettes

High-bias tape with 70- μ s EQ.

DR-II (C-90). 90 min	\$2.99
DR-II (C-60). 60 min	\$2.49

DR-I Series Cassettes

Normal-bias tape with 120- μ s EQ.

DR-I (C-90). 90 min	\$1.99
DR-I (C-60). 60 min	\$1.49

GENERAL ELECTRIC

GE-110 Series

Normal-bias low-noise tape.

5-pack. 90 min	\$4.49
2-pack. 90 min	\$1.49
2-pack. 60 min	\$1.29

GE-HFX Series

Normal-bias ferric-oxide tape.

2-pack. 90 min	\$1.79
2-pack. 60 min	\$1.59

TAPE BUYING GUIDE

GE-HBX Series

High-bias cobalt tape.

2-pack, 90 min \$3.49

JVC

F Series

XFIV. Metal tape, 70- μ s EQ.
C-90. \$3.90
AFII. High-bias tape (CrO₂), 70- μ s EQ.
C-90. \$2.50
C-60. \$2.20
AFI. Normal-bias tape, 120- μ s EQ.
C-90. \$2.20
C-60. \$1.80

GI Normal-Bias Cassette Tape

Coercivity 370 Oe.
C-90. 90 min \$1.55
C-60. 60 min \$1.30



LORAN

Pro-DAT Cassettes

Also manufactured to custom lengths with 10-piece order.

Pro-DAT. 120-min \$10.50
Pro-DAT. 60-min \$7.50
Pro-DAT. 30-min \$6.00
Pro-DAT. 10-min \$5.00
Pro-DAT. 5-min \$4.75

ESQ Series

High bias; extended high-frequency response; polycarbonate shell.

ESQ-90. 90 min \$4.99

High-Bias Series

High bias; extended high frequency response; polycarbonate shell; cobalt-doped magnetic formulation.

HB-90. 90 min \$3.99
HB-60. 60 min \$3.49
HB-46. 46 min \$2.99

MAXELL

Digital Audio Tape

Digital audio tape with Ceramic-Armor metal-particle formulation.

R-120DM. 120 min \$14.99
R-90DM. 90 min \$12.99
R-60DM. 60 min \$10.99
R-46DM. 46 min \$8.99

Metal Vertex Cassettes

MV-90. 90 min \$20

MX Metal Cassettes

Metal bias/EQ.
MX-100. 100 min \$5.99
MX-90. 90 min \$5.29
MX-60. 60 min \$4.39

XLII-S Epitaxial Cassettes

High-level bias; 70- μ s EQ.
XLII-S100. 100 min \$4.99

XLII-S90. 90 min \$4.39
XLII-S60. 60 min \$3.59

XL-II Epitaxial Cassettes

Chrome type; high-level bias; 70- μ s EQ.
C-100. 100 min \$4.39
C-80. 80 min \$3.99
C-90. 90 min \$3.99
C-60. 60 min \$3.29
C-46. 46 min \$3.29

UD-II Epitaxial Cassettes

High-level bias; 70- μ s EQ.
C-90. 90 min \$3.29
C-60. 60 min \$2.49
C-46. 46 min \$2.49

XLII-S Epitaxial Cassettes

Normal bias; 120- μ s EQ.
XLII-S90. 90 min \$4.39
XLII-S60. 60 min \$3.59

UD-I Epitaxial Cassettes

Normal bias; 120- μ s EQ.
C-90. 90 min \$3.29
C-60. 60 min \$2.49
C-46. 46 min \$2.49

Normal-Bias Cassettes

UR-120. 120 min \$2.79
UR-90. 90 min \$1.79
UR-46. 46 min \$1.49
UR-60. 60 min \$1.49

XLII Back-Coated Open-Reel Tapes

XLII-35-180B. 3,600 ft, 10 $\frac{1}{2}$ -in reel \$38.99
XLII-35-90B. 1,800 ft, 7-in reel \$13.99

Ultra-Dynamic Open-Reel Tapes

UD35-180. 3,600 ft, 10 $\frac{1}{2}$ -in reel \$31.29
UD35-90. 1,800 ft, 7-in reel \$9.99

MEMOREX BY MEMTEK

CDX II High-Bias Cassettes

Metal tape for high bias (Type II), 70- μ s EQ
C-90. 90 min \$4.79

HBX II High-Bias Cassettes

High-performance ferric/cobalt tape for use at high-bias, 70- μ s setting.

C-90. 90 min \$3.69
C-60. 60 min \$2.79

HBS II High-Bias Cassettes

Premium tape for high-bias, 70- μ s EQ position.
C-100. 100 min \$2.59
C-90. 90 min \$2.29
C-76. 76 min \$1.99
C-60. 60 min \$1.79

MRX I Normal-Bias Cassettes

Normal-bias tape. Full lifetime warranty. High-visibility, clear shell.
C-90. 90 min \$2.29
C-60. 60 min \$1.79

NAKAMICHI

ZX Reference Cassette Tapes

Metallurgy (metal-particle) formulation for recording on metal-compatible decks only; features ultra-high coercivity and retentivity for improved distortion and MOL; 70- μ s EQ.
ZX-C90. 90 min \$10.00

SX II Reference Cassette Tapes

Double-coated ionized cobalt and ferric-oxide formulation. CrO₂ bias and EQ (70 μ s).
SXII-C90. 90 min \$8.90

SX Reference Cassette Tapes

Single-coated ionized cobalt and ferric-oxide formulation; high coercivity permits use of CrO₂ bias and EQ (70 μ s) for 4 to 5 dB increase in S/N.
SX-C90. 90 min \$6.50

EX II Reference Cassette Tapes

Reference cassette tapes with single-coated ferric-cobalt formulation; same bias and EQ (120 μ s) as EX tape; extra-low noise, high output.
EXII-C90. 90 min \$6.00

REALISTIC

Cassette Tape

Prices may vary according to quantity purchased, with lower prices for larger quantities.

MIV Type IV Metal Cassette Tape

Fine-grain metal particles; 5-screw housing; hinged storage box.

MIV-90. 90 min \$5.99
MIV-60. 60 min \$4.99

MII Metal Type II High-Bias Tape

Metal tape for recording and playback with Type II bias and EQ; head-cleaning leader; hinged storage box.

MII-100. 100 min \$4.99
MII-90. 90 min \$4.79
MII-76. 76 min \$4.49
MII-60. 60 min \$3.99

HD Hi-Definition Chrome-Equivalent

For recording and playback with high-bias Type II bias and EQ; head-cleaning leader; hinged storage box; index card.

HD-100. 100 min \$3.69
HD-90. 90 min \$2.99
HD-76. 76 min \$2.79
HD-60. 60 min \$2.49



XR Type I Premium Ferric Tape

Hinged storage box with index card.
XR-120. 120 min \$2.79
XR-90. 90 min \$1.99
XR-60. 60 min \$1.49
XR-45. 45 min \$1.39

RECOTON

Gold Series

Low noise; normal bias; sold in 10 packs.
XR-90. 90 min \$13.99/pk

SX Series

Sold in 2 packs.
SA-90. 90 min \$4.49/pk

SONY

Metal Cassettes

Type IV bias and EQ.
Metal Master 90. 90 min \$11.99
SR 100. 100 min \$4.49
SR 90. 90 min \$3.99

TAPE BUYING GUIDE

ES Metal Cassette
Type IV position (70- μ s EQ).
ES-90. 90 min \$9.99

UX Series Cassettes
Type II position (70- μ s EQ).
UX-Pro. C-90 \$7.99
UX-Pro. C-60 \$5.99
UX-ES. C-90 \$5.49
UX-ES. C-60 \$3.99
UX-S. C-90 \$3.99
UX-S. C-60 \$2.99
UX. C-100 \$3.79
UX. C-90 \$3.29
UX. C-60 \$2.49

HF-S Series Cassettes
Type I position (normal bias, 120- μ s EQ).
HF-S 90. 90 min \$2.69
HF-S 60. 60 min \$1.99

TDK
MA-XG Pro (Type IV) Cassette Tape
MA-XG Pro 90. 90 min \$18
MA-XG Pro 60. 60 min \$15

MA-X Metal-Alloy (Type IV) Cassette Tape
Metal bias; 70- μ s EQ; 2-layer plastic mechanism; improved Finavinx formulation designed for higher output level and wider dynamic range.
MA-X 90. 90 min \$5.00
MA-X 60. 60 min \$4.25
MA-X 46. 46 min \$4.25

MA Metal-Alloy (Type IV) Cassette Tape
Metal bias; 70- μ s EQ; unified two-layer shell.
MA-110. 110 min \$5.25
MA-90. 90 min \$5.00
MA-60. 60 min \$3.50

SA-XG High-Bias (Type I) Cassette Tape
RS-II cassette mechanism; Super Avilyn formulation.
SA-XG 90. 90 min \$8.75
SA-XG 60. 60 min \$6.50

SA-X High-Bias (Type II) Cassette Tape
Dual-layer anti-resonance mechanism; dual-coated Super Avilyn formulation; 70- μ s EQ.
SA-X 90. 90 min \$3.50
SA-X 60. 60 min \$3.00
SA-X 46. 46 min \$3.00

SA High-Bias (Type II) Cassette Tape
Low-resonance two-layer cassette mechanism.
SA 100. 100 min \$4.00
SA 90. 90 min \$3.00
SA 80. 80 min \$2.75
SA 60. 60 min \$2.50
SA 46. 46 min \$2.50

SD High-Bias (Type II) Cassette Tape
Low-resonance cassette shell. 70- μ s EQ.
SD 90. 90 min \$2.50
SD 60. 60 min \$2.25
SD 46. 46 min \$2.25

AR-X Normal-Bias (Type I) Cassette Tape
Dual-coated Avilyn formulation; two-layer, low-resonance cassette shell. 120- μ s EQ.
AR-X 90. 90 min \$3.00
AR-X 60. 60 min \$2.50

AR Normal-Bias (Type I) Cassette Tape
NP Ferric magnetic particles; low-resonance multi-face joint shell. 120- μ s EQ.
AR-100. 100 min \$3.50
AR-90. 90 min \$2.75
AR-60. 60 min \$2.50

AD Normal-Bias (Type I) Cassette Tape
Linear ferric-oxide particles; low-resonance multi-face joint shell. 120- μ s EQ.
AD-90. 90 min \$2.50
AD-60. 60 min \$2.50

DA Digital Audio Tape Cassettes
Super Finavinx pure-metal particle formulation digital audio cassette tape with TDC (Three Dimensional Compound) binder.
DA-R120. 120 min \$14
DA-R90. 90 min \$12
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THAT'S AMERICA
Suono Metal (Type IV) Cassettes
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C-46. 46 min \$8.50

CD-IV Metal (Type IV) Cassettes
Nano Dynamic Tactoid formulation; 70- μ s EQ
CD-IV 100. 100 min \$7.35
CD-IV 90. 90 min \$5.99
CD-IV 74. 74 min \$5.79

CD-MH High-Bias Metal (Type II) Cassettes
Super-alloy formulation; 70- μ s EQ; Type II bias.
CD-MH 100. 100 min \$5.79
CD-MH 90. 90 min \$5.31
CD-MH 74. 74 min \$4.75

CD-II High-Bias (Type II) Cassettes
Submicro Cobalt Gamma formulation; 70- μ s EQ.
CD-II 100. 100 min \$5.10
CD-II 90. 90 min \$4.51
CD-II 74. 74 min \$4.13

CD Normal (Type I) Cassettes
Flush Surface Cobalt formulation; 120- μ s EQ.
CD 100. 100 min \$3.95
CD 90. 90 min \$2.83
CD 74. 74 min \$2.91

3M
Metal Cassettes
4040. 100 min \$9
4040. 74 min \$7

High-Bias Cassettes
2020. 100 min \$6
2020. 74 min \$4

DAT Cassette
7707 (DT-120). 120 min \$20

Open-Reel Studio Mastering Tape
227 (1.0 mil). 3,600 ft \$25
226 (1.5 mil). 2,500 ft \$20
227 (1.0 mil). 1,800 ft \$15
226 (1.5 mil). 1,200 ft \$10

VISA BY INTERWORLD ELECTRONICS INC.
UCX-II-S High-Tech Turbo
High-bias cassette tape with ultra-refined chromium-dioxide coating and special housing.
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60 min \$5.99

UCX-II High-Tech Turbo
High-bias cassette tape.
90 min \$6.99
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UFX-I High-Tech Turbo
Ferric cassette tape with clear housing.
90 min \$5.99
60 min \$4.49

CX-II Professional Tape
High-bias cassette tape.
90 min \$6.99
60 min \$5.49

FDX-I Professional Tape
Ferric cassette tape.
90 min \$5.99
60 min \$4.49

Extra Performance II Tape
High-bias cassette tape.
90 min \$5.49
60 min \$4.29

High Performance I Tape
Ferric cassette tape with iron-oxide coating.
90 min \$3.99
60 min \$2.99

DIRECTORY OF MANUFACTURERS

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- Denon, 222 New Rd., Parsippany, NJ 07054; (201) 575-7810
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- General Electric, P.O. Box 1976, Indianapolis, IN 46206; (317) 267-5000
- JVC, 41 Slater Dr., Elmwood Park, NJ 07407; (201) 794-3900
- Loran, 10-48 Clark St., Warren, PA 16365; (800) 633-0455
- Maxell, 22-08 Rt. 208 S., Fairlawn, NJ 07410; (201) 794-5900
- Memorex by Memtek, P.O. Box 901021, Ft. Worth, TX 76101; (817) 878-6700
- Nakamichi, 19701 S. Vermont Ave., Torrance, CA 90502; (213) 538-8150
- Realistic by Radio Shack, 1300 One Tandy Center, Ft. Worth 76102; (817) 390-8330
- Recoton, 46-23 Crane St., Long Island City, NY 11101; (718) 392-6442
- Sony, Sony Dr., Park Ridge, NJ 07656; (201) 930-7669
- TDK, 12 Harbor Park Dr., Port Washington, NY 11050; (516) 625-0100
- That's America, Inc., 1983 Marcos Ave., Suite 201, Lake Success, NY 11042; (516) 326-1122
- 3M, 3M Center St., St. Paul, MN 55144-1000; (612) 738-2770
- Visa by Interworld Electronics, 3095 N.W. 77th Ave., Miami, FL 33122; (800) 333-0665

ROSEMARY GLOONEY

"figure if you can just hang on long enough, you get to be woven into the fabric of people's lives."

★
BY
ALANNA
NASH



HER list of friends through the years reads like a "Who's Who" of the Fifties and Sixties: Bogart, Dietrich, Bennett, Sinatra, Holiday, Kennedy. Today, the names are newer but still stellar. Linda Ronstadt eagerly agrees to play her benefits, and Neil Diamond calls to say that one of the first songs he ever cared about was *Hey, There*.

Now beginning her fifth decade as a solo recording artist—marked by a recent "Greatest Hits" CD on CBS from the *Come On-a My House Fifties*—Rosemary Clooney commands respect not only as a musician's musician but because she has endured, surviving the fickleness of the American public, the whirling changes of the popular-music landscape, and a debilitating series of personal tragedies.

"I figure if you can just hang on long enough," she told me recently, with characteristic self-effacement, "you get to be woven into the fabric of people's lives."

At sixty-one, Clooney can look back on a career that has encompassed every success a small-town teenage girl of the Forties could have envisioned: big band, pop, radio, television, the movies, Platinum records, command performances, and, for the past fifteen years, "mainstream" jazz—or, rather, American popular song with a jazz flair. The Kentucky-born Clooney has emerged from it all as timeless as the music she sings, as recognizable—and as uniquely American—as Irving Berlin, the Gershwins, or Richard Rodgers, whose collaborations with Lorenz Hart and Oscar Hammerstein II she celebrates in her most recent recording for Concord Jazz, "Show Tunes."

Of course, there are some who argue that Rosemary Clooney will never go down in the books as a remarkable jazz singer. And Clooney herself is one of them.

"I think Ella Fitzgerald is a jazz singer, I think Carmen McRae is, and I think Susannah McCorkle is. Me? I think I interpret things well, I sing in tune, I've got good time, and I get the job done. There's got to be somebody in the band who says the words to the song, you know," she said with a hearty laugh.

More than anything else, Clooney insists, she is simply a conduit, reacting to the musicians around her. "If you allow yourself to be inspired by them, boy, oh boy, you can be."

That inspiration is apparent in her Concord albums, where she is backed by a cluster of first-rate jazzmen, most notably Scott Hamilton on tenor saxophone, Warren Vaché on cornet, Ed Bickert on guitar, and John Oddo, Clooney's long-time arranger, on piano. Together, under the direction of Concord president Carl E. Jefferson, they have built one of the record industry's most distinguished libraries of American popular music, with theme albums honoring the work of Ira Gershwin, Jimmy Van Heusen, Johnny Mercer, Irving Berlin, Cole Porter, Harold Arlen, and others.

With younger listeners, especially, the ones who grew up dismissing such music as corny and old-fashioned, Clooney seems to have scored a triple victory—luring them to the material in the first place, engaging them with pure brilliance of vocal form, and, even when time seems to have rendered the lyrics hopelessly stilted, delivering the songs with such fresh readings that you feel as if you're hearing the words for the first time.

Clooney refuses to treat lyrics as laundry lists, glossing over them with the same phrasing everyone before her has employed. In Cole Porter's *I Get a Kick out of You*, for example, she approaches the lines, "I know that if/I took even one sniff/That would bore me terrifically too," as every singer must, accenting the "if" with "terr-ifically too." But the surprise is that she accents the word "too" as well, making the song seem all her own.

On the other hand, Clooney is not one to take liberties with either the melody or the time frame of American pop standards. While critics applaud her for her lack of vocal adornment and her concentration on lyrical interpretation, she deflects such praise, insisting that the reason for her vocal style is simply that she doesn't have "that sense of improvisation. That's not one of my strong suits."

But she also resents those singers who think that rewriting a song is part of their bailiwick—changing the name of Franklin Roosevelt to George Bush in *The Lady Is a Tramp*, for instance, or altering rhythm patterns by adding words of their own devising. In the "Show Tunes" album, she is particularly respectful of Lorenz Hart's intentions, "because the people who try to update those things don't realize

the hours and the rhymes that were thrown away in order to make something that was up to Larry's standard."

Those who know Clooney's work from her pretty-little-bandsinger days in the Forties with her younger sister Betty and Tony Pastor's Big Band, her years of plastic stardom in the Fifties with the Svengali-like Mitch Miller, and her subsequent foray into the movies ("the next Betty Hutton") with Bob Hope and Bing Crosby will doubtless find changes in her distinctive soprano these days. On the plus side, her maturity is particularly obvious in her startling middle voice, which is richer ("the consistency of coconut milk," in the words of one reviewer) and far more authoritative than it used to be.

And yet Clooney would be the first to admit that years of smoking have robbed her singing of the purity and the long, sustained phrases of *Tenderly* and *Mixed Emotions* back in the Fifties, even if she now uses a short, breathy delivery to great advantage. All the same, what comes across with great appeal on Clooney's Concord recordings is the warmth, energy, and earthiness of her personality (as in the improvised "Damn!" at the end of *I Wish I Were in Love Again* in "Show Tunes") and an infectious *joie de vivre* in her lively, carefree renditions.

The sense of freedom comes, Clooney says, from the fact that she's enjoying singing again. There were times, documented in her 1977 autobiography, *This for Remembrance*, and in the 1982 TV movie made from it, *Rosie: The Rosemary Clooney Story*, when she did not. In the Sixties, with her loyalties divided between work and family—her husband, actor José Ferrer, and their five children—the pleasure of her singing began to erode, and she turned to sleeping pills as an everyday aid, "going toward the edge all along, but not really aware of it."

When she and Ferrer divorced (twice, first in 1961 and again in 1967 after a three-year reconciliation), her dependence on tranquilizers had mushroomed into a full-fledged addiction. "I never met a pill I didn't like," she recalled.

Clooney might have continued to hide her addiction and disintegrating emotional state had it not been for a series of events in 1968, her fortieth year, that collided to push

Clooney

in the Fifties:
a small-town
girl's dream
of a career.



her toward public disgrace and mental collapse. The first was the abrupt resolution of her romance with a young musician in her band, and the second was the assassination of her friend Robert Kennedy, gunned down only yards from where she was standing. That summer, Clooney reached the breaking point when she ranted incoherently at an astonished Reno night-club audience, stormed offstage, and then "tested God's love" by driving her white Cadillac Eldorado up the wrong side of a curvy mountain highway. Confinement in the psychiatric ward at Mount Sinai Hospital in Los Angeles followed, then years of psychotherapy.

THROUGH it all, Clooney never stopped singing, but while she never fell below a certain standard of performance, she really hadn't much interest in the work, an apathy she believes her audiences felt. Soon, she found that promoters were afraid to book her into the more prestigious rooms, and the woman who had made the cover of *Time* magazine a decade before was relegated to entertaining transient businessmen in the lounges of Holiday Inns. "It was harder to do it the second time around," she admitted. "I was scuffling."

Today, Clooney says she might never have shaken that malaise had it not been for her old friend, father figure, and *White Christmas* co-star, Bing Crosby. In the late Seventies,

Crosby organized a tour to celebrate his fiftieth anniversary in show business, and he invited Clooney to come along. The ticket sales, and the reviews, were impressive.

"It was one of the greatest experiences of my life," she said. "The joy came back to my singing, and Bing was really a great friend and teacher." But tragedy struck again when Crosby collapsed and died during the European segment of the tour in 1977. The blow, coming a year after the aneurysm-related death of Clooney's sister, Betty, was devastating. "Bing," she said quietly, "was magic."

Crosby not only helped get Clooney back into the large, important showcases, but he was also indirectly responsible for her return to recording. Crosby's drummer, Jake Hanna, recorded an album for a new label, Concord Jazz, headed by his friend Carl Jefferson. "He asked me if I wanted to make an album," Clooney said. "And so I did."

Despite the critical acclaim for the Concord collection, Clooney reports that the composers she honors are not always entirely pleased with her albums.

"When I did the Berlin album ["Rosemary Clooney Sings the Music of Irving Berlin"], Irving didn't like the fact that I would do one chorus of a song and then wouldn't come back for another three choruses. He'd say, 'Why did it take so long for you to get back to the words?' I'd say, 'Well, I'm working

for a jazz label, Irving dear. These young guys have to have a crack at your song here.' He didn't understand. And oddly enough, in a different way, neither did Ira."

"Ira," of course, was Ira Gershwin, who for many years was Clooney's next-door neighbor in Beverly Hills and before that occupied, with his brother George, the big, dark Spanish-style house Clooney bought some thirty years ago. Before his death, Ira would thrill Clooney with stories about the house's musical history, such as the time George rushed home from a dinner party and ran to the piano—in the corner where Clooney has her own piano today—and told his brother, "It should be, 'A foggy day in London town.' That will make the difference in the meter."

FOR the past several years, Clooney has divided her free time between the Beverly Hills house and a country retreat in Augusta, Kentucky. Nestled snug on the Ohio River near Cincinnati, the little burg is close to her home town of Maysville, where she spent her childhood singing and electioneering for her grandfather's mayoral campaigns and where a street has borne her name since 1952. The Augusta retreat allows her to spend time with her brother Nick, a columnist for the Cincinnati *Post*, and to gather her wits between performing dates: "I really feel as if I belong there. I don't think you can get that far from where you were born."

And yet Clooney's name is known worldwide, particularly in Japan, where her records sell briskly and she is always in demand at the well-appointed jazz clubs. There, as elsewhere, Clooney believes, she has succeeded not just because she has good taste in music.

"I think that, more than anything else," she said, "I give people a sense of hope that things aren't always going to be bad. I've been through so many things, and yet there's a kind of humor underlying my work, and most of the time I transmit that. When it comes down to it, the bottom line is the enjoyment of your own work. The only thing you can do is do the best you can every time you come up to bat."

For a woman who has seen her share of the sidelines, Rosemary Clooney is clearly hitting home runs again, right over the farthest, tallest back fence. □

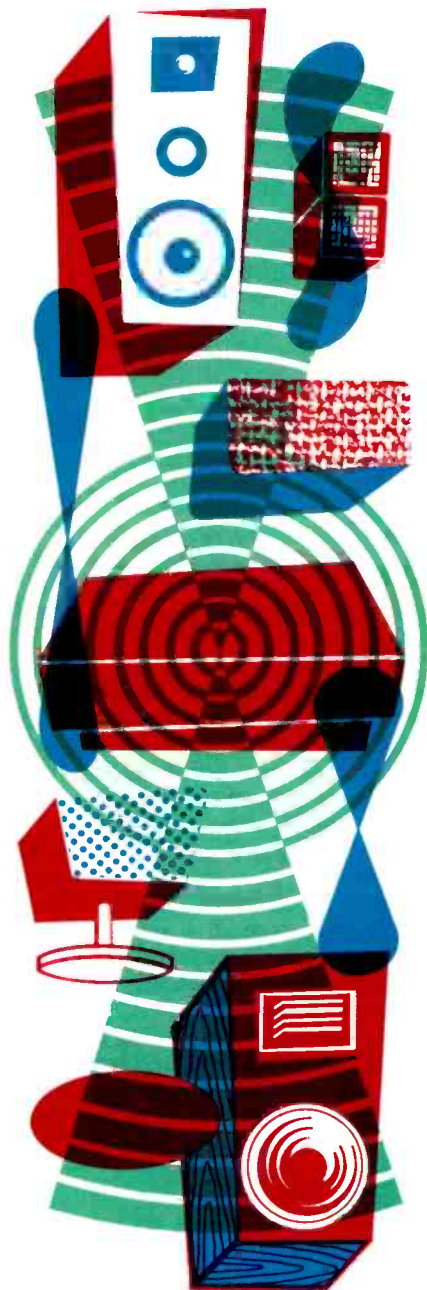
MAKING WAVES

The device that turns
electricity into
sound – the sixth
in a series on
the basics of audio.

BY IAN G. MASTERS

MOST parts of an audio system are concerned with electrical signals in one way or another, but ultimately these must be changed into something we can hear. That's the function of the most crucial component in audio, the loudspeaker, usually called simply the **speaker**. It's crucial because speakers and their acoustic surroundings determine the overall sound of an audio system.

With some exotic exceptions, a speaker is a rather simple device technically, and it's relatively easy to manufacture. One of the reasons for the huge number of speaker models available is that small companies can get into the business with a fairly low investment. Another is that there is very little consensus as to what exactly would make for a "perfect" speaker—or even how to measure a speaker to see how it stacks up. Thus, there are larger sonic differences between speakers



than between other components. But beneath their grilles, most speakers have a lot of similarities.

Pushing the Air

The heart of a speaker is a kind of electric motor, able to do work by converting electricity into physical motion. But unlike conventional motors, which are rotational, a speaker motor is linear; instead of turning, it moves back and forth in step with variations in an electrical current.

In most speakers, the active element is a coil of wire—called a **voice coil**—suspended in a strong permanent magnetic field. As electricity is fed to this coil from an amplifier, a magnetic field is created around the coil. This field, which changes in polarity and intensity as the signal from the amplifier changes, reacts with the permanent field surrounding the voice coil, causing the coil to move in and out in a motional replica of the audio signal produced by the amplifier. The greater the current, the farther the coil will move from its "rest" position.

The purpose of a speaker is to create air-pressure differences—sound, in other words—that are as close as possible to those of the original recorded material. To accomplish this, the voice coil is attached to a **diaphragm** that compresses and rarefies the air in front of it as the voice coil moves it forward and backward. In many cases, the diaphragm is a shallow **cone** made of fibrous material, stiff paper, plastic, or even metal, but small diaphragms intended for treble reproduction are usually in the shape of a convex **dome**. A few speakers employ flat panels driven either by a single coil or by several. Whichever

THE BASICS

form is chosen, the principle is the same; all of these fall into the category of **dynamic speakers**.

An alternative design approach, the **electrostatic speaker**, also uses a flat panel, but the diaphragm is not attached to the usual coil-and-magnet structure. Instead, a thin metallic coating on the rear of the diaphragm is given a fixed static charge by a DC power supply. Parallel to the diaphragm, and a short distance in front of and behind it, are perforated metal plates to which the positive and negative (plus and minus) outputs of the driving amplifier are attached. Variations in the amplifier's output cause corresponding changes in the static charges on the plates (which are always opposite one another). The interaction of the electrostatic charges on the plates with that on the diaphragm causes the diaphragm to move. Because the diaphragm must be very close to the plates, it can't move very far, so it must be large in order to move enough air to provide adequate listening levels.

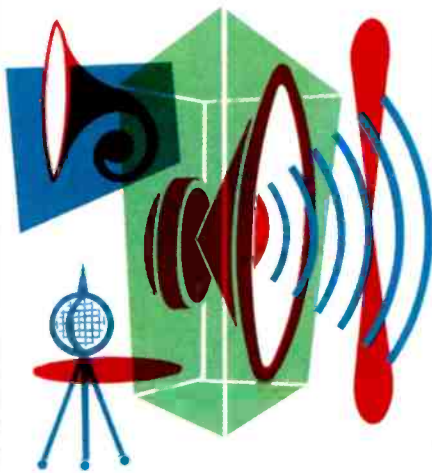
To Tweet or to Woof

The demands placed on a speaker vary with frequency. Although it is possible to make a speaker that will handle all frequencies with reasonable ease, it is now usually considered preferable to divide the audio spectrum into two or more sections, each one reproduced by its own speaker, or **driver**. Such multiple-driver devices, along with their enclosures and associated electronics, if any, are really **speaker systems**, although they are usually just called "speakers."

In such systems, the highest frequencies are reproduced by a small driver called a **tweeter**, the lowest by a much larger **woofer**. If only those two are employed, the speaker is known as a **two-way system**. In many cases, particularly as you ascend the price scale, a **midrange** driver handles the frequencies between the other two; this is a **three-way system**. Most speakers on the market are two- or three-way systems, although a few divide the spectrum into even more separate ranges and a handful do not divide it at all. Some models use two or more drivers in the same range, but a three-way system containing more

than one tweeter, say, is still only a three-way system.

To direct the appropriate portion of the signal to each driver, an electrical circuit called a **crossover network** is employed. Usually, the crossover is built into the speaker enclosure and simply routes the sig-



The purpose of a speaker is to create air-pressure differences—sound, in other words—that are as close as possible to those of the original recorded material.

nal from the amplifier to each driver; in this case it is a **passive crossover**. In some more ambitious speaker designs, however, the division of the signal takes place before the amplification process, each driver being powered by its own amplifier. For this technique, known as **biamplication** or **triamplication** depending on the number of drivers concerned, an external component called an **electronic** or **active crossover** is used. However the division of the signal is achieved, the drivers and crossover must be carefully matched to create a smooth transition from one part of the frequency range to another.

Baffles and Boxes

On its own, every speaker is a **dipole**: It radiates as much energy to the rear as to the front. The two

waveforms are opposite in **polarity**, or **out of phase** with respect to each other, and if allowed to intermingle they would interfere with each other, canceling out some frequencies either partly or completely. At the top end of the spectrum this is rarely a problem, as the signals are relatively directional when reproduced by normal-size diaphragms and thus radiate away from each other. Also, the higher frequencies have relatively little energy and short wavelengths, so they are easily contained or absorbed. In the bass, however, things are very different: With any driver of practical size, low frequencies are virtually **omnidirectional**—they radiate equally in all directions—and have very long wavelengths (almost 30 feet at 20 Hz). Thus, the front and back waves produced by a woofer will cancel each other unless they can be kept apart.

One solution is to use a **baffle**: a large board with an opening into which the speaker is tightly fitted. The larger the baffle, the longer a wave must be to wrap around and meet its out-of-phase counterpart on the other side. A baffle thus lowers the frequency at which cancellation sets in. The most effective type is an **infinite baffle**, which prevents the back and front waves from ever meeting. Mounting a speaker in a wall is one way to accomplish this, although it's not always the most practical.

Most modern speaker systems deal with the back wave by mounting the woofer in some sort of **enclosure** (the other drivers are usually mounted in it as well, but the enclosure mainly affects low-frequency performance). One common approach is a type of infinite baffle called an **acoustic-suspension enclosure**, a sealed box that prevents the back wave from radiating into the listening room. The air pressure created inside the enclosure is used to spring-load a loosely suspended woofer. Acoustic-suspension speakers are capable of very fine bass performance, but they may require a lot of amplifier power.

Equally popular is a type of enclosure that does allow the back wave to radiate, but modifies it so that it enters the listening room in phase with the front wave, thus reinforc-

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ing it. This is known variously as a **ducted, vented, or ported** enclosure, after the opening through which the back wave emerges; more often, it is called a **bass-reflex** design. A variation employs a **passive radiator** instead of an open port. This is an unpowered speaker cone whose movement is determined by the air-pressure differences within the enclosure. In a bass-reflex speaker, the mass of the air in the port partially determines its resonance frequency and thus the frequency range in which reinforcement will occur; the physical mass of a passive radiator accomplishes the same thing.

Although less common in consumer audio than in professional applications, nowadays at least, the **horn** speaker offers probably the greatest acoustic return for a given amount of amplifier power. Other speaker types tend to convert relatively little of the energy from the amplifier into air motion; by placing a driver at the narrow end of a flared horn, however, its **coupling** to the air is improved and a much greater acoustic output is possible. In practice, this means that a little power can be used to produce a lot of sound. The main drawback, at least when it comes to low frequencies, is that horns have to be large to work effectively.

Completing the Circuit

In operation, a speaker and the output stage of the amplifier driving it form a single circuit, and the electrical characteristics of the speaker dictate the overall performance of the circuit. In essence, the amplifier is missing one resistor, which is replaced in the circuit by the speaker itself, its crossover network, and the cables used to connect everything together.

The "value" of this composite resistor is its **impedance**, which like resistance is measured in ohms. Impedance is unlike pure resistance, however, because it varies with frequency. A speaker may have a **nominal impedance** of, say, 8 ohms, but this is only an average; its actual impedance may be much lower or higher at some frequencies. As with any circuit, an amplifier is designed to work ideally with a particular impedance value or a fairly narrow range of such values. If the imped-

ance is too low, the current drain on the amplifier will rise to a potentially damaging level; if it's too high, the speaker will produce less output than it might otherwise.

Only a small portion of the electricity a speaker receives is actually turned into sound; the rest is con-



A number of things contribute to stereo imaging, not least being the nature of the listening room and the positions of both the speakers and the listeners.

verted to heat. Speakers vary widely in the amount of acoustic output they can produce for a particular level of amplifier power, an attribute called **sensitivity** (or sometimes, less accurately, **efficiency**). Sensitivity is often measured by feeding the speaker a 2.83-volt signal (which will put 1 watt through an 8-ohm resistance) from the amplifier and measuring the acoustic output at a distance of 1 meter in front of it, the result being stated in **decibels of sound-pressure level (dB SPL)**. A relatively insensitive speaker might have an output of 85 dB SPL or less; anything over 90 dB SPL is considered quite sensitive, and a few speakers can put out more than 100 dB SPL from a 2.83-volt input.

Neither impedance nor sensitivity imparts any information as to how a particular speaker will sound,

but both are important factors when it comes to matching speakers and amplifiers. By the same token, a speaker's **power-handling capability**—the maximum number of watts of input it can handle continuously without damage—should be an important consideration. Speaker companies have different ways of determining power handling, however, so the numbers stated are often less useful than they might be. In fact, the same can be said for most speaker specifications. More than with other audio components, the only real way to choose speakers is by listening to them.

Left, Right, and Center

Although a good speaker will perform well all by itself, in almost all situations it has to be able to do one more important thing: It has to function well as one of a pair, because virtually all of us listen to our music in stereo.

For most listeners one of the most desirable features is **imaging**: the ability of a pair of speakers to create the illusion of a firm center image and to place individual instruments in their proper positions in the "sound stage." A number of things contribute to imaging, not least being the nature of the listening room and the positions of both the speakers and the listeners. Also important is proper wiring between the amplifier and the speakers: The speakers must be **in phase**, so that the diaphragms move in and out simultaneously when fed a center-image or mono signal. Out-of-phase speakers will destroy any hope of proper imaging and will usually degrade low-frequency performance as well.

The speaker itself can enhance imaging precision by being designed to simulate a **point source**, one where all frequencies have the same acoustic origin and the sound waves are aimed at the listener. A few designs use electronic means or deliberate shaping of the speaker's radiation pattern to achieve certain imaging effects, such as widening the sound stage or maintaining a stereo image over a wide listening area.

NEXT: Acoustics—what happens to the reproduced sound after it has left the speaker.

CHOOSING A CUSTOM INSTALLER

A Mediacom remote-control system monitors this \$15,000 New York City surround-sound installation by Audio Video Systems in West Nyack, New York.



PHOTOGRAPH BY PETER MARGONELLI

How to have it your way

BY REBECCA DAY

YOU want to have a custom stereo system installed but don't know where to start. You check the local telephone directories for a list of audio/video dealers. When you call, almost all of them say they do custom installations. You know you could probably save money by going to the discount store where you got a great deal on a VCR, but do you really want to cut corners when someone's cutting holes in your walls?

You will find custom-installation designers in a variety of places. Many specialty audio retailers are now doing high-quality custom work, and there are installation companies that also do high-quality work but don't operate out of storefronts. Then there are the less-qualified installers who are trying to gain from the booming custom-installation market. If you know some of the basic questions to ask, you should be able to determine which installer will be best for you.

Most custom-installation specialists don't advertise; their best source of business is word of mouth. A happy customer is a good reference for both an installer and a prospective client. Talk to your friends about work they (or people they know) have had done. Other sources you can go to for referrals are local interior designers and contractors, who are likely to have worked with custom stereo installers in the area. Some custom-installation specialists even demonstrate their work in open houses or home shows.

Because of the considerable investment involved, you might want to check out installation companies you're considering with the Better Business Bureau. A company's stability is essential; if something goes wrong with your system a few years down the road, you'll want to be

able to go back to the installer for servicing. David Peterson, owner of Entertainment Designs in Minneapolis, recommends that customers obtain a Dun & Bradstreet financial report on a company before committing thousands of dollars for an installation.

When you meet with a custom-installation specialist for the first time, ask to see the company's portfolio. Elliot Ingber, president of Audio Video Systems in West Nyack, New York, lists a few of the kinds of details you should look for in photographs: Are the speakers placed wide enough apart? Are all wires hidden from view? Are top-loading VCR's or CD players used where front-loading machines should be? Does the equipment blend in with the design of the room?

You should ask for references—three to five other clients who will be willing to talk with you. If you can, visit a couple of installations that the specialist has done. David Peterson suggests that prospective customers ask the following questions of installers' clients: How well did they respect your home? Did they use drop cloths and vacuum cleaners? Are you satisfied with the sound quality and ergonomics of the system? Note for yourself how well the system is integrated into the home, and play the system if you can to determine its sound quality and ease of use.

Of course, cost will play a major role in deciding which installation company to use. Keep in mind, though, that you're paying for more than just components and speakers. The going rate for labor in a custom installation is about 15 to 25 percent of the total job, depending on the difficulty of installation. Find out what you can expect in return—aside from the installation itself. Does the specialist guarantee the in-

stallation for at least one year after completion? What if a problem is your fault? Will the installer provide loaner equipment if yours needs to be serviced? If you blow an amplifier fuse at 4 o'clock on the day of your birthday bash, will there be someone available who can fix it in time for the party? What will service rates be after the warranty period is over?

There are other, less tangible questions you should consider when choosing a custom-installation specialist. How professional are the company's employees? Do they leave you hanging on the phone? Do they call you back promptly? Are they punctual? Will they give you their home phone numbers? These are all courtesies that will become very important over the course of the project.

IT'S a good idea to draw up a contract to protect yourself—and the installer. Contracts should include at least a payment schedule, installation and equipment warranty information, and a list of what equipment will go into which rooms. Peterson of Entertainment Designs recommends that contracts also spell out speaker placement, types of finish used, and how the equipment ties together. Specialists recommend, as a general rule, that you don't pay more than 50 percent of the total system cost in advance and that you save 10 percent for payment on completion of the project. Some contracts also provide for labor and hardware cost overruns, which generally should not be more than 10 percent.

You should not have to pay for *any* injuries or damages that result from the work being done in your home, so be sure that your installer is insured. It's not unreasonable for a customer to ask for a photocopy of a specialist's liability and work-



Audio/video design by Absolute Sound in Winter Park, Florida, with woodworking by Quincraft Custom Cabinetry in Orlando. Price of the remote-controlled, surround-sound, home theater system was a cool \$35,000.

man's-compensation policies. Also be sure that the installer has the necessary state and local licenses for the type of electrical or construction work he'll be doing. If you have the electrical work done by an outside contractor, have him or her consult with the installer/designer to insure that, for example, TV cables and outlets are near each other and that the proper provisions are made for speaker wires and volume controls.

The "custom" in custom installation generally refers to where and how a system is installed rather than what's in it. Most custom designer/installers have regular product lines that they work with, but in many cases they can special-order a product if a customer wants a particular speaker or component. Make sure that the dealer can provide servicing for any product he doesn't carry.

System prices vary by region and by complexity. At Audio Video Systems in West Nyack, for example, you would pay about \$2,500 for a basic one-room installation with receiver, CD player, cassette deck, and two pairs of in-wall speakers. An average multiroom system would fall in the \$7,500 to \$15,000 range and include four or five pairs of speakers, wired with volume controls, and a couple of on/off switches.

At Entertainment Design in Minneapolis, a "simple" \$8,500 single-room system typically includes a 27-inch television set, front- and rear-channel amplification, surround sound, two sets of speakers, a CD player, a tape deck, and a tuner. The price could go up to \$20,000 with the addition of a larger TV set, one or two subwoofers, side and center channels, dubbing capability between two high-end VCR's, a videodisc player, and more power. If you have the money, there's no limit to what you can do.

The time required for an installation depends on the complexity of the system. If the installation is being done as part of new construction, it will parallel the construction time of the home. If an installation is a retrofit, the actual work might not require much more than a few days, but you should allow for design time and the specialist's schedule. "Realistically, you should expect a minimum two-month turnaround from planning to completion," said Peterson of Entertainment Design.

Custom specialists stress that even though you might be having a relatively modest installation done now, you should think ahead to what you might want to add in the future. This is especially true for

installations in new construction. Charles O'Meara of Absolute Sound in Winter Park, Florida, warns against "being penny wise and pound foolish." You may not need speakers and volume controls in the second and third bedrooms right now, but in a few years you may want to put them in. It's a lot easier and cheaper, he noted, to have the wires in place before the dry wall goes up and the paint goes on.

The most difficult part of having a custom stereo system installed in your home is choosing the right installation specialist. Custom designers/installers see that as problematic, too, so problematic that more than a hundred of them from across the country are forming an organization called the Custom Electronic Design & Installation Association, based in Chicago, to encourage the growth of reliable installation companies and to promote the industry. The organization is considering some type of accreditation policy that could help consumers find qualified installation specialists. On your own, if you take the time to check out the financial stability, reliability, and workmanship of the design/installation specialist you hire, you should be well on your way to a first-rate custom audio/video system. □



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BEST RECORDINGS OF THE MONTH

Stereo Review's critics choose the outstanding current releases

JOHN CALE'S "SONGS FOR THE DYING"

FOR more than ten years, from "Fear" in 1974 to "Artificial Intelligence" in 1985, John Cale made dark, driven, oftentimes ferocious rock-and-roll. Now, after a four-year silence, he has re-emerged with "Songs for the Dying," an album whose centerpiece, *The Falklands Suite*, is a symphonic score, performed by a Russian orchestra, over which Cale sings and recites four poems by Dylan Thomas. If you're wondering whether this could possibly be the selfsame John Cale, indeed it is.

Long-time Cale followers will recognize that "Songs for the Dying" has antecedents in Cale's earliest solo works—fusions of classical music, rock, and the avant-garde such as "Paris 1919," "Church of Anthrax," and "Vintage Violence." Long before those albums, however, and even predating his membership in the Velvet Underground, Cale could claim to be one of the few figures in rock with training as a church organist and proficiency on the viola. But never, at least never on any of his recordings, has he delved so singlemindedly into the symphonic realm as he does in "Songs for the Dying."

The Falklands Suite is an intoxicating piece of music that provides a swirling, impressionistic setting for four works by the Welsh poet laureate: *There Was a Saviour*, *On a Wedding Anniversary*, *Lie Still*, *Sleep Becalmed*, and *Do Not Go Gentle into That Good Night*. The suite was composed during Britain's brief war with Argentina over the Falklands; a chanced-upon reference to the islands in one of Thomas's poems struck Cale as eerily coincidental, hence the title.

Cale, himself a Welshman, intones Thomas's verse with a grave,

dramatic flair, emphasizing key lines with appropriate orchestral flourishes and his own thunderous, clipped delivery. Particularly gripping is *On a Wedding Anniversary*, with Cale's stark, chilling recitation of the line, "Death strikes their house," and the nervous, percussive chatter of trumpets that accompanies it, against an undulating backdrop of strings, building to an explosive choral and symphonic crescendo. In contrast, his interpretation of *Do Not Go Gentle into That Good Night* is lithe and whimsical, skipping lightly to pizzicato strings and lilting flutes.

Cale boldly explores the inherent musicality of Thomas's verse in collaboration with the forty-one-piece Orchestra of Symphonic and Popular Music of Gosteleradio, U.S.S.R., recorded in Moscow, and the choir of Llandaff Cathedral Choir School, recorded in South Wales. Following *The Falklands Suite*, as a kind of coda, are two brief *Songs Without*

Words, in which Cale solos on piano, and a vocal number, *The Soul of Carmen Miranda*, that features atmospheric keyboard effects provided by the album's producer, Brian Eno.

To say that "Songs for the Dying" is adventurous is to understate Cale's accomplishment. He has carried the fusion of classical forms and popular sensibility, which he has dabbled in but never fully realized before, to a challenging new plateau. He has also reasserted his own reach and ambition as an artist. Both he and Eno deserve kudos.

Parke Puterbaugh

JOHN CALE: *Songs for the Dying*. John Cale (vocals and instrumentals); Brian Eno (keyboards); Choir of Llandaff Cathedral Choir School; Orchestra of Symphonic and Popular Music of Gosteleradio. Alexander G. Mikhailov cond. *The Falklands Suite: Songs Without Words: The Soul of Carmen Miranda*. OPAL/WARNER BROS. 26024-1. © 26024-4. © 26024-2 (38 min).



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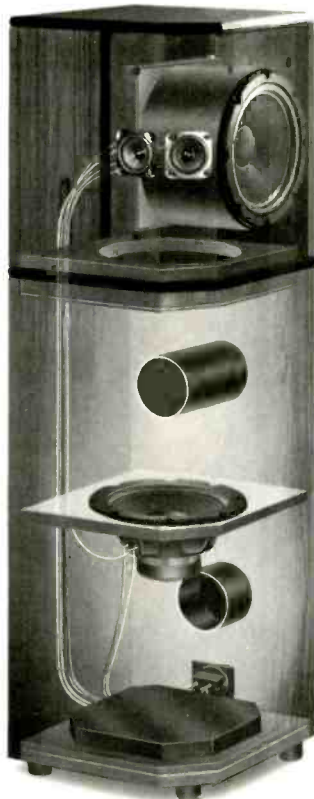
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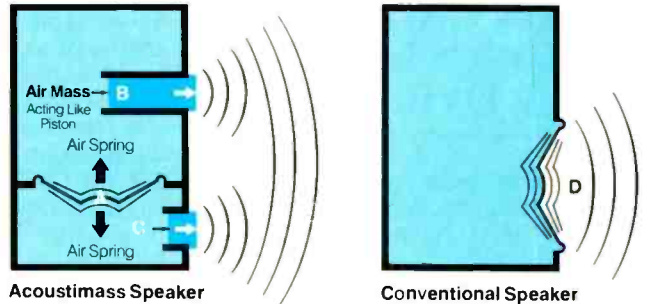
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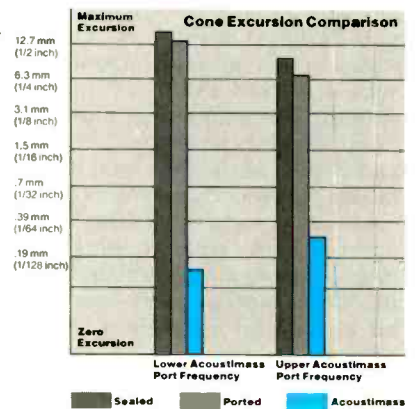
Left: An Acoustimass speaker *launches* sound into the room using two masses of air working like pistons (B&C, darker blue), rather than by a surface vibrating directly into the room. *The sound launched into the room by the Acoustimass speaker's air pistons is the purest sound that can be produced by present technology.*

Right: A vibrating cone radiating directly into the room (D) produces unfiltered sound.

Cone Excursion Comparison.

(lower excursion means lower distortion)

Graph: The distortion produced by any speaker rises dramatically with its cone motion, or *excursion*. At port-tuned frequencies, a typical Acoustimass speaker's cone (A) has less than *1/16* the maximum distortion-producing excursion* of sealed and ported cones. Inside an Acoustimass speaker, the interaction of the air springs with the air masses in the ports produces a very high pressure at the surface of the cone. This greatly reduces the cone's excursion, and therefore reduces distortion. The air springs act with their respective masses to form low-pass filters, removing any small distortion components generated by the cone.



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BEST RECORDINGS OF THE MONTH

AMERICAN VIOLIN MASTERWORKS

HUZZAHS to EMI for a new CD coupling two of the finest American works for violin and orchestra, William Schuman's Violin Concerto and Leonard Bernstein's Serenade for Violin, String Orchestra, Harp, and Percussion (After Plato's *Symposium*). While the Bernstein has been recorded three times under the composer's direction, and the Schuman was once available in a sizzling recording by Paul Zukofsky with Michael Tilson Thomas and the Boston Symphony, this new release is the first appearance of either work in a digital recording in a digital playback medium.

The Schuman Violin Concerto comes from the very top drawer of that eminent symphonist's output, and it displays the finest dynamic and lyrical elements of his musical language. First performed in 1950 as a three-movement work by Isaac Stern and the Boston Symphony under Charles Munch, then revised and performed at the Juilliard School, again by Stern, in 1956, it achieved final form, recast in two movements, in the version played by Roman Totenberg at the 1959 Aspen Festival.

The score makes virtuoso demands on both soloist and orchestra, starting out with the rhythmically volatile opening pages. In lieu of the customary slow movement, Schuman has interspersed lyrical

episodes in each of the two movements, the most striking being the *Molto tranquillo* occurring early in the first. A typically skittery Schuman *Scherzando* paves the way for the cadenza and an elaborate coda. A big-scale orchestral utterance with prominent timpani solo introduces the second movement, after which the soloist takes over, giving way to a brilliant fugal episode. Toward the end we have another lyric interlude (*Adagietto*) that recalls elements of the main melody for the soloist in the first movement. The conclusion is a brilliant outburst in the best *con tutta forza* Schuman manner.

Bernstein's Violin Serenade was composed for Stern in 1953-1954 on a Koussevitzky Foundation commission. Leaving aside the work's association with the *Symposium* of Plato and its disquisitions in praise of love, the five movements of the work remain, for me, the composer's finest achievement on the level of pure music. There is neither frenetic hysteria nor the slightest lapse into sentimentality, and the scoring for both soloists and orchestra is exquisitely varied. The first two movements are essentially lyric in content, and the brief running *Presto* that constitutes the central movement provides both contrast and a display piece for the violin soloist. The musical heart of the piece is the succeeding *Adagio*—more than seven minutes of impassioned song. The finale at first evokes Socrates in solemn vein (represented by cello solo) but concludes with a touch of jazzy "party music."

Violin soloist Robert McDuffie does himself proud in both of these works, with a finely focused tone

and an unerring sense of pitch and rhythm. Leonard Slatkin and the St. Louis Symphony are on their mettle from start to finish, and EMI has come up with a topnotch recording job. Warmly recommended.

David Hall

SCHUMAN: Violin Concerto. BERNSTEIN: Serenade for Violin, String Orchestra, Harp, and Percussion (after Plato's "Symposium"). Robert McDuffie (violin); St. Louis Symphony Orchestra, Leonard Slatkin cond. EMI/ANGEL © CDC 49464 (64 min).

THE O'KANES REAFFIRM TRADITIONS

OF all the neotraditionalists to pop up on the country scene in the Eighties, the O'Kanes—Jamie O'Hara and Kieran Kane—were arguably the most important. Like Lyle Lovett and Nanci Griffith, the O'Kanes announced themselves as cerebral singer-songwriters whose roots ran deep in acoustic folk music.

But where Lovett and Griffith succeeded in building followings as quirky and poetic storytellers, the O'Kanes succeeded both commercially and artistically in presenting a carefully honed sound that managed to be new and modern, yet indisputably country. While they concocted an original electric/acoustic band sound with mandolin, fiddle, electric guitar, bass, drums, and accordion, their mandolin/guitar interaction and two-part vocal harmonies suggested the timeless brother duos of the past, most notably Don and Phil Everly, Ira and Charlie Louvin, and Bill and Charlie Monroe. And yet their songwriting masterfully intertwined the tenets of country and folk.

In their third album, "Imagine That," the O'Kanes make no move away from their trademark sound, even with the first-time addition of an outside producer, Allen Reynolds. Two years in the making, with ten original tunes, the album still evokes the O'Kanes' original influences while also drawing on the

Robert McDuffie (left) and Leonard Slatkin: on their mettle



BEST RECORDINGS OF THE MONTH

sounds of the Blue Sky Boys, Pee Wee King and his Golden West Cowboys, and, in *Nobody Wins*, Elvis in his Sun Records days.

Is the Party Over, which questions one couple's marital future, is a tune that could have been performed at the Grand Ole Opry decades ago. Its Merle Travis-like guitar breaks anchoring its heritage, the updated slapback beat ushering it into the revisionist present. *Tell Me I Was Dreaming* is pure Everly Brothers bliss, *Will You Travel Down This Road with Me* arrives with full-blown gospel overtones, and *Diddy All Night Long*, a vivid portrait of diner romance, recalls the slithery beat of Peggy Lee's *Fever*.

Like the music of Bill Monroe, the O'Kanes' themes revolve around love in its various incarnations and stages—love cherished,

fashioned the strongest of rural American stock. *Alanna Nash*

THE O'KANES: *Imagine That*. The O'Kanes (vocals and instrumentals); instrumental accompaniment. *Why Should I; Imagine That; Nobody Wins; Diddy All Night Long; Will You Travel Down This Road with Me; Is the Party Over; The Better to Love You; Tell Me I Was Dreaming; Climbing Mountains; This Ain't Love*. COLUMBIA © FCT 45131. © CK 45131 (29 min).

MOZART BY ÉMILE NAOUMOFF

EMILE NAOUMOFF, whose recital of Mozart piano music has just come from EMI/Angel, began performing and composing as early as Mozart himself. He was born in Sofia in 1962 and went off to Paris when he was only eight or nine—there to become one of Nadia Boulanger's youngest and last pupils, and to start winning prizes in both piano and composition before he reached his teens. He published his first piano concerto at the age of ten, and as a pianist he seems to have set Europe on its collective ear before he was twenty. Under these circumstances, it is a heartening indication of maturity and judgment that he waited till he was twenty-four to begin recording (he taped the Mozart at the end of 1986).

The reviews of Naoumoff's solo recitals and concerto performances in this country as well as in Europe suggest critics gasping for superlatives, and I found myself bracing to resist a new onslaught of hype. What is on the disc, though, is evidence of something that cannot be concocted by any sort of media blitz, and it quickly demolished any thought of resistance. Everything is so marvelously balanced in Naoumoff's playing—clarity balanced by warmth, power balanced by delicacy, animation balanced by a certain degree of sobriety, everywhere an apparently innate sense of elegance effortlessly determining the limits in the direction of accent or understatement.

If there is a certain sameness, an evenness of tenor throughout the program, it is because the music seems to have been chosen for its likeness rather than its variety. But this very aspect of his program serves to call attention to Naoumoff's remarkable gifts for pointing up contrasts in subtle ways. The sequence is framed by the contemporaneous K. 396 and 397 fantasies, with the big Fantasy in C Minor, K. 475, and the usually appended sonata in the same key as the major items. Along the way are the Rondo in A Minor and, by way of a charming intermezzo, a little "one-finger waltz" called *Das Butterbrot*, which was probably composed by Mozart's father.

EMI's French production team has come through with one of the finest recordings of a piano I have yet heard, every bit as crystalline and well balanced as Naoumoff's superb playing itself. Anyone hearing this disc must find himself eager for more from this obviously exceptional pianist, perhaps imagining the repertoire with which he may identify himself in the future. In the meantime, this recording provides solid credentials for him as one of those rare artists who define their own standards and render comparisons rather beside the point.

Richard Freed

MOZART: *Fantasies in C Minor (K. 396), D Minor (K. 397), and C Minor (K. 475); Piano Sonata No. 14, in C Minor (K. 475); Rondo in A Minor (K. 511); Waltz in C Major ("Das Butterbrot")*. Émile Naoumoff (piano). EMI/ANGEL © CDC 49274 (62 min).

Émile Naoumoff: no hype



ALAN MESSER, COLUMBIA RECORDS



Jamie O'Hara and Kieran Kane

love scorned, love fulfilled, and love lost. In song after song, they present themselves as strong supporters of hearth and home: The title song is about the search for "someone to laugh with, someone to share in my dreams," and the protagonist of *The Better to Love You* offers to become husband, father, and the builder of the bed in which he and his love would lie.

Overall, the music of the O'Kanes represents a kind of new morality in country music, a move away from the trashy lyrical and musical themes that overtook the music in the Sixties and Seventies as Nashville scurried to keep pace with rock-and-roll. Here, in the songs of two young men from Ohio and New York, thrive not only the influences and traditions of America's native music forms, but the values that

JACQUES SARRAT/EMI-PATHÉ-MARCONI

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CIRCLE NO. 103 ON READER SERVICE CARD

*Discs and tapes reviewed by
Chris Albertson, Phyl Garland,
Ron Givens, Roy Hemming,
Alanna Nash, Parke
Puterbaugh, Steve Simels*

JOHN CALE: *Songs for the Dying* (see Best of the Month, page 77)

PHIL COLLINS: . . . *But Seriously*. Phil Collins (vocals, drums, keyboards); vocal and instrumental accompaniment. *Hang In Long Enough; That's Just the Way It Is; Do You Remember?; Something Happened on the Way to Heaven; Colours*; and seven others. ATLANTIC ● SD-82050, © CS-82050, @ 82050-2 (60 min).

Performance: *Heartfelt*
Recording: *Warm*

The Eighties have stumbled to a close, and Phil Collins has suddenly discovered what U2, Peter Gabriel, and others in the rock community have known all decade long: The blue marble we call earth is in a heap of trouble. The title of Collins's new album, ". . . But Seriously," is his way of letting us know he cares, *really cares*, about the homeless, racial inequality, and social unrest.

The man must be given his due as an entertainer. He's become too mainstream for innovation—though he once blazed trails with Genesis, Brand X, Brian Eno, and John Martyn—but he does tweak the masses with thoughtful, adult pop that never stoops to pander. ". . . But Seriously" gives plenty of showbiz bang for the buck, clocking in at a full hour and running the gamut from horn-stoked rockers in the mold of *Sussudio* to pensive, keyboard-laced ballads that puzzle over failed relationships and breakdowns in communication.

Collins's beating heart shines through in song after sensitive song. "How many times can I say I'm sorry?" he importunes in *Something Happened on the Way to Heaven*. "What makes you so high and mighty?" he thunders at South Africa's racist overlords in *Colours*. Of his shortcomings as a parent, he confesses in *All of My Life*, "I didn't spend the time I should." All are sentiments any red-blooded member of the

beleaguered thirtysomething generation can identify with during drive time.

Admittedly, a few ideas here seem, uh, recycled. Didn't Bruce Hornsby already say *That's Just the Way It Is* in those same words? Isn't *I Wish It Would Rain Down* a Temptations title with one word added? Also, Collins's songs have come to assume a binary predictability—slow or fast, introverted or extroverted, ballad or blowout. On the other hand, if you enjoy his voice and soul-searching persona, ". . . But Seriously" offers, as George Clinton would say, more of what you're funk'n' for. If you're not a fan, get used to it. You're hopelessly outnumbered. *P.P.*

SHAWN COLVIN: *Steady On*. Shawn Colvin (vocals, acoustic guitar, keyboards, drum programming); vocal and instrumental accompaniment. *Steady On; Diamond in the Rough; Shotgun Down the Avalanche; Stranded; Another Long One*; and five others. COLUMBIA FC 45209, © FCT 45209, © CK 45209 (45 min).

Performance: *Arresting*
Recording: *Excellent*

Shawn Colvin comes to her Columbia debut with both the sparkle of promise

and the burden of expectation. An impressive purveyor of confessional folk-rock, Colvin enters the solo arena with the help of Steve Addabbo, Suzanne Vega's co-producer. The Vega connection runs deeper, however, as Vega contributes background vocals in one song here, just as Colvin did in Vega's *Luka*.

Such interweaving is bound to provoke artistic comparisons, and on that score Colvin will likely suffer. The two women share the same creative approach—original, acoustic-based songs dressed in light, electric folk-rock and jazz—and Colvin's album chronicles difficult relationships, growth, change, hope, and disappointment, as well as a search for communion in a disenfranchised world. There are times, as in *Shotgun Down the Avalanche* and *The Story*, when Colvin's melody, lyrics, and vocal style come together to shimmering effect. But overall her songs lack Vega's emotional drive, mystery, and tension.

That said, Colvin does know how to set a mood, and she uses her breathy soprano (reminiscent of Ricki Lee Jones at her most unadorned) to utmost effect. What she needs now is an attitude—or at least something other than

Phil Collins: plenty of showbiz bang for the buck



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overall confusion from failed romance—to help turn her eclecticism into a style of her own. When she finds that, she will stand in no one's shadow. In the meantime, "Steady On" is a most intriguing warm-up. *A.N.*

RANDY CRAWFORD: *Rich and Poor.* Randy Crawford (vocals); vocal and instrumental accompaniment. *Knockin' on Heaven's Door; Every Kind of People; Wrap-U-Up; This Is the Love; Separate Lives; Rich and Poor;* and five others. WARNER BROS. 26002-1, © 26002-4, © 26002-2 (46 min).

Performance: *Good, but . . .*
Recording: *Fine*

Randy Crawford's voice, with its distinctive timbre, has been one of my favorite sounds ever since her first appearance on record, as a teenager in a 1975 album with Cannonball Adderley. But too many of her later recordings have been undermined by mediocre songs unworthy of her vocal abilities. She fares only a little better here, being cast in a predominantly pensive mood. As usual, though she sings with sensitivity and conviction, the songs don't exactly reach out and grab you. There are some exceptions, like the opener—Bob Dylan's classic *Knockin' on Heaven's Door*—and *I Don't Feel Much Like Crying*, but not enough of them. *P.G.*

TERENCE TRENT D'ARBY: *Neither Fish nor Flesh.* Terence Trent D'Arby (vocals and instrumentals); instrumental accompaniment. *Declaration—Neither Fish nor Flesh; I Have Faith in These Desolate Times; It Feels So Good to Love Someone Like You; To Know Someone Deeply Is to Know Someone Softly; I'll Be Alright;* and seven others. COLUMBIA OC 45351, © OCT 45351, © CK 45351 (51 min).

Performance: *Dazzling*
Recording: *Excellent*

If it is the objective of Terence Trent D'Arby to defy categorization, he has certainly succeeded here. Written, produced, arranged, mixed, and largely performed by D'Arby, "Neither Fish nor Flesh," his second album, is an unbroken set of compositions reflecting traces of almost every musical style of the last sixty years. He even goes further back for the second track, *I Have Faith in These Desolate Times*, which he sings in a high, delicate voice against a lute-like accompaniment. The most impressive things about D'Arby are his ear for differing musical styles, his facility on assorted instruments, his compositional talent, and his splendid, chameleon-like voice. His lyrics reflect a real intelligence at play, and his music can be by turns rakishly rockish, gutturally gospelish, or mystically modern.

What is disconcerting about D'Arby's work is its lack of cohesion. Sometimes you want to ask, "Will the real Terence Trent D'Arby please stand up?" Despite

the blazing pyrotechnics of production and performance, D'Arby shows an odd inability to project a depth of feeling, perhaps because he covers so much ground so quickly. His music dazzles but does not hold. *P.G.*

MICHAEL FEINSTEIN: *The M.G.M. Album.* Michael Feinstein (vocals); orchestra, Ian Bernard cond. *M.G.M. Fanfare; That's Entertainment; It's a Most Unusual Day; Time After Time; Spring, Spring, Spring;* and nine others. ELEKTRA 60893-1, © 60893-4, © 60893-2 (52 min).

Performance: *His best yet*
Recording: *Close and clean*

This is more like it. After a misguided recent "stretch" into some Weill, Schoenberg, and Lehár songs of the World War I era, Michael Feinstein here returns to the American show tunes at which he excels—and again proves that few singers of his generation can put them across with as much infectious enthusiasm, un gimmicky musicality, and one-to-one vocal warmth.

This time he's chosen a terrific set of tunes from the golden age of M.G.M.'s

movie musicals. As usual, Feinstein doesn't churn up the standards everybody else has done to death but instead zeroes in mostly on gems that have been regrettably ignored with the passing years. And in an inspired touch, he's picked only songs written specifically for M.G.M. by songwriters primarily associated with Hollywood and not Broadway—which means that instead of Gershwin, Porter, or Rodgers, we get the likes of Harry Warren, Johnny Mercer, Nacio Herb Brown, and Jimmy McHugh.

Feinstein varies the pace neatly between jaunty, uptempo tunes and crooned romantic ballads. The Mercer-DePaul *Spring, Spring, Spring*, from 1954's *Seven Brides for Seven Brothers*, is the album's most ingratiating find, and Roger Edens's special introductory verse to *Singing in the Rain*, written for Judy Garland in 1940's *Little Nellie Kelly*, is a refreshing rediscovery. *R.H.*

SARA HICKMAN: *Equal Scary People.* Sara Hickman (vocals, acoustic guitar); vocal and instrumental accompaniment. *Simply; Last Night Was a Big Rain; 500X (The Train Song); Song*

Randy Crawford: in a pensive mood





Hooters John Lilley, Fran Smith, David Uosikkinen, Eric Bazilian, Rob Hyman

for My Father; Equal Scary People; and five others. ELEKTRA 60903-1, © 60903-4, © 60903-2 (39 min).

Performance: *Freewheeling*
Recording: *Varies*

Sara Hickman, a twenty-six-year-old Texan whose music has been called "a cross between a stand-up comedy routine and group therapy," arrives with her major-label debut as a potential alternative superstar. Far more whimsical than Suzanne Vega, more light-hearted than Joni Mitchell, and not nearly so out on the edge as Michelle Shocked, Hickman nonetheless hauls a typical acoustic folk act into unusual waters. In *Last Night Was a Big Rain*, she describes what seems to be a drug trip in the back seat of a car (set to the crudely miked beat of a loose-hipped garage band), then segues smoothly to the most stalwart of folk motifs, a train song, which quickly takes an unorthodox tack: "Me in the lotus/You form a pretzel.../How I long to feel the grease on my back...."

Hickman, who once hosted a Dallas cable-TV talk show called *All About Dinosaurs*, has a bit of the scamp in her personality. In *Meant to Be* she sings a love song that squirms along on sampled percussion and a pseudo-Latin beat, celebrating the emotion while simultaneously poking fun at the genre. And if she is at times too reminiscent of Joni Mitchell in both her "Clouds" and "Court and Spark" periods, Hickman is not above a kind of parody of Mitchell's

People's Parties in *Equal Scary People*. On the whole, Hickman's lyrics need more focus and a tighter aim, but she is adept at a wide range of musical styles, from jug-band jazz to Forties mood music. She also takes on the r-&-b stylings of James Brown, whose *It's a Man's, Man's, Man's World* she covers here (mistitling the song as *This Is a Man's World*) in a performance of deeper understanding than her own songs would suggest.

"Equal Scary People," made on a dime for an independent label and later picked up by Elektra, is probably just a hint of what Sara Hickman is about. With her musical maturity surely on the way, her follow-up album should be nothing short of dazzling. *A.N.*

HOOTERS: *Zig Zag*. Hooters (vocals and instrumentals); other musicians. *Brother, Don't You Walk Away; Deliver Me; 500 Miles; You Never Know Who Your Friends Are; Heaven Laughs;* and five others. COLUMBIA OC 45058, © OCT 45058, © CK 45058 (43 min).

Performance: *From the heart*
Recording: *Excellent*

It takes courage and conviction to gamble with mainstream success in order to play what you really feel, but Philadelphia's Hooters have done exactly that in their two most recent albums, "One Way Home" and the new "Zig Zag." Theirs is a bright, contemporary folk-rock hybrid that boasts the sizzle of fingers slicing across acoustic strings and

the ragged edge of voices affronted by events of the present day.

The opener, *Brother, Don't You Walk Away*, cuts into the human tragedy of homelessness with heartbreaking empathy. *Deliver Me* is a folk-rock delight, evoking brilliant autumn afternoons in New York's Washington Square circa 1965, after which the band audaciously recasts the folk classic *500 Miles* with subtle reggae accents, an original verse about the freedom struggle in China, and some helpful harmonies from Peter, Paul, and Mary. The energy level flags a bit in the second half of the set, as earnestness is troweled on in numbers like *Give the Music Back*, but the group rebounds with the irrepressibly upbeat *Mr. Big Baboon*, which sounds like the Coasters gone zydeco. All in all, "Zig Zag" is the product of a band that has ideas and the gumption to pursue them. *P.P.*

ROBERT EARL KEEN, JR.: *West Textures*. Robert Earl Keen, Jr. (vocals, rhythm guitar); Jerry Douglas (dobro); Roy Huskey, Jr. (upright bass); other musicians. *Sing One for Sister; The Road Goes On Forever; Maria; Sonora's Death Row; Mariano;* and five others. SUGAR HILL SH-1028, © SHC-1028, © SHCD-1028 (34 min).

Performance: *Skilful storytelling*
Recording: *Fine*

In the early 1980's, three names invariably came to mind whenever talk turned to the new generation of Texas songwriters: Nanci Griffith, Lyle Lovett, and Robert Earl Keen, Jr. Of the three, only Keen, whose songs sometimes showed up on records by Griffith and Lovett, failed to parlay his regional reputation into a significant national following. But that's something his second Sugar Hill release, "West Textures," is bound to change.

In his first one, "The Live Album," Keen demonstrated a droll brand of country-folk and an immensely likable "intelligent rube" personality not unlike that of Andy Griffith in *No Time for Sergeants*. In "West Textures," an eleven-song collection that draws on personal experience and reflects Keen's love for the Texas tradition and the people of his birthplace, he also shows his serious side.

Of all his skills, storytelling is one that Keen is particularly good at, whether he's painting a portrait of a solitary Mexican gardener and the mystery he holds for his employer in *Mariano*, or interpreting Kevin "Blackie" Farrell's *Sonora's Death Row*, a cowboy ballad with an O. Henry ending. But nowhere is Keen stronger than in *The Road Goes On Forever*, an original tune that employs the stories of a small-time hood and his aimless girl friend to weave a morality play about the ultimate cost of living life on the edge.

If such songs seem inherently "textured," showcasing Keen's novelistic

skill as a lyricist, producer Jim Rooney (Nanci Griffith, John Prine) follows that lead in his instrumental approach. Rooney, known for his magnificent layering of acoustic instruments, again calls on some of Nashville's best young turks, including the mesmerizing Jonathan Yudkin on fiddle and mandolin, to provide both the superb musical framework, with its thrilling fills and solos, and the drive and energy that Keen and the more pedestrian songs may sometimes lack on their own. It's to Rooney's credit that the album is as enjoyable instrumentally as vocally.

Those just coming to Keen's work may find "West Textures" a bit too much to take in one go and his voice as prickly as a cactus. But those enamored of the best tradition of Lone Star yarn-spinning will likely consider Keen a diamond in the rough. Either way, and whether he's whimsical or serious, he comes across here as a valiant outsider battling the Sawyer Brown mentality of contemporary country music. *A.N.*

TONY LEMANS. Tony LeMans (vocals); vocal and instrumental accompaniment. *Higher Than High; Itchin' to Be; Forever More; Real Thing; Good for You; Bundle of Joy;* and four others (five others on cassette and CD). PAIS-

LEY PARK/WEA 25995-1, © 95995-4, © 25995-2 (51 min).

Performance: *Rousing*
Recording: *Very good*

It doesn't take long for Tony LeMans to convince you of his talents in this debut album. One of the latest artists to be more or less discovered by Prince, LeMans wrote or co-wrote all ten selections, and he delivers them with gutsy authority and musical surefootedness. He blasts off with a rousing number called *Higher Than High*, which is dedicated to Sly Stone and is driven home with the same sort of irresistible charm and unrelenting energy that marked Sly's best work. LeMans's early work on drums is apparent in his refreshing willingness to vary rhythms while still emphasizing a strong rhythmic thrust. He draws from a broad range of influences—from Billy Preston and Sly to, of course, Prince—but only to make his own musical statement. And it is one well worth hearing. *P.G.*

THE O'KANES: *Imagine That* (see Best of the Month, page 80)

DAN REED NETWORK: *Slam.* Dan Reed Network (vocals and instrumentals). *Make It Easy; Slam; Tiger in a*

Dress; Rainbow Child; Doin' the Love Thing; Stronger Than Steel; Cruise Together; and six others. MERCURY 838 868-1, © 838 868-4, © 838 868-2 (62 min).

Performance: *Rambunctious*
Recording: *Good*

The Dan Reed Network can funk. The Dan Reed Network can rock. The Dan Reed Network can do both at the same time. The combination is frequently dazzling, as they proved in their debut album last year and as they prove again in "Slam." *Rainbow Child*, for example, recalls Jimi Hendrix and Prince. Guitarist Brion James's power riffs have a monumental quality, yet his phrasing is sinuous. The rest of the band provides delicate syncopation while Reed's high, soulful voice wafts over the instrumental support. Elsewhere there are more commonplace sounds: near-metal strutting and hard-rock slashing. But with the help of producer Nile Rodgers, the band varies the music enough to keep it interesting. The same, unfortunately, cannot be said for the lyrics. Nearly every song describes the same basic idea: I want you. Over the course of the album this simplistic sentiment, in a variety of utterly serious expressions, becomes tiresome. *R.G.*

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THE SMITHEREENS: 11. The Smithereens (vocals and instrumentals); vocal and instrumental accompaniment. *A Girl Like You; Blues Before and After; Blue Period; Baby Be Good; Room Without a View*; and five others. ENIGMA/CAPITOL CI-91194, © C4-91194, © C2-91194 (34 min).

Performance: *Lukewarm*
Recording: *Excellent*

The Smithereens' new album is a real good-news/bad-news affair. The good news (perhaps courtesy of producer Ed Stasium, who has worked wonders with everybody from the Ramones to the Searchers) is that these four guys have finally gotten as close to their sonic ideal—the Beatles meet AC/DC—as seems humanly possible. If you want big metallic guitars and ethereal harmonies, this is the album for you.

The bad news, however, is that the songwriting seems a little tired, especially after last year's eminently hummable "Green Thoughts." The Smithereens' songs have never been about anything in particular apart from songcraft itself; they stand or fall on structural cleverness and melodic appeal, and this time out they're a little parched in both regards.

That's not to say "Smithereens 11" doesn't have its pleasures. The opening single, *A Girl Like You*, will doubtless sound terrific on a car radio, the Sixties touches in the arrangement of *Blue Period* are thoroughly endearing, and the oblique tribute to Buddy Holly's widow (*Maria Elena*) is a nice idea well executed. Mostly, though, this is real in-one-ear-and-out-the-other stuff, below the band's previous high standard for pop-mongering and a big disappointment. Yet you have to love an album bearing the sincere admonition: "Remember folks, be good to your parents, they been good to you!" In short, then, not a dishonorable piece of work, but not a terribly exciting one either. *S.S.*

THE SPINNERS: Down to Business. The Spinners (vocals); instrumental accompaniment. *I'm Happy Baby; We Got Business; Heal Me; So Hard to Let You Go*; and four others (six others on CD). VOLT/FANTASY V-3403, © VC-3403, © VCD-3403-2 (47 min).

Performance: *Up-to-date soul*
Recording: *Satisfactory*

The Spinners have always embraced the elements common to the best black popular vocal groups: infectious melodies, rich harmonies, and assertive rhythms all delivered with deep feeling. They have lost nothing over the years, and this new set finds them as appealing as ever. These songs are new, but they have been shaped along traditional lines, making them sound fresh yet familiar. One of the best is the rousing opener, *I'm Happy Baby*, but the spirit never flags in any of the satisfying selections that follow. *P.G.*

PEPPER ADAMS: The Adams Effect. Pepper Adams (baritone saxophone); Frank Foster (tenor saxophone); Tommy Flanagan (piano); Ron Carter (bass); Billy Hart (drums). *Binary; Now in Our Lives; Valse Celtique*; and three others (four others on CD). UPTOWN UP 27.31, © UPCD 27.31 (49 min). Uptown Records, P.O. Box 186, Harrington Park, NJ 07640.

Performance: *Inspired*
Recording: *Excellent*

In the early Forties, when Pepper Adams heard Duke Ellington's great baritone saxophonist Harry Carney, the sound of the instrument—an unwieldy one for a twelve-year old—so impressed Adams that he immediately placed it on his list of things to tackle in the future. By 1947, he had added the baritone sax to his arsenal of smaller reed instruments and made it his main instrument. He was then a member of Lucky Thompson's band in Detroit, where he also held a less glamorous job in an auto plant. Some ten years later, Adams was heard on both coasts, working with such established colleagues as Kenny Burrell, Stan Kenton, Chet Baker, Benny Goodman, and Maynard Ferguson. A successful collaboration with trumpeter Donald Byrd firmly established Adams as a top player and led to a series of superb albums. In later years, he won a new following as a member of the Thad Jones-Mel Lewis Orchestra.

"The Adams Effect," a new release on the privately owned Uptown label, was recorded in 1985, fifteen months before Adams died. It features a quintet that reunites him with former Detroit residents Tommy Flanagan (they played together in the Thompson band), Frank Foster, and Ron Carter, with drummer Billy Hart completing the group, and it's a superbly spirited get-together. Everybody is in fine form in a program of original tunes, all but one by Adams, and you won't hear greater cohesiveness in a working group than this. Carter is particularly effective in *Valse Celtique*, a tune that reflects Adams's admiration for Ellington, and the two saxophonists share Foster's *How I Spent the Night* in a most compelling way. Flanagan's light, bouncy style has never sounded better—he is truly one of the most underrated of jazz musicians.

The CD contains a nine-minute bonus track, *Now in Our Lives*, a beautiful, brooding ballad that makes the LP version of this release seem incomplete. Don't miss it. *C.A.*

RED HOLLOWAY/CLARK TERRY SEXTET: Locksmith Blues. Clark Terry (trumpet, flugelhorn); Red Holloway (saxophones, vocal); Gerald Wiggins (piano); Phil Upchurch (guitar); other

musicians. *Red Top; Happiness Is a Thing Called Joe; Hitting the Road Again; Come Sunday; Locksmith Blues*; and four others. CONCORD © CJ-4390-C, © CCD-4390 (52 min).

Performance: *Terrific*
Recording: *Very good*

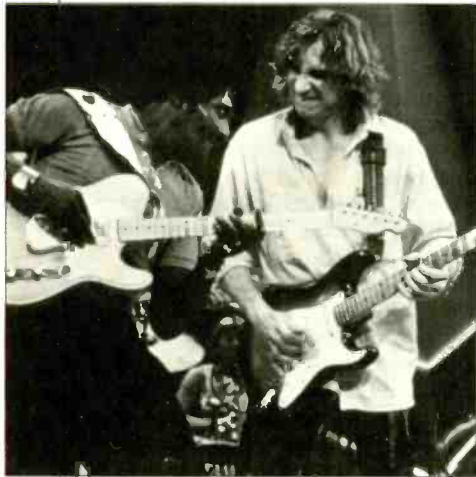
This is the kind of set that has become a staple for fans who recall, with relish, a pre-electronic era of jazz—in the Fifties and Sixties—when candid performances were called "blowing sessions" and a musician could be recognized by his tone and style. It's a lot like biting into a slice of hearty homebaked bread after a diet of the cottony commercial variety. But look who is in this sextet. Co-leaders Clark Terry and Red Holloway have been making honest music since the postwar years. "Locksmith Blues" presents both men in splendid form and gives each the opportunity to show his versatility. The solid rhythm support is led in a commanding, two-fisted fashion by pianist Gerald Wiggins and propelled decisively by Phil Upchurch, Richard Reid, and Paul Humphrey. Terry and Holloway are terrific together, whether playing a pretty ballad like *Round Midnight*, blowing the light fantastic in Ellington's *Cotton Tail*, or vocalizing humorously, as they do in the title tune. Let's hope that Holloway, a Concord Jazz regular, invites Terry aboard again soon. *C.A.*

RICK MARGITZA: Color. Rick Margitza (soprano and tenor saxophone); Joey Calderazzo (piano); other musicians. *Widow's Walk; Color Scheme; Ferriss Wheel; Our Song; Walts*; and five others (six others on CD). BLUE NOTE © B11H-92279, © B41H-92279, © B21S-92279 (55 min).

Performance: *Mixed*
Recording: *Quite good*

Thirty years ago, when I asked Lester Young how he felt about the day's young, "modern" saxophonists, he told me they all sounded the same to him, adding that he liked them nevertheless. I wonder what his response would have been if he were asked that question today, at a time when chips and wires have robbed many instruments of their character. Rick Margitza does not soup up his saxophones with electronics, but the bland, limp style that such tampering fostered has clearly influenced his playing. The result is that his work occasionally resembles the formula-ridden, uneventful style of such pop saxophonists as Kenny G and George Howard. I say occasionally, because there are also times when the twenty-seven-year-old saxophonist reflects his admiration for John Coltrane, and those are this album's hopeful moments. *C.A.*

“JAZZVISIONS”



Albert Collins (left) and Joe Walsh

JAZZVISIONS, the latest album series from PolyGram Verve, embodies what is so far a unique approach: Each recording in the series will be issued in five formats—LP, CD, audio cassette, VHS videotape, and twelve-inch CDV (videodisc with stereo digital sound). The project should not only help expand the audience for jazz but also encourage more videotaping of jazz performances—and I'm all for that.

The eight albums in the first Jazzvisions release—and despite the series title, three feature Latin music rather than jazz—were all recorded live at the Wiltern Theatre in Los Angeles in 1987. To review all eight would take more space than I have, so I'll focus on two videodiscs that fairly represent the jazz side of things.

“Jump the Blues Away” is a spirited hour of blues vocals that begins with rock guitarist Joe Walsh, segues nicely into an Albert Collins segment, and really starts to jump with the appearance of Etta James. Walsh, whose hit *Rocky Mountain Way* is included, has a scruffy but effective blues singing style, but it is as a guitarist that he really shows his talent. Collins is a better all-around performer, his most memorable contribution to these proceedings being *If Trouble Was Money*, a slow, grinding number that features Collins's wordless vocal/guitar sound and some fine support from pianist Gip Noble, whose work is excellent throughout. Also noteworthy is the harmonica playing of Michael Raphael (whose name is left out of the printed credits) and some well-stated saxophone commentary by Jerry Peterson. All play with body-moving vigor, but when Etta James boogies onto the stage, things really come alive. This lady knows the blues inside out and sideways. She also has an electrify-

ing stage presence that's clearly appreciated by the youthful, mostly white, audience. I recommend “Jump” in any format.

Unfortunately, I cannot say the same for the first of two volumes entitled “Echoes of Ellington,” which features a decent eight-piece band but is seriously marred by Dianne Reeves's excruciating vocals. If there is such a thing as a ham singer, she's it. When she's in control and dipping into Sarah Vaughan's lower register, her voice can be smooth and compelling, but most of the time she has a problem with her delivery—an annoying habit of emphasizing a lyric by either emulating Snow White at the wishing well or hacking a word to pieces in a strained, choking style that begs for the Heimlich maneuver. The band, with Roger Kellaway at the keyboard, is smooth, sometimes swinging, and appropriately tinged with Ellingtonia. An all-instrumental set would have made the grade, although the vocal side improves somewhat when singer O. C. Smith (you may remember his 1968 hit *Little Green Apples*) joins Reeves for the medley that ends the concert.

Jazzvisions is a promising series. I do wish the producers had left out the introductions by nonmusic people—Shelly Duvall and Ed Wendt look and sound pretty uncomfortable here. But there is a lot of good music in this first release, whether it's jazz, blues, Latin pop, or a combination of all three.

Chris Albertson

JUMP THE BLUES AWAY. Etta James (vocals); Albert Collins, Joe Walsh (vocals, guitar); Gip Noble (piano); Michael Raphael (harmonica); other musicians. *Walkaway; Goin' Down; The Moon Is Full; If Trouble Was Money; Baby, What You Want Me to Do; Sweet Little Angel; The Blues Don't Care; Rocky Mountain Way; Rock Me Baby.* VERVE ● 841 287-1, © 841 287-4, © 641 287-2, VHS 081 333-3, CDV 081 333-1 (59 min).

ECHOES OF ELLINGTON, VOL. 1. Randy Brecker (trumpet); Bill Evans, Tom Scott, Pete Jolly (saxophones); Roger Kellaway (piano); Andrew Simpkins (bass); Dianne Reeves, O. C. Smith (vocals); other musicians. *I Don't Mean a Thing (If It Ain't Got That Swing); In a Sentimental Mood; Mood Indigo; Prelude to a Kiss; Ring Dem Bells; I Got It Bad (And That Ain't Good); I'm Just a Lucky So and So; Medley—Do Nothin' Till You Hear From Me/Don't Get Around Much Anymore.* VERVE ● 841 288-1, © 841 288-4, © 841 288-2, VHS 081 335-3, CDV 081 335-1 (60 min).



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THE BIG PAYBACK

by Steve Simels

EVERY now and then—usually it's when a date is worrying about whether I'll be able to pick up a dinner check—people ask me why I got into the rock-criticism business. I generally have no ready answer. Obviously, it's not for the money; among big-name rock crits, only Dave Marsh, of *Book of Rock Lists* fame, has ever, as they say, Gone Platinum. And it's not for respect, either. As you've probably noticed, there are no statues of rock critics.

So why did I get into such an underappreciated profession? Well, I could give you a lot of hoo-hah about loving the music, but what it basically comes down to is what it comes down to in any job in the arts—the perks. And in rock criticism one of the biggest perks is getting all the free records one can handle without moving to a bigger apartment.

That being the case, of course, it occasionally behooves us to earn our keep and let readers know which of the freebies that cram our mailboxes actually delight us. Call this critical Calvinism, call it Jewish guilt, call it late for dinner, but whatever you call it, for me it's payback time, at least this month.

Among the most entertaining oddities I've received of late—and certainly the least expected—are two CD anthologies from the fledgling Sundazed label, "The Fabulous Knickerbockers" and "The Five Americans." Astute readers, of course, will recognize those two bands as prototypical Sixties garage-punk outfits. The Knickerbockers' big hit was the eerily Beatlesque *Lies* (appropriated in several recent commercials), and the Five Americans resonate in our collective unconscious thanks to *Western Union*, their smash mélange of Tex-Mex and Liverpool. But both groups had a lot more first-rate material at their disposal, and these new CD's immortalize them in generally exemplary fashion. Both discs are generous (twenty-plus tracks), just about everything was digitally remastered from original archival multitracks,

there are extensive liner-note interviews with various band members, and the graphics are terrific.

Sundazed is the brainchild of writer and rock historian Bob Irwin, who conceived the label to fill the gap left when Rhino Records decided to concentrate on slightly better-known acts. Irwin has some interesting projects in the works for next year—for example, he's digitizing sixty hours of unreleased mid-Sixties live soundboard tapes of the Trashmen, if you can believe it—and on the basis of these two CD's I'd say that he's got the label off to a sensational start. If your local store doesn't stock his discs, you can order them direct from Sundazed at P.O. Box 85, 27 Church St., Coxsackie, NY 12051; the CD's cost \$13.98 each plus \$2 per order for postage and handling.

Moving from the sublime to the terrifying, I should note at this juncture a couple of releases from Performance, an equally obscure outfit conceived and run in New Jersey. Like Sundazed, Performance has Sixties punk acts on its roster, with two great compilations just out by the Syndicate of Sound (highlight: the neatly misogynist *Hey Little Girl!*) and the Music Explosion (highlight: *Little Bit o' Soul*, most recently covered by Tom Petty). But Performance's corporate sensibility also extends to stuff that heretofore would have been released only in the Twilight Zone—such as LP and CD versions of the complete soundtrack to *Plan 9 from Outer Space*, the 1958 Edward D. Wood, Jr., science-fiction epic that's been called the worst film ever made.

Actually, Danny Peary's liner notes make an interesting case for the picture as a misunderstood and ahead-of-its-time antinuke statement. But whatever you think of *Plan 9*, you'll have to admit that the wizards who invented the CD probably never imagined it would be put to such an improbable use. I know I didn't.

Other notable records from Performance include a reissue of a mid-Seventies concert set by the late Velvet Underground chanteuse Nico and (I am not making this up) a folk album recorded by Charles Manson before his mass-murder spree put an end to what was on the evidence never going to be a flourishing music career. For information on these and upcoming Bizarro World releases from the obviously demented folks at Performance, write to them at P.O. Box 156, New Brunswick, NJ 08901.

And, finally, bouquets to the guys and gals at the aforementioned Rhino Records, who continue to do exemplary work both archival (their Todd Rundgren anthology) and new (the latest Exene Cervenka set). In fact, Rhino has recently released a collection—"The Best of the Blues Project"—that has given me more pleasure than any other music this year. The package (get the CD, naturally) rescues the reputation of a legendary mid-Sixties New York City band that had been scandalously underrepresented in the catalog; it's cannily programmed (including singles even devout fans may have forgotten), nicely annotated (by STEREO REVIEW Contributing Editor Parke Puterbaugh), and beautifully remastered. □

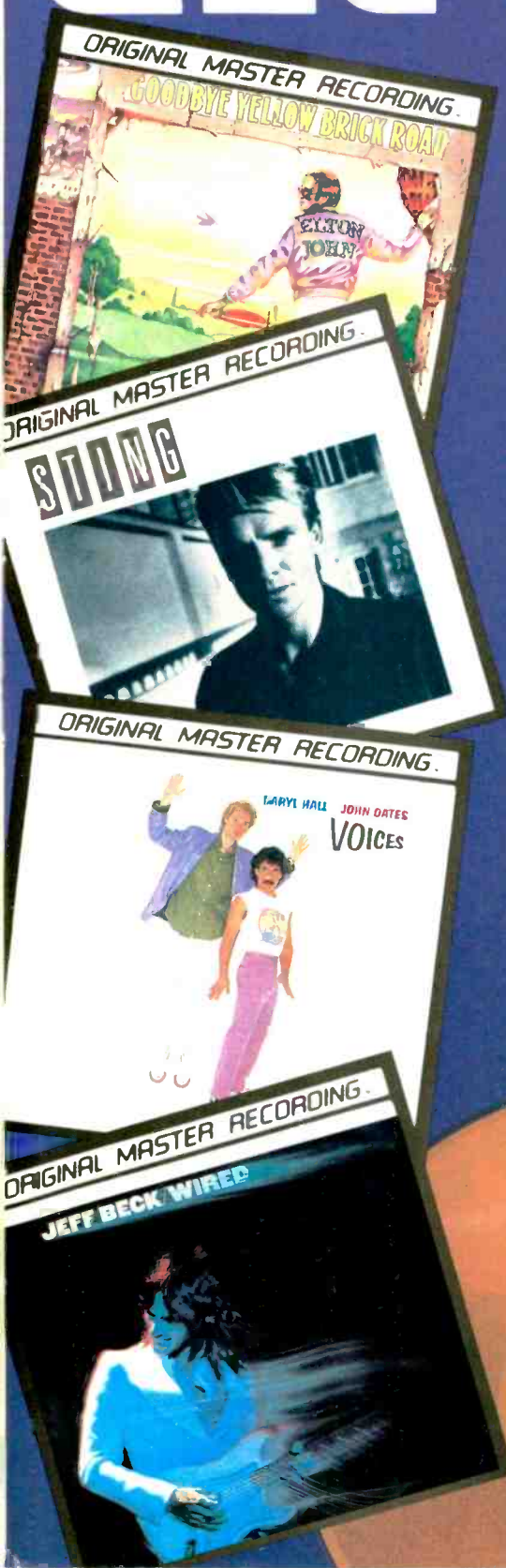
The Fabulous Knickerbockers: a prototypical Sixties garage band that's immortalized in a CD anthology on the new Sundazed label



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Discs and tapes reviewed by Robert Ackart, Richard Freed, David Hall, Stoddard Lincoln, Eric Salzman, and David Patrick Stearns

J. S. BACH: *Goldberg Variations*. Keith Jarrett (harpsichord). ECM © 1395 (62 min).

Performance: *Vital*
Recording: *Lovely*

For this recording of the *Goldberg Variations*, Keith Jarrett has wisely abandoned the grand piano he used in his earlier ECM recording of Bach's *Well-Tempered Clavier*, Book 1. The harpsichord makes for greater sonic clarity, and Jarrett is able to come much closer to his stated goal of achieving an "ultimate objectivity" in Bach interpretation. While one looks in vain for anything distinctive in his middle-of-the-road approach to tempos and discreet use of ornamentation, it is possible to sense his delight in the musical logic of the piece. Jarrett's performance has a lot to offer, but not so much as to recommend it over the more deeply considered harpsichord recordings of the work by Ton Koopman on Erato and Scott Ross on EMI. *D.P.S.*

BEETHOVEN: *Piano Sonatas: No. 17, in D Minor, Op. 31, No. 2 ("The Tempest"); No. 21, in C Major, Op. 53 ("Waldstein"); No. 25, in G Major, Op. 79; No. 26, in E-flat Major, Op. 81a ("Les Adieux")*. Maurizio Pollini (piano). DEUTSCHE GRAMMOPHON © 427 642-2 (72 min).

Performance: *Aristocratic*
Recording: *Just fine*

There is no pianist more aristocratic than Maurizio Pollini, if I may use that term to embrace fastidiousness, unfeigned elegance, and all-round high purposefulness. To some listeners, I'm aware, it connotes something more like "cool," or even "aloof," and in parts of the two most popular of the four sonatas here, his playing may bolster such an impression. In the first movement of the *Waldstein* and the last of *The Tempest*, one may feel that Pollini is giving us little more than note-spinning—in



Christopher Hogwood

HOGWOOD'S BEETHOVEN NINTH

THE release of the Ninth Symphony completes Christopher Hogwood's Beethoven cycle on L'Oiseau-Lyre. For this "historically informed" realization of the work by his Academy of Ancient Music, Hogwood follows the common Classical practice of doubling the woodwinds in the orchestral tutti, using an orchestra of eighty-nine players, and he employs a large chorus in the finale. The result is an overall sound that is decidedly in accord with what we are used to from modern instruments, but at the same time it retains the more just balances and greater clarity of texture typical of performances using period-style instruments.

The performance itself, like Roger Norrington's earlier, much-praised one on EMI, follows Beethoven's metronome markings, though in general the atmosphere of Hogwood's performance is less intense than Norrington's. Thus, we get a slower than usual trio in the scherzo, a slow-movement tempo that emphasizes lyrical flow rather than the "mystical rapture" cultivated by, say, Furtwängler, and a double-bass recitative that adheres not to free-speech rhythms but to Beethoven's injunction that it be "in tempo." Likewise, the *alla marcia* with tenor solo is taken not at a military pace but at a rather comfortable amble, nor does the orchestral fugato seem at all headlong.

Hogwood's vocal forces are definitely ahead of Norrington's. His soloists function superbly as a team, and both the bass, Gregory Reinhart, and the tenor, Anthony Rolfe Johnson, are distinguished by their firm delivery. The London Symphony Chorus sounds a bit recessed in its initial "Freude!" exclamations, but elsewhere balances are as they should be, and the sonic impact and enthusiasm of these hundred singers carry matters to a properly triumphant conclusion. I also like the warm sound of Hogwood's recording locale, the spacious Walthamstow Assembly Hall, better than the studio ambience of Norrington's.

While both Hogwood and Norrington offer attractive alternatives to the familiar modern-style readings of the Beethoven Ninth, Hogwood works on a bigger scale of sonority and emphasizes the singing line—most successfully, I think, in his expansive treatment of the finale. In the end, though, I am quite happy to own both. *David Hall*

BEETHOVEN: *Symphony No. 9, in D Minor, Op. 125 ("Choral")*. Arleen Augér (soprano); Catherine Robbin (contralto); Anthony Rolfe Johnson (tenor); Gregory Reinhart (bass); London Symphony Chorus; Academy of Ancient Music, Christopher Hogwood cond. L'OISEAU-LYRE © 425 517-4, © 425 517-2 (63 min).

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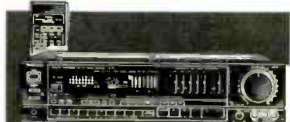
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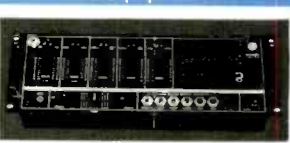
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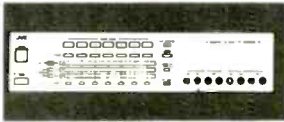
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the former to allow the time to pass till he can get at the parts of the work that interest him, and in the latter because he is too impatient to deal with the music on its own terms. But in the rest of these two sonatas and all of the G Major and *Les Adieux*, the playing is bewitching.

The G Major, in particular, a sonata relatively neglected in the recital room, exudes all the wit and considerable

as a "Masque for the entertainment of the King," it is actually a short opera in three acts and a prologue. First performed before the court in Oxford in 1681 with Charles II's second mistress, Moll Davis, and her nine-year-old daughter, Mary Tudor, as Venus and Cupid, respectively, *Venus and Adonis* preceded Purcell's *Dido and Aeneas* by some eight years and must be considered England's first opera. And not only

work together as a single dramatic statement. This excellent recording belongs in the collection of every lover of early music. S.L.

DVOŘÁK: *Symphony No. 8, in G Major, Op. 88; Scherzo capriccioso, Op. 66; Notturmo in B Major, Op. 40.* Los Angeles Philharmonic Orchestra. André Previn cond. TELARC © CD-80206 (57 min).

Performance: *Warmhearted*
Recording: *Soft-contoured*

Those who like their Dvořák more soft-contoured than hard-edged will enjoy this André Previn-Los Angeles Philharmonic recording. The conductor's approach to the Eighth Symphony is affectionate, freely lyrical, and attentive to inner woodwind detail and delicate countermelody elements. The beguiling third movement has just the right lilting quality, in the central section especially, and the finale has ample punch and brilliance, even in Royce Hall, which tends to favor the lower end of the tonal spectrum.

As in the symphony, it is the lyrical elements of the *Scherzo capriccioso* that show to best advantage here, though the innately scintillating quality of the climaxes seems a bit muffled by the acoustic ambience. The lovely *Notturmo*, adapted from an early string quartet, is made to order for the Royce Hall acoustic, and the Los Angeles string players clearly relish every note. D.H.

GOUNOD: *Messe chorale.* SAINT-SAËNS: *Messe, Op. 4.* Soloists: Marie-Claire Alain (organ); Ensemble Vocale de Lausanne, Michel Corboz cond. ERATO © ECD 75540 (68 min).

Performance: *Lovely*
Recording: *Just right*

These Masses by two nineteenth-century French composers known for their basically secular temperaments are, you'll find, quite sincere—and worthwhile listening when approached as early efforts by major musical minds. Whether by tradition or choice, both Saint-Saëns and Gounod limited themselves to settings of the Mass that fell well within the traditions of their day, and both works are more contemplative than descriptive. The Gounod could hardly be more lyrical, appealing, and, in its own way, quietly moving at various key points. The Saint-Saëns, heard here in an organ transcription, seems to attempt more frequently to break with tradition. But aside from some dramatic, Berliozian gestures, it doesn't reach any genuinely new ground. The results are sometimes novel, sometimes clumsy, occasionally long-winded, but well worth hearing. The attractive performances, with the imposing presence of organist Marie-Claire Alain as well as conductor Michel Corboz at his most judicious, make this recording a pleasant break from the heaven-storming



Maurizio Pollini: bewitching Beethoven

charm Beethoven wrote into it, without giving up anything of the aforementioned "aristocratic" approach. It's as if Pollini were mindful that Beethoven, even in his "unbuttoned" moments, was a true Olympian. In any event, for the two later sonatas and a good deal in the two earlier ones, this recording strikes me as indispensable, as I imagine it will anyone who gets a chance to hear it. The sound is just fine. R.F.

BERNSTEIN: *Serenade for Violin, String Orchestra, Harp, and Percussion* (see Best of the Month, page 80)

BLOW: *Venus and Adonis.* Nancy Argenta (soprano). Cupid; Lynne Dawson (soprano). Venus; Stephen Varcoe (bass). Adonis; Rogers Covey-Crump (tenor). Huntsman; Emily Van Evera (soprano). Shepherdess; others. Chorus: London Baroque. Charles Medlam cond. HARMONIA MUNDI HMC © 40.1276, © 90.1276 (50 min).

Performance: *Exquisite*
Recording: *Excellent*

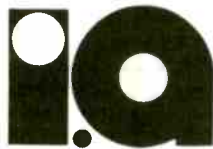
Although the original manuscript describes John Blow's *Venus and Adonis*

is it Blow's operatic masterpiece, but it rivals the Purcell in quality, if not in popularity.

The most amazing aspect of the work is the tremendous variety of characterizations crammed into less than an hour of performance time. The chorus alternately portrays shepherds and shepherdesses, courtiers, huntsmen, cupids, and graces, and Blow skillfully identified each group by varying the style of his choral writing. But the musical centerpiece of the opera is the sensitive vocal writing for the two lovers. Lynne Dawson as Venus and Stephen Varcoe as Adonis sing these roles exquisitely and with exemplary diction, while Nancy Argenta's Cupid is piping crisp. Her spelling lesson for the little cupids, a sharp commentary on the cynicism of the Restoration court, is appropriately pointed.

Special mention must be made of Nigel North's continuo playing on the theorbo. His realizations are rich and inventive, and his treatment of the solo figured-bass line that follows Adonis's death in Venus's arms is especially moving. Charles Medlam's overall pacing succeeds beautifully in holding the

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RUSSIAN SPIRIT



Gidon Kremer, Daniel Phillips, Yo-Yo Ma, Kim Kashkashian

At his Lockenhaus Festival in Austria and wherever else he undertakes chamber-music projects, Gidon Kremer brings together associates who are serious about making music together, musicians who are not content to be just a bunch of all-stars coasting on their names. He and various associates have recorded two of Shostakovich's late string quartets at Lockenhaus—Nos. 13 and 14, for ECM—and now CBS has released No. 15, recorded live at the 92nd Street Y in New York in 1985, together with a 1988 recording of a duo sonata for violin and cello by Sofia Gubaidulina called *Rejoice!* Yo-Yo Ma is the cellist in both works; in the Shostakovich the second violinist is Daniel Phillips and the violist is Kim Kashkashian, both Lockenhaus regulars. Both the works themselves and the performances are remarkable for their spiritual power—a phrase one needn't be the least bit embarrassed about using to describe them.

The last of Shostakovich's fifteen quartets has been, as Laurel E. Fay observes in her annotation, "widely regarded as the composer's private requiem." Its unusual form comprises six movements all marked adagio and played without pause; the first (and longest) movement is designated an Elegy, the penultimate (and slowest) one a Funeral March. Kremer and his associates take a somewhat starker view here than the Taneyev Quartet, which gave the première in November 1974 and recorded the work at that time, or the Fitzwilliam Quartet, the British foursome that disbanded not long after fulfilling its preordained mission of recording all the Shostakovich quartets.

The phrasing in the new performance is more angular here and there, the silences seem deeper and more emphatic, and there is, above all, a sense of spiritual *weight* that dictates more deliberate pacing overall.

As compelling as the performance of the Shostakovich is, the duo sonata *Rejoice!* by Gubaidulina, whose music Kremer has so conspicuously championed, is the real discovery of this release. Like the violin concerto *Offertorium* (Kremer's recording of which I reviewed in January) and several of her other works, this one, composed nine years ago, has titles, both for the work as a whole and for each of its five movements, with religious connotations. But it is not a "devotional" work in any conventional sense, and it does not convey the notion of "rejoicing" in a way at all conventional; Laurel Fay quotes the composer as calling it "a metaphor for the transition into an 'other' reality through the juxtaposition of normal sound with that of harmonics." Unlike far too much other music of our time, Gubaidulina's is more interesting in the actual hearing than it is to read about, and this stunning performance of *Rejoice!* should do much to create an audience eager for more. CBS has come through with vivid, well-balanced sound in both works, and I didn't notice a peep from the audience in the Shostakovich. *Richard Freed*

SHOSTAKOVICH: *String Quartet No. 15, in E-flat Minor, Op. 144.* Gidon Kremer, Daniel Phillips (violin); Kim Kashkashian (viola); Yo-Yo Ma (cello). **GUBAIDULINA:** *Rejoice!* Gidon Kremer (violin); Yo-Yo Ma (cello). CBS © MK 44924 (68 min).

profundities of greater, more familiar works. *D.P.S.*

HANDEL: *Concerti grossi, Op. 6, Nos. 1-4.* Guildhall String Ensemble, Robert Salter cond. RCA © 7895-2-RC (45 min).

Performance: *Spirited*
Recording: *Fine*

What with all the early-music ensembles of period instruments coming out of London, it is a pleasure to know that the state of string playing on modern instruments is also in good form. This recording by the Guildhall String Ensemble, formed in 1981 by outstanding students of that excellent school of music and drama, is refreshing to hear. The tone is clear and bright, and the ensemble plays with a vitality that brings joy to the music. Their excellent reading of the first four concertos of Handel's Op. 6 certainly attests to the validity of this wonderful music on modern instruments. *S.L.*

MOZART: *Piano Music* (see Best of the Month, page 81)

MOZART: *Requiem in D Minor (K. 626).* Marie McLaughlin, Maria Ewing (soprano); Jerry Hadley (tenor); Cornelius Hauptmann (bass); Bavarian Radio Chorus and Symphony Orchestra, Leonard Bernstein cond. DEUTSCHE GRAMMOPHON © 427 353-2 (59 min).

Performance: *Superb*
Recording: *First-rate*

Since Leonard Bernstein has been favoring more and more deliberate tempos in his performances over the last few years, I would have expected this reading of the Mozart Requiem to be of "monumental" proportions and invested with a "monumental" weight to match. But, of course, one can never make assumptions when such an artist is concerned, and in the event the performance is one whose fervency is sustained with an exceptionally natural momentum. Its conviction is carried not by overlaid emphases but by singing lines, with the most unforced beauty in evidence from both the vocal and instrumental participants from first note to last. It is, in a word, the most persuasive account of this still problematic work I have ever heard, one likely to change a lot of attitudes toward it from grudging respect to profound affection.

Bernstein has chosen the edition produced in 1971 by Franz Beyer, which makes at least as much sense as any other, and he has chosen four soloists who are simply superb. Some listeners, I imagine, may feel Cornelius Hauptmann's voice is a little light for the "*Tuba mirum*," but such a response is most likely based on some exaggerated traditions of the past. The two sopranos are heart-meltingly lovely in the "*Recordare*," and Jerry Hadley has by now made the tenor part in this work pretty

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much his own—one might even say, made himself *its* own. The chorus and orchestra give their very best and perhaps a little more for Bernstein, who has dedicated the recording, made live in the fabulous-looking Baroque church at Diessen in Ammersee, Bavaria, a year and a half ago, to the memory of his wife, the actress Felicia Montealegre (shown on the booklet cover in Carl Van Vechten's photograph of her in the role of Saint Joan). The sound quality is absolutely first-rate, without a murmur from the audience, and there is a very comprehensive background note on the Requiem by Peter Branscombe. *R.F.*

SAINT-SAËNS: *Messe, Op. 4* (see GOUNOD)

SCHUMAN: *Violin Concerto* (see Best of the Month, page 80)

VIVALDI: *The Four Seasons*. Nigel Kennedy (violin); English Chamber Orchestra, Nigel Kennedy cond. EMI/ANGEL © 4DS-49557, © CDC-49557 (40 min).

Performance: *Original*
Recording: *Fine*

The young British violinist Nigel Kennedy isn't one to record something unless he has strong views on it. And while *The Four Seasons* is about the last thing you'd expect from a "serious" artist who sports a punk hairdo and leads his own part-time rock band, Kennedy's new recording projects a distinctive view of Vivaldi's oft-played music. His performances in the brisk outer movements are pretty much business as usual, but the slow movements are distinguished by an intensely lyrical, warmly Italianate style and expressive, judicious use of vibrato. In the slow movement of the *Autumn* concerto, for instance, he does some bewitching things with harmonics, and his cadenzas are full of all kinds of eccentric glissandos. It's not a particularly full CD, but if you want a new recording of this work on modern instruments, it may challenge and delight you. *D.P.S.*

WEILL: *Violin Concerto, Op. 12; Kiddush; Kleine Dreigroschenmusik*. Yuval Waldman (violin); Grayson Hirst (tenor); Ray Pellerin (organ); Amor Artis Chamber Choir and Orchestra, Johannes Somary cond. NEWPORT CLASSIC © NCD 60098 (55 min).

Performance: *Okay*
Recording: *Vivid*

Kurt Weill's Violin Concerto, said to be his next-to-last symphonic work, was written in 1924—before any of the stage works for which he is now remembered. It is cast in his early modern-music style—somewhere between, say, Hindemith and Prokofiev. The wind-band version of the *Threepenny Opera* music, commissioned by Otto Klemperer shortly after the work's initial success,

dates from 1928. *Kiddush* was written for the seventy-fifth anniversary of the Park Avenue Synagogue in New York (five other composers were also commissioned—Roy Harris, Darius Milhaud, Ernest Bloch, David Diamond, and William Grant Still); it was dedicated by Weill to the memory of his father, a synagogue cantor.

The stylistic range here is astonishing. From the dissonant lyricism of the concerto to the biting wit of the *Little Threepenny Music* (emphasized by the scoring for winds) to the bluesy cantorial romanticism of the *Kiddush* is a leap or two. Everything Weill did was, of course, touched with the magic of his particular personality, but it is still the *Threepenny Music* that takes center stage, especially in this deliciously wicked arrangement by the master himself. The performances are okay, and the vivid recording works well for the instrumental works, less well for the *Kiddush*, where the voices are a bit too close for comfort. *E.S.*

COLLECTIONS

VLADIMIR HOROWITZ: *Horowitz at Home*. Mozart: *Piano Sonata in B-flat Major (K. 281); Adagio in B Minor (K. 540); Rondo in D Major (K. 485)*. Schubert: *Moment musical in F Minor, Op. 94 (D. 780), No. 3*. Schubert/Liszt: *Ständchen; Soirées de Vienne, Valses-Caprices Nos. 6 and 7*. Vladimir Horowitz (piano). DEUTSCHE GRAMMOPHON © 427 772-1, © 427 772-4, © 427 772-2 (54 min).

Performance: *Wizardry*
Recording: *Well-focused*

Shortly after the death of Vladimir Horowitz last November, Deutsche Grammophon issued this collection of Mozart, Schubert, and Schubert/Liszt under the title "Horowitz at Home." The performances were all taped over a period of time in the great pianist's apartment, but the heading is equally justified by both the choice of repertoire and the way it is presented. Nothing grand-scaled here, no pyrotechnical display, but music and musicmaking characterized by lyricism and warmth of heart—to make one feel "at home." The wizardry that is inevitably involved makes it clear enough *whose* home. Who else could have made Mozart's early Sonata in B-flat Major (K. 281) at once so crisp and so caressing?

"All my life," Horowitz wrote in his own annotation, "I have considered music of all periods romantic. . . . And shouldn't the performer listen to his heart rather than to intellectual concepts of how to play Classical, Romantic, or any other style of music?" Yet how aristocratically Classical his approach to the two shorter pieces happened to be: The K. 540 Adagio presses forward with the convincing momentum that reminds us such a designation was so often for Mozart and

Haydn more an indication of mood than of speed, and the more familiar K. 485 Rondo, while "playful and happy," as Horowitz noted, unostentatiously excludes an air of substance and depth, as if to remind us that the piece may well have been conceived in part as a sort of memorial to Johann Christian Bach, from whom the theme was borrowed.

Liszt's transcriptions, or paraphrases, of Schubert's *Ständchen* and two of the waltzes worked over to form the *Soirées de Vienne* produced a sequence Horowitz found especially appealing—as anyone must whose ears are on straight. By way of a brief interlude between Schubert/Liszt and the Mozart portion of the disc is one of the tiniest of Schubert's original piano pieces, the *Moment musical* No. 3, in F Minor, whose childlike directness parallels that of another favorite Horowitz encore, Schumann's *Täumerei*. The sound is focused just



Itzhak Perlman: a celebration

right to enhance the overall feeling of intimacy, with a suggestion of being in a living room, and yet not too close; the softest notes are not lost, the loudest ones do not overwhelm. Horowitz, of course, left many more impressive memorials to his unique artistry, but none more endearing. *R.F.*

ITZHAK PERLMAN: *A Tribute to Jascha Heifetz*. Ponce (arr. Heifetz): *Estrellita*. Moszkowski (arr. Sarasate, ed. Heifetz): *Guitarre, Op. 45, No. 2*. Drigo (arr. Heifetz): *Valse bluette*. Rachmaninoff (arr. Heifetz): *It's Peaceful Here, Op. 21, No. 7*. Ravel (arr. Heifetz): *Valses nobles et sentimentales Nos. 6 and 7*. Chopin (arr. Heifetz): *Nocturne in E-flat Major, Op. 55 No. 2*. Poulenc (arr. Heifetz): *Presto*. Saint-Saëns (arr. Heifetz): *Carnival of the Animals*. The Swan. Gershwin (arr. Heifetz): *Three Preludes*. Albéniz (arr. Heifetz): *Suite española, Op. 47, Sevilla*. Rameau (arr. Heifetz): *Rigaudon*. And

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five others. Itzhak Perlman (violin); Samuel Sanders (piano). EMI/ANGEL © 4DS-49604, © CDC-49604 (60 min).

Performance: *Good to excellent*
Recording: *Violin too close*

A recording bearing the names of both Jascha Heifetz and Itzhak Perlman is so assured of success that a review may seem gratuitous—and yet one is more or less demanded, simply by way of celebrating the disc's arrival. Perlman has spoken frequently and sincerely of his great admiration for Heifetz, and in a sense it is a tribute indeed to perform an hour's worth of Heifetz transcriptions and arrangements without attempting to imitate Heifetz himself. That matchless artist enriched his—and his fellow fiddlers'—supply of encore material by producing nearly two hundred such pieces. In some cases it was after having played someone else's version of the same music (he performed and twice recorded his teacher Leopold Auer's arrangement of Drigo's *Valse bluette* before undertaking his own setting), in some cases he embellished rather than rejecting outright a previously created arrangement, but in most cases he worked directly from the originals.

The nineteen pieces Perlman has selected present a good idea of the variety of the Heifetz arrangements in terms of both source and style. Some come off more successfully than others. The Chopin nocturne is not, in its original form, one of the most popular ones, but Heifetz made an exquisite and, of course, thoroughly violinistic little tone poem of it, and Perlman goes to its heart, as he does also in the pieces by Ponce (*Estrellita*), Albéniz, (*Sevilla*), Debussy (*Golliwog's Cakewalk*), and Achron (*Hebrew Melody*). Elsewhere the charm that is, after all, the *raison d'être* for such pieces is less consistently evident. If that element is hard to define, it is perhaps harder to produce on demand, even on the part of a musician who projects such joy in making music as Perlman always does. It is disappointingly absent in the Drigo, one of the most notoriously charming pieces ever concocted in three-quarter time, and in the waltzes by Ravel. In Schumann's *Prophetic Bird* and the Saint-Saëns Swan, as in the Rachmaninoff (a song most of us know as *How Fair This Spot*), Perlman seems to be trying to capture the elusive element by means of overinflection.

The recorded balance is not a big help. While Heifetz wrote his accompaniments as skillfully and imaginatively as he did the violin parts, Perlman is consistently placed so close to the microphone that Samuel Sanders's characteristically fluent and tasteful piano is just not as much a part of the aural picture as it ought to be. But one must be deep in terminal curmudgeonhood to go on picking nits when there is so much to enjoy and when the musical impulse that motivated this tribute is so warmly apparent. R.F.

“DAS RHEINGOLD”



Conductor Bernard Haitink

COMPOSED in one long act, *Das Rheingold* is shorter than the other three operas that make up Wagner's great tetralogy *Der Ring des Nibelungen*, but it is no less a masterpiece. And in EMI/Angel's new recording, the second installment of a complete digital *Ring* cycle conducted by Bernard Haitink, *Rheingold* receives the masterly performance it deserves.

To my ear it is more convincing than Angel's *Die Walküre*, which preceded it. Everything here seems just right—the balances between voices and orchestra, the placement of singers within the stereo spread, and a sound quality that suggests neither stage nor studio, but the rocks, crags, and caves where the action takes place.

The same sense of rightness extends to the cast, who sound not like a group of singers making a recording but like the giants, gods, mermaids, and dwarves the opera is about. James Morris is wonderful as the young Wotan—by turns wily, merciless, arrogant, and majestic. Theo Adam, for decades a leading Wotan, is quite effective here in the role of Alberich, the Nibelung who made the ring. The Fricka and Erda both sound attractive enough to hold a god's attention, and I liked Heinz Zednik's unmannered Loge.

The Bavarian Radio Symphony may not be the equal of the orchestra of the Metropolitan Opera, but it plays very well for Haitink, who can emphasize the prettiness of the score's lyrical passages

without fussiness. At the sonic climaxes the hammers and anvils of the Nibelungs are impressively clangorous, and a satisfying thunderclap accompanies the creation of the Rainbow Bridge, but nothing is exaggerated.

This set's playing time of a hundred and forty-nine minutes is three minutes longer than the ones by Solti (London) and Karajan (Deutsche Grammophon), probably because of the measured pace Haitink gives to the final scene, reflecting the onward flow of the Rhine River as it winds through these powerful myths set to music. The sense of immediacy and rightness that pervades this recording may make it the audio equivalent of the visually realistic *Ring* productions now returning to American opera houses. William Livingstone

WAGNER: *Das Rheingold*. James Morris (baritone), Wotan; Marjana Lipovšek (mezzo-soprano), Fricka; Heinz Zednik (tenor), Loge; Theo Adam (baritone), Alberich; Peter Haage (tenor), Mime; Andreas Schmidt (baritone), Donner; Peter Seiffert (tenor), Froh; Eva Johansson (soprano), Freia; Jadwiga Rappé (contralto), Erda; Hans Tschammer (bass), Fasolt; Kurt Rydl (bass), Fafner; Julie Kaufmann (soprano), Woglinde; Silvia Herman (soprano), Wellgunde; Susan Quittmeyer (mezzo-soprano), Flosshilde. Bavarian Radio Symphony Orchestra, Bernard Haitink cond. EMI/ANGEL CDCB 49853 two CD's (149 min).

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MD Baltimore: Soundscape • Gaithersburg: Audio Buys

MI Ann Arbor: Hi Fi Buys • Birmingham: Almas Hi Fi • Dearborn: Almas Hi Fi • Farmington Hills: Almas Hi Fi • Flint: Stereo Center • Grand Rapids: Classic Stereo • Iron Mountain: Sound North • Kalamazoo: Classic Stereo • Lansing: Midland: Hi Fi Buys • Petoskey: Kurtz Music • Rochester: Sound Choice • Saginaw: Court SJ Listening Room • Traverse City: Kurtz Music

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MS Columbus: Hooper's • Gulfport: Hooper's • Hattisburg: McTelland TV • Jackson: Hooper's • Pascagoula: Empress • Hooper's

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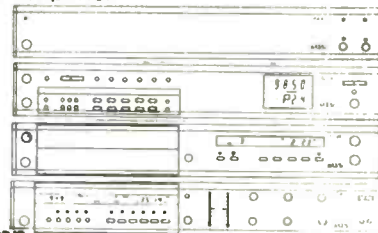
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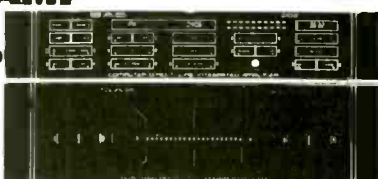
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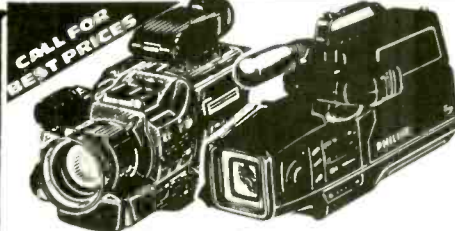
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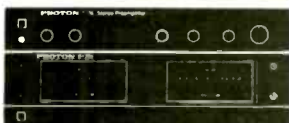
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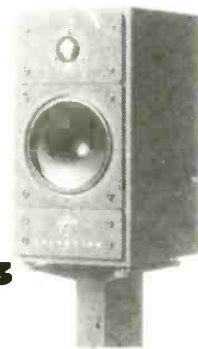
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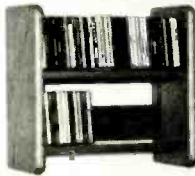
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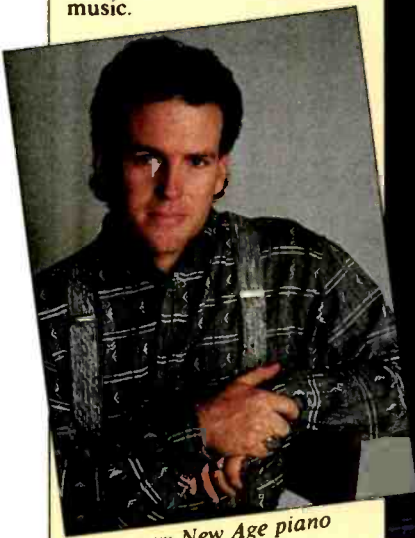
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by Christie Barter
& Ron Givens

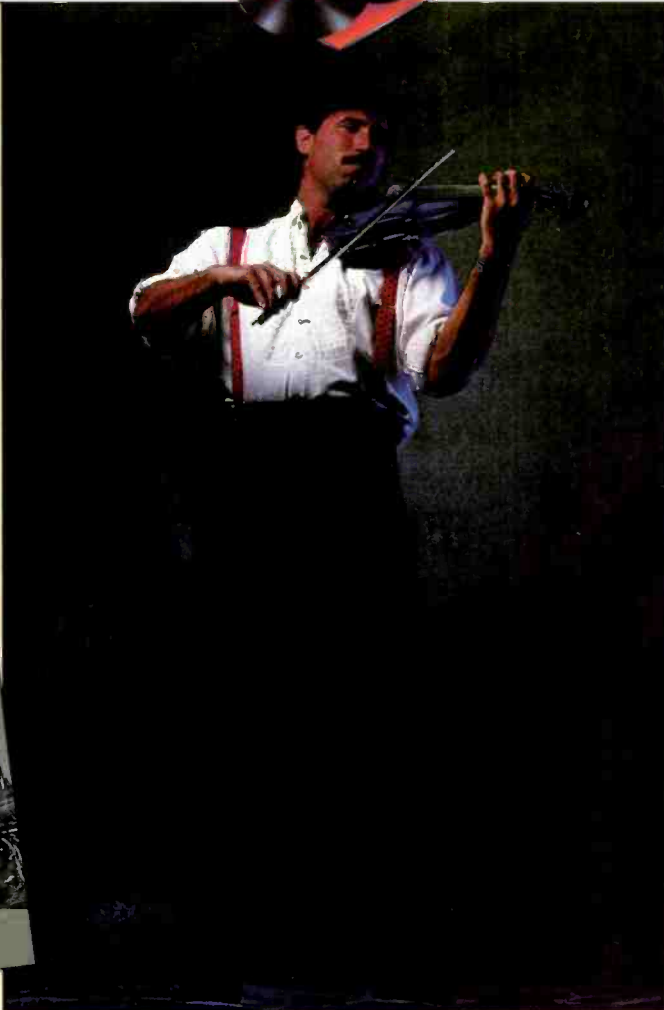
NARADA has just celebrated its tenth anniversary as a record company and is today one of the best-known sources of New Age instrumental music. Operating out of Milwaukee, Narada developed three separate labels for different types of New Age music: Narada Lotus concentrates on acoustic performances, Narada Equinox on fusion, and Narada Mystique on all-electronic music.



Brewer: *New Age piano*

Among the new releases on Narada Equinox are "Mil Amores" by violinist Doug Cameron and "Dorian's Legacy" by pianist Spencer Brewer. Cameron, who has a robust fusion style, gets some help on his Narada debut from such guest performers as guitarist Lee Ritenour and drummer Vince Colaiuta. Brewer's new album, his third for Narada and sixth overall, displays a wide range of catchy stylings. Brewer is not limited to New Age piano, by the way—he also has a considerable reputation as a restorer of antique keyboard instruments. □

BEFORE heading overseas for its first European tour in more than a dozen years, Aerosmith was honored at the Hard Rock Cafe in



Cameron: *new on Narada Equinox*

Boston, the band's home town, with the opening, on the club's premises, of an installation called the Aerosmithsonian. Its contents include stage clothes worn by the band members, a collection of their guitars and microphones, Platinum records, drum heads, boots, and (as they say) much, much more.

Meanwhile, at press time, the Hub's favorite rockers had climbed into *Billboard's* Top 10 with their latest album, "Pump" (Geffen), which was well on its way toward earning double-Platinum status. □

Tony Bennett relives his youth in his new CBS album, "Astoria: Portrait of the Artist." In a collection of fourteen songs, including such classics as *There Will*

Appropriately enough, "Astoria" was recorded last May at the Astoria Sound Studio in Queens and produced by Bennett's son, Danny, who is also his manager. Since the "Astoria" sessions, the senior Bennett has continued to fulfill a heavy tour schedule, which takes him to Europe this spring. But before he heads across the Atlantic, he will perform two nights at Carnegie Hall, in the borough of Manhattan, his first appearances there in several years. □

AFTER many years as a London/Decca recording artist, Alicia de Larrocha has gone over to RCA Victor Red Seal. The first recording under the terms of her new exclusive, long-term contract is an album of Mozart piano sonatas (Nos. 8, 9, and 10), due for release in the fall. It launches an ambitious series of Mozart recordings by the Spanish pianist that will include all of the solo keyboard sonatas as well as a complete piano-concerto cycle with Colin Davis conducting the English Chamber Orchestra and the Chamber Orchestra of Europe. □

OTHER major new contract signings, renewals, and defections to new labels include the Boston Pops Orchestra and its conductor, John Williams, who recently signed an exclusive, multi-record contract with Sony Classical (formerly CBS Masterworks) after a number of years with Philips Classics; pianist Maurizio Pollini, who has renewed with Deutsche Grammophon, the company with which he's been almost exclusively associated since 1971; pianist Maria João

Aerosmith at the Aerosmithsonian



NARADA RECORDS

NARADA RECORDS

LARRY BUSACCA/RETNA/LEVINE SCHNEIDER



Pires, who has gone over to DG after many years on Erato; and conductor **Pierre Boulez**, who has also joined the DG roster—rejoined, actually, since one of his earliest recordings is a Bayreuth Festival *Parsifal* released by the label in 1971. □

James Galway was fifty in December, and while the occasion was duly celebrated with gifts and a birthday gala in London, the popular Irish flutist returned the favors with a gift to his many fans worldwide. It was in the form of a follow-up to his best-selling RCA crossover album of 1978, the Oriental-flavored "Song of the Seashore." The new album, also on RCA, is titled "The Enchanted Forest—Melodies of Japan," and its release date in this country is February 27. Recorded in Tokyo, it's the first album in which Galway is accompanied by a synthesizer. In a



Galway: *melodies of Japan*

tation to conduct the concert was extended to Mehta because of the bonhomie generated during him and the orchestra during their 1989 recording sessions for an album of overtures by Franz von Suppé, generally considered to be the father of the Viennese operetta. That album was released toward the end of last year on the CBS Masterworks label. The New Year's Day concert, televised to millions of viewers worldwide, was itself recorded and is being released the third week in February—by Sony Classical. It's among the very first domestic releases on the new Sony label. □

LONG-TIME fans of jazz vibist Gary Burton will remember that guitarist **Pat Metheny** was a member of Burton's quintet in the mid-Seventies. Since then, Metheny has become one of the best-selling artists in jazz fusion, and Burton has continued to make critically acclaimed music leading a variety of groups. But Burton and Metheny hadn't performed together for more than ten years before joining onstage at the Montreal Jazz Festival in 1988. That happy occasion has inspired "Reunion," a Burton release on GRP that features Metheny. Also playing in the album are key-

boardist **Mitch Forman**, bassist **Will Lee** of the *Late Night with David Letterman* band, and drummer **Peter Erskine**, who was a member of Weather Report. □

GRACENOTES. Former **J. Geils Band** lead singer **Peter Wolf** traveled from Boston to Nashville to record his latest solo album for MCA, "Up to No Good." . . . U2's guitarist, **The Edge**, has written the score for a London theatrical adaptation of Anthony Burgess's anti-Utopian novel *A Clockwork Orange*. . . Avant-garde jazz pianist **Cecil Taylor** has a new release, "In Florescence," on A&M. . . The **Indigo Girls'** new video of the Youngbloods' Summer of Love classic *Get Together* was made in cooperation with the Georgia-based Habitat for Humanity, a nonprofit organization dedicated to the con-

CHRISTIAN STEINER/BMG CLASSICS

NICK SANGIANGIO/BMG CLASSICS



De Larrocha: *now for Mozart*

companion release, of three chamber works by Beethoven, Galway is joined by a thoroughly acoustic piano trio comprising pianist **Phillip Moll**, violinist **Joseph Swensen**, and violist **Paul Neubauer**.

Galway himself will come to America this spring for a coast-to-coast tour beginning April 16 at the Academy of Music in Philadelphia. □

ON January 1, 1990, the New York Philharmonic's music director, **Zubin Mehta**, was in Vienna conducting the Vienna Philharmonic in its traditional New Year's Day concert at the city's venerable Musikverein concert hall. According to CBS Records, the invi-



Mehta: *Vienna New Year's*



Gary Burton, Pat Metheny

struction and rehabilitation of affordable housing in the U.S. and around the world (former President Jimmy Carter is among its most active supporters). . . **Carlos Santana's** new album is "Spirits Dancing in the Flesh," recorded in Sausalito, California. It's the guitarist's thirteenth album and his first since 1988's "Viva! Santana." . . . The U.S. Army's boombox bombardment of Manuel Antonio Noriega while he was holed up as a guest of the Vatican embassy in Panama City featured such pop hits as **Linda Ronstadt's** *You're No Good*, the **Bobby Fuller** classic *I Fought the Law and the Law Won*, and **Nowhere to Run**, which put **Martha and the Vandellas** into the Top 10 in 1965. □

GRP RECORDS

CBS MASTERWORKS

THE HIGH END

by Ralph Hodges



CROSSING OVER

MORE than a decade ago, an esteemed colleague described his experience with electronic crossovers: "Every year the Japanese come to me to ask whether this is the year of the electronic crossover. I say no, and they go away—until next year."

This year there are close to fifty manufacturers of electronic crossovers, and only one of them I can find is Japanese. Most are, in fact, U.S. manufacturers. Does this tell us anything? As far as I can determine, no. This is still not the year of the electronic crossover—except in car audio and in home-audio subwoofers, where the designer may have concealed the concept by building the additional amplification and crossover capability into the subwoofer cabinet. I suspect the Japanese have ceased marketing electronic crossovers because no one in this country was interested. And yet they are powerful tools for large-scale sound reproduction.

"Electronic crossover" is a vague expression that may describe a passive or active (powered) device, but by definition it refers to a circuit that comes before the power amplifier in the signal path rather than

after. The most arresting consequence of this position is that a separate channel of power amplification is required for every speaker driver that is to be fed by the crossover's action. That could mean, for a stereo system involving three-way speakers, three stereo power amplifiers, for woofers, midranges, and tweeters. Sensible? In the view of most professional sound-system installers for wide-range applications, it is, and for a number of reasons.

First, if the woofer amp clips, which it will be prone to do with much musical material, the mid-range and tweeter amps won't care, and their critical output will remain clean. Second, the amplifiers will no longer "see" the potentially difficult load of two or three speaker drivers plus a complicated crossover network, and they may thank you audibly for it. So may your speaker systems, because the passive crossovers normally built into them tend to change personality with both the signal fed into them and the inevitable interactions with driver voice-coil activity.

Third, potentially of great appeal to the uncompromising high-end listener, is combining, for example, the touted treble delicacy of a tube amplifier with the bass gutsiness of a transistor design. Would these two types of amplifier, employed for the same speaker system, be compatible in "imaging" and other much-debated nuances of reproduction? I think I'll duck that question for the present, except to note that the combination was commonplace in the past, when amplifiers were small and transistors new. Many audiophiles, debating whether to discard their existing amps and move on to the latest thing, decided to embrace both.

Today's widespread indifference to the benefits of multiamping probably stems largely from a lack of promotion. Of the several prominent high-end manufacturers that make electronic crossovers, I am hard pressed to recall any that has ever demonstrated with one. In response, loudspeaker makers have almost universally abandoned the separate input posts for individual drivers that immediately suggested multiamping to the purchaser. Still,

it remains a mystery why consumers as particular as audiophiles are not actively agitating for a further approach to the ultimate amp/crossover configuration. I've inquired around a bit, and here are some of the reasons offered for the lack of interest.

□ "Multiple decisions are needed on the power requirements for each driver, and many users are too lazy or intimidated to confront the issue." This is certainly true, and there appears to be a trend among professionals to use equal power for woofer and tweeter, pointing to the high crest factors of crash cymbals. But I suspect they also point to simplification of inventory and the relative cheapness of amplifier power.

□ "The costs are high because all high-end amplifiers are costly, and lesser amps are not acceptable for any portion of the spectrum." True if you're convinced it's true, but high-end audio in any form is costly, which hasn't slowed enthusiasts much.

□ "Great expertise and perhaps instrumentation are required to set things up properly." Not necessarily true. Crossover points chosen by the speaker system's manufacturer can be an adequate guide to performance at least the equal of what the built-in crossover provides; but it must be admitted that phase manipulations deliberately performed by some built-in networks will be lost.

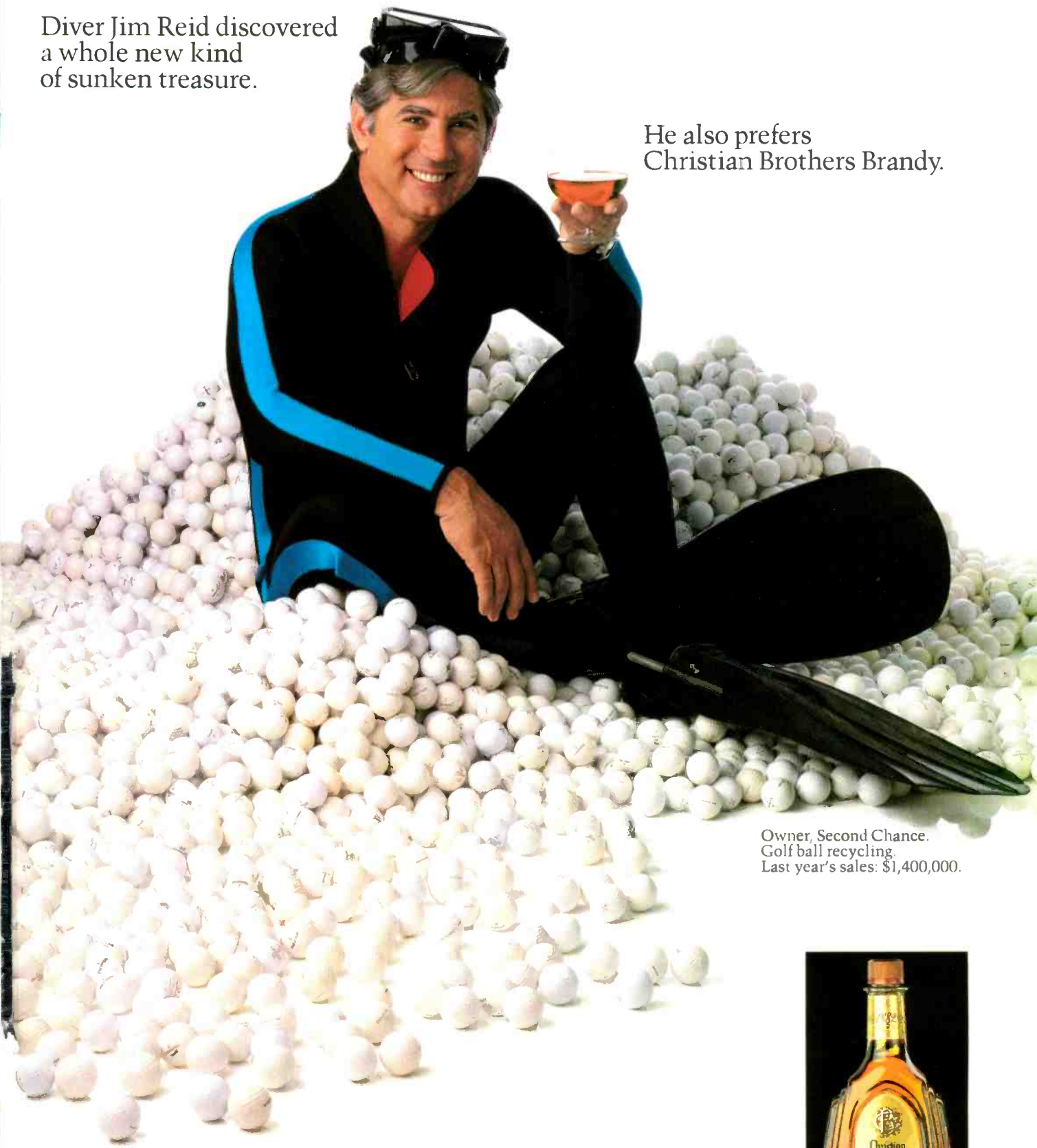
□ "Audiophiles are reluctant to complicate the signal path with another electronic box." Not a valid excuse. It's hard to see how anything could *de*-complicate the signal path as much as elimination of that infernal passive crossover.

□ "Multiamping is perceived as somehow impure: a fragmenting of the audio experience." Well, that's an inarguable reservation, and those who sincerely hold that belief will just have to live with it.

It's an irony that a revival of attention to electronic crossing over is coming about through car audio, a poor relation of the home variety. It's also an irony that this is happening just when the Japanese finally gave up on their annual question and took most of their products home. I predict they'll be back. □

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a whole new kind
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Christian Brothers Brandy.



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SOUND FOR THE NEXT FRONTIER

It takes an impressive car to do justice to incredible car audio. So Pioneer commissioned auto stylist Uwe Gemballa to custom design the 1990 Pioneer/Gemballa Mirage. Its racing-inspired modifications can take high speed punishment, and its 600 horses can dish it out. **T**here's only one way to get more performance out of a car like the Gemballa Mirage. By putting more performance into it.

So Pioneer loaded it up with programmable single and multi-play CD, full-logic cassette, precision AM/FM tuning and even a video monitor. All controlled by one wireless remote and driven by eight high power amplifiers that deliver 2100 watts to a total of 24 speakers. **W**hile the 1990 Pioneer/Gemballa is certainly exhilarating, it is no cheap thrill. The car runs \$350,000 – and sounds like a million.

 **PIONEER**

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