

Stereo Review

AUGUST 1985 \$1.95

**TROUBLESHOOTING
YOUR HI-FI SYSTEM**

**WHY YOU SHOULD BUY
SEPARATE COMPONENTS**

**LAB TESTS:
SANYO VCR 7500 BETA HI-FI
VIDEO CASSETTE RECORDER**

**ALSO TESTED:
REVOX B285 RECEIVER
SPECTRUM 108A SPEAKERS
MARANTZ PMD430 TAPE DECK
ORTOFON MC 100U CARTRIDGE**

**COUNTRY SINGER
REBA McENTIRE**



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How to pick a video system with your eyes closed.

by Ray Charles

"I look at video systems a little differently than you.

I look with my ears.

And, frankly, since the beginning, video has sounded pretty sad.

Then along comes Pioneer with LaserDisc. And suddenly, my ears get very happy.

The sound of LaserDisc is as good as anything I ever heard on my stereo.

Maybe better.

And while I was impressed with the sound, the video experts were floored by the picture. They tell me nothing else even comes close.

Maybe you've already got a stereo, and maybe you've already got a VCR. You've still got to get LaserDisc. Because whatever you're watching — music or movies — LaserDisc does what no other system can do. For the first time, it brings the best picture and the best sound together."

The model shown here is the Pioneer® CLD-900. The world's first combination LaserVision and CD player.

LaserDisc™ brand videodisc player is a trademark of Pioneer Electronics Corp.
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PIONEER
Video for those
who really care about audio.

by Christie Barter and Gordon Sell

JVC JAZZ AT NEWPORT

JVC returns to Newport, Rhode Island, this month (August 17 and 18) as sponsor of the JVC Jazz Festival, featuring such world-class artists as Sarah Vaughan, Dizzy Gillespie, B. B. King, Fats Domino, and Woody Herman. JVC will also underwrite an hour-long television special devoted to the festival. It is scheduled to air in late September on the PBS television network.



HARMAN KARDON BOUGHT BACK

Harman International, which five years ago sold Harman Kardon to Shin-Shirasuna Electric Corporation of Japan, has now bought it back. Dr. Sidney Harman and Makoto Shirasuna announced the sale and said the companies would continue to cooperate in many areas. Harman Kardon products will still be manufactured in the Far East, according to an inside source, but U.S. manufacturing and assembly options are being investigated. Harman International is also the parent organization of the firms that manufacture JBL and Infinity loudspeakers.

DEGREES

This year's honorary doctorates to outstanding musicians include two to pianist Alicia de Larrocha (Carnegie Mellon, May 13; Middlebury College, July 25). In the graduating class at Georgetown University this year was singer Pearl Bailey, who received the B.A. in theology she has been working on for seven years. She is sixty-seven years old.

NEW BOSE BUYERS

In case you're wondering why you haven't seen the Bose Acoustic Wave Music System in hi-fi stores (see March 1985 "Technical Talk"), it's because the company is trying to reach people who never really thought about owning a hi-fi system and may actually be stepping up from a clock radio. For now Bose is experiment-

ing with new methods of distribution for this product, which means that it is being sold through mail-order catalogs and even door-to-door.

RECORD BREAKER

Bruce Springsteen's "Born in the USA" was released by Columbia Records in June 1984, and in the space of a year the album has become the label's all-time best-selling record. As of press time, the Compact Disc version of "Born in the USA" still bore the legend "Made in Japan."

CLIBURN CONTEST

The Seventh Van Cliburn International Piano Competition in Fort Worth, Texas, was won by José Feghali, twenty-four, of Brazil. His winnings include a debut recital at Carnegie Hall in New York City, a concert tour of Europe and North America, \$12,000 in cash, and the opportunity to make a number of recordings.

8MM GOES STEREO

Sony is introducing an 8mm table-top VCR with digital stereo sound, half-speed record/play capability, and the ability to record up to twenty-four hours of stereo (audio only) on a 120-minute tape. The sound on the stereo tracks is compounded 8-bit digital audio with a 31.5-kHz sampling rate. The frequency response is 20 to 15,000 Hz, the dynamic range more than 88 dB, and wow-and-flutter less than 0.005 percent. The 8mm VCR, the EV-S700U, will retail for about \$1,500 when it reaches stores this fall along with Sony's P6-120 tape. The company is also introducing a companion 8mm camcorder that is about the size of a fat paperback book.

RECORD NOTES

We Are the World, the hit song produced by USA for Africa, has been certified by the RIAA as the industry's first Multi-Platinum single. Sales at press time were well in excess of four million.

Pioneer Artists describes its just-released *We Are the World* video on LaserDisc as the first to fill out both sides of an eight-inch disc. Suggested list is \$14.95. . . . The only commercially available Beatles CD has

been the "Abbey Road" album, but as a Toshiba EMI release it has been legally available only in Japan. We hear that it was recently deleted, presumably to foil illegal importers all over the world.

JBL IN FORD'S FUTURE

JBL is pooling technology with the audio division of the Ford Motor Company, and they will collaborate in developing high-quality car-entertainment systems for Ford cars. The new systems will have DIN-chassis cassette/tuners, central multichannel amplifiers, and multidriver JBL speakers. Positioning of the speakers will be based on extensive computerized acoustic evaluation of the interior of each different car model. There will also be some electronic signal processing (not just equalization) to create optimal tonal balance and imaging in each car. The first such systems will be available on luxury cars in the 1986 Ford line.

SUPER CONTROL

General Electric has developed an infrared remote-control unit that can take the place of up to four different remotes from almost any manufacturer. GE's Control Central will interrogate your current remotes and learn what kinds of infrared codes they use to control the functions of VCR's, TV's, hi-fi receivers, cassette decks, CD players, and other infrared-remote-controlled components. Once the Control Central has learned the codes, it can mimic them, and your components will never be the wiser. Control Central will be available this fall with a suggested retail price of \$149.95.





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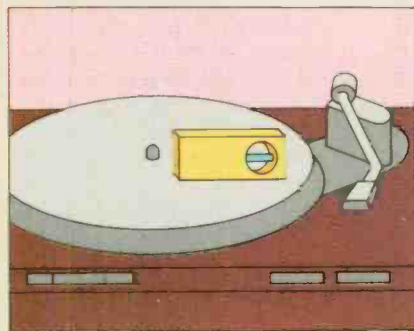


RECORD MAKERS 88

The latest from the Ratts, Andrés Schiff, and Mick Jagger, reopening night at the Apollo Theater, a new CD-only label, and more



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by William Livingstone



Questions

LIKE performers who are interviewed often, members of the staff of this magazine develop polished answers to questions we are asked frequently. For example: "Do you think the Compact Disc will ever replace the LP?"

I usually say I feel sure that it will but I've no idea how many years it may take. I hasten to add that this is all the more reason to buy an up-to-date turntable and cartridge and all the accessories needed to keep your LP's in good condition.

Members of the staff try to avoid recommending specific equipment. We usually say we don't give opinions on units that haven't been tested at Hirsch-Houck Labs and refer people to our published test reports.

Recently a former editor of this magazine called me up and said, "These Compact Discs I keep hearing about, are they any good?" I told him I think they are wonderful and that they'll probably eventually replace the LP. Before I could give him the bit about keeping his LP's in pristine condition, he asked me which CD player he should buy.

I hedged. "There are a lot of good ones with interesting features," I said. "Look around and then read the reports on the ones Julian Hirsch has tested. You won't go wrong with any one of those."

"What about the new speakers with improved imaging or am-

biance?" he asked. "Shouldn't I enliven the years remaining to me on this planet with a pair of those?"

"Absolutely!" I answered. And before he could pin me down, I added, "We've published test reports on the Acoustic Research Magic Speaker, the dbx Soundfield One, and a couple of speakers in the Polk SDA series."

I'm not so evasive when asked if I think quadraphonic sound will ever come back. "Quad" is still a dirty word in the audio industry, but under the name "Surround Sound" multichannel stereo is alive and well in the place where high-end audio meets high-end video.

I recently attended a very impressive audio-video demonstration in Chicago put on for high-end dealers by Jim Winey and Wendell Diller of Magnepan. There were four large Magnepan electrostatic speakers in front of the seating area, and two smaller ones provided ambiance in the back. The electronics included a Levinson amplifier (for the front), a McIntosh amp (for the rear), the Pioneer CLD-900 LaserDisc/CD player, the Audionics surround-sound processor, and I don't know what all. The picture was shown on either an NAD monitor or an In-flight V Star projection-TV system.

They showed excerpts from such movies as *The Empire Strikes Back* and *Cotton Club* and from concerts by Luciano Pavarotti, Ray Charles, and Kenny Loggins, all on Pioneer LaserDiscs. All were effective.

The point of the demonstration was not to show that video can have good sound, but rather to persuade those dealers that high-end video can add an exciting extra dimension to high-end audio. Considering video from this angle makes me give more optimistic answers to the question of whether the marriage of audio and video will last.

Nobody has asked me whether I believe the legend I've seen on a few T-shirts lately—"He who dies with the most toys wins"—but I'm polishing up an answer just in case. I want to find a snappy way to say that I don't get my philosophy off of T-shirts, I don't really think of hi-fi equipment as toys, and I'm not so concerned with winning as with enlivening the time that remains to me on this planet. □

Stereo Review

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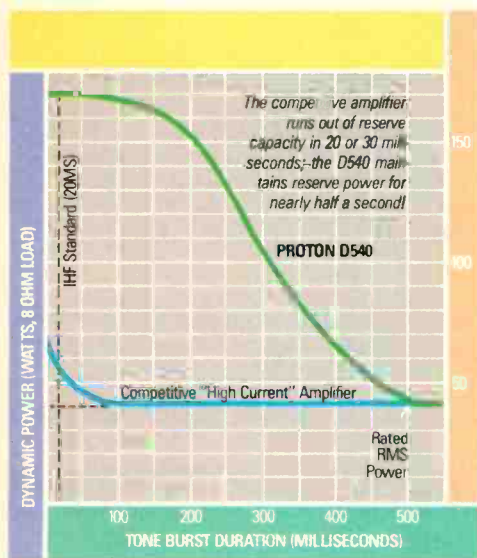
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Ampese

"How to Speak Ampese" by Ian Masters in the June issue was a Class A article. I do have some negative feedback that is direct-coupled with it, though, and I thought I would feedforward it to you. MOSFET is an acronym, not an abbreviation.

TERRY J. BROWN
Louisville, KY

High-End Car Stereo

I have enjoyed STEREO REVIEW's many articles on car stereo. As an enthusiast, though, I find the installations you feature to be somewhat mediocre. If you really want to find out what is going on with car stereo, I recommend that you visit the Southeast (Louisiana and Texas). People here take car stereo seriously.

In my 1984 S-10 Blazer, for instance, I have a cassette deck, a Compact Disc player, 650- and 150-watt amplifiers, an equalizer, a two-way crossover, four 6-inch coaxial speakers, four 3-inch tweeters, eight 6-inch woofers, four 12-inch woofers, and four 6 x 9-inch woofers.

All of this equipment is carefully concealed to preserve the factory appearance of my truck. Sort of makes the Mercedes in May's "Systems" look puny, huh?

HOWARD C. ZIMMERMAN, JR.
Lake Charles, LA

Acoustic Waves

I wonder why Julian Hirsch wasted the two pages of his column in the March issue on thinly veiled advertising for the Bose Acoustic Wave Music System. The principles involved in its speaker date back to the Forties and Fifties, when amateurs experimented with speakers mounted in various tuning arrangements between floor joists. The notion of reducing the size and putting it all in a molded-plastic picnic basket is hardly worthy of serious review.

F. W. JOHNSON
Garland, TX

Julian Hirsch replies: I am naturally suspicious of any "great breakthrough," and I am not inclined to regurgitate press releases. In this case, I was quite impressed by what I heard at the Bose

plant when the AWMS was introduced to the press, but I did have some reservations. When I received the review sample, I lost no time in putting it through its paces. In particular, I verified the claims made for the phase and amplitude relationships of the dual bass output ports. The enthusiasm in my column merely reflected my appreciation of this novel bass reproducing system.

I was one of those who experimented about thirty-five years ago with tuned speaker boxes mounted between floor joists, and I can assure you that the Bose AWMS bears no relationship to those devices. For one thing, it works, and they did not! As I tried to make clear in my column, the current AWMS is by no means a true high-fidelity component or system, as we now understand "hi-fi." It is "medium-fi"—and a very good example of that genre.

Video Sound Processor

In his report on the Radio Shack Archer Video Sound Processor in the May issue, Julian Hirsch claimed that the expander and stereo synthesizer cannot be used together. In fact, while

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Stereo Review

the synthesizer has no effect with a stereo source, with a mono source these controls can be used together. With some mono programs, the cumulative effect can be very dramatic.

JAY H. WALD
Whippany, NJ

Julian Hirsch replies: The stereo synthesizer in the Archer VSP is obviously intended to be used only with mono signals. The function is operative only on signals coming through the mono VCR and TV inputs. I injected my test signals for the expander at the stereo tape inputs and did not attempt to use the synthesizer and expander at the same time. I guess I goofed. Sorry!

Wrong Girl

You ran my picture in June "Record Makers," in the piece about Playboy Video's "Girls of Rock & Roll" video cassette, but you named me Dagmar Petersen. Although I'm no international star yet, I do have a few fans who were confused by the error. Since I am just starting out, it would help if the press were accurate.



CBS/FOX VIDEO

Natalie Pace: golden girl

I'm sorry you didn't particularly like the video cassette. Would you consider printing a correction for the picture anyway? Getting painted gold is no easy task! My name is Natalie Pace, and I'm not that particularly well endowed!

NATALIE PACE
Los Angeles, CA

Digital 45's?

I hear that in approximately ten years Compact Discs will completely replace

LP's. Does this mean that 45's will be replaced also, or will the record industry continue to make 45's?

ERIC WELCH
Phoenix, AZ

Technical Editor David Ranada replies: I don't think CD's will completely replace LP's until well into the next century, though within ten years the rate of CD production will exceed that for LP's. Parity in the annual dollar sales of CD's and LP's will occur even sooner. Recorded "singles" have many advantages, especially to radio stations. Accordingly, CD makers have in the works a digital replacement for the 45, the Maxi-Single. It will have the same center-hole size, diameter, and rotation rate as a full-length CD, but it will hold only as much music as the current 12-inch singles often used for dance music. The unused outer portions of Maxi-Singles will be frosted or otherwise treated to encourage handling only on those portions.

How long the record industry will continue to make analog 45's depends on how many people continue to want them and on how well the public takes to the new Maxi-Single CD format.

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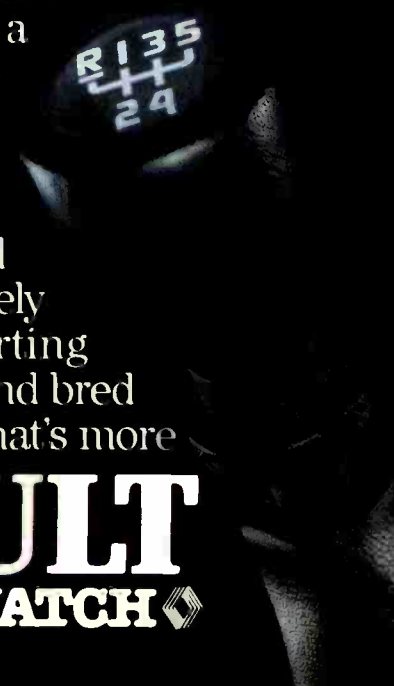


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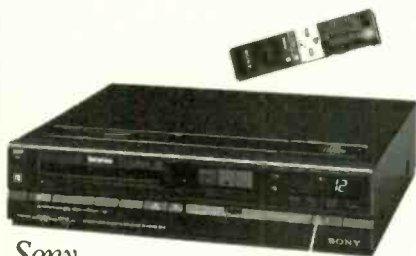
NEW PRODUCTS



Celestion

Celestion's new line of three-way loudspeakers comprises (left to right in photo) the DL4, the DL6, and the DL8. The DL4 and DL6 use plastic soft-dome tweeters and low-resonance cone woofers with "vestigial" plastic surrounds. Both are rear-ported bass-reflex systems. The DL8 has a 1 1/4-inch aluminum-dome tweeter and a sealed 8-inch fiber-cone woofer that is said to produce audible bass frequencies down to 38 Hz. Sensitivity of the DL8 is given as 89 dB. All three systems are rated at 8 ohms, with minimum impedances of 6 ohms, and all three feature gold-plated connectors and molded-plastic front panels with brown cloth grilles. Prices per pair: DL4, \$299; DL6, \$399; DL8, \$499. Celestion Industries, Dept. SR, Kuniholm Dr., Box 521, Holliston, MA 01746.

Circle 120 on reader service card



Sony

The Sony SL-HF400 video-cassette recorder combines Beta Hi-Fi sound capability with new Super Beta circuitry for improved audio and video recording and playback. A built-in stereo decoder allows reception and recording of stereo-sound broadcasts or a secondary audio program. A front-panel audio-input switch selects either the internal TV tuner, an external FM tuner (for simulcasts), or a PCM signal from a digital-audio processor. There is an eight-segment LED peak level meter with a sliding level control.

The Super Beta technology is said to improve picture quality by shifting the frequency of the subcarrier for the luminance signal upward by 800 kHz; interference from adjacent tracks is reduced by using narrower heads. Picture resolution is said to be increased by as much as 20 percent over the conventional Beta format. Standard Beta recordings can still be played back on the Super Beta SL-HF400. Video features include Beta Scan high-speed search, Beta Skip

Scan, freeze frame, and a programmable timer to record up to six events over a seven-day period. Audio dynamic range is given as 80 dB, frequency response as 20 to 20,000 Hz, and wow-and-flutter as less than 0.005 percent. Sony Corp. of America, Dept. SR, Sony Dr., Park Ridge, NJ 07656.

Circle 121 on reader service card

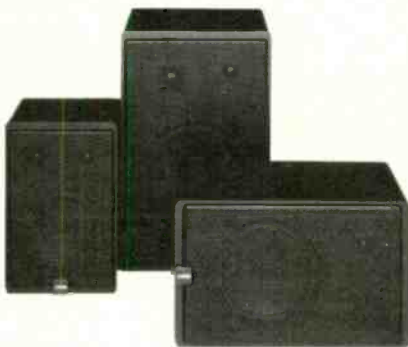
Discwasher

The Discwasher Compact Disc Cleaning System includes a cleaning machine, a spray bottle with CD-1



cleaning fluid, a grooming brush for the cleaning pad, and a replacement cleaning pad. To clean a CD, the user sprays the disc with CD-1, loads it into the machine, and turns a handle that rotates both the disc and the cleaning pad. The resulting radial cleaning motion, perpendicular to the spiral pit trail on the CD, is said to eliminate the possibility of leaving a scratch that would follow the data path. A cleaning pad can be used about thirty times before it needs replacement. Price: \$19.95; extra pads, three for \$4.95. Discwasher, Dept. SR, 1407 N. Providence Rd., P.O. Box 6021, Columbia, MO 65205.

Circle 122 on reader service card



Canton

The Canton Karat 100, 200, and 300 (left to right in photo) are three-way bookshelf speakers that replace the company's earlier Quinto series. The woofers' large, low-eddy-current barium-ferrite magnets are said to have faster response, better impulse accuracy, and more transparency of sound than those used in the Quinto line. The dome tweeters and midranges have fab-

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*5 years or 50,000 miles, whichever comes first. Limited Warranties. Covers powertrain and outer-body rust-through. Plus required maintenance, parts/labor (excluding fluids). Deductible applies, excludes fleet/leases. Ask for details.

5/50 PLUS

Stereo Phone?

It has two channels. It has a great sounding speaker. And like a jukebox, simply touch its buttons to choose any one of your 70 favorite selections. Get two channels for \$69, or a single channel unit for \$59.

It doesn't play music. But it does have two channels, two ways of speaking and two ways for you to listen.

This two-line telephone system has an AC powered speakerphone that almost can be called HiFi. And, it remembers 70 of your most important numbers.

Note: The identical phone is also available without the two-line features.

TWO-LINE CONVENIENCE

Just press the Line 1 or Line 2 button and your choice of lines is selected. LEDs display which line you are using, which line is ringing, and if the Speakerphone or the Mute functions are in use.

And there's 'Hold', so you can put someone on hold, hang up this phone and continue your conversation from any other phone in your home or office.

Look what you can do. While you are talking on one line, you might want to add a third person to your conversation.

You can put whichever line you are using on hold, and use the other line to call out or answer a call. Then just push 'Conference' to join both calls.

It's easy. And, group conversations can be productive for work. And, they are a lot of fun with friends and family.

ELEPHANT BRAIN

Just touch the name of the person you want to call. Each of the 30 name positions at the top of the phone is actually a quick one-touch dialing membrane.

And, one touch is all it takes with no numbers for you to remember. There are also 3 quick-touch Emergency Buttons.

And look at this. There's a Long Distance Service Button to store your MCI or Sprint Code. Just push it, then any memory button, for fast, low cost calling.

Discount services are great, but who needs to remember complicated numbers. Now, save money with a single button.

There are 35 additional memory locations which you access through the keypad. If you've been counting, you know we've covered 69 memories.

One, more. Last Number Redial Memory isn't new. But this phone also has Automatic Last Number Redial which will automatically retry a number 17 times.

Each memory location will hold up to 16 digits. You may insert pauses for switchboards and discount services, and you may change stored numbers at any time. Plus, a 9V battery will activate the phone's memory backup system.

FISH IN A BARREL

Imagine walking around the room or sitting at your desk with your hands totally



free while you talk on the phone.

And, with this speakerphone, anyone else in the room can join in too. You'll be heard loud and clear whether you are nearby or across the room.

This speakerphone uses a new lightning fast auto-simplex (half-duplex) design. You won't get the hollow barrel sound and squeal because the mike actually overrides the speaker.

You won't even notice it. All you and the person whom you are talking to will hear, is clear, echo free conversation.

AND MUCH MORE

The real claim to fame of this phone is its marriage of Phone Company fit and feel with super convenience features.

And, just look at the extra features. There are two separate electronic ringers. Each has its own Hi, Lo, and Off setting.



There's a top mounted Tone/Pulse switch so you can use discount services even in Pulse areas.

The phone may be desk or wall mounted and there's an AC adaptor included for great speakerphone performance.

THOUGHTFUL INSTALLATION

There are two standard modular jacks on the back of this phone. One can be used for both Lines 1 and 2 if you have a 2-Line modular jack in your wall.

The second jack is only used if you have two separate modular jacks for your phones. So, as long as you have jacks,

this phone simply plugs right in.

It's made and backed by Unitech, the stereo people, which explains this ad's title, and why the sound is so good.

TWO CHANNELS, TWO LINES RISK FREE

Wait till you hear the sound. Wait till you feel the handset against your ear or cradled on your shoulder. Talk on the speakerphone. Touch a one-touch dialing pad. Then make a conference call and really put your two lines to work.

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

To order your Unitech 2-Line Speakerphone with 70 number Memory, 17 time Automatic Redial, Hold and more, risk free with your credit card, call toll free, or send a check for DAK's earthshaking price of just \$69 plus \$4.50 for P&H. Order No. 4267. CA res add tax.

If you'd like the exact phone without the two-line features, it's yours for just \$59 plus \$4.50 P&H. Order No. 4268.

Dial a number on either line with just the touch of a Memory Button. Dial without ever lifting the receiver. And talk while you move around the room.



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ric diaphragms. Nominal impedance for all three models is 8 ohms. The angle of dispersion is 125 degrees at 12,500 Hz. Nominal recommended amplifier power is 50 watts for the Karat 100, 70 watts for the 200, and 90 watts for the 300. Distortion is given as less than 0.8 percent for the Models 100 and 200, less than 0.6 percent for the 300.

The speakers are finished in either walnut veneer or textured lacquer in black or white. Spring-clamp connections are used. Prices per pair: Karat 100, \$500; Karat 200, \$650; Karat 300, \$800. Canton North America, Dept. SR, 254 First Ave. N., Minneapolis, MN 55401.

Circle 123 on reader service card



Onkyo

The TA-2047 cassette deck, the newest model in Onkyo's Integra line, has a servo-controlled d.c. motor for tape drive, a second d.c. motor to operate fast forward and rewind, and a third motor to raise and lower the head-block assembly. The deck features Dolby B and Dolby C noise reduction, adjustable bias, and a ten-segment peak level meter. The elapsed or remaining time on the tape can be displayed in minutes and seconds. Switchable multiplex and infrasonic filters reduce distortion from FM and phono sources.

An Automatic Music Control System permits sampling the first 10 seconds of each selection, and an auto-space feature can insert 5-second blank sections between selections during recording. An individual selection or an entire side can be repeated. Price: \$300. Onkyo, Dept. SR, 200 Williams Dr., Ramsey, NJ 07446.

to-noise ratio is 73 dB with Dolby C. Total harmonic distortion is rated as less than 0.6 percent, wow-and-flutter as 0.05 percent. Price: \$229.95. Parasound Products, Dept. SR, 680 Beach St., Suite 400, San Francisco, CA 94109.

Circle 124 on reader service card

Harman Kardon

Harman Kardon's HD500 CD player features an analog output section said to have low intermodulation distortion at all frequencies from 0 to 100,000 Hz. A gradual analog filter is used to reduce distortion even further. The analog output section utilizes no negative feedback, thus eliminating transient intermodulation distortion as well, according to the manufacturer. Digital switching noise is reduced by a sample-and-hold processor. Direct coupling from the analog converter to the audio output jacks is used to improve low-frequency performance.

The HD500 uses a three-spot laser and a 16-bit linear digital-to-analog converter with a sampling rate of 88.2 kHz. The infrared wireless remote control duplicates all front-panel functions. Convenience features include random access to up to fifteen tracks,



two-speed audible cue and reverse, auto repeat, and timer-controlled play. Output level is adjustable. The switchable display shows either the track and index number or the elapsed time. Price: \$600. Harman Kardon, Dept. SR, 240 Crossways Park West, Woodbury, NY 11797.

Circle 125 on reader service card

Yamaha

The R-9 is the top of Yamaha's new line of receivers. Its rated output of 125 watts continuous rms per channel into 8 ohms from 20 to 20,000 Hz with no more than 0.015 percent total harmonic distortion makes the R-9 the most powerful receiver Yamaha has ever produced. Operating normally in Class A, the R-9's amplifier sections switch into Class AB when necessary for transient peaks. Yamaha's proprietary Zero Distortion Rule circuitry is used to eliminate distortion during both Class A and Class AB operation.

In the tuner section, a Computer Servo Lock circuit samples the received signal and selects whichever of two tuning systems, infinite-resolution FM servo tuning or synthesized PLL tuning,

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STEREO REVIEW AUGUST 1985 13

Parasound

Both Dolby B and Dolby C noise reduction are included in Parasound's CD400 cassette deck. Dolby tracking is said to be accurate to within 0.3 dB. There are soft-touch controls, ten-segment peak-reading LED meters, a three-position tape switch, front-panel microphone jacks, and a headphone jack. Frequency response with metal tape is given as 20 to 18,000 Hz, and the signal-





The New KLIPSCH kg⁴, Unconventional Thinking At Its Best

It's never been the habit of anyone at KLIPSCH® to be *conventional*. Take, for example, the pillar of the organization, Paul Klipsch. How many 80-year-olds swim in the buff everyday? Or keep two grand pianos in their living room?

Then there's Gary Gillum, one of the design engineers. He drives an immaculate BMW 528i, grows his own vegetables, and lives in a log cabin. Not just any log cabin mind you, but quite an elaborate one he built himself from trees he cleared off his land.

The people of KLIPSCH have never professed to be conventional. Or create speakers that are. The new KLIPSCH kg⁴, pictured above, is Gary's latest creation and serves as an excellent example.

Consider the KLIPSCH designed

tweeter. Good, conventional tweeters may deliver similar bandwidth and smoothness. But nowhere near the detail or dynamic range that so well characterize the KLIPSCH "sound."

Then there are the woofers. It's not conventional to put two in one speaker. Yet, Gary found that two 8" (20 cm) drivers operating in unison sound musically superior to one larger driver in the kg⁴ cabinet. And don't require as much room.

Finally, there's the passive radiator for low bass. Conventional thinking would mount it on the front of the cabinet. KLIPSCH mounted it on the rear. Measurements and listening tests proved it didn't matter. And with it on the rear, the kg⁴ delivers a big sound without a big cabinet.

All of this unconventional thinking results in a speaker which *Stereo Review*

describes as "truly excellent." And one you can likely afford.

Of course, a visit to your nearest KLIPSCH dealer would be a most conventional way to hear the new kg⁴. But since you would be in the pursuit of sonic excellence, the people of KLIPSCH would likely forgive your behavior.

For your nearest authorized dealer, look in the Yellow Pages or call toll free 1-800-223-3527.



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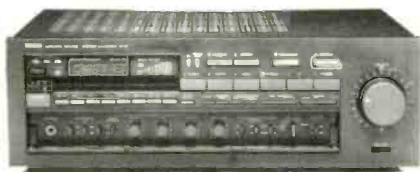
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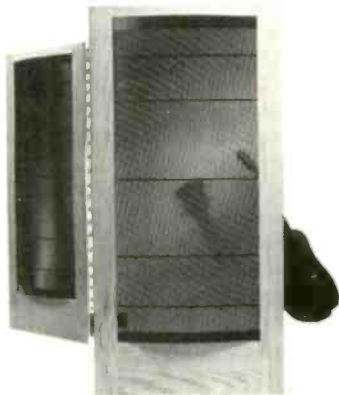
gives the best results. There are sixteen memory presets and automatic station search as well as manual tuning. A supplied infrared remote control handles power on/off, input selection, tuning, volume adjustment, and muting. There are connections on the back panel for



audio and video signals from VCR's and video-disc players, and simulated-stereo and DNR circuits are provided for use with these sources.

The continuously variable loudness control can attenuate the signal by up to 40 dB, an improvement of 20 dB over Yamaha's original version of this feature. Other features include an accessory output loop, switchable phono input, tone controls for bass, midrange, and treble, and switching for three pairs of speakers. Price: \$799. Yamaha, Dept. SR, 6660 Orangethorpe Ave., Buena Park, CA 90620.

Circle 126 on reader service card



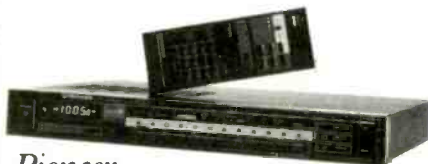
Martin Logan

The new CLS (Curvilinear Line Source) speaker from Martin Logan is said to be the first full-range electrostatic loudspeaker with high efficiency and wide dispersion. The speaker is designed to produce high sound-pressure levels while maintaining amplifier stability. Its single, transparent, curved diaphragm, mounted in an oak frame, is said to function as an absolutely rigid piston throughout the audio spectrum. A proprietary deposition process is claimed to produce totally insulated electrodes that eliminate arcing and are capable of high bias-voltage capture ratios, making protective grille cloths or cabinetry unnecessary.

The CLS speaker is 5 1/4 feet tall, 2 1/2

feet wide, and 3 inches deep. Frequency response is given as 45 to 22,000 Hz \pm 2 dB. Rated sensitivity is 88 dB SPL, with an input of 1 watt measured at 1 meter. The speaker can handle up to 120 watts input per channel. Peak output capability is given as 120 dB SPL in a normal listening room. Nominal impedance is 6 ohms. Horizontal dispersion is rated as 30 degrees, and vertical dispersion is said to equal that of a 5-foot line source. Price: \$2,400 per pair. Martin Logan, Dept. SR, P.O. Box 741, 619 East 8th St., Lawrence, KS 66044.

Circle 127 on reader service card



Pioneer

The Pioneer TX-V1160 audio/video tuner decodes multichannel TV broadcasts for stereo sound or a secondary audio program as well as receiving conventional AM and FM broadcasts. It has twelve presets each for the AM, FM, and TV bands (including all VHF and UHF frequencies). The quartz-PLL digital-synthesis audio tuner has an FM usable-sensitivity rating of 11.2 dBf in mono. The FM signal-to-noise ratio is 80 dB in mono and 75 dB in stereo. The TX-V1160 has r.f. input/output jacks, video inputs and outputs, and simulcast switching. The black-finish cabinet measures 2 5/16 inches high, 16 7/16 inches wide, and 1 1/2 inches deep. Price: \$329.95. Optional wireless remote control, \$49.95. Pioneer Electronics, Dept. SR, P.O. Box 1720, Long Beach, CA 90801.

Circle 128 on reader service card

Ariston

The \$250 Ariston RD20 turntable, with decoupled isolating suspension, is said to share some of the qualities of the company's more expensive models. The semi-automatic RD20 uses a d.c. servomotor and offers 33 1/3- and 45-rpm speeds. A tone arm and record clamp are included. The platter weighs 2.2 pounds and is machined to an accuracy of 0.0004 inch. Rumble is rated at less than -74 dB, wow-and-flutter at less than 0.07 percent. Ariston Audio of America, Dept. SR, P.O. Box 653, Buffalo, NY 14240.

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CRUTCHFIELD

1 Crutchfield Park, Dept SR, Charlottesville, VA 22906

by Julian Hirsch



Are Blowups Dangerous to Your (System's) Health?

EVERY special-interest group has its own jargon, which usually seems designed to be as obfuscatory as possible to outsiders. So it is with consumer electronics in general, and there are especially rich esoteric vocabularies in such subcategories as computers and hi-fi. Aficionados of these specialties take pride in mastering the corresponding jargon, possibly in order to "one-up" those not in the know and no doubt also in the hope of improving their understanding of those more advanced in the specialty than themselves.

Sometimes jargon is misunderstood because an expression is also a common word whose usual meaning is totally different. A case in point is "blowup." In general usage the word implies a detonation, possibly accompanied by a conflagration, neither of which is a welcome event in your home. In hi-fi, however, a "blowup" can be anything from the silent burnout of a fuse to an actual explosion. Fortunately, in the hi-fi realm the latter is a rare occurrence.

From time to time, you may see a

reference to "blowing up" or "blowing out" an amplifier or a speaker, which are the most likely candidates for this sort of involuntary demolition. Many of us have experienced audio blowups, often without realizing that they have happened (something like sleeping through a mild earthquake). For the sake of clarity, therefore, let's redefine the term "blowup" to mean "a sudden loss of function." While most of us don't deliberately subject our hi-fi components to excessive stress, it happens nonetheless. Consider the following typical example.

Suppose your music system is built around a 200-watt-per-channel amplifier driving a pair of modest bookshelf speakers, which may be rated to handle up to, say, 80 watts of program material. If you have been a steady reader of *STEREO REVIEW*, you know that the average power actually delivered to the speakers in such a system is likely to be less than a couple of watts, with an occasional peak of 10 to 20 watts. Therefore, your speakers are safe because your amplifier will always be "loafing along" and won't be jeopardizing the health of your tweeters by prolonged clipping. So far, all is well.

Now, say you add a CD player to the system, together with a few blockbuster discs, and sit back to enjoy the listening experience. One of the discs begins at a very low level, hardly audible even in your quiet room. Before long, you are wondering why you invested all that money in that brute of an amplifier! So, straining to hear, you turn up the volume until it reaches maximum. At that moment, a sudden fortissimo drives your amplifier to its limits and beyond. As a result, either

your speakers emit a rasping death rattle as their woofer voice coils separate from the cones or their tweeters go silent as the fine voice-coil wires melt (they make excellent fuses)—or both. You have blown up your speakers! Following the ear-splitting sound that led to the blowup, you hear a muffled, distorted sound or no sound at all, depending on the extent of the damage. You wonder if your bank account can cover the repairs.

Normally, however, a speaker will last for many years. I still have perfectly good speakers that are more than thirty years old, and they may well last another thirty years. Yet speaker components, especially tweeters, can be very fragile and unforgiving of abuse. In order for a tweeter to deliver a uniform output up to very high frequencies, its moving parts must have very low mass. Achieving this requires using very fine wire in a tiny voice coil, but the small dimensions make it difficult to provide enough metal to carry away the heat generated in the voice-coil winding.

Fortunately, instrumental music contains statistically very little energy at the higher audio frequencies, and a tweeter can absorb large amounts of power for a few milliseconds without damage (we frequently drive a tweeter to 700 or 800 watts in our test procedures). The important qualifier here is "a few milliseconds," which is a *very* short time. Most dynamic tweeters can be burned out with average drive levels of only 6 to 10 watts *if* the signal lasts more than a few seconds. Our tests of a speaker's power-handling ability now use a single cycle of a sine wave (at 10,000 Hz in the case of tweeters), followed by 128 cycles (about 13 milliseconds) of silence, then by another sine-wave cycle, and so on. Such a signal, even with a pulse power of 1,000 watts, supplies a long-term average of only 8 watts to the tweeter and is thus less likely to burn it out.

In the world outside of the laboratory, a tweeter is one of the more fragile elements of a hi-fi component system. Driven to hard clipping, even a fairly low-powered amplifier, rated at 30 watts or so, can easily burn out a tweeter since the average power during hard clipping

Tested This Month

Revox B285 Receiver
Spectrum 108A Speaker
Marantz PMD430
Cassette Deck
Ortofon MC 100U-Phono
Cartridge
Sanyo VCR 7500
Beta Hi-Fi VCR

REDEFINITION.

THE CARVER RECEIVER

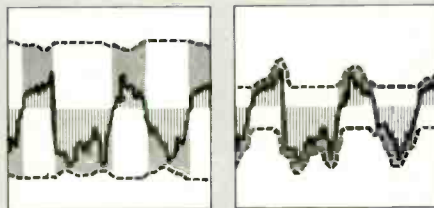
Redefines your expectations of receiver performance with the power you need for Digital Audio Discs plus virtually noise-free stereo FM reception. A receiver with astonishing performance incorporating two highly significant technological breakthroughs: Bob Carver's Magnetic Field Power Amplifier and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

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

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

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

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



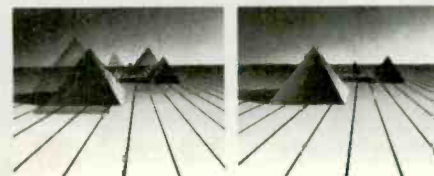
Solid line: audio output signal. Broken line: power supply voltage. Shaded area: wasted power. Vertical lines: power to speakers.

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

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

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



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Asymmetrical Charge Coupled FM Detector gives your ears a true sonic image.

The Asymmetrical Charge Coupled FM Detector was first introduced in CARVER's TX-11 Stereo Tuner, receiving unparalleled critical acclaim:

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Julian D. Hirsch, STEREO REVIEW (December, 1982)

"Separation was still there; only the background noise had been diminished, and with it, much of the sibilance and hissy edginess so characteristic of multipath interference."

Leonard Feldman, AUDIO (December, 1982)

"What distinguishes the TX-11 is its ability to pull clean, noise-free sound out of weak or multipath ridden signals that would have you lunging for the mono switch on any other tuner we know of."

HIGH FIDELITY (January, 1983)

"The Carver Receiver is, without question, one of the finest products of its kind I have ever tested and used!"

Leonard Feldman, AUDIO (June, 1984)

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

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CIRCLE NO. 49 ON READER SERVICE CARD

is very high, especially in the tweeter's operating frequency range.

A tweeter burnout is not always obvious, however, and I have seen more than one case in which it has gone undetected for long periods even by experienced listeners or representatives of the speaker manufacturer! It's easy to miss a tweeter burnout when the tweeter is blown in only one channel, since the other speaker will often supply the missing highs with no more than a moderate change of image position.

By the way, I should mention that you don't need a CD player to blow out a speaker. Try dropping any phono pickup onto a record with the volume set moderately high if you want to observe your speakers (and phono stylus) under stress. The resulting "thump" from this action, especially when it is amplified to a hundred watts or more, can sometimes pry a woofer's voice coil loose from its moorings. The higher the available power to reproduce the thump, the more likely the destruction of the speaker.

As shattering as the loss of woofers or tweeters can be (in both the literal and the figurative senses), the damage can be even worse. Many high-power amplifiers also do not take kindly to being driven into hard clipping, even for a moment, and show their displeasure by blowing out first their output transistors and then, a few milliseconds later, their fuses. Depending on the circumstances, amplifier blowouts can be merely annoying or downright costly.

What does "blowing out" a transistor mean? A transistor consists of a small chip of silicon that is connected to the leads or pins on its plastic or metal case by very fine wires. Driving it with excessive signal levels causes a very large current to pass through the silicon and the connecting wires. Depending on the magnitude and duration of the overload, either the silicon junctions within the chip can heat up and be destroyed, or the connecting wires can open up just like fuse wires. Many years ago, it was common to refer to the newfangled transistor as "the world's fastest fuse," since transistors always seemed to burn out sooner than the fuses that were supposed to protect them.

Since then, transistors have improved, and more sophisticated protection systems have been devised to replace (in some applications) the old-fashioned fuse. But blowups can still happen.

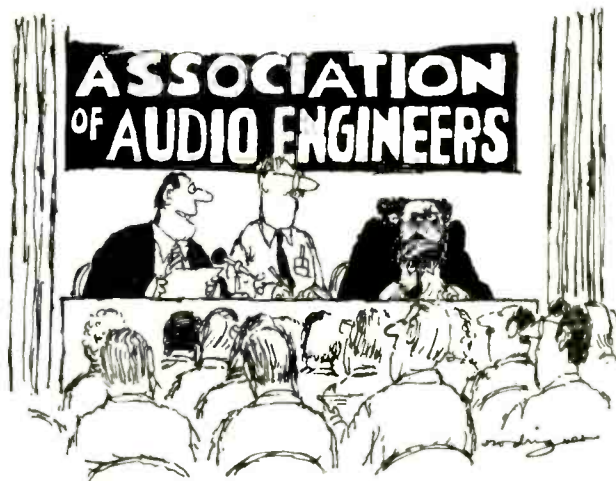
A transistor blowup is usually very unspectacular; often the only sign of its occurrence is that the amplifier goes "dead" on one or both channels. If a speaker is connected to the amp when the blowup happens, you may hear a fairly loud thump or click, or possibly nothing at all. Nowadays transistors rarely burn out unless abused, but not too many years ago, before silicon replaced germanium as a transistor material, it happened randomly and with discouraging regularity. Luckily, transistors weren't widely used in audio components until after the switchover to silicon.

While I have limited my discussion to speakers and amplifiers, that does not mean that your tuner, turntable, cartridge, or cassette deck are immune to damage, merely that they may expire in even less dramatic manners. Speaking of drama, though, *some* audio "blowups" are more like the real thing. These are rare but unforgettable when they do happen.

The large electrolytic filter capacitors in the power supply of any electronic component, not necessarily a powerful amplifier, normally last for years and never really just quit. Like the old soldier, they just fade

away. Occasionally, however, a capacitor develops an internal electrical leakage that causes it to heat up, which further increases the leakage. The heating continues until the internal pressure ruptures the case of the capacitor. Many capacitors have cardboard cases, and while these do not explode, a rupture causes the rather messy contents to spray over the inside of the component. A capacitor that has an aluminum case, though, can quite literally explode, usually completely destroying the amplifier or other component of which it is a part. If such a blowup is not confined within the component's outer case or cabinet, the explosion can be quite dangerous. I have seen an exploding capacitor case embed itself in a plaster ceiling above the scene of the mishap. In another capacitor explosion, the top cover of the amplifier was buckled as though a bomb had gone off within it (which, in a sense, was what had happened).

I have included these examples not to frighten anyone, but simply to show that a literal audio "blowup" is possible, if very, very unlikely. In practice, you can take any reference to a "blown" amplifier or speaker in a metaphorical sense. Think of it as just a failure, a less spectacular but more accurate description of the event. Audio "blowups" are more likely to be dangerous to your wallet than to your person. □



"... The resolution is carried. Henceforth, units of total harmonic distortion, or THD, will be known as 'kornblaus' or 'megakornblaus' in honor of our colleague, Dr. Leopold Kornblau."

Of The Many Reasons Why Polk Speakers Sound Better."



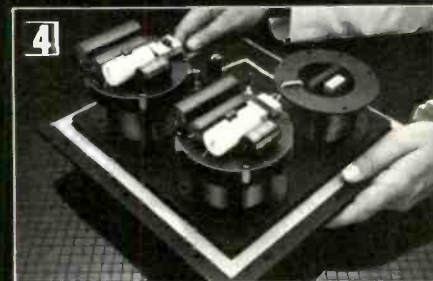
Polk's total dedication to a philosophy of quality results in dramatically better sounding speakers for your home and car (\$39.95 - \$850.)



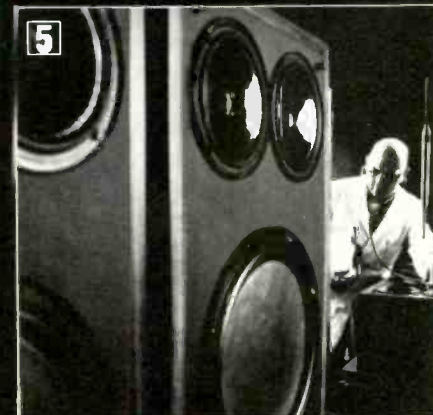
Polk's exclusive new Silver Coil Dome Tweeters achieve widely dispersed silky smooth, crystal clear high frequency reproduction.



Polk's exclusive Trilaminar Polymer Cone Drivers reproduce clean, clear better defined bass and midrange.



Polk's incredibly complex Isophase Crossover Systems achieve seamlessly smooth, coherently musical sound.



Polk's extraordinarily thorough quality control program is your assurance of sonic excellence and total satisfaction.

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PHOTOS BY RED AXON

REVOX B285 RECEIVER

Julian Hirsch, Hirsch-Houck Laboratories

REVOX products are known for fine performance, uncompromising quality, rugged construction, and unusual ergonomic design. All these qualities, and more, are exemplified by the new B285 AM/FM receiver. In addition to having a moderately powerful amplifier (70 watts per channel) and a high-performance tuner, the B285 makes extensive use of computer technology in its control operations.

The computerized character of the B285 is emphasized by the total absence of knobs or other conventional controls. Every operation is controlled by a pushbutton or pushplate, most of which need very little pressure for activation.

Volume is increased or decreased by pressing on one of two large plates (+ and -) in the center of the front panel above the display screen. Each of these plates is pivoted in the middle; pressing the sides marked with single arrows changes the volume in 1-dB steps, and pressing the other sides, marked with double arrows, changes it in 3-dB steps. Most of the amplifier-section control buttons are on the right side

of the panel. The bass, treble, and channel balance are varied in discrete steps by successive touches on their control buttons. Other push-buttons are used to select the program source, activate the SUBSONIC filter and the loudness compensation, bypass the tone controls, and mute the volume by 20 dB.

The large power switch plate at the far right turns the receiver on in the same operating status it had when it was last used, including station selection, volume, and all other pertinent control settings. The receiver can also be turned on by pressing an input selector: TUNER, PHONO, DISC, TAPE 1, or TAPE 2.

The left side of the front panel contains the tuner-section controls for manual and automatic tuning, muting, mono, channel blend, band selection, and station presets. The B285 also has a novel alphanumeric memory feature, which allows the normal station-frequency display to be replaced at will by any four-character alphanumeric group such as the station call letters or an abbreviation of its location.

Like most other digital-synthesis AM/FM tuners and receivers, the

Revox B285 can be tuned manually in single steps or set to search the band automatically for a receivable signal, on which it stops and unmutes. A notable difference, however, is that the frequency shifts in steps of 25 kHz for FM and 1 kHz for AM instead of the more usual tuning intervals of 100 or 200 kHz for FM and 10 kHz for AM. This feature not only makes the B285 usable without modification in any part of the world, but it also gives the user the option of detuning slightly for improved reception under certain difficult conditions.

Instead of the usual six to ten station memories, the B285 can store up to twenty-nine AM or FM frequencies. And in addition to the station frequencies, the tuner's memory stores many other operational settings, including muting, channel blend, mono/stereo mode, AM or FM band, and audio "sensitivity." The audio gain can be adjusted separately (and memorized) for each station, or any other selected input, in order to maintain approximately equal listening levels from all sources. Station frequencies are memorized and recalled by means of ten buttons, used singly or in pairs, and successive operation of another button steps the tuner through all memorized stations.

The B285's multifunction liquid-crystal display shows the status of

9 mg. "tar", 0.7 mg. nicotine av. per cigarette. FTC Report FEB. '84.

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up to twenty-four control settings, including program source (with the station frequency or alphanumeric tag when the tuner is in use), tone, balance, volume in decibels, FM center tuning, and signal strength. The display, with black characters on a lighter background, is internally illuminated for visibility when room light is low (an LCD normally depends on external light sources). Also on the front panel are a headphone jack and the receptor for the optional Revox B205 infrared remote control, which duplicates most of the receiver's front-panel control functions and can also control Revox's B215 cassette deck and B225 Compact Disc player.

The rear apron of the receiver contains a 75-ohm FM antenna jack (there is no connection for a 300-ohm antenna) and connectors for the supplied AM loop antenna and two pairs of speakers. There is also a six-pin connector for an optional Revox B203 timer control and a button for switching an optional moving-coil phono pre-preamp. The B285 should be plugged in continuously to provide standby power for retention of memorized information and to keep the control and infrared-sensing circuits active so that full-power operation can be switched on and off from the remote control. Therefore, conventional external timers cannot be used for making unattended recordings. (We found, however, that unplugging the receiver for as long as a week did not result in a loss of the memory settings.) There are no accessory a.c. outlets.

The Revox B285 is a large and heavy receiver for its power rating, measuring 18 inches wide, 13 inches deep, and 6 inches high and weighing approximately 33 pounds. The metal cabinet and most of the front panel are finished in dark gray, with contrasting brushed satin-aluminum trim. Price: \$1,600. The optional B205 remote control is \$125. Studer Revox America, Inc., Dept. SR, 1425 Elm Hill Pike, Nashville, TN 37210.

Lab Tests

The Revox B285 is rated to deliver 70 watts per channel into 8-ohm loads (or 90 watts into 4 ohms) between 20 and 20,000 Hz

FEATURES

- Rated at 70 watts per channel into 8-ohm loads, or 90 watts into 4 ohms, from 20 to 20,000 Hz with no more than 0.03 percent total harmonic distortion
- Digital-synthesis AM/FM tuner with twenty-nine station presets
- Station memories store information on relevant tuner and receiver control settings
- Automatic and manual tuner scanning
- Twenty-four-function liquid-crystal display shows receiver's complete operating status, including tuned station frequency or call letters, band, signal strength, selected source, volume setting, speaker selection, and all other tuner and amplifier control settings
- Pushbutton selection of all functions
- Connections and switching for phono (MM), CD player, two tape decks, and two pairs of speakers
- Optional B205 wireless infrared remote control operates most receiver functions
- Headphone output and switchable infrasonic filter, stereo/mono, FM channel blend, loudness compensation, and -20-dB audio mute
- Input jack for 75-ohm FM antenna
- Detachable AM loop antenna

HIRSCH-HOUCK LAB MEASUREMENTS

<ul style="list-style-type: none"> <input type="checkbox"/> Audio Amplifier 1,000-Hz output power at clipping: 107 watts into 8 ohms, 138 watts into 4 ohms, 66 watts into 2 ohms Clipping headroom (relative to rated output): 1.83 dB into 8 ohms, 1.86 dB into 4 ohms Dynamic power output: 182 watts into 8 ohms, 312 watts into 4 ohms, 105 watts into 2 ohms Dynamic headroom: 4.15 dB (8 ohms); 5.4 dB (4 ohms) Harmonic distortion (THD + noise at 1,000 Hz into 8 ohms): 1 watt, 0.005%; 70 watts, 0.0048% Slew factor: greater than 25 Sensitivity (1-watt output): phono (MM), 0.37 mV; CD, 37 mV Phono-input overload level: 200 mV High-level-input overload level: 10 volts A-weighted noise (referred to 1 watt): phono (MM), -82 dB; CD, -92 dB Phono-input impedance: 47,000 Hz in parallel with 60 pF minimum (switchable to 150 or 450 pF) RIAA phono equalization error: +0.5, -2.5 dB from 20 to 20,000 Hz (see text) Reactive-load factor: 2.68 dB at 63 Hz 	<ul style="list-style-type: none"> <input type="checkbox"/> FM Tuner Section Usable sensitivity (mono): 14.5 dBf (1.4 μV into 75 ohms) 50-dB quieting sensitivity: mono, 17 dBf (2 μV, 75 ohms); stereo, 38.5 dBf (23 μV, 75 ohms) Signal-to-noise ratio at 65 dBf (500 μV, 75 ohms): mono, 84 dB; stereo, 75.5 dB (at 85 dBf, stereo S/N increases to 81.5 dB) THD + noise at 65 dBf (500 μV, 75 ohms): 0.12% in mono, 0.5% in stereo Capture ratio at 65 dBf: 2.75 dB AM rejection: 75 dB at 65 dBf Alternate-channel selectivity: 96 dB Adjacent-channel selectivity: 8.5 dB Image rejection: greater than 135 dB Stereo threshold (depends on sensitivity setting): 25 or 21 dBf (2.8 or 1.8 μV into 75 ohms) 19-kHz leakage: -80 dB Hum: -96 dB Stereo channel separation: 45 dB at 100 Hz, 46.5 dB at 1,000 Hz, 36 dB at 10,000 Hz; 8 dB at all frequencies with BLEND turned on <input type="checkbox"/> AM frequency response (-6-dB points): 110 to 3,500 Hz
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with no more than 0.03 percent total harmonic distortion. We pre-conditioned it for one hour with 23.3 watts (one-third rated power) into 8 ohms before making amplifier measurements. The top of the cabinet became very hot over the output-transistor heat sinks, and af-

ter an extended period of high-power operation a humming sound could be heard from within the receiver. The hum persisted even after we turned the amplifier off, and it did not disappear until the unit had cooled down to a more normal temperature. Keep in mind,

however, that this effect was produced by abnormally stressful test conditions. The subsequent performance of the receiver was apparently unaffected, and it remained comfortably cool and silent in normal operation.

The amplifier section's frequency response (measured through the DISC, or CD, input) was ruler-flat from 20 to 20,000 Hz. The tone controls had excellent characteristics, with virtually no effect on the mid-

The FM tuner section of the B285 has some remarkable specs. Even more impressive is the way in which it met or surpassed them in our tests!

range response. The loudness compensation affected only the bass frequencies, below 250 Hz, using the same response contours as the bass tone control; it did an excellent job, without the heaviness produced by many loudness controls. We noted that the tone-control readout also shows the amount of bass boost being supplied by the loudness system, as determined by the volume setting.

The phono equalization, though accurate, was slightly affected by the volume setting at frequencies below 40 Hz, and the infrasonic filter had a very slight effect in the range from 30 to 40 Hz (its -3-dB point was just below our measurement limit, apparently about 15 Hz). The noise levels measured through the DISC and phono inputs were unusually low, and the amplifier was stable with a complex reactive load simulating a typical "difficult" speaker system.

The FM tuner section of the B285 carries some rather remarkable specifications, including image rejection of 110 dB, alternate-channel selectivity of 96 dB, and a signal-to-noise ratio (S/N) of 84 dB in mono and 80 dB in stereo. Even more impressive than these ratings was the manner in which the receiver met or surpassed them in our tests!

The measured alternate-channel selectivity was exactly 96 dB and identical on both sides of the tuned frequency, which is equally unusual.

The measured adjacent-channel selectivity of 8.5 dB was somewhat better than average, if not quite as exceptional. The image rejection was unmeasurably high. The B285's tuner was the first in many years to achieve that distinction, and the only one since we acquired our current Panasonic VP-8179P signal generator. We ran out of generator output at 135 dB with no sign of an image response from the receiver.

In most other respects, such as sensitivity, frequency response, and channel separation, the tuner was merely excellent rather than superlative. Its measured S/N was the rated 84 dB in mono with the standard signal level of 65 dBf, but we had to increase the input to 85 dBf in order to reach the maximum quieting of 81.5 dB in stereo (this is a very common requirement for tuners with exceptionally low noise specifications). The measured AM rejection was also something of a record in our experience, and only the capture ratio failed to surpass our expectations.

The FM distortion in stereo measured somewhat higher than with most tuners, but this result was a direct consequence of the extraordinary selectivity of the B285, and a slight reduction in modulation level reduced it substantially. But even 0.5 percent third-harmonic distortion (which the B285 reached in stereo) is quite inaudible with music, and such a level is most unlikely to occur in reception of actual broadcast signals, which do not normally modulate as heavily as our test signals except on brief peaks.

Comments

I found only one aspect of the Revox B285 deserving of criticism: the liquid-crystal display is sometimes difficult to read. LCD's usually have a limited viewing angle, but in this case the internal illumination is also too low for my taste (and eyesight). True, the display does tell you about virtually everything going on in the receiver (including much you may not care to know), but at a moderate distance, or 45 degrees off to the side, or in a dimly lit room, it can be unreadable.

Otherwise, the B285 is an outstanding receiver. The audio section has ideal characteristics. Its low dis-

tortion varies only slightly with power and never includes significant levels of harmonics higher than the third. Its noise level is among the lowest we have seen (especially from a receiver), making it truly "digital ready." Even the apparently modest power output (by current standards) should be more than adequate for any reasonable listener given the extreme conservatism of the ratings and a dynamic headroom surpassing anything else we have yet seen.

We used the B285 with the highest-quality ancillary equipment at our disposal, and it sounded every bit as good as it measured. The performance of the tuner section was extraordinary, with very low background noise, even in FM reception with a deliberately poor indoor antenna, and a refreshing lack of the usual "birdies" and other annoyances even on the AM band.

Part of the B285's appeal derives from its thoroughly computerized control and memory system, which makes most others look rather amateurish. That same system, however, might in one respect be considered a weakness, since the B285 does not operate like any other receiver we have seen. It is doubtful that anyone, regardless of his prior experience with hi-fi components, could use all the features of the B285 effectively without a careful study of its comprehensive instruction manual. Many of its controls do not operate like the similarly designated controls most of us are

The computerized character of the Revox B285 receiver is emphasized by the total absence of control knobs.

familiar with, and it is not at all obvious at a glance what other controls do.

Studying the manual pays off, however, for there is much more to this receiver than the basic functions. And it's those extra added attractions, together with superb performance, that make the Revox B285 one of the most impressive pieces of electronics I've seen in some time.

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SPECTRUM 108A SPEAKER SYSTEM

Julian Hirsch, Hirsch-Houck Laboratories

THE Spectrum 108A is a small two-way speaker whose size and weight are consistent with placement on bookshelves or on free-standing pedestals. The walnut-grain, vinyl-covered box, which is 14½ inches high, 11½ inches wide, and 9 inches deep, weighs only 15 pounds.

The 108A's nominally 8-inch woofer, operating in a vented enclosure, crosses over to a 1½-inch cone tweeter at 2,300 Hz, the crossover network producing 12-dB-per-octave slopes. The paper tweeter cone has a ½-inch-diameter aluminum center cap that is said to enhance its output at frequencies above 8,000 to 10,000 Hz. The black foam-plastic grille is permanently cemented to the front of the cabinet. In fact, we had to rip the grille off of one of our test units in order to locate the drivers, a necessity for positioning the test microphone accurately for close measurements. With the grille re-

moved, we could see that the woofer port was in the upper left corner of the panel and that the tweeter was partially covered with a strip of aluminum screen, presumably to protect it from damage since the foam grille can easily be pushed in.

The Spectrum 108A has no user-accessible controls. Recessed into its back panel are two spring-loaded terminals, which accept the stripped ends of speaker wires, and a fuse holder—a rarity with low-priced speakers. A spare 1-ampere fuse is supplied for each speaker. Price: \$195 per pair. Spectrum Loudspeakers, Inc., Dept. SR, P.O. Box 774, Toledo, OH 43695.

Lab Tests

For our tests, we mounted a pair of Spectrum 108A's on pedestals about 16 inches off the floor and 24 inches from the wall behind them. Their smoothed room frequency response showed what appeared to be

a dip in output at about 500 Hz. Since this dip did not appear in the quasi-anechoic response measurements made with our IQS FFT analyzer, it seems probable that it was a result of this particular placement. The effect was not audible as such in any of our listening tests.

The overall response variation was a moderate ± 4 dB through the middle and high ranges, with the minimum occurring at 10,000 Hz and an increasing output in the next higher octave. Low-frequency response was measured separately for the woofer and its port, using close microphone spacing in both cases. Combining their two response curves, with due allowance for the relative sizes of the woofer and the port, produced a bass-response curve with its maximum at 100 Hz. Bass response fell off at about 3 dB per octave at higher frequencies, at 6 dB per octave from 100 down to 50 Hz, and at 12 dB per octave below 50 Hz.

The FFT pulse-response measurements, at a 1-meter distance, showed an axial response that varied only ± 3 dB from 200 to 18,000 Hz. The phase response was equally good, with a group-delay variation of ± 0.2 millisecond from 2,000 to 20,000 Hz. Since we had already removed the grille from one speaker, we compared the responses with and without the grille. That there was no significant difference up to our measurement limit of 30,000 Hz is a testimonial not only to the acoustic transparency of the Spectrum 108A's grille but also to the response uniformity of the regular production-run units we tested.

The impedance of the Spectrum 108A had two maxima (this is characteristic of vented enclosures), 22 ohms at 32 Hz and 30 ohms at 100 Hz. Impedance was 8.5 ohms in the octave from 150 to 300 Hz, which would justify a nominal 8-ohm rating. After a broad rise to 16 ohms at 900 Hz, the impedance fell to its minimum of 6.5 ohms at about 4,000 Hz. The speaker's sensitivity, measured at 1 meter, was a 91-dB sound-pressure level (SPL) with an input of 2.83 volts of random noise in a one-octave band centered at 1,000 Hz, only slightly less than the 92-dB SPL rating.

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corresponding to our own reference SPL of 90 dB, for bass harmonic-distortion measurements. Initially we tested the speaker with its grille in place, but we were disturbed to find an unusually large harmonic-distortion content (6 to 10 percent over the 100- to 50-Hz range) accompanied by audible buzzing from the grille. At that point we decided to remove the grille, and the measured distortion without it dropped from the previous excessive level to a very low one—about 1 percent down to 70 Hz and only 5 percent at 35 Hz. The other test unit did not produce excessive distortion with its grille in place, and we surmise that this effect in the first speaker was caused by some contact between the foam grille and the screen-wire protective cover over the tweeter. In any case, the port output is dominant at all frequencies below 100 Hz, so we plotted the port distortion also; the readings were not very different from those at the cone.

Finally, we measured the maximum short-term power the speaker could withstand at low, middle, and high frequencies without visible waveform distortion of its acoustic output. We used single-cycle tone bursts with a duty cycle of 1:128 or 1:64 for these tests in order to keep the average power to the speaker at a safely low value.

Despite the small size of the Spectrum 108A's drivers, at each test frequency the amplifier's output clipped or distorted before the speaker did. The corresponding clipping-power levels, with the actual impedance at each test frequency, were 200 watts into 30 ohms at 100 Hz, 400 watts into 16 ohms at 1,000 Hz, and 800 watts into 8 ohms at 10,000 Hz! While these figures might suggest that the 108A can be driven to high levels with impunity, or driven without restraint by any super-power amplifier, we would nevertheless suggest caution. Remember, we were using single-cycle bursts, a rather simple signal unlikely to be found in real musical program material.

Comments

We found that the Spectrum 108A did not have the kind of full bass that one expects from larger

speakers. In some ways this characteristic can be an advantage: the 108A did not impart any unnatural heaviness to the program, as so many other speakers, of all prices,

Despite the small size of the Spectrum 108A's drivers, at each test frequency the amplifier's output clipped or distorted before the speaker did. The clipping-power level reached 800 watts at 10 kHz!

do. Overall, the spectral balance of its sound was good, the slightly bright top end and reasonable bass output making it sound surprisingly similar to some much more expensive and better-known speakers with which we compared it. Not that we couldn't hear differences, but the Spectrum 108A was refreshingly free of the common aberrations of low-priced speakers, such as peaky response, dull highs, excessive bass distortion, and the like.

Although we routinely listen to speakers through an amplifier capable of delivering several hundred watts per channel, we do not make a practice of pushing speakers to their limits except under test conditions. But even in our listening tests we had no qualms about driving the Spectrum 108A's with power levels that might have been expected to reduce them to ashes, and we never even blew a fuse! We still suggest a modicum of caution, however, if you play these or any small speakers with a high-powered amplifier at unusually high volume levels.

The Spectrum 108A is a surprising little speaker, as our test results suggested. While it cannot perform sonic miracles, its frequency-response, power-handling, and distortion characteristics are certainly better than might be expected from a system of its size and price. This eminently listenable speaker is a worthy contender in its class. And though it will not outperform good speakers that are several times larger in size and a great deal higher in price, it will give them a run for their money.

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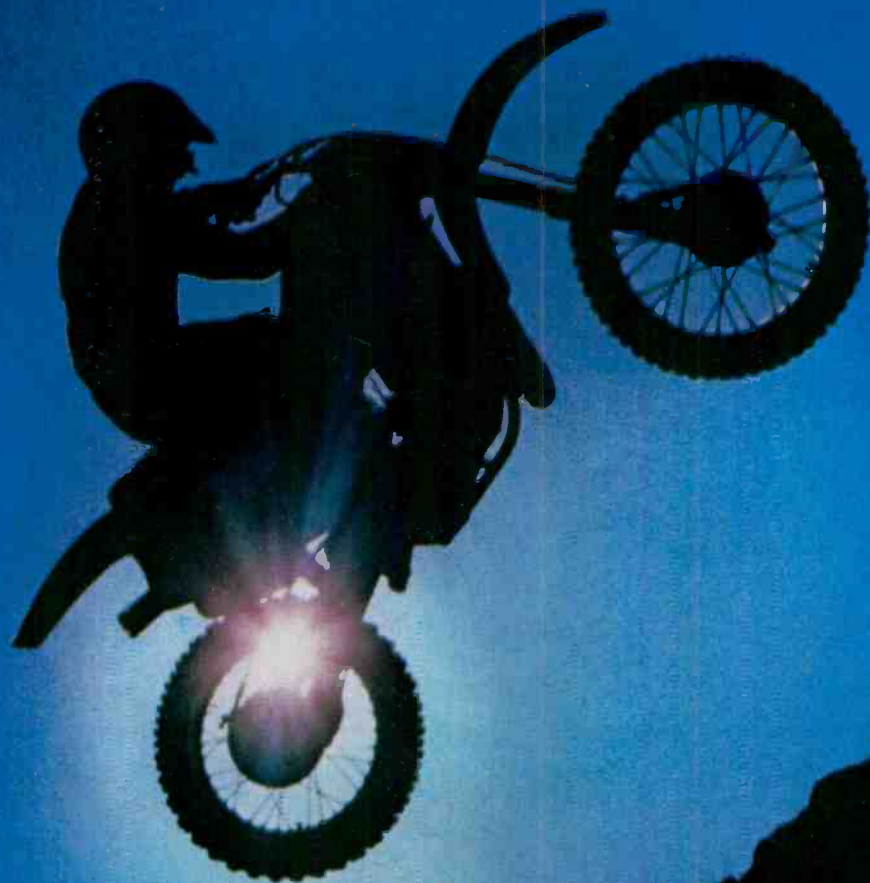
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LING



MARANTZ PMD430 CASSETTE DECK

Craig Stark, Hirsch-Houck Laboratories

THE Marantz PMD430 cassette deck seems to be particularly designed for audiophiles interested in making live, on-site recordings. The fully portable deck weighs only 4 pounds, and it can be powered either by batteries (three D cells or a rechargeable battery pack) or from a plug-in a.c.-line adaptor. Unlike typical portable recorders, however, the PMD430 has separate left- and right-channel microphone inputs, with a three-position attenuator (0, -15, or -30 dB) to prevent overload in extremely loud environments such as an on-stage recording of a rock concert. To accommodate the wide dynamic range of live music, dbx noise reduction is provided as well as the more common Dolby B. Even the PMD430's round, 1¼-inch VU-type meters and "European" styling recall professional on-site open-reel recorders.

The PMD430 has separate record and playback tape heads, permitting a user to monitor the incoming signal and the recording alternately. Both heads are made of hardened permalloy. The tape transport uses a single capstan and a single d.c. servomotor. Presumably to conserve battery power, all the transport controls are mechanical rather than solenoid-operated. Cassettes are loaded into a compartment on top of the deck; its transparent door gives full label visibility. While the lid is not removable, the tape heads and rotating parts are easy to reach for cleaning and demagnetizing.

A single knob adjusts the recording level for both channels. While a limiter circuit is provided for use in speech recording, it can be switched off, as is essential for taping music. There is a built-in limited-fidelity speaker that can be switched to monitor either the left or right chan-

nel or their sum (in other words, mono). The speaker's level control also affects the listening level at the headphone jacks but not the level at the regular line outputs you'd use for connecting the deck to a home stereo system.

Record and playback levels are shown on two VU meters, one of which is also used to check the battery condition. The meters are calibrated from -20 to +5 VU, though the numbers are so small as to be virtually unreadable. The yellow and red bands (below and above 0 VU) on the meter faces are more easily seen, however, and the meters are supplemented by a single peak-indicating LED that turns on at +4 VU. (Though it was not marked as such, we found that +4 VU corresponded to the IEC 0-dB level.) Again to conserve battery power, the meters are illuminated only when you press a button, and then only for 10 seconds at a time.

A second compartment on top of the PMD430 contains switches for selecting dbx, Dolby B, or no noise reduction; for setting the proper bias and equalization for ferric, CrO₂-type, or metal cassettes; and for activating memory rewind or

*Stereo Review's critics
choose the outstanding
current releases*

CLASSIC HOT ROCK FROM LONE JUSTICE

As a general rule, I don't give rave reviews to bands whose names sound like the title of a Chuck Norris movie, but I'm making an exception for Lone Justice. It is one of the most interesting of the new breed of "roots" bands I've yet heard, and the lead singer, Maria McKee, is a genuine discovery.

McKee may look like an L.A. punk, but in the group's first album, for Geffen, she comes across as having an authentic country voice, immense lung power, and the phrasing of a singer twice her age with twice her experience. Comparisons will doubtless be made with Dolly Parton or some of the younger Nashville brats, like Carlene Carter or Rosanne Cash, but the fact is that McKee is quite clearly her own woman. The band she fronts, meanwhile, is a classic, no-nonsense, guitar-oriented hard-rock outfit with the courage to flaunt some of its rough edges. The combination of McKee's Appalachian belting and her band's highly distilled brand of aural raunch is often devastating, calling to mind nothing so much as an improbable collaboration between a young Brenda Lee and the 1969 Rolling Stones. In short, this is hot stuff.

McKee wrote several of the songs, and they're never less than interesting. *Sweet, Sweet Baby*, which, as a bonus, includes a nifty solo by guitarist Miami Steve Van Zandt, is a superb, achingly felt love song that nonetheless rocks out with something approaching grandeur. Notable among the others are *Working Late*, a witty update on all those country songs about long-suffering wives whose men mess around, and *Soap, Soup and Salvation*, in which McKee pulls out all the vocal stops,



NICK ELGAR/LGI

Lone Justice's McKee: truly spectacular pipes

including a potentially disastrous a cappella gospel interlude that she negotiates with enormous aplomb. There's more than a suggestion here that McKee may turn out to be a major songwriter as well as the possessor of truly spectacular pipes.

Add to all of the above a really terrific song by Tom Petty (*Ways to Be Wicked*) and the most restrained Jimmy Iovine production in recent memory, and you have a strong contender for somebody's Debut Album of the Year award. Come to think of it, if Lone Justice someday does the music for a Chuck Norris film, I'll probably go see it. Higher recommendation than that I can't give. *Steve Simels*

LONE JUSTICE. Lone Justice (vocals and instrumentals); Benmont Tench (keyboards); other musicians. *East of Eden*; *After the Flood*; *Ways to Be Wicked*; *Don't Toss Us Away*; *Working Late*; *Sweet, Sweet Baby (I'm Falling)*; *Pass It On*; *Wait 'Til We Get Home*; *Soap, Soup and Salvation*; *You Are the Light*. GEFGEN GHS 24060-1 \$8.98, © 24060-4 \$8.98.

"HIGHWAYMAN": CONSUMMATE COUNTRY

BACK in 1976, Waylon Jennings, Willie Nelson, Jessi Colter, and Tompall Glaser came out with the album "Wanted! The Outlaws" and changed the face of modern country music. Now, nine years later, comes an unassuming little record called "Highwayman" with Jennings, Nelson, Johnny Cash, and Kris Kristofferson, and while it's unlikely to start a whole new trend, it is, in its way, just as appealing as its predecessor.

Despite the presence of Jessi Colter on "Wanted! The Outlaws," that album was about as "masculine" as a record could be, with boastful celebrations of maleness and macho exploits. "Highwayman" is a masculine album, too, but it is the voice of a mature man, a man who has



Nelson, Kristofferson, Cash, and Jennings: friendly highwaymen

perhaps explored his softer, or feminine, side and who has come to know the whole of himself through life's ceaseless triumphs and tragedies. Instead of being concerned so much with male bonding, the songs explore, in part, the relationships of the human family at large.

There is, in fact, an overtone of reflection running through the album, beginning with Jimmy Webb's title song about one of Willie Nelson's favorite subjects—reincarnation. Fraught with mood and atmosphere, the song becomes more and more haunting as each of the four singers takes on the persona of a man who has died and been reborn to live again in a different time and place. From there on, the album alternates familiar, wistful classics, such as Ed Bruce's *The Last Cowboy Song*, with lesser-known gems, such as Cindy Walker's *Jim, I Wore a Tie Today*. But by far the most affecting song of the bunch is Woody Guthrie and Martin Hoffman's *Deportee (Plane Wreck at Los Gatos)*. Cash and Nelson sing it, and in a stroke of genius, they brought in Johnny Rodriguez to do a stanza and join in the chorus. His Spanish lilt adds a touch of authenticity that sends a chill up the spine.

Throughout the album, Chip Moman's production is sprightly, yet unobtrusive, and well suited to the laid-back styles of all the performers. And while all four lead singers

appear on five of the ten tracks, with Cash and Nelson handling four on their own and Jennings joining them for another, the real star of "Highwayman" is Johnny Cash. The only one of the four to have any of his own tunes on the album (*Big River, Committed to Parkview*), Cash especially shines when trading stanzas with the others. His big voice-of-God baritone/bass makes Nelson, Kristofferson, and even Jennings sound a little weak.

In short, "Highwayman" is a rare treat in country music—four consummate country voices blending in friendship and harmony over dignified, quality material, stamping their marks of individuality on even the most familiar songs. Years from now, people may not be talking about it the way they still talk about "Wanted! The Outlaws," but chances are that they'll still be enjoying it. *Alanna Nash*

WILLIE NELSON, WAYLON JENNINGS, JOHNNY CASH, KRIS KRISTOFFERSON: Highwayman.

Willie Nelson, Waylon Jennings, Johnny Cash, Kris Kristofferson (vocals); vocal and instrumental accompaniment. *Highwayman; The Last Cowboy Song; Jim, I Wore a Tie Today; Big River; Committed to Parkview; Desperados Waiting for a Train; Deportee (Plane Wreck at Los Gatos); Welfare Line; Against the Wind; The Twentieth Century Is Almost Over.* COLUMBIA FC 40056, © FCT 40056, no list price.

POWERFUL PERFORMANCES OF POULENC'S SACRED MUSIC

A MOST welcome release from Harmonia Mundi restores to the domestic catalog two important choral works by the French composer Francis Poulenc, the *Stabat Mater* and the *Salve Regina*, and brings with them what is apparently the first recording of the version with orchestra of his *Litanies à la vierge noire*, which has been circulated before in its original form, with organ accompaniment. Serge Baudo conducts the Orchestre National de Lyon and its chorus in performances that make the most persuasive case for all three works.

Michèle Lagrange is the soprano soloist in the *Stabat Mater*. If she does not entirely efface memories of Régine Crespin, in the now-retired Angel recording, Lagrange's voice is a lovely one, with an appealing warmth and radiance, and you sense the natural tastefulness as well as unforced dignity in her response to this music. The work itself is powerful, strangely beautiful, and rich in contrasts, ranging from an almost raw-edged forcefulness in the "*Quis est homo*" to the intimacy and profundity of the "*Vidit suum*" to the near-giddy exultancy of the "*Eja, Mater*." Baudo and his forces project it all superbly.

On its own the chorus makes a lovely thing of the unaccompanied *Salve Regina*, but the *Litanies à la vierge noire* may be the most remarkable of these three works. It is surely the most concentrated in its

Baudo: persuasive





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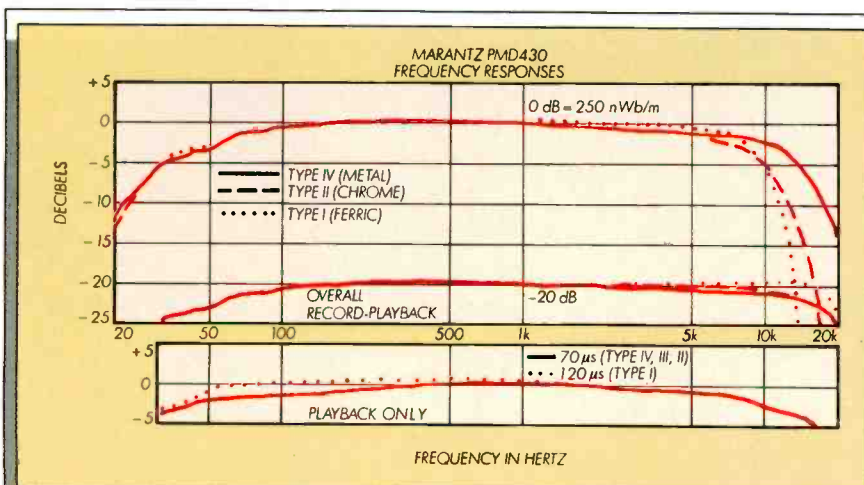
Either way, they're priced affordably. Fiero prices start at \$8,495* (as shown, \$8,809*). Firebird prices start at \$8,849* (as shown, \$9,682*). Fiero and Firebird. Only from Pontiac!

*Manufacturer's Suggested Retail Price including dealer prep. Taxes, license, destination charges and extra equipment additional.



LET'S GET IT TOGETHER BUCKLE UP

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HIRSCH-HOUCK LAB MEASUREMENTS

Fast-forward time (C-60): 100 seconds
Rewind time (C-60): 97 seconds
Speed error: +0.8%
Pitch-control range: ±7%
Bias-control range (measured at 10 kHz): +4.5 dB (ferric); ±2.5 dB (CrO₂); no effect with metal
Dolby B tracking error: +3, -2 dB (20 Hz to 16 kHz)
Wow-and-flutter: 0.11% wrms, 0.17% DIN peak-weighted
Line input for indicated 0 dB: 60 mV
Line output at indicated 0 dB: 0.29 volt
Microphone input for indicated 0 dB: 0.19 mV
Microphone input overload point: 23 mV (120 mV with 15-dB attenuator; 520 mV with 30-dB attenuator)
Meter indication at IEC-standard 0 dB: +4 dB
 Tape used: Maxell UDXL-I (Type I, ferric)
IEC 0-dB distortion: 0.36% (0.55% with dbx at equivalent output level)
Meter indication at 3% third-harmonic distortion: +10 dB (0.3% at +10 dB with dbx)

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	51.9	57.8	55.5
Dolby B	59.5	66.7	65.7
dbx	68.0	78.0	76.0

Tape used: TDK SA (Type II, chrome-equivalent)
IEC 0-dB distortion: 1.5% (0.38% with dbx at equivalent output level)

Meter indication at 3% third-harmonic distortion: +6.4 dB (0.9% at +10 dB with dbx)

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	53.4	58.7	55.8
Dolby B	57.5	66.5	66.2
dbx	67.5	78.2	76.5

Tape used: TDK MA-R (Type IV, metal)
IEC 0-dB distortion: 1.8% (0.38% with dbx at equivalent output level)

Meter indication at 3% third-harmonic distortion: +6.3 dB (0.4% at +10 dB with dbx)

Signal-to-noise ratios (in decibels):

	Unwtd.	A-wtd.	CCIR
NR off	52.8	58.5	55.8
Dolby B	57.4	66.4	65.9
dbx	64.3	77.8	80.0

the FM-multiplex filter. It also houses controls for varying the pitch (playback only) and for making fine adjustments of bias level.

In addition to the usual input and output jacks, a European-style DIN connector is included. Microphone modes are switchable between stereo and mono. The deck measures only 9½ inches wide, 6½ inches deep, and 2 inches high; it weighs just under 4 pounds. Price: \$350. Marantz Co., Inc., Dept. SR, 20525

Nordhoff St., Chatsworth, CA 91311.

Lab Tests

Marantz gave no specific indication of which tapes were used in setting up our sample of the PMD430, so we experimented. At the detented position of the bias control we obtained the flattest overall response with Maxell UDXL-I (ferric), TDK SA (CrO₂-equivalent), and TDK MA (metal), though the

range of the bias control was adequate to flatten the response of virtually any good tape.

Playback-only checks with our IEC standard test tapes showed a gradual falloff in the treble range. We are inclined to attribute this result to a slight azimuth error, since the overall record-playback response was somewhat better. At the normal -20-dB level used to check frequency response, the measured response was +0, -3 dB from 50 to 17,000 Hz with all three tape types. At the 0-VU level we encountered the usual high-frequency saturation effects; for live music recording, with its considerable high-end demands, metal tape is clearly indicated.

Signal-to-noise ratios were good, though not exceptional. Wow-and-flutter, however, was higher than average, no doubt reflecting the single-motor, single-capstan design. Tape speed varied by 0.7 percent from end to end of a cassette. Fast-winding times, Dolby tracking error, and input and output levels were all about average.

Comments

Obviously, when evaluating a portable recorder, where space and weight are at a premium, things like small knobs and meters are hardly to be criticized. Within these natural limitations, I found the Marantz PMD430 well designed and quite easy to use both for home dubbing and for a couple of live recordings.

As far as its sonic performance is concerned, the dbx circuits were well behaved, and the frequency response and signal-to-noise ratio were good for a portable deck in its price range. If I have any reservations, it is with respect to the level of wow-and-flutter, to which experience has shown my ears are more sensitive than most. While flutter was not evident when listening to loud, complex sounds such as a full orchestra, I did find it audible on passages of string quartets and solo-piano works. Only by listening for yourself, however, can you determine whether you would find this level of flutter disturbing. Otherwise, the Marantz PMD430 very well fills an important niche in the audio market.

Circle 142 on reader service card



ORTOFON MC 100U PHONO CARTRIDGE

Julian Hirsch, Hirsch-Houck Laboratories

ORTOFON'S MC 100U is the least expensive model in the company's line of Ortophase cartridges. It is a low-mass, moving-coil cartridge whose standard 1/2-inch mounting centers allow it to be mounted in virtually any headshell. Like the other models in the line, the MC 100U was designed for optimum phase response, not necessarily the flattest frequency response—hence the designation "Ortophase."

Ortofon's research into why moving-coil (MC) cartridges often sound different from moving-magnet (MM) cartridges suggested that high-frequency phase shift plays a major role in these subtle sonic effects. The moving system (the stylus and cantilever) of every cartridge resonates at some high frequency, usually (but not always) above the audio range. An unsuppressed resonance produces an output peak at the resonance frequency, a peak that often affects a wide range of frequencies on either side of it. A stylus/cantilever resonance, like all resonances, is accompanied by a shift in the signal's phase that can reach as much as 180 degrees at the resonance frequency and often

extends down into the audio range.

Most cartridge designs use electrical or mechanical damping to reduce the amplitude of the stylus resonance. When mechanical damping is used, it is usually applied to the internal moving parts by means of rubber-like elastic materials. Some MC cartridges use no damping, however, and the result is a large response peak above or at the top of the audio range, accompanied by an appreciable rise in output at the upper audible frequencies. Such accentuated high-end response is responsible for much of the sense of "air" and "definition" attributed to some moving-coil cartridges.

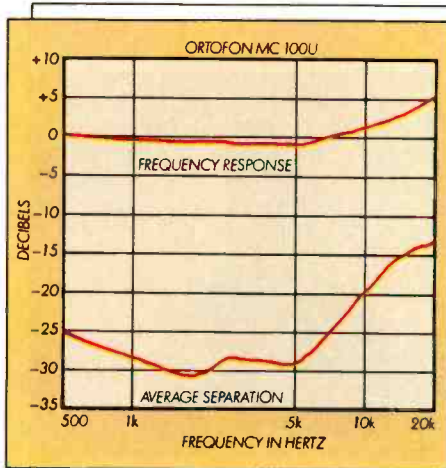
After extensive listening tests of basically identical cartridges having different amounts of stylus damping, Ortofon concluded that phase shift in the audio range is a more serious drawback than a rising amplitude response. The undamped system tested had a pronounced high-end rise, but its phase shift was restricted to a narrow range of ultrasonic frequencies. Ortofon's designers found that this combination produced the best imaging and overall feeling of realism despite the excessive brightness. When the damping

was adjusted to flatten the frequency response, the phase shift extended down into the audio frequencies, and the stereo imaging was degraded. The optimum result, Ortofon says, was obtained with partial damping, which left a moderate high-frequency rise but greatly reduced the phase shift in the audio range. The Wide Range Damping (WRD) system that resulted from this research is a key feature of the Ortophase line.

The WRD system consists of a tiny metal disc sandwiched between two rubber discs, with the stylus cantilever passing through their centers. At low frequencies the double rubber mount allows the cantilever to move freely through large excursions. At higher frequencies, the compliance of one of the rubber discs decouples the innermost portion of the cantilever, reducing the effective tip mass and improving the high-frequency tracking and response. The damping provided by the discs is designed to produce a rise in response starting at around 15,000 Hz and peaking at approximately 30,000 Hz, with a reduced phase shift in the audio range.

The mass of the MC 100U cartridge is a very low 2.3 grams. Since most tone arms cannot be balanced with such a light cartridge, the MC 100U comes with a removable 3-gram weight in its top (mounting) surface. The total 5.3-gram mass, though still less than the weight of most moving-magnet cartridges, can be balanced by virtually any tone arm. If your arm doesn't need the extra weight, you can easily remove it to take advantage of the MC 100U's very low intrinsic mass.

TEST REPORTS



One reason for the cartridge's small size and mass is that its coils are surrounded by a powerful samarium-cobalt ring magnet, which creates a symmetrical magnetic field. The aluminum-alloy stylus cantilever is tipped with a nude elliptical diamond stylus.

The Ortofon MC 100U is a low-output cartridge that requires a step-up transformer or pre-amplifier in order to drive a standard moving-magnet cartridge input. Ortofon offers two suitable transformers, the T-10 and the T-20. The T-10 supplied with our test cartridge (and shown in our photographs) is a very compact unit, measuring $3\frac{1}{2} \times 1\frac{1}{2} \times \frac{3}{4}$ inches. As with most moving-coil cartridges, the stylus is not user-replaceable. Each cartridge comes with a small but accurate stylus-force gauge. Prices: MC 100U, \$250; T-10 transformer, \$150. Ortofon, Dept. SR, 122 Dupont St., Plainview, NY 11803.

Lab Tests

After removing the 3-gram weight from the MC 100U, we mounted the cartridge in the low-mass arm of a high-quality turntable. The recommended tracking force of 1.5 grams was used throughout our tests. We made all cartridge measurements through the Ortofon T-10 transformer; during listening tests we also used our regular MC transformer, which sounded identical to the T-10.

The output of the cartridge (through the T-10) while playing the 1,000-Hz, 3.54-cm/s standard-level tones on the CBS STR 100 test record was about 5.3 millivolts,

with the channel levels matched within 0.25 dB. Since the transformer steps up the voltage by a factor of forty, the actual cartridge output was about 0.12 millivolt (120 microvolts). The frequency response, again measured with the STR 100 record, was flat within ± 1 dB up to about 9,000 Hz but rose to +5 dB at 20,000 Hz (see graph). The channel separation, about 30 dB in the mid-range, was still a thoroughly adequate 17 dB at 20,000 Hz. We also measured the frequency response with the JVC TRS-1007 test record, which showed a smaller high-frequency rise—to +2.5 dB in the range from 10,000 to 20,000 Hz.

Our subjective tracking tests immediately set the MC 100U apart from many of the other MC cartridges we have used. For years, an MC cartridge could be expected to have low compliance, hindering the tracking of high-level bass recordings, and often an undesirably high vertical tracking force (2 grams or more) as well. The MC 100U is rated to track at a very reasonable 1.5 grams, and it does a first-rate job at that force. It played the very high-level 32-Hz sections of the Cook Series 60 test record with no difficulty, and it performed equally well with the 30-cm/s 1,000-Hz tones on the Fairchild 101 record. Even the 300/315-Hz test tracks on the German HiFi #2 and the DIN 45549 records were played cleanly at the 70-micrometer level.

The MC 100U's tracking distortion, measured with the Shure TTR-102 and TTR-103 test records, confirmed its excellent tracking ability. The intermodulation distortion was a low 2 to 3 percent up to a recorded velocity of 16 cm/s and a reasonable 9 percent at 27 cm/s (many cartridges, especially MC types, mistrack totally at this level). High-frequency tracking was excellent, with the TTR-103's 10.8-kHz tone bursts yielding a distortion range from 0.5 percent at 15 cm/s to 0.7 percent at 30 cm/s. These figures are close to the lowest we have measured from a phono cartridge and may reflect the intrinsic distortion of the test record.

The 1,000-Hz square waves of the CBS STR 112 test record showed only a single overshoot and a moderate amount of low-level ringing, a

considerably better result than we have observed with most other relatively undamped MC cartridges. The vertical stylus angle was 20 degrees as rated. In our low-mass tone arm, the low-frequency resonance of the stylus/arm combination was around 13 Hz, making the combination virtually immune to the most severe record warps as well as to external jarring or impact (which can cause difficulties when the resonance frequency falls much below 8 or 9 Hz, an unlikely possibility with the very light MC 100U).

Comments

We could not confirm—or contradict, for that matter—Ortofon's claims for the superiority of the Ortophase design over other, more conventional approaches, but listening to a variety of records established that the MC 100U is in every respect a very fine-sounding cartridge. It did not seem in the least "bright," in spite of the undeniable high-frequency emphasis. Its overall sonic balance was exemplary, and in our tests it did not exhibit many of the usual MC qualities—very crisp, excessively sizzling highs and the like—that are considered virtues by some and aberrations by others (including me).

The MC 100U's output level makes a step-up device a must unless your preamplifier has a really good low-noise, high-gain MC input, but the tiny Ortofon T-10 makes it unnecessary to find some place to put a large or heavy transformer. The T-10 also proved to be unusually resistant to hum fields, another common problem with moving-coil step-up transformers.

Even if we cannot unequivocally confirm Ortofon's thesis on the importance of audio-range phase shift (we have not had the opportunity to hear a demonstration of its reality), we can affirm that the MC 100U is an excellent cartridge. Besides its fine performance, its very low mass should go a long way toward making a phono system immune to record warps and other gross mechanical stimuli. An MC cartridge with all this and sweet, uncolored sound at a relatively moderate price—who could ask for more?

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SANYO VCR 7500 BETA HI-FI VCR

*Julian Hirsch,
Hirsch-Houck Laboratories*

BETA Hi-Fi, the system used in Sanyo's VCR 7500 video-cassette recorder, not only overcomes the severe sonic limitations of the standard audio track(s) recorded along the edge of a video tape, it actually makes machines equipped with it among the highest-quality audio recording and playback devices available for home use. Disregarding its video functions, purely as an audio component a Beta Hi-Fi VCR comes close to matching the performance of digital Compact Disc players, and unlike them it can record too.

This high level of performance is achieved by encoding the two audio channels as separate frequency-modulated subcarriers in the general range of 1 to 2 MHz. The subcarriers are combined with the video signal and recorded together with it through the VCR's rotating heads, but they fall in the frequency range between the chroma (color) and luminance (brightness) information and thus do not affect the picture. In playback, the subcarriers are extracted and converted back into audio signals. To keep noise levels low, the Beta Hi-Fi system uses a proprietary "companding" noise-reduction system for the audio.

The Sanyo VCR 7500, in addition to its Beta Hi-Fi capabilities, is equipped to receive and decode TV broadcasts either with stereo sound or a secondary audio program (perhaps in a different language from that of the main program or even totally unrelated to it). Beta Hi-Fi recordings can be made not only from TV broadcasts but from exter-

nal audio sources using the VCR's AUDIO-IN jacks. The audio signal from such tapes appears at the AUDIO-OUT jacks, ready for playback through an external audio system, as well as being inserted into the modulated r.f. video signal (either Channel 3 or Channel 4) that normally feeds the antenna input of a TV set.

Simultaneously with a Beta Hi-Fi recording in either stereo or mono, a conventional longitudinal mono audio track is recorded on the tape, insuring playback compatibility with Beta machines lacking the hi-fi capability. The VCR 7500 also has a DUBBING mode in which a mono soundtrack from either the line or microphone inputs can be added to an existing recording without affecting its video content. Any hi-fi subcarriers present in such a recording are also unaffected by the addition of the dubbed track.

The VCR 7500 has a full complement of Beta VCR features, including Beta II and Beta III speeds, the

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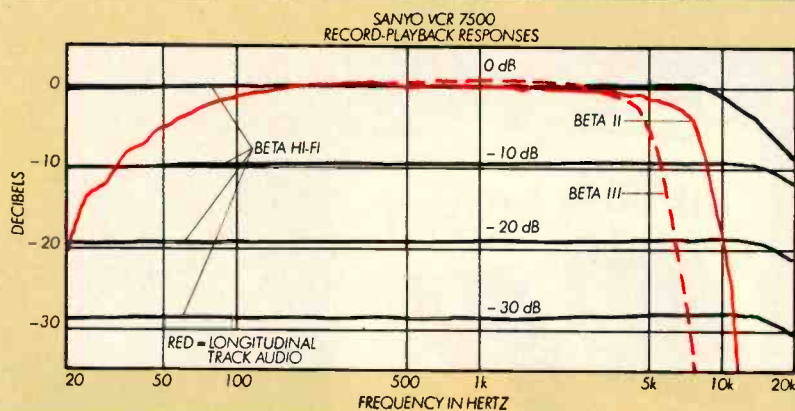
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Warning: The Surgeon General Has Determined
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Kings: 8 mg "tar," 0.5 mg nicotine—100's Reg: 10 mg
"tar," 0.7 mg nicotine—100's Men: 9 mg "tar,"
0.7 mg nicotine av. per cigarette. FTC Report Feb. 85

FEATURES

- Records and plays back at Beta II and III speeds
- Unattended timer-controlled recording for up to eight events over fourteen days
- Can be used with video camera
- Beta Hi-Fi sound recording from TV broadcast (mono or stereo), TV/FM simulcast, camera, microphones, or any external high-level mono or stereo source
- Normal (longitudinal) mono audio track recorded simultaneously with hi-fi channels for compatibility with non-hi-fi Beta VCR's
- Electronic four-digit index counter/clock
- Horizontal-slider audio recording-level and balance controls.
- Separate peak-reading LED audio-level indicators for each channel marked from -20 to +8 dB
- Defeatable automatic level control (ALC) for audio recording (manual level control available only for hi-fi mode)
- Single-button recording function
- Sleep mode permits unprogrammed recording start with programmed ending time
- Stereo headphone output with adjustable volume
- Auxiliary and infrequently used controls on hidden panel that swings out and up for visibility and access when hinged door is opened
- Wireless infrared remote control operates normal recording and playback functions, sequential channel selection
- All usual VCR features including fast forward, rewind, pause, high-speed search, single-frame viewing, etc.
- Digital-synthesis stereo TV tuner receives all VHF and UHF channels, cable channels A-W
- Pushbutton selection of up to twelve user-programmable TV channels
- One unswitched a.c. outlet (500 watts capacity)



HIRSCH-HOUCK LAB MEASUREMENTS

Frequency response in Beta Hi-Fi mode (referred to 1,000-Hz level): 20 to 20,000 Hz +0.5, -2 dB

Frequency response in normal mode (at -3-dB response points): 85 to 8,500 Hz at Beta II speed; 110 to 5,400 Hz at Beta III speed

Harmonic distortion in hi-fi mode: at 1,000 Hz, 0.38% at 0 dB, 1.95% at +8 dB; at 30 Hz, 0.7% at 0 dB, 3.6% at +3 dB

Signal-to-noise ratio in hi-fi mode referred to +8.5-dB signal level: 90 dB A-weighted, 87 dB unweighted

Flutter in hi-fi mode: 0.003% to 0.004% with DIN or CCIR weighting

Rewind time for L-500 cassette: 157 seconds

Input sensitivity for 0-dB recorded level: 175 millivolts aux, 0.6 millivolt microphone

Input overload level: 3.3 volts aux, 25 millivolts microphone

Playback level from 0-dB signal: 0.58 volt

Headphone output level (at clipping point): 1.65 volts into 600 ohms

Stereo channel separation in hi-fi mode: 62 dB at 1,000 Hz; 49 dB at 10,000 Hz

Video horizontal resolution: approx. 200 lines at Beta II and Beta III speeds (high-grade tape)

Video signal-to-noise ratio: approx. 40 dB at Beta II and Beta III speeds (high-grade tape)

ability to receive up to 105 channels (including cable as well as broadcast frequencies), and timer-controlled recording of up to eight programs in a fourteen-day period. It is furnished with an infrared remote control that duplicates all its normal operating functions.

A full-featured VCR such as the Sanyo 7500 inevitably has a large number of controls, many of which are used infrequently or only during the initial setup adjustments. On some VCR's all the controls are always visible, giving the machine an unnecessarily complex appearance. On others some are hidden behind hinged panels that are often deeply recessed and difficult to see and adjust. Sanyo uses the best solution we have seen to date: most of the less-needed controls are normally hidden from view behind a hinged door at the bottom right of the front panel; opening the door extends the secondary control panel forward and also tilts it upward, making these controls as easy to see and use as the main ones. In addition, markings on the inside of the door show how to adjust the various clock and program timer switches (though these adjustments are already much simpler than those on most VCR's we have seen).

The basic transport operation of the VCR 7500 is mostly conventional, with light-touch pushbuttons, although it has a "one-button" record function. Only the REC button need be pressed to make a recording, and it is not possible to go directly from play to record without stopping the tape. A manual recording start can be combined with an automatic shutoff time preset on the machine's internal timer (the SLEEP mode). Unlike many VCR's, whose timers are set with the starting clock time and the intended duration of the recording, the Sanyo must be set with the actual start and finish clock times for each programmed segment.

Below the transport pushbuttons are miniature phone jacks for two microphones (a single microphone plugged into the left-channel jack drives both channels in mono) and for stereo headphones (a small knob adjusts the headphone volume). Lights below the tape door show that a cassette is loaded, when the

timer is in use, which tape speed is being used, and when the Beta Hi-Fi system is operating. A display window on the panel shows the time or tape index position with large fluorescent numerals, and small lights show program and timer status.

Other front-panel displays include large numerals showing the selected TV channel and lights indicating reception of a stereo-sound TV broadcast or a secondary audio program (DUAL). Pushbuttons select either tape-counter or time displays, reset the index counter to zero, and engage a memory system that stops the tape at the "0000" counter reading in rewind. An array of buttons selects any of twelve preset TV channels for recording. The VCR 7500 comes from the factory with these buttons set for VHF Channels 2 through 13, but they can be preset to any of the 105 channels the unit can receive.

The rear of the recorder contains UHF and VHF antenna inputs and outputs, audio inputs and outputs, video jacks for input from a camera and output to a monitor, and a jack for a remote pause control. The Sanyo VCR 7500, finished in black, measures 16½ inches wide, 14½ inches deep, and 4½ inches high, and weighs approximately 20½ pounds. It comes with a remote-control unit, about 5¼ x 2 x ¾ inches, that is powered by two AA cells. Price: \$749.95. Sanyo, Dept. SR, 1200 W. Artesia Blvd., Compton, CA 90220.

Lab Tests

The Beta Hi-Fi record/playback frequency response of the Sanyo VCR was measured at indicated levels of -30, -20, -10, and 0 dB. The results were the same at all three lower levels, varying only +0.18, -0.5 dB from 20 to 14,000 Hz and down about 2.5 dB at 20,000 Hz. At 0 dB, the response was almost perfectly flat up to 10,000 Hz (see graph).

We also measured the recorder's longitudinal (normal) response at both tape speeds and levels of 0 and -20 dB. At -20 dB the -3-dB response bandwidth was 110 to 5,400 Hz at the slower speed (Beta III) and 85 to 8,500 Hz at the faster speed (Beta II). At the 0-dB level the frequency response was 80 to 4,000

Hz and 75 to 6,800 Hz, respectively. (The Beta Hi-Fi performance was the same at both speeds since the effective recording speed is determined by the rotating head drum rather than the linear tape speed.) Other measured audio and video

We checked the audio performance of the Sanyo VCR 7500 by dubbing CD's and making A/B comparisons between the recording and the original source. We could find no difference between the two at any listenable volume level.

characteristics are summarized in the accompanying box.

Comments

The audio performance of the Sanyo VCR 7500 in its hi-fi mode was typical of the best we have measured from such machines. Furthermore, its normal-mode frequency response and its subjective picture quality were at least comparable to those of any other VCR we have tested. We checked the audio performance of the VCR 7500 by using it to dub CD's and making A/B comparisons between playback of the recording and of the original

source. We could find no difference between the two at any listenable volume level. When we recorded a "silent" portion of tape (no input signal) and played it back at maximum volume, a slight hiss was audible close to the speakers; a CD test record with a no-signal band (all digital zeros) produced no hiss at all. But this comparison merely reflects the difference between a noise level in the -80- to -90-dB range (the VCR) and one at least 10 dB lower (the CD); it has no significance in normal use.

We were highly impressed by the relative simplicity of adjustment and operation of the Sanyo VCR 7500. Few full-featured VCR's we have seen are nearly as easy to use.

The Sanyo VCR 7500 is as flexible as any, but its designers obviously gave considerable thought to user convenience. The instruction manual is even clearly written and well organized for the most part, which is not always the case with VCR's, whose multitude of operating modes and possible system connections make truly simple instructions almost impossible. With the Sanyo VCR 7500, only the channel-setting process requires a bit of experimentation to make it work as intended. In sum, this is one hi-fi VCR that gives excellent performance without any fuss.

Circle 144 on reader service card



"... Yes, sweetheart, I realize that \$4,600 is a lot of money for a new pair of speakers. But look, we're both working, and with what we make plus what we'll get if we each sell a pint of blood every couple of weeks for a year or so, I know we can swing it!"

*A component hi-fi system
that you put together
yourself can offer
better performance
and more flexibility
than a rack system—
and it need not cost
an arm and a leg
by Thomas R. Gillett*

THE CASE FOR SEPARATE COMPONENTS



A FRIEND of mine, we'll call him Peter, recently bought a department-store rack stereo system—one-stop shopping. He thought he was getting a good deal—only \$795 for integrated amp, tuner, equalizer, duplicating cassette deck, turntable, and cartridge. Three-way speakers too.

Poor Peter. He should have known better than to ask what I thought of his purchase.

"I wish you'd talked to me before you bought it. I could have put you on to good separates."

"Doesn't sound too great, huh?"

The system *wasn't* great, primarily because of the speakers, and Peter knew it. There wasn't much we could do about it. Separate the speakers more, get them up on stands. But that was it.

And this was a reasonably good rack system—not one of those off-brand deals you see in discount stores, where the turntable platter and virtually everything else that can be plastic is plastic.

My pal Peter took the easy way out—he didn't want to rack his brains, so he bought a rack system. Now he's wringing his hands. For the same money, or a little more, he could have bought separates. He would have had a system that sounded better and that could be easily upgraded.

Okay, rack systems *are* easy to buy. And easy for department stores and discount houses to *sell*. The salesperson needn't know more than the customer. "Blister-pack stereo," snaps one audio dealer.

All the buzzwords

"A rack system offers every buzzword known to mankind," says Dean Smith, manager of Audioelectronics, a store in Norwalk, Connecticut. "So if someone comes up to you and asks, 'Do you have an equalizer, a timer, a double deck, direct drive, quartz lock, three-way speakers, Dolby?,' you've got it.

"Not only that, the consumer thinks he's getting better value for the money because there are more pieces of hardware. Customers don't want to be as educated as they used to be. They're just looking for an easy way out," Smith laments.

Fear of buying

"But you can't blame customers for shying away from separates," says Lillian Tepera of Rotel Audio of America. "The first-time buyer feels overwhelmed by the range of product and the foreign language.

The industry wraps everything up in a language of its own, which scares off the uninitiated."

There's irony here. Customers turn to the rack because they're confused by the very buzzwords that push hot buttons in the advertising copy. People will apparently accept the jargon in an ad but become frightened when they hear it from hi-fi salespeople.

"No one likes to look dumb," said one salesperson who requested anonymity. "It's so much easier to go into a department store, point to the rack system you saw in the paper, and say, 'I'll take that.'"

Lend me your ears

Alas, some hi-fi salespeople *can* be intimidating—generally less experienced (and less knowledgeable) salespeople showing off their knowledge. If you run into one of these types, you have two options: leave and try another store, or find an audiophile friend to help you make your purchase.

Borrowing some ears is a good idea in any event. A knowledgeable friend will be up on the equipment, having read the reviews. He will be able to ask the salesperson about different alternatives and advise you, impartially, as to whether it's worth spending extra money.

Finally, a friend can give you an opinion about how good a system sounds—if you're a first-time stereo buyer, you simply may not know. For instance, those speakers that sound so alive in the showroom may become intolerably bright on extended listening.

Fortunately, most audiophiles seem happy to lend their ears—it's fun to help someone buy stereo equipment. An audiophile friend will likely know the best stores in your area to shop and even the most knowledgeable salespeople who work there.

False woofers

If something looks like *too* good a deal, it probably is. I've seen discount-store rack systems for under

*You can spend
under \$1,000 at an
audio specialty store
and still get expert
advice and service.*

\$500. True, you may get a separate integrated amp, tuner, equalizer, turntable, and speakers, let's say. But the quality isn't there. It *can't* be for the price.

Alvin Gold, a hi-fi writer in Britain, reports seeing a rack system—they call them "music centres" over there—where the speakers had woofers *painted* on the cabinets. On this side of the Atlantic, we've heard, there are speakers that appear to have 8-inch woofers showing through cloth grilles—but these turn out to be stickers or decals, often disguising inexpensive 4-inch paper-cone drivers.

"If someone's been looking at a rack system, I just tell them to remove the grille cover from a speaker or feel the tone arm on the turntable," says Bill D'Onofrio, of Audiocom, a stereo specialty store in Old Greenwich, Connecticut. "Then do the same with products in my store. You don't have to be an expert to see the difference."

As for *hearing* a difference, how can you audition a rack system? You can turn on the unit and see how it works, play with a few of the buttons. But there's no way you can get a sense of how the system sounds by listening in the middle of a sales floor. "You're taking pot-luck, aren't you?" asks D'Onofrio.

"But I'll spend too much."

No doubt about it, you can spend thousands of dollars at a store like Audiocom. But you can also spend *under* a thousand dollars and still get the same expert consultation and service. Most specialty stores—even the "high end" shops—offer starter systems for the first-time buyer. Says D'Onofrio, whose sales approach is decidedly low-key:

"I can put together a good-sounding system for as little as \$600—including a Denon DRA-350 receiver, a Dual 502-2 turntable, and a pair of Boston Acoustics A40 loudspeakers. For under \$1,000, I can include a Nakamichi cassette deck. The customer is getting good value in terms of performance . . . and warranty."

Ultimately, the question whether to buy a rack system or separates is linked to the question of whether to buy at a stereo specialty store. Of course, some specialty stores *have* "rack systems" for customers who want them. Often these consist of selected separates sold along with an equipment rack. Even the rack tends to be better than what you find in a department store.

Will separates be compatible?

First-time stereo buyers are worried about compatibility. With an ordinary rack system, everything's from one manufacturer and everything's matched. There's no way to go wrong. "If I go to a stereo store, how will I know I'm getting a compatible system?" buyers often ask. "How will my Japanese receiver get along with my German turntable and American speakers?"

Well, a good stereo store won't let you make a mistake. The salespeople have tried out different systems and combinations of components. They know, for instance, not to pair a low-powered receiver with power-hungry speakers.

"There's nothing wrong with mixing different brands," says Dean Smith. "It's done all the time. One manufacturer may make a terrific low-priced receiver. Another may offer an excellent budget turntable or a great inexpensive cassette deck. No store will risk its reputation by selling you components that don't work well together."

Smith also questions whether buying a rack system is really easier for the customer. A stereo specialty store will install your phono cartridge in the tone arm and make sure it's set up correctly. They will supply you with speaker wire, the connecting cables you need. If you have questions when you get home and hook everything up, you can phone the store for knowledgeable assistance. And many stores will deliver and set up the system for you.

Receiver or separate preamp, power amp, and tuner?

Rack systems often make a big thing about giving you a separate integrated amplifier and a tuner. But if you're spending \$1,500 or less, you're probably better off with a receiver, which combines the two. (An integrated amp is a combination preamp and power amp.)

The advantage of a receiver is lower cost of manufacture—just one chassis instead of two or three. Virtually all receivers sold in audio specialty stores will give you good performance. The thing to remember is that by spending more money you'll get more power, more control features (and flexibility), and, most likely, a better tuner.

Still, under some circumstances you may be better off with separate pieces. Say you listen a lot to FM but live in a tough reception area.

*With separates,
you can buy your
system piecemeal—
the basics first,
then additional
components as you
can afford them.*

You might combine a high-performance tuner (like the \$599 Carver TX-11 or \$600 Onkyo T-9090) with an integrated amp or a separate preamp and power amp. This approach makes sense if you need excellent FM reception capability but don't need a lot of power, for instance. And there are many fine modestly priced tuners on the market now, like the \$229 NEC T-6E, so a separate tuner needn't break your budget.

Many stores will let you try out a tuner at home, on approval, so that you can decide whether you need to invest in a "supertuner." Sometimes the store will lend you the showroom sample to use on a Sunday. This is one example of why it can be worthwhile to build a relationship with a local dealer.

There are many good values in integrated amps, too, including models from Sony, Yamaha, Sansui, Denon, Radio Shack, Pioneer, Kenwood, and Marantz, among others. This writer has a few personal favorites. You might check into a Rotel—the RA820B (25 watts per channel, \$199) and the RA840B (40 W/ch, \$299) are both no-frills units with excellent sound. For more power (and more money), you might audition the NEC A10 II (60 W/ch, \$600)—it's beautifully built and sounds it too.

You can even buy budget esoterics. There are, for instance, two excellent integrated amps from Britain: the Creek CAS 4040 (\$295), rated at 40 W/ch, and the British Fidelity Synthesis (\$498), rated at 70 W/ch. The Synthesis is very basic—no tone controls, not even a left- and right-channel balance control. The sound, however, concedes little to components twice its price.

"You could combine the Synthesis integrated with a pair of Sendor SP-1 speakers (\$850) and a good turntable and cartridge and have an excellent audiophile system for under \$2,000," says Richard Schaus,

whose RCS Audio International imports the Synthesis and Spondors.

If you're spending \$2,000 or more, you could go the separate preamp and power amp route. The advantage over an integrated amp is flexibility. You can get a preamp with the exact features you want, and a power amp with as much power as you need. And you can find some fine low-priced preamps and power amps—there's never been more selection in the budget area. Among low-cost preamps some standouts include the NAD 1020B (\$148), the Hafler DH-100 (\$175 kit, \$225 factory assembled), the Rotel RC870 (\$299), and the PS Audio Source (\$329 kit, \$429 factory assembled).

Some preamps offer greater control flexibility than others—or, to put it another way, they allow you to connect more components. For instance, for \$600 you can get the Technics SU-A6MK2, through which you can run a turntable, a tuner, a Compact Disc player, an audio tape deck, a video-disc player, and a VCR. That's the kind of control flexibility you cannot get in a rack system.

There are some excellent budget power amps too, including the highly regarded Hafler DH-120 (\$260 kit, \$320 factory assembled), the Rotel RB 870 (\$375), the B&K ST 140 (\$440), and the Harman Kardon hk 870 (\$525). I mention these components by way of reassurance that separates needn't cost an arm and a leg.

Dean Smith says it isn't uncommon for a customer to spend a little more than he or she intended, however. "You play a pair of \$500 speakers and then a pair of \$300 speakers, and the customer decides it's worth spending the extra \$200. The important thing is to be flexible, if you can—don't set an arbitrary price limit."

If your budget is tight, you can always buy your system piecemeal. You might purchase an integrated amp, a turntable and cartridge, and a pair of speakers. Later, when you can afford it, you could add a tuner, a cassette deck, or a CD player. "It's better to have a few components of good quality than more components of lesser quality," advises Smith.

Do you need a turntable?

A savvy salesperson can sometimes suggest ways to save you money while sacrificing little or nothing in performance. Do you re-

ally need the equalizer that comes with a rack system? Or the timer? Truth is, you can probably get by without it, at least for a while, and you can always buy an equalizer and a timer later. And do you need the rack? You're paying for it—which makes no sense at all if you're planning to take the components out of the rack and put them on a shelf. (Surprisingly, quite a few rack system purchasers do just that.)

For that matter, do you need a preamp? Not if you'll be using a Compact Disc player or a tape deck instead of a turntable and phono cartridge. Steve Bauman, of Q Audio, Cambridge, Massachusetts, has put together some systems for his customers with an AR Stereo Remote Control unit (\$159) instead of a preamp. You can connect a CD player, a cassette deck, and a tuner to the AR SRC unit, and you connect the SRC unit to a power amp. The AR unit lets you control volume and channel balance from your armchair. (Don't try connecting a turntable directly into the SRC, though—it has no phono-preamp section of its own to boost the output from the cartridge.)

That is what separates offer—quality and freedom of choice. With the help of an experienced audio salesperson, you can tailor a system to meet your needs. Incidentally, one more piece of advice. If you can, try to avoid shopping for stereo equipment on Saturday, by far the busiest day of the week. And you might phone the store for an appointment rather than just dropping in. That way, you know you'll receive a salesperson's prompt, undivided attention.

Still not convinced that separates are for you?

Well, here's one more thing to consider. With separates, it's easy to upgrade. You can always trade in or resell your high-quality separate components—there's a ready market for good second-hand components. In fact, the more esoteric the components, the livelier the used market. You'll always be able to sell your used Hafler preamp or power amp—if you ever want to.

Your used rack system? Well, I'll tell you what my friend Peter is planning to do with his.

Give it to his kids.

Thomas R. Gillett, a free-lance writer, is a regular contributor to Stereophile. The components recommended in this article are not necessarily the choices of the editors of STEREO REVIEW.



How to track down what causes audio equipment, old or new, to function badly or not at all

by Ian G. Masters

TROUBLE

IN its day, it was a handsome piece of equipment: simulated wood-grain front panel, brown plastic rocker switches that operated with a satisfying *snap*, green back-lit dial markings, and lots of little gold-topped knobs—the ultimate in audio design, circa 1965. The question was, what was it doing in my friend's equipment rack twenty years later?

It was doing just fine, as it turned out, having been rescued from its basement oblivion to replace a much more recent—and more exotic—component that had been returned to the manufacturer for repairs.

"I bought this thing when I was at school," my friend told me. "It cranked out the watts practically twenty-four hours a day for over twelve years, until I could afford to get something more up-to-date. It was like an old friend, though, and I could never bring myself to get rid of it, so it's been sitting in a box downstairs all these years. When I had to send my latest amp to the shop, I dug this out, plugged it in, and off it went!"

Frankly, this didn't strike me as at all peculiar—my own system includes all sorts of ancient bits and pieces that show no signs of quitting. It was more surprising that my friend had to have anything repaired: audio components are extremely reliable for the most part, and unless you abuse them they are unlikely to break down. The veteran receiver that is functioning perfectly after a couple of decades is much more typical than the component, old or new, that grinds to a halt.

Still, things *can* go wrong. An audio system sometimes begins to produce unpleasant sounds—or no sounds at all—and some detective work becomes necessary if you want to find out what's wrong. The more complex the system, the harder it will be to pinpoint a problem, but even quite modest setups are vulnerable to gremlins. In any case the most important task is to discover *where* the problem lies.

In many instances the trouble spot will be obvious immediately. Individual components tend to misbe-

CYBERON



SHOOTING

have in fairly distinctive ways, so there's little point in chasing through your system if the fault is, say, clearly in the turntable. Merely finding the trouble spot doesn't necessarily mean you can fix it. Of course, but often the remedy is quite simple once you know exactly what's wrong.

Turntables

For example, your turntable is a fertile area for trouble. It's not that record-playing equipment is any less well built than other components, but a turntable is a very delicate electromechanical device, and even slight misadjustments can have dramatic effects on sound quality. Fortunately, most of the problems are simple to correct.

Sometimes a condition will develop in which the stylus seems to have trouble staying in the groove. Groove jumping or skipping can be caused by a number of things, but in my experience the reason is usually

that the turntable is not level. Some turntables are very sensitive, and even a small deviation from a level position can be serious. A small spirit level placed on a record on the turntable will indicate whether or not it is truly horizontal (some models have built-in levels), and any needed correction can usually be made by adjusting its feet. Failing this, small pieces of paper or tape under the feet can do the job.

Or it may be that there is insufficient tracking force to hold the stylus in the groove, although too low a tracking force will usually be associated with gross amounts of mistracking distortion as well. Carefully balancing the tone arm and setting the tracking force according to the manufacturer's instructions will usually clear things up, but tone arms vary in the accuracy of their calibration. If you're not sure about yours, a few bucks for a stylus-pressure gauge would be a good investment. Check the specifications for your phono cartridge and set the tracking force at the recom-



mended level, or even a touch higher. If the manufacturer specifies a range of forces, go for the upper end of the range—record wear might be increased slightly, but that is more than offset by the reduction in mistracking or skipping, both of which can do far more damage to your records than ordinary wear.

If the instability only shows up when you walk by the turntable, or when there is dancing in the room, the difficulty is likely to be in the suspension—the platter and tone arm are insufficiently isolated from vibration. Different turntables offer varying amounts of immunity to this problem, and often it's too late to change models by the time you discover yours is one of the touchy ones. Sometimes a foam pad will help, like the ones used under typewriters, although such pads can compress unevenly over time and make the turntable unlevel. Some manufacturers sell special isolating feet for turntables. If it is convenient, the best solution is usually to find somewhere else to put the turntable so that the floor vibration never reaches it. Finding the best place is very much a matter of experimentation, but the general rule is that the turntable should be on the most solid piece of furniture available, on the most solid bit of floor (preferably right over a joist). If all else fails, mounting it on a special shelf fixed to the wall often works well. Before you go to any of this trouble, however, make sure you are getting at least what isolation the turntable itself provides. Not long ago an acquaintance bought a new turntable that seemed unduly sensitive to vibration—until he realized he hadn't removed the transport screws, which effectively negated the isolation. Check your owner's manual.

Even more delicate than the turntable is the tone arm, although if it has been set up properly in the first place, there's not a lot that can go wrong. But one thing that can have horrible sonic consequences is mistracking, and to some extent this is a function of tone-arm performance. The arm's main function is to keep the stylus in the proper position with respect to the record groove, so if the stylus is leaving the groove momentarily and then crashing back in—that is, if it is mistracking—the arm's not doing its job. Not only does mistracking sound awful, but it can seriously damage your records. It can also be caused by the cartridge itself, but with today's models that's uncommon except at the very bottom of the price scale. Mistracking can usually be cured simply by putting a bit more force on the stylus to keep it in the groove. Increasing the tracking force may seem to risk increasing record wear, but it might not—many tone arms have an inexplicable way of gradually misadjusting themselves over a period of time, and you may find you have been tracking at a force well below the cartridge's recommended value.

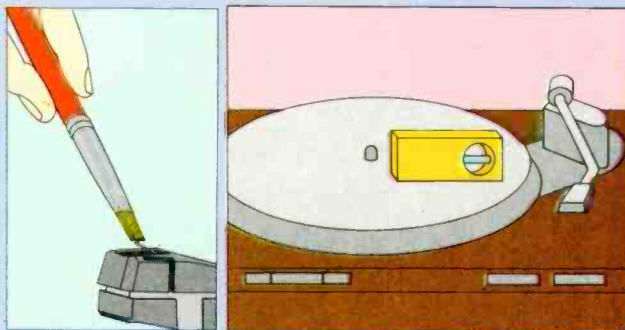
Occasionally a tone arm's antiskating mechanism can also become disturbed, and this can cause distur-

tion in one channel (or, in very severe cases, groove skipping). The first thing to do is to check the arm's antiskating control to see if it has crept out of adjustment, but antiskating devices vary widely in their effectiveness, and the fact that the setting seems to be correct may not mean that it is. About the best way to set an antiskating control is to reduce the tracking force until there is considerable audible mistracking (use an *old* record that you don't mind ruining), and then adjust the antiskating until the distortion level is equal in both channels. Then reset the tracking force to its proper value.

Phono Cartridges

Once correctly installed, a phono cartridge is unlikely to cause much trouble unless the stylus becomes fouled. The fuzzy sound of a dirty stylus is unmistakable, and the accumulated fluff is usually visible and can often be blown off with a gentle puff. *Never* remove stylus fluff with your fingers; if the dirt is stubborn, use a soft brush designed for the purpose, *always* brushing from back to front. Otherwise you risk a bent cantilever or a detached stylus, or at the very least an oily stylus that's only too ready to pick up the next load of dirt. Sometimes the dirt on your stylus will refuse to yield even to the blandishments of a stylus brush. Over a period of time, record-cleaning fluids can combine with the dirt to form a sort of cement that clings tenaciously to the stylus. A liquid stylus cleaner will usually get rid of it. In any event, you can minimize all such problems by cleaning your records scrupulously before you play them.

Two other problems can affect the cartridge/stylus assembly. One is an out-and-out breakage of the stylus



or cantilever from too-enthusiastic cleaning, a mishap with the tone arm, or even simple wear and tear. If this happens, there's nothing for it but to replace the stylus assembly. Occasionally you will have to do some investigation to find out whether something has actually broken: sometimes the cantilever will crack but won't come apart, or the stylus will loosen but won't

HUM

THE troubleshooting procedures described in this article presuppose that you are suffering from massive amounts of distortion or a complete shutdown of one or both channels somewhere in the signal chain. There is, however, another problem that can be as annoying as distortion and is often much harder to track down: hum.

Our hi-fi systems are loaded with places for stray electromagnetic fields

to creep into the sound—every jack, every patch cord, every chassis has the ability to pick up electromagnetic radiation, and our homes are filled with it. When it sneaks in, we hear it as 60-Hz hum, and it can drive any audiophile crazy. While manufacturers of hi-fi equipment have done wonders in keeping hum susceptibility to a minimum, there is no way they can predict how we will hook up our systems, and there is a limit to what can be done by the audio designer.

As with any other fault, the first

thing to do about hum is to find its source. Since most hum problems arise in the record-playing chain, check to see whether hum affects any other inputs. Listen during a particularly quiet bit of an FM broadcast or to the pauses in a Compact Disc or to your cassette deck in the pause mode (don't play a tape you made, however—you may have recorded hum on it yourself). If you are reasonably sure that the hum occurs only on the phono input, there are several things you can try that will probably get rid of it.

drop out (be sure the stylus assembly is fully inserted into the cartridge body). While performance will be audibly degraded, the cause may only show itself under a microscope. It's worth a trip to a dealer who has a microscope to find out.

The other problem you may encounter is simpler to remedy. The connections between the cartridge and the tone arm in a removable headshell or the contacts in a P-mount assembly occasionally become fouled, causing the signal either to cut out completely or to pick up noise or distortion. Simply plugging and unplugging the connections or cartridge assembly a few times will usually clear this up; in stubborn cases a drop of contact cleaner will do the trick.

Tuners

FM tuners are prey to their own set of gremlins, although they rarely indicate a true malfunction. The major problem with FM reception is multipath distortion, which is characterized by a particularly gruesome, variable noise. Tuners vary in their susceptibility to it, but in any case it is essentially a problem of antenna position rather than the tuner itself—the antenna is picking up reflected signals at or near the same level as the primary signal and creating the sonic equivalent of a TV "ghost." It's particularly serious in cities, where signals bounce back and forth between the buildings.

If your antenna is a chunk of wire behind the tuner, simply moving it around may cure distortion, although there's no guarantee that a particular position won't cure the difficulty today but aggravate it tomorrow. For a complete cure, you may have to switch to a highly directional antenna that will ignore the reflections. These are typically roof-mounted, but several companies make directional indoor antennas that may help. If all else fails, you might consider taking the FM feed from your cable-TV company.

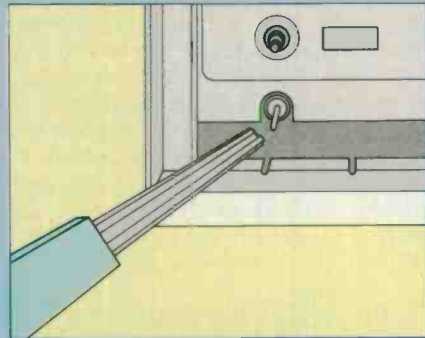
A problem I have encountered once or twice with distant stations is an annoying tendency for the signal to cut in and out unpredictably. The culprit was the tuner's FM-muting circuit, which treats a signal below a certain point as noise and cuts it off. A fringe signal may come in strongly enough at times that it does not trigger the mute, but at other times it may be so weak that it does, and that's when it cuts out. The immediate solution is to switch out the muting circuit, but that may leave you with a noisy signal. If you really want to listen to the station, it will probably be more palatable in mono.

Cassette Decks

Cassette decks can misbehave in their own peculiar ways, although as materials and manufacturing technologies improve they are becoming increasingly more reliable. The problems you are most likely to encounter

have to do with matching the recorder to the tape you use rather than with either deck or tape alone. The most common difficulty is a dulling of the high frequencies, which usually means that the machine is not optimized for the tape you have selected—either the bias is set wrong or the tape's output level is sufficiently different from the input level that the Dolby circuits mistrack.

To check for incorrect bias, first make absolutely



sure that you have set your machine's controls properly for the sort of tape you're using—follow the recommendations in the manual. It's also fairly easy to find out whether you have a level problem: record something on the tape that peaks at 0 dB (AM broadcasts are good for this because most of them have a very limited dynamic range), then play the tape back and see where the peaks are reading; if they are at -3 dB or lower, you are probably getting some Dolby mistracking. The solution to a level-matching or bias problem is either to have a technician optimize your machine for the tape you wish to use or else to find a tape that likes your machine.

Dulled highs may persist even with a deck and tape that are perfectly matched, however. If so, the source of the problem may be dirt. A buildup of oxide on the tape heads or guides can physically hold the tape away from the heads, with disastrous consequences for high-frequency performance. There is often a high incidence of dropouts as well (or you may have only the dropouts). Oxide buildup calls for a thorough cleaning of all the machine parts that touch the tape, particularly the heads. Convenient head-cleaning cassettes are available, and these can be useful, especially if your deck's heads are hard to get at. But oxide deposits can be pretty tough and will sometimes yield only to sterner measures—head-cleaning fluid or isopropyl alcohol on a cotton swab (preferably wooden) will usually work.

Occasionally it will happen that a newly recorded tape will sound fine, but one that has been played a few times begins to sound dull. Sometimes it is the fault of the cassette itself—the pressure pad built into the shell

Start by making sure that the cartridge is not picking up hum from a nearby power cord or transformer. You can usually tell by moving the tone arm; if the hum changes, it's coming from an external power cord or transformer, and you can eliminate it by moving either the offending source or the turntable. If the hum does not change when you move the tone arm, check your connections step by step:

(1) Check the special grounding wire that virtually all turntables have. If it's not connected to the grounding post on

your preamp or receiver, connect it; if it is, disconnect it.

(2) If the turntable does not have a polarized a.c. plug, flip the plug over and see whether that helps.

(3) If you use a moving-coil cartridge, make sure that the leads from the turntable to the transformers or preamp are as far away as possible from any power cords.

(4) Finally, wiggle the plug on one of the leads from the turntable to the preamp just far enough out of its socket to disrupt the shield's ground con-

nection, but not enough to break the "hot" connection, and repeat Steps 1-3.

If the hum is occurring elsewhere in the system, the same sort of process of elimination will usually isolate it, although you may experience an audiophile's nightmare—hum can get into the system in many different places. The number of different ways you can connect and reconnect your system in order to get rid of hum is huge, but patience will be rewarded in all but the most stubborn cases. In the meantime, swearing is permitted.

recedes a bit with wear, reducing head-to-tape contact. You may be able to restore the contact by bending the spring that holds the pad, but usually the cassette is a write-off unless you can stand to listen to it with no highs. You may want to keep it, though, against the day when you upgrade to a dual-capstan machine, which is relatively immune to this particular problem.

It's more likely, however, that this sort of gradual degradation is caused by magnetized tape heads. The parts that come in contact with the tape can build up a residual magnetism with use, and the magnetization has the effect of erasing a bit of the recorded signal—starting at the high end—every time you play a tape. You will never restore this information once it is lost, but it's fairly simple to prevent the process from continuing. Various head demagnetizers are on the market, some in the form of a cassette that you simply play for a few moments. These are very effective, and using them regularly is a sensible bit of preventive maintenance even if you don't have the problem . . . yet.

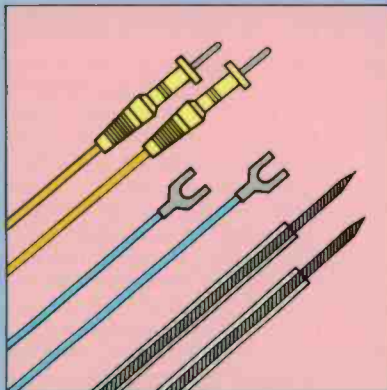
Amplifiers and Connections

The "pure" electronic components in your system, the preamplifier(s) and power amplifier(s), are pretty hardy, probably the least likely to break down. If they *do* break down, however, they are also the most likely to have to go into the shop—mucking about inside a dead power amplifier is definitely not recommended. But the state of today's audio electronics is such that my own practice is to consider them last when I'm troubleshooting a system. The problem is almost always somewhere else.

Things like noisy switches and volume controls can develop, of course (a shot of contact cleaner will fix these up, if you can get at them), and meters can break down now and then (I find I can usually live with a nonfunctioning meter on an amplifier). But when something *seems* to be wrong with the electronics, it is usually safe to assume that the problem is somewhere in that tangle of wires that connect the components together.

The first thing to check is the routing of the cables. Most of us have occasion to shift bits of equipment around from time to time, and most of us don't take too much care in labeling the wires as we unplug and replug them, so things can easily become misconnected. Moreover, there is very little standardization in how manufacturers label certain functions, such as "tape in," "monitor," and so forth. It's not always obvious what should get plugged into what. Check your various owner's manuals to resolve such ambiguities, and then trace through *all* your connections to make sure they're right.

Actually, it's not a bad idea to unplug everything and



start from scratch. In the first place, starting over will require you to rethink your system, which should help ferret out any misconnections. In the second place, the very action of removing and replacing the connections will help to insure that they are tight (sometimes a problem is caused merely by a plug working loose in its jack, which may or may not be apparent on a visual inspection), and it may also scrape off any contact-disturbing oxide that has built up on the connectors (giving them all a shot of contact cleaner before you reconnect might also be a good idea).

Finally, moving the wires around might isolate a faulty cable—a problem that shifts to a different part of the system when you change the connections almost always means that a cable is the culprit. Simply replace the faulty cable, and the difficulty is likely to disappear. It's true that cables don't have faults very often; but when they do, their molded-plastic ends conceal problems quite effectively, so it's not a bad idea to have a few spare cables around. When it looks like a problem might be caused by a faulty patch cord, replacing it is the easiest way to find out. It's unlikely that both cables in a pair will be faulty at the same time, so if whatever problem you are trying to diagnose affects both channels, it is probably not caused by the cables.

The Process of Elimination

If the problem is in one channel only but changing cables doesn't fix it, you can often discover which component is at fault. For instance, if one channel is dead somewhere in your tuner or your preamp, exchange the plugs left-for-right at the tuner end. If sound continues to be produced on the same channel as before, then the fault is at the preamp end; if the music switches channels, however, the problem is at the tuner end. This exercise doesn't help you to fix anything, but it's useful to isolate the problem, so that if you have to return to the shop, you can take just the component that's affected.

If your test shows that the tuner is working normally and that the fault is somewhere in the preamp, it's a good idea to plug the tuner cable into another high-level input temporarily. If the same problem occurs no matter where you connect the component, then there may be something wrong with the preamp's input section. If the problem clears up when you try another input, then it is likely to have been caused either by the input jack itself or by the input-selector switch. Cleaning the jack and switch may help, but cleaning the switch generally involves opening up the unit, which you shouldn't do yourself; take it in to be fixed.

If it appears that the problem is common to all inputs (including the phono input), patch the tuner into the tape-monitor playback jack, which enters the preamp after the input section. Generally speaking, if the tuner then works normally, the problem is in the input section; if not, it's later in the signal chain. You can sometimes confirm the latter diagnosis by restoring the tuner connections to their proper place and attempting to feed its signal to your cassette deck. If there is no problem with the input section of the preamp, then you should be able to record successfully (you will probably have to check the playback with headphones fed directly from the cassette deck). If the recording is okay, then you have eliminated the tuner, the cables, and the preamp's input section as sources of trouble.

Not everyone has a separate tuner and preamp, of
(Continued on page 85)

COLOR TV

An explanation of how it works for audiophiles who are adding hi-fi video to their systems

THE ultimate aim of a high-fidelity audio system, as some would have it, is the exact reproduction at the listener's ears of the sound waveforms that would have occurred at some "original performance." While there are technological and philosophical problems surrounding this goal, there is little doubt that if it *were* achieved, the perceived sonic image would be highly realistic. Compare this with a television picture. Besides being two-dimensional, a TV picture is a condensed, analyzed, and optimized image bearing a rather tenuous relationship to the pattern of light originally entering a TV-camera lens.

Television, good as it can be, can never be as realistic as a high-fidelity audio system. But color TV couldn't work any other way. Without taking advantage of the properties of human color vision to simplify the analysis and transmission of an image, color TV would be impossible. As we will see, from the start color television is a technology of illusion.

The basic problem is this: the light we see reflected or emitted from natural objects can be very complex in its color content. The light from a "yellow" flower, when separated into its component colors by a prism, say, may actually contain some blue, green, orange, and red, though the overall perception is of yellow. If a television system were designed like an ideal high-fidelity audio system—with the objective of absolute "waveform fidelity"—it would be able to reproduce

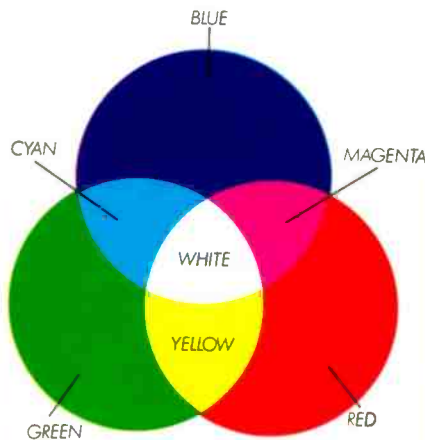


Figure 1. It takes only three well-chosen primary colors—like the red, green, and blue shown here—to produce nearly all other visible colors.

at each point on the home screen any hue in the complete continuous range of colors, from the darkest red to the deepest violet, and at a wide range of intensities (brightness). Moreover, it would be able to generate each one either individually or in combination with other colors. Since the number of colors in that "continuous range" is essentially infinite, as is the number of different color/brightness combinations, a television system designed to reproduce the original image *exactly* is not practical.

Fortunately, Mother Nature has also realized this, because a color-vision system required to distinguish each possible color arriving at the eye would also be unworkable, at least in the amount of space allotted to the eyes and the brain. Instead, the analysis that the eyes apply to an image drastically reduces the amount of color information that needs to be processed. Color television's designers took their cue from nature and specified

a color system optimized for human viewing: it does not transmit information that the eye cannot use.

Perhaps the most important simplification in color TV is that it is based on the well-accepted and very effective tri-receptor or tricolor theory of human color vision. Part of the theory holds that nearly any perceivable color—regardless of the complexity of the "original" color mixture—can be reproduced or matched by adding together suitable ratios of only three properly chosen primary colors.

As shown in Figure 1, the primary colors used in television are red, green, and blue. Depending on the ratios of the mixture, these three primaries are all that are needed to reproduce almost any color, not just the cyan, magenta, yellow, and white shown where Figure 1's primaries overlap, but also the infinite number of colors in between.

The process of "additive" color mixing used in television is also used in theatrical lighting. Painting, printing, and color photography use "subtractive" color mixing, the primaries for which are cyan, magenta, and yellow.

A color video camera derives information about the color in a scene by using three camera tubes, one for each primary color. The light from the original scene is fed through red, green, or blue filters to each camera tube, which in turn transforms its own filtered image into an electrical signal. The scanning in the three tubes is synchronized so that they are all scanning the same spot in the scene simultaneously. (Some con-

sumer-model cameras use a single tube for color pickup. This entails a simplified optical system and lower overall cost but leads to more complex camera circuitry.)

As the color being scanned changes, so do the ratios of the three camera-tube outputs. A predominantly blue portion of the scene produces a correspondingly high output from the blue tube and less from the red and green tubes; a yellow patch gives high outputs from the red and green tubes but less from the blue tube. The three color-tube outputs are electrically mixed to produce an overall brightness, or *luminance*, signal (in the proportion of 30 percent red, 59 percent green, and 11 percent blue) as well as a color, or *chrominance*, signal (which encodes the differences between the luminance signal and the original camera-tube outputs). The luminance and chrominance signals are then combined, with various synchronization signals added, to produce a *composite video* signal of the sort found at the video output jacks of a camera, VCR, or video-disc player.

Simpler Still

Another vision-based simplification used in color TV is that the luminance signal, which is the black-and-white portion of a color television signal, carries all the fine details and highlights. Repeated experiments have shown that humans are not sensitive to the color of very fine details. In fact, the finest details are only seen as variations of brightness, not of color. This property of our vision is what made possible a color-TV system compatible with older black-and-white TV. Black-and-white television ignores the chrominance signal and reproduces only the luminance information. You can see this for yourself if you

turn the color control on a color TV set or monitor all the way down. What you'll get, in black and white, is a display of the luminance portion of the composite video signal.

The chrominance signal itself is optimized for the color-resolution abilities of the human eye. Since the colors between cyan and orange are the ones for which the eye has the greatest resolving power, they are encoded and reproduced at about one-third the level of detail of the luminance signal, while a full-color display is possible only at one-eighth the resolution of black and white. Color TV doesn't look excessively fuzzy because a color set essentially superimposes low-resolution color values on a full-resolution monochrome picture.

Color Picture Tubes

The part of a monitor that actually reproduces the colored image is the color picture tube, one of the more marvelous devices of the electronic age. A color picture tube transforms signals corresponding to the red, green, and blue camera-tube outputs into a glowing image on its phosphor-coated screen. The three color-tube signals are derived by decoding and unmixing the luminance and chrominance portions of a composite video signal. Once obtained, each color signal controls the intensity of a separate electron beam, which, when it hits the screen, will make the chemicals deposited there glow in proportion to the intensity of the beam. (The electron beams either come from three separate electron-gun assemblies or are derived from a single electron gun, as in the Sony Trinitron and other newer picture tubes.)

The trick is to get each of the three electron beams to activate only its intended primary color on the

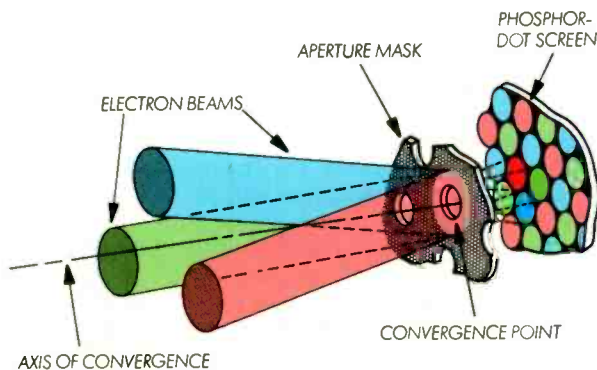
screen, so that the resulting combinations of colors will create a full-color image. The problem is solved by coating the screen with a repeating pattern of red, green, and blue phosphors, which emit light in colors corresponding to the red, green, and blue filters way back in the original color camera. Early color sets had screens filled with minuscule round phosphor dots (Figure 2), but many modern sets use rectangular or stripe-like phosphor patterns to obtain a brighter picture since these patterns have less "dead space" and more area coated with phosphors. (For simplicity, we'll continue to use the term "dots" for all types of phosphor screen patterns.)

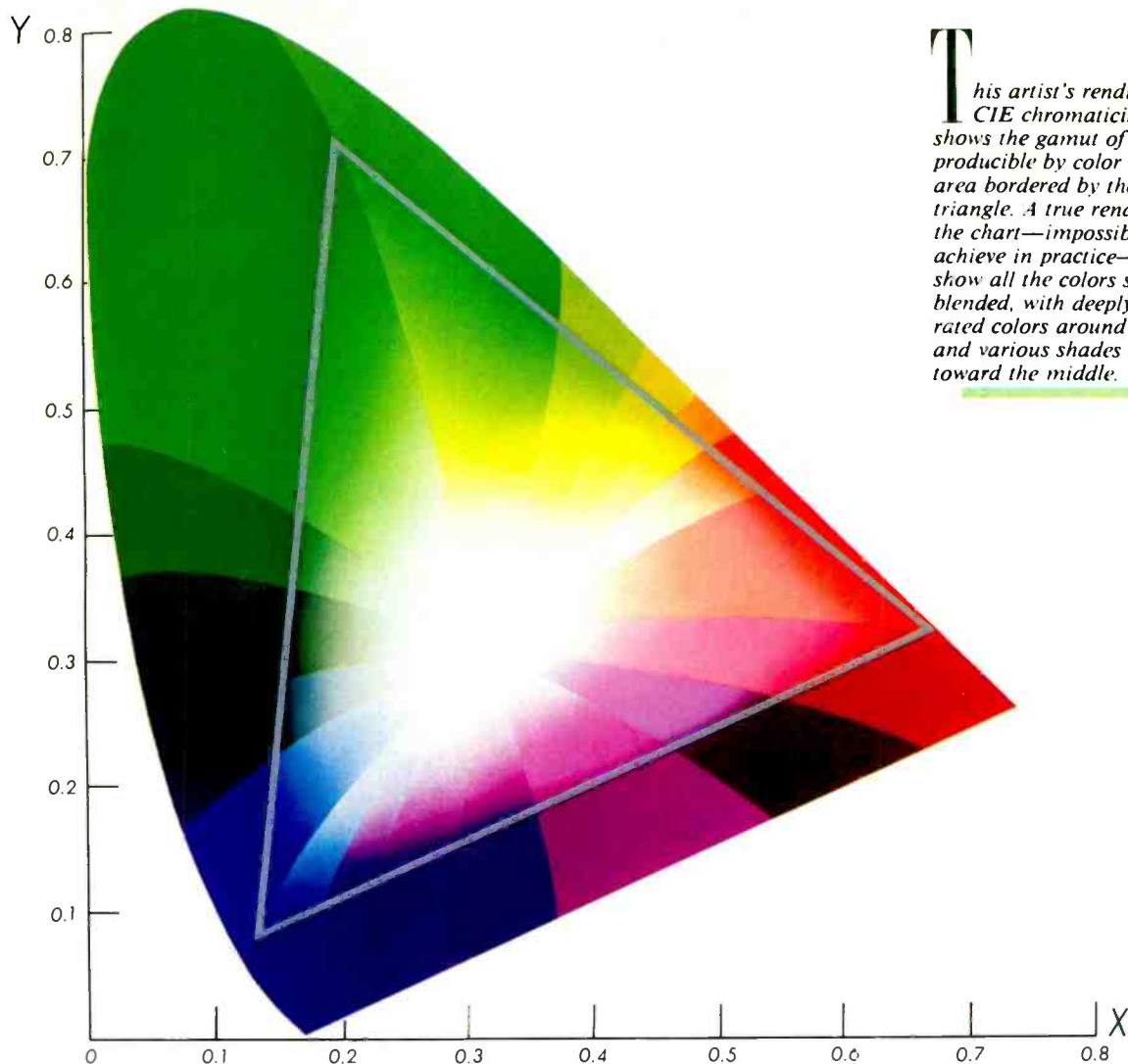
A perforated metal plate, called an *aperture* or *shadow mask*, is mounted within the color picture tube about an inch behind the front of the screen. Its purpose is to make sure that each beam hits the correct color of phosphor. The three beams pass simultaneously through the same hole in the shadow mask, but their alignment with the hole and with the phosphors on the screen, together with the small size of the hole, prevent any portion of the beam carrying the green signal, say, from hitting blue phosphor dots.

The complex construction of a color picture tube—with its three electron beams, a myriad of red, green, and blue phosphor dots, and its many-thousand-hole shadow mask, all of which must be in perfect alignment—makes it the single most expensive component in any TV set or monitor (unless, of course, it has an expensive wooden cabinet). The cost of color tubes accounts for much of the difference in price between black-and-white and color TV sets of the same size.

When the phosphor dots are activated, they form three primary-color versions of the transmitted image. Since the dots making up the image are so small, all the eye sees is the sum of the three primary-color scenes, a full-color picture. This visual illusion is identical to that employed by the color pictures printed in this magazine, except that the primary colors are different. Take a magnifying glass and examine any color picture in these pages, and you'll see a multitude of overlaid color dots. As the color changes, so do the relative diameters of the dots of each primary color. On a TV screen, where the size of the dots is fixed, what changes is the relative brightness of the phosphors. □

Figure 2. Three electron beams, one for each primary color, converge on the phosphor array on the inside of a color picture tube. Each beam is prevented from hitting the wrong color by the aperture (or shadow) mask, a perforated metal plate. The angle of convergence is exaggerated in this drawing: in reality it is about 1 degree for each beam. Also, remember that electron beams are colorless in themselves.





This artist's rendition of a CIE chromaticity chart shows the gamut of colors reproducible by color TV in the area bordered by the gray triangle. A true rendering of the chart—impossible to achieve in practice—would show all the colors smoothly blended, with deeply saturated colors around the edges and various shades of white toward the middle.

THE COLORS OF TV

MOST of the principles of color perception related to color TV can be explained using the accompanying color diagram, called the CIE chromaticity diagram (from Commission Internationale de l'Éclairage). It summarizes, in colorful but highly condensed form, nearly all perceivable colors and—this is the part important to television—how to obtain them.

Around the upper, curved portion of the diagram are all the pure colors, or hues, found in sunlight. From right to left around the top of the triangle we see reds, oranges, yellows, greens, blues, and violets. Along the flat bottom portion are represented the nonspectral purples, colors that cannot be found in sunlight but are perceivable nonetheless. At the border of the colored area, the hues are fully saturated (that is, they are at their richest or purest). Toward the center they become progressively less saturated (more mixed with white) until near the center full white is reached. The color at any point on the chart can be described by its CIE coordi-

nates, which are obtained by reading off the corresponding X and Y values along the axes.

How the CIE diagram relates to color TV comes from this property: pick any two points in the colored area, and any color along the line connecting them can be obtained by mixing only the two colors at the end points. Pick three points not in a line, and you can obtain all the colors held within the resulting triangle by a suitable mixture of the three chosen "primary colors" at the corners.

In order to obtain the widest possible range of color reproduction, the particular red, green, and blue primaries used in color television outline a very large portion of the CIE chromaticity diagram (the gray triangle in the figure). Most color printing processes, and most paint pigments, produce colors that fall well within the area covered by color TV. This means (1) that a correctly operating color TV set connected to a correctly operating camera should be able to reproduce accurately the colors in nearly every painted object and most printed material, and (2) that the colors shown in the CIE diagram as

printed here are very approximate, more of an artist's impression than an accurate rendition (which is just about impossible in any practical medium).

The color-TV triangle leaves out deeply saturated greens and blues along with saturated nonspectral purples. Luckily, deeply saturated colors are rare in everyday objects, and rather dim when they do occur, so their nonreproduction by color TV is not very noticeable.

What is noticeable, at least on side-by-side comparison, is any shift in the CIE coordinates (chart location) of a primary color in either a camera or a picture tube that is not compensated for at the other end of the video chain. This common distortion is not necessarily correctable with a home set's color or tint controls. One of the most consistent demands viewers have made since color TV was introduced is for brighter pictures. Apparently not willing to reduce their background room lighting, viewers have forced TV manufacturers to shift the coordinates of one or more of the primary colors used by the picture tube, thus enabling them to use more efficient (brighter) phosphors.

REBA McENTIRE

by Alanna Nash



ALAN MESSEK/MCA RECORDS

LAST October, singer Reba McEntire came bustling out of the make-up room backstage at the Country Music Association awards in Nashville, mad as a wet hen. Standing before a mirror, she fished in her purse until she found a Kleenex, and then began scrubbing furiously at her lips.

"They're always tryin' to give me an upper lip," she said heatedly. "I ain't never *had* an upper lip, and I ain't *gonna* have one."

Later on that night in Nashville, McEntire, a genu-wine Oklahoma cowgirl who grew up ropin', ridin', and rodeoin', was named Female Vocalist of the Year, an award that the California-based Academy of Country Music also bestowed on her this past May. One suspects that McEntire was honored—she received a standing ovation at the CMA awards—almost as much for her grit and personal fortitude as she was for her music. In the last year alone, the saucy songstress has earned a firm reputation in Nashville as a woman who sticks to her guns and who, above all, intends to be herself, no matter what the consequences.

Contrary to the way it might seem, McEntire's success has hardly come overnight. Her first album, "Reba McEntire" on Mercury, appeared in 1976, and

her first Top 10 hit, (*You Lift Me*) *Up to Heaven*, came loping along two LP's later. Then there was a handful of respectable semi-hits. But McEntire didn't score a No. 1 until 1983, with *I Can't Even Get the Blues*, followed quickly by *You're the First Time I've Thought About Leaving*. After a record-label change, though, it was almost two years before her next No. 1 song, *How Blue*, from her MCA album, "My Kind of Country."

One reason it took so long between hits might be because radio listeners weren't entirely sure who Reba McEntire was. From the day she landed in Nashville some eight years ago, record-company executives tried their darndest to obscure McEntire's natural assets. Here she was, the genuine country article, with an Okie accent thick as buttermilk, a desire to sing hard-core, "kicker" country music, and an open, friendly, I-never-met-a-stranger face and personality. So, naturally, in line with the Nashville mogul's usual way of thinking, McEntire was passed off as a city sophisticate.

Her album-jacket photos showed the grown-up tomboy in silk, lace, and sequined evening gowns, with her hair piled up and her face fit for a Max Factor cosmetics ad. Her music, meanwhile, never seemed to focus on any particular style, which made immediately identifying a McEntire record almost impossible.

"Deciding to go real country was a big gamble. But I just got tired of goin' the contemporary route. It's not honest, and it's not Reba McEntire."

For a long time, Reba went along with it all. She was, by her own admission, green as gooseberries when she first came to Nashville (at the suggestion of veteran country performer Red Steagall). She figured that everybody knew better than she did, even if she had been the co-salutatorian of her graduating class. But after her sweetly orchestrated middle-of-the-road album, "Just a Little Love," McEntire put her cowboy-booted foot down.

No more gussied-up records, she said, and no more dressing up, period, unless it felt natural. The gowns were replaced by jeans, prairie skirts, and the silver belt buckle she got for singing the national anthem at the National Finals Rodeo in Oklahoma City, and her music, beginning last year with the album "My Kind of Country" was branch-water pure. It inspired the record-industry trade magazine *Billboard* to dub McEntire "the finest woman country singer since Kitty Wells." Shortly thereafter, McEntire found herself winning the industry's highest awards and coming in fourth in the country category of *Rolling Stone* magazine's critics' poll.

Sitting at an expensive oak table in her manager's elegant Nashville office, McEntire, now thirty, said, "Well, it's just taken me eight years to finally realize that what they wanted me to do was not what I wanted to do.

"Deciding to go real country was a big gamble to take, 'cause I didn't know if the people would really like to hear me sing straight-ahead country or not. But thank God they did, 'cause I just got tired of goin' the contemporary route. It's not honest, and it's not Reba McEntire. And I knew that if I was ever gonna make it in this business and be successful, I had to be me. That's all there was to it."

McEntire sings a lot like the way she talks. Her delivery is straightforward, unaffected, honest and believable to the very core, and unabashedly emotional, much in the style of her idol, the late Patsy Cline. In fact, when it came to selecting material for "My Kind of Country," McEntire went to the man who had collaborated on *I Fall to Pieces* and other songs for Cline, songwriter Harlan Howard.

McEntire's business manager is her husband, Charlie Battles, a rancher from Stringtown, Oklahoma, and three-time world steer-wrestling champion. McEntire said, "Me and Charlie went over to Harlan's house and was settin', and Harlan said, 'I want to play you this new song, just to see what you

think about it.' Well, to tell you the truth, I was kinda thinkin' about dinner, 'cause it was gettin' on about that time. But when this song came on [the demo tape], I just *set up*. I hadn't heard this kind of a song in *years*. When the chorus came, I got all choked up. And by the time the *ending* came, I was cryin'. I said, 'Harlan, can I have that song?' And he smiled and said, 'I kinda thought you'd say that.'"

The song, *Somebody Should Leave*, became McEntire's fourth No. 1 single. After umpteen-hundred performances, McEntire says, she still can't sing it without getting tears in her eyes.

A tune in her new album, "Have I Got a Deal for You," co-produced by McEntire and Jimmy Bowen (her first co-production effort), could possibly be that powerful, she says. Titled *Only in My Mind*, it is one of two songs on the record that she wrote herself. She wrote the other, *She's the One Loving You Now*, in collaboration with her guitarists, David Anthony and Leigh Reynolds. Unlike McEntire's last LP, which was made up mostly of the singer's favorite oldies, "Have I Got a Deal for You" (MCA/Nashville's first totally digital release) features all new songs. But McEntire is quick to point out that "new" in this case doesn't mean contemporary, and that the album is "up-to-date, but traditional-sounding."

The night McEntire won her award from the Academy of Country Music, George Strait, another proponent of traditional country music, received the Male Vocalist honor. Strait also came in just ahead of McEntire in the *Rolling Stone* poll, with Ricky Skaggs and John Anderson—two other traditionalists—taking the top two slots. If this seems to have the makings of a trend, it's worth noting that McEntire is the only woman of the bunch.

"I don't know why that is, or even if there really is a swing back toward the traditional," says McEntire.

"All I can say is *I'll* sure be goin' more traditional, and it's not because I'm the next Waylon Jennings, or that I'm trying to be a renegade, or anything, really, other than the fact that it's what I feel the best with. Besides, it's different, so why not?"

Despite all the awards and adulation that have come her way lately, McEntire, who only recently got her first private telephone ("Heck, we've been on a party line all our life"), insists she still doesn't feel like a star.

"Naw," says the spunky redhead, leaning back in her chair, "I'm still just a twinkle." □



IF CD PLAYERS DO SOUND DIFFERENT, ONE CD PLAYER MUST SOUND BEST.

As audiophiles listen to different Compact Disc players, they're hearing more and more differences. And one CD player has emerged as a cut above.

In Germany, *Audio* magazine chose Denon over Philips and Revox to be their reference CD player. "For the ultimate in laser technology, there is only one choice—the Denon DCD-1800, the reference player."

In the U.S.A., *Digital Audio* "compared the Denon with an oversampling player and judged the DCD-1800's sound superior in cleanliness, accuracy, and detail."

What has Denon done to deserve such praise? They started off by inventing digital recording in the first place. Then they gained

experience recording an extensive library of Denon PCM master tapes, and pressing Denon Compact Discs. Finally, they produced the DCD-1800's Direct Digital-to-Analog Converter. It's the world's only D/A converter that's hand-tuned for reduced crossover distortion.

Now Denon raises the CD reference even higher. Introducing the new Denon DCD-1800R, with new high-convenience remote control and high-performance tracking servos. In fact, the editorial board of Japan's *Stereo* magazine has already voted the new Denon CD player "best" in its class!

The Denon DCD-1800R. Officially, the "R" stands for Remote. But to critical listeners, it stands for Reference.



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power. Jean Roy, in his helpful annotation, observes that "just as there is a specifically *French* music, there is also a specifically *French* piety . . . that rejects austerity, emphasis, and sentimentality, and includes in its gestures a sort of familiarity with the sacred." Poulenc's *Litanies* of 1936, he suggests, is not "sophisticated music, but it is music that is as true and as pure as Musorgsky's." Indeed, some passages in this work may remind listeners of *Boris Godunov*, even as Poulenc's writing seems to anticipate his *Organ Concerto* of 1941.

The recording is not labeled as being digital, but it could well be in terms of its sound, which is well defined and gives an agreeably warm frame to the fine performances (the LP benefits from Direct Metal Mastering). The texts are printed in the original languages only—French for the *Litanies*, Latin for the other two works—with annotation in very good English as well as French and German.

Richard Freed

POULENC: *Stabat Mater; Salve Regina; Litanies à la vierge noire.* Michèle Lagrange (soprano, in *Stabat Mater*); Chœurs et Orchestre National de Lyon, Serge Baudo cond. HARMONIA MUNDI HMC 5149 \$11.98, © HMC 405149 \$11.98, © HMC 905149 \$17.

PERAHIA'S IRRESISTIBLE MOZART

Now that CBS has issued Murray Perahia's recordings of all the Mozart piano concertos, they are being repackaged in multidisc sets, the first of which, containing the Piano Concertos Nos. 16 through 21, is labeled "Vol. 3." Perahia, of course, is not the only pianist who has recorded this cycle in the dual role of soloist and conductor, but his series with the English Chamber Orchestra is surely the most distinguished to have appeared so far.

Concertos Nos. 20 and 21 were recorded back in the Seventies (they are the only two non-digital sides in this set), and the conducting seems

a mite less assured, the orchestra simply less in the picture, than in the later recordings. In consequence, these two works make less of an impact—seem somehow less complete, you might say—than the other four. But that is rather like saying that No. 16 is the "slightest" of the six works in this set. None of them is at all slight, and to be the least wonderful of a totally wonderful lot is hardly an embarrassment.

The Concerto No. 16 does continue to be the least frequently performed of all Mozart's Viennese concertos, but what a joy it is! Perahia's way with its outer movements is a bit less festive, perhaps, than that of either of the two Rudolfs, Serkin and Firkušný, but Perahia has the orchestra and his own instrument fully integrated, and every phrase is filled with unselfconscious elegance. The same can be said of Nos. 17, 18, and 19, more fully satisfying performances of which would be hard to imagine. And Nos. 20 and 21 do make a stronger impression here than when they were released singly, thanks to the splendid Dutch pressings, which constitute the one indisputable advantage of this set over the respective individual LP's.

Most collectors who have heard any of Perahia's Mozart are likely to want it all, and those who have not yet embarked on this exceptionally satisfying project are well advised to go for the boxes. Richard Freed

MOZART: *Piano Concertos Nos. 16-21.* Murray Perahia (piano); English Chamber Orchestra, Murray Perahia cond. CBS 0 M3 39246 three discs, © MT3 39246 three cassettes, no list price.

Perahia: distinguished



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- **LADY SINGS THE BLUES.** MOTOWN MOTD-6133. Original soundtrack recording with Diana Ross (two-LP album on a single CD).
- **DAVID LEE ROTH: Crazy from the Heat.** WARNER BROS. 2-25222 (Maxi-Single). "Raunchy" (July 1985).
- **STEVEN STILLS: Right by You.** ATLANTIC 80177-2. "Hopeful romanticism" (March 1985).
- **PETE TOWNSHEND: Empty Glass.** ATCO 32100-2. "Reflective" (August 1980).
- **U2: The Unforgettable Fire.** ISLAND 90231-2. "Music of ideas and issues" (February 1985).
- **THE WHO: Meaty, Beaty, Big and Bouncy.** MCA MCAD-37001. "Goodies by one of the best rock bands ever" (March 1972).

CLASSICAL

- **BACH: Concertos for Two Harpsichords.** Pinnock, Gilbert. DG 415 131-2. "Glorious, the best available" (November 1982).
- **BRITTEN: War Requiem.** Britten. LONDON 414 383-2 (two CD's). "Landmark recording" (December 1963).
- **BRUCKNER: Symphony No. 4 ("Romantic").** Karajan. DG 415 277-2. "Top-drawer" (July 1977).
- **GLUCK: Orfeo ed Euridice.** Jacobs, Kweksilber; Kuijken. ACCENT/AUDIO-SOURCE ACC 8223/24 (two CD's). "Extremely moving" (April 1983).
- **RACHMANINOFF: Piano Concerto No. 2.** Graffman, Bernstein. CBS MYK 36722. "Sure winner" (March 1965).
- **RAVEL: L'Enfant et les sortilèges.** Previn. ANGEL CDC 7 47169 2. "Magical" (October 1982).
- **VERDI: Rigoletto.** Sutherland, Pavarotti; Bonyng. LONDON 414 269-2 (two CD's). "First in its class" (June 1973).

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The deck will automatically play 10 seconds of the first song on the tape and then fast forward to the 2nd. It will play 10 seconds and then go on until you reach the song you want.

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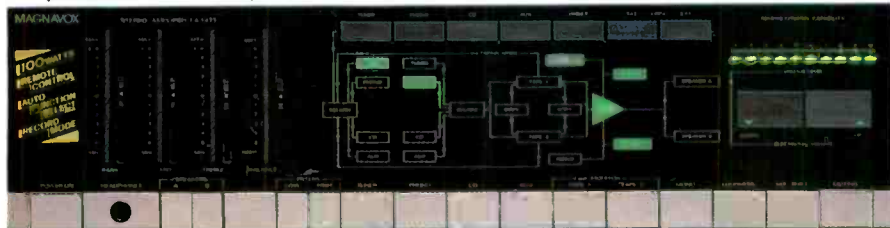
This fully automatic turntable will reproduce music beautifully. From its die-cast aluminum turntable platter to its linear tracking tone arm for error free tracking, the sound and action is superb.

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It has a top quality moving magnet P-mount cartridge, hydraulic cueing to protect your records, and a servo controlled belt drive motor for superb stability.

You'll particularly enjoy recording from this automatic turntable because of its stability, wide frequency response and easy remote control operation.



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It's the brains and brawn of the system. From its 100 RMS watts per channel output, to its 10hz to 40,000hz ± 1 db frequency response, to its 93db signal to noise ratio, it's strictly audiophile.

And what control you'll have. The Loudness contour button which you'll use for low level listening, boosts the signal at 100hz by 8db and at 10,000hz by 4db.

There are both high and low filters, and not only are there linear bass and treble controls, there's a presence control to really bring your sound alive.

There are totally separate input and output controls for all controlled inputs, so that you may listen to a record while you tape from FM. And, if you add another cassette deck, you'll be able to use the two way switchable tape dubbing.

On the back panel is an audiophile feature you will appreciate if you're into bi-amping or adding sound processing devices. There are both 'preamp out' and 'main amp in' RCA jacks, something that's usually found on esoteric gear.

There are buttons which will allow

you to connect two speaker systems (one is included of course), and here's a feature you'll really appreciate.

This integrated amp has volume memory. When you turn it on, it will resume the last volume level that you set. Plus, there's a mute button to allow you to have instant silence for phone calls and other obnoxious interruptions.

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These 3-way speaker systems have a wide smooth frequency response from 36hz to 20,000hz. The crossover points are at 1500hz and 6,000hz.

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It does it all. Not just volume. Not just preset stations. Look at all it does.

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On the Amp, you can control the volume, mute and switch in the Loudness Contour button. You can select Tuner, Phono, Tape or 2 additional Aux inputs.

On the auto reverse tape deck, you'll change directions and control all the movement commands. You'll Stop, Start, Fast Forward, Rewind, Pause, Record and use Record Mute.

And, you'll have full use of both the Index Scan and Search functions described with the deck.

With the turntable you can Play, Cut, Cue/Pause or cause the turntable to enter its repeat mode. You can even move from track to track on the record.

And finally, you can turn the entire system on or off. This infrared remote centralizes all functions of the system

for really easy system control, near the system or across the room.

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Discs and tapes
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Richard Freed
David Hall
Stoddard Lincoln

BACH: Six Partitas (BWV 825-830). András Schiff (piano). LONDON 411 732-1 two discs \$19.96, ©411 732-4 two cassettes \$19.96, ©411 732-2 two CD's no list price.

Performance: *Rich*
Recording: *Splendid*

Such eighteenth-century conventions as *notes inégales* and double dotting, together with accurate and precise ornamentation and appropriate tempos, have become part and parcel of today's harpsichord performances of Baroque works. In the past, pianists who have attempted to observe such historical details have more often than not suppressed the piano's inherent characteristics in an attempt to imitate the harpsichord. In this remarkable recording of Bach's magnificent partitas, András Schiff proves beyond a shadow of doubt that it is possible to transfer those conventions to the piano and still take full advantage of the expressive qualities of the modern instrument. He gives us the best of both worlds, and he will surely take his place as one of the great Bach pianists. Bravo! S.L.

BEETHOVEN: Piano Sonatas: No. 8, in C Minor, Op. 13 ("Pathétique"); No. 14, in C-sharp Minor, Op. 27, No. 2 ("Moonlight"); No. 15, in D Major, Op. 28 ("Pastoral"); No. 17, in D Minor, Op. 31, No. 2 ("The Tempest"); No. 25, in G Major, Op. 79; No. 26, in E-flat Major, Op. 81a ("Les Adieux"); No. 27, in E Minor, Op. 90. Richard Goode (piano). BOOK-OF-THE-MONTH 71-7506 three discs \$24.95, ©81-7507 two cassettes \$24.95, ©31-7510 two CD's \$24.95 (plus \$1.75 for shipping from Book-of-the-Month Records, Camp Hill, PA 17012; New York and Pennsylvania residents add sales tax).

Performance: *Satisfying*
Recording: *Comfortably realistic*

In all of his recordings, Richard Goode has offered music of genuine substance—Schumann, Schubert, Mozart, and now Beethoven, in a box of seven

EXPLANATION OF SYMBOLS:

- = DIGITAL-MASTER ANALOG LP
- © = STEREO CASSETTE
- Ⓜ = DIGITAL COMPACT DISC
- Ⓢ = MONOPHONIC RECORDING



SOLTI'S SCHOENBERG

ARNOLD SCHOENBERG'S unfinished masterpiece *Moses und Aron*, based on the saga of Moses as told in *Exodus*, is newly available in a performance conducted by a man who has lived with the opera for twenty years and championed it tirelessly, Sir Georg Solti. Solti conducted the memorable Covent Garden production of 1965 and has subsequently revived the work in concert form on two occasions during his tenure as music director of the Chicago Symphony.

You don't have to be concerned with the nuts and bolts of Schoenbergian dodecaphony to be deeply stirred by this work, particularly if you follow it with libretto or score in hand. Solti and his remarkable vocal and orchestral forces leave nothing to be desired in putting across its message, both dramatically and musically, and the London recording itself is a remarkably fine one. On CD, the version I listened to, the sweep and grandeur of the music is amply conveyed with but one interruption between discs.

Baritone Franz Mazura, in the enormously demanding role of Moses, is at his best in the quieter episodes. He may not have quite the vocal range for the work's moments of crisis, but he is at all times dramatically convincing as the leader for whom "thought is easy, speech is laborious."

As Aron, Moses's spokesman—PR man, if you will—Philip Langridge is superb. It is easy to make Aron something of an opportunistic schemer, but Langridge, who has his work cut out for

him with a complex if mellifluous vocal line, creates a figure both passionate and at times pathetic. And in the role of the priest who is skeptical of Moses's mission, bass Aage Haugland is properly impressive.

In addition, there are more than a dozen bit parts, plus a chorus that fills a major role—comparable to that of the chorus in Mussorgsky's *Boris Godunov* but burdened with considerably more virtuosic demands. The Chicago Symphony Chorus and Orchestra both acquit themselves superbly, especially in the orgiastic Golden Calf scene (a sort of twenty-five-minute symphony).

Moses und Aron is strong stuff, but to my mind it is a work that everyone who cares about the values and traditions of Western civilization should experience at least once in a lifetime. And since the stage and even films have their limitations, the purely aural medium of recordings, which allows the imagination greater play, is surely the best way to approach it. All concerned, including London's production crew, have given us a splendid vehicle to that end.

David Hall

SCHOENBERG: *Moses und Aron.* Franz Mazura (baritone), Moses; Philip Langridge (tenor), Aron; Aage Haugland (bass), Priest; others. Members of the Glen Ellyn Children's Chorus; Chicago Symphony Chorus and Orchestra, Sir Georg Solti cond. LONDON 414 264-1 two discs \$19.96, ©414 264-4 two cassettes \$19.96, ©414 264-2 two CD's no list price.

sonatas. The sonatas might appear to have been chosen at random from various periods, but they are no less welcome for all that, for the performances here are without exception deeply satisfying.

Goode is that very best sort of musician, one who seems to be able to reach directly into the heart of the music without making us aware of his presence as "interpreter." The opening movements of the *Pathétique* and *The Tempest* are genuinely dramatic but never verge on the hysterical. The slow movements of those works, and the opening one of the *Moonlight*, are not in the slightest degree sentimentalized but touch us with their dignity—a quality that does not, after all, rule out deep feeling. There is elegance everywhere, but never aloofness. Unforced charm comes through in Op. 28, pointed wit in Op. 79. Everything makes great musical sense, and the individual character of each work is realized most convincingly. In short, these are performances that should wear well.

The recording itself, produced by old piano hand Max Wilcox, presents a comfortably realistic image of the piano, in ideal perspective, and Michael Steinberg's comprehensive and illuminating annotation is the third indispensable element in this handsome package. R.F.

BERLIOZ: *Requiem, Op. 5.* BOÏTO: *Mefistofele: Prologue.* VERDI: *Te Deum.* John Aler (tenor, in Berlioz); John Cheek (bass, in Boïto); Morehouse-Spelman Chorus and Young Singers of Callanwolde (in Boïto); Atlanta Symphony Chorus and Orchestra, Robert Shaw cond. TELARC ● DG-10109-2 two discs (Berlioz only) \$25.96, © CD-80109 two CD's no list price.

Performance: *Noble*
Recording: *Splendid*

This first CD production of the Berlioz Requiem could hardly be in better hands, either musically or technically. Robert Shaw brings enormous authority and conviction to the work. He has all his forces at the very top of their form, and neither he nor the Telarc engineering team has treated the music as merely a "sonic spectacular." Berlioz himself took care of that aspect, after all, writing it into the score as an integral part of his grand, majestic, terrifying, serene, bombastic, intimate, and altogether glorious musical vision.

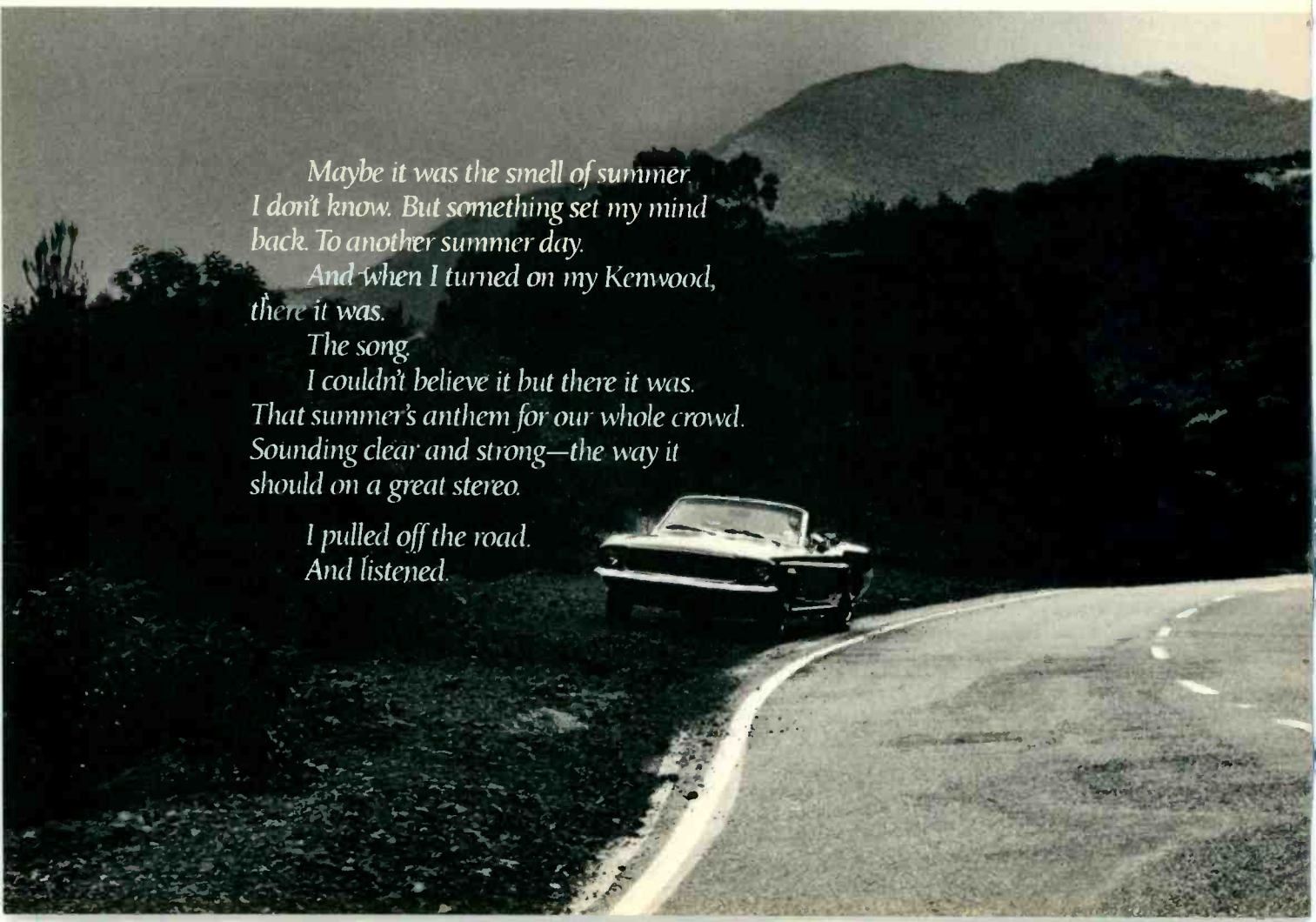
All the elements are superbly balanced here, with every delicate effect making in its own way as much impact as the thunder of the *Tuba mirum*. And how the extended dynamic range of the Compact Discs makes its benefits felt in the numerous choral pianissimos! Listen to the airy, weightless texture of the

tenor, flute, chorus, and strings after the fugue in the Sanctus and then try to put that sound out of your mind. John Aler, more and more a presence to be reckoned with in such works, realizes in full the nobility, compassion, and tonal beauty Berlioz wrote into the Requiem's famous penultimate section.

Since the Requiem is about twenty minutes too long to fit on a single CD, it would have been a nifty idea to fill out the second disc with the work Berlioz himself described as its "little brother," his *Te Deum*. Telarc has been just as generous, though, in filling it with two Boïto and Verdi performances issued five years ago on DG-10045. The original LP's side break in the Boïto is not a factor on CD, of course, and the vibrant clarity that marked the LP is even more impressive in the CD transfer. The Verdi is exemplary, though many listeners, I imagine, would want the *Te Deum* in its position as part of his *Quattro pezzi sacri*. The Berlioz Requiem is available on its own as a two-disc LP set, but the CD release is the better buy. R.F.

BOÏTO: *Mefistofele: Prologue* (see BERLIOZ)

F. COUPERIN: *Motets.* Jill Feldman, Isabelle Poulenard (sopranos); Gregory Reinhart (baritone); Jaap ter Linden (bass viol); Davitt Moroney (organ).



Maybe it was the smell of summer.
I don't know. But something set my mind
back. To another summer day.
And when I turned on my Kenwood,
there it was.
The song.
I couldn't believe it but there it was.
That summer's anthem for our whole crowd.
Sounding clear and strong—the way it
should on a great stereo.
I pulled off the road.
And listened.

HARMONIA MUNDI • HMC 1150 \$11.98, © HMC 401150 \$11.98, © HMC 901150 \$17.

Performance: *Ethereal*
Recording: *Very good*

François Couperin wrote some of the tenderest and most intimate devotional music ever written. Never striving for the massed sonorities of Charpentier or Delalande, he favored high soprano voices with delicately scored accompaniments. All the motets here are scored for two sopranos and continuo with the occasional addition of a baritone. None were printed during the composer's lifetime, and four are recent discoveries.

Jill Feldman and Isabelle Poulenard, with perfectly matched voices, float Couperin's ethereal lines toward heaven like incense. Their singing is both precise and supple. Couperin lovers who remember the exquisite work of Jennifer Vyvyan and Elsie Morison will revel in this disc, which follows in the same tradition. *S.L.*

DONIZETTI: *L'elisir d'amore*. Lucia Popp (soprano), Adina; Peter Dvorský (tenor), Nemorino; Bernd Weigl (baritone), Belcore; Evgeny Nesterenko (bass), Dulcamara; Elfie Hobarth (soprano), Giannetta. Munich Radio Chorus and Orchestra, Heinz Wallberg cond. RCA • ARC3-5411 three discs

\$38.98, © ARE3-5411 three cassettes \$38.98.

Performance: *Delightful*
Recording: *Crisp*

Donizetti's first popular success, *L'elisir d'amore*, had its première in 1832, having been written in two weeks' time. Today it ranks with *Lucia di Lammermoor* as one of his most frequently performed works, and the reasons for its popularity are evident. *L'elisir* has a diverting plot, attractive characters, and solos and ensembles filled with unusually graceful and winning melodies. RCA's new digital recording boasts, in addition to Donizetti's considerable contributions, a disarming zest and *élan* in performance.

Lucia Popp is a graceful, clear-voiced Adina with a fine sense of Donizetti's style. Peter Dvorský makes an appealing Nemorino, and, while his voice, to my ear, is not really a beautiful one, he sings expressively and brings to "*Una furtiva lagrima*" a winning ardor. Bernd Weigl is properly bouncy and swash-buckling as the braggart Belcore, and Elfie Hobarth takes advantage of all her small part offers. Evgeny Nesterenko very nearly steals the show as the bluff, lovable, and wily quack Dulcamara. The conductor, Heinz Wallberg, leads his German chorus and orchestra in a fine Italianate performance. *R.A.*

HANDEL: *Ballet Music from Alcina, Terpsichore, and Il pastor fido*. English Baroque Soloists, John Eliot Gardiner cond. ERATO/RCA • NUM 75169 \$10.98, © MCE 75169 \$10.98, © ECD 88084 no list price.

Performance: *Strong*
Recording: *Excellent*

Handel had an uncanny ability to adapt his music to just about any occasion or national style. When Marie Sallé, the great eighteenth-century French ballerina, arrived in London, he included French dances for her in every new opera, characteristically making her feel right at home with delightful musettes, tambourins, gavottes, chaconnes, and so on. In writing for her, Handel seemed to be saying, "This is what I would sound like if I were French." That music is collected in this album, and it is wonderful, the essence of wit and elegance.

John Eliot Gardiner's English Baroque Soloists play their early instruments to perfection, using eighteenth-century performance practices in a totally convincing way. And the recorded sound is excellent. A rare treat. *S.L.*

MAHLER: *Symphony No. 7, in E Minor ("Song of the Night")*. Chicago Symphony Orchestra, Claudio Abbado cond. DEUTSCHE GRAMMOPHON • 413

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773-1 two discs \$19.96, © 413 773-4 two cassettes \$19.96, © 413 773-2 two CD's no list price.

Performance: *Intensely poetic*
Recording: *Very good, but . . .*

This is the third recording of Mahler's Seventh by the Chicago Symphony, its predecessors being Sir Georg Solti's in 1971 and James Levine's in 1982. Whereas Levine emphasized the music's tension and drama, Claudio Abbado here seeks to bring out its poetry and organic flow. He succeeds particularly well in setting the right pace for the

"rowing" motive at the very opening, thereby reducing the oppressive, funereal quality the movement has in some performances. The two "night music" movements are for me the very soul of the score, and Abbado does nobly by the later one, the serenade-like *Andante amoroso* with its mandolin and guitar coloration.

Overall, I prefer Levine's more pointed, rhythmically punctuated reading, but my major reservation about this release concerns the sound. Chicago's Orchestra Hall, where the Abbado performance was recorded, poses real

acoustic problems. All's well with the main string and wind bodies from the middle of the frequency spectrum upward. The low end, however, especially in the timpani, sounds muzzy compared with RCA's recording of the Levine performance in Chicago's Medinah Temple.

In any case, I found little difference in sonic quality between the CD and LP versions of this Deutsche Grammophon recording except for the welcome lack of background noise on CD during the "night music" episodes. *D.H.*

MONTEVERDI: *Vespro della beata Vergine*. Emma Kirkby (soprano); Nigel Rogers (tenor); Taverner Consort, Choir, and Players, Andrew Parrot cond. ANGEL ● DSB-3963 two discs \$23.98, © 4D2S-3963 two cassettes \$23.98.

Performance: *Stunning*
Recording: *Wonderful*

Monteverdi's Vespers of 1610 is more like an anthology of liturgical music than a work with any set structure. Although the component pieces are often arranged in different sequences, the ordering in this new version, based on a reconstruction of the Vespers service of Monteverdi's time by Hugh Keyte, seems to make the most sense and be the most effective. In fact, the most remarkable quality of this recording is that it conveys the dignity and mysticism of a real church service, in part because the liturgy is filled out with Gregorian chant. It is uncanny how easily the music moves across the centuries from the medieval monophonic chants to Monteverdi's rich Renaissance polyphony.

The performance is stunning. Nigel Rogers and Emma Kirkby are experts in this vocal style, and their colleagues in lesser solo parts are uniformly excellent. The clarity of the Taverner Choir suits the acoustics of the London church in which the recording was made, and the Taverner Consort supplies beautiful accompaniments. Conductor Andrew Parrot's pacing is dignified but always supple in its rhythmic nuances. This album will, no doubt, supplant many earlier recordings of this magnificent work. *S.L.*

POULENC: *Sacred Choral Music* (see Best of the Month, page 58)

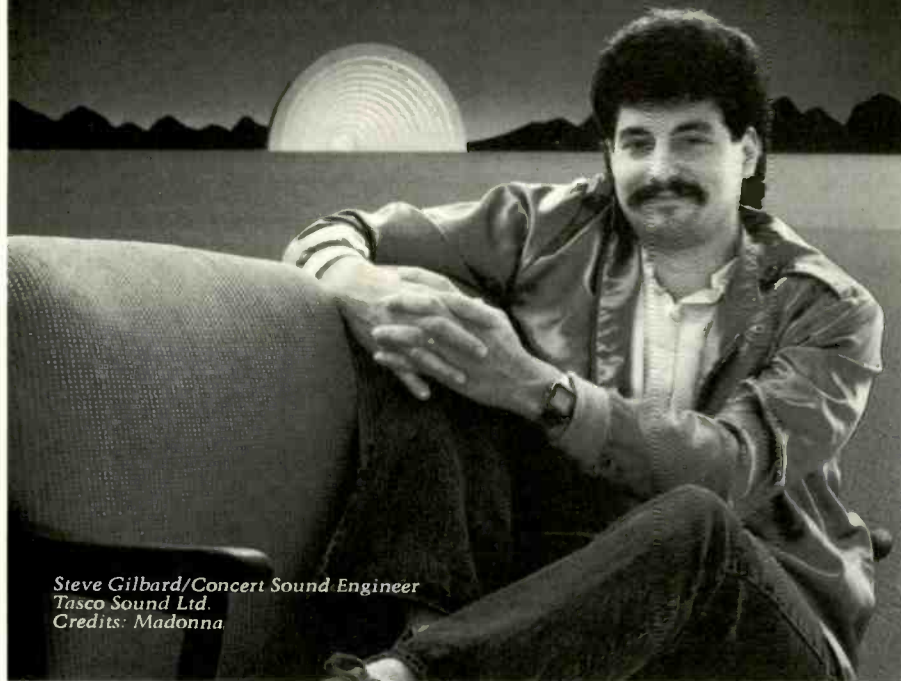
MOZART: *Piano Concertos Nos. 16-21* (see Best of the Month, page 59)

SIBELIUS: *String Quartet in A Minor; String Quartet in B-flat Major, Op. 4*. Sibelius Academy Quartet. FINLANDIA/PSI ● FAD 345 \$10.98, © FACD 345 no list price.

Performance: *Fine*
Recording: *Very good*

Sibelius is commonly known for only one string quartet, the one in D Minor, Op. 56 ("*Voces intimae*"), which was put to paper at the peak of his creative

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maturity. But as a young man he wrote three other quartets, the last of which, dating from 1890, he designated his Op. 4, though the piece remained unpublished during his lifetime. The A Minor Quartet on this disc was written a year earlier.

What we hear in these first recordings is the work of a composer thoroughly versed in his craft. There are influences of Schumann, Grieg, and Beethoven, to be sure, but also great sureness in dealing with the string medium—no great surprise considering the prowess of the young Sibelius as a chamber player and would-be violin virtuoso.

Anticipatory touches of the later Sibelius are few, but there is some attractive music in these works. The lyrical strands of the A Minor's adagio are cunningly interwoven, and its serenade-style middle section is charming. The dance-like finale has running figurations that do presage the later Sibelius as well as a wonderfully characteristic stern ending.

The B-flat Quartet is more classically poised, with a chaste unison opening. The second movement is a set of variations on a Finnish folk song, but it is not as highly colored harmonically as you might expect. Best of the four movements is the scherzo, which begins in fast waltz style and includes a trio section with highly effective writing for the viola over dense cello chords. The finale verges perilously on mere note spinning.

The Sibelius Academy Quartet is made up of the top string players of the Sibelius Academy faculty in Helsinki, and, naturally, the performances here exhibit great care. The digitally recorded sound is notable throughout for its exceptional transparency and tonal body. *D.H.*

R. STRAUSS: *Elektra*. Ute Vinzing (soprano), *Elektra*; Maureen Forrester (contralto), *Klytämnestra*; Leonie Rysanek (soprano), *Chrysothemis*; Bent Norup (baritone), *Orest*; Horst Hiester-mann (tenor), *Aegisth*; others. Chorus of Radio France; Orchestre National de France, Christof Perick cond. RO-DOLPHE RP 12420/21 two discs \$23.96, © RPK 22420/21 two cassettes \$23.96, © RPC 22420/21 two CD's \$34 (from Harmonia Mundi USA, 3364 S. Robertson Blvd., Los Angeles, CA 90064).

Performance: *Satisfying*
Recording: *Good*

This performance is not easy to assess, perhaps because *Elektra* is a work of which I stand in awe. Listening to it on discs or tape, you either give yourself up to complete musical absorption and emotional involvement, or you turn the machine off. I certainly did not do the latter with this recording, which was made at a performance competently conducted by Christof Perick at the Théâtre des Champs-Élysées, Paris, on January 14, 1984.

The very fact that this is a live performance rather than a studio recording

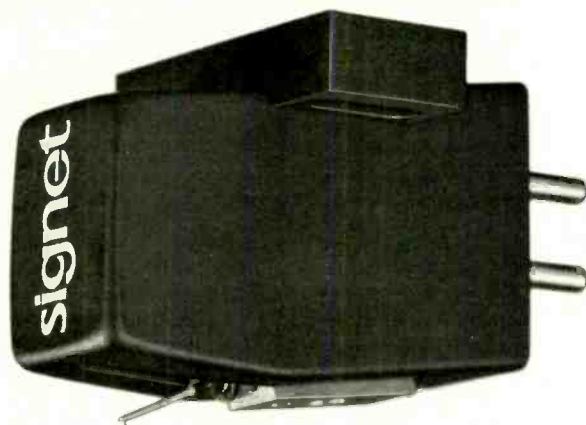
adds excitement to an opera that is already so intense as to be, at times, nearly unbearable. While the recording offers nothing of spectacular quality in sonic terms, it is nevertheless well done and achieves a nice balance between the voices and the orchestra. And you can hear *all* of the score.

Ute Vinzing sings the title role with amplitude of tone and dramatic conviction; I admire her recorded performance as I did her personal appearance in the role at the Metropolitan Opera. Yet always in the distance I hear Birgit Nilsson's voice soaring like a well-aimed

spear above Strauss's huge orchestra. Maureen Forrester, as *Klytämnestra*, makes a striking departure from her customary statuesque, Monteverdian decorum and acts the role with unusual passion and involvement. Leonie Rysanek's *Chrysothemis* is well characterized, but, alas, her voice, which has thrilled us for so many years, is no longer comfortable with Strauss's *tessitura*.

As *Orest*, Bent Norup is entirely acceptable. His performance may be a bit short on musical finesse, but in a role that is almost as thankless dramatically as it is taxing musically, he acquits

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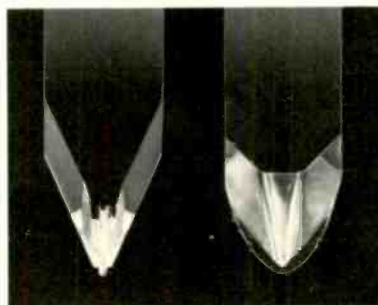


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MERLE HAGGARD: *Kern River*. Merle Haggard (vocals, guitar); the Strangers (instrumentals); Janie Fricke (background vocals); instrumental accompaniment. *Kern River; Old Flames Can't Hold a Candle to You; There I've Said It Again; Big Butter and Egg Man*; and seven others. EPIC FE 39602, © FET 39602, no list price.

Performance: *Elegiac*
 Recording: *Very good*

Most of Merle Haggard's albums are predictable these days, but as a national motel chain proclaims, the best surprise is no surprise, and you seldom find anything on any of Haggard's albums that doesn't belong there. What you *do* find are well-crafted songs (in the case of this new one, mostly melancholy tunes about love), rich and heartfelt trademark vocals, and bare-bones, understated production that provides a perfect backdrop for Haggard's commanding presence.

The Man from Bakersfield has certainly done better albums, more well-rounded and exciting, but "Kern River" has an undeniable moody charm about it, and even at his most mediocre, Haggard is a master of the country song—one of the enduring heroes of the genre. A.N.

WHITNEY HOUSTON. Whitney Houston (vocals); vocal and instrumental accompaniment. *You Give Good Love; Thinking About You; Someone for Me; Saving All My Love for You; How Will I Know*; and four others. ARISTA AL8-8212 \$8.98, © AC8-8212 \$8.98.

Performance: *Excellent*
 Recording: *Good*

If heredity has any bearing on talent, it's no wonder that Whitney Houston is a singing sensation. Her mother is Cissy Houston, who used to belt out wonderful music behind Aretha Franklin as one of the Sweet Inspirations, and her first cousins are Dionne and Dee Dee Warwick (though less celebrated than

Dionne, Dee Dee is an accomplished soul singer).

Like her notable relatives, Whitney Houston, now twenty-one, has been influenced by the passion and spirit of gospel music. She got her start in the choir of a New Jersey church where her mother is minister of music. When she was fifteen, she joined Cissy's nightclub act, soon attracting attention in her own right.

Whitney Houston's ample gifts are handsomely showcased on this, her first solo album, with high-quality songs that suit her very special voice. That voice pulsates with the exuberance of youth and has a fresh sound, but it is disciplined enough to dip or soar with ease as the music requires. It is also buttressed by an uncommon amount of interpretive ability. Houston invests the ballads here with a haunting sweetness, and she generates a heap of excitement on such dance songs as *Someone for Me*, likely to be a hit.

As a bonus, there are two splendid duets with Jermaine Jackson, *Nobody Loves Me Like You Do* and *Take Good Care of My Heart* (she joined Jackson in the latter on his most recent album). And Teddy Pendergrass appears as her partner in a gently subdued rendition of *Hold Me*. But while their contributions are welcome, the essential element that makes this album superior, aside from the first-rate production, is the singing of Whitney Houston herself. Seldom has a young artist been so well equipped for the success that is bound to come her way. P.G.

JASON AND THE SCORCHERS: *Lost and Found*. Jason and the Scorchers (vocals and instrumentals); other musicians. *Last Time Around; White Lies; If Money Talks; I Really Don't Want to Know; Blanket of Sorrow; Shop*

It Around; and five others. EMI/AMERICA ST-17153 \$8.98, © 4XT-17153 \$8.98.

Performance: *Only rock-and-roll*
 Recording: *Excellent*

Jason and the Scorchers' debut EP ("Fervor") was one of the genuine pleasures of 1984, a powerful, ragged-but-right mélange of old-fashioned hard (pre-metal) rock and the anguished country soul of Gram Parsons. The band played and sang as if their lives depended on every note, and the effect was hauntingly timeless. Their new album is in many ways a more contemporary version of the EP; stylistically the music is more or less the same, but this time it's stunningly produced. Unfortunately, in this case more contemporary also means that the band has cleaned up its act somewhat to conform to the expectations of radio programmers. As a result, "Lost and Found" is just another rock album, impersonal and depressingly like everything else currently polluting our airwaves.

Lead singer Jason Ringenberg still has a relationship with accurate pitch that can only be described as charmingly casual, and the band still plays with considerably more élan than, say, REO Speedwagon. But most of this stuff is fairly mindless AOR guitar thrash that goes in one ear and out the other. Except for *Still Tied*, a touching, believable weepy ballad, and *Broken Whiskey Glass*, an obviously felt anti-booze-and-drug song, there's not much here I'll want to listen to again. A genuine disappointment. S.S.

HOWARD JONES: *Dream into Action*. Howard Jones (vocals and instrumentals); vocal and instrumental accompaniment. *Things Can Only Get Better; Life in One Day; No One Is to*

Whitney Houston: well equipped for success



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Blame; Dream into Action; Like to Get to Know You Well; and seven others. ELEKTRA 60390-1 \$8.98, © 60390-4 \$8.98.

Performance: *Uneven*
Recording: *Excellent*

Coming after almost any album but "Human's Lib," "Dream into Action" would rank as a solid outing, but following Howard Jones's brilliant 1984 debut, it doesn't quite sidestep the sophomore jinx. Jones's command of synthesizer is nearly as sure as before, and his gift for striking melody and intricate counterpoint is still in evidence. "Dream" sports a half-dozen quite hummable tunes, including two reggae-inflected songs, *Like to Get to Know You Well*, anchored by an irresistible bobbing bass line, and *Life in One Day*, with its breezy girl chorus. But an equal number of the songs don't quite hit the mark. The lyrics, too, are inconsistent. In "Human's Lib," Jones relied on suggestion rather than declaration. In "Dream," his lyrics have become much more specific and prescriptive—for worse, not better, in many cases.

I remain convinced that Jones is one of the most important pop-music artists at work today. "Dream into Action" may fail as often as it succeeds, but even Jones's failures are more challenging and interesting than most pop musicians' successes. *M.P.*

KATRINA AND THE WAVES. Katrina Leskanich (vocals, guitar); Alex Cooper (drums, vocals); Vince de la Cruz (bass, vocals); Kimberley Rew (guitar, vocals); vocal and instrumental accompaniment. *Red Wine and Whisky; Do You Want Crying; Que te quiero; Machine Gun Smith; Cry for Me;* and five others. CAPITOL ST-12400 \$8.98, © 4XT-12400 \$8.98.

Performance: *Infectious*
Recording: *Good*

If you're not already dancing to Katrina and the Waves, there's still time to salvage some of your summer. Their first U.S. release is prototypical garage-band pop, an affectionate medley of styles from Motown to Mersey to Tex-Mex.

Lead vocalist Katrina Leskanich, a native of the grain belt, can belt out a Janis Joplin-style blues like *Cry for Me* or chirp gaily over the bouncing brass riffs of *Walking on Sunshine* with equal facility. Complementing Katrina's effusive vocals are the idiomatic pop hooks and guitar licks of Kimberley Rew, a former archeology student who did a little digging in the rock-and-roll crypts to come up with the stylistic models for the eight songs he wrote for this album. Add a motoring rhythm section, and the mixture of Kansas with Kensington (Rew and the rest of the band are British) sets off a powerful reaction.



BRAXTON'S BASICS

SAXOPHONIST Anthony Braxton's new "Seven Standards 1985" is not his first recorded trip to the past. He made "In the Tradition," a bebop-inspired album, for Steeplechase in 1974, and his music has always reflected an appreciation of the kaleidoscopic mixture that goes into whatever we choose to call the very latest manifestations of jazz. In "Seven Standards" he teams up with pianist Hank Jones, bassist Rufus Reid, and drummer Victor Lewis for a superb set of established tunes, mostly from the bop repertoire.

That Braxton is capable of reaching back so eloquently should come as no surprise to anyone who has followed his career, listened to his music, and read his liner notes. The surprise is that the album comes from Windham Hill, hitherto known mostly as purveyors of a rather bland kind of music that only occasionally approached the most distant borders of jazz. Magenta, though, is Windham Hill's new subsidiary label devoted to jazz, and the Braxton entry seems to have received as much care in

recording and packaging as any release on the mother label.

"Seven Standards" offers forty-six minutes of straightforward music expressed with love, understanding, and extraordinary fluency by four masters. From the romp that is Clifford Brown's *Joy Spring* to the sensuous beauty of *Old Folks* and the Tristano-ish darting in Warne Marsh's *Background Music*, Braxton is totally in character with his surroundings. I highly recommend this album to anyone with a taste for musical excitement. And, since this set is called "Volume I," we can all look forward to the release of a second volume with more tunes recorded by the same distinguished quartet. *Chris Albertson*

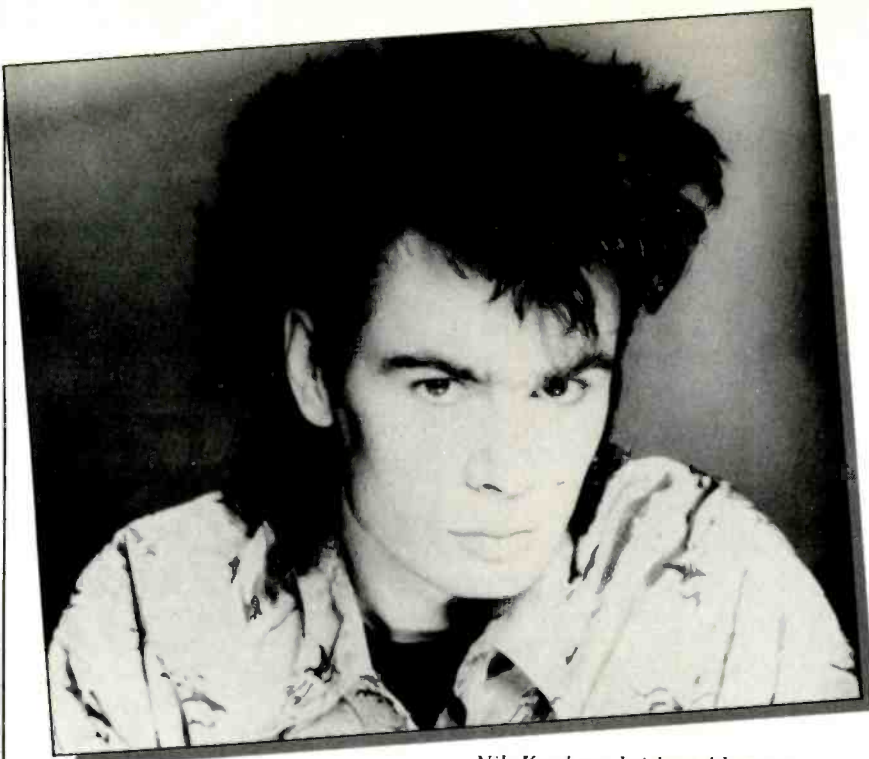
ANTHONY BRAXTON: *Seven Standards 1985, Volume 1.* Anthony Braxton (alto saxophone); Hank Jones (piano); Rufus Reid (bass); Victor Lewis (drums). *Joy Spring; Spring Is Here; I Remember You; Toy; You Go to My Head; Old Folks; Background Music.* MAGENTA MA 0203 \$9.98, © MT 0203 \$9.98.

Rew's spinning rhythm chords and staccato lead attacks provide a supercharged counterpoint to Alex Cooper's steady backbeat on both the mid-tempo and uptempo rock-and-roll of *Game of Love* and *Red Wine and Whisky* and on the La Bamba-style *Mexico*. Katrina deals out some blistering guitar licks of her own on the LP's two fastest-racing numbers, *Do You Want Crying*, written by bassist Vince de la Cruz, and *Machine Gun Smith*. She's definitely not just another pretty voice. *M.P.*

NIK KERSHAW: *The Riddle.* Nik Kershaw (vocals, vocal percussion, guitars, bass, keyboards); vocal and instrumental accompaniment. *The Riddle; Know How; You Might; Don Quixote; Easy;* and five others. MCA MCA-5548 \$8.98, © MCAC-5548 \$8.98.

Performance: *Perky*
Recording: *Good*

Nik Kershaw's "The Riddle" sounds like the offspring of Supertramp and Spyro Gyra—brisk, bouncy pop, brim-



Nik Kershaw: brisk and bouncy

ming with catchy hooks and gilded with shimmering guitar and synthesizer filigree. Kershaw's precious vocals and featherweight lyrics are quintessential Top 40 "lite," but the jumpy guitar/synth counterpoint and razor-sharp attacks make it easy to overlook his constant cuteness. (Well, *Save the Whale* is a bit much.) I wouldn't want to be seen buying this record any more than one of Abba's, but I'll admit that Nik Kershaw is just the thing when you can't suppress your musical sweet tooth. *M.P.*

LONE JUSTICE (see Best of the Month, page 57)

KAREN MACKAY: *Annie Oakley Rides Again!* Karen Mackay (vocals, guitar); vocal and instrumental accompaniment. *Annie Oakley Rides Again!*; *What's Time to the Heart?*; *Secrets of Man (My Bonnie)*; *Arms of the Goddess*; and six others. WEST VIRGINIA WOMAN WVW-102 \$8.50, © WVW-102 \$8.50 (from West Virginia Woman, P.O. Box 3174, Madison, WI 53704).

Performance: *Hearty*
Recording: *Very good*

For her second LP, folk and traditional singer Karen Mackay has written a collection of songs especially for women. Working within a variety of styles—bluegrass, Celtic, Latin-American, contemporary country, country-blues, folk/ballad, women's anthem, and even a waltz—Mackay proves herself a powerful lyricist and a stylish vocalist. She is best when zeroing in on specific, personal situations, as in *Secrets of Man (My Bonnie)*, a song about incest written in Elizabethan ballad style, or *My Dear Mrs. Katz*, about a woman trapped in a lifeless marriage. Producer Cathy Fink, herself a singer (*Doggone My Time*), has done a splendid job of

helping Mackay find just the right (mostly) acoustic backing, and the result is both a charming and a thought-provoking album, fit for enjoyable consumption by women and non-women alike. *A.N.*

JOHN MCEUEN. John McEuen (vocals, banjo, lap steel, fiddle, mandolin, guitars, keyboards); David Allan Coe, Lacy J. Dalton, Oak Ridge Boys (background vocals); vocal and instrumental accompaniment. *Fly Trouble*; *She's Crazy for Leavin'*; *Blue Days Black Nights*; *Fool in the Mirror*; and six others. WARNER BROS. 25266-1 \$8.98, © 25266-4 \$8.98.

Performance: *Half and half*
Recording: *Very good*

On first listening, this solo album by John McEuen, the illustrious banjo picker for the Dirt Band, seems almost to be two different albums, recorded with two different attitudes in different places and times. The reason it seems that way, as you find when you read the liner notes, is because it is.

Side one, produced by Marshall Morgan and Paul Worley, showcases McEuen's more progressive country side, with sparkling performances of two Guy Clark songs (*Fool in the Mirror* and *She's Crazy for Leavin'*, the latter written with Rodney Crowell) and some delightful, updated western swing (*Fly Trouble*). On side two, McEuen takes over as producer, and he's thrown together a crazy quilt of slightly more traditional material, including a tasty bluegrass jam session on *John Hardy*. There's also a dramatic reading of Stephen Vincent Benet's *The Mountain Whippoorwill*, set to original music, that lasts nearly seven minutes and totally changes the existing mood; it would probably have worked better as

the last piece of music on the album.

In the end, though, this album is worth looking into. McEuen is nothing if not stalwartly inventive, and as a solo performer he is also one of the best-kept secrets in country music. *A.N.*

MELBA MOORE: *Read My Lips.* Melba Moore (vocals); vocal and instrumental accompaniment. *Love of a Lifetime*; *I Can't Believe It (It's Over)*; *Winner*; *King of My Heart*; *To Those Who Wait*; and four others. CAPITOL ST-12382 \$8.98, © 4XS-12382 \$8.98.

Performance: *Versatile*
Recording: *Satisfactory*

Although Melba Moore is a versatile actress and a stunning theatrical performer, she has often been a bit disappointing on records. Happily, this time she has not let us down, for the material on "Read My Lips" shows off the broad range of her interpretive abilities. While it is all fairly simple dance music, there are interesting shifts in mood and presentation. Moore is teasingly sensual in *When You Love Me Like This*, all coy innocence on *To Those Who Wait*. The biggest surprise is the title track, where she is brassy and punkish, coming on like a junior-grade Tina Turner. It's bound to be a hit, along with *The King of My Heart*, a bouncy and catchy post-disco number. *P.G.*

WILLIE NELSON, WAYLON JENNINGS, JOHNNY CASH, KRIS KRISTOFFERSON: *Highwayman* (see Best of the Month, page 58)

EDITH PIAF: *Live at Carnegie Hall—January 13, 1957.* Edith Piaf (vocals); instrumental accompaniment. *Padam, Padam*; *Telegramme*; *La Vie en rose*; *Monsieur St. Pierre*; and fourteen others. CAPITOL STBO-12384 two discs \$12.98, © X2K-12384 \$12.98.

Performance: *Definitive*
Recording: *Passable*

The great Edith Piaf, in one of her comparatively rare American appearances, performed most of her classics at this standing-room-only concert, and the audience was obviously hers from her first note. Piaf was a performer with true theatrical magic, and, unlike most stars of the music hall or vaudeville, she was able to communicate that magic through the microphone on recordings. At the time of this concert she was already a legend. Almost thirty years later it's easy to hear why. *P.R.*

THE POWER STATION: *3 1/3.* Robert Palmer (vocals); John Taylor (bass); Andy Taylor (guitar); Tony Thompson (drums). *Some Like It Hot*; *Murderess*; *Lonely Tonight*; and five others. CAPITOL SJ-12380 \$8.98, © 4XS-12380 \$8.98.

Performance: *A super bore*
Recording: *Piecemeal*

The Power Station is further proof, if any were needed, that supergroups are

super bores. This one started when John Taylor and Andy Taylor—who play bass and guitar, respectively, for Duran Duran—approached Tony Thompson, session drummer and former member of Chic, with the idea of producing “the ultimate disco” album. Bernard Edwards, also a Chic alumnus, was invited to handle production. They worked up a few songs, went looking for a vocalist, and settled on Robert Palmer, who winds up completely dominating this ragged, overproduced record.

The songs here are not so much tunes as gangs of notes slouching around waiting for someone to call them to order. As a result, it's Palmer's mannered vocals that seize center stage. He's unable to deliver a song without acting as if he were in a paroxysm of suppressed sexual fervor.

Edwards is accorded full membership in the Power Station, which is only fitting since the other members never actually got together in a studio but made this album by recording their individual tracks over the course of several months. Edwards tries a few dubbing tricks with Thompson's drum tracks, which sound as though they were recorded months apart. On the whole, however, he did a pretty remarkable job. The ultimate disco album? Hardly. The supergroup to end all supergroups? One can only hope. *M.P.*

PRINCE AND THE REVOLUTION: *Around the World in a Day.* Prince and the Revolution (vocals and instrumentals); other musicians. *Around the World in a Day; Paisley Park; America;* and six others. PAISLEY PARK/WARNER BROS. 25286-1 \$8.98, © 25286-4 \$8.98, © 25286-2 no list price.

Performance: *Not his best*
Recording: *Very good*

This is not the masterpiece Prince apparently intended, but neither is it just another colossal ego trip. Forget the garish psychedelic album cover, reminiscent of “Sgt. Pepper.” Forget the sitars and tablas. The music here, with only a couple of exceptions (the title tune, for instance), is recognizably Prince, and the Beatles references seem more pastiche than tribute in any case. Strip away the packaging, in fact, and what you get is simply a weaker-than-average collection of the Kid's tunes—a classically disappointing follow-up album.

There are, of course, some new wrinkles here. Though all the traditional Prince concerns are aired (translation: he sings about sex a lot), he now feels constrained to wax cautionary on such subjects as nuclear war (*America*) and drug abuse (*Pop Life*). It shows a nice sense of public-spiritedness, but, frankly, it doesn't add much to the album's entertainment quotient.

“Around the World in a Day” offers some nice things nevertheless. *Raspberry Beret*, for instance, could almost pass for an old Small Faces single, which is meant as a compliment. Overall, you have to give the Kid credit for trying something a little different, even if it doesn't quite come off. *S.S.*

DAVID SANBORN: *Straight to the Heart.* David Sanborn (alto saxophone); vocal and instrumental accompaniment. *Hideaway; Straight to the Heart; Smile; Love and Happiness; One Hundred Ways;* and three others. WARNER BROS. 25150-1 \$8.98, © 25150-4 \$8.98.

Performance: *Shiny*
Recording: *Very good*

Throughout his career, alto saxophonist David Sanborn has tried to turn out albums that were both commercially appealing and artistically sound, and he has usually succeeded on both counts. His new record, recorded live, is another satisfactory effort, even if almost none of the selections except *Love and Happiness*, with a well-intentioned r-&-b vocal by Hamish Stuart, will get your heart pumping faster than usual. Still, it is a better-than-average pop-jazz effort, and maybe next time Sanborn will even blow a little heavier on the blues end of the horn. *A.N.*

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JAZZ



CLAUDE BOLLING: *Live at the Méridien, Paris.* Claude Bolling Big Band (instrumentals). *Jazzomania; Africaine; Barbuflux; Lagaffe;* and four others. CBS FM 39245, © FMT 39245, no list price.

Performance: *Excellent*
Recording: *Very good*

French pianist Claude Bolling has written and recorded enough jazzy suites to fill a large restaurant dessert cart, but it is said that he has a particular fondness for big bands. Several Bolling big-band albums have been released in Europe, but "Live at the Méridien" is the first to make it to these shores. Smooth as custard and with just enough spice to tickle the hardened jazz palate, this program of Bolling originals has a sound that reflects big bands past—there are streaks of old Herman Herds and even Charlie Barnet—yet it all sounds thoroughly modern. More innovation-loving ears will prefer Toshiko Akiyoshi's charts, but there is room in jazz for both, and I certainly prefer this Bolling to the pastry chef who turns out all those suites. *C.A.*

DAVE GRUSIN: *One of a Kind.* Dave Grusin (keyboards); Grover Washington, Jr. (soprano saxophone); Dave Valentin (flute); Ron Carter (acoustic bass); Ralph MacDonald (percussion); other musicians. *Modaji; The Heart Is a Lonely Hunter; Catavento;* and two others. GRP ● A-1011 \$8.98, © CP-1011 \$8.98.

Performance: *Smooth*
Recording: *Very good*

"One of a Kind" was recorded in 1977 when Dave Grusin was producing successful, modified jazz sets for Earl Klugh, Noel Pointer, Lee Ritenour, and Patti Austin. Originally issued on Polydor, it disappeared for several years until Grusin and his co-producer, Larry Rosen, formed their own label, GRP. It's an album of high-caliber mood jazz featuring Grusin's seamlessly smooth arrangements and thoughtful excursions on acoustic piano and Fender Rhodes.

To call it "mood jazz" is not meant to belittle Grusin's rich aural colorings, from the Caribbean carnival textures of *Catavento* to the modernistic atonality of *Montage*. The outstanding selection here is an imaginative treatment of Enrique Granados's *Playera*, long a standard for classical piano and guitar students. It shimmers delicately, its

Spanish flavor captured marvelously by Grusin, Grover Washington, Jr., on soprano sax, and bassist Ron Carter, who is a master of Spanish rhythms. *Playera* is a miniature masterpiece that by itself justifies the reissue of the album. *P.G.*

TANIA MARIA: *Wild!* Tania Maria (vocals, piano); Dan Carillo (guitar); John Purcell (saxophone); Frank Colon (percussion); John Peña (bass); Walfredo Reyes (drums, timbales). *Yatra-Ta; Fiz a Cama No Varanda; Vem P'ra Roda; Come with Me; Funky Tamborim;* and two others. CONCORD/PICANTE CJP-264 \$8.98, © CJC-264 \$8.98.

Performance: *Live and wonderful*
Recording: *Good*

With the ranks of jazz headliners steadily dwindling to the point where they might be considered an endangered species, the ebullient singer-pianist-composer Tania Maria is especially welcome as a revitalizing force. Her irresistible brand of Brazilian jazz-fusion is captured live on this album recorded late last year in San Francisco's Great American Music Hall. And she is in particularly fine form.

First, there is the magic of her sun-baked Brazilian rhythms and lush, sensuously shaped melodies, which seem to blossom as effortlessly as the foliage in those parts. Noted for her nimble-tongued scatting in what seems to be a pastiche of Portuguese, English, and the wordless lingo of jazz singers, she gets off to a blistering start with *Yatra-Ta*, r-r-r-olling the nonsense syllables over her tongue, hitting the piano with percussive force, and building to an incendiary heat.

Stanley Turrentine



GILLES LARRAIN/BLUE NOTE RECORDS

A couple of these selections, *Come with Me* and *Funky Tamborim*, have been heard on earlier albums, but the live treatment makes them fresh, to the delight of the audience. The most ambitious number here is *2 A.M.*, a ten-minute improvisation ranging from the pensive to the pepperish. As the album title says, Tania Maria is WILD! *P.G.*

STANLEY TURRENTINE: *Straight Ahead.* Stanley Turrentine (tenor saxophone); Jimmy Smith (organ); Les McCann (piano); George Benson (guitar); Ron Carter (bass); other musicians. *Otherside of Time; Plum; A Child Is Born;* and three others. BLUE NOTE BT 85105 \$8.98, © CP4T 85105 \$8.98.

Performance: *Curiously refreshing*
Recording: *Quite good*

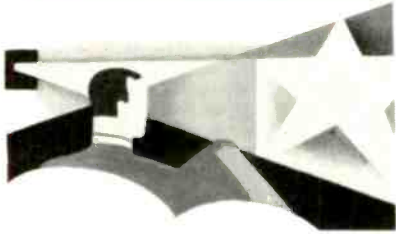
There were quite a few dedicated jazz labels back in the late Fifties and early Sixties, when I made my living as a jazz disc jockey, but only one, Blue Note, showed such consistently high quality that I could place an unpreviewed album on the turntable and guarantee the listeners a treat. Founded by Frank Wolff and Alfred Lion in 1939, Blue Note was America's oldest independent label, and I can truthfully say that in those days I never heard a Blue Note record I didn't like. Sadly, things changed rather quickly in 1966, when Wolff and Lion sold the label to Liberty Records. It became part of the Transamerica conglomerate, and with very few exceptions Blue Note became a junk label.

Now, almost twenty years later, this great label is being restored to a semblance of its old self as a division of Manhattan Records, which itself is a division of Capitol Records. So far, at least, both the new releases and the reissues have the look and feel of the genuine article. It is still too early to give the rejuvenated label a standing ovation, but right now the future looks promising for Blue Note.

Among the new releases is "Straight Ahead," a Stanley Turrentine set recorded late last year. Two groups are involved, one with George Benson, Ron Carter, and organist Jimmy Smith, the other with pianist Les McCann. Turrentine's first album as a leader was a 1960 Blue Note release, and, like the label—which he stayed with for several years—he strayed across the border into the bland world of Bobby Humphrey and the watered-down Donald Byrd, but he always had a round-trip ticket.

"Straight Ahead" is not the sort of stuff old Blue Note albums were made of, but it is a giant leap ahead of the pap that all but destroyed the label. Despite a small measure of polished predictability, I like what I hear on this album, but I hope the new producers get more gutsy than this. In the meantime, feast your ears on the Blue Note reissues, which include fine material by Miles Davis, Thelonious Monk, Clifford Brown, Art Blakey, John Coltrane, Lee Morgan, and many others. *C.A.*

FILM & THEATER



BIRDY (Peter Gabriel). Original soundtrack recording. Peter Gabriel (synthesizer, percussion); instrumental accompaniment. GEFGEN GHS 24070-1 \$9.98, © 24070-4 \$9.98.

Performance: *Characteristic*
Recording: *Very good*

Credit director Alan Parker for recognizing the inherent psychological power of Peter Gabriel's music. Gabriel's score for Parker's film *Birdy* is a series of brooding sketches, half of which are reworkings of earlier pieces. Listeners will recognize themes from *Family Snapshot*, *Rhythm of the Heat*, *San Jacinto*, and others, though the rhythms are softened and smoothed out.

Like Brian Eno's "Ambient Music" discs, much of the *Birdy* album is a vast, featureless expanse of tones and textures. But from beneath the somber swell and ebb of Gabriel's synthesizer emerge the furious beating of drums and the black, thunderous ring of percussion—a musical analog for the fear and apprehension that rage inside the film's mad hero. While not too different from the percussion-based avenues Gabriel has explored over the last few years, the soundtrack for *Birdy* provides what is perhaps the best setting yet for his visionary new music. *M.P.*

A PASSAGE TO INDIA (Maurice Jarre). Original soundtrack recording. Royal Philharmonic Orchestra, Maurice Jarre cond. CAPITOL • SV-12389 \$8.98, © SVT-12389 \$8.98.

Performance: *Good*
Recording: *Good*

Maurice Jarre has supplied the music for several David Lean films and seems to have an affinity for Lean's large, broad-canvas, *movie-movie* approach. *A Passage to India* is easily on a par with the best of Lean's previous work—spectacular, beautifully written and photographed, and always imbued with his particularly lyrical touch. Jarre's score is by necessity filled with "Indian" ornamentation; tambura, sarangi, sitar, and santoor variously figure in "atmospheric" arrangements of what is, of course, essentially music composed by and for a Western sensibility. Aside from that, the music is craftsmanlike and responsive to the film's dramatic demands. As good as Jarre's scores for Lean have been, however, I still think his music for *Is Paris Burning?* is his finest work so far. *P.R.*

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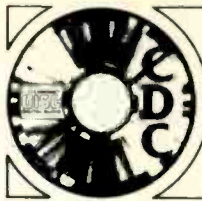
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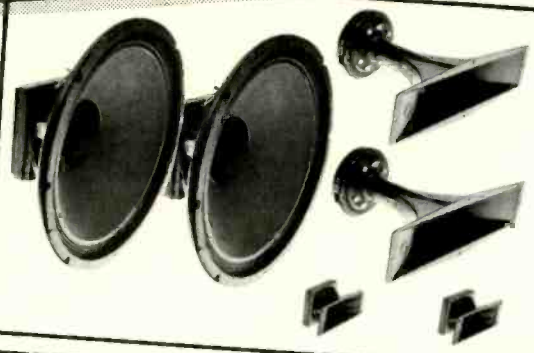


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TROUBLESHOOTING
(Continued from page 50)

course, but you can follow most of the same steps for any separate signal source: a CD player, for instance, or the playback section of a cassette deck. Even a turntable can be checked in this way, except that you will not be able to try alternative preamp inputs because of the very low output from a phono cartridge.

Assuming you have eliminated the input section of the preamp as the trouble spot, the later stages of the preamp, the power amplifier, or the connection between them may be at fault. One way to check these alternatives is to connect the amplifier's input into the cassette deck (or connect through the "pre-out" jacks of a receiver, if it has them) and listen through headphones as above. If everything then seems fine, the problem is either in the amplifier itself or beyond it in the speaker connections or speakers. If the difficulty is apparent through the cassette deck, try using fresh cables; if that doesn't clear things up, then the trouble must be in the later stages of the preamp.

A similar process of elimination can be used with virtually any component in the signal chain. By successively bypassing the different blocks that make up an audio system, you can identify where a problem lies. Once you know that, you are well on your way to solving it, even if it means taking a component in for repair. If you can at least identify the one component that is malfunctioning, you may be able to use the rest of the system while the problem is being fixed.

If your sleuthing has shown that everything is fine up to the input jacks of the amplifier, you have a different set of questions facing you. An amplifier—and that includes the power-amplifier section of an integrated amp or a receiver—is basically a "black box." It works or it doesn't, but it doesn't offer the layman much opportunity to get in and find out where a problem lies. At this point, you have to approach the problem from the other end—the speakers.

Loudspeakers

Speakers can have their own problems, but they tend to be quite different from those of other components. For instance, some sonic quirks can be a result of a speaker's environment. Frequency-response aberrations can be caused by less

than ideal speaker placement, and sometimes they mimic electronic faults so that they are not immediately obvious. And they may seem to develop suddenly if a speaker is moved, even a little bit. Usually the problem can be identified by physically exchanging the speakers; if the one on the left, say, still seems to be having problems, it's probably a placement difficulty. You can check this by switching the leads from the amplifier to the speakers; if the right channel is driving the left speaker, and vice versa, and the problem is still on the left, then the difficulty is almost certain to be in the room, not the components. It might even be as simple a matter as something rattling on a shelf near the speaker, which can sound eerily like a buzzing tweeter.

Switching the speakers or the leads may also identify a fault in the connection at either end, although a bad speaker connection rarely has dramatic sonic effects—except, of course, when it leads to complete silence on one channel or both. As with cables, problems affecting speakers very rarely influence both units in a pair, so any weird noises coming out of both speakers are unlikely to be caused by either the speakers or the cables. It is also unusual for a speaker to be "blown" entirely, and if it were you would probably remember the awful noise only too well. While a solitary burned-out tweeter may be surprisingly hard to detect, complete silence from a speaker is usually a sign of a bad connection or an amplifier flaw. A bad connection can be discovered by switching cables temporarily, and it is usually easily remedied.

Sometimes a bad connection can be confirmed with the amplifier's meters or some other form of output indicator. If the meters are registering but there's still no sound, then it's a hookup problem. The amp's headphone output can sometimes give you the same information. If it does seem to be a connection problem, and making sure there is good contact at both ends of the speaker leads makes no improvement, it's usually worthwhile to connect the speakers to the "Speaker B" taps if they are provided. If that doesn't help, replacing the wires completely should do it. If the problem persists, it must be in the amplifier itself, and you are probably in for a period without music—unless you have a spare amp in the basement. □

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AUGUST



Gary's Revenge

We lost a battle. So now, just \$299 will bring you a front loading, Cable Ready, VHS video recorder with wireless infrared remote control and 14 day 4 event programmable recording.

By Drew Kaplan

We were embarrassed. We were upset. And, although we may have lost a battle, now we're going to win the war.

Last September we introduced a video recorder for Emerson that we thought would scoop the market. Well, by December, our scoop was being scooped.

And when DAK gets scooped, we don't just apologize, we pay. If you buy anything from us and find it advertised for less within 30 days, just send us the newspaper or magazine ad and we will issue you a merchandise credit.

So, by December we were really licking our wounds and plotting our revenge. Enter Gary, Emerson's Western Regional Sales Manager. Gary brought us the original recorder, for a very good reason.

Many of DAK's sales are in the Midwest and East, so we can sell tens of thousands of recorders without bothering the rest of his Western Region.

And, that's good for Gary because it makes his sales look real good at the expense of the Midwest and Eastern Regional Managers.

So, this time Gary has brought us a recorder we think can't be beat. With its 105 channel cable ready capacity, its wireless eleven function infrared remote and DAK's \$299 price, we challenge anyone to compete.

But, before we examine just what this 4th generation, Japanese crafted video recorder can do for you, let me share 3 real life reasons why you really should own any video recorder.

THE HARRIET FACTOR

Harriet is my wife's old team teaching partner. She had never had a video recorder. So, we gave her one. Several weeks later she called, absolutely elated.

She was recording The Phil Donahue show every day and watching it when she got home from school. She had also recorded several movies on cable that she kept missing while she was at work.

My parents are another story. They've

had a recorder for years (being my parents has its advantages). My parents have two loves, concerts (my mother is a concert pianist), and UCLA Basketball.

They go to concerts several nights a week and tape the UCLA games while they're out. Then if you can believe this, they make popcorn and stay up to watch the game till 1:30AM. Anyway, they just love their recorder.

Finally we have my wife's parents. And this is really important. We gave them a recorder and they didn't know how to hook it up. It never occurred to me that there was anything to hooking up a video recorder.

Just unhook the antenna from your TV and connect it to the recorder. Then connect the cable (included) between the recorder and your TV, and record.

Anyway, my father-in-law gets up at about 5AM, so they go to bed very early. Once they hooked up their recorder they discovered a whole world of late night TV. Now they watch Dynasty during dinner. And, look at this. They had never stayed up to see the Johnny Carson show.

Wow, a video recorder can let you watch what you want when you want without being restricted by your work, social life or sleep.

If you're like me, you probably won't tape and save. There aren't many movies that I want to see more than once or twice. But, wait till you see how convenient it is to plan your viewing hours to fit your own schedule.

LOOK AT ALL YOU GET

From the moment you put a video cassette into the front loading motorized slot and see it automatically drawn into the recorder, you'll appreciate the quality.

ELECTRONIC TUNING. This recorder's synthesized tuner can tune in VHF channels 2-13 and UHF 14-83. Plus, you'll also be able to tune in 23 Mid Band and High Band Cable Channels.

You can choose any 12 channels from any band in any order you like for instant

one touch tuning at the recorder, or step through them from the infrared remote. **4 EVENT/14 DAY PROGRAM CAPABILITY.** You can select any 4 programs over a two week period to record.

So, if you're going on vacation, you can keep up with weekly series while you're gone, even on different channels.

The timer is extremely easy to use. You'll record shows you miss when you're out, shows that you want your children to see at a more appropriate time and important events that you'll want to keep.

Plus, you can watch one show on your TV while you record another.



WIRELESS INFRARED REMOTE.

From system power to changing channels, you're in full control. If a remote seems to simply smack of posh luxury, look at what it can do for you.

You can touch the still frame button and freeze the action. Now you can really tell if the umpire was correct or not.

You can play the same movement over and over again until you are absolutely sure of what you've seen, while you relax

Next page please. . .

... Gary's Revenge Continued in your favorite viewing chair.

If you want to find a certain part of the tape, use the high speed forward or reverse scan to 'visually' fast forward or rewind.

AND MORE. There's a digital clock/timer and even a tape counter. LED's show all the functions. And, there's even a picture sharpness control.

There are both high and and low speeds for up to 8 full hours of recording. And finally, when a tape reaches the end, it will automatically rewind.

It's made by Emerson. And, it's backed by their standard limited warranty.

WHY THIS RECORDER

Other than its super features, great picture and DAK's revenge pricing, there are 3 reasons to choose this recorder.

1) With a cable ready recorder you can watch one cable show and record another. 2) By using the tuner in this recorder, you'll turn any TV into a remote control Cable Ready TV. 3) You may not have cable yet, but when it comes to your area you won't need a new recorder.

ENJOY VIDEO FREEDOM RISK FREE

Wait till you experience the freedom of watching any program when you want. Wait till you see how easy it is.

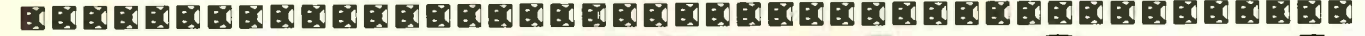
If you're not 100% satisfied with the

incredible picture quality or the automated functions, simply return it in its original box with 30 days for a refund.

To order your Emerson 105 Channel Cable Ready VHS Video Cassette Recorder with Wireless Infrared Remote Control risk free with your credit card, call toll free or send your check for DAK's breakthrough price of just \$299 (\$9.50 P&H) Order No. 4215. CA res add tax.

Now you can watch last night's midnight show at dinner, or tonight's dinner show at midnight. And, thanks to Gary's Revenge, you can do it for just \$299.

PLEASE USE ADDRESS AND PHONE AT BOTTOM OF PAGE



Unleashed TV/Video Sound

Now you can do for your ears and brain what color TV has done for your eyes, with Universal's new amplified and electronically synthesized stereo system for your TV and video recorder.

It's amazing. TV sound is really great. It is actually broadcast on the FM band.

In fact, every one of the great sounding FM stations from FM 88 to 108Mhz that you enjoy listening to on your stereo system, is tightly sandwiched between channels 6 and 7 on your TV.

So, why do TVs sound so crummy? Well, if you compare a \$1000 stereo system to even the best \$800 TV, you'll realize that when you bought your TV, all that was probably discussed was the picture quality, sharpness, and color purity.

The truth is that in most TV sets, all the money goes into creating the best picture quality, and the sound is left to a cheap amplifier and a 3-5" Low Fi speaker.

POWER FOR THE VIEWER

Think about the bigger than life realism that enwraps you at a movie theater. It's called 'Sensory Emotional Involvement'.

The experience is a combination of the big picture and massive sound that together subconsciously cause your brain to register reality. Of course, you know it's not real (I hope), but subconsciously you have to keep reminding your brain.

It's the combination of sight and sound in tandem that act on your brain. And, it's the reason that even with a great TV picture, a single 3-5" speaker may sound loud, but it won't thunder. It may be soft, but it won't whisper.

And most important, with all the sound coming from just one point, your brain doesn't get any reality cues.

Now, without changing your TV, you can dramatically enhance the realism and sound quality by creating moving sonic cues which your brain will equate as movement in the picture.

Then you can add great fidelity with a pair of two-way specially shielded die-cast aluminum speaker systems with real woofers and tweeters.

And finally, provide enough amplified power to make a car chase come alive or an organ thunder. So, movement, fidelity, power and picture, equal reality.

SIMULATED STEREO PLUS

In a world where our brains are attuned to the sonic impact of stereo music, nothing turns off the feeling of reality more quickly than a single sonic source.

You get two different signal processing choices. Just running your TV signal to two speakers and amplifying it will increase the fidelity dramatically, but it

won't make the sound come alive.

The signal has to be altered. And, with Universal's new Amplified System for your TV or Video Recorder, you can select either of two realism enhancers.

When you switch to 'Simulated Stereo', you will be dividing and sending sonic data from about 500hz to 3,000hz to the sides of your room. These critical frequency areas largely determine where your brain perceives sound is located.

When you switch to 'Stereo', you will be altering the 'phase sensitive' elements of the entire musical spectrum.

This will tend to give you a wider, fuller sound for music. So, if your eye sees movement as a scene unfolds, and your ear senses movement or width of sound, your brain equates realism.

The Speakers. Twin two-way speaker systems with a wide frequency response produce simply vibrant sound. You'll hear sounds that you never knew existed.

You'll hear footsteps creak and doors open as your sound takes on realism. And, string basses, violins, and trumpets will emerge from the murk.

The Amplifier. Connect the two-way speakers to the amp (cables included). Then connect a cable (included) from the amplifier to either your TV's earphone jack (plug included) or your video recorder's output jack and get ready for a shock. Universal's Amp has built-in ANR auto-

matic noise reduction circuitry which cuts out hum and noise caused by TVs without sacrificing the high end. So, you'll have sonic placement, rich full sound and virtually no annoying noise.

It's made by USI, a leader in electronics since 1969. It's backed by their standard limited warranty.

UNLEASH YOUR TV'S SOUND RISK FREE

In your living room, bedroom or kitchen, now you can have really realistic, emotionally charged sound for your TV. If you're not 100% satisfied, simply return it to DAK in its original box within 30 days for a courteous refund.

To order Universal's Amplified Synthesized Stereo System complete with Two-Way Speaker Systems risk free with your credit card, call toll free, or send your check for DAK's breakthrough price of just \$79.95 plus \$6 for P&H. Order No. 4241. CA res add tax.

Now you can add rich sound and realism to your TV for just \$79.95 Wow!



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by Christie Barter
& Steve Simels

ROCK radio stations and MTV may have cut back on heavy-metal lately, but at least two members of metal-mavens Ratt, Stephen Pearcy and Robbin Crosby, don't seem to be any more worried than their famous friend, none other than Mr. Television himself, Milton Berle. And why should they worry? Ratt's newest album, "Invasion," will initially ship 600,000 units, as they say in the business.

Uncle Miltie, of course, appeared earlier this year in the group's hit video *Round and Round* in trademark old-lady drag. If you've ever wondered how the lads persuaded him to do it, wonder no more. Berle's son Marshall is the band's manager!



Berle (center) with Ratt

According to PolyGram, Lewis credits Bach, of all the classical composers, as the one who has had the most

should be in record bins sometime this month. But in September, when he plays with the Chicago Symphony, he will take a break from all this and record Tchaikovsky's First Piano Concerto and Dohnányi's *Variations on a Nursery Song*. Sir Georg Solti, the Chicago Symphony's music director, will conduct on the recording.

HOW'S this for a success story: nice, wholesome, Midwestern girl has dreams of being a rock-and-roll singer, but nothing is happening at home, so she migrates to England. There she hooks up with three intense-looking Brit musicians, returns to the

States, and produces a wonderful Sixties-pop-influenced album for a major American label. The Pretenders, right? Wrong. It's Katrina and the Waves. Come to think of it, they actually sound a bit like the Pretenders, but their self-titled debut album on Capitol (reviewed in this issue) is one of the nicest surprises so far this year.

It includes, incidentally, a lovely version of *Going Down to Liverpool*, which Katrina and the Waves wrote and then slipped to the Bangles. You can also catch the band's video, *Walking on Sunshine*, on MTV if you can see them through the most deliberately grainy photography in recent memory. The effort's worth it, though.

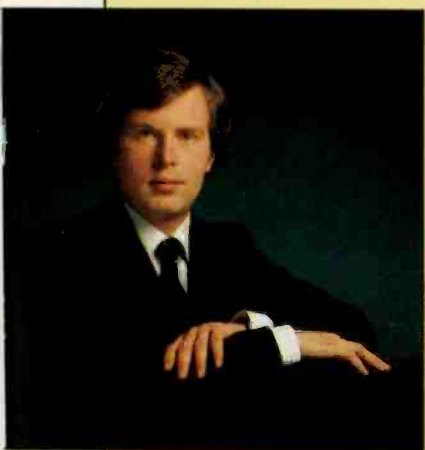
FEBE ROBERTS

CONDUCTOR Herbert von Karajan has signed a new long-term contract with Deutsche Grammophon that calls for the recording and rerecording of major orchestral works plus two operas, Bellini's *Norma* and Strauss's *Elektra*.

Earlier this summer, Karajan was scheduled to lead the Vienna Philharmonic and an Austrian chorus in a special performance of Mozart's *Coronation Mass* at St. Peter's in Rome during a Mass celebrated by Pope John Paul II. Despite Karajan's request, however, DG declined to record that performance, citing the Basilica's impossible acoustics and an existing recording of the Mozart Mass that the veteran conductor made in the Seventies. That is, it *did* exist in the American catalog until recently, when it was inadvertently deleted. It is being restored by DG in short order, in a coupling with the Bach *Magnificat*.

WISH WE'D BEEN THERE DEPARTMENT: You probably recognize the famous faces of Rod Stewart, Diana Ross, Boy George, and Stevie Wonder—but what do they all have in common? Why, mulling about backstage after the recent *Motown Returns to the Apollo* TV special, which celebrated the reopening of the famous Apollo Theater in Harlem.

In case you missed the



RICHARD HODEL/LONDON

Schiff: a lot of Bach

THE Bach tricentennial has not gone unobserved by the jazz community. One of its leading citizens, composer-pianist John Lewis, last year conceived the idea of recording music from Bach's *Well-Tempered Clavier*, and the result, recorded at Rutgers Church in New York City, is an album of six preludes and six of their accompanying fugues just released through PolyGram Classics on the Philips label. Lewis treats the preludes as solo pieces and adds violin, viola, guitar, and bass in different combinations for the fugues, all fleshed out with generous improvisation.



CHRISTIAN STAINER/POLYGRAM

Lewis: cool Bach

profound influence on him. The new recording is a graceful and thoroughly beguiling acknowledgment and, in this Bach year, particularly appropriate as well.

HUNGARIAN-BORN pianist András Schiff has also recorded Bach's *Well-Tempered Clavier*, and his performance of Book I—the first set of twenty-four preludes and fugues—will be released by London this fall.

Schiff has been recording a lot of Bach recently. His album of the Bach Partitas, also on London, is reviewed in this issue, and the Two-Part and Three-Part Inventions

Katrina: success story



CAPITOL



show, Rod did a credible version of Otis Redding's *Dock of the Bay*, Diana did a not-so-credible version of Foreigner's *I Want to Know What Love Is*, and Stevie and Boy did a first-time-ever duet. Motown has promised that the entire special, featuring nearly every known living black American entertainer, will be available, in stereo, for the home-video market, but don't hold your breath. They promised the same thing two

only this time he's seen in flashbacks, first as a child, played by his real-life nephew John, and then as his Sixties self (looking eerily like the cover of the first Stones album). Videos have apparently been filmed for all the songs on Mick's recent solo album ("She's the Boss"), and eventually they will be strung together to make a long-form home video with a coherent story line. No word yet on who's going

parently obliged to attend. Bailey, so we've been told, posed for the photo under the mistaken impression that Yankovic was actually Phil Collins (with whom Bailey recently had the hit *Easy Lover*), while Weird Al, it is reliably reported, was discussing his plans to redo Madonna's *Like a Virgin* ("Like a sturgeon smoked for the very first time!"). Or something like that. □



Weird Al, Bailey backstage

POCKET BOOKS has just published a compilation of trivia questions and answers about the hottest rock stars of the moment and their videos. It is *The Rock Video Book*, and it costs \$9.95 in soft cover. The author, Paulette Weiss, was formerly Popular Music Editor of this magazine.

Included in the book are such performers as David Bowie, Culture Club, Billy Idol, Billy Joel, Cyndi Lauper, Fleetwood Mac, and Madonna. Sample question: What is the one book Boy George claims to have read? Answer: The autobiography of Tallulah Bankhead.

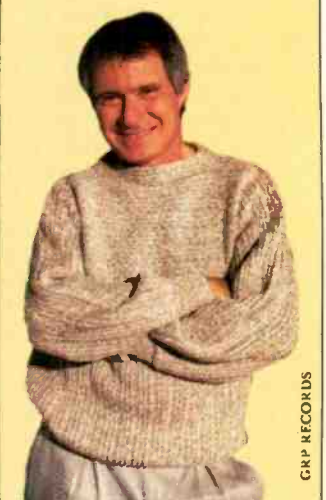
Also just published, by Arbor Books, is *Gender Chameleons: Androgyny in Rock 'n' Roll* (which costs \$12.95) by Steven Simels, also a former Popular Music Editor of this magazine and now co-author of this column. □

FOR a second year the JVC Corporation of America, manufacturer of audio and video hardware, is making a hearty commitment to American jazz by sponsoring a JVC Festival Tour of nine U.S. cities followed by a two-day JVC Jazz Festival at Newport, Rhode Island. JVC's partner in the tour is GRP Records, headed by keyboardist Dave Grusin, who is performing in all nine concerts with guitarist Lee Ritenour. (Ritenour, recently signed to GRP, will also appear at Newport.)

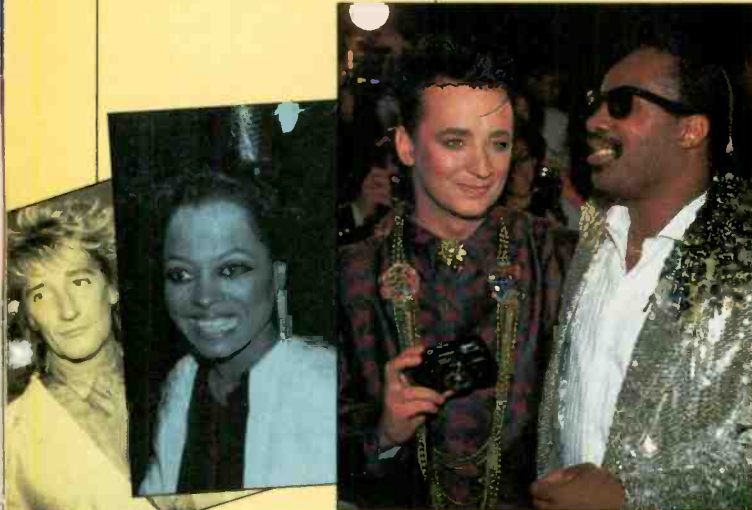
The JVC tour dates this month are August 1 at the Concord Pavilion outside San Francisco, August 4 at the Auditorium Theater in Denver, and August 11 at the Hollywood Bowl. In all three

PERPETUA is a new CD-only label created by M&K Sound Corporation as an affiliate of M&K's Real-Time Records. The first eight releases include three recordings by the *Philharmonia Hungarica*, performing works by Mozart, Telemann, Kodály, and Dvořák. A fourth CD, featuring pianist Tedd Joselson with Zoltán Rozsnyai (the orchestra's founder) as conductor, couples Rachmaninoff's *Paganini Rhapsody* and Prokofiev's *Third Piano Concerto*. □

Grusin: jazz from JVC



GRP RECORDS



Stewart, Ross, Boy George, Wonder at the Apollo

years ago with the *Motown 25th Anniversary Special*, and that's still not available. □

AHH... togetherness is wonderful, isn't it? The all-but-ubiquitous Mick Jagger practices a lot of it in his latest video, *Lucky in Love*. Shot by director Julien Temple, the video picks up the plot line from Mick's last effort (*Just Another Night*),

to release it, but the betting is on Vestron. □

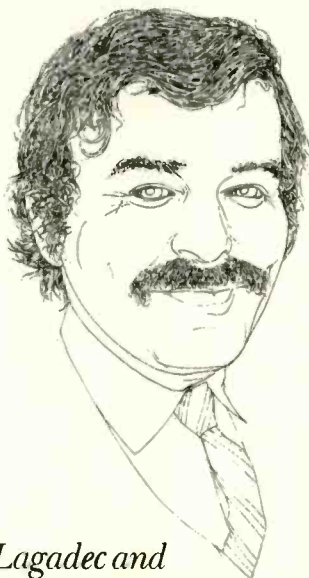
AND now, for something completely different, we give you the odd couple of rock, parodist Weird Al Yankovic and Earth, Wind & Fire lead singer Philip Bailey. The photographer caught the two lurking around after one of those interchangeable award shows that superstars are ap-

Jagger and friends: the plot thickens



MALCOLM HAYWARD/CBS

by Ralph Hodges



Roger Lagadec and
the Great Digital Debate

NOTWITHSTANDING all its many supporters in these pages, digital sound, and particularly the Compact Disc, has a substantial number of detractors, most of them in high-end places. Their position, after what we'll assume to be long and conscientious evaluation, is that the CD is an excellent mid-fi medium, able to win handily against the combination of a not-so-good \$300 turntable and a \$50 cartridge, but not yet up to the standards of the best analog reproduction, which can easily cost more than \$10,000 for the record player alone. A recently heard high-end remark sums it up: "The digital process is antiseptic, and it kills the microbes of the sound that are a part of all organic life. A mediocre record player ignores them anyway, but a high-resolution system brings them to life. And that's what digital lacks. It's dead."

Before you laugh (or cry), consider the views of Roger Lagadec, the man who may be the best-qualified spokesman for digital audio in Europe. Lagadec was born thirty-eight years ago in Paris, grew up to love music (folk and rock especially), studied electronics in Zurich, and not too long after was taken on as the chief of digital activities at Stud-

er/Revox. "I probably didn't have too much of a choice," he explains. "Dr. Studer has a very strong personality." At the recent Audio Engineering Society convention in Anaheim, California, Lagadec read a paper on techniques for implementing fully digital processing right up to the output stages of studio tape recorders and one on a new Studer machine with a digital-audio stationary head (DASH) configuration. This represents normal productivity for him.

"In Europe," he says, "the CD was conceived of as a mid-fi product from the beginning. It was a way of relieving the mass public from fragile, dirt-affected, wear-afflicted vinyl. It's a very good way, as it turns out, although we have determined that a CD's immunity to fingerprint smudges and warpage has been grossly exaggerated."

The parallel with the evolution of the Philips cassette is too obvious to be missed. It began in Europe as a convenience music medium (some say as a dictation format, but that is false), and it was only later in Japan and the U.S. that it was honed to something like a cutting edge of high-fidelity technology for home users. That Europe may consider the CD merely another convenience

"In Europe," Roger Lagadec says, "the Compact Disc was conceived of as a mid-fi product from the beginning."

format comes as something of a surprise (probably as great a surprise to Japan as to the U.S.), but that seems to be the case. Roger Lagadec has much more to say on the subject, however.

"I have no argument whatever with those who say that the performance of CD players varies and that the best of CD is lagging a bit behind the best of analog. There is still much to learn. For example, conversations with Dr. Thomas Stockham [a digital pioneer, developer of the Soundstream machines used to make a vast number of the digital recordings now in the catalog] have pointed up that extremely steep-slope filtering techniques, uniquely possible in the digital do-

main, can sound very strange to the ear, presumably because there is nothing quite like them in nature. They seem so useful in theory, but in fact they are too alien to the human experience to be accepted readily—or at least that's our thinking so far. When he was active, Stockham really did a tremendous amount to advance our understanding of this form of signal processing. Unfortunately, there's still a tremendous amount to be done."

On CD players as they are now being offered: "We really can't expect the first CD players sold to last much more than five years. Even if they remain operative, the technology will have outrun them. We have especially grave doubts about the portable players coming onto the market. Yet I don't think this should deter anyone considering a CD purchase. Updating equipment has always been a part of pursuing good sound, and the situation will be no different here. In fact, I'd say that last year was probably the optimum time to have invested in a CD player. You could look forward to years of pleasure to come, and about the time you realized you were seriously falling behind, you'd find a whole new world of performance awaiting you."

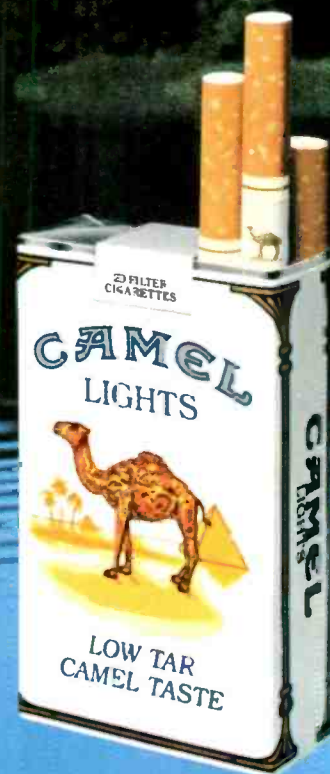
If Lagadec's remarks seem rather cold and uncaring on the printed page, that merely reflects the limitations of the medium. Face to face, the man is warm, passionate, and exceptionally well informed. "We at Studer are satisfied that data laid down properly are data that can be retrieved properly; and those data can encompass most of what we need for enjoyment of music. True, for complete accuracy in the representation of music, the jury is still out. But considering the rate of progress so far, the long way we still have to go could be negotiated in a remarkably short time.

"What needs to be countered, and the sooner the better," he emphasized, "is the obscene contention that digital audio in its current form represents perfection. No intelligent person should believe that, and the press shouldn't write it."

Asked about the "antiseptic" properties of digital sound, Lagadec replied, "Well, hygiene is generally good for us. Let's see how good." □

CAMEL LIGHTS

It's a whole new world.



Today's
Camel Lights,
unexpectedly
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9 mg. "tar", 0.8 mg. nicotine av. per cigarette by FTC method.

Warning: The Surgeon General Has Determined
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Introducing three times the power* and three times the control of ordinary car stereo. The new Panasonic component car stereo system.

Powerful. Ingeniously designed. That's the new Panasonic component car stereo system. It's an AM/FM stereo/cassette and seven-band graphic equalizer/power booster. All in the space normally taken by many ordinary car radios.

The heart of this system is a Panasonic AM/FM stereo/cassette player. With digital electronic tuning to seek and lock in stations with uncanny accuracy.

The high-performance cassette section gives you not only superb sound reproduction with Dolby** noise reduction. But it also gives you the convenience

of auto-reverse. Plus metal tape capability.

The companion component is the Panasonic CY-SG60 graphic equalizer/power booster. Beyond ordinary bass and treble tone controls, it lets you shape your sound precisely over a seven-band range. And to bring all that sound to life, the CY-SG60 is also a power booster. To boost the power of your system to 25 watts per channel.†

So get yourself a system that gives you three times what an ordinary car stereo gives. **Panasonic**® just slightly ahead of our time.



*Based on 1985 industry average 7.46 watts per channel. **Dolby is a trademark of Dolby Laboratories. †2 X 25W (total 50W) maximum power output at 1k-4z. CIRCLE NO. 4 ON READER SERVICE CARD