



ROTEL RC-870 PREAMP

Manufacturer's Specifications

Frequency Response: Phono, RIAA 40 Hz to 100 kHz, ± 0.2 dB; high level, 4 Hz to 100 kHz, +0, -3 dB.

THD: High level, 20 Hz to 20 kHz, less than 0.004%.

SMPTE IM: High level, less than 0.004%.

Input Sensitivity: MM phono, 2.5 mV; MC phono, 360 μ V; Compact Disc, 450 mV; tuner or tape, 150 mV.

Overload Level: MM phono, 150 mV; MC phono, 20 mV; high level, 5 V.

S/N: MM phono, 78 dB; MC phono, 64 dB; high level, 95 dB.

Power Consumption: 20 watts.

Dimensions: 16-15/16 in. W \times 2 5/8 in. H \times 12 1/2 in. D (43 cm \times 6.6 cm \times 31.7 cm).

Weight: 11.4 lbs. (5.2 kg).

Price: \$299.

Company Address: P.O. Box 653, Buffalo, N.Y. 14240.

For literature, circle No. 95



If the company address shown above surprises you, you may be even more startled to learn that Rotel Audio of America is, in fact, based in Ontario, Canada and simply uses a Buffalo post office box to receive U.S. mail. Furthermore, the parent company is Misobanke International Inc., another corporate entity owned and managed by the same folks who import and distrib-

ute the famed B & W line of loudspeakers in this country. So much for corporate infrastructure.

The Rotel audio products have been through several incarnations in the United States, with rising and sagging fortunes depending upon who was marketing them in this country. In Japan, where the company was formed in 1961 under the name Roland Elec-

tronics Company Limited, Rotel has enjoyed an uninterrupted history of production and innovation since its founding. And now, under the guidance of Misobanke, they intend to make their mark in North America.

As for the RC-870 preamplifier (Rotel calls it a stereo control amplifier, which is probably a better term for this kind of component), it belongs to the "keep it

simple" school of preamp design. To begin with, there are no tone controls; neither are there such signal-processing or response-altering circuits as high-cut or low-cut filters, or a so-called loudness control. Rotel accurately describes this preamplifier as "slim, simple and pure."

What little information I received with the unit concerning the RC-870's circuitry dealt primarily with the phono preamplifier stages. An input buffer stage is used to isolate the phono cartridge from the following shunt-feedback RIAA equalization amplifier stage. An additional buffer amplifier, optimized for moving-coil cartridges and able to provide the required additional gain, is totally independent of the moving-magnet-buffer amplifier but uses the same shunt-feedback equalization stage as the MM inputs.

Control Layout

At the left of the all-black front panel is an oblong "Power" on/off pushbutton, above which is a power-on indicator light. A stereo phone jack is the only other item on the left half of the front panel. Dead-center is a large dual-concentric knob for adjustment of overall volume as well as channel balance. Each control regulates the volume level for a single channel, but because the two controls are friction-clutch connected they can be operated singly (to adjust balance) or together.

Remaining controls to the right of the volume-control pair consist of three small switches. A "Mode" switch selects stereo, mono, or mute, the latter position convenient when using headphones. A five-position "Monitor" switch not only selects either of the two available tape in/out loops, but has settings for dubbing from one tape deck to another in either direction as well as the usual source setting. Program sources are selected by the last of these three switches, the "Input" switch; this four-position control has specific settings for CD, tuner, MM phono, and MC phono.

The rear panel has separate pairs of phono input jacks for moving-magnet and moving-coil cartridges so that, if you were so inclined, you could operate two turntables through this preamp, provided each had a different

kind of cartridge. (But you cannot swap cartridge types on a single turntable without re-plugging the phono leads.) High-level inputs and tape outputs, plus the usual main output jacks and a pair of switched a.c. outlets, complete the rear-panel layout.

Measurements

Frequency response of the RC-870's high-level section was flat to within 1.0 dB from 6 Hz to 200 kHz. The -3 dB roll-off points occurred at 3 Hz and 260 kHz, well beyond the 100 kHz claimed in the published specifications. Input sensitivity for the high-level inputs measured 80 mV, as against the 150 mV stated by Rotel. I suspect that this discrepancy is nothing more than a difference in the referenced output to which the sensitivity was measured. The EIA standard calls for a reference output of 0.5 V for separate preamplifiers, while Rotel was apparently referencing all measurements to 1.0 V output. That does not, however, account for the fact that the CD input sensitivity, which Rotel specifies as 450 mV (225 if you translate the number to a 0.5-V output level), turned out to be the same as that of all the other high-level inputs, 80 mV.

When I first noticed the separate CD sensitivity specification, I was pleased to see that the designers had reduced that input's sensitivity to compensate for the fact that CD players deliver considerably more output than other high-level sources such as tuners and tape decks. By reducing the CD input sensitivity, I thought, Rotel had not only insured against possible overload of the RC-870's first stage by the high output of a CD player, but had also made it unnecessary to spring up and adjust the volume control every time you switch from tape or tuner to CDs. Well, the idea is certainly a good one, but evidently someone at the factory forgot to put in the necessary voltage-divider resistor at the CD input jacks to make the lower sensitivity a reality—at least on the sample I tested!

Moving-magnet phono input sensitivity measured 1.0 mV for 0.5 V output, while the MC inputs required 0.15 mV (150 μ V) to produce the same 0.5 V of output. Phono frequency response was extremely accurate from 50 Hz to beyond 15 kHz, deviating from the pre-

scribed RIAA characteristic by no more than ± 0.1 dB. At 30 Hz, the deviation increased to a still moderate -0.6 dB.

From a measurement point of view, as well as from a listening perspective, perhaps the most noteworthy quality of the phono preamplifier section is its low noise. I measured an extraordinary signal-to-noise ratio of 85 dB for the moving-magnet phono inputs, fully 7 dB higher than claimed by Rotel! This measurement was made referenced to a 5-mV input signal with the volume controls adjusted for the standard 0.5 V output. The MC inputs, with their higher overall gain factor, didn't do quite that well, but still provided a very respectable signal-to-noise ratio of 71 dB (as against 64 dB claimed) referred to 0.5 V input and 0.5 V output. The signal-to-noise ratio for the high-level inputs measured exactly 95 dB, as claimed by the manufacturer. My measurement of this specification used 0.5 V input as a reference signal level, with the preamp's volume control adjusted for unity gain.

Harmonic distortion, although not as low as claimed by Rotel, did measure a completely acceptable 0.024% over most of the audio frequency band, and SMPTE IM was an equally low 0.022%. I could detect no evidence of CCIR or IHF (twin-tone) distortion using my spectrum analyzer, with its 80 dB of available dynamic range. This means that whatever distortion existed in these forms had to be below 0.01%.

Use and Listening Tests

Don't be put off by the simple layout and the absence of circuit frills on this altogether well-designed preamplifier. Anyone, even the most judgmental of golden-ears, should find the sound-reproduction quality of the RC-870 to be beyond reproach. Phono reproduction was silky smooth, and when playing my favorite CDs, there was no danger—or evidence—of overload, despite my concerns about the CD inputs' relatively high sensitivity. This was due to the system's high overload capability (better than 5 V on high-level inputs). That's one of the nice things about CD players; since their maximum recorded level is fixed and well-defined (usually 2.0 V output), you can be certain that so long as the high-

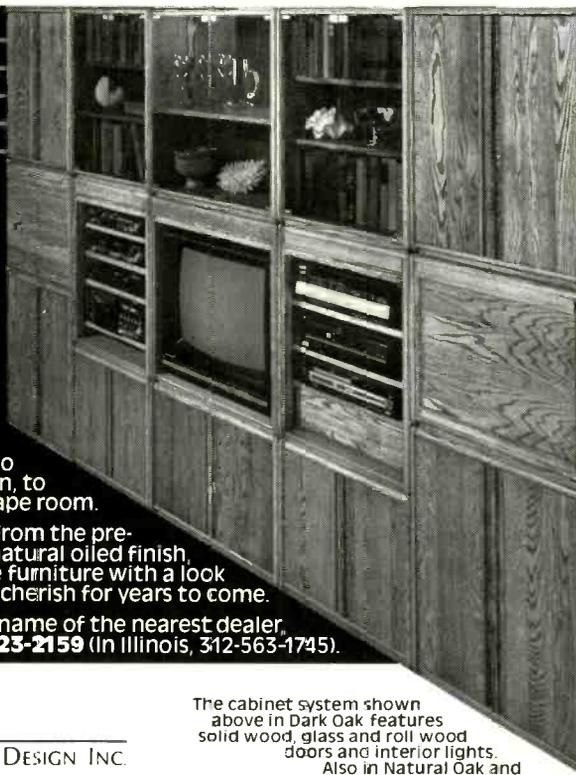
Sound Principles

HIGH PERFORMANCE. Designed to maximize the performance of your audio and video equipment, all CWD modular component cabinets are handcrafted and lovingly hand-finished from select natural hardwoods.

TOTAL FLEXIBILITY. Add as your system grows; arrange and rearrange our cabinets to almost any configuration, to fit almost any size or shape room.

REMARKABLE QUALITY. From the precision hardware to the natural oiled finish, all CWD cabinets are fine furniture with a look and style you'll love and cherish for years to come.

See for yourself. For the name of the nearest dealer, **CALL TOLL FREE 1-800-323-2159** (In Illinois, 312-563-1745).



CWD

CUSTOM WOODWORK & DESIGN INC.

The cabinet system shown above in Dark Oak features solid wood, glass and roll wood doors and interior lights. Also in Natural Oak and Natural American Walnut.



High performance modular furniture that keeps pace with your electronic system

Try Audio's Classifieds

The marketplace for Hi-Fi gear!

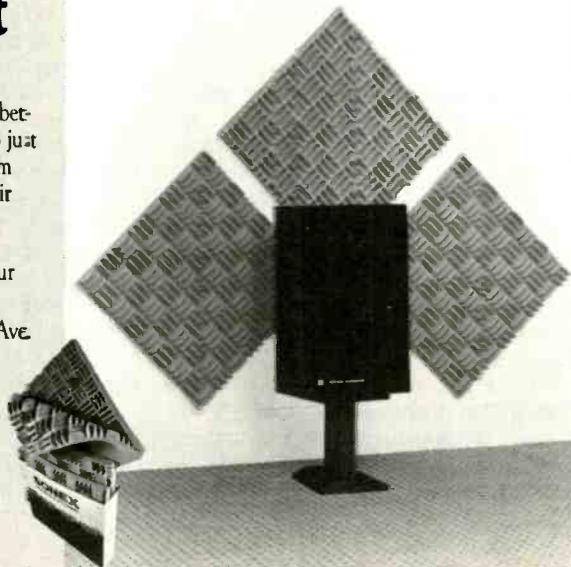
SONEX looks as good as it sounds.

SONEX traps sound four times better than rich, thick carpeting, so just a few squares can tune your room like recording engineers tune their studios. It's easy to hang, and it looks good. Write for our color brochure, or try a box today. Four 24" squares per box.

Send \$48 to: 3800 Washington Ave. No., Minneapolis, MN 55412. For easy, factory-direct orders, call toll-free 1-800-662-0032. (In MN call (612) 521-3555)



illbruck



I wish Rotel had followed through on its intent to make the CD inputs less sensitive than the other high-level inputs.

level inputs on your electronic component (be it a preamp, an integrated amp, or a receiver) can handle more than 2 V before distortion sets in, you won't have any overload problems. The RC-870 certainly won't let you down in this regard.

I wish Rotel had followed through, per their published specifications, and made the CD inputs less sensitive than the other high-level inputs, if only so that levels would sound about the same when I switched from one program source to another. I felt, too, that no harm would have been done if Rotel had taken the more usual course of providing separate volume and balance controls instead of the dual-concentric level controls. There certainly was enough room on the relatively empty front panel to accommodate an extra knob, and I find it next to impossible to operate those clutch-type dual controls with any degree of precision if channels are somewhat unbalanced. These are, of course, my own personal preferences.

The flexible tape-monitoring facilities will be welcomed by those who do a fair amount of tape dubbing and editing. But here again, without risking the addition of extra signal-degrading electronics, Rotel might have provided independent monitor/record and input switches so that you could listen to one program source while dubbing or recording another. Some low-cost receivers and most current integrated amplifiers and separate preamplifiers now offer that fairly simple switching circuit—especially when the product contains two full tape-monitor loops, as this unit does.

In short, Rotel offers a preamplifier/control unit that is intended for the music listener who takes his or her signal good and straight—with no additives. If that's the way you like your sounds, the RC-870's simplicity and pure sound quality may be just what you're looking for. Even if you like to mess about with the tonal balance of your system from time to time, that doesn't rule out this unit. After all, you could always drop a graphic or parametric equalizer into one of those tape loops—or even between the preamp's output and your power amplifier's inputs—while your purist friends aren't looking!

Leonard Feldman