R8 Human

I'M SURE YOU'VE read the pre-release hype about Roland's new *R8 Human Rhythm Composer*, or at least heard about this drum machine that is designed to imitate the feels and grooves of a "live" musician. But, while the human element programmed into this machine is its biggest advertising hook, it is not the *R8*'s only feature. The first time I pushed the power switch and saw the "Space Invader"-style welcoming screen on the display, I knew that this machine was going to be something special!

The *R8* weighs less than seven pounds, fits into a briefcase, and, with its matte black finish, looks real cool. It has all the paraphernalia you'd expect from a top-of-the-line drum machine: 16-bit samples, MIDI, sync modes, and everything else. If you want more basic information, get a brochure. I want to tell you about the important stuff.

Power

Back in the days of "beat boxes," things were pretty simple: Just push a button labeled "Rock 1" or "Swing 3" and everything was done for you. As drum machines (and electronic kits, for that matter) began to give the user more versatility, they became more complex. This isn't a negative, it's a positive. As long as the user-interface isn't too difficult to navigate and control, the increased power is well worth the extra time it takes to produce a finished product. The *R8* takes more time to learn than other drum machines, because it has the most powerful programming options of any drum machine currently on the market. While many of the features included on the *R8* have been implemented on previous drum machines, this one "takes it to the max." Here are just a few examples:

Other drum machines have flam buttons. Simply hold down this button while you play one of the instrument buttons and, presto—an instant flam. The Korg *DDD5*, for example, allowed you to adjust the interval between the grace note and the primary note in ten increments. But the *R8* lets you adjust the flam interval in *32* steps. As if this weren't enough flexibility, the *R8* also lets you set the flam ratio (the difference in volume between the grace and the primary notes) to one of six different values. And the flam settings are memorized for each *pattern*, not for the entire machine.

Most drummers dislike the swing functions built into drum machines. The mechanical rigidity of "machine swing" is something akin to watching Sly Stallone play Hamlet: It just doesn't make it! If you're convinced that you would never use the swing function on a drum machine, you might want to play around with the *R8's* swing parameters. You can select the "swing point" (the note value that is delayed) between quarters, 8ths, 16ths, and 32nds, as well as quarter, 8th, and 16th triplet values. You can also adjust the amount of delay. The delay time varies depending on the swing point you've chosen. At the slowest swing point, you've got 23 values, and at the fastest only two are available.

Well, you're starting to get the point, right? No matter what any other drum machine can do, the *R8* was designed to be able to do more (the "higher, faster, louder" syndrome).

Building Sounds

Let's take a look at how sounds are assigned to the play buttons. There are 16 instrument buttons (velocity *and* pressure sensitive) on the front panel of the *R8*. It's easy to have more than 16 instruments at your disposal, due to the five different "pad banks." These banks (lettered from A to E) can be programmed to fire any sound from each of the 16 instrument buttons. For example, instrument button one in pad bank A might be a bass drum. The same instrument button might fire a cowbell in bank B or a metal pipe in bank C. Using this type of assignment, 80 different sounds can be fired in any pattern!

Sounds can be chosen from 68 internal samples that come with the machine, 26 "Copy Instruments," or 26 additional instruments that can be loaded into the *R8* from a ROM card. "Copy Instruments" are created by taking a factory sound and applying some of the abundant and diverse editing features that the *R8* has to offer.

Just what are those editing features? I'm glad you asked! Each sound can be adjusted in pitch from -4800 to +4800 cents in 10-cent increments. (Ten cents is one tenth of a semitone.) In theory, this gives each instrument a tunable range of eight octaves. In reality, however, this is not the case. On some drum machines and electronic kits that offer a wide tuning range, the upper and lower limits aren't very practical. At extremely low pitches, the samples take on a type of distortion called aliasing. At very high pitches, the samples tend to sound choked and "munchkin-like." The *R8* has solved this problem by applying certain upper and lower limits to some instruments. For example, the sound called "snap snare" has a lower limit of -4800, but an upper tuning range of just +1900. This feature has more positive results than negative, in that just about anything you create is going to sound usable.

Back to the editing features. You can control the decay of a sound from 0 to 127, the "nuance" in 15 steps, the output assignments to 15 places, and the output assignment type in 10 styles. You can also assign any one of eight different velocity curves. These features comprise a great deal of latitude, so let's take a quick look at each of them.

The decay of any sound can be set from 0-127, but some sounds have two decay settings. Many of the original samples in the *R8* seem to be comprised of two distinct parts. The first might be loosely termed the attack or the impact sound of the stick hitting the instrument, the second is the tone quality of the instrument itself. While all sounds aren't made up in this way, most of the bass drums, snare drums, and toms are.

Once you've set the relative decay of the two parts, you can control the "nuance."

Rhythm Composer

by Norman Weinberg

This is Roland's term for the relative volume between the two components of the sampled sound. This amounts to an increase in lower frequencies as the nuance value is increased and higher frequencies when decreased. With hi-hat and ride cymbal sounds, the effect of moving the stick from the outer edge to the cup can be created by increasing this parameter's value. Very slick!

The output assignments along with the output types available are among the most flexible and versatile I've ever seen. Each instrument can be routed to any of seven positions in the stereo field. If you plan to use the *R8* in a studio situation, any voice can be sent through one of the eight "multi" outputs. This way, you might send the ride and crash cymbals through one multi-out, the snare and bass drum to two others, and four toms through their own outputs.

The output type can be poly, mono, or use one of eight "exclusive" numbers. When in poly mode, a long sound (such as a crash cymbal) will not cancel itself out when played several times in quick succession. When using mono, an instrument will retrigger the sample each time the button is pressed. There are eight separate exclusive audio "channels" that can be called into play. When two sounds are assigned to the same exclusive number, one of them will cut off the decay of the other. This is very useful when you are using two different instruments that normally don't play together, such as open and closed hi-hats.

There are eight different velocity curves on the *R8*. They differ from the garden-variety velocity curve in that the timbre of the instrument actually changes as the button is played harder or softer. In other words, the curve does more than simply change the instrument button's feel.

One last groovy feature: When copying factory sounds into Copy Instruments, you can give each newly created instrument a name! If you've ever dreamed of turning on your drum machine and seeing the name "DeathSn" pop up for your killer snare sound, this is the machine for you.

The settings mentioned so far apply only to the "Instrument Edit" mode. If you go into the "Performance Edit" mode, you can make changes to the pitch, decay, nuance, and pan settings that override the instrument settings. This way, you can have the same instrument assigned to four or five different buttons, and adjust the tuning and other parameters of each button's sound. If you can think of a more flexible arrangement than that, let me know!

There are drum machines that use a "multi-mode" setting to spread the sound of one instrument across several play buttons, but none do it with the control of the *R8*. Push the Multi button, and a single sound is assigned to all 16 instrument buttons. By using another feature, called "Align," the performance parameters are evenly spaced across all the buttons. You can align the pitch, the decay, the nuance, or any combination. If you don't like the default values, you can override them by programming each button individually.

Building Patterns

Once you've assigned all the sounds to all the buttons and tweaked them to your heart's content, it's time to start building patterns. Although the *R8* comes with 32 factory-preset rhythm patterns, there is room for 100 more user-programmable patterns. The *R8* is equally at home in real-time or in step-time.

When programming in real-time, you can erase all instruments, a single instrument, or a single attack. You can set the metronome's level, output channel, note value, and mode (always on, always off, or on only if the pattern is currently empty). There is a familiar Roland-style graphic display on the LCD that shows up to four instruments at the same time.

Step-time programming took a little getting used to, but after a while, I kind of liked working in this mode. Actually, there are three different modes of step-time: "Basic" mode, "Normal Edit" mode, and "Scope Edit" mode. When in Basic mode, the 16 instrument buttons determine where a particular instrument's sound will fire. Select the bass drum sound, push buttons 1, 5, 9, and 13, and you've got "four on the floor" quarter notes. This makes step programming much more graphic than mathematical.

Okay, so we've got sound edits (affecting the sound of the sample) and performance edits (affecting the sound assigned to any particular instrument button). What could possibly come next? How about sequence parameters? When using the Normal Edit mode, sequence parameters can be called into play after a sound has been programmed into the pattern. When going into this mode, you can take any individual attack and change its velocity, pitch, decay, pan setting, and nuance. In addition, you can also adjust the "micro timing" to move any attack forward or backward by 1/384 of a quarter note! A quick phone call to the Roland technical support confirmed that when using this feature, there are really 384 divisions for each quarter. Talk about high-resolution editing! Let's just say that the *R8* will let you put a note anywhere you want!

There are many features available in pattern programming mode that will make your life as a programmer easier. For one thing, the LCD display feeds you quite a bit of information. You are given the pattern number, the number of measures contained in the pattern, the time signature, the quantize level, and the pattern's name!

Some of the more advanced features include: instrument change, which lets you swap one instrument for another; pattern append, for joining two patterns together; pattern extract, which lets you copy a specified instrument's data from one pattern to another (perfect for copying that happenin' hi-hat motion while leaving the rest of the data intact); pattern merge, which takes the data from two different patterns and combines them (yes, you read that correctly); pattern reframe, which moves the pattern's starting point to anywhere within the pattern; and pattern naming (up to eight letters).

Building Songs

The *R8* can hold up to ten songs, each with up to 999 different parts. You can delete a part, insert, or copy a part, copy an entire song, name the song, and set the song for continuous play. You can also program initial tempo and initial levels, then program changes to the tempo and level settings as a song part.

A few features in this area are really slick! You can label any part of a song, such as "Verse 1," "Bridge," "Chorus," etc. Once parts are labeled, you can search for a particular label to begin editing or playing. This is a handy feature if you only want to work on, say, the second verse.

Perhaps the hippest feature is called "Time Calculate." Previously only found on expensive computer sequencers, the Time Calculate functions let you determine how long it will take for the song to play through the last measure or any specified bar. You can ask the *R8* to display the performance's running time while you listen to the song. It even lets you set the tempo so that the song will be played within a specified amount of time. Does your song have to fit into a 30 second commercial slot? Just punch a few buttons and the *R8* will tell you the initial tempo to set.

The "Human" Feature

The single feature of the *R8* that is getting all the press is its ability to select one of eight different "feel" patches. A "feel" is the result of combining the "groove" of a pattern along with additional "random" changes. The groove is defined in the manual as regular changes of accent and tone

that a drummer purposely creates.

The groove is programmed by picking the number of notes whose accents should be changed (from one to eight). Next, the instruments (also up to eight) and the timing value of the note are selected. You can fine-tune the parameters such as velocity, pitch, decay, and nuance. Turn the groove switch on and, bingo: human style motions.

When programming the random factors into the equation, it's possible to select the probability and the "depth" of the irregular changes. Keep in mind that you don't *have* to use the random factor, as each of the eight instruments can turn this feature on or off for each of the parameters.

If you're wondering if the feel patch concept really works, the answer is *yes*. After playing around with it for a while, I was able to get patterns that sounded less mechanical and predictable. Using the feels, it's easy to turn a "ho-hum" pattern into something refreshingly new and different.

Additional Goodies

You know you're dealing with a computer when you begin to access "Macro" settings. Do you normally use a particular operation that may require several different steps and key presses? If so, then you can define a Macro and perform a complex operation with a single keystroke.

The *R8* lets you define up to ten Macro Note settings. Each Macro Note can include up to 16 steps. Let's say that you're programming a song that is going to use a particular rhythmic figure often. Just define that figure as a Macro, and call it up whenever you want to program that rhythm.

The other Macro feature, called "user functions," allows storage of up to 16 button procedures as a single Macro. You might use one of the user function Macros to begin playing a certain song from a certain measure. Or you could use it to erase a previously recorded pattern, set the time signature to 6/8, and establish a pattern length of one bar.

MIDI

As far as drum machines go, the *R8* has the most complete MIDI implementation currently available. While other drum machines allow you to set the MIDI note numbers that will fire certain sounds, each instrument on the *R8* can be programmed for a certain MIDI note number over any MIDI channel! If you're controlling other sound modules from the *R8*, or playing the *R8* from other master controllers, you have everything you need. When programming note numbers, the display shows you the MIDI number as well as the pitch's name (i.e., 036-C1).

You can tell the *R8* whether or not you want the machine to receive note-off messages (to stop a decaying sound when a key is let up), pan messages (controller number ten), program-change messages (which can be used to call up different patterns or change the feel patches), and system exclusive data. In addition, the *R8* is one of the first drum machines to make use of control-change messages. You can tell it to route the modulation wheel or general-purpose controllers to affect the pitch, decay, nuance, or pan settings of any instrument.

When in Performance Mode, the *R8* acts very much like a synthesizer. If desired, you can use an external MIDI keyboard to play a single tom sound. Specify a zero point on the keyboard (let's just say that it's middle C) and a follow rate. (For this example, we'll use the value of 100.) Middle C will now play the original pitch, while each ascending half step will raise the pitch by 100 cents and each descending half step will lower it by the same amount. Again, you can use this feature to control the decay, nuance, or pan settings instead of the pitch. You might even want to combine them by determining the pitch from the keyboard and decay time from the modulation wheel. How's *that* for MIDI implementation?

You can do bulk data dumps from the front panel of the *R8*, selecting between all data, just the sequences, just the setup parameters, or a single pattern's data. With all this MIDI control at the programmer's fingertips and a full set of system exclusive commands, I hope to see computer librarian and editing programs for the *R8* released soon.

Conclusions

The *R8* is so well-designed that it's difficult to find fault with anything. The manual is a 230-page tome that is, at times, extremely slow going. All the information is there, and I did finally figure just about everything out. But at some time in the future, Roland is just going to *have* to hire someone who *speaks English* to write their manuals.

The user interface is complex, but logical. Some functions take several keystrokes to complete, and the use of increment, decrement, page, parameter select, and cursor buttons gets frustrating at times. But then again, the *R8* is a very complex and powerful machine. I think that the only easier interface would have required a CRT and a trackball! After only a couple of hours, I was able to make my way through the maze of commands with ease. If I wanted to get really picky, I could complain that there isn't a tap tempo button, or that the increment/decrement and cursor buttons don't scroll when held down, but those are about the only faults I could come up with.

There are plenty of great sounds on this machine, and the ability to read additional sounds from a ROM card means that the *R8*'s sounds will keep up with the times. (Roland, *please* offer cards with Latin, African, and symphonic percussion samples.)

On top of all this, the price is right. Coming in at $995.00 suggested retail, this machine will take a long time (if ever) to outgrow. If you're looking for a drum machine with muscle, if you really care about the sound and feel of your songs, and if you want a machine that offers mucho flexibility, this is it.