

korg dw-8000 synthesizer

THE DAYS OF THE triangle-sawtooth-square wave oscillator may be numbered. PPG's Wave 2.2 introduced the concept of preset digital waveforms which are stored in a table and produced by a digital oscillator. Korg brought this idea in at a much lower price in the United States with their DW-6000 (see Keyboard Report, May '85), whose oscillators produced eight "factory" waveforms.

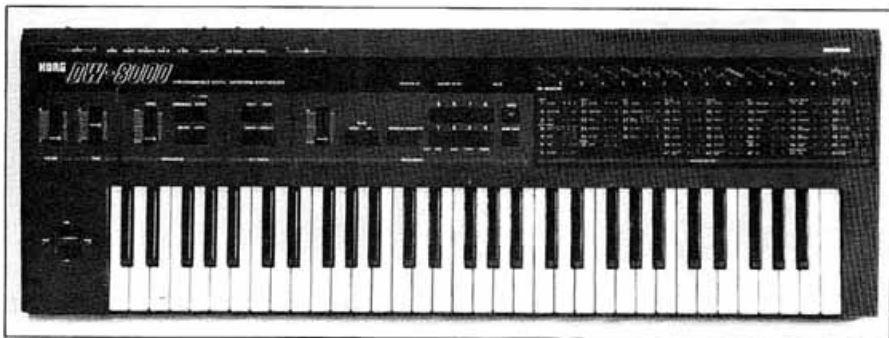
Korg's DW-8000 takes fuller advantage of the preset waveform scheme by including a total of 16 choices, 13 of which are new. It also adds two more voices, velocity sensitivity, after-touch, additional MIDI implementation, an arpeggiator, and a full-blown digital delay to the DW-6000's basic functions, making for a very satisfying package. The arpeggiator and delay, in particular, contain hidden but powerful resources.

One additional feature we're particularly pleased to see is the programmable data entry slider. Each patch remembers the last parameter assigned to the slider, and it is reassigned when the patch is called up. This makes it more convenient to use the data entry slider as a real-time performance control. Also, the DW-8000's LFO is an improvement over that in the DW-6000, offering programmable positive- and negative-going sawtooth and square waves in addition to the usual triangle, and a wider frequency range.

Oscillators. Given the DW-8000's standard analog voice configuration, the most interesting feature is the instrument's 16 preset waveforms. Korg has included sawtooth, sine, and nearly-square waves, although a pulse wave (with its attendant potential for pulse-width modulation) is conspicuous by its absence.

Knowing which waveform corresponds to which number is one of the more cumbersome aspects of programming the instrument. Korg has done the next best thing to displaying them as they are called up, which is to draw them across the top right-hand edge of the front panel. Until you've memorized which number belongs to which waveform, the situation is much like scanning the algorithm representations on the DX7's panel. The difficulty is compounded by the fact that the names of the acoustic instruments on which the waveforms are modeled don't appear beneath their graphic representations. You have to look in the manual to find them. You'll probably want to label the front panel yourself, unless you're the kind of oscilloscope-head who can tell a Clavinet waveform from a guitar waveform just by looking.

The DW-8000 gives you resynthesized versions of piano, Rhodes, Clavinet, organ, brass, sax, violin, electric and acoustic guitars, bass, and bell timbres. Of course the timbres are relatively meaningless, from the point of view of imitative synthesis, without the



proper envelopes. On the other hand, with a fairly realistic preset waveform, you don't have to be as fussy with your envelope settings as you would if you had to depend on a filtered sawtooth for your string sound. The sax and bell timbres are the least satisfying. The others, however, are a great boon to programming realistic sounds.

The two DCOs may be assigned different waveforms and different levels. The second one can be tuned to an interval of a minor third, major third, fourth, or fifth above the first, and can be detuned slightly as well.

Filter. The DW's filter is your garden-variety analog lowpass VCF (cutoff, resonance, and envelope amount controls), along with a few additional goodies. You can invert the filter envelope for novel envelope shapes. In addition, you can scale the amount of keyboard voltage applied of the filter cutoff between 0, 25, 50, and 100 percent, varying the relative brightness of the keyboard's upper range.

Envelope Generators. There are two dedicated envelope generators, one each for the VCF and the VCA. The VCA is controllable only by its envelope generator. These are the same EGs found in the DW-6000; they're basically ADSRs with an additional level and rate (called breakpoint and slope) between the decay and sustain stages. This allows you to create envelopes with two attacks or two decays, or just a more finely-tuned decay shape. If the breakpoint is set at the same level as the decay, the envelope functions as

an ADSR. After-touch pressure and key velocity can control the envelope amount applied to both the VCF and the VCA.

Velocity & After-Touch. The DW-8000's responsiveness to velocity and monophonic after-touch alone makes it a significant improvement over the DW-6000. Seven gradations of velocity are provided, and the range of timbral variation narrows with each successive gradation. At a setting of 7, the filter ranges from fully open to nearly closed. At a setting of 1, the filter ranges from fully open to not quite fully open. Some players might prefer a scheme in which the overall range from loudest to softest (VCA mod) or brightest to dullest (VCF mod) would remain the same for each gradation; the variable would be the electronics' response curve with respect to key velocity. This would allow each individual player to tailor the velocity response to his or her own style, and at the same time have access to the full range of timbral variation.

When the after-touch is programmed for the widest range of timbral variation (3), a great deal of force is required to push it through that range. When programmed for the narrowest range (1), the effect is almost too slight to be heard. There's only one setting in between these two extremes, and unfortunately it doesn't do the trick.

Nonetheless, the velocity and after-touch features work, and they help to animate the instrument's sound beyond that available with an unresponsive keyboard.

Auto Bend. Korg has included an attack envelope to control the frequency of the oscillators, and they call it Auto Bend. When it's set to swoop up from below, this can make for truer brass patches. Swooping down from above, it's useful for percussive tom-tom sounds. Auto bend can affect either or both of the oscillators. The intensity control brings the swoop range closer or farther away from the intended fundamental, while the time control determines whether you get a swoop! or a swoooooop.

Digital Delay. The DW-8000 expands on the conventional built-in chorus by including an honest-to-goodness programmable DDL. The delay time ranges from 2ms to 512ms with a good deal of resolution in between, and can be modulated by a sine wave LFO (independent of the synthesizer's own LFO). The LFO's frequency is variable between about .5Hz and the speed of a fast vibrato. Modulation depth and feedback level (for repeated echoes and reverb effects)

Korg DW-8000

Keyboard: Five-octave (C-to-C) unweighted, velocity- and monophonic pressure sensing.

Voices: Eight-voice polyphonic: two digital oscillators, analog noise source, VCA, low-pass VCF, and two six-stage envelope generators per voice.

Memory: 64 user-programmable patch locations.

Interfacing: MIDI in/out/thru, cassette tape storage.

Features: Programmable digital delay, MIDI-controlled multimode arpeggiator, auto bend, keyboard velocity and channel after-touch, joystick modulation control, polyphonic portamento, 16 preset digital waveforms, stereo outputs.

Dimensions: 39" wide, 13½" deep, 4" high, 24 lbs.

List Price: \$1,195.00.

Contact: Korg USA, 89 Frost St., Westbury, NY 11590. (516) 333-9100.

are variable. The DDL is capable of producing a variety of effects, from subtle chorusing to hollow reverberations to longer lead line delays. You can also get a lot of wild noises out of the modulation and feedback controls. All delay settings are programmable for each patch, making this device particularly useful for live performance.

Arpeggiator. With the ascendancy of sequencers, its easy to forget just how much fun arpeggiators are. The DW-8000's is very simple and very effective.

It has two modes. One fires off the pitches held at the keyboard sequentially, from lowest to highest and back down (and back up, *ad infinitum*). The other triggers the notes in the order they were struck. An optional one- or two-octave range expansion carries your arpeggio that much farther above the notes you happen to be holding down; the full range expansion carries it one octave beyond the upper limit of the keyboard. A latching function remembers which notes you've struck, so the arpeggiator will keep playing them back until you strike some other note. While latched, the arpeggiator will play back a sequence of up to 64 notes.

A speed slider controls the internal clock driving the arpeggiator. It can be played in real time, either to speed up and slow down the arpeggiation, or to simulate hammered-dulcimer-type retriggered attacks while arpeggiating one note at a time. The slider can control clock rate over three selectable ranges, and at its fastest it's guaranteed to make an audience wonder how your fingers can move that quickly. Best of all, the arpeg-

giator's clock both sends and receives via MIDI, so you can sync it to drum machines and sequencers. The arpeggiator's functions are not programmable.

Front Panel. The DW-8000's front panel, like that of its little brother, is extremely well laid out for single-slider data entry. The slider is complemented by a pair of buttons for incrementing and decrementing parameter values. Another pair of buttons determines whether you're choosing a program or a parameter from a bank of eight numbered buttons. You begin by choosing a program from among the 64 patch locations; then you press the parameter button to access the sound's component values. Those of you unfamiliar with this scheme should check out the DW-6000 review in the May '85 *Keyboard*.

MIDI Implementation. The DW-8000 can send and receive on any MIDI channel, although transmission and reception must occur on the same channel. This might conceivably be inconvenient in some odd circumstances, but it shouldn't get in your way. The instrument can also be set to receive on all channels at once (omni mode). On the model we tested, all of the MIDI commands implemented (which include clock stop/start, active sensing, and system exclusive data, and reception of omni on/off commands) were transmitted and received reliably.

There's also a limited filtering provision; you can send/receive either the entire data stream or note data only. This is useful if, say, you're using the DW-8000 as a slave and you don't want it to receive program changes

from the master. But what if, at the same time, you want the master's pitch-bends to be tracked by the slave? In note data only mode, the DW-8000 won't receive pitch-bend commands. Let's hope that in the future more extensive filtering options will become standard equipment. For now, it's nice that someone is even thinking about the problem.

Conclusions. Korg is to be commended for cultivating the well-furrowed ground of analog synthesizer design and coming up with quite a nice hybrid variety. The instrument's greatest assets are its 16 waveforms, digital delay, and arpeggiator. These features make the DW-8000 genuinely exciting to program and play. The enhanced MIDI implementation, velocity sensitivity, and after-touch capability, although they could stand some improvement, are useful additions to the DW design.

In addition, the DW-8000's basic sound is full, even without delay-induced fattening. The richness and variety of the preset waveforms save it from the one-dimensional quality of earlier generations of analog polyphonics. Given the single data entry configuration, the instrument is relatively easy to program, which should please the growing ranks of synthesizer users who have given up creating their own patches.

While it's really nothing earth-shatteringly new, the DW-8000 does most of the usual stuff in a solid manner, and some of it with flair. It makes a nice addition to the pack of instruments currently available in this price range.

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You know. The ad says "Our custom patches will make your \$400 synth sound like 10 DPs mixed together! Plus the amazing violin patch which Yehudi Menuhin sent Israeli agents to try and quash!" So you spring for it. A few centuries later, when the tape finally comes, the sounds are mostly junk.

Deep Magic sympathizes. A lot of get-rich-quick types have recently hopped on the patch cassette bandwagon. A week after buying their first synthesizer, they're advertising the "hottest new sounds" for it, for only \$7.95 sent to a p.o. box in Podunk. These amateurs have all the hype; we can only try and offer a few simple truths:

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3. Deep Magic patches are not a frivolous luxury. They are the inexpensive accessory which is really a necessity. A necessity because the factory patches on most budget synths are thrown together in one big hurry, barely scratching the surface. We don't promise Kurzweil from a Poly-800, but you just don't know what your model can really do until you've heard it with Deep Magic patches. Reqs from a number of synth manufacturers continue to tell their customers about our sounds, because they know we make their instruments sound great!
4. About patch names. Unless you're brand new to all this, you already know what to expect. Nobody ever sells patches called "Not-Too-Realistic Piano", "Tinny Lead", or "Subsious Brass". Pianos are always "Steinway", strings and brass are "Vangelis", guitars are "VanHalen". Effects are outerspace: Nebula, Fantastic Planet, Mercury Maidens. We're not immune to the naming bug. Some of ours are Royal Trumpets, Weathersax, Classic Mini Lead, Crissom Stick, Shimmering Chorus Piano, Celestial Mutants, Blaster Bass, Subtle Orchestral, CS Strings, Techno-Bass, Vocoder, Shades of Africa, Jan's Guitar, Mita Melody, Bell-Stop Pipe Organ... But what's in a name?

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