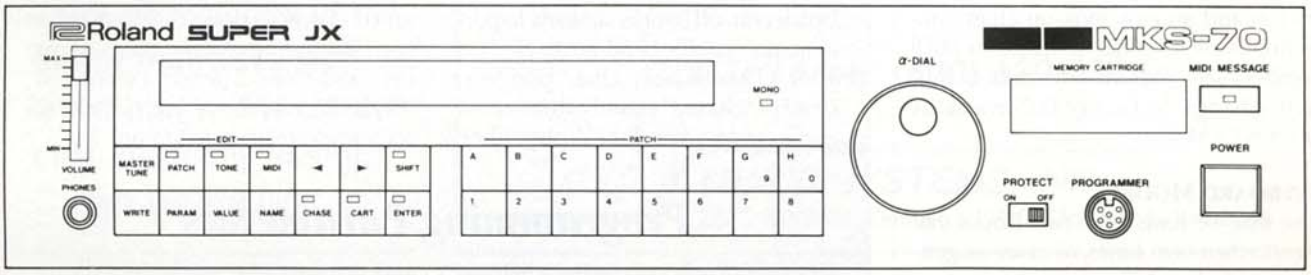
Some people think analog synthesis is obsolete, but when you can use it to make sounds like this, there's obviously a lot of life left in the technology.

Roland MKS-70



BY CRAIG ANDERTON

When Roland released the D-50, its enthusiastic reception made it the *de facto* standard-bearer of the Roland synth line. While it certainly deserves the attention it's getting, Roland is more than a one-synth company. Their 2U (two rack space units high, equivalent to 3½-inches) rack mount MKS-70 occupies a strange market niche; it's basically a high-end hybrid synthesizer (analog circuitry coupled with digital oscillators and control) but costs $2,295—considerably more than the D-50. It programs like an analog synth, although it offers an extremely clean, almost "digital" sound quality. And it uses an unusual voice architecture that can be rather confusing at first. Yet the MKS-70 is nothing if not a class act, and it merits a better fate than to have to live in the shadow of its "superstar" little (big?) brother.

In addition to editing this magazine, ***Craig Anderton*** *spends as much time as he can in the studio. He recently assisted the mixdown and production on* Valley in the Clouds *for Narada records, and is currently working on a new set of material for his band Transmitter.*

Product Summary

Product: MKS-70
Type: 2U rack mount, MIDI capable, analog/digital hybrid synthesizer
Price: $2,295
Manufacturer: Roland, 7200 Dominion Circle, Los Angeles, CA 90040 ☎ 213 / 685-5141.

THE VOICE ARCHITECTURE

The key to the MKS-70's appeal is its flexible voicing structure, so let's dive right in and try to make sense of it.

The synth is comprised of two *Blocks* (A and B), each of which contains six *voices*. Each voice consists of a DCO (digitally controlled oscillator), VCF (voltage-controlled filter), VCA (voltage-controlled amplifier), and two ADSR (four-stage) envelope generators. In MIDI Poly mode, each Block responds polyphonically to one MIDI channel (duo-timbral operation); in Mono mode, *each voice* responds to its own channel (the two sets of voices in the two Blocks can be ganged together so that six pairs of voices are accessible over six channels, or treated as 12 individual voices accessible over 12 individual MIDI channels).

The MKS-70 also stores 100 *Tones* (50 in ROM and 50 user-programmable). Each Tone consists of the *parameters* (oscillator waveform, envelope generator settings, etc.; see sidebar, "Programming Parameters") that govern what the voices will sound like. Stay with me, now... each Block can be assigned one of the Tones (called Tone A when assigned to Block A, and Tone B when assigned to Block B), and the Tone parameters affect the voices in that Block.

Just in case you aren't confused yet, you can furthermore store 64 *Patches* that contain *performance parameters* (Roland calls these *Factors* for reasons I don't fully understand) that describe how the two Blocks are configured (such as the Tones assigned to the two Blocks, the balance between Tone A and Tone B, split point, pitch shift of a Tone, keyboard mode, modulation, etc.; see sidebar, "Factors"). Patches are what you actually call up on stage when you want to change sounds.

See? I said it was confusing at first.

But as you work with the synth, it all falls into place and this approach gives us a lot of options—as we'll see in a bit.

Concerning memory, there is *internal* memory and *cartridge* memory. Either one holds 100 Tones and 64 Patches, so if you use the cartridge included with the unit (extra cartridges list for $89.95), you can have 128 Patches available for instant recall at one time. Patch numbers use the same Bank/Number scheme (A1, A2 . . . H8) that wreak havoc when you're trying to figure out what Patch corresponds to what MIDI program number, but at least you need press only one number if only one number or letter changes. For example, to go from A3 to A7 or A3 to B3 requires one keystroke. (For more information and an easy look-up chart converting Bank/Number schemes to MIDI numbers see "The Ins and Outs of Program Change" by George DaNova in the July 1987 **EM**.)

KEYBOARD MODES

Now that we have these two Blocks that contain their own Tones, what are we gonna do with them? There are six options:

A Whole: This mode assigns Tone A to both Blocks, yielding 12-voice polyphony.

B Whole: Does the same thing with Tone B.

Dual: Pushing a key plays a voice from Block A and B simultaneously, thus giving six-voice polyphony.

Split: Each Tone provides one side of the split, thus giving six voices per split and 12 voices overall. You can create an interesting three-way split by setting the lower split point higher than the split point; the keyboard will then play Tone A at one end, Tone B at the other, and both Tones A and B in the overlap.

Touch Voice Select: This allows for six-voice polyphony with velocity switching. In other words, play soft and you trigger one Tone, play hard and you trigger the other.

Crossfade: This is like Touch Voice Select, but as you play harder, one Tone fades in while the other fades out. This feature is pretty common with samplers, but it sure sounds good with synths as well.

Given the two Blocks, two Tones, and six modes, you can get sounds that are anything but "static" synth sounds. Intelligent use of the crossfade and dual modes can give some incredible effects; check out factory Patch B3 (internal), where playing softly gives you a choir, and play-

Factors (Performance Parameters)

Some of the parameters you can set include the two Tone numbers used in a Patch, Tone level balance, individual pitch shift for Tones A and B (± 2 octaves unless you exceed the range of the instrument, in which case pitch wraps around), Tone B detune, upper and lower split point, total volume, aftertouch response (can be set individually for vibrato, filtering, and/or volume), sustain (called hold), modulation depth for modulation received over MIDI, portamento on/off for each of the two Tones when portamento info is received over MIDI, bender on/off (works similarly to portamento on/off), bend range (2, 3, 4, 7, or 12 semitones), chase play level (level of "chased" sound), three chase modes (one—first Tone A plays, then B, then A, then B, etc.; two—Tone A plays followed by repeats from Tone B only; three—Tone A followed by Tone B with no more repeats). You can also set the delay time between repeats in chase mode.

Finally, we have some spiffy key assign modes. These determine how the six voices will be assigned in each Tone. Options include two polyphonic modes; unison 1 (two voices are assigned to each key in each Block—you can only play three notes at a time, but wow, what notes!); unison 2 (same as unison 1, but one Block is tuned down an octave); mono 1 (for each Block, one voice is assigned per key); and mono 2 (fondly nicknamed "Godzilla" mode; for each Block, all six voices are assigned to one key).

Programming Parameters

The MKS-70 offers a generous helping of programming parameters. These include:

Oscillators Range (four octaves); waveform (sawtooth, non-variable pulse, square, and noise); semitone tune (over ± 1 octave); fine tune for DCO 2 (for beating effects and such); LFO depth; two types of overall envelope depth (one if you're using just the envelope, the other if velocity is being used to alter the envelope depth—in this case, you can alter the sensitivity to velocity); envelope mode (chooses one of the two available envelopes and determines whether response is normal or inverted); and four sync modes—sync 1 (traditional hard sync), X mod (each oscillator frequency-modulates the other), sync 2 (hard sync and X mod), and off. I haven't seen such an embarrassment of sync riches since Korg's Mono/Poly, and they're most welcome. All of these except the sync mode and velocity envelope depth can be programmed individually for each DCO.

Mixer Adjusts the level of DCO1, DCO2, amount of envelope if envelope controls DCO2's level, dynamics range (when the envelope controlling DCO2 is being altered by dynamics), and the envelope mode for DCO2's amplitude envelope (this chooses one of the two available envelopes and determines whether response is normal or inverted).

VCF Fixed high-pass filter frequency, VCF cutoff, VCF resonance, LFO depth, VCF envelope depth, VCF tracking (called key follow), dynamics range (when the envelope controlling the VCF is being altered by dynamics), and envelope mode (chooses one of the two available envelopes and determines whether response is normal or inverted).

VCA/Chorus VCA options are VCA level, VCA mode (whether amplitude is affected by envelope 2 or a simple gate), and dynamics (response to velocity); the chorus offers two chorus options and off.

LFO Nothing unusual—waveform (sine, square, or random), LFO delay, and LFO rate. The latter two are thankfully quantized to 99 levels (much more than the 32 or 64 that many synths seem to deem adequate).

Envelopes The two envelopes have individual parameters for attack, decay, sustain, release, and key follow (where higher pitches have shorter envelope times).

ing harder mutates this into brass. Incidentally, I know factory patches take a lot of heat so it's worth noting that the ones in the MKS-70 really do show off the capabilities of the instrument very well. I found many of them not only musically useful, but instructive in programming techniques.

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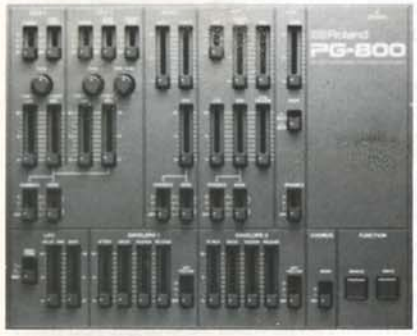
Playing Modes

There are three main operating modes: *Play* (which allows for limited editing over commonly changed parameters—tune, MIDI channel, mode, etc.); *Edit* (where you can really mess around with the sound); and *Write* (for loading data into memory or cartridges). One interesting option available in the Play mode is Chase, which provides a useful programmable delay effect.

What's It Like To Use?

There are two real nice touches. The first is the sexy blue fluorescent display that



Roland PG-800 programmer

even those of us with glasses can read onstage; when selecting Patches the display shows Patch names (up to 18 characters), the Tone assigned to each Block, and whether the Patch number shown is for the cartridge or internal memory. The second nice touch is the *alpha dial* used for editing. Those who haven't used this method of parameter-setting are in for a treat. The alpha dial is a large diameter, continuously variable knob; punch the front panel *Parameter* button, and twirl the dial to scroll through the parameters. This is a great way to scan through a Tone to see how the parameters are set and to get a sense of how the Patch is constructed. If you encounter a parameter you want to change, press the *Value* button and twirl the dial to set the value. This is a fast, efficient, painless approach to parameter-controlled synthesizers that I like a lot. If even this strikes you as too much work, you can use the PG-800 programmer ($350) and use regular dials and sliders to make adjustments, just like in the days of early analog synthesis.

Regarding sound quality, we're talking *sleek* and clean. The sound is bright but not buzzy or strident, yet the lower registers can be warm and resonantly rich if desired. The main catch is that the dual, split, touch velocity, and crossfade modes are so powerful you'll end up using this as a six-note synthesizer more often than not. Generally this isn't a problem with percussive sounds, but if you play a six-note chord with a long release and then play another six-note chord immediately thereafter, all the decays of the first chord will be cut short. On the other hand, a lot of the patches can be tweaked to give highly acceptable sounds in A Whole or B Whole modes if you need 12 voices. This is one of the clearest-sounding synths I've had the pleasure to use; even the "zipper noise" caused by stepping through quantized filter and VCA settings is virtually nonexistent.

MIDI-wise, the implementation was obviously planned to do double-duty for keyboard players and guitarists. For a guitar synthesis system, this is a good high-end expander module. It can recognize Note-on Velocity, Aftertouch, Pitch Bend, Program Change, System Exclusive messages (of course), and five "standard" controllers (1, modulation; 5, portamento time; 7, volume; 64, sustain switch; and 65, portamento switch). You can't remap controllers or anything, but I guess that's why devices like the Axxess Mapper exist.

Concerning the manual. . .well, the operational information is all in there, but it takes study, concentration, and practice to extract it. Fortunately, you can take a couple of laminated plastic "cheat sheets" supplied with the unit on gigs in case you can't remember everything (and there is a lot to remember). There is virtually zero printed information on applications, but actually, scanning through how the Patches are programmed will tell you more about how to make cool sounds than dozens of pages could. This is another reason why I think it's important for companies to put as much effort as they can into programming factory sounds; we're not just talking about a sales tool here, but an educational one as well.

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Quite frankly, I was expecting "another analog synth" but this one surprised me. It's clean, it's versatile, it has great sound quality, and it works well with my Roland GM-70 guitar-to-MIDI controller. It's also not cheap, but then again, it doesn't look, feel, or sound cheap either. If you're looking for an analog-style synth to round out your collection of sound generators, the MKS-70 will get you there in style. EM