

Book Recommendation: PATCH & TWEAK with KORG (by Kim Bjørn)

Kim Bjørn is to be admired. His series of books is growing (and growing). Each individual book contains an impressive array of interviews, selected information, specialist's knowledge, synth documentation, great pictures and much more. In addition, one clearly notices that Kim Bjørn is a connoisseur of the subject, that he's a skilled graphic designer and that lots of people were involved in the finalization of such a comprehensive book. Many of the particularly excellent vintage synth pictures are from Peter M. Mahr, for example.



However, the cover of **PATCH & TWEAK with KORG** may be a bit irritating at first. Volca, MS-20 Mini, ARP 2600M ... all *new* instruments? A promotional book for Korg? Well, *maybe*, but it's much more than that. This Oeuvre includes an incredible number of instruments, it spans a large historical arc - from vintage ARP and Korg instruments to the successful digital era (M1 etc.), from later Oasys superlatives to current prologue / minilogue instruments, to the Volca series, the MS-20 Mini and the ARP (Korg) Odyssey / 2600 / 2600M.

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keep warm when the heating turned off for the night. As Mieda puts it: "We went through hardships, but our effort paid off in the end. In addition, we had a chance to develop the VC-10, the world's first vocoder with a keyboard attached, built into an MS series chassis." In April 1978, the MS-10, MS-20, SQ-10, and VC-10 were presented at a large press conference and concert, which included the popular band Prism. Akira Wada and Ken Watanabe as guest performers. The younger generation took notice, and reaped the benefits of learning how to develop affordable products.

notes rather than one note - as a trigger signal. Typically, chattering is a phenomenon we need to eliminate, but we used it in another way for these instruments. Using the chatter for triggering, we no longer needed a dedicated keyboard switch line for that - this secret let us cut the cost significantly."

"One interesting feature of the MS-20 was that there was no modulation or pitch wheel - just a 'wheel'. Mieda explains: "We did not limit the Momentary Switch and Wheel to a particular function; we opened them up for users to connect themselves, as a trigger or voltage generator. We expected someone to use them in a crazy way. Furthermore, locating them on the left side of the keyboard allowed users to control sound while playing simultaneously."

by Russian radio stations transmitting sounds across frequency bands, intermodulating them, and then broadcasting them at the receiver end. He set out to recreate this sound with just a few parts, and created a unique effect pedal with elements of phasing, chorus, and vibrato. The Uni-Vibe has been used by the likes of Jimi Hendrix, Robin Trower, and Pink Floyd.

MS-20 mini and beyond

In 2012, Mr. Mieda was consulting on the design of the MS-20 mini, with a team headed by Chief Engineer Hiroaki Nishijima.

"It was a great idea. If I had a chance to get hold of a small keyboard and components in the 1970s, I would have made an MS-20 mini first. A small keyboard is good enough for only playing with sound."

Several software iterations of the MS-20 have been made, like the simple DS-1 for the Nintendo Game Boy Advance and the iPad. Still, Mr.



FOREWORD BY KITARO

Since I started my music career, I've learned many different things about music and sound - and I'm still learning.

A long time ago - nearly half a century - I used to live in Tokyo. I played organ and guitar. Then I met the 'magical box' - the synthesizer. My first was a Minimoog, but I went on to meet other synthesizers too, with many Korg synths among them. It was a shocking encounter at the time. It changed my way of thinking - and my life.

I never had any musical education beyond the music classes in elementary school and high school. Trying to learn music on my own, playing by ear, was not an easy task - and I had no experience with modern electronic technology, either.

However, our imagination comes from an invisible place, and if you're clear in body and spirit, the manifestation of it will become easier.

When I met Mr. Katoh, the president of Korg (then Keio Electronics), he had a big dream of creating a truly new synthesizer. He received my input on many different prototypes of Korg synthesizers, as I performed on these 'magic boxes'...

It was a brilliant era, full of deeply inspiring creativity; many electronic music pioneers came up with new sounds and new songs, many of which still resonate today.

In the late 1970s, I moved to the Japanese countryside, where I worked on the TV series *Silk Road*. My life in the mountains offered many different experiences that connected me with the sounds of nature and with the spiritual world. When we are silent and can reach out from our silence, we can feel so many different dimensions of experience.

The wind blows, the birds sing, we hear and feel the sounds of rain and lightning - and when it snows, we feel how sound is absorbed into the silence.

In visual as well as auditory terms, we live in a magical world. When we focus, we can see deep into our inner spirit. From that point of vision, I try to create sounds by matching the sounds of Nature with my synthesizer.

It is an amazing experience: sound itself comes and goes, and we feel an invisible energy, a manifested power. When we believe this...



Architect of New Age music, Kitaro is a composer and musician with 88 albums, and 35...

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There's also the Triton, the Radias, those Electribes, the Legacy software ... practically all Korg instruments are listed, making perfectly clear how innovative the Japanese/American company was (and still is). Then there are many interviews, tips, side notes, musical suggestions. And the foreword by Kitaro (busy musician with a special faible for the Korg 700 mono synthesizer) is just as worth reading as the history of KORG. Also included: A chapter about vintage ARP synths, so that the arc from the original 2600 or Odyssey to current Korg replicas is just as coherent as the rest of the book.

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Oberheim Synthesizer Expander Module (SEM) that was introduced at roughly the same time.



KR-55 (1979) and KR-55B (1982)
Korg's first tabletop rhythm machine for professionals, the "Korg Rhythm 55" contains a whopping 96 preset rhythms with remote start/stop and Intro/Fill controls, with individual level controls for its 12 internal sounds. A later version, the KR-55B, increases the number of preset rhythms to 192.



X-911 (1979)
Korg's first guitar synthesizer is a desktop box containing a simplified set of Synthe and Instrument voices from the Sigma, combined with a pitch-to-voltage converter to listen directly to any input audio signal without a special pickup.



Each of its 48 keys has a divide-down network, like the PS-3300. It has



Keyboard, as well as a piano keyboard

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PS-3100 (1977)
The PS Series are fully polyphonic, where every key on the 48-key keyboard plays its own voice. They come from a top octave network, where the 12 keys can simultaneously make up to 12 notes in lower octaves. The PS-3100 has its own envelope and amplitude envelope per voice, and the PS-3100 has another first left-hand controller can be used for pitch (ie other modulation).



PS-3300 (1977)
The PS-3300 is the ultimate in polyphony. It also has polyphony, but each voice is identical PS-3100 signal processor - 144 in all. Each of the 144 has its own temperament individual scale notes can be altered for alternate voicings rather than being tied to the equal temperament that's standard on nearly every keyboard.



PS-3200 (1978)
The last of the PS semi-modular synths was Korg's first programmable keyboard based on a microprocessor. As its name suggests, it has 16 programs per key rather than its predecessor's one and three, and can recall 16 programs.

Photos of PS series by Peter D. Kober

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Incidentally, Kim Björn understood how to address the Korg PS series in the correct chronological order. In literature, these instruments are usually named according to their number - PS-3100/PS-3200/PS-3300 - in ascending order, although the chronological sequence is different and, above all, a major technical turning point in synth history (the upcoming programmable poly synthesizers such as the Korg PS-3200) does not come into its own. Even if there are minimal "whoops" in the book (as with any printed work), one can congratulate Kim Björn on his conscientious journalistic work.

FROM FOLKTRONICA TO TECHNO

Interview with Olga Prudey, multi-instrumentalist and singer

Although Ukrainian Olga Prudey is first and foremost a singer, there's no doubt about her passion for electronic instruments.

"I simply love the world of modular synths - for me it's a territory of freedom, unexpected creation and experiments. In this big modular world, I have one little but mighty friend - my Korg volca modular.

"I discovered it in a music store in Munich when we had a German tour with my band in 2019. I just

fell in love with the sound, size, and musical opportunities it promised. Since then, I've been playing it as part of my musical setup.

"My main instrument is my voice, so I mostly perform as a singer using the TC-Helicon VoiceLive Touch vocal processor. However, as a musician, I just love Korg products and their various combinations. The volca modular and volca kick are by far my favorites - I really feel freedom within limits while

playing the two of them. Sometimes I add the KAOSILATOR PRO and microKORG to my setup."

The volca drum is Olga's next "little friend" that she's just started to explore.

"What I like about the volca series is the unexpected ways you can use them. For example, the volca kick is not only about kick. It's more about basslines for me. Same with the volca drum - it's great experimental gear with a huge sound by



"I simply love the world of modular synths - for me it's a territory of freedom, unexpected creation and experiments."

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taken part at international world music festivals as a lead singer in the folktronica band Cloud Jam. Since 2015, Olga has been working as a vocal teacher.

her method of voice improvement called Happy Voice. Since 2018, she's embraced synthesizers in

tweaking the

... modular techniques

... Olga is keen on building up...
... and variations...
... modular is

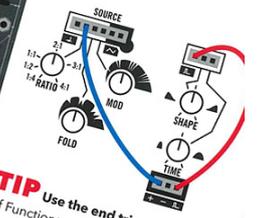
ENVELOPES CONTINUED

Envelopes for percussion - Lazy Drum Machine patch

The ARP 2600's envelopes have been used by the likes of Depeche Mode to synthesize drum sounds. The ADSR envelope is used for both pitch modulation and the overall shape of the bass drum, and the AR envelope is used for added emphasis. The patch is triggered by the internal clock, using the Electronic Switch and Noise Generator to create snare hits. Lower the red sliders for less 909 and raise the SUSTAIN again for a more boomy 808 feel.

Envelopes on repeat

Looping envelopes are great for several purposes. An AD envelope is used for a sufficient rate with an oscillator. At lower rates it can be used for modulation purposes.



MS-20 unstoppable bass drummer

In this patch, VCO levels are at 0, and the EG1 ATTACK and...

TIP Use the end trigger output of Function2 on the volca modular modulation source (see some shapes on p. 90). Tweak the SHAPE and TIME knobs to go into audio rate. Patch Function2's positive output to the SUSTAIN knob of the 808'.

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volca modular - random, scales, motion recording, and more



The volca modular sequencer can store 16 sequences, and has many functions in common with the other volcas' sequencers. While holding the **FUNC** button, you can choose which **SCALE** and **TONIC** (root note) you want the sequence (and keyboard) to adhere to - see an overview of the scales on p. 125. Like several other volcas, the modular's sequencer does have a feature unique to it: **MICROTUNING**, which lets you tune each step up to 2100 cent (one semitone), and save your tuning with the sequence.

The volca modular lets you record live playing or input notes step by step. You can save up to 16 patterns of 16 steps each.

Tempo variations

An interesting feature, the **clock offset** input allows the tempo of the sequencer to be adjusted by control voltages to create moderate changes. The **CLOCK** knob covers 56-240 BPM, but can be changed to 10-600 BPM.

Manual LFOs - Motion Recording

The volca modular can record all knobs' movements while recording a sequence - except for **CLOCK**, **UTILITY** knob **c**, and **VOLUME**. Create interesting variations by recording knob movements, then turn the playback of these movements on and off (**FUNC+13**) during performance. The knob movements override the position of the physical knobs.

SQ-64 - advanced melodic sequencing, modulation, and drum triggering

The SQ-64 can work as your sequencing hub between volcas, Eurorack modular, a DAW, MIDI hardware, and more. It features the popular configuration of three Melodic tracks with **CV**, **GATE** and **MOD** outputs - all polyphonic over MIDI - and a Drum track with 8 analog trigger outputs. Like the SQ-1, the SQ-64 can be configured to send Hz/V and S-triggers to the MS-20 mini, on a per-track basis.

It features the same scales as the volca modular, and several playback modes and time resolutions - all of which can be set independently per track. **POLYRHYTHM** allows different tracks of different lengths to play back together (p. 122). With these capabilities, together with probability per step, **STOCHASTIC**, and **RANDOM** modes, there's lots of potential for endless variation.

In each of the three Melodic tracks (A/B/C) there are gate, pitch and modulation rows available, while the Drum track (D) has 16 sub tracks (rows), eight of which are MIDI-only.



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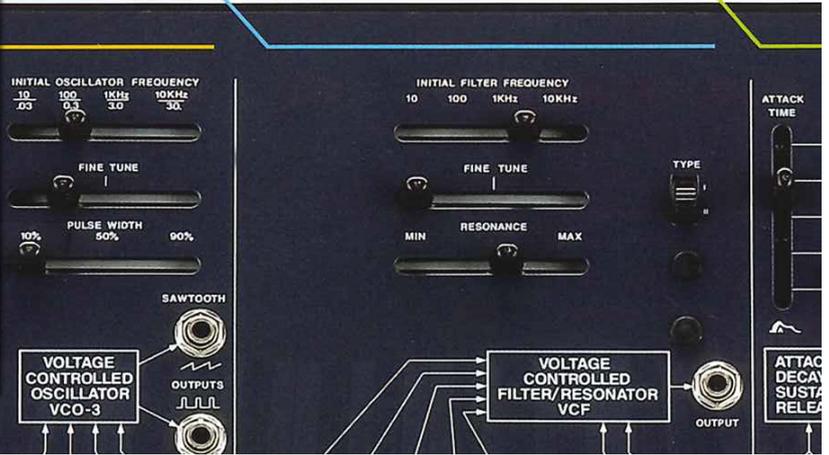
Controlled Filter (VCF) section lets you

Envelopes

The *Envelope* section features two different adjustable envelopes with individual outputs, an ADSR and a simpler AR. Both are triggered from the same **GATE** input or from the **KEYBOARD GATE/TRIG**, which is also passed to their own **GATE** and **TRIG** outputs. A **MANUAL START** button allows you to trigger envelopes manually.

Mix + C

The AR speaker are fed normally through outputs. The output,



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ducts inspiration
KORG products
effects
KORG DJ
MIXER

achieved the basic
feature ever since.
programs that
lead to the X and
be assigned
six on the
Audio input
IDI output
devices.
new direc-
KORG Pad
only audio
AD (2011),
one box.



KAOSS Mixers

These devices offer basic DJ mixing with input level controls, a crossfader, and integrated KAOSS Pad effects. The 2-channel KAOSS Mixer KA...

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SOUNDS HAPPENING ALL THE TIME

Interview with Richard Devine, sound designer and electronic composer

The ARP 2600 was Richard Devine's first adventure into the modular side of synthesis.

"Prior to that I had only used monophonic synthesizers like the SH-101, or some of the polys like Jupiters at the time; this was back in the mid-1990s when I was buying a lot of gear from pawn shops."

The 2600 was interesting to the future sound designer, as he kept seeing it in different places.

"Jack Dangers from one of my favorite bands, Meat Beat Manifesto, was using it live. I remember

being mystified by it, wondering, 'What is this odd-looking battleship-gray box that has these wires poking out of it?' I remember him tweaking these crazy sounds out of it - so interesting.

"I did some more research and learned about Ben Burtt, who is one of my favorite sound designers of all time. He's done the original Star Wars films, the Indiana Jones movies, and all those iconic films I grew up listening to. One of the most iconic sounds he designed was the sounds of R2-D2. I was just

fascinated by a person using his voice to control the synthesizer to sound so human.

"I was able to track a 2600 down at a pawn shop, and paid maybe a couple hundred dollars for it - the guy at the shop didn't even know what it was. It was pretty beat-up, though; I had it professionally cleaned, and it went through several thousand dollars' worth of repair and modification by Phil Cirocchio at CMS. He had it for several months, replaced some parts, and also installed some modifications. I got

Richard Devine is an award-winning composer and electronic composer based in Los Angeles. His sounds are applied to countless projects worldwide, ranging from smart cars, and in leading edge areas.

custom sync switches on the reverb - much larger than which creates a much deeper reverb. "I've been using it on productions and soundtracks for years. It's a mainstay, and I know it so well that I can use it even by modern synthesizers. It's a definitive sound that I like. That's a 2600, just has this unique vintage wine."

From the original: All of Richard's original, first... "When Hancock's are these getting... sure en... think... model th... been made on. When... that I felt that the original was the would probably want - and, of... asked other users, they all had... So that's what Korg eventually... it was a great decision. "The new FS version blew away with it. They nailed... did side-by-side comparisons... blown away by how accurate... actually stays in tune... did a gorgeous job on... The inclusion of both... "I love that we no... something like this... have different 'mod... from different per... feature on the FS..."

Parameters to achieve overdrive and distortion effects. Using the 'pure' feedback signal has its uses, but requires some control and care - be careful with your ears and go slowly when you turn knobs up from zero!

ARP 2600 M: Eternal Ambience
Patching REVERSE OUTPUT back into the Mixer requires that you keep its channel slider low (under halfway). That should keep the Reverb feeding out of itself without getting out of hand, for a nice ongoing soft ambience behind your sound...

ARP 2600 M: Patch the LEFT x1001 and patcher and raise it to square or pulse to square or pulse...

Volca modular



The ARP 2600 FS (left) beside Richard's original ARP 2600P v2.0 (1971-72) with 3604P keyboard.

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Favorite MS-20 features

The Filters

"It seems obvious, but my favorite sound to play with is created by turning the Lowpass Filter between 5 and 7 (and back and forth) with the Peak all the way up.

"You get these sweet, sticky spots that sound so unique, kind of like a distorted wah guitar tone, but so purely MS-20. It's my absolute favorite sound. You can hear it in a lot of my songs - for example 'No Rise' from Acquiesce."

The 'third layer' options

"I enjoy figuring out how to master some of the modular controls like the Wheel or the Momentary Switch to control various 'third layer' sounds. That's kind of how I like to think of the MS-20 semi-modular system.

"You already have so much with the oscillators and filters, but then you can add this third tier of sound once you start incorporating the patch bay for extra noise or drones."

The External Signal Processor

"I like to run my microphone into the ESP and turn my vocals into a synthesizer."



Photo by Zach Spangler

instruments, particularly working... rations, particularly working... wavestate, and opsis. So far, I'm mostly focusing on the opsis FM synth. I'm trying to keep it to one whole new world of sound exploration at a time! It can become overwhelming otherwise, as one synthesizer instrument can be like learning hundreds of instruments, given all of their presets and their

use the MS-20 filter... together with Audio Sync, and then play leads... chords with other synths over the volca sequencer to add organic, breathing lines to contrast the of sequencers. It's nice to have some detachm

Study, practice, and listening

For Natalie, working with her synthesizers, it comes down to study, practice, and listening

"One of my favorite sound design tips I hand in hand with composing is to understand higher frequencies are interpreted much better in our brains, so always turn down when you're incorporating some piercing resonance.

"For improved performance technique, listening is the most important strategy: consider why our brains process sound, consider why something, and don't be afraid of your own style. I suppose this is more of a me and musicality. Anyway, that's what I lean on musically. Anyway, that's what I lean on musically. Anyway, that's what I lean on musically.

"Also, don't be afraid to write things down. Draw diagrams or take pictures for reference."



Photo by Dan Duffy

Introduce occasional noise! Tweak the knobs of Envelope Generator 1 to control the Noise Gen

Use a microphone, and tweak the CV ADJUST knob to match the voice with the synth frequency - or don't! Make sure to detune the VCOs for a little 'vibrato'.

Introduce occasional noise! Tweak the knobs of Envelope Generator 1 to control the Noise Gen

processors to integrate effects into a Eurorack system. You wish to amplify, offset, invert

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EARLY ANALOG

The birth of something new

In 1967, Katoh took note of an enthusiastic young engineer named Fumio Mieda, who proposed a new design for an organ - Korg's first keyboard. Mieda's prototype impressed Katoh, who had him refine the design for release in 1970, with input from organists as to how controls should be labeled and placed. Fifty units were sold by the recently renamed Keio Electronic Laboratory Corp. under the name KORG, for Keio Organ (and also for Katoh and Osanai).

Katoh recognized an opportunity to make Keio stand out: there were plenty of manufacturers building organs, but the KORG design could be turned into Japan's first synthesizer.

A year later, the minikORG 700 made history, and subsequent models refined and added to its unique sonic character. The era of the Korg synthesizer had begun.



minikORG 700 (1973) / minikORG 700S (1974)

The first Korg monophonic synthesizer was originally intended to sit atop an organ; that's why its controls are situated under the keyboard. The Traveler dual filter is easy and intuitive to create interesting tones with, and the various functions are color-coded for quick reference.

Rather than rework the minikORG's proven design, the 700S simply adds to it. The Effects section to the left of the keyboard offers a second detunable oscillator, extra sustain and vibrato controls, noise, and other features, in a self-contained section that can be removed from the signal patch with a single switch.

In 2021 the 700s was reissued with some extra features (p. 195).



770 (1976)

This is a highly competent monophonic synthesizer with two VCOs, ring modulation, and the classic Traveler dual filter. It's notable for being the last Korg mono synth with a Traveler, until the minikORG 700FS reissue came out in 2020.



MaxiKorg 800DV (1974)

It's not quite accurate to call the MaxiKorg "two minikORGs in one keyboard", but the majority of the original's signal path is in fact duplicated. It can be played duophonically, or with the two layers combined for extremely flexible sound creation.

900PS Preset Synthesizer (1975)

This simple synthesizer provides a number of presets and basic expression controls. It's notable for the Touch Bar, a metal rail under the keyboard that activates one or more performance effects - note repeat, Forte (volume boost), pitch bend, vibrato, or portamento - by touching the bar with the thumb.



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Absolutely worth reading!

PATCH & TWEAK with KORG

... is an in-depth look at Korg's diverse collection of patchable synthesizers - the MS-20 mini, ARP 2600 M, and volca modular, as well as the SQ-1 and SQ-64 sequencers and the NTS-2 Oscilloscope.

- Packed with patching tips, and synthesis tricks
- 25+ interviews with artists and engineers
- Foreword by legendary composer and musician Kitaro
- 216 colorful pages printed on high-quality certified-ecofriendly paper

Explore the principles of semi-modular synthesis, and supercharge your creativity with dozens of tips, techniques, and patches. Synth novices, experienced professionals, Korg enthusiasts, and ARP lovers alike will find this book an essential resource.

25+ interviews with artists and engineers

Unlock the creativity and techniques of Pete Townshend, Jean-Michel Jarre, Richard Devine, Andrew Huang, Panic Girl, Legowelt, Red Means Recording, Maude Vôs, Kabuki, Moe Shop, Kristin Hsiao, TALsounds, Robby Stambler, ALOO, ChrisLody, Olga Prudey, On High Mountains, and Loopop. Meet the creative minds of Korg's great history, from Fumio Mieda and Junichi Ikeuchi to Tatsuya Takahashi and the new generation of Korg engineers, as well as the keepers of the ARP legacy: Dina Pearlman, David Friend, and David Mash.

Link: <https://bjooks.com/products/patch-tweak-with-korg>