



NETSINE 2, 20 Januari 2000

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1) Netsine status

I'm very pleased with all the positive feedback I received when launching the first issue of the NetSine. Today there's approximately 300 NetSine subscribers.

Due to lack of time the NetSine Web-version will cease to appear. We will continue to focus on analogue-related material including the persons who make use of these wonderful instruments. If you find something that might be of interest to the NetSine reader -or if you'd like to participate as a writer please send an email to network@analogue.org

enthusiast and founder

Morgan Karlsson

2) Short News

Doepfer Musikelektronik have developed a PC editor to their succesful sequencer/MIDI fader box REGELWERK. Regelwerk-owners will receive the editor free of charge when supplying Doepfer Musikelektronik with one presetfile.

Analogue Systems is developing a new Memorymoog stylished keyboard for modular modules. Bob Williams at Analogue systems says the Keyboard will hold modular modules such as Doepfer, Concussor and Integrator.

The tickets for Kraftwerk's live performance in Hannover during the Expo 2000 world exposition will be available in two weeks for around DM 60. The concert will take place on June 4 or 9.

Kenton Electronic's all new Control Freaks (both CF16 Studio and CF08 Original) now come pre-loaded with profiles to control the volumes, pans, mutes and solos on the Cubase VST mixer.

3) 2600 - paths to happiness.

By Steve Howel

IN THE EARLY days of synthesisers, life was simple. There were only two main manufacturers offering a relatively limited range of instruments. Furthermore, these weren't being superseded every six months so there was time to actually learn to use them. We didn't have polyphony, touch sensitivity, programmability and all the other things we take for granted these days but somehow it didn't seem to matter.

The two manufacturers were, of course, Moog and ARP who, ironically, no longer exist. Robert Moog needs no introduction, being the "father" of the synthesiser we know today, but Alan R Pearlman is less well-known. The founder of ARP, he tried to improve upon Moog's designs and provide a viable alternative to them. The first ARP synth was the 2500 - an awesome modular affair seen "conversing" with the alien mother ship at the end of Close Encounters of the Third kind. ARP's first commercial success was the successor to the 2500, the 2600. Also a modular synth, the 2600 was essentially a slimmed-down 2500.

Pearlman decided that the rotary knobs on Moog equipment (and his own 2500) were not graphically representative of their setting, so he used slider controls throughout on the 2600. The idea (and one that was subsequently adopted by other companies) was that you could literally see a sound by looking at the control panel. Another move ARP made was to eliminate the necessity of using patchcords to connect modules together. Instead, patches were internally wired but could be overridden by inserting patchcords into 3.5mm mini-jacks on the front panel. ARP also saw fit to include an audio and/or voltage mixer at the front end of practically every device - on Moog

equipment, you had to patch in separate mixers, which was not only laborious but also obscured the front panel with leads.

Modular Elation

LET'S TAKE A closer look at the hardware of the 2600. First off, there are three VCOS, each with a frequency range of 0.3Hz to over 10kHz, which could be used as control sources as well as audio oscillators. These oscillators weren't as flexible as the 921 VCO's found on Moog's synths, but they were a lot more stable and consequently the 2600 didn't suffer the tuning problems of the early Moogs.

Two of the VCOs offered square/pulse and sawtooth waves whilst VC02 boasted sine and triangle waves in addition to these. The 2600 was also (to my knowledge) the first synth to feature pulse width modulation. All the waveforms were available simultaneously on each oscillator, which is a feature I miss on today's synths. Each oscillator also had a three-channel voltage mixer for precise control of elaborate modulation.

The 2600 had a standard voltage-controlled lowpass filter with a 24dB/octave slope. It had a 5-channel audio mixer, plus the usual resonance control. The ARP filter had a very different character to that of the Moog filter - in fact, Pearlman went out of his way to design a filter that would sound totally unlike the characteristic Moog filter, and in this he succeeded. The ARP filters are as "beefy" as the Moog's design, but are a lot cleaner. Sadly there was no highpass filtering on the 2600 - though it appeared a few years later on the less expensive Odyssey.

There was only one VCA on the 2600, which could be used to govern the level of control sources as well as the usual shaping of the volume envelope. It had two audio inputs and two control inputs, one of which offered exponential control over the amplifier's characteristics,

instead of the usual linear modulation option. The practical result of this was the availability of far more percussive envelope transients. The 2600 had two envelope generators - one an Attack/Release (AR) type, the other a standard Attack/Decay/Sustain/Release (ADSR) type. All the transient slopes were variable between 2msec and 10 seconds, and were also exponential. To my ears, this gave a certain undefinable "naturalness" to the 2600's sounds. The EGs could be triggered from any external pulse as well as from the keyboard. Other modules included a noise generator offering white, pink and low frequency noise types which could be used as a control source if you so desired. There was also a serious programmable Sample-and-Hold module. This could sample any incoming waveform and provide a stepped control voltage output. The sampled control voltage could be derived from a low frequency VCO for arpeggios or from the noise generator for random voltage changes - one interesting application was to process the voltage from an envelope generator for stepped envelope transients. The S/H internal clock could be overridden and synchronised to an external pulse, such as a keyboard or sequencer (or an early drum machine) for synchronised sample and hold effects. In all, a very flexible module and a personal favourite. A bidirectional clock allowed you to automatically switch between two inputs (audio or control) at a rate determined by an external clock. Also on the 2600 were two voltage processors, which were basically just voltage mixers/inverters and also a source of +/-10

volts DC for manual control of modules. In the same section was a "lagtime processor" which added a variable amount of portamento to an incoming control voltage. This module could also be used as a very basic lowpass filter.

An external input preamp allowed processing of external audio signals, and an envelope follower generated an envelope voltage proportional to an incoming audio signal, which could be used to control modules (for example, using this with the VCF gave a dynamically controlled filter sweep) or to trigger devices such as the EGs or S/H circuit. There was also a ring modulator for the creation of clangorous sounds, but it could also double as a VCA. The 2600 also had a simple stereo output mixer with a pleasing (but noisy) stereo spring reverb. And if all that wasn't enough, it even had a built-in amplifier and speakers. All the modules were designed and built to a standard more akin to test equipment than a musical instrument. This resulted in precise control over sounds as well as an exceptionally clean audio output; in fact, apart from the reverb, the 2600 is quieter than most of today's digital delights.

Originally the 2600 came without a keyboard although an optional "cheap 'n' nasty" affair was available upon request. Then came the "rev 2" 2600, complete with a four-octave duophonic keyboard which was a great improvement on the original. It had a built-in glide function and LFO so that you didn't waste a valuable modular VCO for vibrato effects. All very nice, but the rotary pitch-bend control was something of a dog, and was nowhere near as "musical" as the wheels found on Moog's designs. The ability to play two notes at once was a first for ARP and seemed quite a luxury in those early monophonic days. Interestingly, the keyboard was light enough to be worn around the neck as a remote keyboard.

Interfacing was easy and the 2600 (and all other ARP gear) was compatible with older Roland, Sequential and Oberheim equipment. If you intended hooking up to Moog, however, the story was quite different, as Moog were using "switch triggering" (S-trig) as opposed to ARP's voltage trigger (V-trig). The combination of a Roland MC4 Microcomposer and 2600 gave you an absolutely evil compositional tool,

and was well worth the trouble of sortin out this pre-MIDI language barrier.

So there we are: an impressive line-up of modules that were more versatile than the basic Moog Series 15 but failing short of the capabilities of the more elaborate Series 35.

The Bottom Line

SO WHAT DOES it sound like? To these ears, wonderful. The 2600 could deliver strong basslines, searing leadlines and an unlimited range of special effects. The fact that practically everything could be connected to everything else with a minimum of fuss gave the machine a flexibility sadly missing from today's instruments. Because the VCOs could be used as control devices in the audio spectrum meant that some of us were dabbling in FM synthesis some 12 years before Yamaha gave us their DX synths.

Like most old analogues, the 2600 was littered with dedicated control knobs allowing you to alter any aspect of a sound instantly and hear the results in real time. In this respect the ARP is also graphically representative, thanks to those slider controls, and you can see at a glance what's going on. And don't let anyone tell you that programming a modular synth is hard work - today's parameter-access synths are slow and tedious to program by comparison. Sadly an ARP 2600 is hard to come by these days, but they are available if you keep your eyes

peeled. When they were new, they were selling for £2600 (coincidence?), although the price fell to around £1850 just before ARP went under. Nowadays a second-hand model will cost you somewhere in the region of £1100-1500. As long as you don't go for the first model "The Blue meanie" you don't have to worry about repairs. There are plenty of synth repairers that can fix them, and as components aren't too specialised (no VLSI technology here), you should have no problems. If you're at all serious about synthesis, a modular system will go a long way towards helping you understand what's going on, and if you're contemplating spending your cash in this way you could do worse than provide a good home for one of these classic instruments. If your funds won't run to the 2600 but ARP's sound intrigues you, check out the Odyssey or the humble Axxe - they both share circuitry with the 2600, there's just less of it. If you need any further recommendation, give Stevie Wonder, Josef Zawinul, Michael Boddicker, Tony Banks or Steve Porcaro a call and ask them what they think. If they're out ask me; I've had mine for eight years and, even now, I still write pieces of music entirely on the 2600, resisting (temporarily) the attractions of an Ensoniq ESQ1, Akai S900 and a Yamaha TX802 ... I can run the

2600 over MIDI with a Roland MPU101 MIDI-CV converter and so can take advantage of touch-sensitivity, better pitch-bend and a mod wheel that can be assigned to any of the 2600's modules. I'll admit the 2600 has its limitations - it's only monophonic (duophonic at best) and it certainly predates programmability - but don't ask me to sell mine. I'd rather listen to a flock of seagulls.

4) Carlos & Modules

By Robert A. Moog

Walter Carlos and I met formally in 1965, three years before the release of Switched-On Bach. At that time, Walter was a recording engineer and tape editor at a large New York studio. He had completed graduate studies in classical electronic music studio technique with Vladimir Ussachevsky at the Columbia-Princeton Electronic Music Center in New York City. Here, he learned the basic techniques of electronic sound generation and processing, and musical manipulation and assembly of sounds on a magnetic tape. His graduate work included original tape compositions, some of which had been played in public concerts and were well known among the (then) small circle of electronic music devotees, and have subsequently been released on records.

Carlos heard of the modular electronic music instruments that we had developed a short time before and initiated correspondence that led to our first formal meeting. We talked about many aspects of electronic music hardware and composition techniques, and I remember being amazed at how thoroughly Walter understood the musical application of instruments that, for him, then existed only on paper. His initial purchase included some instruments that we designed and built to his specifications. From then on, we met or talked frequently. Over the months and years that followed, Carlos explored the technical and musical subtleties of his instruments. He often suggested features and modifications that would increase the instruments' capabilities and improve their operation.

Carlos demanded the highest level of sound quality and musical accuracy. We frequently discussed new types of instruments and then collaborated on the details of their design. My associates and I translated these ideas into

hardware, and Walter put them to the test. The Moog 1967 catalog lists many modules with features that he first suggested. This same catalog also listed several "synthesizers"-integrated systems of voltage controlled modular instruments for electronic music composition and performance.

Soon after Carlos began working with his new instruments, he started to assemble his own studio. With the help of his friend Bob Schwarz, he designed and built a simple, yet elegant, mixing board. He built his 8-track recorder from a refurbished tape deck and a hefty pile of surplus parts. The completed studio, fitting neatly into one corner of Carlos living room, consisted of his synthesizer, mixing board, 8-track recorder, and a few "store bought" pieces of professional studio equipment. It is significant that this studio, which could easily have developed into a cranky, haywire assemblage, emerged instead as an efficient, professional, musically-oriented facility. Using this studio, Carlos, with the assistance of Rachel Elkind and Benjamin Folkman, produced the master tape for Switched-On Bach.

To appreciate the historical significance of Switched-On Bach, one must remember that in 1968 most people thought that electronic music was an avant garde endeavor that had little connection with traditional musical values. Commercial musicians generally felt that the electronic medium in general, and synthesizers in particular, had no place in the production of high quality music of wide appeal. Walter knew better. He understood that the alleged limitations of the

electronic music medium could be overcome by the application of technique and discretion. His control over the equipment increased rapidly as he developed a repertoire of techniques and procedures for converting technical function into musical material. As Switched-On Bach neared completion, excitement ran high among Walter's friends and professional associates. We were literally witnessing a breakthrough! Guided by his own insight and integrity, Walter had achieved the seemingly impossible. He had produced high quality music in his studio, with only electronic instruments.

I remember the first public playing of Switched On Bach, about a month before the formal release of the album. It was at the Electronic Music session of the Audio Engineering Society Convention, October 1968. I had presented a paper on "Recent Trends in Electronic Music Studio Design." After describing Walter's studio, I illustrated the points I had made by playing the Third Movement of the Brandenburg Concerto No. 3. The audience of several hundred

audio engineers, music producers, and technicians gave Carlos an enthusiastic, emotional ovation, an uncommon response from those critical professionals. The universal success of Switched-On Bach is now well known. It is the largest-selling classical album of recent times. Throughout the world, far more people know of electronic

music and the synthesizer through Switched-On Bach than through any other musical endeavor. But Carlos did more than popularize a medium and an instrument. He set definitive artistic and technical standards, which in the long run have been of paramount importance in promoting electronic music and the synthesizer. Each of Walter's works after Switched-On Bach is another milestone. He has invented tone colors, mastered new pieces of equipment, refined his control over balance and ambience. The delicacy of The WellTempered Synthesizer, the drama of the Clockwork Orange score, the scintillating complexity of Sonic Seasonings, have all redefined the boundaries of the electronic music medium. As a listener and as a musical instrument designer, I eagerly looked forward to every new album by Walter Carlos.

5) Playing the front panel

By Jim Aikin

Criticism of the synthesizer as a musical instrument has tended to focus on one accusation-supposedly, it has a

sterile, mechanical sound, a sound lacking in expressivity. There are at least three different reasons why this

criticism comes up. First, there are some people who are frightened of anything new. Electric guitars were too loud, and synthesizers are too sterile. These people we can safely ignore. Second, the tone quality of the synthesizer doesn't have the internal complexity of an acoustic tone. If you hook a synthesizer and violin up to an oscilloscope, you'll see that the synthesizer's tone consists of perfectly regular oscillations, while the violin's tone is full of small fluctuations that make it sound alive. There's not much you as a synthesizer

player can do to change this fact, but if you think of the synth tone as clean and pure instead of sterile and lifeless, all of a sudden the problem will disappear.

The third source of the sterility complaint, however, is one you have direct control over. When you first start

playing a synthesizer, you probably have enough trouble getting the front panel control set up to create a sound or two that you like. Once you've got them set, you heave a sigh of relief and start playing on the keyboard. But if you never progress beyond this point, you're passing up nine tenths of your instrument's potential. After you've become thoroughly familiar with what all the front panel controls do, it only takes a little practice to teach your left hand to shoot over from the pitch-bend wheel/knob/ribbon/pad/lever to the front panel, where you have between three and twenty other controls that are nearly as useful for adding expressive nuance to your lines. As long as you ignore these possibilities, you'll be a keyboard player who owns a synthesizer. When you begin to master them, you'll be a synthesist.

Let's look at some examples. If you're using vibrato during your solo, plant your hand on the vibrato speed and

depth controls and use them instead of pitch-bending to shape your lines. You can make constant subtle adjustments, speeding up a bit at the intense spots and slowing down to a slight wobble when the line tails off. Or you can cut the vibrato in and out suddenly. A change from vibrato to no vibrato can have as much dramatic effect as a change from no vibrato to vibrato. Speeding up and deepening the vibrato drastically can turn it from a

pleasant but relatively unperceived coloration to an urgent frequency-modulation buzz, which you can add to a

single note at a high point, or introduce for a whole phrase to remove the definite pitch from your notes while leaving the movement and activity.

If you've got more than one oscillator on your instrument, try starting your solo with only one oscillator and bring the second one in gradually. You can tune them to a unison and just use this to fatten up the tone, or you can tune the second oscillator to a lower octave, a higher octave, or some other interval. Try tuning it a minor seventh above, and bring it in for a few notes at a time as a special effect. Or tune it to a third and bring it in to add harmony to a crucial note or arpeggio. The attack time controls on the filter and VCA are very useful for making a solo expressive. If you start with an attack time of 50-100 milliseconds, you'll have a rounded tone, and you'll also have the option of dropping the attack time to zero to add some edge to the notes. Or you could go the other way, starting with a crisp attack and suddenly introducing some delay during a run that dips down and comes back up, so that the tone will sort of swallow itself for a moment.

While you're reworking with the envelope generators, don't forget that almost any amount of decay time sounds good.

You can shift back and forth from sustained notes (long decay) to clipped, percussive notes, or stop anywhere in

between. Cutting the release portion of the envelope in and out (many synthesizers have a separate control that lets you do this while

leaving the release control set to a specific time value) works well too-you can play a smoothly sustained line that suddenly develops choppy holes between the notes, or go the other direction and let a line that hasn't had any release end with a long tapering tail on the last note.

Another thing to remember is that when we perceive a sound as getting louder, it hasn't necessarily increased as

much in amplitude as in brightness. So pushing down on your volume pedal as you come to the climax of a solo

may not do as much good as tweaking up the filter-either the contour amount or the initial level setting. This won't work as well if you've got a high resonance setting on the filter, but you might try pulling back a bit on the resonance at the same time you're raising the initial level. The brightness of the tone should stay pretty constant, but now the tone will fill out on the bottom end.

If you can sync your oscillators, you can add a wealth of lively shadings to your tone. Once oscillator two

is synced to oscillator one, you can do just about anything to the pitch of oscillator two without obscuring the pitch of the notes you're playing. Try driving it up with an envelope voltage, and vary the amount of envelope it's getting. Add vibrato to it (but not to oscillator one). Play its pitch control by hand. Increase and decrease its volume relative to oscillator one. Most synthesizers have white noise generators, but nobody ever uses them. The next time you're looking for a distinctive lead tone, dump some noise into the filter along with the oscillators, make sure the filter is being controlled by the keyboard output voltage (if you don't have a control for this, chances are it's done automatically by the internal circuitry), and turn up the filter resonance so the noise will acquire some pitch corresponding to what you play on the keyboard. Now you can use your left hand to vary the mixture of oscillator tones and noise. Set one of the oscillators to a strangely high harmonic and bring it in and out of the tone-or leave it in (not too loud) and play with its pitch independently of the keyboard pitch.

Another common synthesizer feature that doesn't get used much is the sample-and-hold, but there are half a

dozen things you can do with it. Try modulating that synced oscillator, or modulating the filter, and bringing the

modulation in and out to add some subtle but unusual background coloration. This trick might work best with a

fast sampling rate. Another use for it would be to control your lead oscillator with it, maybe at a slower rate, and create a solo that alternates between licks you play yourself and automatic random notes. By cutting the sample-and-hold in and out quickly, you could create a real dialog. Even the most unlikely controls can be made musically useful. If you listen to Josef Zawinul's solo in "Bird land" on Heavy Weather [Columbia, PC 34418],

you'll hear him playing the octave transposition switch at one point. That's enough suggestions to give you the idea. Remember, it'll take some practice to be able to use these effects smoothly, especially since some front panel controls have odd peaks in them where the sound can change abruptly. It'll also take some thought to determine the

best way to use the effects. If you load a solo down with too many strange events, it can start to sound gimmicky, and your audience may lose the thread of the music. But this applies only to obvious effects like sample-and-hold. You can work a lot with subtle changes in the envelope generators and the vibrato, for example, and your listeners may never notice consciously what you're doing. They'll just be knocked out by how great your synthesizer sounds! And even the most far-out possibilities, once you familiarize yourself with them, can come in handy sometime as the perfect climax to an already hot solo. The synthesizer certainly doesn't lack for possibilities, but it's up to us to learn to make effective use of them.

6 JoMoX AirBase99 review

Ulf Kaiser KEYS magazine 3/99

You might as well forget about dance music production if you don't have punchy drum sounds. Even though the production of Roland drum machines TR-909 and TR-808 has been discontinued for some years now, their sound, known to cut through any mix, still enjoys unabated popularity. Two years ago, JoMoX put the club-compatible XBase09 on the market. With the AirBase99, JoMoX has released the XBase's Sound Engine in a 19" rack mountable version.

In Order to recapture their predecessor's sound as authentically as possible, the JoMoX AirBase99 and XBase09 feature pure analog as well as hybrid digital-analog sound generation: Kick, snare and toms are fully analog while the other instruments are based on samples with analog processing. The advantage of the JoMoX devices: Their sounds cover a far wider scope of variations than the originals. In general, punchy sounds that are controllable in all parameters are more easily created on analog systems than with samples, apart from the fact that sound control of samples is mostly limited.

The difference The AirBase99 is essentially a 19" rackversion of the XBase 09 synthesis engine with added features. Among these is the analog tom section and additional samples. Polyphony has been increased from three to nine voices, which means that multiple samples can now be played simultaneously. The global 'Accent' parameter could be done away with completely, since all of the Air Base's instruments respond to note velocity individually. Air Base owners have to do without the the XBase 09's many knobs and its sequencer. Even though it has been announced that the Air Base will be fitted with a sequencer in a future software update, this will not mean that it will also grow knobs like the Xbase09 or the Novation DrumStation on its front panel. However, a diskette with Cubase mixermaps and Logic environments is supplied to make for easy operation with a sequencer.

Fresh Food The Air Base features four complete analog sound generators: Kick, Snare, Low Tom and High Tom. The much wider scope in sound variation in comparison with the TR-909 is exemplified best with the kick drum. Not only envelope and tuning can be tweaked, but also sound-forming parameters Pitch, Pulse, Noise and EQ. The direct counterparts of the original TR-909 parameters feature an increased range of control. The sound forming of the snare is also more flexible and more detailed, offering five parameters opposed to the 909's three. The two tom sections (Low Tom and High Tom), that enable adjustment of the tom's tuning and decay furthermore distinguish the

Air Base's sound engine from that of the XBase 09.

Canned Food While with the XBase 09 you could play only one sample (e.g. cymbal, clap, hihat) at a time, the AirBase offers five independent instrument-groups, namely hihat, clap, rimshot, crash and ride. Every group can play one of four samples: a 909 sample, an 808 sample, a CR 78 sample and a JoMoX factory sample. All samples can also be played backwards. The hihats are 6-bit quantized samples, all others are 8-bit quantized. This low resolution, unusual nowadays, makes for the authentic 909 sound. All samples pass through a three segment envelope that can be freely adjusted. Closed Hihat and Open Hihat belong to the same sample group and therefore cannot be played at the same time. The envelopes are individually adjustable, but sample volume level adjustment and sample selection is not possible. Complete independence would further increase flexibility, but to make up for that the hihat section features an exclusive resonant filter section with high and low pass characteristics and independently adjustable cut-off frequencies. These filters increase the hihat section's sonic scope considerably. Furthermore, it is possible to use a noise signal instead of the hihat samples.

Joker For modulations ranging from subtle to violent, the AirBase99 provides two LFOs per drumkit, both of which can be synchronized to MIDI clock. Each LFO provides four waveforms, rate and intensity settings and a modulation target. If it is required, the 'sync' function forces the LFO to restart at every note event. LFO 1 affects the pitch of any instrument or the high hat filter's cutoff frequency. LFO 2 can modulate the pitch of Kick, snare or low tom.

INTERVIEW WITH Jurgen Michaelis about JoMoX's current projects. Mr. Michaelis is the company's director and chief of the development department.

KEYS: Mr. Michaelis, XBase and Air Base do not use digital sound generation. What is the reason for this? Jurgen Michaelis: Analog sound generation sounds better. More earthy, it simply cuts through a mix better. I like this kind of direct sound. Apart from that, it's much more fun to develop analog devices, even if we spent about 75% of the time for the Air Base's development working on the software. KEYS: How closely are development and production linked? Jurgen Michaelis: It is important to keep communication lines short. For this reason we do not produce in the Far East, as opposed to other manufacturers. Our factory is situated in the fourth floor of an industrial house built in Berlin at the beginning of this century. We don'tt only develop but also produce our instruments here. KEYS: Will the SunSyn also be produced here? Jurgen Michaelis: Certainly. Recently we had to concentrate fully on the Air Base, but we will be able to show a functioning prototype of the SunSyn at the coming Frankfurt Musikmesse in March, maybe even more. We expect the first SunSyns of the series production to be available in the middle of the year.

Abundance The MIDI implementation is a model of flexibility. All sound parameters can be edited from outside by means of factory-assigned MIDI controllers. The Air Base's control knobs generate the controller data that the parameter being edited responds to. In this wise it is easy to control the Air Base from a sequencer. Custom Cubase Mixermaps and Logic environments, which are shipped with the unit further simplify this. Unfortunately the drum kit being edited cannot be stored in a memory slot other than its own. The workaround for this is to first copy it to another memory location and then to edit it. The 'snapshot send' function is very practical on the other hand: A program change can cause the Air Base to send nearly all of a drum kit's sound data as MIDI controllers, with the exception of sample

selection. There is no need to fear a scarcity of memory space for customized sounds and drumkits. Each instrument group has 256 memory slots of its own, and there are 1024 memory slots for drumkits. The micro sequencer, which has been announced to be part of a future software update, might reduce the number of possible drum kits, but in view of the large number already available, this shouldn't pose too great a problem. The Air Base's opulent back panel features ten individual outputs next to the main stereo output and the MIDI trio. These individual outputs are hard-wired to their respective instruments. If a jack plug is inserted into an individual output, that instrument will be taken out of the stereo mix of the main outputs. Regrettably, the AirBase99 does not have a volume control. Whoever might want to connect the Air Base directly to his HD recording system might have problems with its very high output level. This problem does not arise when the Air Base is connected to a mixer.

(PHOTO Caption): There is an individual output provided for every instrument group and both hihats. In this wise, sounds can be routed to mixer channels for individual processing.

Sound The Air Base sounds exactly like you want it to. It really kicks. The analog sound engine paired with the rough samples cuts through anything and is highly dance compatible. The showcase sound is of course the kick drum whose spectrum ranges far beyond that of the TR-909. But also the hihat filter and the two LFOs can breathe life into a rhythm track. All parameters are within constant reach via MIDI controllers. Wide tuning ranges provide for easy generation of extreme sounds that will also inspire friends of Elektro music. Also, the expanded sample selection enlarges the Air Base's sonic scope considerably.

Market Position Because it is based on a similar concept, the Air Base competes with JoMoX's own XBase 09 and with the Novation DrumStation. For those who consider the sequencer necessary for timing reasons or for live performance, the XBase 09 is the obvious choice. Although it offers fewer sounds, it invites spontaneous sound manipulation by means of its many knobs and also has the sequencer. In comparison, because of its MIDI potential, the Air Base is better suited for programming dance tracks in a studio situation and costs a bit less. The Novation DrumStation is limited to an authentic simulation of TR-808 and TR-909 sounds without enlarging the sound spectrum, with the exception of the distortion effect. It must however be borne in mind that it sports 21 knobs for sound programming, and these knobs also generate MIDI controller data. The Air Base, on the other hand, offers a far wider variety of sounds thanks to its extended parameter ranges and the LFO's. At the same time it sounds punchier than the completely digital English competitor's sound engine. In view of the fact that both instruments cost the same, one will have to decide whether one wants the luxury of many hardware knobs (DrumStation) or the wider variety of sounds (AirBase99).

Conclusion The Air Base offers the musician the sounds he needs for contemporary dance music in excellent quality and at a fair price. It sounds punchy and will cut through the mix much better than many a sample while remaining editable in all parameters via MIDI. At the same time, the sound engine provides enough scope for experimental sounds. Even the non-tweaking user, in search of the dance-scene's cult-status sounds will be able to put together what he is looking for from the large number of pre-programmed drum sets. The Air Base 09 offers good value for money at the suggested retail price, so much can be safely said. In comparison to the TR-909 the knobs are missing, but the Air Base provides MIDI control of all parameters, thereby opening a considerably larger scope of possibilities. The AirBase99 is a fully

dance compatible drum module for those who need punchy drum sounds in a studio situation in which they can control the sound engine from a sequencer or a fader box.

Info JoMoX AirBase99

Concept Drum module with analog and sample based sound generation a la TR-909 Technical Data Polyphony: 9 voice Analog sounds: Kick, snare, lotom, hitom 8-bit-Samples with analog envelopes: Hihat (6 bit), rim shot, clap, crash, ride Memory Kits: 1.024 (256 in ROM) Instruments: 256 settings (100 in ROM) Connections Stereo out, 10 individual outs, headphones, MIDI in, out, through, external power supply. Further reading: Special: vintage drum computers, KEYS 8/96 Test: JoMoX XBase 09, KEYS 6/97 Test: Novation DrumStation, KEYS 8/96

The samples of the AirBase99 Hihat Clap Rimshot Crash Ride TR-909 hihat TR-909 clap TR-909 rimshot TR-909 crash TR-909 ride TR-808 hihat TR-808 clap TR-808 rimshot TR-808 crash TR-808 ride CR-78 hihat CR-78 cymbal CR-78 cowbell CR-78 tmbrn CR-78 guiro JoMoX hihat JoMoX clap JoMoX rimshot JoMoX crash JoMoX ride

7) Running Down Moog

By Skip Mahler

In my haste while loading gear not long ago, I left my Memorymoog standing between the truck and the trailer. When my Hammond B-3, Leslie, full P.A., drums, amps, and keys were all loaded, I made a too quick check of everything before driving away. I didn't see the Moog still standing between the vehicles. Going forward, I heard a crash, then felt the trailer go up and over something. I knew in a split second what had happened: The trailer's two right wheels had diagonally run over the Memorymoog. When I checked the damage, I found that the Moog keyboard assembly had been completely flattened and a few keys were broken, but that was it! No other damage! The entire steel, aluminum, and wood chassis held together and protected the delicate components. Even the front-panel knobs and switches were completely unharmed. Not one component or circuit board was hurt in any way. I disassembled the unit, rebuilt the keyboard 'comb' that had been flattened, cleaned everything, reassembled the Memorymoog, and plugged it in. Everything worked - perfectly!

Why can't today's instruments be built the same way? There isn't one on the market that could have withstood this kind of punishment. It's quite sad that the people who built the finest keyboards in the world are now not in business because they couldn't afford to compete with foreign manufacturers who sacrificed quality of workmanship and design for slick ad campaigns, cheap components, a lightweight chassis, and thin, gimmicky sounds. Thanks to Dave Luce, Tony Marchese, Bob Moog, Rich Walborn, and the hundreds of other dedicated employees at Moog Music who started it all.

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