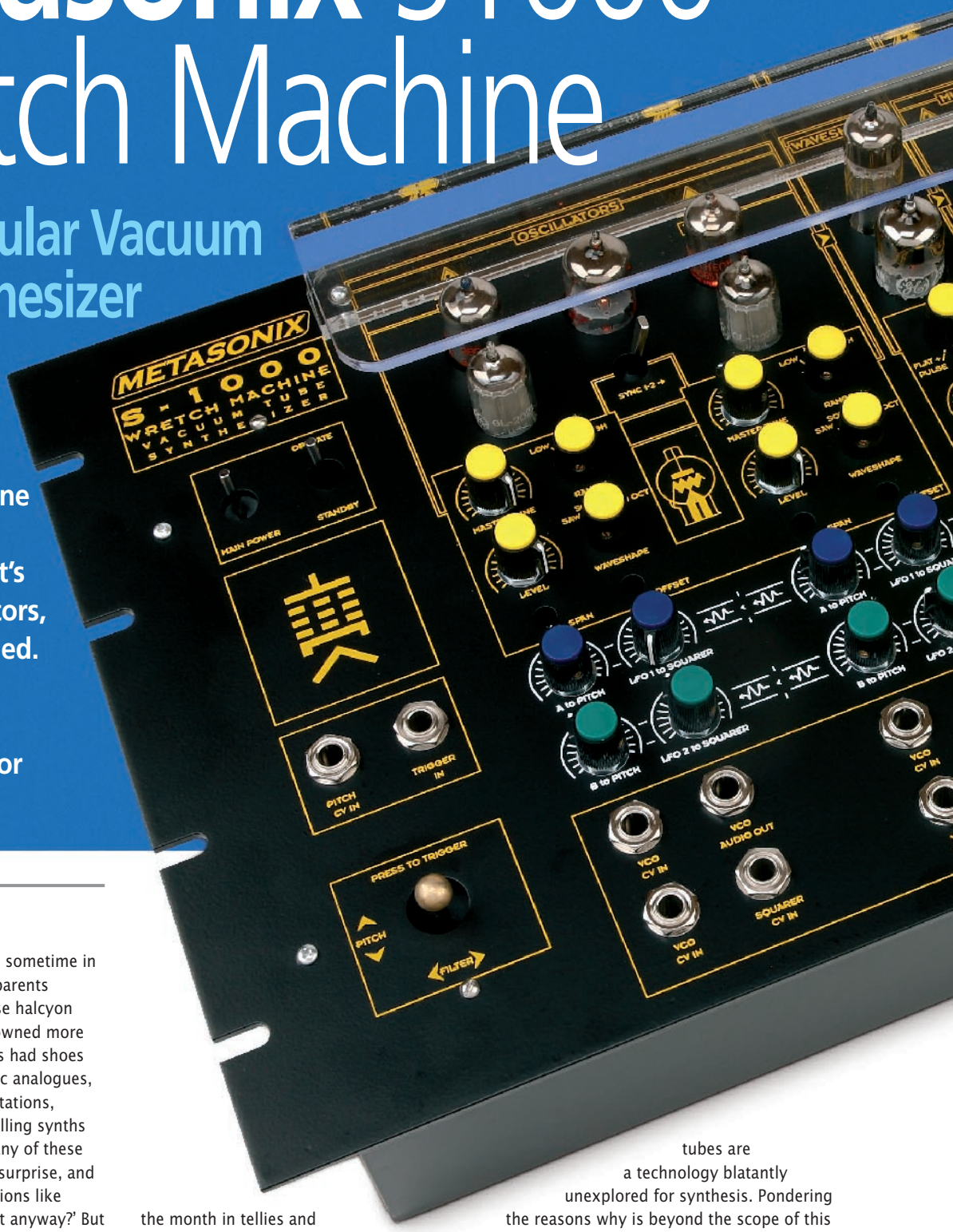
Metasonix S1000 Wretch Machine

Semi-modular Vacuum Tube Synthesizer



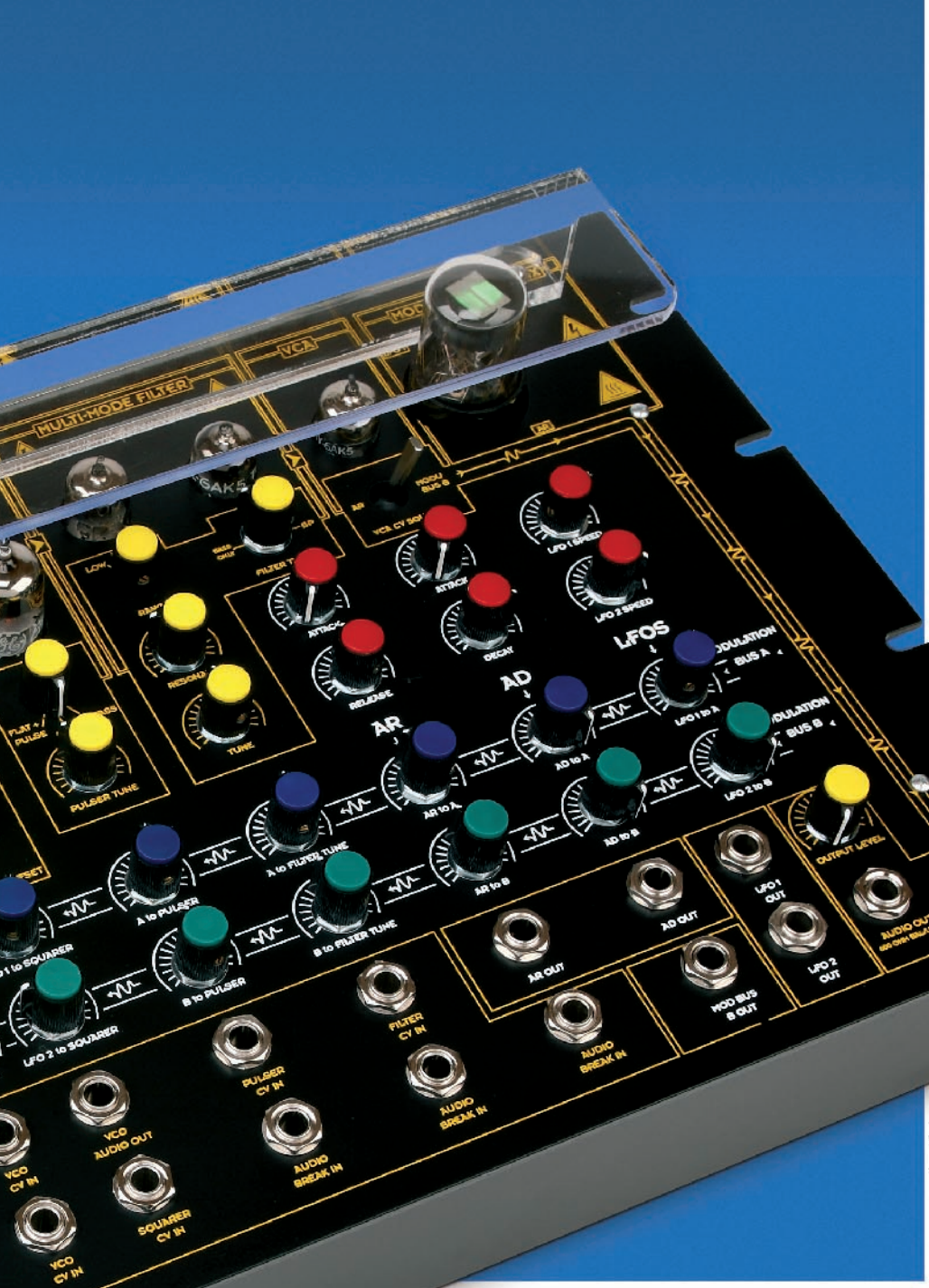
The Wretch Machine sounds absolutely terrible — but that's exactly as its creators, Metasonix, intended. To see what valve-powered synthesis can do for you, read on...

Paul Nagle

I bought my first synthesizer sometime in the late '70s, or rather my parents bought it for me. Since those halcyon teenage days I reckon I have owned more synths than Imelda Marcos has had shoes — including most of the classic analogues, several large modulars, workstations, digital stuff and enough modelling synths to fill a Paris catwalk. Hardly any of these have taken me completely by surprise, and fewer still have inspired questions like 'what is a synthesizer all about anyway?' But just a few short weeks ago, surprised and inspired I was — in abundance. The reason? A new synthesizer unlike any other on the market, a synthesizer built entirely around vacuum tubes.

Now this isn't entirely without precedent. Although no longer flavour of the month in tellies and radios, tubes have long been known to have desirable qualities for audio processing; it's why so many tube amplifiers, compressors and distortion units are beloved of guitarists (and smart keyboard players) everywhere. But, leaving aside historical quirks like the Clavioline, tubes are a technology blatantly unexplored for synthesis. Pondering the reasons why is beyond the scope of this review (you may spot clues as we proceed). but for now the advancement of tubes in synths appears to be the quest of one man and one company.

The man is Eric Barbour, the company Metasonix, and his synthesizer is the S1000, or 'Wretch Machine'. I'll refer to Eric,



Photos: Mike Cameron

his vision, and his very special approach to product naming during the review — but let's not dally any longer. This is a synth that sounds and behaves like nothing I've encountered in the last 30 years and I don't want to spend a minute more setting the scene.

Tube Station

The Wretch Machine certainly looks striking — no less than 11 glowing vacuum/gas tubes embedded in the panel see to that! Of these, the most impressive is the large 6AL7 tube, its history dating back to 1940s FM tuners. It possesses a two-part green 'magic-eye' bar display that simultaneously represents the outputs of the LFOs and envelopes. Using the lower part of the display, envelope levels are shown whilst each upper half pulses in time to an LFO's frequency — very pretty! The remaining tubes are smaller and vary in shape according to the particular tube used; they also glow a seductive orange, which is mighty impressive in the dark — far more so than those in my Korg Electribes (which aren't driven hard enough to really glow: they fake it using a nearby LED!). Metasonix estimate that the tubes should have a lifespan of between 10 and 15 years of regular use, and although the manual states that the synth's warranty period is 180 days, I am assured by the UK distributor that a standard 12-month warranty applies.

Occupying six rack units due to the generous ergonomic spacing of knobs and jack sockets, this chunky metal module makes as many demands on your free space as it does your attention — especially as you need to allow extra room to connect the external 12V AC power supply at the top. If you plan to flightcase your Wretch, be aware that the transparent plastic cover protrudes about 5cm, too. This cover has been added to protect the valves both in transit and from studio accidents (for example, knocks, drink spills, most of my back catalogue); furthermore, some of the tubes run pretty hot, so you don't want to touch them generally. However, the cover remains a bit of a nuisance because it restricts access to several vital controls, and even though you adapt to tweaking these with finger and thumb, it remains awkward — especially as one switch (the Filter Range switch) is quite stiff and not ideally operated at an angle.

"The Wretch Machine is a synthesizer that sounds and behaves like nothing I've encountered in the last 30 years..."

SOUND ON SOUND

Metasonix S1000 Wretch Machine **£1806**

pros

- Freakily unique, with attitude, personality and a wayward nature.
- May carve out its own musical niche.
- It's ALIVE! Raw, growling valve power sounds like nothing else. I know I've said it before but this synth really is different!
- Superb as an external audio processor via its Waveshaper and filter.

cons

- External power supply whose connector positioning wastes valuable rack space.
- Protective cover for tubes obstructs a couple of the knobs.
- Limited range over which it will play in tune.
- Joystick response not great.
- Expensive and not for the unadventurous.
- Requires additional Hz/Volt-capable MIDI/CV adaptor (to incorporate into most systems).

summary

Somehow tube distortion sounds more alive than any other kind. It takes time for your ears to adjust to its character, but once they do there's a world of rich, spitting, often churning harmonics at your fingertips. The semi-modular design means you can use the Wretch's raw oscillators in your analogue modular or you can plug in external sources to be horsewhipped by the Waveshaper before being tortured by the filter. Wild!

Joystick Division

The small joystick is handy when you want to make noises without recourse to external triggering. It is also, perhaps predictably, a trifle unruly. The joystick is the same one used on Playstation gaming controllers but with a small brass ball on the end rather than the black mushroom knob typically seen. Pushing down on it generates a gate to drive the two envelopes; wiggling it affects oscillator pitch in one plane and filter tuning in the other. Often it fails to return smoothly to its central position, leaving tuning in limbo.

To counter this behaviour, the manual advises anyone using the Wretch via the CV/Gate inputs (I hazard to suggest this will include most users) should remove the joystick entirely. This is a drastic solution if you fancy alternating between using it and not; however, given the absence of a button to activate it when wanted, you either follow this advice or live with the additional unpredictability. There are no CV outputs from the joystick, so it can only be routed to the internal fixed destinations. Personally I don't think the joystick offers too much of value, so the removal option is probably the one I'd advise.

The Wretch Machine features two VCOs, a waveshaper, a multi-mode filter and VCA, with dual LFOs and two simple envelopes as modulation sources. Throw in a couple of modulation buses and a joystick controller and you should have a fair impression of what's on offer — all of it delivered by tube technology.

The main output is balanced, but copes with unbalanced leads happily. To maximise its versatility, the S1000 takes the semi-modular approach, meaning that its internal connections for signal flow and modulation can be overridden by the patch points that run along the bottom of the unit. Even a small number of such connections can be invaluable, as owners of Korg's MS series of synths will confirm.

Actually, owners of these classics may be interested to know that the Wretch Machine adopts their little-used standard of Hz/Volt tuning (but not the S-trig gate method). Oh yes, and I should have mentioned earlier that the Wretch Machine has no MIDI. If you want to run it from your MIDI system, you'll need a MIDI-to-CV converter capable of sending Hz/Volt to the main CV input. At least triggering is pretty conventional — it requires either 5V or 10V positive gate, which most converters should be able to cope with. I had no problems at all with my Kenton Pro 2000 converter, although I did discover that the maximum range of accurate tuning for the VCOs appears to be about two octaves, which is, as the wise gnome Paul Daniels once remarked, not a lot!

First Steps

Due to the unique nature of the Wretch, I read the manual before attempting to make any noises. Fortunately it's a brief and entertaining read, full of kindly advice and sentiments. For example: "All the safety and operation instructions must be read before the S1000 is operated. If you don't read and HEED them, you are a MORON and you deserve to be CASTRATED." Or my personal favourite: "DO NOT OPEN THE BOX unless you're a service technician or a blithering suicidal idiot."

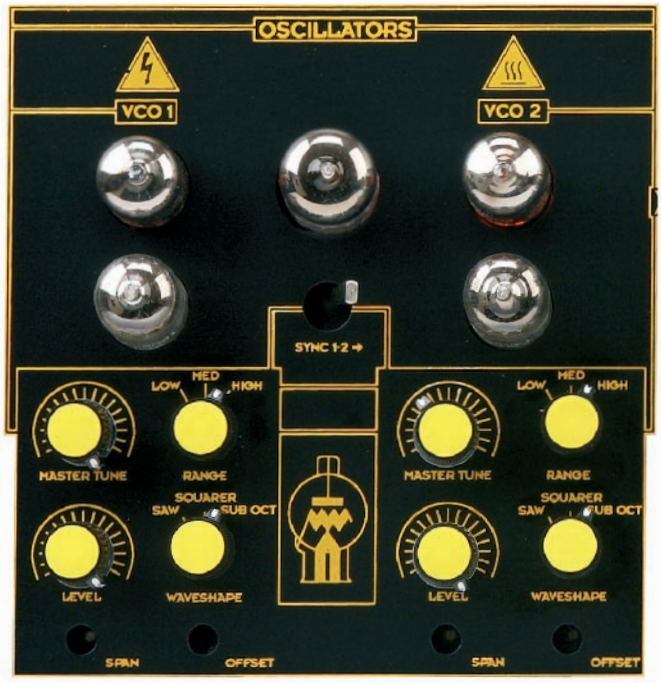
"Throw away any preconceptions you have about how a synthesizer should sound or behave — they will be scant comfort here."

There's one vital tip of my own I'd like to add to these: before attempting to power up the S1000, ensure the main level is at zero, your mixer channel is at zero, the gain is at zero and and also, for good measure, that there are no thunderclouds gathering overhead. This is because the Wretch's output can get hot — so hot I wager it has cloven hooves and asbestos underpants! Even when you think you have its measure, a sudden leap in gain can terrify, especially when you boost the resonance or switch in the Waveshaper. I learned this first-hand despite absorbing all of Eric's proffered wisdom; my first few days with the S1000 were, apparently, torture. Almost weeping at one point, my usually tolerant wife practically begged me to "make it stop", while at other times she seemed to be muttering the full Metasonix catalogue of expletives angrily under her breath. She does have a point. Never have I heard a synthesizer scream, wail, spit and roar with quite so much venom. Forget waterboarding, Guantanamo Bay needs a shipment of Wretch Machines right now, after which I guarantee even the guards will confess to anything!

OK: now that I've set the scene a little bit, it's time to calmly and rationally do the review thing...

So, VCOs...

Having connected my Kenton Pro 2000 to the Wretch's CV and Gate inputs, I began firing notes from a hardware sequencer while I explored the panel. The two VCOs each feature a main tuning control with a range of about a third interval — there's no master tune. The manual says you should get approximately two octaves' worth of reliable tuning and describes how to adjust VCO tracking via the span and offset trimmers accessible through holes in the front panel. This S1000 tracked accurately for a fraction over one-and-a-half octaves out of the box so I decided not to risk buggering it up entirely with my hamfisted screwdriver skills. Each VCO has three ranges: low, medium and high, covering deep bass through to screaming wails more than adequately. You will need to retune whenever you switch ranges but retuning, like reaching for the main volume control, is something you do so frequently it becomes part of standard operation.



Each VCO is voiced from thyratron tubes that offer three waveforms: an imperfect sawtooth; 'squarer' (the sawtooth clipped via a vacuum tube triode); and 'sub-oct'.

The sub-octave is the result of feeding the sawtooth wave through a primitive frequency divider made of neon lamps, so the manual informs me. Whatever, these waveforms sounded different — as if charged with electricity! I'm usually no more interested in viewing oscillator waveforms than I am in seeing my music on a computer display, but for once I couldn't resist. I discovered that the sawtooth wave, for example, contains lots of distortion and fluctuation, giving it an unevenly raw, buzzy sound constantly changing over time. It's ALIVE!

The oscillators interact in unpredictable ways as you adjust their waveform, tuning and level. Ominous harmonics creep out of the woodwork at the lowest pitches, while setting the range to high and selecting the sub-oct waveform produces some astonishing warbles as the sub-octave appears to kick in whenever it feels inclined. I achieved some impressive 1950s sci-fi sounds by throwing some wildly unsubtle LFO pitch modulation into the equation too.

Each oscillator is fitted with two CV pitch inputs that are added to the main CV input, and also there's a CV input for the squarer. This latter input is described as 'very insensitive', requiring at least +/-10V. It is also AC coupled, so feeding it a steady DC voltage won't do: it needs to be an LFO or other type of changing voltage. Accordingly, the modulation bus offers direct feeds to the squarer from both LFOs, adding a kind of inspired glitchiness.

Finally, Oscillator 2 can be soft-synced to Oscillator 1, giving some of the richest, most unusual harmonic sweeps I've heard.

It definitely takes time to become attuned to these oscillators (I'm sure that my wife would put it differently!), but when you do, anything from wondrously fuzzy drones to searing leads can materialise, although you'd be hard pressed to serve up anything pretty and polite. Nevertheless if you patch them out to a more conventional modular synth, you can tame them (to an extent) with low-pass filters and normal envelopes. I venture to suggest that this would be slightly perverse, though — like hiring a death metal band for the village fête.

Waveshaper

Next along the audio chain is the Waveshaper, which has three settings: Bypass, Flat and Flat+Pulse. As soon as you switch from Bypass the circuit is engaged — typically accompanied by a dramatic increase in volume. Flat gives a warm soft-clipping effect where Flat+Pulse produces additional instability, in the form of a series of short pulses fired into the input audio. The result sounds somewhere between distorted noise and a diseased version of oscillator sync; the Pulser Tune control either sweeps the pitch of the distortion or perhaps it simply varies the flavour of disease — I couldn't say for sure! The results obtained from this module are highly ▶

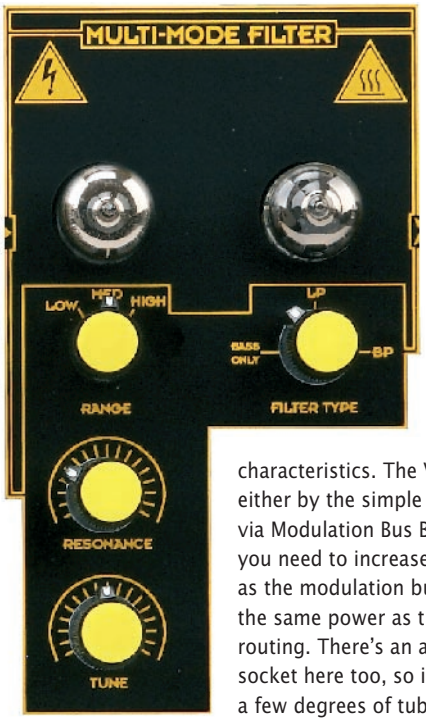
dependent on the pitch and tonal quality of the input.

There are two patch points provided for the Waveshaper: Audio Break In and Pulser CV In. The former allows you to break the oscillator connection to the Waveshaper and insert external audio for maltreatment instead; the latter is another of those 'pretty insensitive' modulation inputs, requiring a strong CV source before you can hear much difference.

Multi-mode Filter & VCA

The multi-mode filter is a strange beast derived from the Metasonix TM6 pedal. If you are accustomed to judging filters against the famous offspring of Bob Moog, you're in for a shock. Here, if you take resonance down to zero it is tantamount to bypassing the filter altogether; crank it up and you approach the territory of metal brake pads grinding angrily against metal. Adjusting filter tuning produces not a standard filter sweep but a quality reminiscent of swirling gravel around a bucket with a stick. If there's a sweet spot somewhere, I certainly never found it! What I did find was an incredible range of wild distortions ideal for crunching up the already temperamental oscillators — or an external signal such as a drum machine. Somehow this crunchiness is not unpleasant. Comparing the filter to another favourite, the Sherman Filterbank, I'd cast the Sherman as an android crawling over broken glass while the Wretch assumes the role of a rabid pit-bull ready to bite your leg off and then vomit on your carpet.

The filter has three range settings that determine the range of the resonant peaks: the low range covers approximately 190-420Hz, medium is 830-1200Hz and high is about 1150-1650Hz. The filter's 'high' setting adds a distinctive band-limited tone, pefectly scoped for alien sound effects. Pipe those LFOs generously to filter tuning and a host of screaming birds are awakened!



The continuous Filter Type control sweeps smoothly through a bass-only response through low-pass and eventually to band-pass — although I hope I've communicated the point that nothing you'll hear sounds like a conventional filter. With Filter Type set to 'Bass', all the upper frequency components are removed, so that when you set the oscillator range also to low, you're firmly in the territory of warped, fuzzy sub-basses and drones to die for. Mastering the filter is one of the great challenges of the S1000, one in which experimentation is your only real guide.

The final stage in the audio chain is the tube VCA that adds its own special warming characteristics. The VCA can be driven either by the simple AR generator or via Modulation Bus B. In the latter case you need to increase the main volume, as the modulation bus doesn't put out the same power as the fixed AR routing. There's an audio break-in socket here too, so if all you require is a few degrees of tube warmth, you've got it — provided you also open up the VCA by triggering the envelopes.

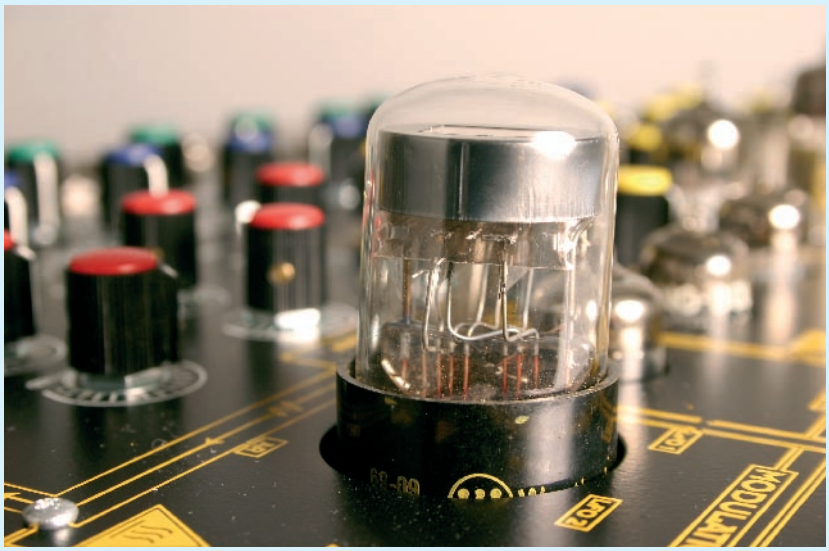
Conclusion

Throw away any preconceptions you have about how a synthesizer should sound or behave — they will be scant comfort here. You primarily have to accept that unpredictability can be a good thing. Or, in the Metasonix philosophy: how easily a musical instrument can reproduce exactly the same sound is a measure of how boring it is — both to play and to listen to. Being boring is not something the Wretch Machine can ever be accused of. Like some brooding, malevolent creature, you instantly know when it enters a mix — and there aren't many synthesizers produced today about which that can be said.

Being different has its downsides too, not least in establishing who would be tempted by a tube synthesizer in the first place. In my first days with it, I couldn't see far beyond Nine Inch Nails, Throbbing Gristle, industrial, experimental, all that stuff. But as I became acclimatised, I started to see that its ability to produce a thousand and one harmonically rich drones that sit timbrally somewhere between an Ebow and a didgeridoo make it ideal for soundtrack

Modulation By Tube

Let's turn for a moment to the modulation bus. Fortunately this, at least, is straightforward in operation. There are two buses (A and B), their knobs coloured blue and green respectively. Each bus is fed by up to three modulation sources, denoted by red knobs on the panel. The modulation sources consist of two triangle-wave LFOs (with a range of between approximately 0.5Hz and 5Hz) plus two simple envelopes. The first is an AR (Attack Release) type; the second is AD (Attack Decay). The envelopes have quoted response times ranging from less than one millisecond to greater than 10 seconds and the AR envelope remains at maximum whilst gated, whereas the AD envelope decays to zero. Thus, if you adjust the modulation amount of each envelope into the bus, the two envelopes can be combined into something approaching ADSR response. It never sounded exactly snappy to me, though, and modulation in general is an area where tubes don't seem to offer any advantage over good old analogue.



The large 6AL7 tube in the S1000's Modulation Matrix.

work. Its capability to deliver more insane shrieks than you'll hear this side of Bedlam is tailor made for the Radiophonic Workshop's scarier moments. True, the uniquitous sound effect synthesizers are long established — the EMS VCS3, Korg MS20 and the ARP2600 — but perhaps there's room for another? This isn't so much *Forbidden Planet* as *Untrodden Planet* — an entirely new landscape of shifting grunge, venomously sizzling snakes and hives of insane bees, all underpinned by the stertorous breath of a dying behemoth. Nor is weirdness the full tale, either: there are mad loops, flesh-rending solos and sphincter-worrying basses to be found; the S1000 could be the holy grail that dance and electronica people have been searching for all their lives without knowing it.

In truth, I can't pretend to have mastered tube synthesis in just a few short weeks, any more than I could have mastered the violin, the delayed death touch or advanced Mandarin in a similar period. But the voyage of discovery has been stimulating, electrifying and never, ever dull!

Due to the transient nature of the sounds I stumbled across, I constantly recorded the sounds I made. Ditto for the results of processing external audio through the Waveshaper, filter or VCA; these appeared to yield a never-ending supply of useable tones. Even if I can't stretch to my own Wretch, I know I definitely need some Metasonix attitude in my music. Indeed, before this review was complete I'd ordered one of the TM series of pedals and expect more to follow. As the range includes tube oscillators, waveshapers and filters, they could be viewed as a poor man's S1000. Granted, LFOs and envelopes would need to be sourced from elsewhere, but as these are probably the least vital component of the Wretch anyway, this may not be too limiting.

For many, the constant battles to produce an actual tune might be too much. As Eric would probably say: buy a Triton, you LOSER! At times it felt like the poor Wretch might have been broken or was just being deliberately obtuse, but if this is broken we should definitely break more things! And the various design annoyances, such as the dodgy joystick or the over-protective protective cover were irksome on a synthesizer in this price range, but somehow pale into insignificance in the grand scheme of things.

I'll come clean and admit that I approached this review from completely the wrong perspective. I'd heard some of the MP3 demos and sniggered at Metasonix product names like Butt Probe, Scrotum Smasher and Fucking Fucker. Somehow I was left with the feeling that Metasonix were in the lingering throes of some kind of adolescent rebellion and not to be taken seriously. I now realise that nothing could be further from the truth.

I've been able to dust off a fresh batch of adjectives for this review, but more importantly I've been challenged to think again about what constitutes synthesis and electronic music. If you believed that the whole range was covered by Bob Moog at one end of the spectrum and slick Japanese workstations at the other, you really need to check out some of the rasping power of tubes for yourself. Ultimately, the Wretch Machine will be loved not in spite of its imperfections but because of them! SOS

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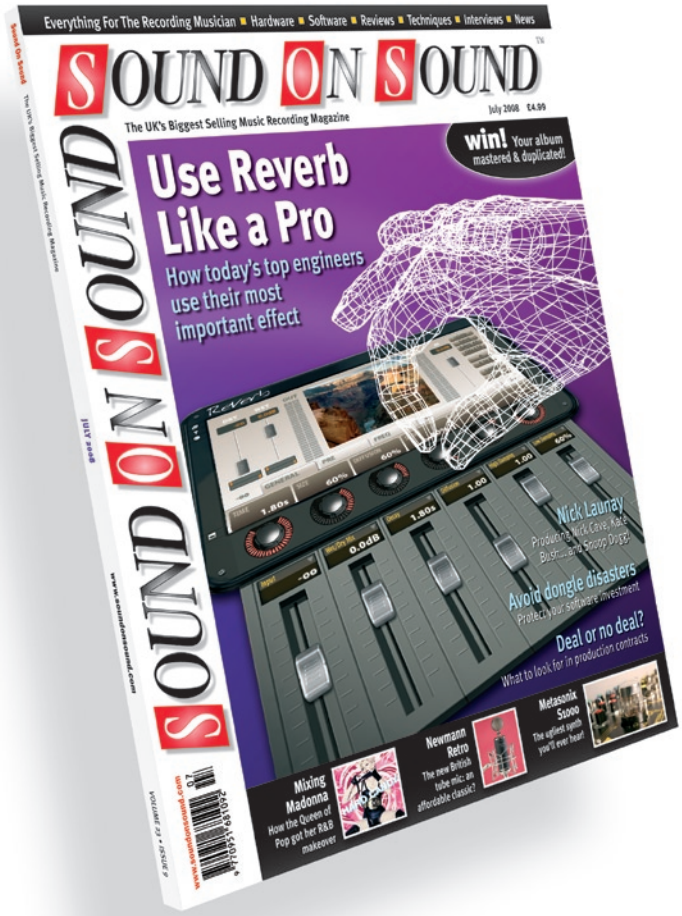

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