

MOTAS-6

SYNTHESIZER

Guide to patch bank #4

document version 1.00

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1 Patch Bank #4

This is a guide to 50 patches which are pre-loaded into patch bank #4. If you don't have these patches for your **MOTAS-6** (e.g. because your unit was created before this bank was released) they can be downloaded from <https://www.motas-synth.uk/downloads.html>

Each patch will be listed in turn and some of the settings used to create the sound are explained. Actual screenshots from **MOTAS-6** are shown for the summary page for each patch and for selected parameters pages.

The motivation is to give some insight into how different sounds can be generated, showing off the many sound-creation features. This should be particularly helpful to the new user.

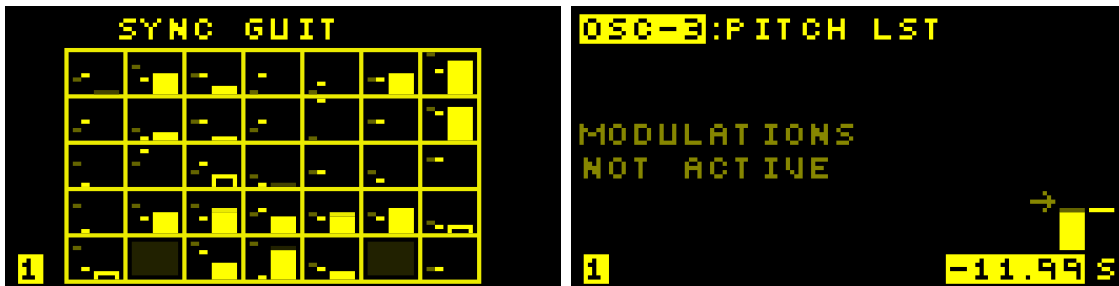
You can watch a short video demoing every patch in the bank at: <https://youtu.be/8Qod3Cque7Y>

Each patch in this document has a web-link to a short sample of the patch (recorded directly without external effects), so you can get an idea of the sound without having a **MOTAS-6** to hand. Alternatively you can visit <https://www.motas-synth.uk/patchBank4.html> to access the same samples and play them from there.

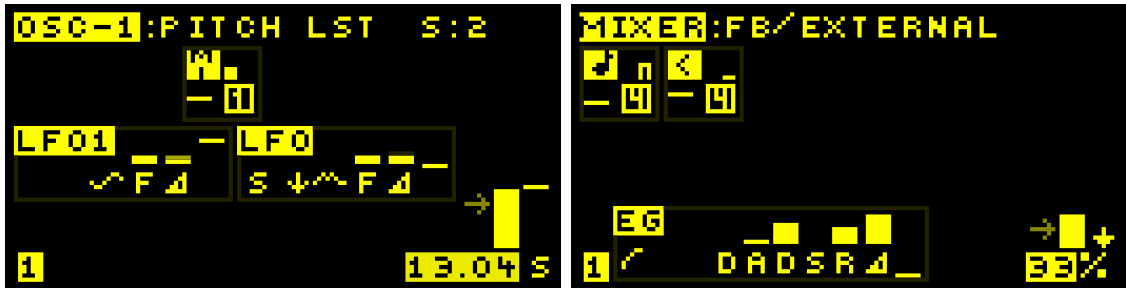
1 SYNC GUIT



This patch uses multiple oscillator sync and the internal feedback loop to create an unusual oscillating electric guitar-like tone as each note is played.



Oscillator 3 is pitched at -11.99 semitones and sets the basic frequency of the patch. Oscillator 2 is set to hard-sync to oscillator 3 and has pitch modulation from its dedicated EG, changing its waveform shape over time. Oscillator 1, in turn, is hard-synced to oscillator 2 and has pitch modulation from global LFO1 and its dedicated LFO also changing its waveform output over time. Additionally, the PWM is modulated on oscillator 1 using its dedicated EG.



The pulse wave from oscillator 1 and sub-square wave from oscillator 2 is mixed and fed into all three filters (direct output of oscillator 3 is not used). The dedicated EG and LFO on output of low-pass filter 2 applies modulation to the level. The high-pass filter has its dedicated EG providing increase in volume over time (giving increasing brighter tone). The resonance amount of low-pass filter 1 has its dedicated EG changing over time too.

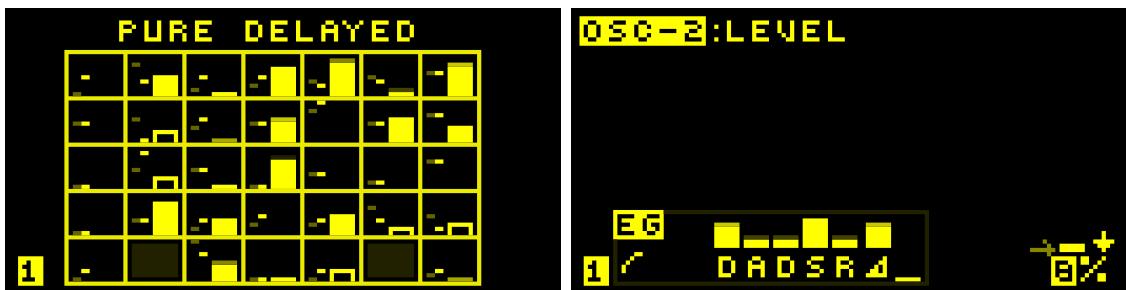
The feedback input has its dedicated EG applied to give an initial feedback-sound. Note and velocity are also mapped to control the rate of the dedicated EG (using the secondary modulation setting). This means lower notes have a slower feedback effect over time.

The final output has its dedicated EG providing a simple gated profile.

2 PURE DELAYED



This a warm sounding patch which plays a mini 3-note 'tune' with each key press.

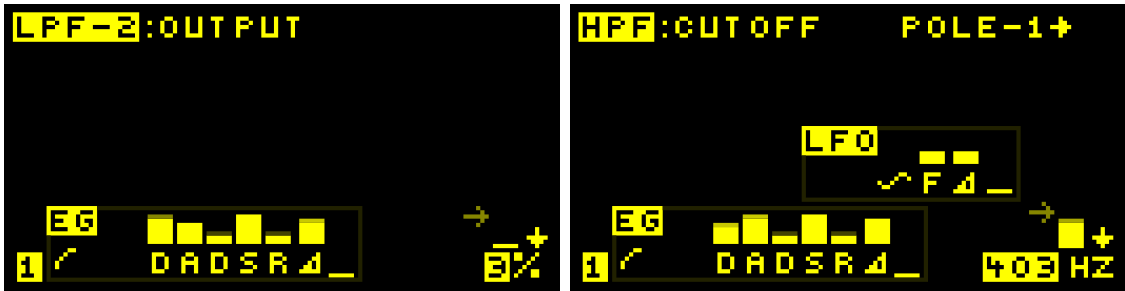


All 3 oscillators have different pitch offsets and the outputs levels of oscillators 2 and 3 have dedicated EGs with delay times set to create the effect of a tune being played.

Input levels to the mixer are quite high to give some warm saturation from a mix of mainly triangle waveforms with some saw and pulse.

The dedicated EG on the output of low-pass filter 2 gives increasing harmonic output as the note sustains. The high-pass filter cut-off has a dedicated LFO and EG modulating the frequency to give a varying brightness to the sound.

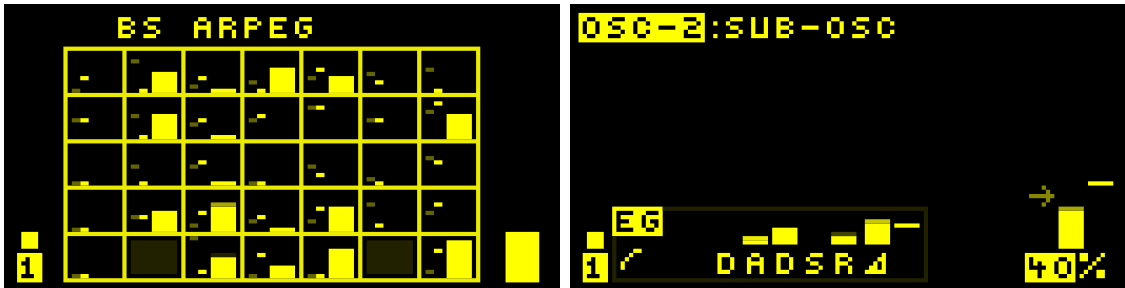
Higher note velocity increases the cut-off frequency of low-pass filter 1 to give a brighter tone using dedicated modulation setting.



3 BS ARPEG

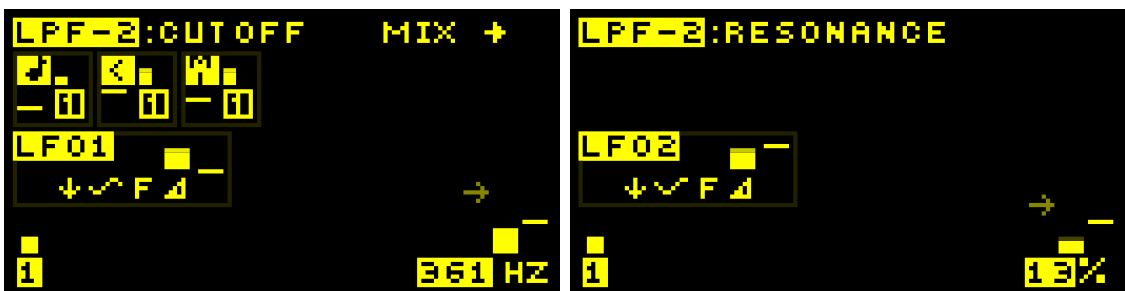


This patch is a bass sound with arpeggiator setup to play simple 16th notes over 1 octave in “up2” mode - this means each note is played in the order in which the notes are pressed and held in the chord.



Oscillators 1 and 2 are used, including the sub-square waveform on oscillator 2. The amplitude of the sawtooth of oscillator 1 and the sub-square is modulated with dedicated EGs to give a timbre changing with key press.

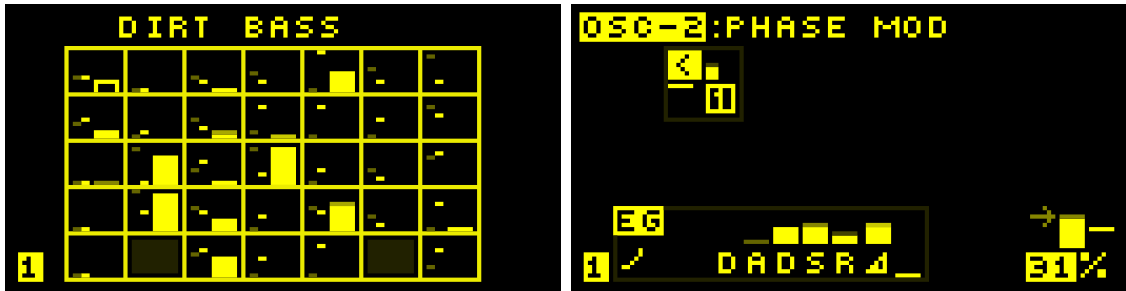
Note pitch as well as the global modulator M1 and a dedicated EG are used to modulate the low-pass filter 1 cut-off. Resonance is applied to low-pass filter 1 with a dedicated EG too. The output of low-pass filter 2 is also used, mixed in parallel with low-pass filter 1. Low-pass filter 2 has resonance with LFO modulation. The cut-off freq. and resonance amount is also modulated by global LFO 1 which is synced to key press.



4 DIRT BASS



This bass patch uses analogue phase modulation giving complex harmonics in the attack of the sound.

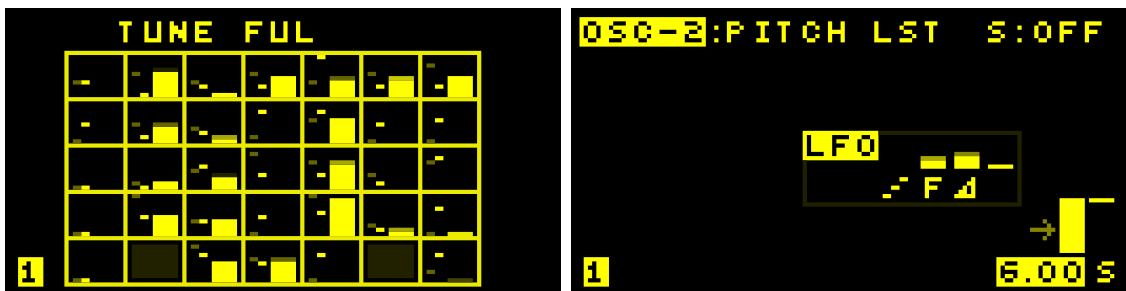


Oscillator 1 phase-modulates oscillator 2 which in turn phase-modulates oscillator 3. The amount of phase modulation is modulated by key velocity as well as from dedicated EGs. Only the triangle waveform from oscillator 3 is fed to the mixer but this waveform is strongly modified from the chain of phase-modulation. Only low-pass filter 1 is used with the steepest -36dB output. Filter cut-off is modulated from velocity, M1 and a dedicated EG.

5 TUNE FUL

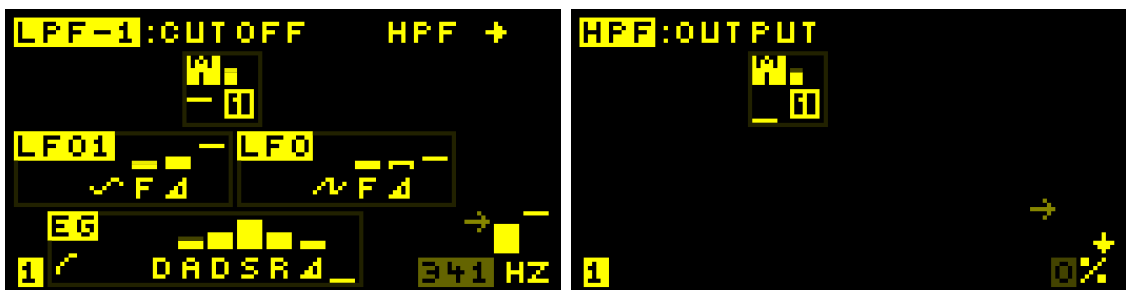


This mellow patch uses separate LFOs for pitch control on oscillators 2 and 3. The LFOs are independent but both set to a 3-step waveform. As a note is held a pleasant "tune" plays out.



The main sound is processed through low-pass filter 1 with dual LFO modulation of the cut-off frequency and EG and M1 modulation.

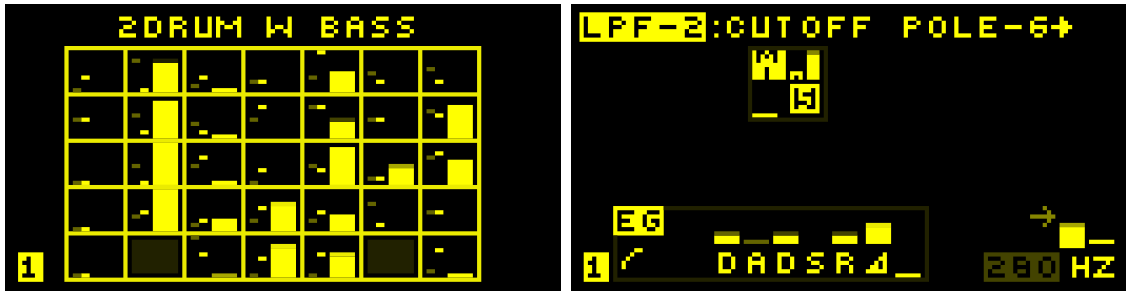
The high-pass filter output is normally silent but modulator M1 controls the output to bring in higher harmonics and so more "fizz" to the sound.



6 2DRUM W BASS



This patch uses multiple EGs to create an unusual double-click sound on key press.

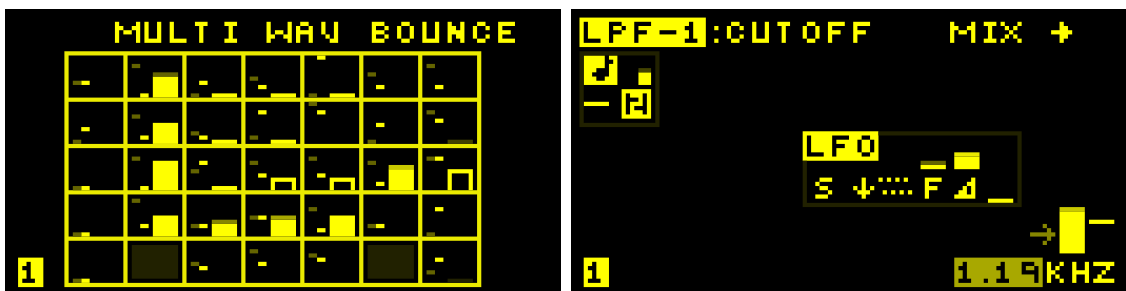


The dedicated EG on low-pass filter 2 cut-off frequency has a delay, as has the resonance. Modulation M1 is assigned across low-pass filter 1 and low-pass filter 2 changing the nature of the sound. Higher values give a more pronounced “drum” sound whilst low values give more of a “click”.

7 MULTI WAY BOUNCE

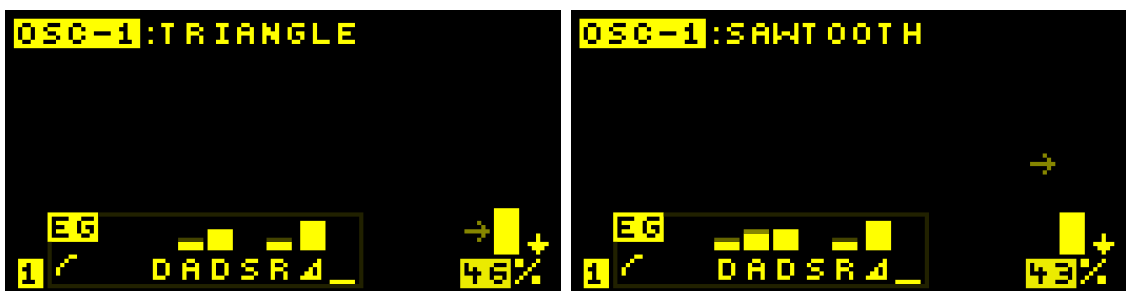


This patch uses the “burst2” LFO waveform on low-pass filter 1 cut-off and resonance to create a pulsating sound.



Note value is set to modulate the frequency of the dedicated LFOs (via the secondary destination option). This means the pulsating sound is faster when played at higher pitch notes.

The waveforms in use change in time thanks to use of the dedicated EGs on each waveform page, each with different ADSR profiles. This gives the sound a changing timbre “wavesequencing” effect.

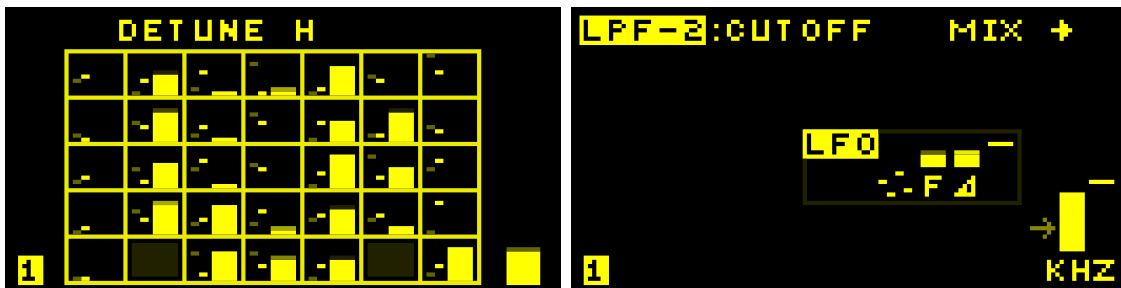


8 DETUNE H



This patch has separate EG modulation of each oscillator pitch giving a detuned effect on each key press.

A dedicated LFO set to S+H waveform modulates the cut-off frequency of low-pass filter 2 whose output is added to that from low-pass filter 1 to the output.



9 CRAZY SHT



This patch was created using the randomise feature (on the COPY page), with a high depth setting and so is rather erratic!

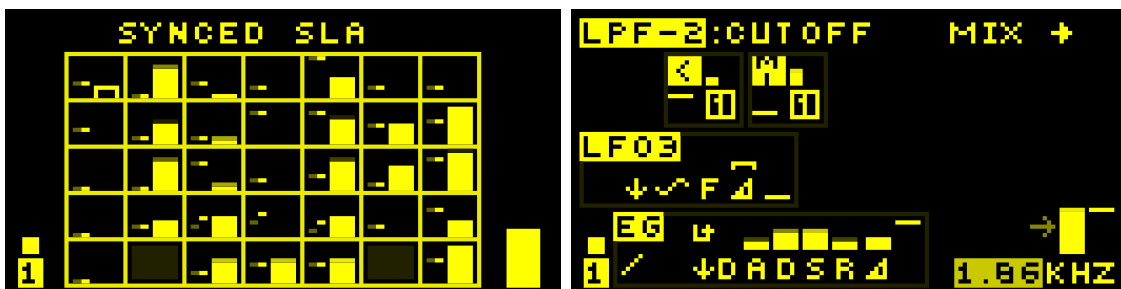


The sound varies wildly according to note value, modulators M1 – M4 and velocity. But often has an echoey bursty character, sometimes with crackle and noise.

10 SYNCED SLA



This patch uses the arpeggiator and global LFOs set to sync to the clock modulating low-pass filter 2 cut-off frequency, resonance and output. The same global LFOs also modulate oscillator 2 and 3 outputs to the pre-filter mixer. Global LFO4, also synced to clock, modulates oscillator 2 sub-square and oscillator 3 pulse output levels to the mix.

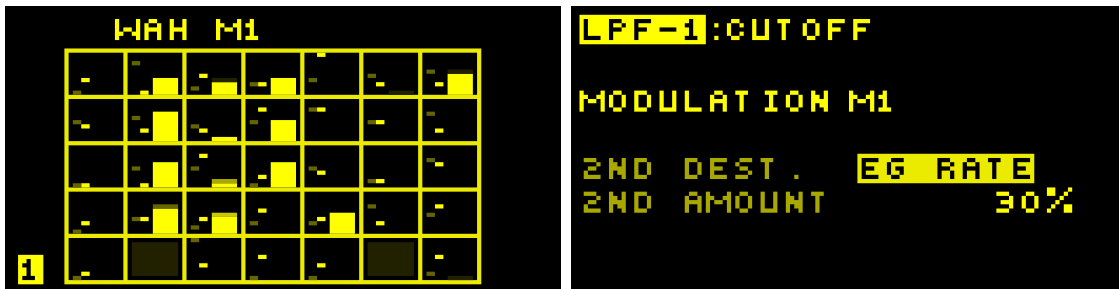


11 WAH M1



Modulator M1 controls the rate of the EG on the low-pass filter 1 cut-off frequency. At higher values the EG times are stretched producing a slower evolution of the sound whilst at low values the sound is more percussive.

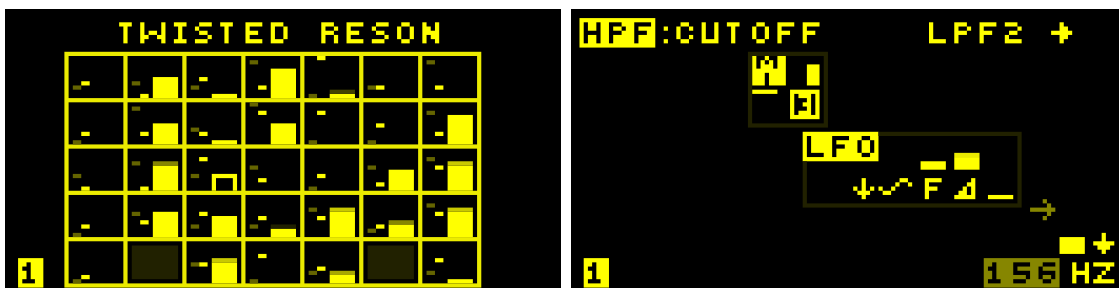
Analogue phase modulation of oscillator 2 is used, with a dedicated EG, to give a change of tone over time as each key is pressed.



12 TWISTED RESON



This patch uses an unusual filter resonance routing: the output from low-pass filter 1 pole-6 is fed to the input of low-pass filter 2, and its output is fed to the input of the high-pass filter. The resonance to low-pass filter 1 is taken from the output of the high-pass filter!



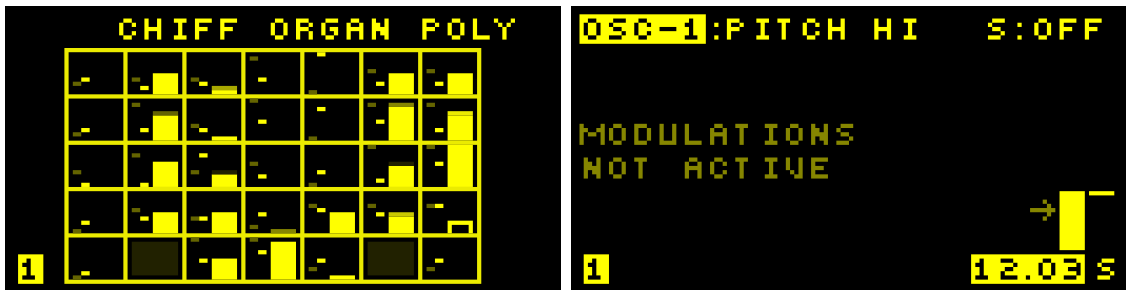
Modulator M1 controls the dedicated LFO amount level which in turn modulates the cut-off frequency of the high-pass filter which, due to the complex routine, also affects the resonance character of the sound.

13 CHIFF ORGAN POLY



This patch is an organ-style sound with a "chiff" sound provided by low-pass filter 2 on each key press. The main sound is processed through low-pass filter 1.

The 3 oscillators 1, 2 and 3 are set to individually track highest, middle and lowest respectively. However, since the pitches of the oscillators are also offset from each other by octaves the chord produced will not always sound as might be expected!



Modulator M1 controls the level of LFO modulation of the master pitch.

14 DUEL ON THE M1



M1 controls the rates of the dedicated EGs for low-pass filter 1 and low-pass filter 2 cut-off frequency. These EGs are both set in “loop” mode and so as a key is pressed they generate a repeating output like that normally obtained from an LFO.

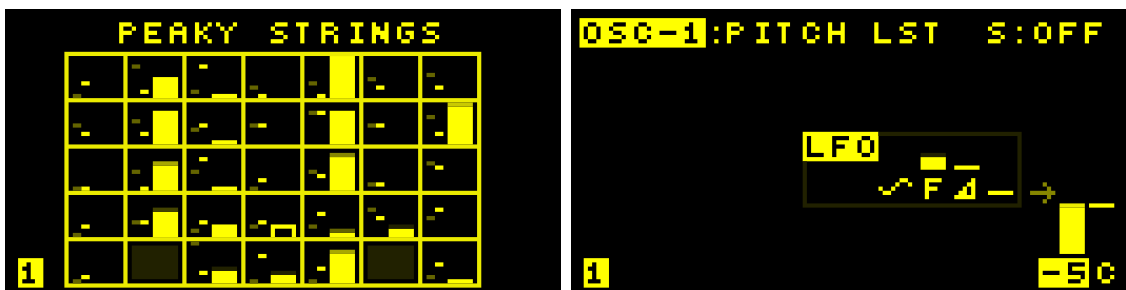


The sound is a pulsing ‘laser’ type effect with variable repetition rate depending on the modulator M1 value.

15 PEAKY STRINGS



Chords can be played with this patch. Oscillator 1 tracks the last note whilst oscillator 2 tracks the lowest and oscillator 3 the middle.

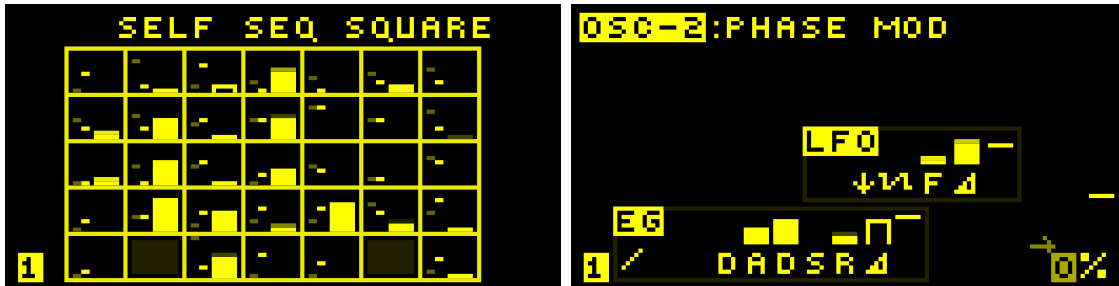


Both low-pass filters are used here, and both have resonance giving a “thinner” string sound. The dedicated LFO on oscillator 1 pitch gives a detuning effect against the other 2 oscillators.

16 SELF SEQ SQUARE



The basic sound in the background is a hollow sounding triangle wave but as each key is held analogue phase-modulation on oscillator 2 comes in using modulation from the dedicated LFOs and EGs. The sound sweeps and becomes bell-like in tone.

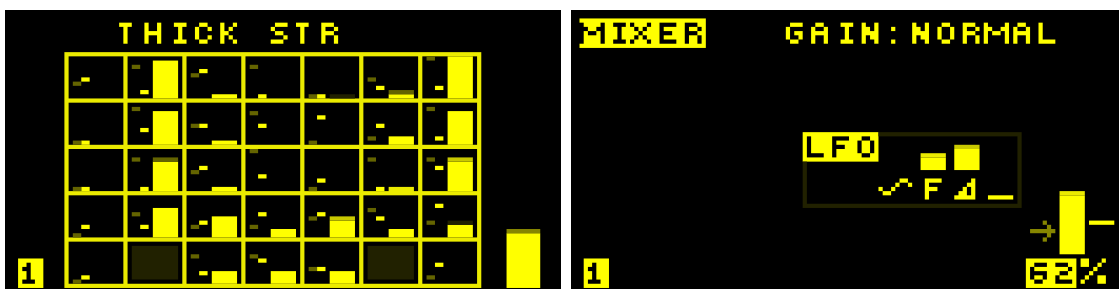


Modulator M1 controls the low-pass filter 1 cut-off frequency to modify the harmonic content of the sound.

17 THICK STR



This patch uses pulse waveforms from oscillators 1 and 3 with the sub-square wave from oscillator 2. The pulse wave widths are modulated with dedicated EGs to sweep the sound on key-press.



A dedicated sine wave LFO modulates the overall mix level giving a tremolo effect pre-filter. All three filters are blended together in parallel. Modulator M1 controls the brightness of the sound by controlling the cut-off frequency of low-pass filter 1 whose output (from the 1st pole) feeds into the high-pass filter.

18 METAL EDGES



Metallic, noisy sounds are generated with this patch making use of analogue phase modulation and oscillator sync. Oscillator 2 (with dedicated single-shot LFO pitch sweep) is hard-synced to oscillator 3 which is phase modulated from oscillator 1. The relative pitches of the oscillators are set to produce a harsh discordant sound.

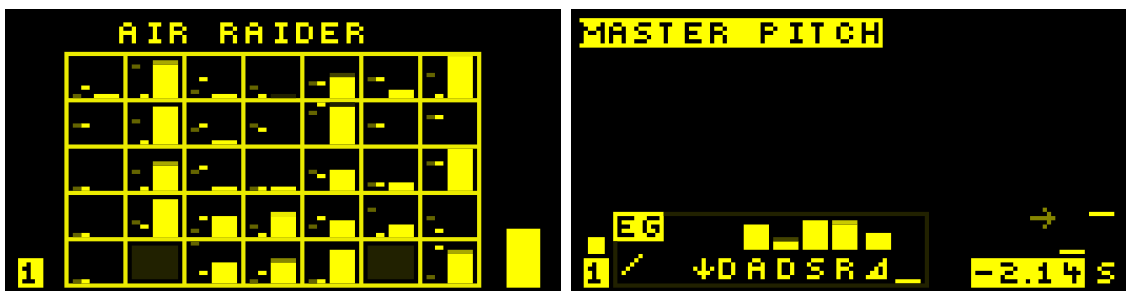
The audio mix passes first through the high-pass filter and then into the low-pass filter 1 with some resonance. The modulator M1 controls the brightness of the sound via cut-off frequency of low-pass filter 1.



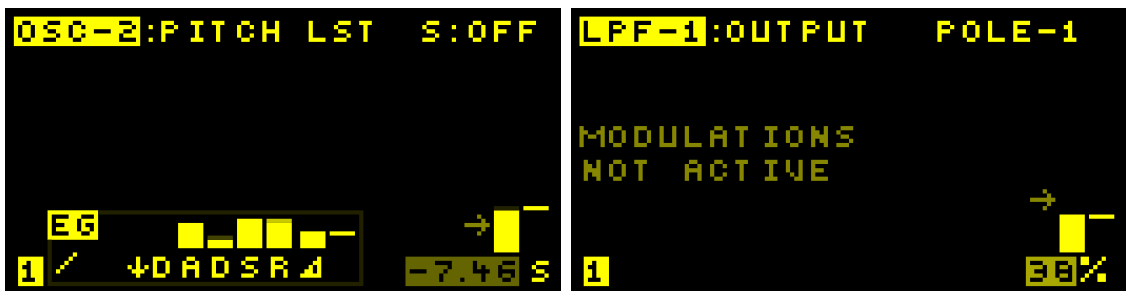
19 AIR RAIDER



This patch recreates a classic air-raid siren sound.



The master pitch is configured with its dedicated EG to give an overall pitch bend on each new key press. In addition oscillator 2 has its own EG applied so its pitch bend is even greater (summed with the master pitch bend). The 3 oscillators are offset in pitch to match the characteristic sound of a siren. Dedicated LFOs are applied to oscillators 1 and 3 to give a little pitch drift simulating the wavering pitch of an air raid siren.



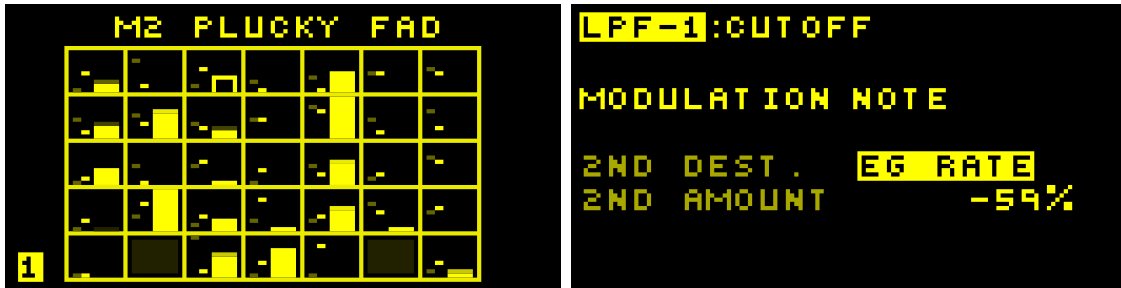
The waveforms in the mix are sawtooth and short-pulse waves from the 3 oscillators to give plenty of harmonics.

A blend of both low-pass filter outputs is used. low-pass filter 1 is set to the 1-pole output to give a bright sound with its resonance set to 54%. low-pass filter 2 resonance is set to 52 %.

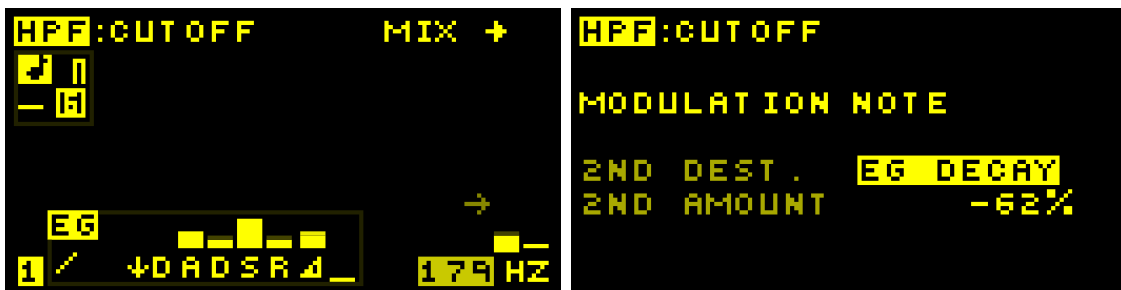
20 M2 PLUCKY FAD



This patch has a plucked/piano style sound which can be varied with modulators M1 and M2. Higher notes have a shorter envelope thanks to use of secondary modulation (negative) on the low-pass filter 1 and high-pass filter cut-off to control the dedicated EG rates and decay times.



Increasing modulator M2 brings in the phase modulation amount on oscillator 2 making the sound more full and complex.

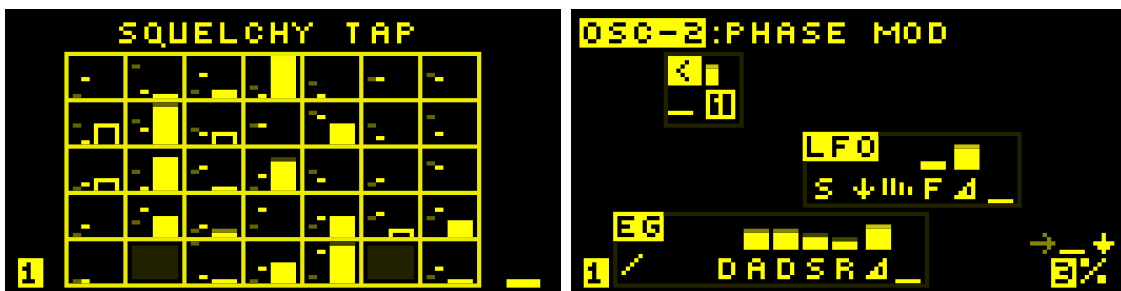


21 SQUELCHY TAP

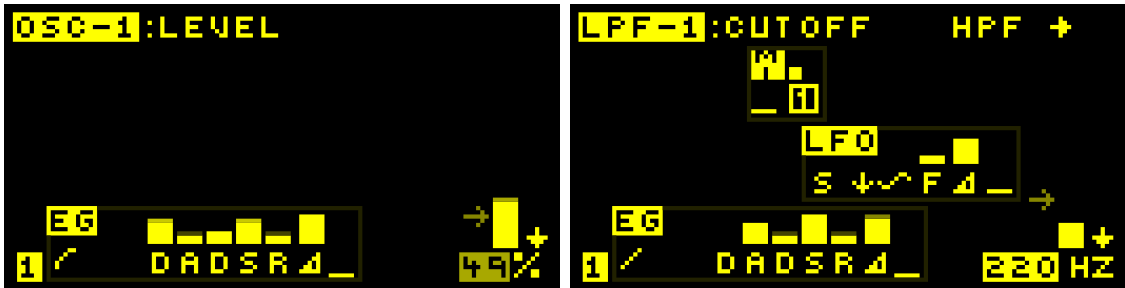


This complex patch starts with a hollow burst of sound with phase modulation on oscillator 2 with modulation from the dedicated LFO set to the 'retard' waveshape, together with EG modulation too.

After ~1.5 seconds a further tone comes in thanks to use of the dedicated EG with delay on the oscillator 1 level.



All three filters are used with modulation on all three cut-off frequencies from their dedicated EGs and additionally some LFO modulation on low-pass filter 1.

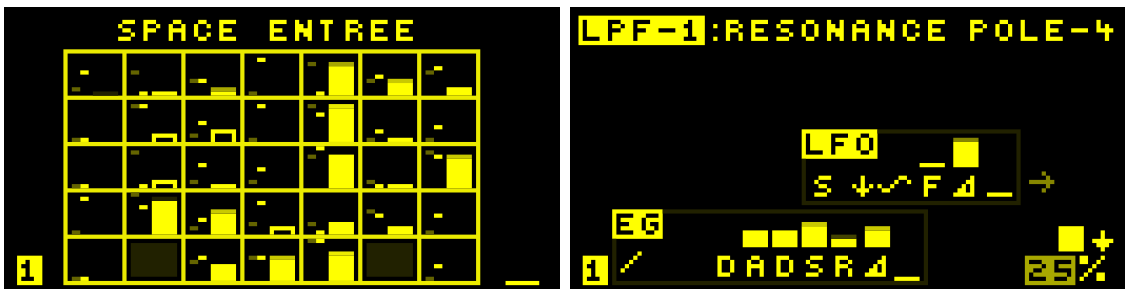


22 SPACE ENTREE



This spacey sounding patch uses dedicated EGs in 'loop' mode on the three oscillator output levels giving a pulsing sound. Also, global modulator M1 is set to modify the rate of these EGs. Dedicated EGs on oscillator 1 and 3 give a pitch sweep with key press.

A slow, synced LFO on the low-pass filter 1 resonance thins the sound over time making it sound more 'distant', then returning.

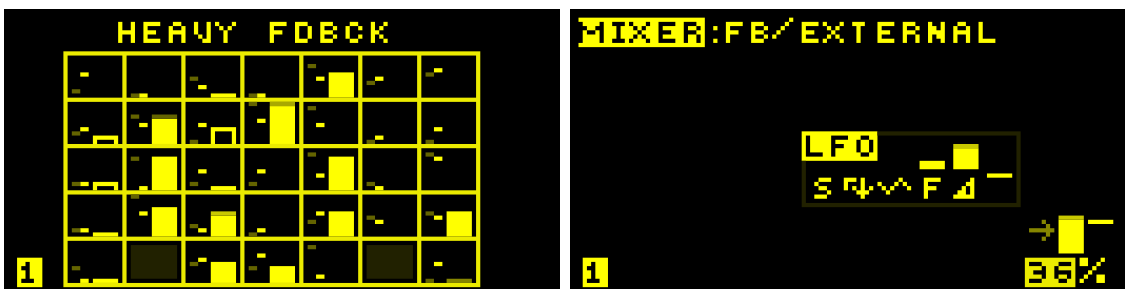


23 HEAVY FDBCK



This patch uses the 'boost' mode in the mixer to distort the waveforms before the filters. Phase modulation is used in a daisy chain: oscillator 1 modulates oscillator 2 which is turn modulates oscillator 3.

Global modulation source M1 is setup to modulate the pitch of oscillator 1 so the timbre of the sound changes (but not the basic pitch, since the direct output of oscillator 1 is not used – it is only used as a phase modulation source).



The feedback/external input level is modulated with a dedicated LFO. For this patch don't plug in input

into the rear audio input socket so that the feedback path is internal. The dedicated LFO is set in single-shot mode and so the feedback comes in and then fades out as each new key is held.

The final output is set to soft-clip adding to the distorted sound effect.

24 CUTE PING



Global modulator M1 controls the output level of low-pass filter 2 whose input is the analogue noise source. As value of M1 increase the a clicky, noisy tone to the sound is increased.

Note and velocity modulation scale the low-pass filter 1 cut-off frequency, getting brighter with higher note or velocity.



25 GALACTIC CHAT



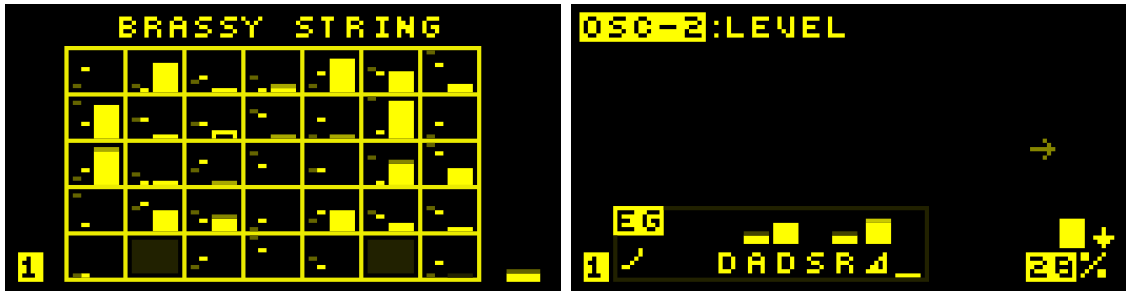
This is another patch created using the randomise feature (on the copy page interface). The sound varies greatly with note value but often sounds quite spacey – hence the name.



26 BRASSY STRING



This patch has a sharp brassy attack that quickly fades to a mellow tone. Dedicated EGs are used on the oscillator 2 and 3 mix levels leaving oscillator 1 only over time. Dedicated EG and global modulator M1 controls the low-pass filter 1 cut-off frequency changing the brightness of the sound.



27 YAHY CHORAL



This patch has a human voice quality. Sawtooth waveforms from all 3 oscillators are mixed together.

Careful setting of the resonance amounts and cut-off frequencies of the low-pass filter 1 and low-pass filter 2 simulate the formants heard in the human voice. The output from low-pass filter 1 is fed into the input to low-pass filter 2 with the cut-off frequencies of both filters modulated by dedicated EGs in opposite directions - this simulates the change in cavity volume of the mouth as words are spoken.



Modulators M1 and M2 vary the timbre of the sound by modulating the cut-off frequencies of low-pass filter 1 and low-pass filter 2.

28 MOTAS TALK



Another patch with a somewhat human-voice quality. Global LFO1 modulates (in opposite directions) the cut-off frequencies of low-pass filter 1 and low-pass filter 2.



29 YAHY



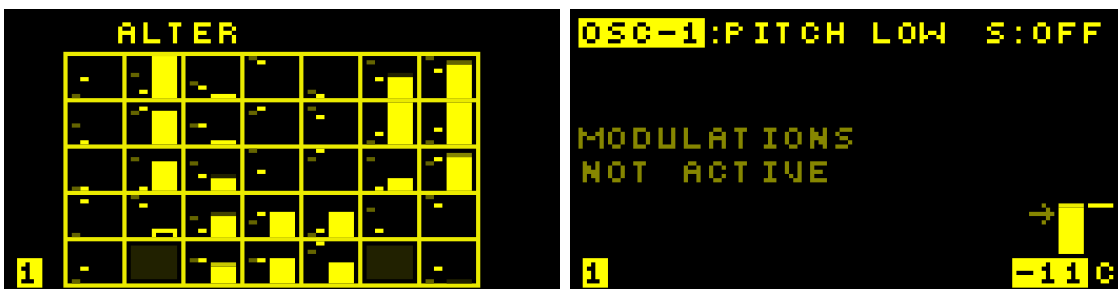
This patch has a human voice quality similar to **27 YAHY CHORAL** but using only oscillator 1 for a less rich sound.



30 ALTER



This patch is a sort of aggressive organ sound. All three oscillators are used with their note assignment set to **LOW**, **MID** and **HI** allowing paraphonic chord playing.



31 EVIL BEES



This patch sound like the buzzing of bees with a repetitive gently burst of noise similar to the sound of a scratch on a vinyl record - this is from dedicated LFO modulation of the high-pass filter output level.

The buzzing effect comes from use of noise and S+H waveforms on dedicated LFOs on low-pass filter 1 cut-off and feedback signal amplitude.



32 TB ACID #1



This acid-style patch uses only low-pass filter 2 - the ladder filter, with resonance modulated by note and velocity.

Legator portamento is set up to give pitch bending when multiple notes are held down (see setup page #1).

At low global modulator M1 settings this patch uses only oscillator 1 (mix of sawtooth and square pulse), increasing M1 brings in oscillators 2 and 3. Modulator M2 modifies the low-pass filter 2 cut-off frequency.



33 TB ACID #2



This patch is a variant on patch **32 TB ACID 1** with modified filter settings.



34 FULL POWER



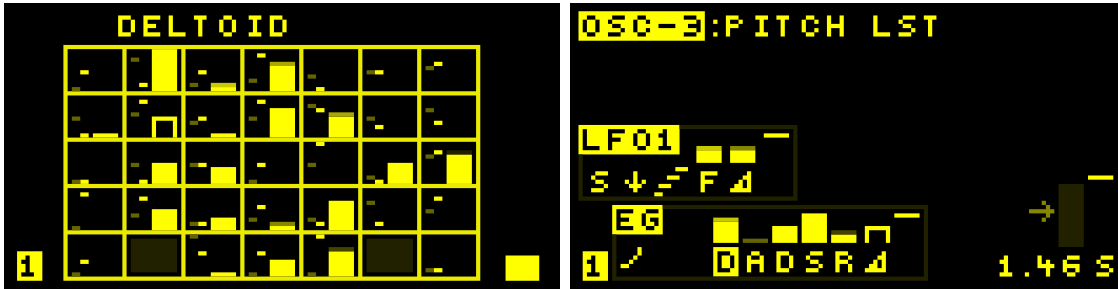
As the name suggests, this patch uses all three oscillators at high gain settings with all waveforms engaged. This gives internal clipping effects that drift as the oscillator phases drift, giving a characteristic powerful sound.



35 DELTOID



This patch uses global LFO1 set to single-shot with a 4-step waveform modulating the pitch of oscillators 1 and 3. A delayed EG on the pitch of oscillator 3 drops its pitch after ~1.5 seconds. The overall effect is a tuned brief sequence of notes with a background drone.



36 INT FLOAT



The patch has oscillators 2 and 3 tuned to 3 and 7 semitones away from oscillator 1 giving a minor chord strings sound on each note press.

Key velocity modulates the dedicated LFO rate on the low-pass filter 1 cut-off frequency.



37 POLY BRAZ



This patch has the 3 oscillators set in paraphonic note tracking mode allowing chord playing. The sound is a brassy/strings effect with attack.



38 T85 ACID



This "acid" sound patch is using only the pulse waveform of oscillator 1 (set to 50% and so a pure square wave) until global modulator M1 is increased bringing in waveforms from oscillators 2 and 3 as well as increasing the cut-off frequency of low-pass filter 2.



39 TB6 ACID



This patch is a variant of **38 TB5 ACID**.

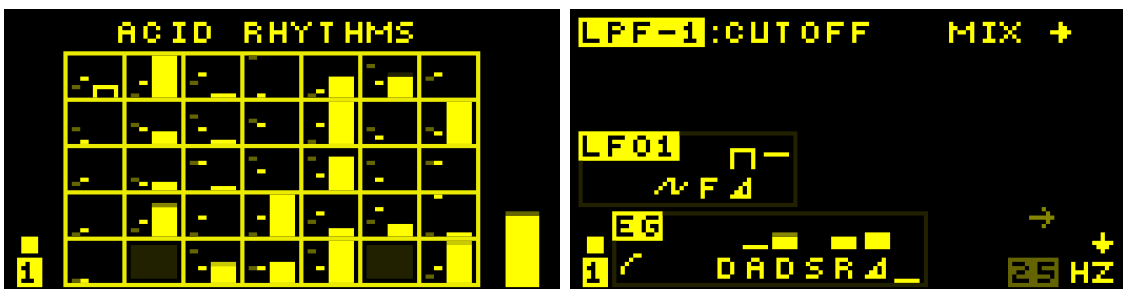


40 ACID RHYTHMS

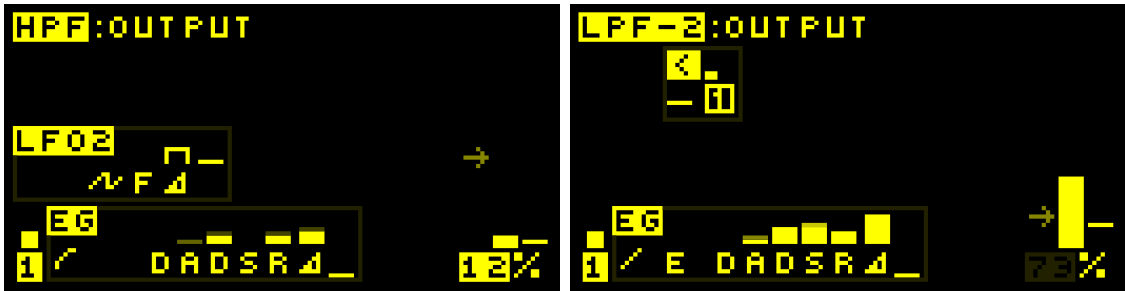


This is a rather unusual patch that produces a tune, bass drum and high-hat sound in one patch! This patch has the arpeggiator set to play 16th notes over 3 octaves. Global LFOs which can be synced to clock are used to play the percussion effects in time with the arpeggiator.

The main tuned notes are via low-pass filter 2. High resonance settings and global LFO1 synced to clock modulates the cut-off frequency of low-pass filter 1 giving the bass drum sound.



The analogue noise source is routed to the high-pass filter and global LFO2 (sync'd to clock) modulates the output of this filter to give the high-hat sound.



Try adjusting the various filter settings to change to sound of the components in real time.

41 PHASE M DRIFTER

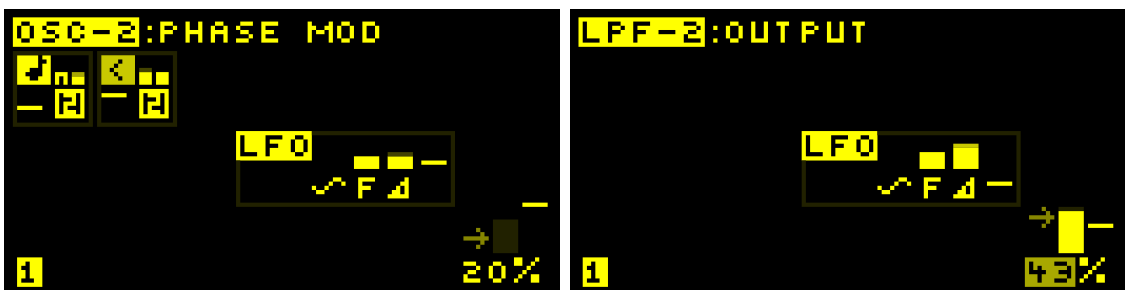


Phase modulation is used on this patch with oscillator 1 modulating oscillators 2 and 3. The pitch offset of oscillator is set quite low at -26 semitones and dedicated EG and LFO provide pitch modulation to this oscillator. This gives a slightly growl-like sound.

Mostly the triangle waveforms are used from oscillators 2 and 3 which give the most interesting timbre change when phase modulation is used. This is because they have naturally low levels of harmonics when the modulation is low, increasing with modulation amount.



Note and velocity modulation are applied to the phase modulation amount for oscillator 2 as well as modulation of the dedicated LFO frequency which also modulates the phase modulation with a sine waveform. So pressing notes harder and higher up the keyboard give faster LFO modulation.



The 2nd pole output of low-pass filter 1 is fed to the input of low-pass filter 2 and its output is mixed with that from low-pass filter 1 with LFO modulation of amplitude giving a slight tremelo effect in the background.

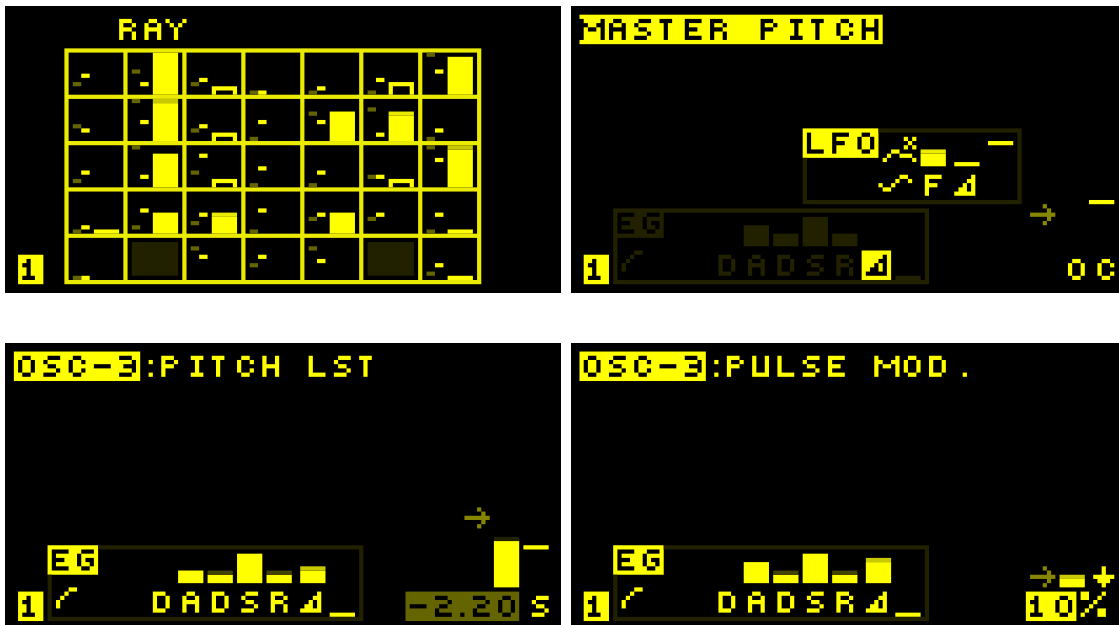
42 RAY



This patch has master pitch modulation from a dedicated LFO. But this LFO is set to have amplitude modulation from the dedicated EG. This gives a vibrato effect that grows from zero with each key press, following the profile of the EG.

This patch also has separate EGs applied to all 3 oscillators for a fast pitchbend with each key press.

A slow EG modulation of PWM is applied to oscillators 2 and 3.



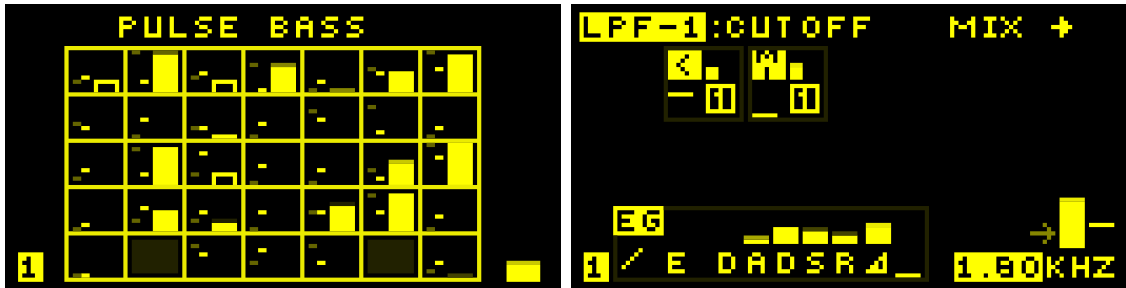
The output is a mix of the low-pass filter 1 and the high-pass filter with a little LFO modulation on the high-pass filter output.

43 PULSE BASS



This powerful bass sound uses the pulse wave outputs from oscillators 1 and 3. PWM modulated by dedicated EGs and LFO (on oscillator 3) is used to get a transitory sweep of harmonics with note press. Using the 2 oscillators gives a meaty detuning sound.

Modulator M1 controls the cut-off frequency of low-pass filter 1 making the basic sound brighter or more mellow. At low settings the additional EG and velocity modulation give the sound a punchy attack with each keypress. The EG here and on the final output is set to trigger on every note so if notes are held and pressed the EG fires again each time allowing playing style to have overlapping notes.

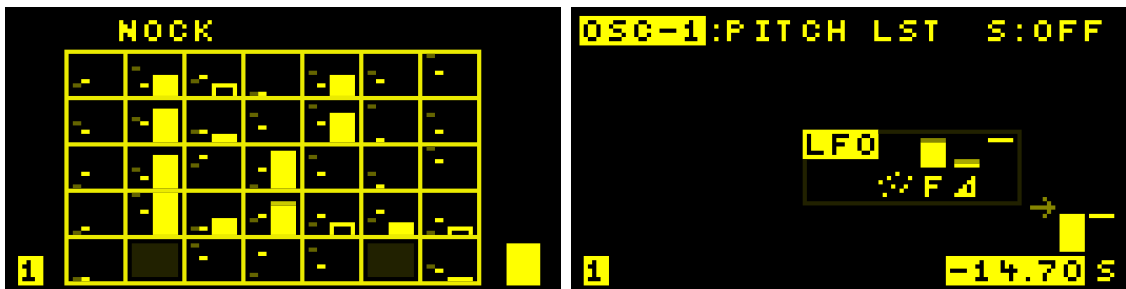


44 NOCK



As the name suggests, this patch has a 'knocking' percussive sound mainly from the sawtooth waveform of oscillator 2 through the low-pass filter 1 with a high resonance setting. The cut-off frequency of low-pass filter 1 is modulation by note at a setting of +1 octave so the resonance tracks with note pitch.

Using dedicated LFOs set to the NOISE waveform modulating the pitch of oscillators 1 and 3 gives a background noise character to the sound.



45 VELOCITY ORGAN



An interesting use of velocity and oscillator sync here. Oscillator 3 is the main pitch of the sound with oscillator 1 set to hard-sync to oscillator 3 and oscillator 2 set to hard-sync (in turn) to oscillator 1. Velocity modulation is applied to the pitch of oscillators 1 and 2. This means as the key press velocity changes so does the timbre of the sound, over a range of organ-style sounds.

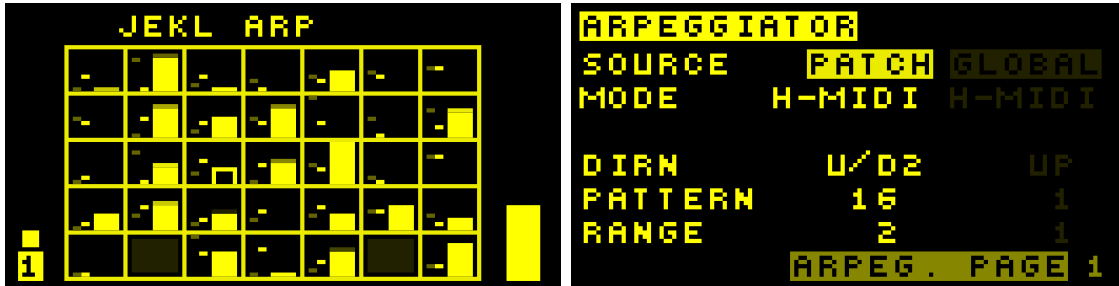
Additional velocity and global modulator M1 modulates low-pass filter 1 cut-off frequency to further vary the timbre of the patch.



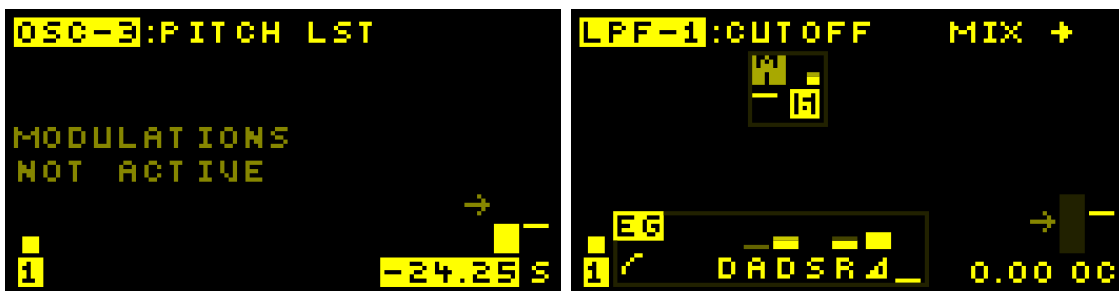
46 JEKL ARP



This patch uses the arpeggiator and has master pitch modulation from a dedicated LFO synced to note-on press. The LFO gives a slow pitch shift over time that resets with each key press. The outputs of all three oscillators are mixed with their pitch offsets at 0, +35.99 and -24.25 semitones giving a wide-ranging simultaneous tone.



Modulator M1 is set to modify the EG decay rate applied to the low-pass filter 1 cut-off frequency, so at low M1 settings the sound is short and plucked.



47 JEKL ARP 2



This is a variation on the previous patch [46 JEKL ARP](#)



48 WAVE BLEND



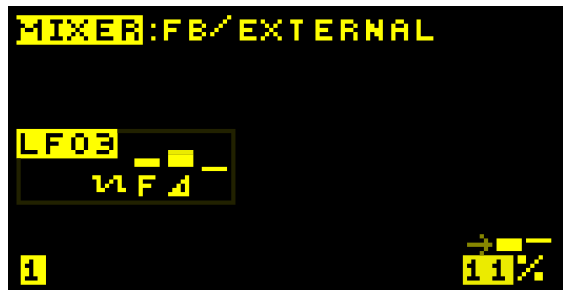
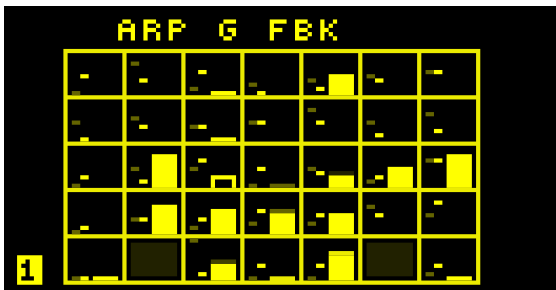
This is a rich strings sounding patch. Oscillator 1, 2 and 3 sawtooth and pulse/square waves are blended together in this patch with dedicated LFOs modulating the levels of each waveform. On each keypress the sound is consistent as these LFOs are set to sync/reset with all notes. As the note is held the timbre changes as the relative levels of the waveforms changes.



49 ARP G FBK



This patch uses a sawtooth LFO modulating the feedback signal to give a varying grunge to the sound. The arpeggiator is configured to play 16th notes over 2 octaves.



50 RUMBLE PANIC M1



This is another patch created using the randomise feature (on the copy page interface) with high depth settings, so the sound can vary rather extremely from note-to-note with changing velocity and modulators M1-M4.

Suffice to say that the results are interesting, often spacey and rumbling!

