BOB34

Five modular effects in one rack - a ladder low-pass, a ring modulator, a phaser, a resonant filter array and a saturator - in any order, with a PATCH BAY: three cables that take any module's envelope, an LFO or the noise to any other module's controls.

Overview

BOB34 is a rack of five effects in the spirit of a classic American range of analogue effects pedals. The sound is designed from scratch. The signal runs through the modules in the order shown on THE CHAIN strip; the ◀ / ▶ keys on each module move it earlier or later, and the number beside them shows its place.

Every module has an IN key, its own DRIVE (an input stage that warms and crunches, level-compensated) and MIX. The new part is the PATCH BAY along the bottom: three patch cables, each taking any module's envelope (or an LFO, the noise, or the level of the input itself) to any other module's controls - cutoff, resonance, carrier, sweep, rate, drive, noise, or a module's MIX. The pedals it grew from had one control-voltage jack

each; here one effect can play another - a phaser that opens with the saturator's push, a ring modulator that only blooms in the gaps between notes, a filter pattern that runs faster the harder you play.

An OS key in the header runs the whole chain at 2x or 4x for cleaner drive and ring modulation at the top end.

Order changes run the new chain alongside the old one for 40 ms and then crossfade into it, and every key fades in 10 ms, so nothing clicks. The house output stage (CLIP, ceiling -0.3 dBFS) catches overs at the end.

Reach for it for

- Envelope wah and filter funk on guitar, bass, clavinet and synths
- Ring-mod bells, tremolo and metallic textures
- Slow and jet phasing
- Rhythmic filter patterns on pads and drums (MURF)
- Saturation that reacts to your playing, with noise for grit
- Effects that react to each other: envelopes patched across the rack

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Controls

The header

PRESETS	Opens the full preset list.
◀ / ▶	Step to the previous or next preset (wrapping round).
Preset display	Shows the preset name. Click it for the preset list too.
OS	Oversampling: each click steps 1x (dark), 2x (amber) and 4x (red). The whole chain runs at that rate: smoother drive, cleaner ring modulation and resonance at the top. 1x sounds exactly as the original BOB34. Latency 0 / 31 / 37 samples, reported to REAPER.
S / M / L	Panel size: small, medium or large.
?	The design credit, the GFX website and the address of this manual.

On every module

IN	The module in or out (a 10 ms fade). A module that is out is greyed.
◀ / ▶	Move the module earlier or later in the chain; the number shows its place (1 = first).
DRIVE	The module's input stage, 0 to 10: warmth, then crunch. Level-compensated. (On the SATURATOR, DRIVE is the effect itself.)
MIX	Dry / effect for the module, 0 to 100%.
CV IN	Three jacks, one per patch cable. A jack lights in its cable's colour (A red, B amber, C blue) when that cable is patched into this module.

LOWPASS

CUTOFF	A transistor-ladder low-pass, 20 Hz to 12 kHz.
RES	Resonance, 0 to 10: it sings, and self-oscillates near the top.
2-POLE / 4-POLE	The slope: 12 or 24 dB/oct (4-pole by default).
ENV	The envelope follower's amount, -10 to +10: up to 5 octaves of sweep, up with the level (positive) or down (negative).
FAST / SLOW	The envelope's response: snappy, or slow and smooth.

RING

CARRIER	A sine carrier, 0.6 Hz to 4 kHz: low settings are a tremolo, high ones bells and metal.
RATE / AMOUNT	An LFO sweeping the carrier: 0.1 to 25 Hz, up to 3 octaves.
SQUARE	The LFO's wave: sine, or square (lit) for stepped jumps.

PHASER

SWEEP	The notches' centre, 100 Hz to 8 kHz.
RES	Feedback: sharper, more vocal notches.
6 / 12-STAGE	The number of stages (lit = 12: more notches, a jet-like sweep).
RATE / AMOUNT	The LFO: 0.05 to 20 Hz, up to 2.5 octaves. MIX at 50% gives the deepest notches.

MURF

Faders 1 - 8	The levels of eight resonant band-pass filters, lowest on the left.
PATTERN	One of 12 built-in 16-step patterns (shown in the grid): each step fires some of the filters.
RATE	The pattern's speed, 0.5 to 20 steps per second.
ENVELOPE	Each step's shape, from short and percussive to long and swelling.
BASS / MID	The filters' voicing: lower (BASS) or higher (MID, lit).

SATURATOR

DRIVE	The drive, 0 to 10.
ENV	An envelope follower on the drive, -10 to +10: above 0 the drive rises with the level (harder, expanding), below 0 it falls (smoother, compressing).
NOISE / TONE	A noise generator mixed in, with its filter, 100 Hz to 12 kHz.
NOISE HP	The noise filter: low-pass, or high-pass (lit).

PATCH BAY

Three cables, A, B and C. Each one carries a control signal from a source to a destination; nothing is drawn between them, the boxes say where each cable goes.

Jack lamp	The cable's letter in its cord colour. It glows with what the cable is carrying, so you can see an envelope pump or an LFO swing. Dark = unpatched.
FROM	Click for the list of sources: OFF, INPUT ENV (the level of the signal coming in), LP ENV, RING ENV, PH ENV, MURF ENV, SAT ENV (each module's own envelope, taken where the signal enters it, so a module patched to itself never feeds back), RING LFO, PH LFO and NOISE. A cable on OFF is greyed.
TO	Click for the list of destinations: LP CUTOFF (up to 4 octaves), LP RES (up to 5), LP MIX, RING FREQ (4 octaves), RING MIX, PH SWEEP (3 octaves), PH RES (5), PH MIX, MURF RATE (2 octaves), MURF MIX, SAT DRIVE (12 dB, level-matched: more grit, not more level) and SAT NOISE. A patched resonance stops at 8, short of self-oscillation, unless the knob is already higher.
AMOUNT	-100 to +100%. Below 0 the cable works upside down: an envelope that closes a filter instead of opening it, a mix that falls as you play harder.
LAG	0 to 100%: slows the cable down, from 20 ms (at 0, an envelope's ripple and drum hits are just smoothed off) up to 2 seconds. With an envelope it swells in and lets go slowly; with an LFO it rounds the wave off.

Cables that land on the same control add up. Changing a cable's FROM or TO fades it out and back in (10 ms), so repatching while the track plays never clicks.

THE CHAIN and OUTPUT

THE CHAIN	Shows the order the modules run in; modules that are out are dimmed.
STEREO	Lit: the ring carrier's right side runs 90° ahead, the phaser's right LFO is inverted, MURF's filters split left / right and the noise is inverted on the right. Unlit: everything mono-linked.
LEVEL	The output, -12 to +12 dB, with the output meters beside it.
DRIFT	See DRIFT below (50% by default).

Knobs: drag up or down (Shift for fine moves) or use the mouse wheel; double-click to reset a knob to its default. A knob's value replaces its name while you touch it.

DRIFT

DRIFT is filter tuning, LFO rates and the patch bay's supply: the ladder's and the phaser's frequencies wander a few cents, the ring and phaser LFOs and MURF's clock wander a little, and the voltage feeding the cables breathes, so every cable's depth wanders together (about 5%). 50% is the standard amount, 100% twice that, 0% steady.

Presets

A preset sets the modules, the patch cables, the chain order, STEREO and OUTPUT: each preset is level-matched on programme at 0 VU (-18 dBFS) with its peaks kept clear of the ceiling. DRIFT and OS are left as they are. The list also has Reset all to defaults.

Init	The LOWPASS alone: 800 Hz, resonance 4, envelope +5, fast.
Funky Wah	LOWPASS, 2-pole, from 350 Hz with resonance 6.5 and envelope +8: an envelope wah.
Slow Sweep	PHASER into LOWPASS, cable A taking the phaser's slow LFO to the low-pass cutoff, in stereo.
Ring Bells	RING at 640 Hz with a slow, gentle sweep, into an open LOWPASS; stereo.
Ring Tremolo	RING with a 6 Hz carrier: a stereo tremolo.
Jet Phaser	12-stage PHASER, resonance 8, a very slow deep sweep; stereo.
Classic Phase	6-stage PHASER, a moderate sweep, mono.
MuRF Pulse	MURF at six steps a second, short envelope; stereo.
MuRF Bass Steps	MURF on a falling fader slope, BASS voicing, longer envelope.
Saturated Wah	SATURATOR into LOWPASS, the wah also moved by the saturator's envelope (cable A).

Noise Wash	SATURATOR with filtered noise into LOWPASS and PHASER, the low-pass moved by the noise (cable A), the phaser sweeping slowly; stereo.
Full Rack	All five, SATURATOR first, the phaser moved by the low-pass's envelope (cable A); stereo.
Envelope Phaser	A 12-stage PHASER whose sweep and resonance open with your playing (INPUT ENV on cables A and B, a little LAG); stereo.
Ducking Ring	RING at 330 Hz into an open LOWPASS. The input's envelope pulls the ring's MIX down while you play, so the metal blooms in the tails; the ring's own envelope darkens the filter.
Cross Talk	SATURATOR, LOWPASS, PHASER, each playing the next: the saturator's envelope opens the low-pass, the low-pass's envelope sweeps the phaser (slowly, with LAG), and the phaser's LFO breathes the drive.
Swell Steps	MURF into LOWPASS: play harder and the pattern runs faster (INPUT ENV to MURF RATE, slow LAG); MURF's envelope opens the filter.
Breathing Noise	SATURATOR with noise, into a PHASER: the noise rises in the gaps between notes and falls back when you play, the phaser's mix follows the same way.
Reset all to defaults	(Last in the list.) Init, with OUTPUT, DRIFT and OS back to their defaults.

Tips

- Order matters: SATURATOR before LOWPASS gives a fat, gritty wah; after it, the filter's resonance is driven into the saturation.
- For an auto-wah that follows the player, keep the LOWPASS on FAST and raise ENV; then patch LP ENV to PH SWEEP on a cable.
- Try NOISE as a cable source at a small amount: everything it touches starts to shimmer.

- INPUT ENV with a negative AMOUNT on a module's MIX makes that effect duck under your playing and come up in the gaps.
- Raise LAG on an envelope cable for swells that take a second to arrive and longer to fade.
- Switch STEREO off when the track has to stay solid in mono.

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