Seventy

A 70s two-oscillator mono synth with an FX section built in: the FFAT drive and squash, a phaser, a string-machine chorus and a ping-pong delay.

> **A Lab plug-in.** The Lab is where new GFX plug-ins are built in the open: they may change sound or controls between versions.

Overview

Seventy is a monophonic synth in the spirit of the mid-70s Japanese two-oscillator monos. VCO 1 gives a choice of five waves over six octaves, down to a 64' sub-bass. VCO 2 adds a second saw, a ring-modulated tone or one of three noises, and BLEND mixes the two. The sound then runs through the FILTER: a high-pass and a low-pass filter in series, each with its own knob.

This Lab version adds an FX section along the bottom of the panel, in the order the sound goes through it: FFAT (the drive and one-knob squash from the GFX Ffat multi-effect), PHASER, CHORUS and DELAY. Each has its own amber IN key; switching one in or out fades over 15 ms, and every knob glides, so nothing clicks. A section that is out is drawn greyed. Every preset comes with its own FX settings.

Reach for it for

- Thick, wobbly 70s leads with a chorus and an echo behind them
- Fuzzed or crushed bass that stays level as you push it
- Phased pads, wind and sweeps
- Deep 32' and 64' bass
- Ring-modulated bells and whistle effects

Playing it

Seventy is an instrument: it has no audio input and makes its sound from MIDI.

1. Insert Seventy on a track.
2. Arm the track for recording and set its input to your MIDI keyboard.
3. Pick a preset, then switch the FX in and out with their IN keys to hear what each adds.

Controls

WAVE, OCTAVE and SOURCE are cycle keys: click for the next setting, right-click for the one before. The dots under each key show where you are. Knob values show while you hover over or turn a knob; double-click a knob to reset it.

VCO 1

WAVE	Triangle, saw, square, a narrow pulse, or PW (a pulse whose width is swept by the MG, the main LFO). The key shows the wave's shape, or PW.
OCTAVE	64', 32', 16', 8', 4' or 2'. 8' is standard pitch; each step down is an octave lower.

VCO 2

SOURCE	Saw (a second saw), RING (VCO 1 ring-modulated by VCO 2: bell-like tones that change with TUNE), WHITE, PINK or RED noise.
TUNE	VCO 2's pitch against VCO 1, -12 to +12 semitones. A few hundredths of a semitone gives a slow beat; 7 or 12 give fifths and octaves.
BLEND	The mix: fully left is VCO 1 only, fully right VCO 2 only.

MODULATION

MG RATE	The main LFO's speed, 0.1 to 30 Hz (a triangle wave). It sweeps the PW wave and, with the MG switch, the filters. The orange light blinks with it.
PWM	How far the MG sweeps the pulse width when VCO 1 is on PW.
VIB RATE / VIB DEPTH	Vibrato on its own LFO: 1 to 12 Hz, up to 100 cents.

FILTER and FILTER MOD

HPF	The high-pass filter's cutoff, 20 Hz to 8 kHz (yellow knob).
LPF	The low-pass filter's cutoff, 60 Hz to 18 kHz (green knob). Both filters are 12 dB per octave.
RESONANCE	LOW, MID or HIGH: the peak at both cutoffs.
EG	How far the envelope opens both filters: OFF, 1/2 or 1 (about 5 octaves).
MG	How far the MG sweeps both filters: OFF, 1/2 or 1.

AUTO BEND / GLIDE

BEND	Each new note starts this far from its pitch, -12 to +12 semitones, and bends into it. 0 is off.
TIME	How long the bend takes, 10 ms to 2 s.

PORTA	Portamento: the pitch glides from one note to the next, 0 (off) to 1.5 s.

ENVELOPE, PLAYING and MASTER

ATTACK, DECAY, SUSTAIN, RELEASE	One envelope shapes both the amp and (through the EG switch) the filters. Playing legato keeps the envelope going rather than restarting it.
VELOCITY	How much key velocity changes the level, 0% (none) to 100%.
DRIFT	See Drift below.
VOLUME	-24 to +6 dB.
SAT	The GFX band saturation on the output (0% by default). A soft clipper on the output (always on) catches overs at the ceiling.
Meter	The output level.

FFAT

IN	Switches the drive and the squash in and out.
TYPE	Click for the list: TUBE (soft and lopsided, adding even harmonics), FUZZ (hard, with a gate that opens as DRIVE goes up, for a sputtering edge), RECT (a rectifier: an octave up, for a ring-mod buzz) or CRUSH (fewer bits and a lower sample rate: lo-fi and gritty). A change fades to the clean sound for a moment and swaps there.
DRIVE	How hard the drive is pushed, 0 to 10. It is level-matched: turning it up changes the character, not the loudness.
MIX	The driven sound against the clean one, 0 to 100%.
FFAT	The one-knob squash after the drive: as it goes up the threshold falls, the ratio rises and the level is made up, for a thicker, denser sound.

PHASER

IN	Switches the phaser in and out.
RATE	The sweep speed, 0.05 to 8 Hz.
DEPTH	How far the notches sweep, from 200 Hz up to 4 kHz at 100%.
FEEDBACK	How strong the notches are, 0 to 90%. Left and right sweep a quarter-cycle apart, so it moves across the stereo field.

CHORUS

IN	Switches the chorus in and out.
RATE	Scales both of its sweeps, a slow one and a fast shimmer (x 0.25 to x 4).
DEPTH	How far the three delay lines sweep.
MIX	How much chorus. It spreads the mono synth across left and right, in the manner of a 70s string machine.

DELAY

IN	Switches the delay in and out. The echoes already sounding ring on when you switch it out.
TIME	A note value at the project tempo, from a menu: 1/16, 1/8 triplet, 1/8, 1/4 triplet, 1/8 dotted, 1/4, 1/4 dotted or 1/2.
FEEDBACK	How many repeats, 0 to 90%. The repeats bounce between left and right.
TONE	How dark the repeats get: low = each repeat duller, high = bright.
MIX	How loud the echoes are.

The header

PRESETS, arrows and display	PRESETS (or a click on the display) opens the list of presets; the arrow keys step through them. The display shows the

	preset's name. The presets are also in REAPER's parameter list, as the last parameter (Preset), for screen readers.
OS	Oversampling for the FFAT drive: each click steps 1x, 2x, 4x. Higher settings keep a hard drive cleaner at the top (less aliasing) and use a little more CPU. 1x adds no latency; 2x adds 31 samples and 4x 37, which REAPER compensates.
MIDI	Blinks on each note.
COLOUR	Two swatches: olive (the default) or slate. Saved with the project.
S / M / L	Panel size: small, medium or large. The panel also shrinks to fit the plugin window.
?	Opens a pop-up with the design credit, the GFX website address and the address of this manual. Click anywhere to close it.

Drift

DRIFT is heavy on Seventy: 60% by default. The pitch wanders, VCO 2 drifts against VCO 1, the pulse width and both filters move, and every new note starts slightly off tune. The envelope's timing wanders too, a little differently on every note. The power supply sags when you play loud: the pitch dips a few cents and the filter darkens a touch, then both recover a moment later. The chorus and phaser speeds drift a little as well. Turn DRIFT down for a steadier, more modern sound; 0% is steady.

Presets

Every preset sets the synth and the whole FX section.

Seventy Lead	Saw with a slightly detuned second saw, gentle vibrato and a touch of portamento; CHORUS and a dotted-eighth DELAY.
64' Bass	A 32' square with VCO 2 an octave up: deep and round, with a little TUBE drive and squash.

Filter Sweep	Two saws with the MG slowly sweeping the filters at high resonance, through a slow PHASER.
Ring Bells	Ring modulation a fifth apart, long decay: bell and gong tones, with CHORUS and a dotted-quarter DELAY.
PWM Strings	A slow PWM wave with a soft attack and release, through a deep CHORUS.
Auto Bend Brass	Saws with the envelope fully on the filter and a short scoop up into every note; TUBE drive and a short echo.
Whistle	Mostly triangle, with a breath of pink noise through a resonant band, and a quarter-note DELAY.
Wind	Pink noise only, the filters swept slowly by the MG at high resonance, through a very slow PHASER.
Squelch	A 16' pulse through a nearly closed, resonant low-pass with a snappy envelope; FUZZ and a triplet echo.
Theremin	A pure triangle with wide vibrato and slow portamento, and a long dotted-quarter DELAY.
Zap Drum	A 32' triangle with white noise, dropping an octave in 70 ms: a laser-like tom, TUBE-driven and squashed.
Hollow Pipe	A square with VCO 2 an octave up through a narrow band, with a light CHORUS.
Phase Lead	FX preset: a saw lead through a strong PHASER and a dotted-eighth DELAY.
Ffat Fuzz Bass	FX preset: a 32' saw bass through hard FUZZ and plenty of FFAT squash.
Space Echo Lead	FX preset: a square and a saw a fifth apart with TUBE drive, CHORUS and a long, dark DELAY.
Crushed Zap	FX preset: a noisy 16' zap through CRUSH, a fast PHASER and a sixteenth-note echo.

Tips

- Switch the FX in and out while a preset plays: each IN key fades, so you can do it live.
- For a fat bass, try TUBE with DRIVE around 3 and FFAT around 4, then turn MIX down a little to bring the clean low end back.
- CRUSH with a short DELAY gives lo-fi game sounds.
- Set the OS key to 2x or 4x for a hard FUZZ on high notes: it keeps the top cleaner.
- Set HPF and LPF close together with RESONANCE on HIGH, then turn them as a pair for a talking, vocal sweep; add the PHASER for more movement.

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