

Dead-Bug Mosquito

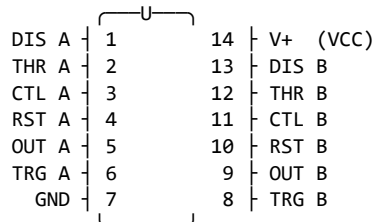
A POINT-TO-POINT NE556 NOISE BOX // DEAD-BUG BUILD WORKSHEET // MESS O' PEDALS

Build the classic Atari Punk Console around an NE556 dual timer with no breadboard and no PCB - dead-bug, point-to-point. Full parts list, pinout, a pin-by-pin netlist, and how to add CV inputs and a line/clock output.

Parts

	1× NE556 dual timer IC, 14-pin DIP (not a single 555) - spot it: small black chip with NE556 printed on top; a notch or dot marks pin 1
	2× 1M potentiometers - pitch & shape (I used 1M for pitch, 500K for shape; 500K just tightens the shape range). Spot it: 3-leg shaft parts marked like B1M - B = linear taper (what you want), value after; the middle leg is the wiper
	1× 10K potentiometer - volume (marked B10K)
	2× 0.01 µF ceramic caps - the timing caps. Spot it: tiny non-polar discs printed 103 (that code reads 10nF = 0.01 µF)
	1× 0.1 µF ceramic cap - supply decoupling (printed 104)
	1× 10 µF electrolytic cap - output DC-blocker. Spot it: a little can with a stripe marking the minus leg ; the longer leg is +
	2× 1K resistors - series protection for the pots. Spot it: color bands (brown-black-red = 1K) or just buzz it out with a meter; non-polar
	1× small speaker (8 ohms), or a jack out to an amp - a round magnet cone; reads ~7-8 ohms on a meter
	1× SPST toggle for on/off - a 2-lug on/off switch
	A power source - at least two vape cells in series (7.4V; three gives you 11.1V), or a 9V battery
	Solid-core hookup wire, an enclosure (a clear card box is perfect), soldering iron, cutters, and a multimeter

The chip, from above



Build

STEP 1 - LAY IT ALL OUT FIRST

Before the iron's even hot, get everything in front of you and eyeball it against the parts list.

STEP 2 - SPLAY THE LEGS FLAT & FIND PIN 1

Here's my dead-bug trick: instead of gluing the chip to a board, I bend both rows of legs outward and flat with pliers, like a squished spider.

STEP 3 - CLAMP IT AND TIN EVERY PIN

Lock the chip into the helping hands, belly toward you, and pre-tin all fourteen pins before you connect a single thing.

STEP 4 - PREP THE ON/OFF SWITCH

I like to wire the SPST toggle off to the side first, while it's easy to hold, then bring it into the circuit as a unit.

STEP 5 - POWER: DECOUPLE, RESETS, LEADS

Power first, so the chip has a heartbeat before you hang the timing parts on it.

Power & housekeeping

CONNECT	TO	WHY
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Pin 14	V+	Supply positive
Pin 7	Ground	Supply negative
Pin 4	V+	Reset A held high (or it won't oscillate)
Pin 10	V+	Reset B held high
0.1 μ F	Pin 14 -> Pin 7	Decoupling, right at the chip

STEP 6 - TIMER A - THE OSCILLATOR (PITCH)

This half free-runs as a square-wave oscillator, and its knob is your pitch .

Timer A astable

	CONNECT	TO	PART
Pin 1	V+		R1 = 1K
Pin 1	Pitch pot wiper (middle lug)		1M, one of two leads
Pitch pot outer lug	Pin 2		The other lead
Pitch pot third lug	nothing		Left empty
Pin 2	Pin 6		Jumper (tie them together)
Pin 2 / 6	Ground		C1 = 0.01 μ F

STEP 7 - TIMER B - THE ONE-SHOT (SHAPE) + THE LINK

The second half is a monostable: it waits for a kick, then fires one pulse.

Timer B monostable

	CONNECT	TO	PART
Pin 13	Pin 12		Jumper (tie them together)
Pin 12 / 13	Shape pot wiper (middle lug)		500K here
Shape pot outer lug	1K resistor		Its own 1K, not shared with pitch
1K far end	V+		Together these are R2
Shape pot third lug	nothing		Left empty
Pin 12 / 13	Ground		C2 = 0.01 μ F

The handoff

	CONNECT	TO	WHY
Pin 5 (OUT A)	Pin 8 (TRG B)		Oscillator triggers the one-shot

STEP 8 - VOLUME & THE WAY OUT

Timer B's output is a fat square wave swinging nearly rail-to-rail.

Output stage

	CONNECT	TO	PART
Pin 9	Volume pot (top)		C3 = 10 μ F (+ toward pin 9)
Volume wiper	Jack tip (switching)		-
Jack "normal" lug	Speaker (+)		Plug cuts the speaker
Speaker (-) / Jack sleeve	Ground		-

STEP 9 - FIRE IT UP

Flip the toggle and it should drone the second it powers on.

STEP 10 - IF IT WON'T SING

Point-to-point means every fault is a joint or a pin you can actually see.

- Dead silent? Check pins 4 and 10 are actually sitting at V+. Reset pins left floating or low is the classic APC no-sound bug.
- Still nothing? Confirm the 5->8 link, and that V+ (pin 14) and ground (pin 7) are solid.
- Faint, or only a tick? Check the 10 μ F output cap polarity (+ toward pin 9) and that your timing caps landed on ground.
- Buzzy / motorboating? You skipped the 0.1 μ F decoupling cap, or a joint is cold. Reflow anything that looks dull or blobby.
- Runs but the pot does nothing at one end? That's the 1K series resistor earning its keep - expected. If a pot does nothing at all , you're probably on the wrong two of its three lugs (use the wiper + one end).