

Short circuit

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CIRCUIT BENDING WALKS A FINE LINE BETWEEN MUSICAL CREATIVITY AND OUTRIGHT CARNAGE.



Circuit bending is the short-circuiting of electronic devices to create sounds nature never intended. It straddles the boundary between art and noise; somewhere in the middle, there might be music.

ANOTHER DIMENSION

“The circuit-bent instrument is an alien instrument,” writes Reed Ghazala, who discovered circuit bending by chance in 1966, when the casing on a toy amplifier in his desk drawer opened and exposed its inner workings. It short circuited against the metal of the desk and began emitting tripped-out, synthesizer-like sounds. He gave his discovery a name and set about exploring its potential.

Circuit bending is considered the world’s first grassroots electronic art movement, and Ghazala sits at its helm; he has circuit-bent instruments for Tom Waits, Peter Gabriel, King Crimson, The Rolling Stones and MTV. “Audio gadgets are

experimental musical instruments waiting to happen,” says Ghazala. The body of the player becomes a capacitor, “creating, in essence, new life forms: an emerging tribe of bio-electronic Audio sapiens.”

Nick Wishart of Sydney-based circuit-bending band Toydeath (pictured above) gets Ghazala’s logic.

“When you add body contacts to an instrument and can control it by touching it, it’s mad,” he says. “Each toy we modify is a unique instrument – we never know what sounds we’ll create.”

TOY FARM

Wishart and fellow toy-killers Melissa Hunt and Teik-Kim Pok have been circuit bending since 1995. The first thing Wishart ever bent

was a Micro Jammer toy guitar he found in an op shop; today, he runs introductory workshops. “Imagine a hyper band of aliens channelling through a broken AM radio, and someone’s playing with the speed control,” says Wishart. “That’s us.”

Over the past few years, Jesse Poulton and his band mate Eli Seidel

of Melbourne duo Circuit Bentobox have become interested in computer modelling. “We like to be interactive,” Poulton says. “We can set up controllers – knobs, faders – to create

sound effects that let people have a play without destroying the music. With computers you can do things that aren’t so destructive or hands-on,” he acknowledges, “but it’s not as much fun as opening up a toy and seeing what happens if we put this wire to that juncture.”

“We never know what sounds we’ll create”

THE TOOLKIT

Essential equipment.



- Computer; soldering iron; tip tinner and soldering flux; cordless drill; drill press; label printer for labelling instruments; small-parts containers;

- large-parts bins; multi meter; helping hand; solder box; wire strippers; nippy cutters; screwdrivers; flat-nose pliers; FX pedal proto board; bend finder

- (for correct identification of potentiometers); dremel; dremel bits; digital recorder for recording sounds; and digital camera for exciting documentation of events.

DO GIVE THIS A TRY AT HOME

While doing your upmost to avoid electrocuting yourself.

Never, ever circuit bend anything that’s plugged into a power socket; this is a strictly battery-powered affair. The first stage of circuit bending is to identify the circuit; here’s how, with a nod to Reed Ghazala, who suggests you read an introductory electronics book before you get started.



1 PREPARE

Clip the two smallest metal jeweller’s screwdrivers in alligator clips at the ends of the test lead. This gives you a wire with a probe at each end, and is your most important tool.



2 BEGIN

Remove the back of the game or toy to expose the circuitry.



3 FIRE HER UP

Turn the device on and activate the sounds.



4 PINPOINT

With the device making a noise, press the tip of one of the screwdrivers to a printed circuit trace or component lead; keep it in place.



5 EXPLORE

Begin touching various parts of the circuitry with the second screwdriver, listening for changes in sound. Each time an interesting sound is created, note with a marker directly on the circuit board the pair of points that are connected.



6 EXPLORE MORE

Once all interesting connections have been noted, place the stationary screwdriver tip on a new circuit point and repeat stage five.



7 JAM!

Repeat stage six until the entire circuit has been searched. The circuit will now be marked with a number of potential connections. If it’s a complex circuit, try the “Lick and Poke” method. Lick the tip of your index finger, turn on the circuit and activate a sound, then start touching the board with your finger. Eventually you’ll hear a jump in the pitch. **FHM**