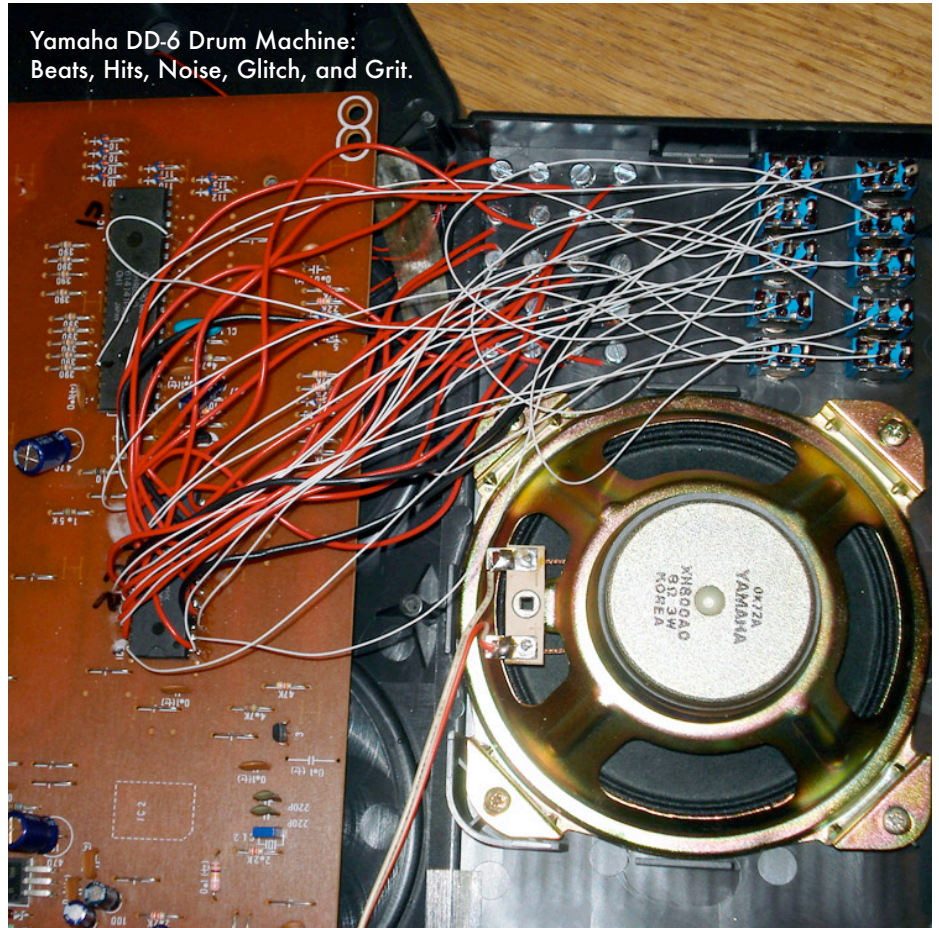


THE
NOISE
UPSTAIRS
WORKSHOP

NOV 26
DEC 3

circuit-bending

Yamaha DD-6 Drum Machine:
Beats, Hits, Noise, Glitch, and Grit.



THE NOISE UPSTAIRS presents a FREE Circuit-Bending Workshop at MadLab, 36-40 Edge Street, Manchester, M4 1HN

Have you ever wanted your very own circuit-bent toy? Ever wished you could do it yourself?

Circuit-bending is an electronic art which implements creative audio short-circuiting. This renegade path of electrons represents a catalytic force capable of exploding new experimental musical forms forward at a velocity previously unknown. Anyone at all can do it; no prior knowledge of electronics is needed. If you learn to solder and can drill a small hole to mount a switch in, you can circuit-bend. Everything else is a process of non-technical, routine experimentation in which various short-circuits are created in an attempt to alter the target device's audio behavior.

During the course of this workshop you will go from having a basic electronic toy, to having a sophisticated circuit-bent instrument at the very end. In order to make sure that

everyone has an exciting and interesting instrument at the very end we are limiting the target toys to ones that are tried and true, and will provide guaranteed results. On the following pages we will provide you with a break down of the toys that we will be working with, along with part numbers for all the switches, knobs, and jacks we will be using from Malpin.

For those of you who came to our last workshop have a look at page 3 where Rodrigo has suggested the next step in your electronic instrument adventure if you want to do more than circuit bending another toy.

We will provide you with all the necessary tools for the workshop, but it is recommended that you purchase the following if you plan on doing any bending between or after the workshop sessions..

- A Low-wattage (30w or less) soldering iron with a very narrow tip.
- Thin rosin-core solder.
- Set of small, all-metal "jeweler's" screwdrivers.
- Small wire stripper.

-Test leads (insulated wire terminated at each end with an alligator clip).

In addition to the optional tools, we will be needing some solid core wire (part# BL85G from Malpin, or similar), and whatever parts the toy you decide on requires.

Other than that, bring yourself, your toy, and your childlike curiosity, and get ready to have a great time!

All at MadLab on Sat 26 Nov and Sat 3 Dec, 1pm-4pm.

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The Noise Upstairs
WORKSHOPS

11/2011

The Noise Upstairs is a free improvisation jam night in Fuel Cafe Bar, Withington that has been bringing you some of the most exciting noisicians for the last four years. We also offer quarterly workshops, which run on the weekends preceding the jam night, culminating in a 'featured performer(s)' spot on the night.

If you are interested in taking part in the jam night, or the workshop, or for any other Noise related activities, visit the webpage at www.thenoiseupstairs.com and drop us a line, or sign up for the mailing list.

TOYS

Here is a list and break-down of the toys we're going to be working with. You can find them in charity shops, or in your attic, if your lucky. The best place to find them, however, is eBay.

Keyboards

SA Series

This includes the Casio SA-2, and SA-5. These keyboards are noisy, glitchy, and erratic. Good for recording, but very temperamental when it comes to performing.

www.youtube.com/watch?v=h0s2U-HCHBQ

SK Series

This includes the Casio SK-1, SK-5, and SK-10. These keyboards are 'flagship' instruments as they have nearly endless bends. Very textural, and interactive.

www.youtube.com/watch?v=38s8FYWT_EQ

Drum Machines

DD-6

The Yamaha DD-6 Drum Machine. Good for distorted, glitchy beats and drum hits. Given the very loud built-in speaker and 1/4" output jack, it is stage ready from jump.

www.youtube.com/watch?v=e10Jq23x_XE

DD-7

The Yamaha DD-7 Drum Machine. Similar to the DD-6 but where the DD-6 does glitches well, the DD-7 does drones well.

www.youtube.com/watch?v=PZ4iZG0Qmyw

Talking Toys

Speak &

This includes the Texas Instruments Speak & Spell, Speak & Math, and Speak & Read. This provide very interesting speech glitches and loops.

www.youtube.com/watch?v=CFh1xqllgs

Individual toy breakdowns

CASIO SA-2



This toy is one of the easier toys as it is relatively simple to bend. Due to the way it is built it is difficult to do any exploration on it, so this one involves simply opening it, connecting the bend points, and putting it back together.

Parts needed:

- ND91Y (or similar momentary switch)
- FW08J (or similar 1Meg Potentiometer)
- RW75S (or any knob of your choosing)
- FT95D (or similar RCA Jack)

Optional Parts:

- An extra ND91Y/FW08J/RW75S set.
- Two short, stubby bolt, or furniture handle to serve as "body contacts"

CASIO SA-5



The SA-5 is very similar to the SA-2. The main difference is that it has a larger bank of built-in sounds. The parts needed are identical to those needed for the SA-2.

CASIO SK-1



This toy is very fun to explore and bend. The SK series keyboards are of medium difficulty as you will be finding your own bend points, but nearly every connection you can find will sound amazing.

Parts needed:

- 3-10 of FH00A (or similar SPDT switch)

Optional Parts:

- FW07H (or similar 470k Pot, for pitch control)
- RW75S (or any knob of your choosing)
- 2-3 short, stubby bolt, or furniture handle to serve as "body contacts".

CASIO SK-5



The SK-5 is very similar to the SK-1. The main differences are more realistic drum sounds, and built-in drum pads. The parts needed are identical to those needed for the SK-1.

Casio SK-1:
Textured sound-scapes for days.



MadLab (Manchester Digital Laboratory) is a community space for people who want to do and make interesting stuff. Please consider bringing a donation for the space, not least because they're giving us free tea and coffee...

madlab.org.uk

Rodrigo Constanzo has been circuit-bending since 1998. He has bent countless toys, keyboards, drum machines, and guitar pedals.

For more info please visit:

www.rodrigoconstanzo.com

www.takahashishellfishconcern.com

CASIO SK-10



The SK-10 is very similar to the SK-1/5 with the main difference being the size. This is about the size of the SA keyboards. The drums are also a throw-back to the SK-1 'blip blip' sounds.

Parts needed:

- 3-6 of FH00A (or similar SPDT switch)
- HF91Y (or similar 1/4" jack)

YAMAHA DD-6



The DD-6, like the SK keyboards are very easy to explore. This toy ranges from medium to advanced difficulty, depending on how far you want to take it

Parts needed:

- 5-10 of FH00A (or similar SPDT switch)

Optional parts:

- 4-20 thin 1" bolts to create a "bolt bay" for complex bending combination.

YAMAHA DD-7



The DD-7 is very similar to the DD-6. The parts needed are identical to those needed for the DD-6.

SPEAK & SPELL/MATH/READ



The Speak & toys are advanced bends. They are hard to work with, because of the membrane keypad, but yield unique sounds for those who venture their way.

Parts needed:

- 3 of FH00A (or similar SPDT switch)

Optional parts:

- JM01B (or similar mini momentary switch)
- Another FH00A (or similar SPDT switch)
- FW07H (or similar 470k Pot, for pitch control)
- RW75S (or any knob of your choosing)
- A short, stubby bolt, or furniture handle to serve as a "body contact"

Circuit-Bending 101

Breakdown of the process involved in bending.

1. Open the Target Toy

Most of the time this is as easy as removing a few screws.

2. Explore and Take Notes

This is main fun part of bending. With the toy open, use a probe and/or your fingers to test different connections on the circuit board itself. Make notes of what you find using a rating system, to make narrowing things down easier.

3. Plan Your Bends

Using the notes you created, you now have to plan on how to implement the bends. This can be done via simple toggle switches, or by incorporating momentary switches, body contacts, knobs, bolt-bays and other assorted methods. The sky's the limit here.

4. Mark, Drill, and Paint

Now that you have a plan of what you want, you must decide where you want it. Most toys have a couple of spots where you can easily fit your mods. Find what works, drill the holes, and if you want to paint the toy, do so during this step.

5. Solder the Connections

With your switches, jacks, and pots in place, solder all of your connections

6. Assemble and Test

Put the whole thing back together and test each bend individually to make sure everything is working as

WAIT, THERE'S MORE...

In addition to the beginners/introductory elements of the circuit-bending workshop, we will be discussing and building some of the the "Paper Circuits" of Peter Blasser, designer of Ciat-Lonbarde instruments.

Peter Blasser writes "In 2006 I began making circuits on paper. Paper circuits are easier, cheaper and environmentally safer to produce than the alternative: fiberglass circuit boards etched with heavy chemicals at a factory. The idea, which I got from a St. Louis collective known as [commonsound](http://commonsound.com), is to lay out the circuit's front (component) face and back (trace) face adjacently and mirrored on the paper. The pat- tern is cut out, folded in the middle and then pierced with a needle. The components are inserted and their leads woven and soldered according to the trace pattern. I created several pocket-size paper circuits that explore touch sensitivity and the complexity of circular modulations. I play them by intuitively wiring or touching nodes to each other to create spontaneous re-weavings of the internal circuits. I consider these the most accessible of my designs; anyone can salvage or buy the components after downloading the plans from my web site . Each iteration of a paper circuit is unique."

If you have circuit-bent previously, or have electronics experience and want to build something from 'scratch' then print out the "lil sidrassi" circuit and glue it onto a piece of cardboard (cereal box is ideal), and punch holes with a needle. The printout can be found here : <http://www.ciat-lonbarde.net/paper/man/lilsid.gif>

There are additional paper circuits ("Old Mr.Grassi" is my personal favorite) found here : <http://www.ciat-lonbarde.net/paper/>

Some of them may take too long to finish during the course of the workshop, but you are welcome to start and get helped through the process during the workshop.



Lil Sidrassi:
Crackling touch-sensitive sounds
in a lovely wooden box

Electronics and Circuit-Bending related books

Circuit-Bending
Reed Ghazala

Handmade Electronic Music
Nicolas Collins

Electronic Projects for Musicians
Craig Anderton

Getting Started in Electronics
Forrest Mims

Do-It-Yourself Projects for Guitarists
Craig Anderton

Gravikords, Whirlies and Pyrophones
Bart Hopkin

Getting a Bigger Sound
Bart Hopkin

Build Your Own Electronics Workshop
Thomas Petruzzellis

CIRCUIT-BENDING RELATED LINKS

Anti-Theory

Reed Ghazala is the granddaddy of circuit-bending. His page is pictures, sound clips, and general bending info. www.anti-theory.com

Casper Electronics

Peter Edward's great site, with tons of crazy bends, pictures, soundclips, and even a couple of great guides. www.casperelectronics.com

Bug Brand

Bristol-based Tom Bugs makes and sells circuit-bent like electronic gadgets. www.bugbrand.co.uk

Experimentalists Anonymous

Colin's webpage has a great forum and blog dedicated to bending and DIY. www.experimentalistsanonymous.com

Burnkit2600

Good webpage for general circuit-bending info, links, and guides. www.burnkit2600.com

Ciat-Lonbarde

Peter Blasser's incredible webpage, with unique and amazing instruments. He also has several 'Paper Circuits', which are a good next step after bending. www.ciat-lonbarde.net

4ms Pedals

Dann Green has been making crazy electronics for over a decade. All of their pedals are available as kits or you can DIY with schems/part lists. www.4mspedals.com

Squarewave Parade

Great webpage, with lots of interesting electronics, kits, and forum. www.thesquarewaveparade.com

Benders Yahoo Group

Long standing e-mail list on Yahoo Groups where you can discuss bending until the cows come home. groups.yahoo.com/group/benders

Odd-Music

Oddmusic is a great webpage, and mailing list devoted to odd, DIY, and electronic instruments. www.oddmusic.com

Experimental Musical Instruments

EMI has been in the experimental instruments business forever. It used to be a quarterly journal, but now they sell books, parts, and reference materials. www.windworld.com

How to Take Part:

Circuit-Bending Workshop

Interested in signing up for the workshop? Follow the instructions below and you'll be well on your way to circuit-bending nirvana.

Pick a target instrument

Look through the individual toy breakdowns and video links and decide which toy you want to circuit bend. Buy/order the toy, the parts required for the toy you picked, and any of the optional tools/parts from the first page.



Book your seat

Given the limited space we have available to us we can only



accommodate so many people. As soon as you know you want to be involved, e-mail us at

workshops@thenoiseupstairs.com

saying what toy you plan on bending, or speak to Anton or Rodrigo at the Noise Upstairs jam.

THE NOISE UPSTAIRS

EVERY MONTH ON THE SECOND THURSDAY OF THE MONTH @ FUEL CAFE, WITHINGTON.

FOR MORE INFO:

WWW.THENOISEUPSTAIRS.COM
INFO@THENOISEUPSTAIRS.COM