SYNTH HACKS #04
SWITCH IT UP

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Sometimes a clever accessory makes all the difference. Scrolling through the DIY electronics site Tindie.com, I saw the Super Smash Button [tinyurl.com/SmashBtn; $48], an ingenious little box the size of a guitar pedal. It has two 1/4-inch mono jacks with an arcade button in between. Tapping the button gates an audio or clock signal to produce stuttering

Fig. 1

My stereo A/B switcher lets me preview a radio signal on headphones, then send bursts of sound to a delay or looper [not shown]. Fidget spinner for scale.

pads and broken beats. [The inventor, UK musician midierror, tells me he also added pulldown resistors to reduce noise.] A toggle switch wired in parallel lets the signal continue to flow when you release the button.

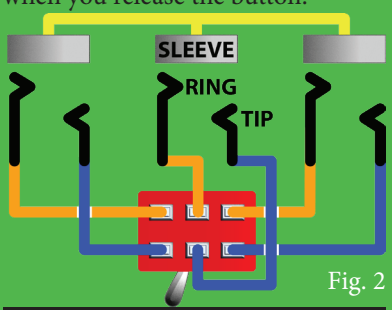

Fig. 2

This switch connects the center jack [input] to either the left or right output. You can also use it in reverse to choose between two inputs. The grounds of the three jacks are wired together.

That inspired me to buy a sack of DPDT switches and start making my own signal routers, but in stereo. [DPDT stands for "double pole, double throw" — two internal, ganged switches route signals to one of two outputs, or poles.] Figure 1 shows my first project, a simple stereo A/B switch. I connected the headphone output from a radio to the center jack. Flipping the switch one way lets me preview the signal on earbuds; flipping it the other way lets me send the signal to the audience. With the radio tuned to a news station, I can perform up-to-the-minute sound bites without worrying I'll land in the middle of a commercial. Figure 2 shows how I wired the A/B switch. Fancier circuits add resistors or active electronics to prevent pops, but this tiny guy works fine in my setup.

Fig. 3

Garamon wonders why synth companies can't agree where MIDI pins 4 and 5 go. A DPDT switch on his back swaps them between the tip and ring in a 3.5mm miniphone jack [also on his back].

My second switch project solves a big annoyance, the TRS-MIDI tangle. When synth manufacturers replaced 5-pin DIN jacks with 3.5mm tip-ring-sleeve audio jacks to save space, half [group A] connected the data pin to the tip and half [group B] connected it to the ring. The "A" camp includes Korg and IK Multimedia; the "B" camp includes 1010music and Novation. Newer Novation gear uses "A" format, following the MMA's 2018 spec. And Arturia uses both.

Instead of hoping I'd get lucky and grab the right adapter cable, I wired up a switch to swap the tip and ring signals. Naturally, I embedded it in a Japanese monster toy [Figure 3] that looks disgusted with the state of affairs. Figure 4 shows the wiring.

While I continue my search for a DPDT arcade button so I can make a Super Stereo Smash, I'm continually reminded that the simplest gadgets can be the most rewarding.

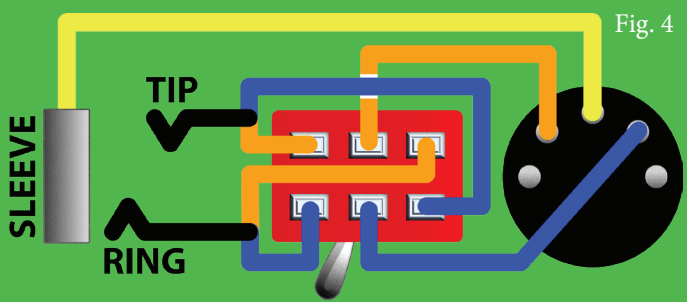

Fig. 4

Pin 2 in the MIDI jack [ground/green] is wired to the sleeve of a 3.5mm jack. A DPDT switch toggles Pin 4 [current source/orange] and pin 5 [current sink/blue] between the tip and ring.