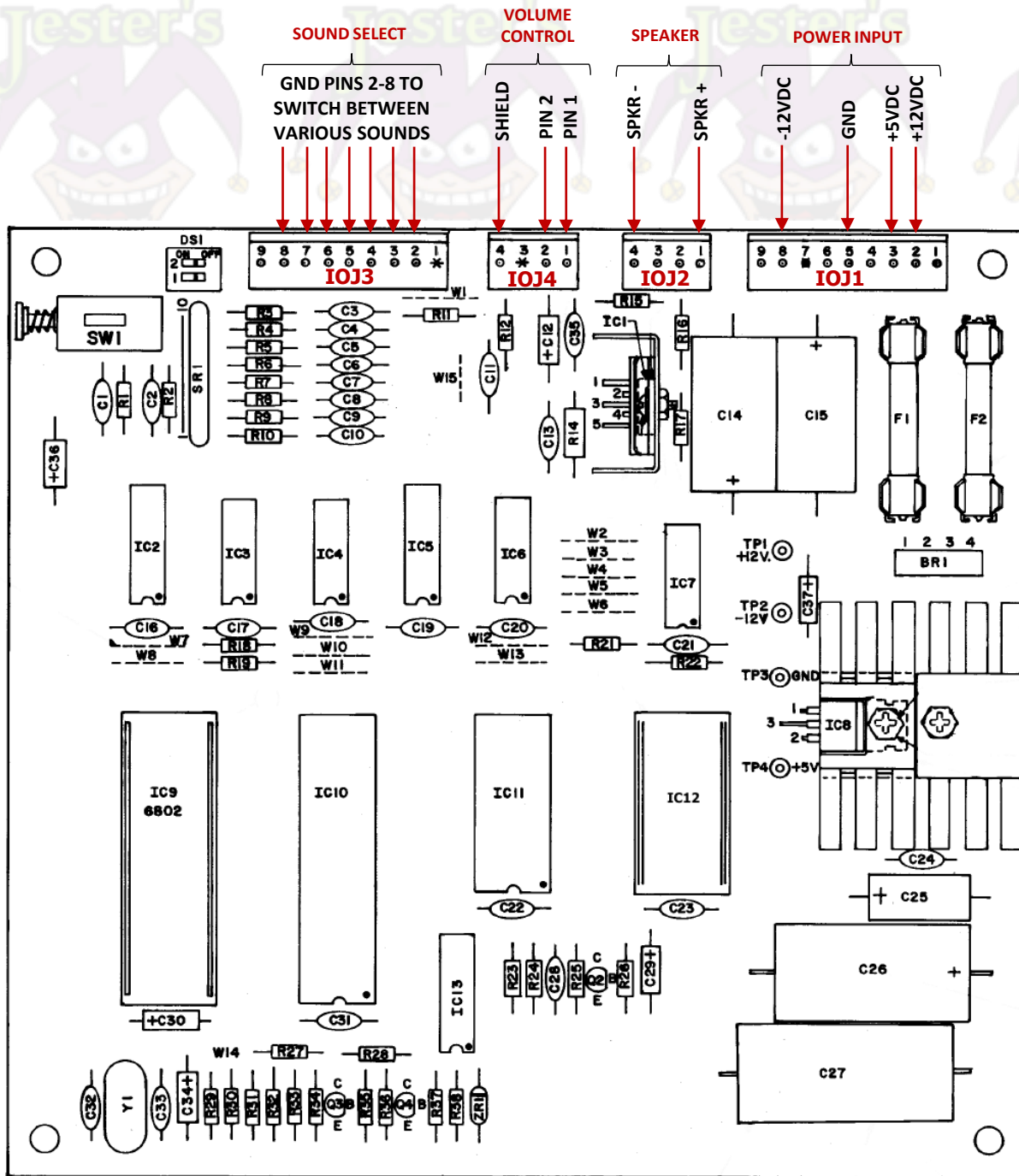# The Williams D8224 Sound Board Test

I built a test rig that will allow me to test Williams D8224 Sound Board outside of the cabinet. It is a lot easier to test these boards on the bench as I can switch between different sound cards more rapidly and not have to power up the entire cabinet.

These sound cards can function stand alone as they their own CPU (IC9 – 6802/6808), Controller (IC10 – 6821 PIA), RAM (IC10 – 6810), and ROM (IC12 – 2516/2716 or 2532).

- I used an extra switching power supply I had lying around and built a harness that will plug directly into IOJ1, which supplies clean and stable +5VDC, -12VDC, +12VDC, and GND.

- Then I used a 4 Ohm speaker and wired a + and – lead (harness) to IOJ2 from the speaker for the sound.

- Next, I used a Honeywell 53C15K Potentiometer for my volume control and wired it up this way:
    - IOJ4 PIN 1 (Black) to PIN 3 on 53C15K
    - IOJ4 PIN 2 (Red) to PIN 2 on 53C15K
    - IOJ4 PIN 4 (Shield - Green) to PIN 1 on 53C15K

- You do not have to use a potentiometer for this test rig. You can always place a jumper from IOJ4 PIN 1 to IOJ4 PIN2. However, this will make any sound coming from the card at 100% volume level.

- Once the power, speaker, and volume control are connected and on, attach a wire to ground (I used an alligator clip and clamped it to TP3 (GND)). Touch the other end of the wire to pins 2-8 on IOJ3. Touch to each pin separately to cycle through the various sounds of the sound file you have loaded on the PROM/EPROM at IC12.

NOTE: Ensure you know what sound file is burned to the PROM/EPROM to yield the correct sound for the applicable game.