



# Found Object

V1.4 Rev. A/B

## Circuit Notes

Found Object was born out of a few curiosities: what would it be like to have a one-knob fuzz that, instead of altering a circuit parameter, instead blended between two fuzzes with fixed settings and different characteristics? Could I design a generic PCB that would fit into repurposed commercial packaging? (Hence the name) Also, no drill template for this one because I didn't use standard-sized enclosures, it's "Choose Your Own Adventure." BLEND has the correct footprint for a PCB-mounted pot if you want to go that route.

### Blend

The BLEND control is based on [R.G. Keen's "Panning for Fun."](#) As noted in the changelog, I tweaked some of the resistor values to get more balance between the two sides. I used LF353, which is a JFET-input op amp very similar to TL072, but whatever op amp you typically use shouldn't make a difference.

### *The GAIN Trimmer*

R.G. uses a 51k resistor in the op amp feedback loop to recover the losses from the BLEND pot. I opted for 43k in series with a 20k trimmer to allow the option of boosting the overall output (or even dialing it back a bit). Before soldering the trimpot, I suggest using a multimeter and setting GAIN to 8k between terminal 1 (counter-clockwise) and terminal 2 (wiper). This will match R.G.'s original 51k, and you can adjust to taste from there (turn clockwise for more boost).

### The Left Side: Oath

This side is the BAT Oath, although I can't remember now if the original pedal uses 2N5088 or 2N5089 (you could google that if you need to know). I used 2N5088 because that's what I had on hand.

### The Right Side: Saturn Five

Here we have the Dragonfly Saturn Five, which I believe is an old DIY design – at least, I couldn't find any reference to it beyond DIY blogs and forums...

the sound of it with BURN about 75% of the way up reminded me of the “amp is about to die” solo tone on Joy Division’s “Failures,” so of course I had to build it! The original design didn’t specify a particular NPN transistor, I liked the sound of BC108s.

### *BURN Control*

The BURN trimmer is essentially the gain pot. I used an internal trimmer because I wanted the clean simplicity of one knob, but you could very easily wire up a standard pot instead of the trimmer and have your BURN on the outside.

### *Volume Knobs*

The original Saturn Five design also had a volume knob (A500K), which is here replaced by a single 510K resistor; the Oath had no knobs at all. If you’re the kind of person who wants a volume knob, read on but be forewarned, it’s a *potchke*.<sup>1</sup> You can do one or both of these; the default resistors on the PCB (R217, R306) are equivalent to a pot turned all the way up.

### *Oath Volume*

1. Omit or remove the following components from your initial build: R110, R217, C209.
2. Use A100K.
3. Wire pot lug 1 (counter-clockwise) to the left-hand pad of R217 or to any convenient ground point (e.g., jack sleeve).
4. Solder R110 to the **right-hand pad only**.
5. Wire pot lug 2 (wiper) to the other lead of R110.
6. Solder the negative lead of C209 to pot lug 3 (clockwise).
7. Run a wire from the positive lead of C209 to the positive pad on the PCB.

### *Saturn Five Volume*

1. Omit or remove the following components from your initial build: R108, R306, C305.
2. Use A500K.
3. Wire pot lug 1 (counter-clockwise) to the left-hand pad of R306 or to any convenient ground point (e.g., jack sleeve).
4. Solder R108 to the **right-hand pad only**.
5. Wire pot lug 2 (wiper) to the other lead of R108.
6. Solder one lead of C305 to pot lug 3 (clockwise).
7. Run a wire from the other lead of C306 to the left-hand pad on the PCB.

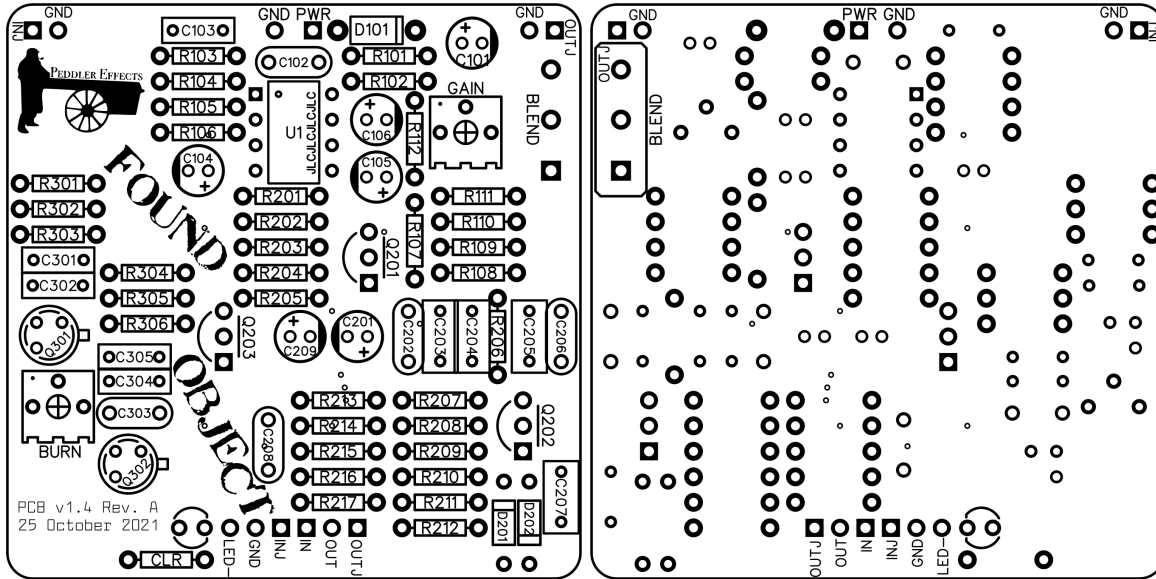
---

<sup>1</sup> That’s Yiddish for “a complicated pain in the neck.”

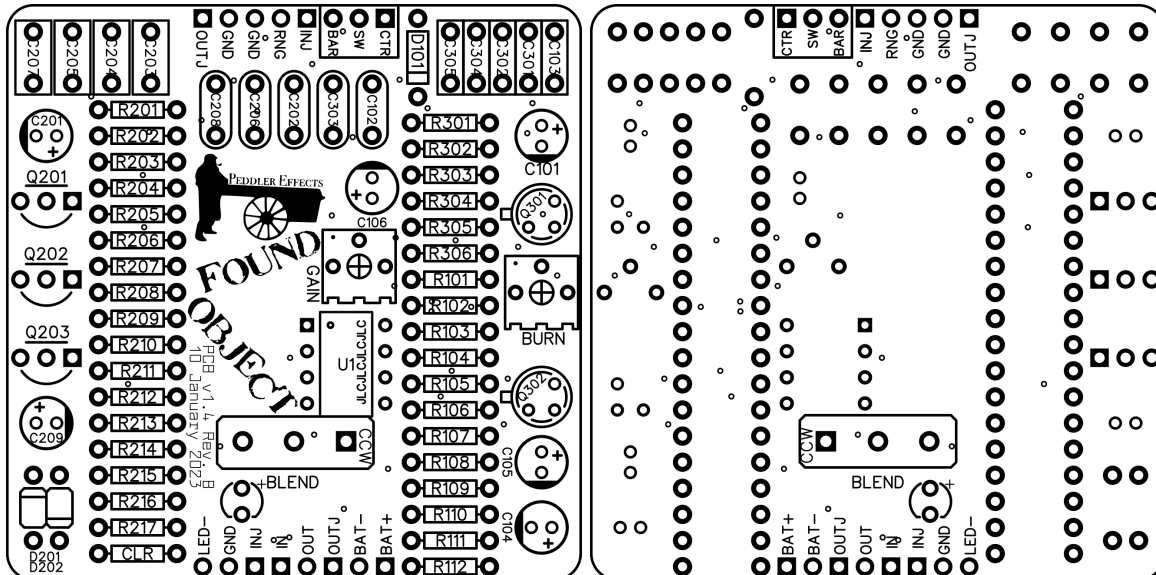
# PCB Layout

*Rev B is an improved layout over Rev A  
without changes to the underlying circuit.*

## Rev A



## Rev B



## Off-Board Wiring

| Pad  | Connection                                          |
|------|-----------------------------------------------------|
| IN   | Circuit Input connection to 3PDT Switch             |
| OUT  | Circuit Output connection to 3PDT Switch            |
| INJ  | Input Jack / Input Jack connection to 3PDT Switch   |
| OUTJ | Output Jack / Output Jack connection to 3PDT Switch |
| LED- | LED connection on 3PDT Switch                       |
| PWR  | (Rev. A) +9V                                        |
| BAR  | (Rev. B) DC Jack Barrel (+9V)                       |
| CTR  | (Rev. B) DC Jack Center Pin (Ground)                |
| GND  | Ground                                              |

# Schematics

## Changelog:

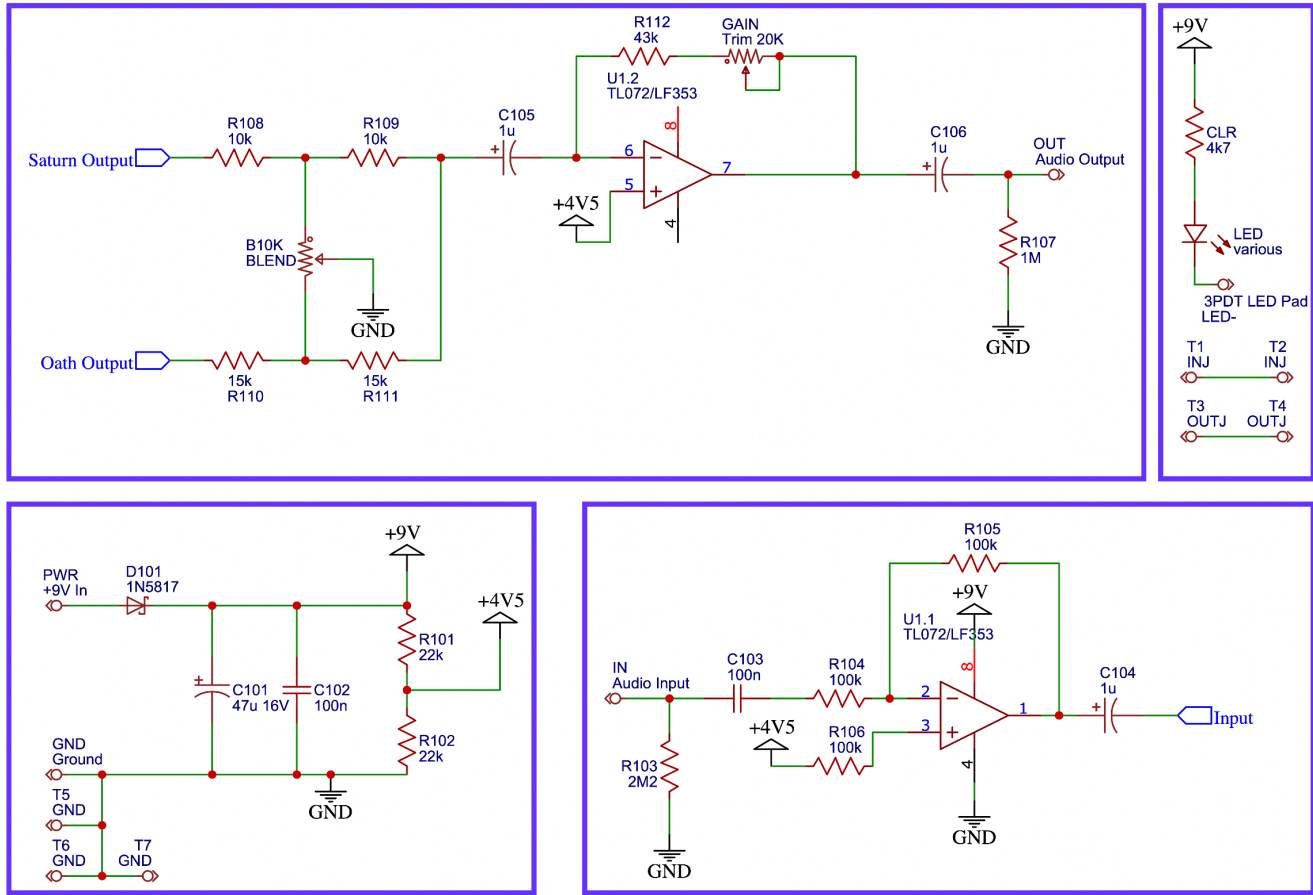
V1.0 (9/9/2021)

V1.1 (9/12/2021): Added output level trimpots before blend stage

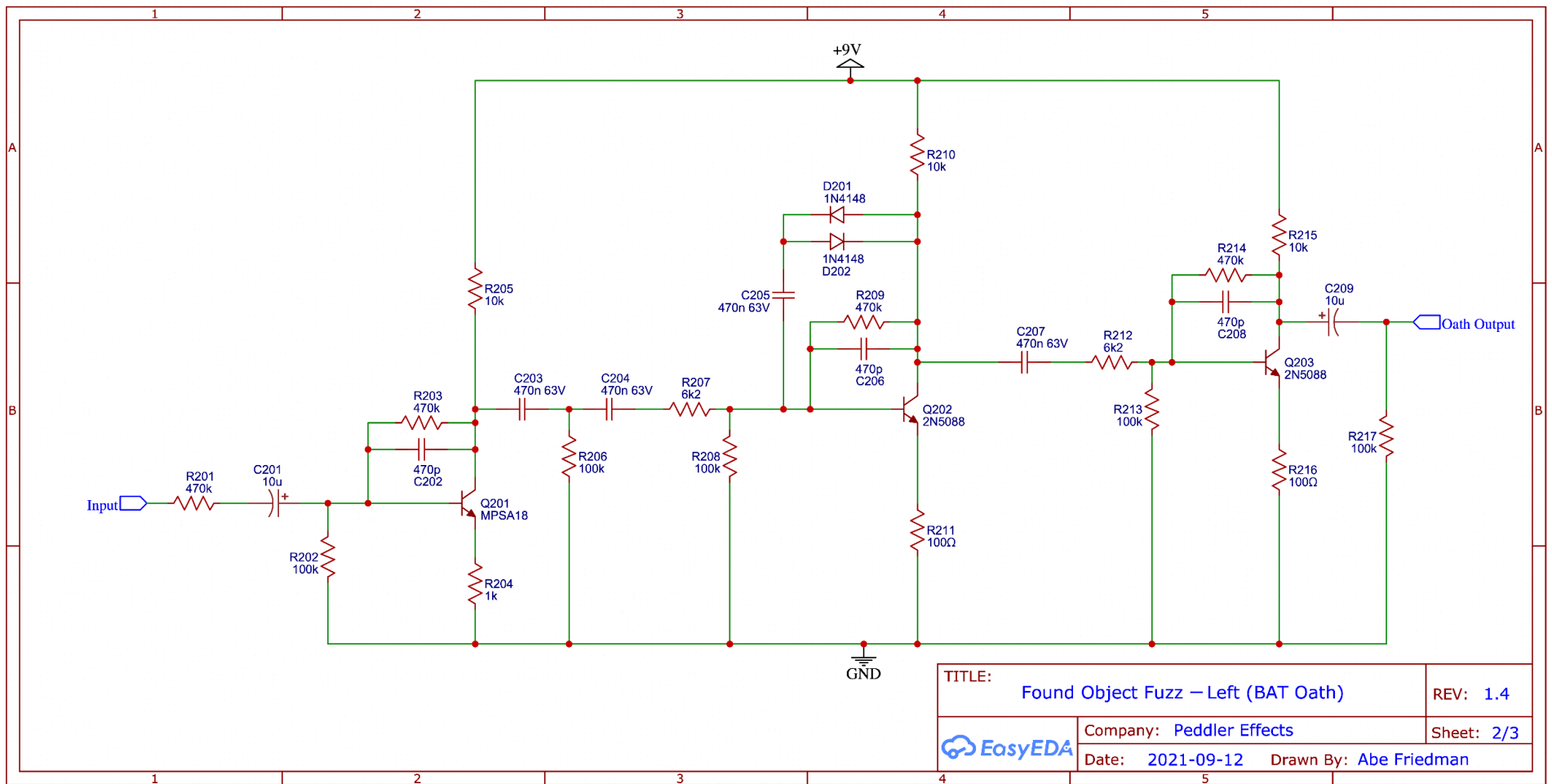
V1.2 (10/3/2021): Single input buffer; remove trimpots from summing stage; variable gain summer

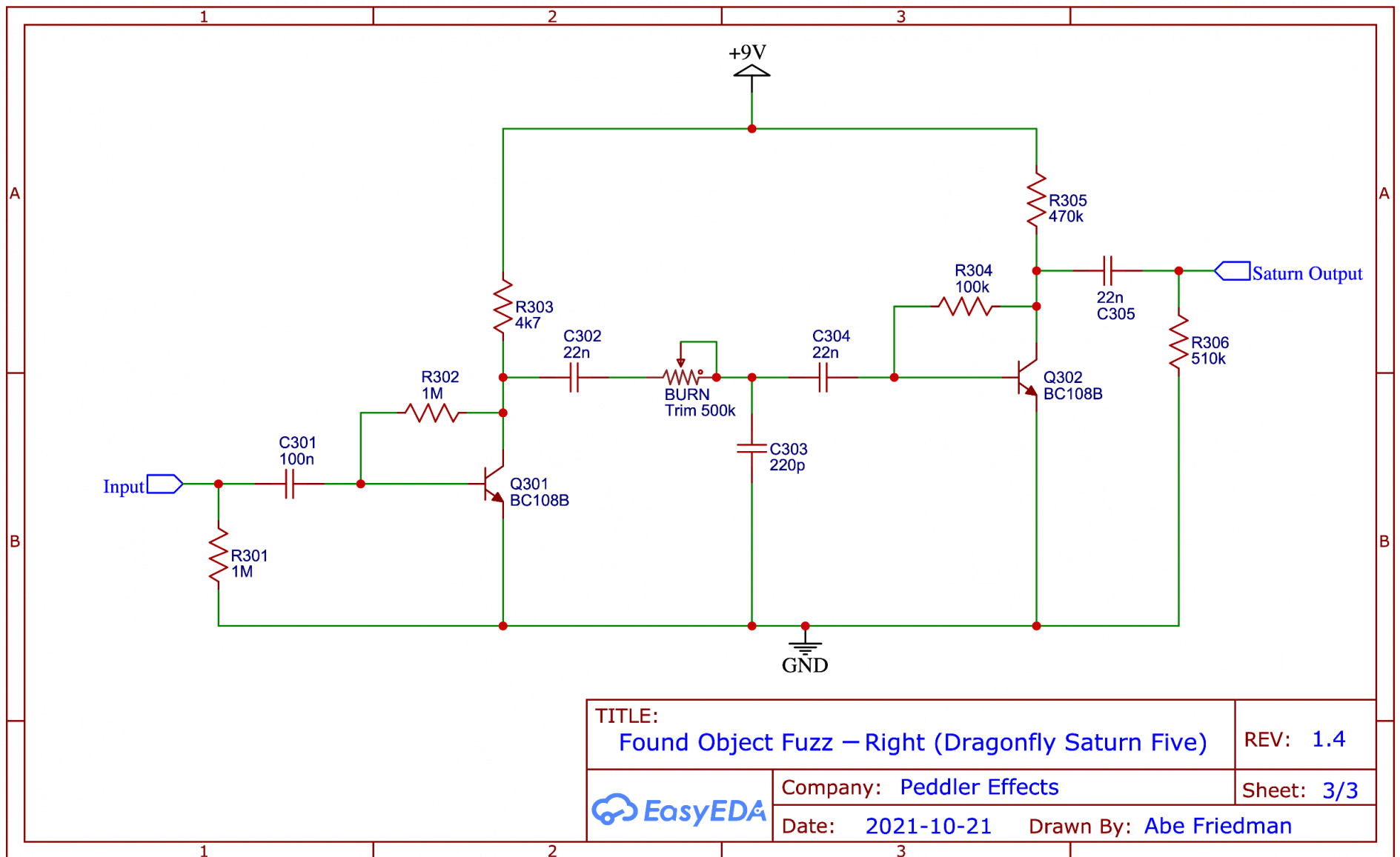
V1.3 (10/21/2021): Simplified input buffer; settle on Oath + Saturn Five for initial production run

V1.4 (10/25/21): Footprint corrections; draw new PCB; (12/15/21) reduce R108/R109 to boost Saturn Five output level



|                                                 |                        |            |
|-------------------------------------------------|------------------------|------------|
| TITLE: Found Object Fuzz – Power & Input/Output |                        | REV: 1.4   |
| Company: Peddler Effects                        |                        | Sheet: 1/3 |
| Date: 2021-10-03                                | Drawn By: Abe Friedman |            |





# Bill of Materials

[Click here for spreadsheet](#)

| Resistors |      |       |      |
|-----------|------|-------|------|
| R211      | 100Ω | R104  | 100k |
| R216      | 100Ω | R105  | 100k |
| R204      | 1k   | R106  | 100k |
| CLR       | 4k7  | R202  | 100k |
| R303      | 4k7  | R206  | 100k |
| R207      | 6k2  | R208  | 100k |
| R212      | 6k2  | R213  | 100k |
| R108      | 10k  | R217* | 100k |
| R109      | 10k  | R304  | 100k |
| R205      | 10k  | R201  | 470k |
| R210      | 10k  | R203  | 470k |
| R215      | 10k  | R209  | 470k |
| R110      | 15k  | R214  | 470k |
| R111      | 15k  | R305  | 470k |
| R101      | 22k  | R306* | 510k |
| R102      | 22k  | R107  | 1M   |
| R112      | 43k  | R301  | 1M   |
|           |      | R302  | 1M   |
|           |      | R103  | 2M2  |

| Capacitors |         |                 |
|------------|---------|-----------------|
| C303       | 220p    | Ceramic         |
| C202       | 470p    | Ceramic         |
| C206       | 470p    | Ceramic         |
| C208       | 470p    | Ceramic         |
| C102       | 100n    | Ceramic         |
| C302       | 22n     | Film (Box-type) |
| C304       | 22n     | Film (Box-type) |
| C305*      | 22n     | Film (Box-type) |
| C103       | 100n    | Film (Box-type) |
| C301       | 100n    | Film (Box-type) |
| C203       | 470n    | Film (Box-type) |
| C204       | 470n    | Film (Box-type) |
| C205       | 470n    | Film (Box-type) |
| C207       | 470n    | Film (Box-type) |
| C104       | 1u      | Electrolytic    |
| C105       | 1u      | Electrolytic    |
| C106       | 1u      | Electrolytic    |
| C201       | 10u     | Electrolytic    |
| C209*      | 10u     | Electrolytic    |
| C101       | 47u 16V | Electrolytic    |

| Diodes |        |
|--------|--------|
| D101   | 1N5817 |
| D201   | 1N4148 |
| D202   | 1N4148 |

| Potentiometers |            |
|----------------|------------|
| GAIN           | Trim 20K*  |
| BURN           | Trim 500k* |
| BLEND          | B10K       |

| ICs and Transistors |              |
|---------------------|--------------|
| Q201                | MPSA18       |
| Q202                | 2N5088       |
| Q203                | 2N5088       |
| Q301                | BC108B       |
| Q302                | BC108B       |
| U1                  | LF353/TL072* |

\*See Circuit Notes