

## **Dirty Cardboard Box Amp (2nd ed.)**

**John Richards 2012/2022**

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The Dirty Cardboard Box Amp is an economic portable battery powered amp with volume control, on/off switch, quarter-inch jack socket input and strap bolts. It has a full range four-inch speaker and LM384 5W audio power amplifier housed in a cardboard box. The amp can be powered by 8 x 1.5 volt (AA) batteries (12 volts), or 2 x 9 volt (PP3) batteries in series (18 volts).

### **Building**

Note the holes in the stripboard between the IC pins (Appendix 2). Not all of the strips are broken: pins 3, 4 and 5 connect to the opposite pins 10, 11, and 12 via the stripboard. Also pins 3, 4, 5, 6, and 7 of the IC should be connected together (ground). Simply bridge the strips with solder connecting the adjacent pins. This eliminates the need for jumper wires.

Two separate battery holders (4 x AA) can be used and joined in series. Alternatively, connect the 9 volt batteries (2 x PP3) directly to the battery clips. Using the two battery clips, connect the positive (red) wire of one clip to the negative (black) wire of the other. Solder and insulate connection with tape. The 'free' red and black wires from the joined clips should connect to the stripboard where indicated (Appendix 2).

A speaker grill can be cut in the face of the box with a knife or drill bit.

Secure all batteries and holders inside the box with tape or ties.

Small squares of cardboard, through which the strap bolts pass, should be placed inside the box to provide extra support for the strap. This effectively doubles the thickness of the cardboard around the holes/bolts.

Corks provide an economic alternative to commercial control knobs. Cut the cork to size, circa 2 cm deep, and drill a hole in the centre of the cork part-way through to fit the pot shaft. The pot shaft can be trimmed with a hacksaw to the required size. The anti-rotation lug/tab on the pot, that is not necessary, can also be removed/snapped off with a pair of pliers. Place and glue the cork on the shaft.

The sound of the Dirty Cardboard Box Amp may be improved by adding a cabinet damping material, such as wadding or fiberglass, inside the cardboard box. This will reduce unwanted reflections inside the box and vibration of the box walls.

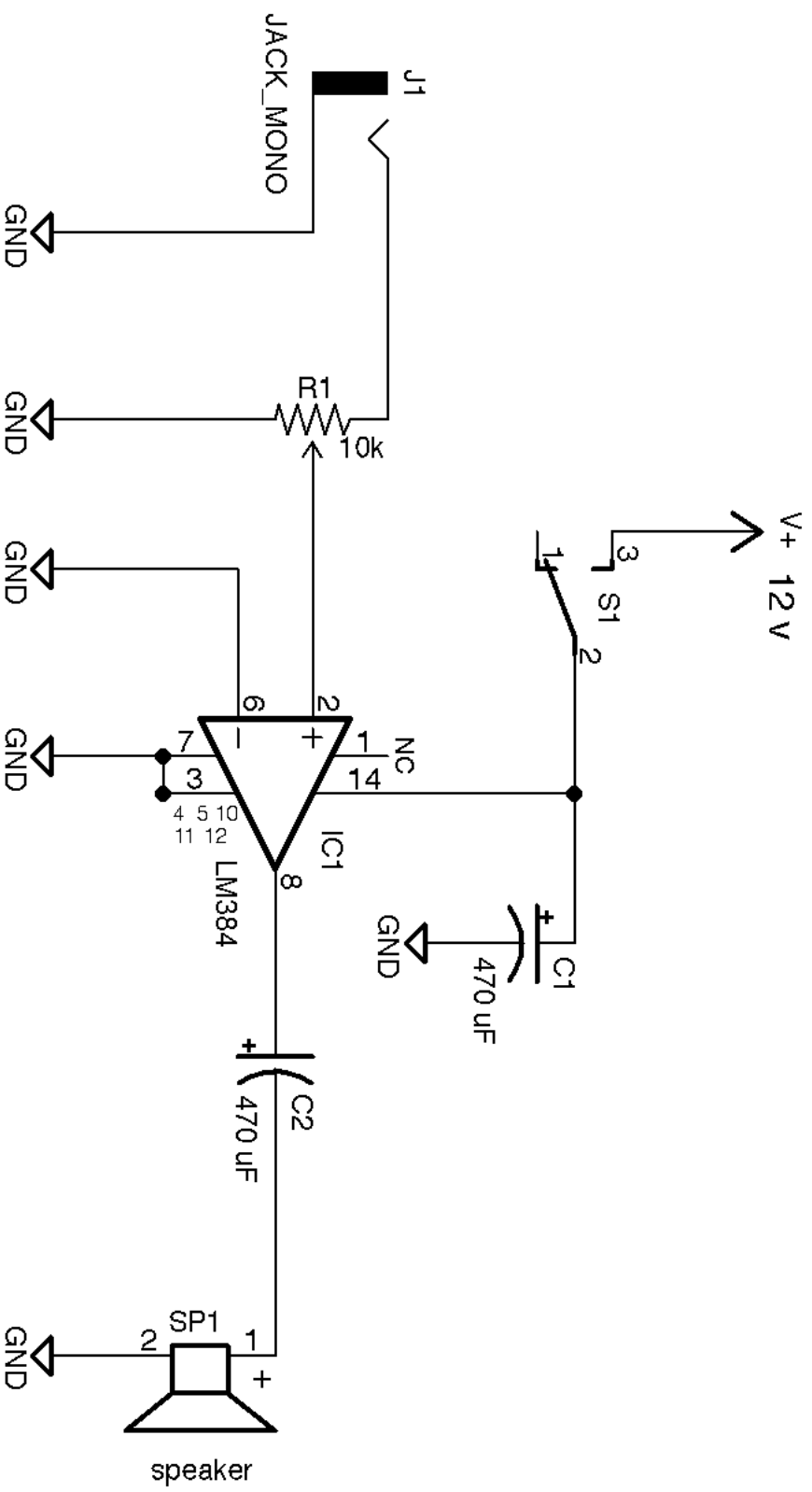
## Part List

IC1 LM384N 5w Power Amplifier  
DIL Socket 14 PIN (top = notch facing up)  
C1 (capacitor) 470 uF (+ = long leg)  
C2 (capacitor) 470 uF (+ = long leg)  
R1 10k 16mm Linear Potentiometer  
S1 SPDT On-On Min Toggle Switch  
J1 6.35mm 2 Pole Quarter-inch Jack Socket

Stripboard  
4 X AA Short Battery Holder x2 (optional 12 volt power supply)  
PP3 Battery Clip 150mm x2  
4 Inch Full-range Speaker  
Cardboard Box (c. 5 x 5")  
Bolts and nuts to mount speaker and strap bolts  
Equipment Wire

Batteries, cork knob, wadding, tape and additional cardboard

Appendix 1: Dirty Cardboard Box Amp Schematic, JR 2012



## Appendix 2: Dirty Cardboard Box Amp Layout, JR 2012

