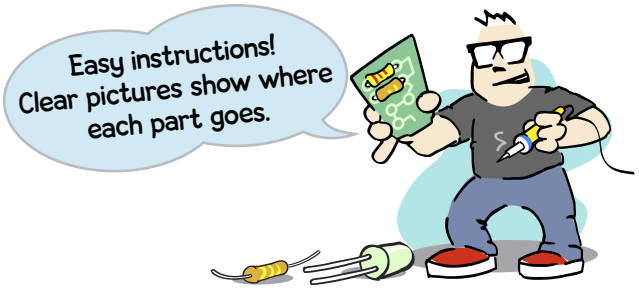
StewMac® + JHS PEDALS

BOMB BOOST

CLASSIC PEDAL KIT

Assembly Instructions

The **BOMB BOOST** is a classic pedal created by JHS, makers of high-end effects pedals. Whenever JHS adds a new pedal to their line, they retire an existing design. This means great JHS pedals like the **BOMB BOOST** have become rare and sought-after. You can't buy one, but you can build yourself one—and it's fun!



This **BOMB BOOST KIT** is the perfect entry into building your own pedals: an easy project without many parts. If you've never assembled a pedal before, start right here!

This pedal is a 16dB JFET boost that will push a tube amp into a clear, natural distortion. Use it in front of your overdrive, distortion, and fuzz pedals for a thicker, more saturated tone. Put it after your pedals to maintain your existing tone, but make it louder (perfect for solos). Or keep it on all the time to boost signal loss caused by long signal chains or by pedals that aren't true bypass.

The original **BOMB BOOST** was a **MINI** version, housed in a mini-sized case. For this kit, we've resized the original circuit to fit a standard enclosure.

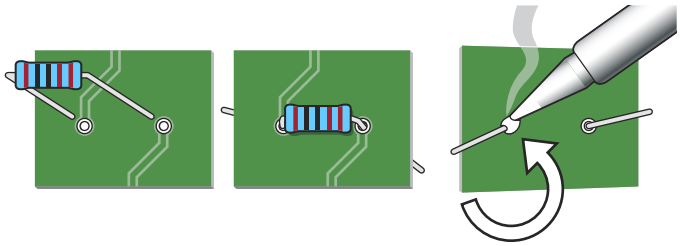
Tools and supplies

Required:	Soldering iron with fine point tip
	Solder
	Wire cutter/stripper
	1/2" nut driver or socket
	10mm nut driver or socket
	14mm wrench
	#1 Phillips screwdriver
Also helpful:	Clear silicone adhesive
	Circuit card holder
	Magnifying glass or OptiVISOR
	StewMac Soldering Aids
Power:	This pedal requires a standard 9V DC center-negative power supply (not included) and consumes less than 100mA. There's no battery option.

Tips for soldering

The solder joints you'll make on the circuit board are very small, and too much heat can damage the board. The idea is to make joints quickly, without scorching the eyelets.

Hold components in place for soldering by threading the leads through the board and bending them apart on the reverse side.



Make your solder joints on the reverse side. Insert the tip into the eyelet and let it heat for 4-5 seconds before touching it with solder. This heats the contact enough for the solder to flow nicely without damage. You don't need much solder, just enough to fill the eyelet. After soldering, trim away the excess lead wire.

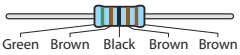
Give your pedal a custom paint job!

Any paint sold for use on metal will work well on the kit case. Spray paints like Rustoleum® or Krylon® are a durable finish. You might want to paint the case before building the kit, so you won't need to take the parts back out for painting.

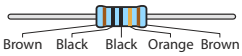
A way to add custom graphics is to print them from your computer onto waterslide decal paper. If you use decals, protect them from scratches by spraying clear topcoats over them.

Parts list

Resistor values are indicated by colored bands, read from left to right. The first color in the code is usually the one painted closest to a lead wire. When a gold or silver band is present, it's always one of the last colors in the code. A magnifier is a big help in reading these codes.

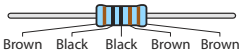


(1) **R1** Resistor (5.1 kΩ)



(1) **R2** Resistor (100 kΩ)

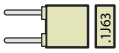
(1) **R3** Resistor (47 Ω)



(1) **R4** Resistor (1 kΩ)

(1) **D1** Diode (P6KE12A)

(1) **C1** Capacitor (22 µF)

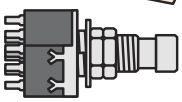


(1) **C2** Capacitor (.1 µF)

(1) **Q1** Transistor (J201)

(1) Volume pot (1 MΩ, linear taper)

(4) Adhesive foam tape

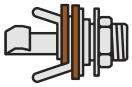


(1) Footswitch (3PDT, latching)

(1) Ribbon cable (2")

(6) Lead wires (2")

(1) LED mounting bezel (5mm)



(2) Mono jacks, 1/4"

(1) **D8** Clear LED (5mm)

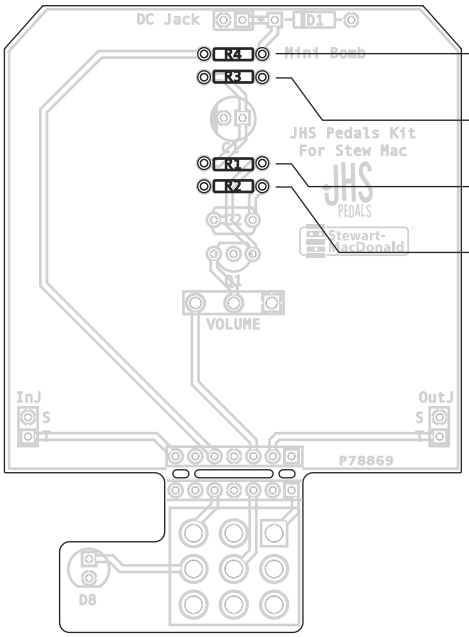
(1) DC power connector (21MM)

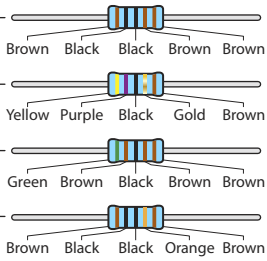
(1) Control knob

(Not pictured) (1) Circuit board

(Not pictured) (1) Metal case with 4 screws

Step 1: Install four resistors





R4 Resistor (1 kΩ)

R3 Resistor (47 Ω)

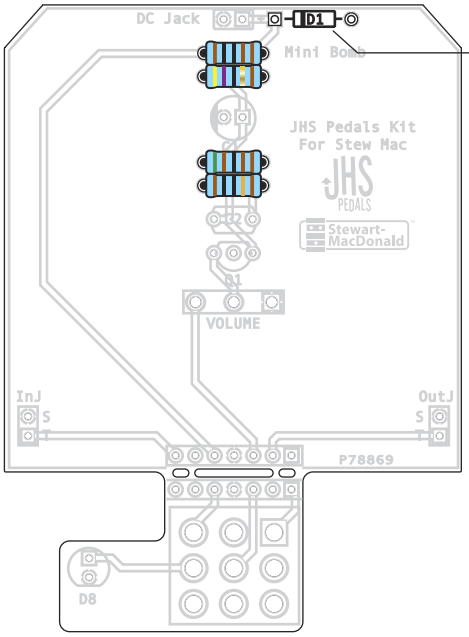
R1 Resistor (5.1 kΩ)

R2 Resistor (100 kΩ)

Resistors have a low profile, sitting closer to the board than taller components, so it's a good idea to install them first. Their locations are marked with numbers on the board.

Resistors are not polarized, so it doesn't matter which lead goes in which eyelet. They can be installed in either direction.

Step 2: Install the diode



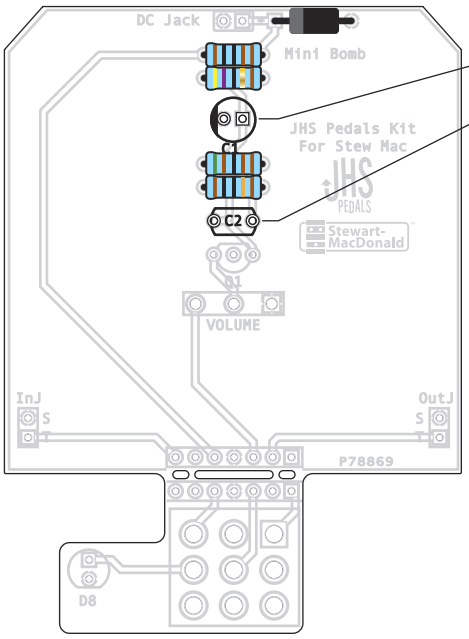
D1 Diode (P6KE12A)

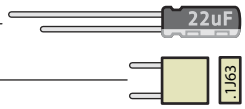
Diodes are polarized, so they need to be installed in the correct orientation. Note the stripe around one end: this marks the negative (minus) lead of the diode. On the circuit board, the printed outline of the diodes also shows this stripe. Install each diode so that its stripe matches the direction shown on the circuit board.

Solder **D1** in its marked location now.

The leads on diodes sometimes vary in diameter. If the leads don't fit into the eyelets in the circuit board, trim them at a steep angle to create sharp points that fit into the holes.

Step 3: Install two capacitors





C1 Capacitor (22 µF)

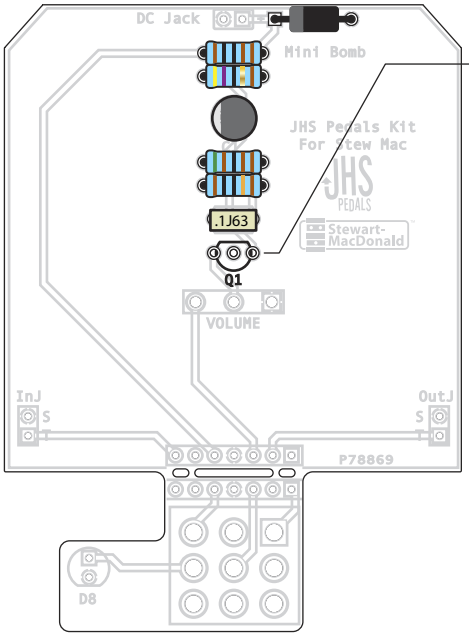
C2 Capacitor (.1 µF)

C1 is a 22 µF polarized capacitor and has to be installed in the right orientation or it will fail. Note that there is a white stripe running the length of the cap, identifying the negative (minus) lead. On the circuit board, the circle for this cap's location has a thicker line on one side: insert **C1** with its stripe facing that side. (On polarized caps of this type, there's a second way to identify the minus lead: it is the shorter of the two leads.)

Solder cap **C1** in place.

C2 is a .1 µF cap that is not polarized. Solder it in place facing either direction.

Step 4: Install the transistor

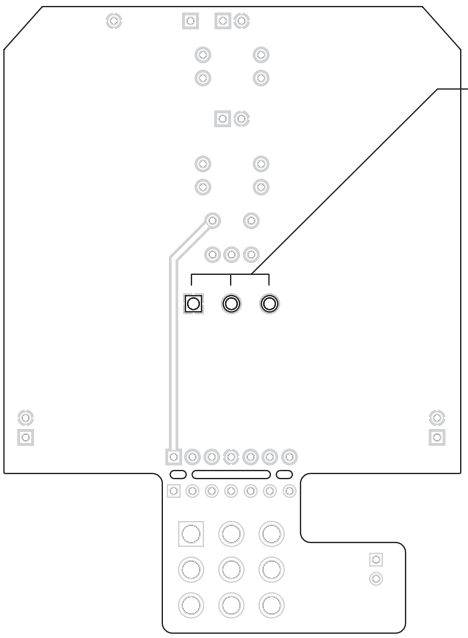


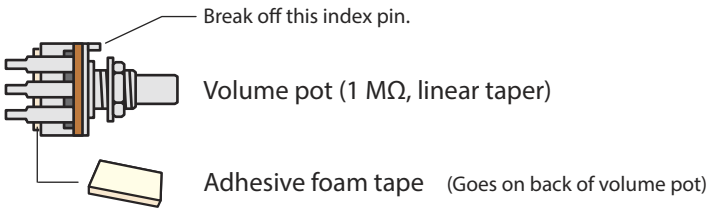
Q1 Transistor (J201)

Q1 is a JFET* transistor. It is also directional and needs to be installed in a specific orientation. Note that **Q1** has a flat side. On the circuit board, the location outline also has a flat side. Install this transistor to match its outline on the card.

*JFET: Junction Gate Field-Effect Transistor

Step 5: Install the volume pot



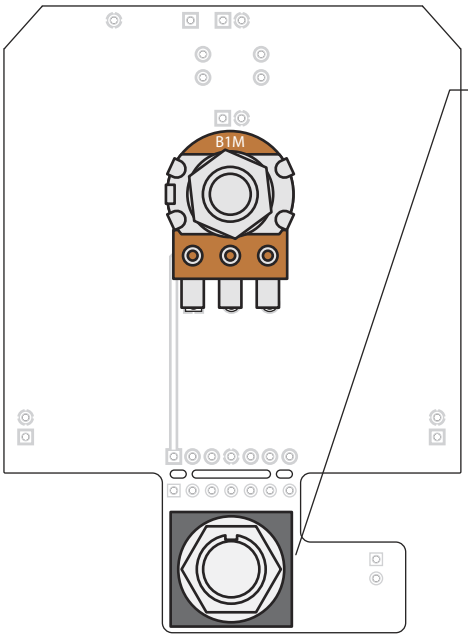


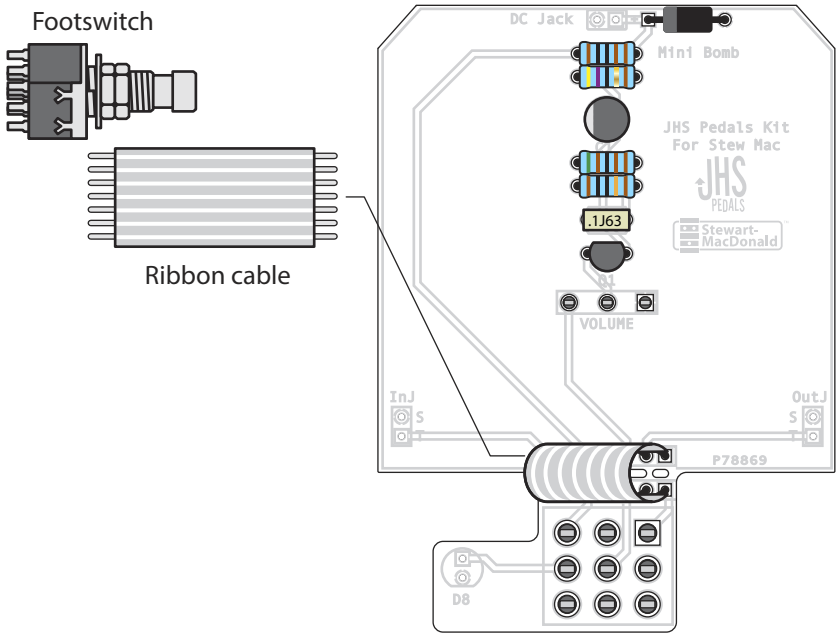
The last component to go onto the circuit board is the **volume pot**. It installs on the back of the board. The pot has three connecting lugs; the illustration in **Step 6** shows the pot in position on the board.

The pot has an index pin protruding from the case. Break off this pin before installation, so the pot will mount flush against the pedal case. Needle nose pliers work well for removing the pin.

Use the **adhesive foam tape** to insulate the back of the pot from the soldered leads of the other parts. Solder the pot in place, making sure it sits flat on the back of the board.

Step 6: Install the footswitch, then the ribbon cable



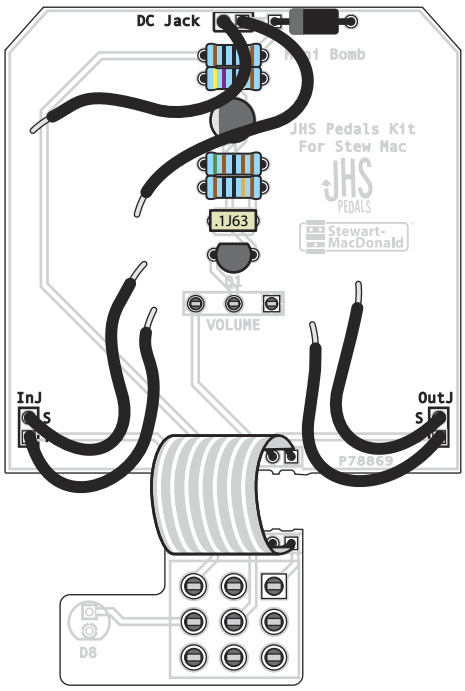


Install the **footswitch** on the back of the circuit board. The switch lugs will fit in only one of two directions; either orientation works fine. Insert the lugs through the nine eyelets so the switch sits flush, making contact all around.

Solder one lug and let it cool. This holds the switch in place while you solder the remaining lugs.

Next, install the **ribbon cable**. Insert the cable leads through the front of the board, and solder them in place on the back.

Step 7: Install the lead wires, cut the board

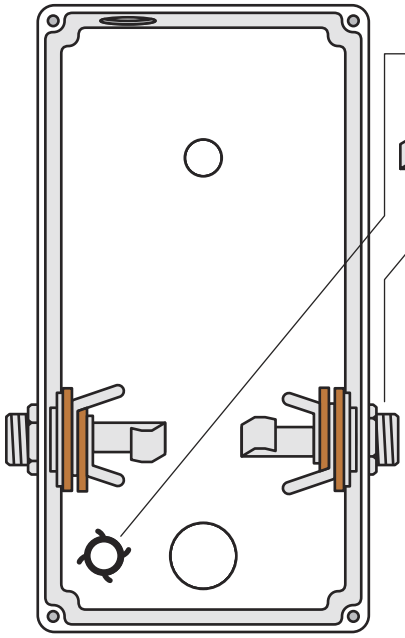


Lead wire, cut into six 2" lengths

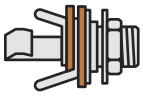
Cut the **lead wire** into six 2" lengths for the input, output, and power jacks. Strip the insulation on the ends and thread them through the front of the board. Solder them on the back of the board.

Now you can cut the switch portion of the board away from the main board. Small wire cutters make quick work of this, and a small saw also works.

Step 8: Install the LED mounting bezel and the two jacks



LED mounting bezel

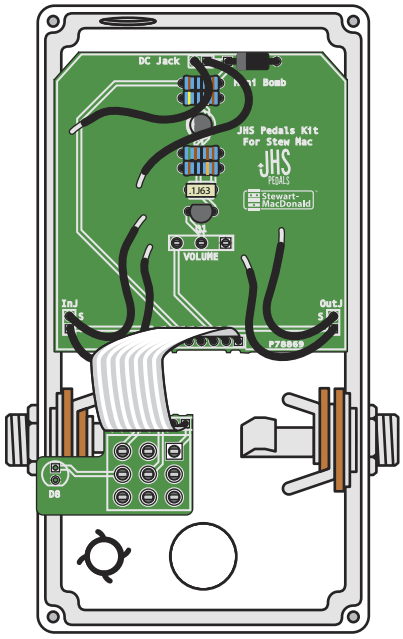


Two jacks

Install the plastic **mounting bezel** for the LED indicator by pressing it in from the outside, through the top of the case. Spread the tabs open inside the case to hold it in place.

Install the **input and output jacks** on the sides of the case. Keep the lugs facing up so you'll have easy access when it's time to solder them.

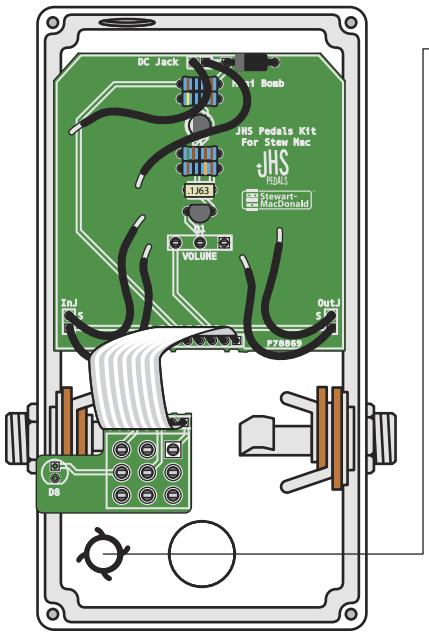
Step 9: Mount the circuit board in the case



The **main circuit board** is held in place by the volume control pot.

Install the pot through the top of the case, and thread the flat washer onto it on the outside. Install the mounting nut so it's good and snug, but take care not to overtighten.

Step 10: Install the LED in the mounting bezel

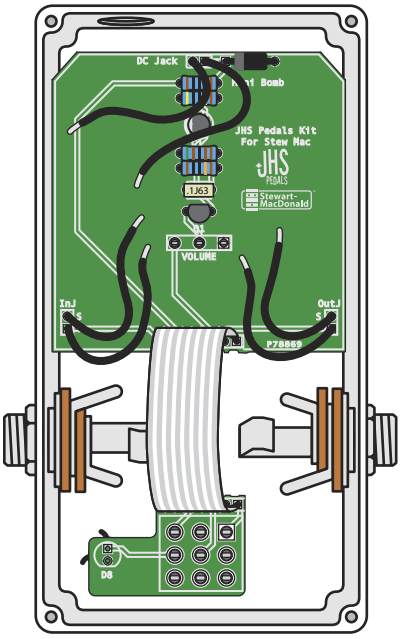


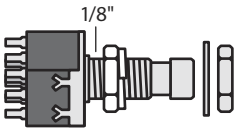
D8 LED (5mm)

Like some of the caps and diodes, the **D8** LED (Light Emitting Diode) is polarized and has to be installed in a specific direction. One side of the diode has a flat edge, indicating the negative lead. Another indication is that the negative lead is shorter than the positive. The circle marking the **D8** location on the switch circuit board has a corresponding flat to indicate the mounting orientation.

Insert the LED into the bezel. It will be held in place by soldering it to the switch circuit board in **Step 11**, but for a more secure mount you can run a bead of clear silicone adhesive around the LED and bezel.

Step 11: Install the footswitch





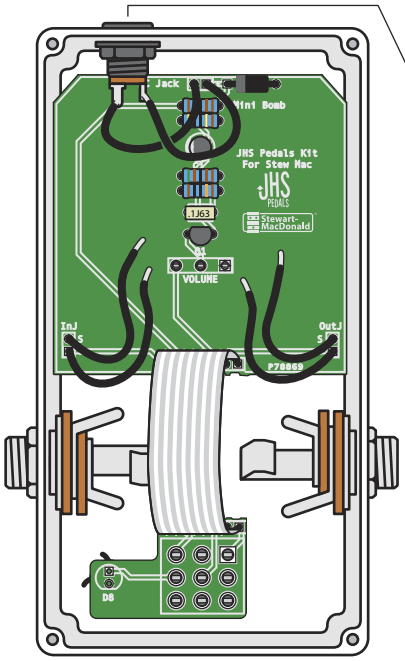
Thread one of the nuts onto the **footswitch**, leaving a 1/8" gap between it and the switch housing. Place the split lock washer on next.

Carefully install the switch so the legs of the diode feed through the **D8** holes on the switch circuit board.

Place the flat washer on the switch shaft on the top of the case. As you tighten the remaining nut on the switch, hold the switch circuit board inside the case so that it doesn't rotate.

Solder the **D8** LED and trim the leads.

Step 12: Install the DC power connector



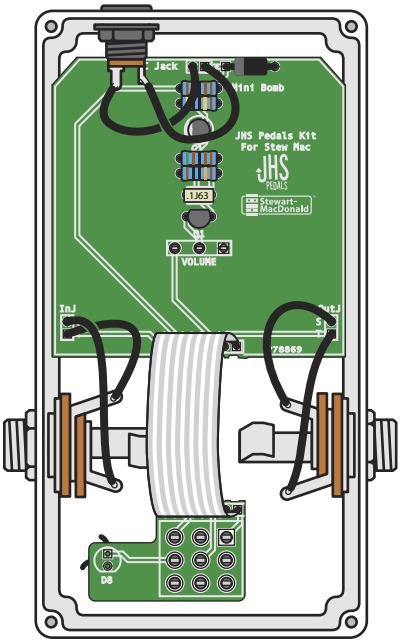
DC power connector

Insert the **DC power connector** so the negative lug is facing up, and tighten it in place. The negative lug is the one with the largest metal tab.

Solder the installed leads from the circuit board to the jack. Where they attach to the board, the positive lead is on the the right and the negative is on the left.

This pedal requires a standard 9V DC center-negative power supply (not included) and consumes less than 100mA.

Step 13: Wire the input/output jacks



On the circuit board, the input and output jack leads are labeled **InJ** and **OutJ**. The leads are also labeled **T** for tip, and **S** for sleeve. Looking at a jack, you'll see that the sleeve lug is attached to the threaded shaft. The tip lug connects to the spring metal piece that contacts the tip of a guitar cord.

Solder these four leads as shown to finish the assembly.

Screw the bottom onto the case and put the knob on the volume control.

Plug in and rock out!

Here's how to use the **BOMB BOOST**: