PROJECT NAME

RIFT

BASED ON
Univox® Superfuzz

BUILD DIFFICULTY
▮▮▮▯▯ Intermediate

EFFECT TYPE
Octave Fuzz

DOCUMENT VERSION
1.0.4 (2024-08-08)

PROJECT SUMMARY

A classic untamed fuzz from the 1970s that adds an octave-up overtone, famous for its use by Pete Townshend of The Who.

IMPORTANT NOTE

This documentation is for the **kit** version of the project. If you purchased the PCB by itself, please use the PCB-only version of the documentation instead. The circuit is the same, but the instructions are completely different due to the specialized parts and assembly methods used in the kit.

TABLE OF CONTENTS

INTRODUCTION

If this is your first pedal, welcome to the hobby and thank you for choosing Aion FX. You've just joined a community of over 100,000 people around the world with a passion for building homemade noise machines using obsolete electronics technology, and we're glad to have you!

If you've done this before, it's great to see you again and we're confident you'll find this build experience an enjoyable one.

Aion FX kits are designed to empower anyone to build a high-quality pedal, no matter the skill level. The pedalbuilding hobby has traditionally had a steep learning curve, but don't be overwhelmed—we've done all the hard work for you. All you need to do is follow these instructions and you'll be on your way to transforming your tone.

There are a few things to go over before you get started.

- **You're going to have to get your hands dirty**—there's no way around it. Nothing here comes preassembled, and you'll have to learn the skills to put it all together. This document will walk you through everything you need, but be prepared to learn a few things along the way.
- **This will take time**. Plan on about two hours start to finish. It may take even longer if it's your first time building. Don't rush it. If you find yourself getting frustrated or overwhelmed, take a break and come back in a couple of hours or the next day.
- **No direct technical support is offered.** There are several DIY forums and Facebook groups with thousands of members who enjoy troubleshooting and teaching. But please be sensitive to the fact that the staff at Aion FX is minimal, and every minute spent helping individuals in private is time that can't be spent on new project development.
- **There is no implied guarantee of a final product.** Aion FX provides the ingredients and the recipe, but you are responsible for putting everything together to make it work. We've tried to make the process as clear and accessible as possible, but it must be expressly stated that purchasing the kit is not a guarantee that you will end up with a working pedal.

It's recommended to read through all of the instructions before you start, particularly if you've never built a pedal before. If you familiarize yourself with the entire process ahead of time and you know what the goal looks like, each step will make more sense.

Now, on to the fun stuff!

PACKING LIST

This is a list of all the parts that are included with the kit, grouped by value. For a list of all the parts based on their PCB part numbers, please see page 24.

If you find that any parts are missing or damaged, please fill out the Missing Parts form.

Film Capacitors

NAME	QTY
1n	1
2n2	1
100n (0.1 or "μ1J100")	2

Electrolytic Capacitors

NAME	QTY
10uF	11
100uF	1

MLCC Capacitors

NAME	QTY
100n (marked "104")	1

Diodes

NAME	QTY
1N5817	1
Germanium (glass case, no marking)	2

Resistors

NAME	QTY
470R	2
1k	1
1k8	2
3k3	1
10k	8
15k	1
22k	4
47k	3
100k	6
150k	1
220k	1
470k	1
2M2	1

Transistors

NAME	QTY
2N3904	3
2N3903 (matched)	2
2N3903 (unmatched)	1

PACKING LIST (CONT.)

Potentiometers

NAME	QTY
10k trimmer potentiometer	1
50kB	3
Dust cover	3
Knob	3
Mounting nut, potentiometer, 0.44"	3
Lock washer, potentiometer, 0.5"	3
Outer washer, potentiometer, 0.475"	3

Other

NAME	QTY
LED bezel	1
LED, blue	1
9V battery snap	1
DC jack	1
Input/output jack	2
Mounting nut, jack, 0.54"	4
Outer washer, jack, 0.6"	2
Lock washer, jack, 0.5" (thin)	2
Enclosure	1
Enclosure screws	4
PCB, main circuit	1
PCB, footswitch	1
PCB, input/output/DC	1

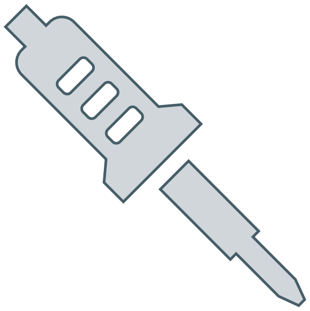
Switches

NAME	QTY
Stomp switch, 3PDT	1
Mounting nut, stomp switch, 0.6"	2
Lock washer, stomp switch, 0.6"	1
Dress nut, stomp switch, 0.77"	1

Wiring

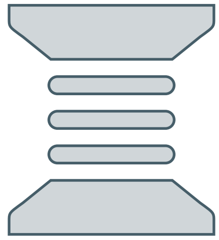
NAME	QTY
3-strand wire assembly, 70mm	2
4-strand wire assembly, 108mm	1
3-pin wire assembly header	2
4-pin wire assembly header	1

TOOLS NEEDED



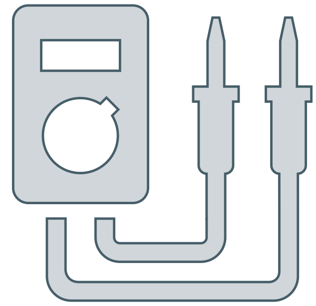
SOLDERING IRON

Temperature-adjustable is recommended. The optimum soldering temperature is 700-725° F (371-385° C) for leaded solder, or 750° F (400° C) for lead-free.



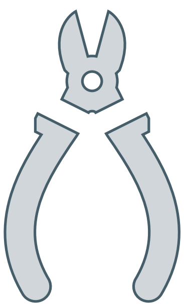
SOLDER

Preferably 63/37 or 60/40 leaded solder. Lead-free is more difficult to use, so if that's the only type you can get, it's best to watch tutorials that are specific to lead-free solder.



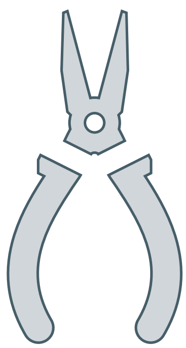
DIGITAL MULTIMETER (DMM)

Most cheap ones in the $10-30 range are fine for what we're doing. Make sure it has audible continuity testing (i.e. it beeps at the lowest resistance) and transistor hFE measurement.



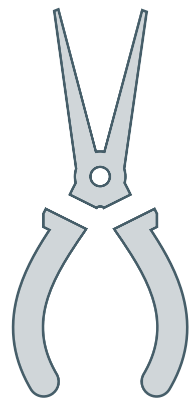
WIRE SNIPPERS

Also called nippers or wire cutters. The Hakko CHP-170 is the best you can get for less than $10.



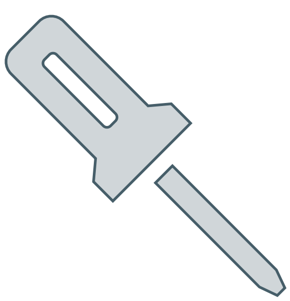
FLAT-NOSE PLIERS

Many general-purpose uses, but particularly tightening the nuts of pots, switches and jacks. Quicker than changing out sockets on a ratchet.



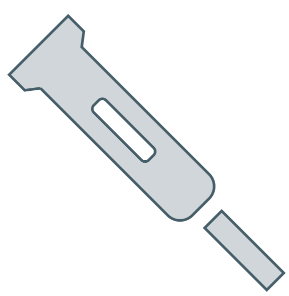
NEEDLE-NOSE PLIERS

These are used for bending leads on components and other general uses. Use the smaller type with a tip that's approximately 0.05" (1.25mm) wide.



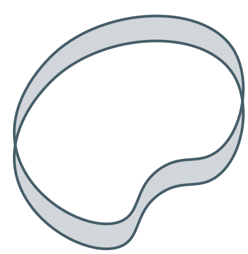
SCREWDRIVER (PHILLIPS)

Used for the enclosure screws. Get a powered driver if you'll be building a lot of pedals!



FLAT SCREWDRIVER (SMALL)

This is used for tightening the set screws on the knobs. The tip should be no more than 0.1" (2.5mm) wide.



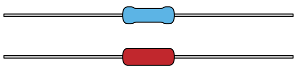
RUBBER BAND

Yes, a plain old rubber band. This is used to tighten the dress nut to avoid scratching or denting it (which can happen with metal tools).

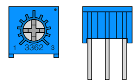
COMPONENT IDENTIFICATION

If you've never built a pedal before, you'll need to know what all the components are. These are shown actual size. (Not all of these types of components may be part of this kit.)

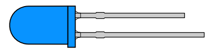
RESISTOR



TRIMMER POTENTIOMETER

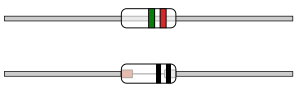


LED



SILICON DIODE

GERMANIUM DIODE



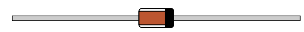
These are very fragile, so be careful when handling them.

RECTIFIER DIODE

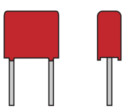
Some Schottky diodes also look like this.

SCHOTTKY DIODE

ZENER DIODE

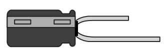


FILM CAPACITOR



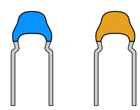
Not polarized. Color may vary by brand and type.

ELECTROLYTIC CAPACITOR



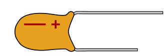
Polarized. The negative side is marked.

MLCC



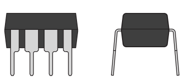
Not polarized. MLCC stands for "multi-layer ceramic capacitor."

TANTALUM CAPACITOR



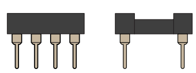
Polarized. The positive side is marked.

OP-AMP / IC

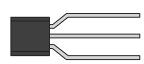


Charge pumps and delay chips also look like this. They may have more than 8 legs.

IC SOCKET

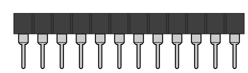


TRANSISTOR OR JFET



Some voltage regulators also look like this.

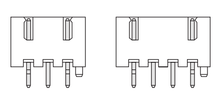
SNAP-APART SOCKET



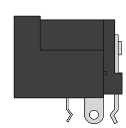
It's recommended to use a razor blade to separate these cleanly.

WIRE ASSEMBLY

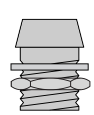
WIRE ASSEMBLY HEADER



DC JACK

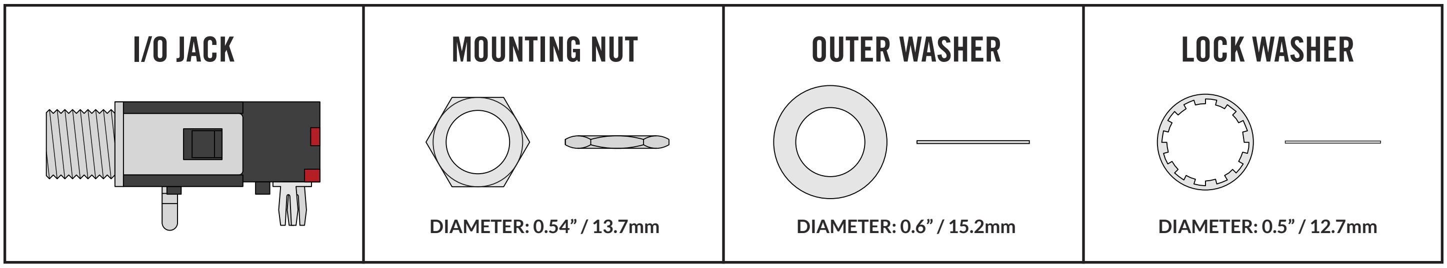


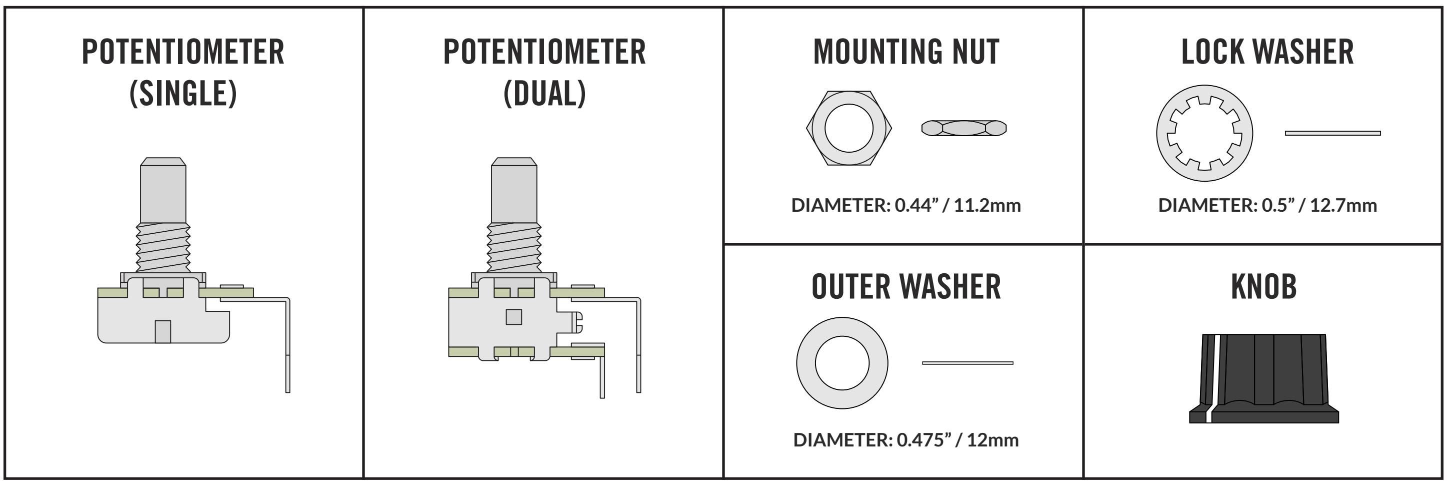
LED BEZEL

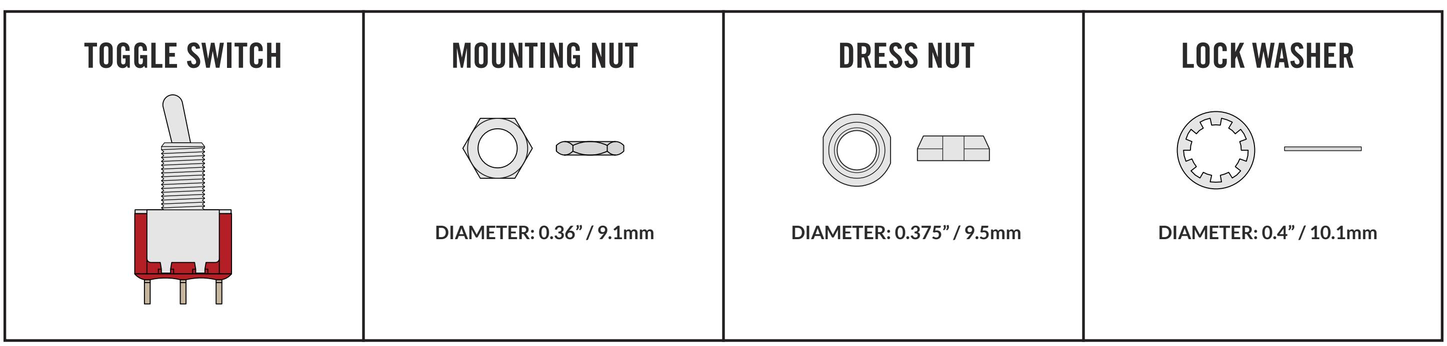


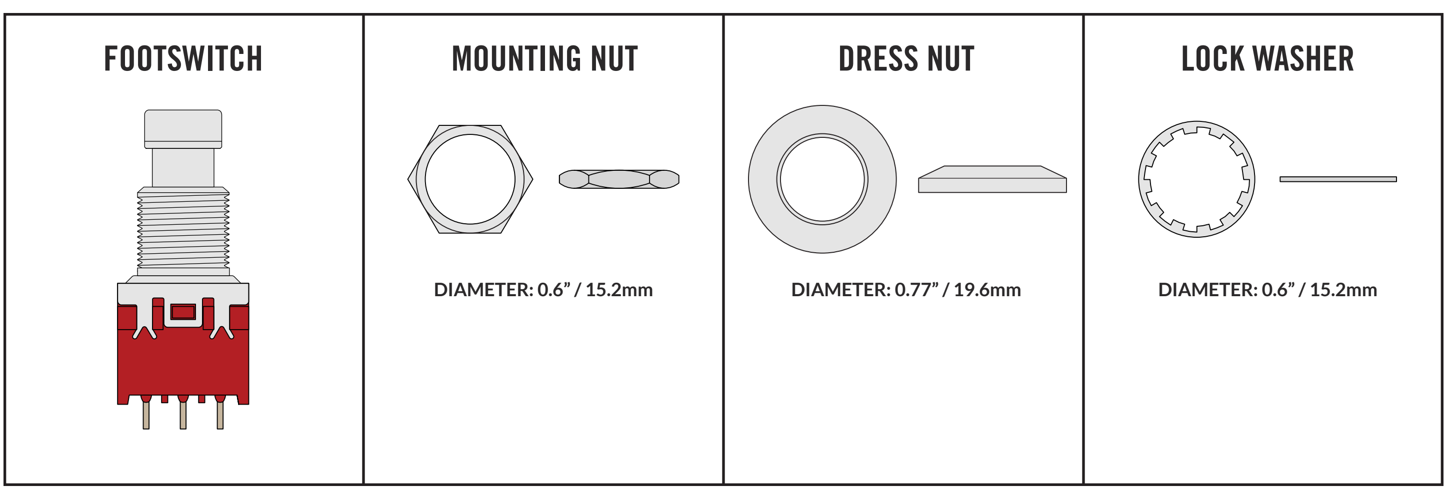
HARDWARE IDENTIFICATION

The hardware comes unassembled, so you'll need to sort & identify each of the pieces. The diagrams below are actual size, so you can set them against the printed page to identify them if needed.

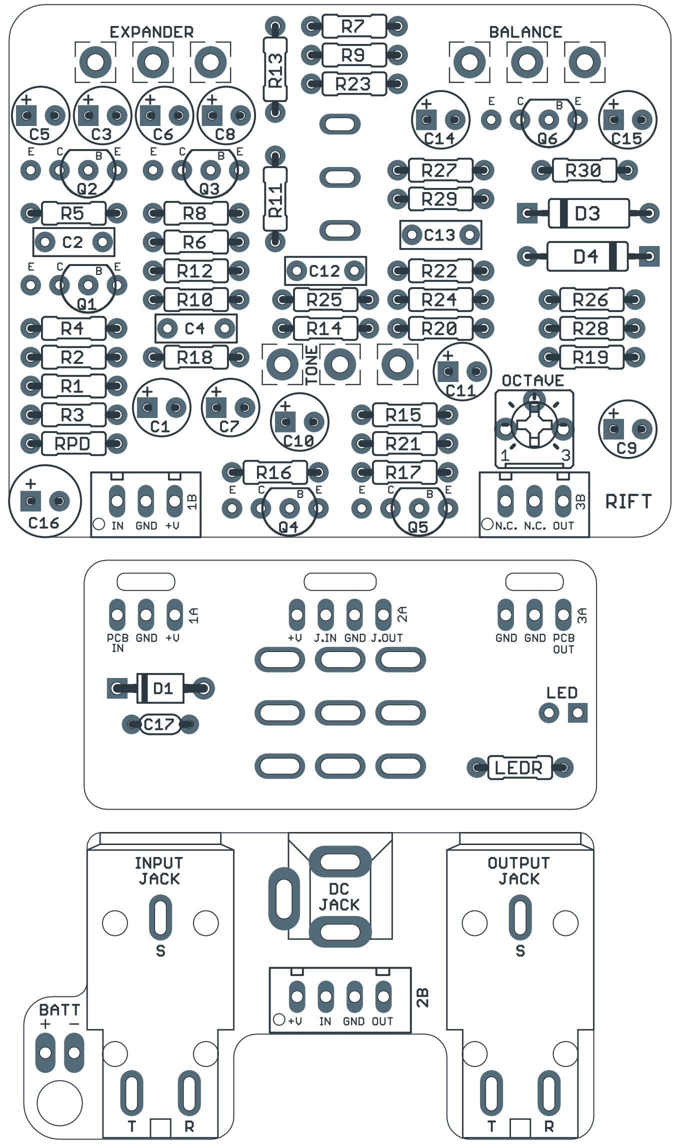








PCB ASSEMBLY OVERVIEW



Now it's time to start building!

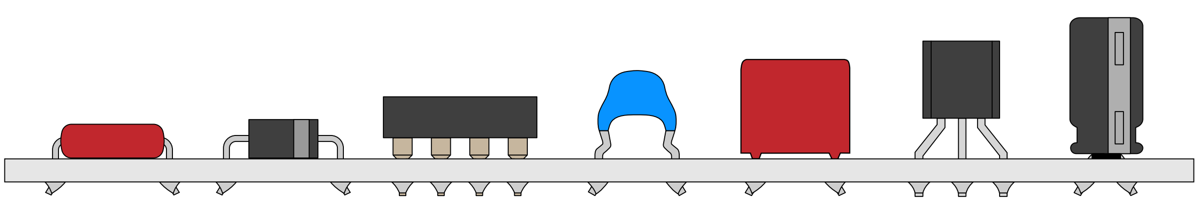
The first thing you need to do is snap apart the PCBs into 3 separate boards (if needed) and break off the tabs from each using needle-nose or flat-head pliers. You should be left with the PCBs shown to the right.

The general principle for PCB population is that you want to work in layers from shortest components (i.e. lowest-profile) to tallest so that when the PCB is upside-down, everything is making contact with the work surface and is held in place.

Generally speaking, you should populate the components in this order:

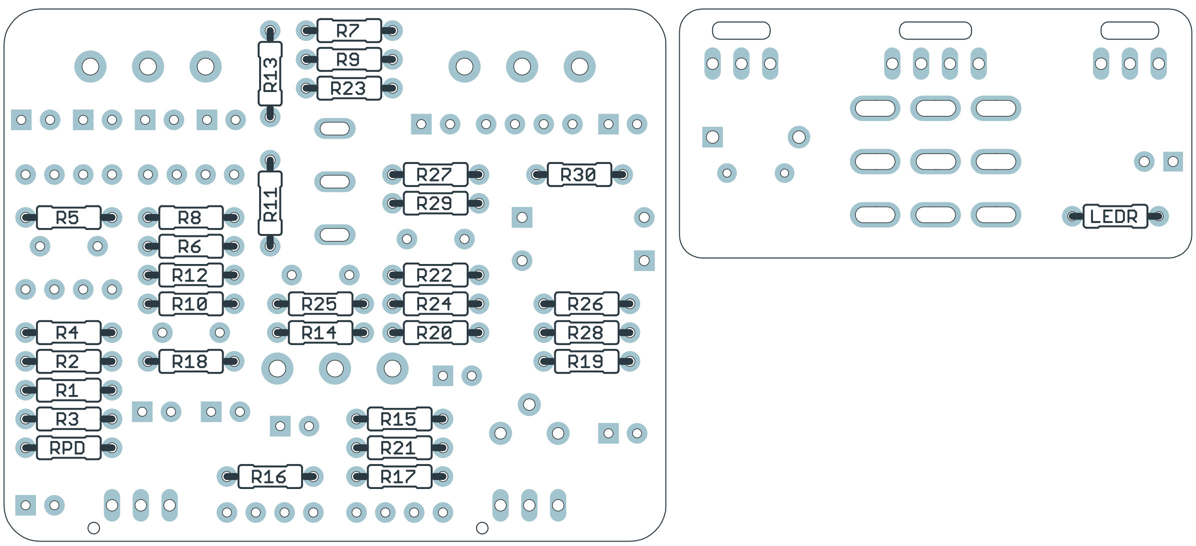
1. Resistors
2. Diodes
3. IC sockets
4. MLCC capacitors
5. Film capacitors
6. Transistors
7. Electrolytic capacitors

Not all of these component types are included in each kit, so skip them if they aren't applicable. Some types of film capacitors are taller than electrolytics, so those can be done last.

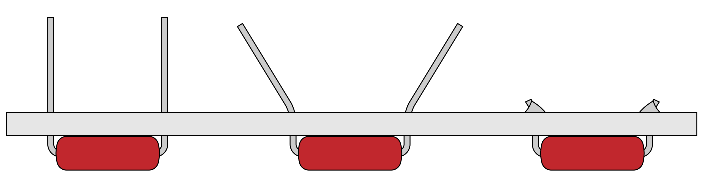


RESISTORS

PART	VALUE	PART	VALUE	PART	VALUE	PART	VALUE
R1	22k	R9	3k3	R17	22k	R25	10k
R2	100k	R10	220k	R18	10k	R26	100k
R3	100k	R11	150k	R19	1k8	R27	15k
R4	1k8	R12	10k	R20	22k	R28	10k
R5	47k	R13	10k	R21	100k	R29	1k
R6	470k	R14	470R	R22	47k	R30	100k
R7	10k	R15	470R	R23	10k	RPD	2M2
R8	47k	R16	100k	R24	22k	LEDR	10k



Using the parts list above, populate the resistors by pushing them through the holes and bending the leads outward at an angle to hold them in place. Resistors are not polarized, so they will work in any direction. Turn the board upside-down to keep the components held in place while you solder.



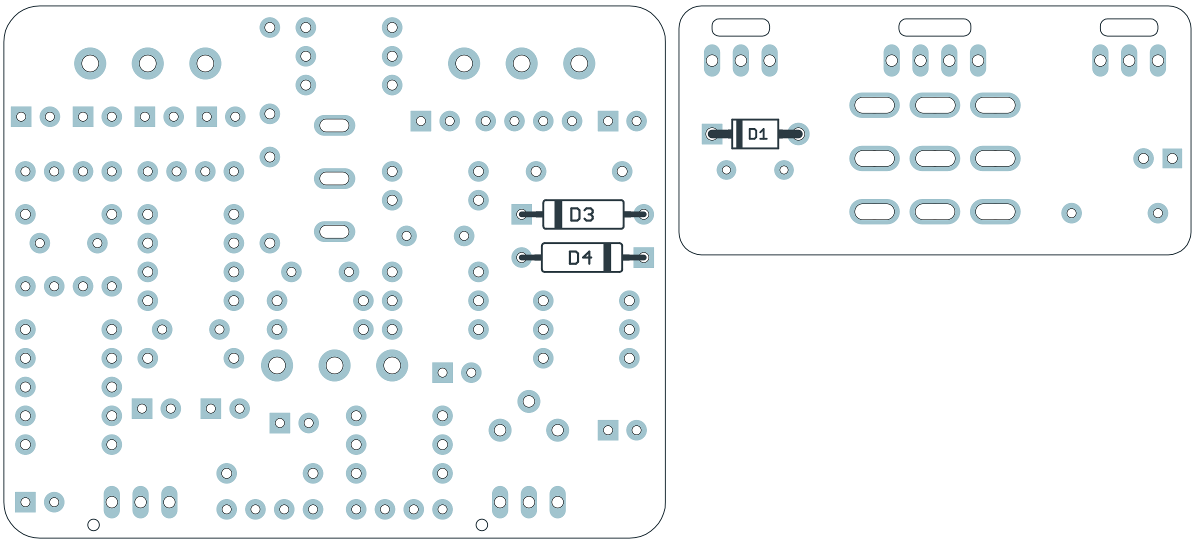
You'll use this same technique for most of the other components as well.

Don't try to do all of the resistors at once. You'll want to stop periodically flip the board and solder everything, then cut the leads using the wire snippers to make room for more. Generally you don't want to do more than 10 or 15 resistors at a time or the bottom of the board will get too crowded.

If this is your first time soldering, watch tutorial videos on YouTube and make sure you get it down before you begin. You don't want to practice or experiment on this board!

DIODES

PART	VALUE
D1	1N5817
D3	Germanium
D4	Germanium

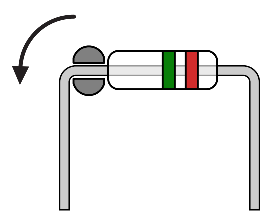


Next, you'll populate the diodes. Diodes are polarized, so make sure to identify the polarity band (which indicates the "cathode", or negative side) and match the band to the footprint on the PCB.

Germanium diodes will sometimes have more than one band. In these cases, the larger or wider band is the one that indicates the cathode side.

Precautions with germanium diodes

Germanium diodes are fragile and require more care than the other components. Make sure to observe the following precautions when working with them.

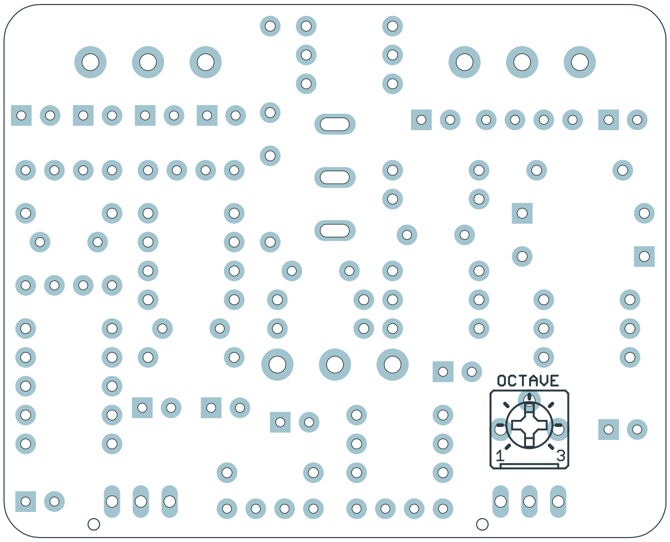


- To prevent stress on the glass body of the diode, when bending the leads, use needle-nose pliers or tweezers to clamp the lead as close to the body as possible while you bend it down. The bend should be about 0.05–0.08" from the body of the diode, so make sure to use pliers that are narrow enough.
- Old-stock diodes can sometimes develop corrosion on the leads, making them difficult to solder. It's recommended to use sandpaper or a small file to gently rough up the leads where they will make contact with the solder. This will make adhesion much easier.
- Be quick when soldering. Germanium diodes can easily be damaged by overheating. Contact with the soldering iron should be limited to 1-2 seconds maximum. If you don't have a good solder joint, wait a minute or two for it to cool before trying again.

If you damage them during installation, send us a note via our missing parts form and we can send a replacement for the cost of shipping.

TRIMMER

PART	VALUE
OCTAVE	10k trimmer



Next up is the trimmer potentiometer. As with other types of components, after installing it on the PCB, the three legs should be bent outwards to hold it in place while soldering.

Adjusting the octave trimmer

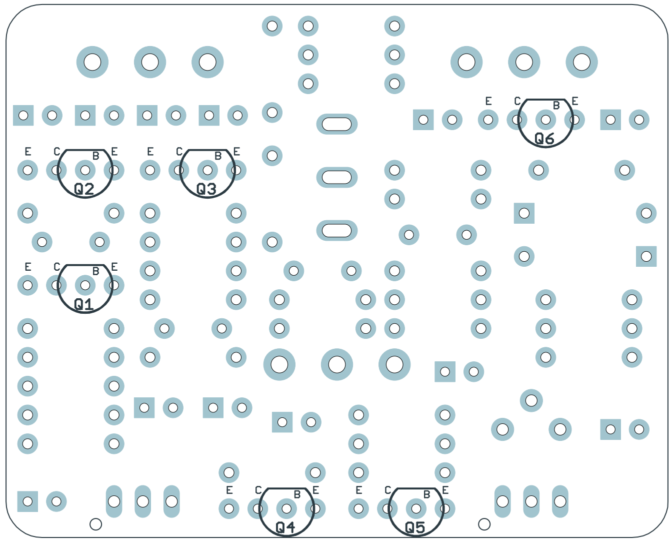
The octave trimmer should be set to the 12:00 position to start with. It controls the balance between Q4 and Q5, the two transistors that produce the octave effect, and was originally implemented in the Superfuzz to compensate for the transistors being mismatched.

Since the Q4 and Q5 transistors are closely matched in this kit already, the trimmer likely will not need further adjusting from the 12:00 position, but it's there so you can make tweaks if needed. You may find you prefer the octave to be slightly less pronounced.

TRANSISTORS

PART	VALUE
Q1	2N3904
Q2	2N3904
Q3	2N3904
Q4	2N3903**
Q5	2N3903**
Q6	2N3903

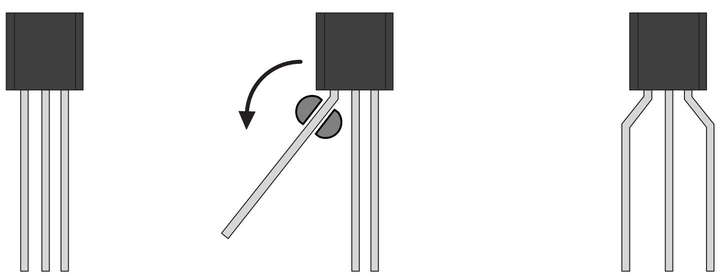
*** matched pair*



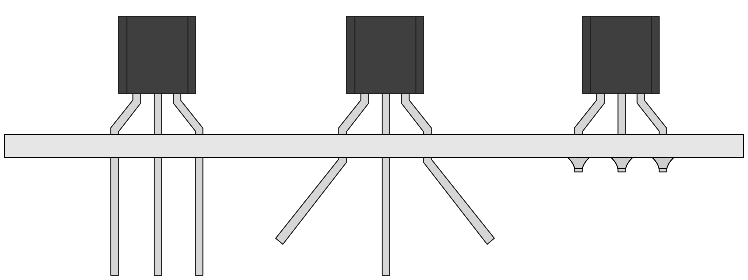
Now we'll do the six transistors:

- The three 2N3904s should be used for **Q1-3**.
- Two of the 2N3903 transistors should be paired inside a small inner bag. These are the matched set for **Q4** and **Q5**. It's recommended to install these two first so they aren't inadvertently mixed with the other 2N3903 that is unmatched.
- The remaining 2N3903 is used for **Q6**.

If the legs are not already bent into 0.1" spacing, use your needle-nose pliers to bend the outer two legs as shown.



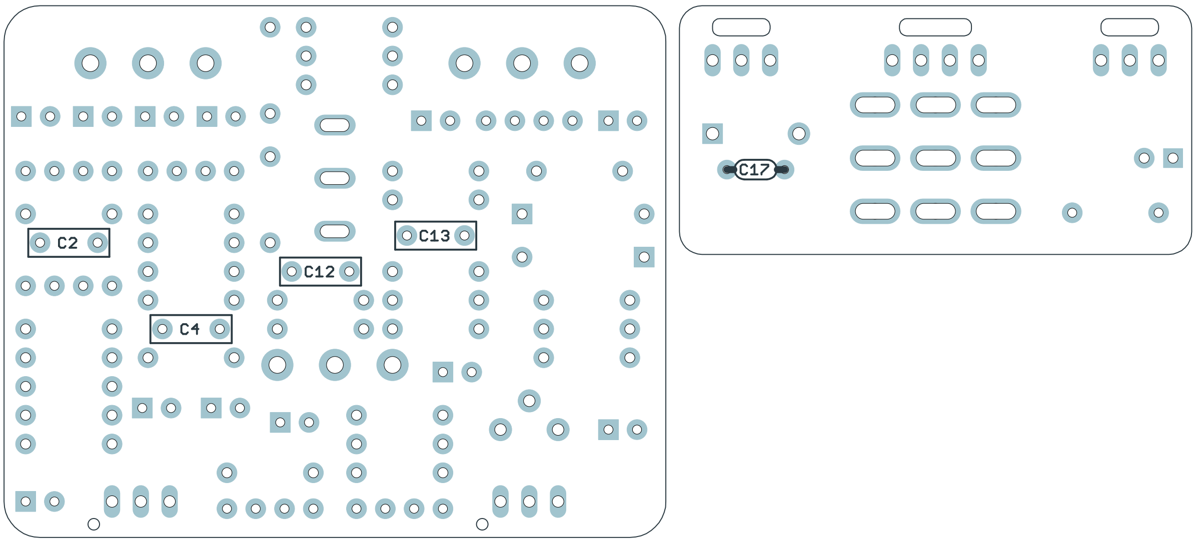
Bend the outer leads to hold it in place on the board. Then, solder them and clip the leads.



CAPACITORS (NON-POLARIZED)

PART	VALUE
C2	2n2
C4	100n (0.1)
C12	1n

PART	VALUE
C13	100n (0.1)
C17	100n MLCC

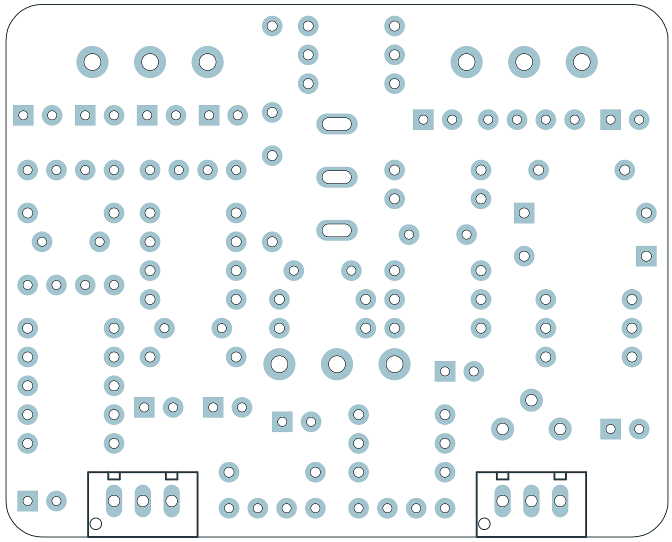


After the sockets come the box film and MLCC capacitors. These are all several different heights, but there aren't as many, so just do them all at once. Bend the leads at an angle to hold them in place.

C4 and C13 are red. The value may be printed on the side or the top, and may read either "0.1" or "µ1J100". C2 and C12 are blue and the value is printed on the top.

MLCCs and box capacitors are not polarized and will work in any direction. To keep things neat, though, it's best to put them all facing the same way.

WIRE HEADERS



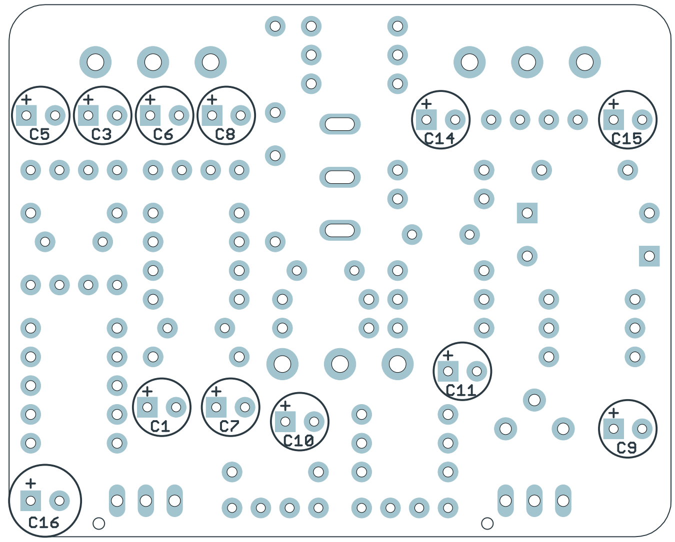
Install the two 3-pin headers (wire connectors) as shown above. These have a polarity pin, so as long as they are pressed all the way down, there's only one possible way to install them. They do fit pretty tightly in the holes, though, so press firmly.

There's also a 4-pin header on the I/O board that we will do in a later step.

CAPACITORS (POLARIZED)

PART	VALUE
C1	10uF electro
C3	10uF electro
C5	10uF electro
C6	10uF electro
C7	10uF electro
C8	10uF electro

PART	VALUE
C9	10uF electro
C10	10uF electro
C11	10uF electro
C14	10uF electro
C15	10uF electro
C16	100uF electro

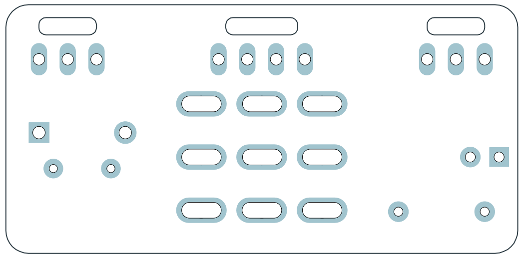


Populate the electrolytic capacitors. These are the tallest components so we save them for last. They are polarized (in other words, they will only work in one direction), so note the vertical mark that indicates the negative side. The longer leg is positive and fits in the square pad.

These are the last of the on-board components.

FOOTSWITCH PCB

PARTS
3-strand wire assembly (2)
4-strand wire assembly



Next, it's time to finish up the footswitch board. You should have done most of the on-board components on this board in a previous step, but if not, go back and do those.

There will be one longer assembly with 4 wires and two shorter ones with 3 wires. The longer one goes in the middle and the shorter ones go on the left and right sides. The wire assemblies should then be soldered to the footswitch board as shown.

STEP 1

First, thread the wire through the strain-relief slots, with the blue side facing outward and the PCB's previously-installed components facing up.

For now, pull it through as far as it can go.

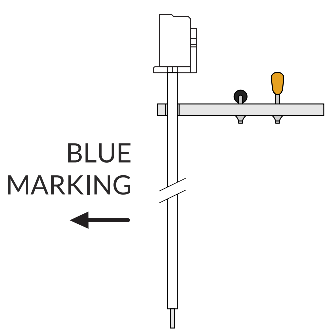
STEP 2

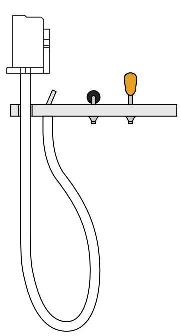
Next, bend the wires back upward and fit the ends of the wires into the solder pads.

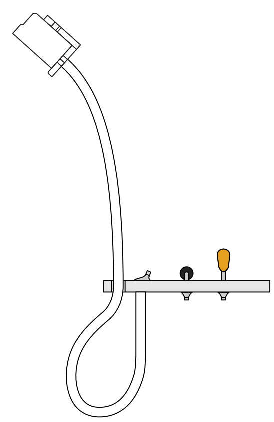
On the top side of the PCB, bend the exposed wires backward so it holds the wire in place. Pull the header back up through the slot partway.

STEP 3

Then, solder the wires from the top. This is the trickiest part of the whole build. You want to solder the pads without touching the iron to the wires themselves and risking burning through the insulation. It helps to use a sharp or narrow tip on the soldering iron.



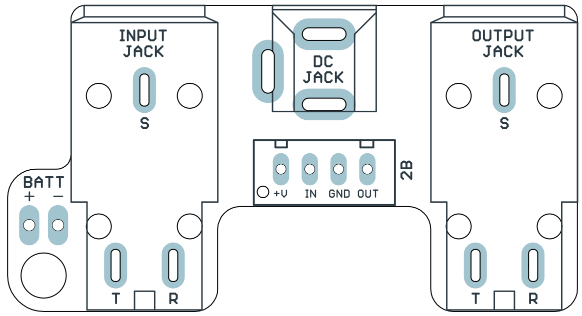




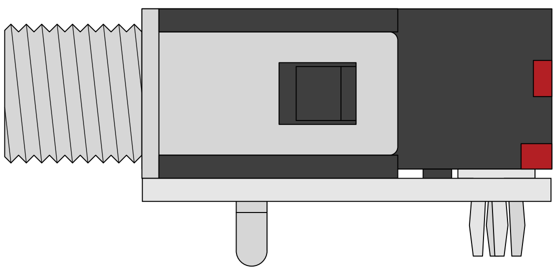
Once all three wire assemblies are soldered, set the footswitch PCB aside. We'll solder the actual footswitch and LED in a later step.

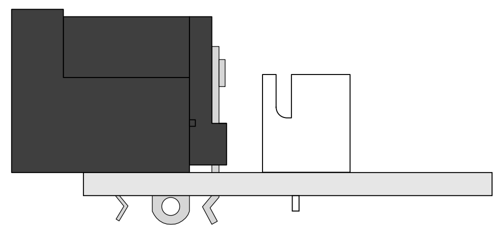
INPUT/OUTPUT PCB

PARTS
Input & output jacks
DC jack
Wire header
9V battery snap



Almost done! Get the two input/output jacks, the DC jack and the wire header and snap them in place. The PCB is designed for them to fit securely, so you can do them all at once before flipping and soldering.



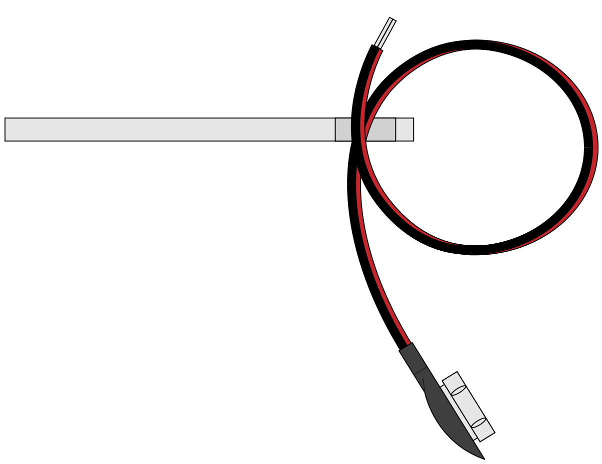


After you've soldered everything, make sure to **snip the leads on the I/O jacks as close as possible to the PCB**. There's not a lot of clearance between the bottom of this board and the top of the main PCB once everything is in place, and you don't want the pins to short against anything on accident.

Next, we'll hook up the 9V battery connector. **This is optional.** Not everyone uses batteries. But, if you do, this pedal should last a long time on a single 9V so you won't need to change it very often.

STEP 1

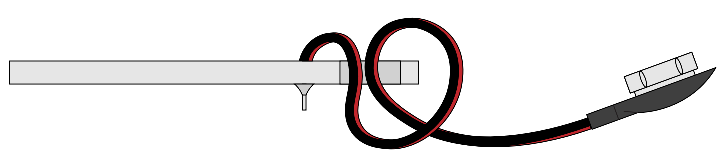
Thread the battery snap leads through the strain-relief hole twice so it forms a single loop.



STEP 2

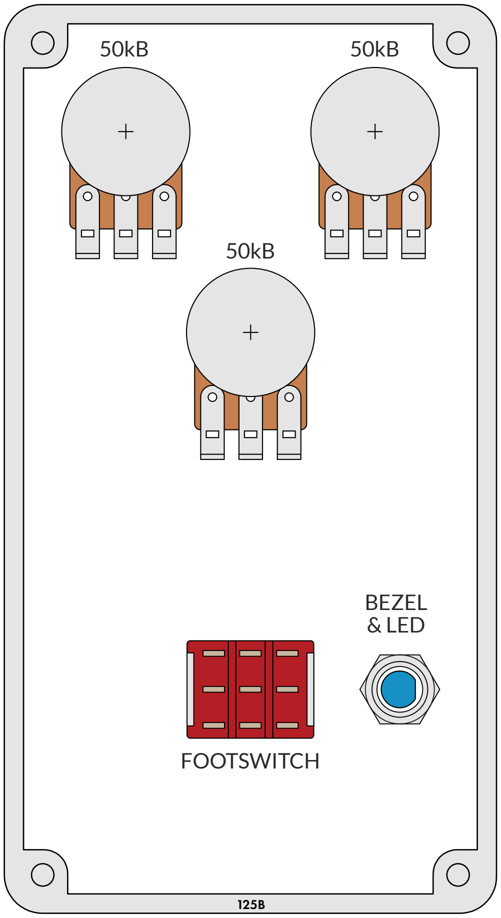
Bend the exposed wires back down and solder them into the pads. Red is positive (+), black is negative (-). After soldering, pull it tight.

For even more strain relief, you can thread the snap through the loop to form a knot. (not shown)

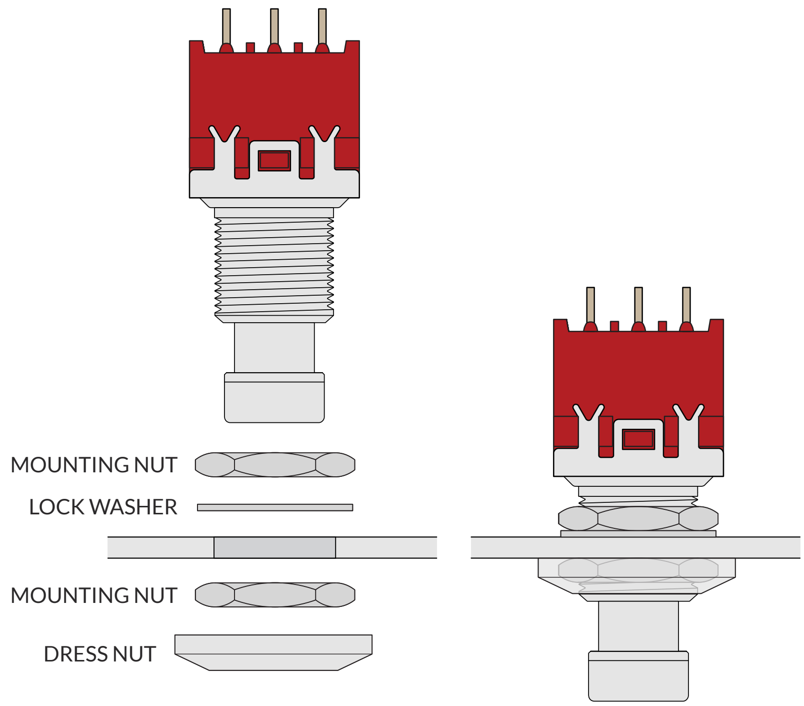


ENCLOSURE LAYOUT: PANEL MOUNTS

Attach the hardware to the enclosure as shown. (The I/O board is done in a later step.)



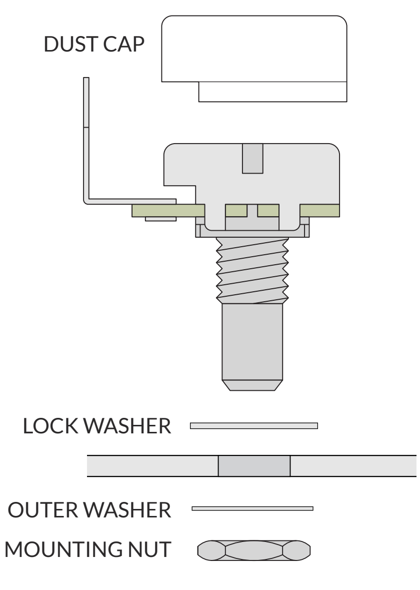
FOOTSWITCH

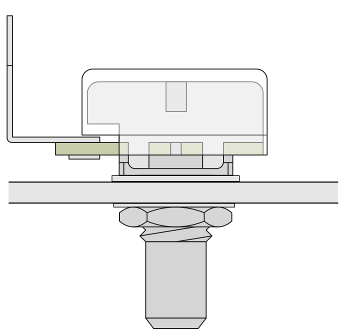


The dress nut fits over the top of the mounting nut and is for aesthetic purposes only. Wrap a rubber band around it to use as a grip when tightening. Do not use metal tools on it or you run the risk of scratching or denting it.

POTENTIOMETERS

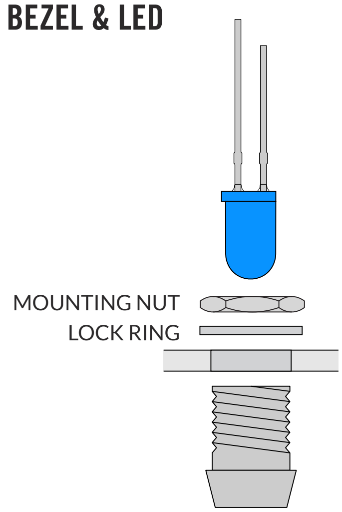
Expander: 50kB
Balance: 50kB
Tone: 50kB

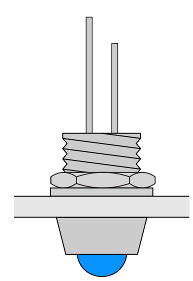




BEZEL & LED

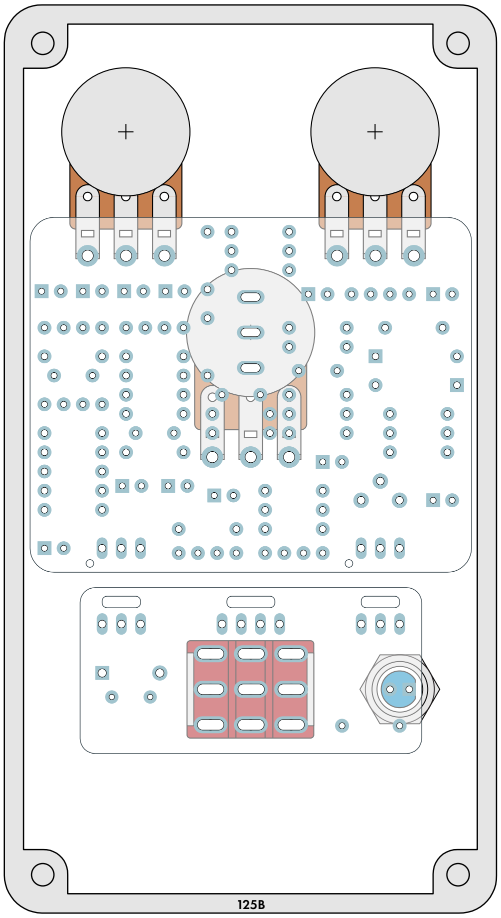
The LED will just sit loosely inside the bezel for now.





You'll need to hold the bezel in place when tightening the nut. The top of the bezel is fairly sharp, so try using a rubber band for grip instead of pressing your finger against the bottom.

ENCLOSURE LAYOUT: MAIN & FOOTSWITCH PCBS



After all the components are affixed to the enclosure as shown on the previous page, place the main PCB on top of the potentiometers as shown in the diagram to the left. You may need to adjust the position of the potentiometers slightly if they are not aligned straight.

Note that the toggle switch is not used in the kit and will be left empty on the PCB. It is replaced by the Tone control that pans between the two switch settings of the original Superfuzz for better control over the tone.

Once all of the pins are through their holes and the PCB is laying flat, solder each of the pins from the top. Be careful not to touch any of the surrounding components with the soldering iron.

After you've finished soldering the pots, **clip the leads as close as you can to the main PCB**. This is more important with the two uppermost pots because the input/output PCB overlaps them and you need to avoid any of the components shorting.

Next, move to the footswitch board and solder the 3PDT switch.

The LED is last. Before soldering the LED, double-check to **make sure the flat side of the LED is facing to the right**, as shown in the diagram, and that the short leg is coming through the pad on the right. It won't work if it's turned the other way. Then, clip the leads of the LED.

Why solder everything inside the enclosure before testing it?

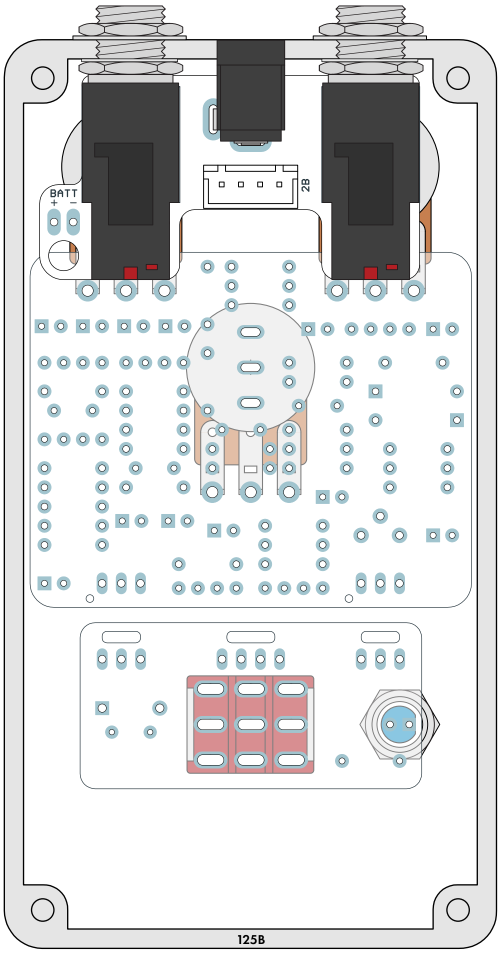
"Rock it before you box it" is conventional wisdom in pedalbuilding, and you'll often hear it recommended that builders should test the circuit before putting everything inside the enclosure. However, Aion FX projects are designed to be extremely easy to remove from the enclosure for troubleshooting, with no desoldering required—so with these kits, it's actually much easier to "box it before you rock it".

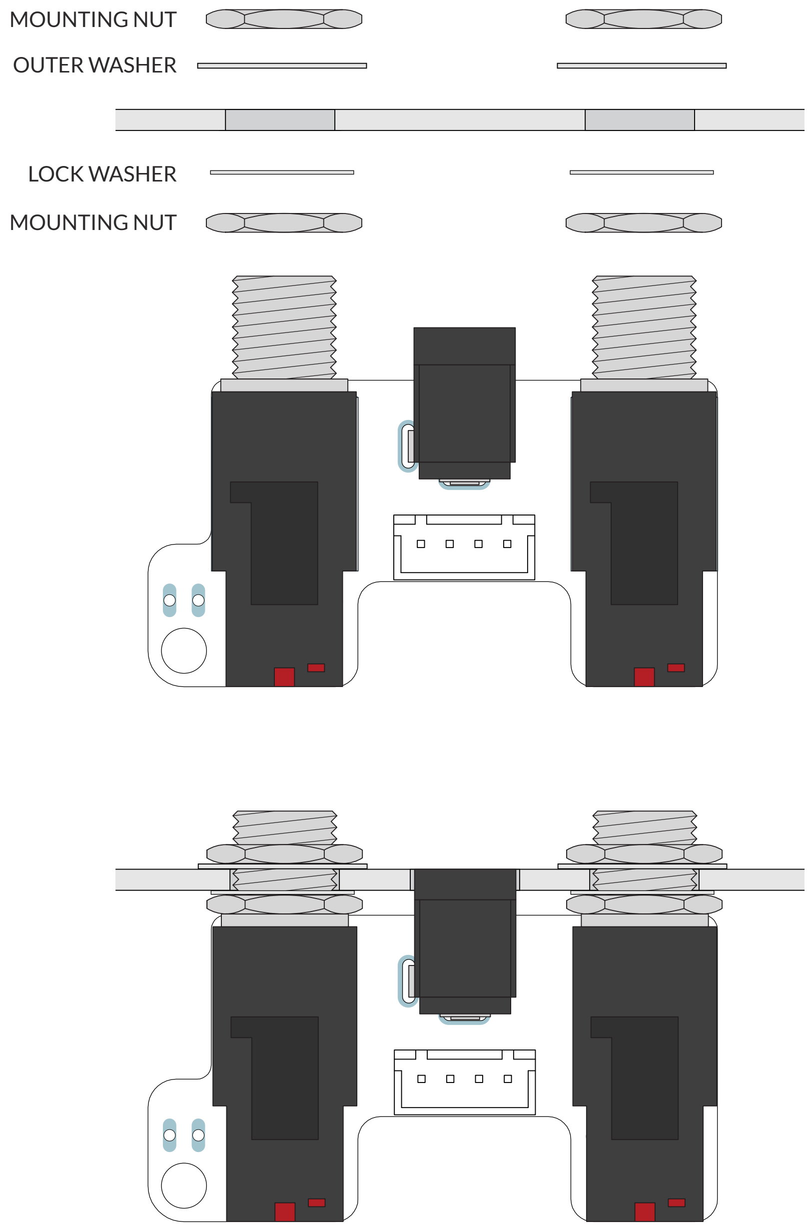
If you've read the documentation carefully and followed all the instructions, there's a good chance you will get it right the first time!

ENCLOSURE LAYOUT: INPUT/OUTPUT PCB

Affix the input/output PCB to the north-facing panel of the enclosure as shown.

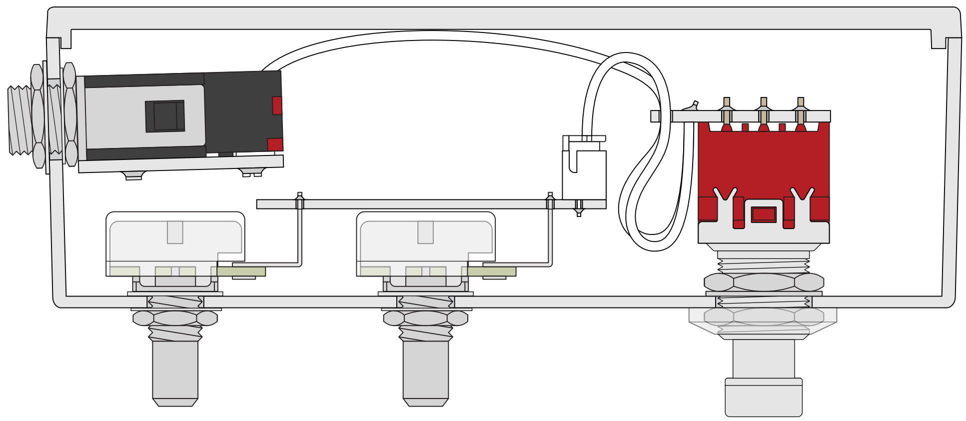
Note the use of two mounting nuts on each of the jacks, one inside and one outside. The inner nut acts as a spacer to set the DC jack flush with the outside of the enclosure. The inner nuts should be threaded as far down as they can go.





FINAL TESTING & ASSEMBLY

After everything is in place, plug the 3 wire assemblies into their respective headers and make sure they're secure. Here is a cross-section of the inside of the completed pedal.



At this point, you have completed the full circuit as far as the electrons are concerned. Plug in a 9-volt supply and test it out with a guitar and an amplifier.

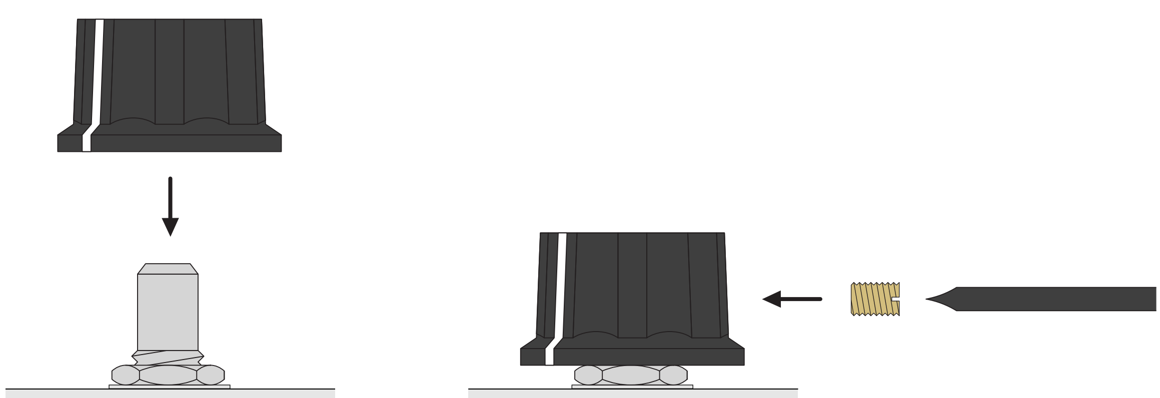
Test the bypass switch a few times, then start turning the knobs and see if everything sounds OK. If it works, great! If not, don't be discouraged. See page 25 for troubleshooting info.

Finishing touches

Now, just a couple of things for the final assembly. Turn the shafts all fully counter-clockwise, then put on the knob and rotate until the indicator line is aligned with the dot on the enclosure that shows the zero point. Affix the knobs to each of the potentiometer shafts as shown in the diagram below.

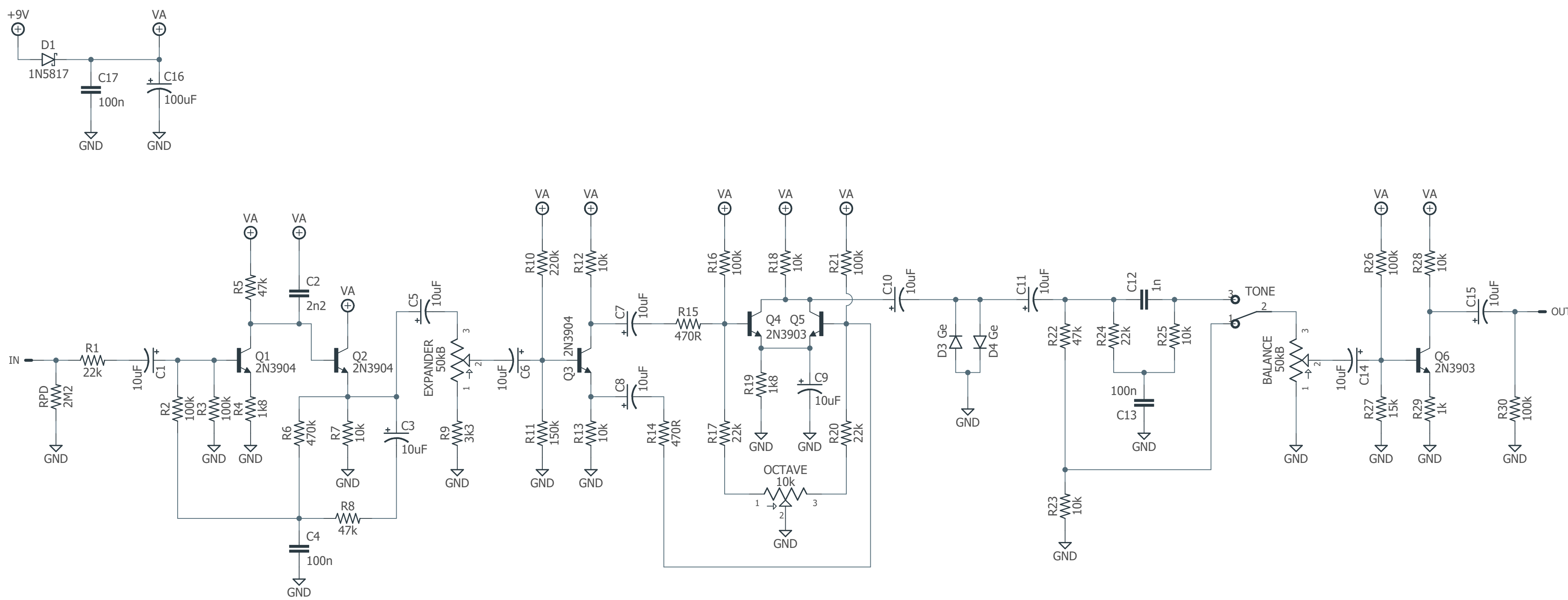
Using a small flat-head screwdriver (no more than 0.1" / 2.5mm in diameter), firmly tighten the set screw until it presses against the shaft of the potentiometer and holds the knob in place.

Be careful not to over-tighten or you may damage the set screw. But if it's not tight enough, the knob will be more likely to fall off or lose its alignment with the markings on the enclosure.



Last, just close the panel on the back using the four screws. That's it!

SCHEMATIC



+9V
VA
D1
1N5817
C17
100n
C16
100uF
GND
IN
OUT
R1
22k
RPD
2M2
C1
10uF
R2
100k
R3
100k
R4
1k8
R5
47k
C2
2n2
Q1
2N3904
Q2
2N3904
R6
470k
R7
10k
C3
10uF
R8
47k
C4
100n
C5
10uF
EXPANDER
50kB
R9
3k3
C6
10uF
R10
220k
R11
150k
Q3
2N3904
R12
10k
R13
10k
C7
10uF
C8
10uF
R14
470R
R15
470R
R16
100k
R17
22k
R18
10k
R19
1k8
Q4
Q5
2N3903
C9
10uF
R20
22k
R21
100k
OCTAVE
10k
C10
10uF
D3 Ge
D4 Ge
C11
10uF
R22
47k
R23
10k
C12
1n
R24
22k
R25
10k
100n
C13
TONE
BALANCE
50kB
C14
10uF
R26
100k
R27
15k
R28
10k
R29
1k
Q6
2N3903
C15
10uF
R30
100k

FULL PARTS LIST

Resistors

PART	VALUE
R1	22k
R2	100k
R3	100k
R4	1k8
R5	47k
R6	470k
R7	10k
R8	47k

PART	VALUE
R9	3k3
R10	220k
R11	150k
R12	10k
R13	10k
R14	470R
R15	470R
R16	100k

PART	VALUE
R17	22k
R18	10k
R19	1k8
R20	22k
R21	100k
R22	47k
R23	10k
R24	22k

PART	VALUE
R25	10k
R26	100k
R27	15k
R28	10k
R29	1k
R30	100k
RPD	2M2
LEDR	10k

Capacitors

PART	VALUE
C1	10uF electro
C2	2n2
C3	10uF electro
C4	100n
C5	10uF electro
C6	10uF electro
C7	10uF electro
C8	10uF electro
C9	10uF electro

PART	VALUE
C10	10uF electro
C11	10uF electro
C12	1n
C13	100n
C14	10uF electro
C15	10uF electro
C16	100uF electro
C17	100n MLCC

Diodes

PART	VALUE
D1	1N5817
D3	Germanium
D4	Germanium

Potentiometers

PART	VALUE
Expander	50kB
Balance	50kB
Tone	50kB
Octave	10k trim

Switches

PART
3PDT stomp

Transistors

PART	VALUE
Q1	2N3904
Q2	2N3904
Q3	2N3904
Q4	2N3903*
Q5	2N3903*
Q6	2N3903

Q4 and Q5 are supplied as a matched set.

TROUBLESHOOTING INFORMATION

If you finish building the kit and find that it doesn't work right, we've written a separate in-depth Troubleshooting Guide that applies to all of our kits. The main troubleshooting process is covered there. Here you will find information specific to this kit that will help with that process.

Voltages

The following voltages are taken from our prototype unit using a **9.70V** supply. Your measured voltages won't be exactly the same due to variance in power supplies and component tolerances. However, if you see anything more than +/-0.5V from the listed voltages, it's a good indicator of an issue, and the exact voltages can help narrow it down.

The pins of the transistors ("E" for emitter, "B" for base and "C" for collector) will be marked on the PCB.

Q1

PIN	VOLTAGE
E	0.13V
B	0.73V
C	5.86V

Q2

PIN	VOLTAGE
E	5.21V
B	5.86V
C	9.48V

Q3

PIN	VOLTAGE
E	3.02V
B	3.64V
C	6.48V

Q4

PIN	VOLTAGE
E	1.33V
B	1.98V
C	2.00V

Q5

PIN	VOLTAGE
E	1.33V
B	1.96V
C	2.00V

Q6

PIN	VOLTAGE
E	0.54V
B	1.18V
C	4.10V

SUPPORT

Aion FX does not offer direct support for these projects beyond the provided documentation. Replacements and refunds cannot be offered unless it can be shown that the circuit or documentation are in error or that the included components are non-functional.

Where to get help

The three best places to ask for help are the DIY Stompboxes forum, the DIY Stompboxes Facebook group, and the r/diypedals subreddit. These communities have more than 150,000 members between them and they are very accommodating to new builders.

When posting a troubleshooting request, always include the following:

1. A thorough description of the problem you are experiencing
2. A photo of the inside of the pedal
3. A list of all the measured voltages of each of the pins, described on the previous page

While we cannot offer direct, private support, you may send a link to your public troubleshooting thread to Aion FX using the contact form on the website. There is no guarantee that we will be able to join the discussion and help solve your problem, but this improves the chances.

It benefits the whole community if the troubleshooting process is public because then people who have the same issue in the future may come across it when searching. And if you do get help, remember to pay it forward! The best way to learn new skills is to help others. Even if you've only built one pedal, you have more experience than someone who is brand new, so you have something to offer.

RESALE TERMS

These kits may be used for commercial endeavors in any quantity unless otherwise noted. It's okay to sell individual builds locally or online, or even to offer a service to build pedals based on these kits.

No direct attribution is necessary, though a link back is always greatly appreciated. The only usage restriction is that you cannot "goop" the PCB or otherwise obscure the source. In other words: you don't have to go out of your way to advertise the fact that you use Aion FX kits, but please don't go out of your way to hide it. The guitar effects industry needs more transparency, not less!

LEGAL INFORMATION

DOCUMENT REVISIONS

1.0.4 (2024-08-08)
Added link to troubleshooting guide on page 25.

1.0.3 (2024-02-15)
Updated LEDR (LED current-limiting resistor) to 10k to reduce brightness.

1.0.2 (2021-07-07)
Added octave trimmer to packing list on pg. 5.

1.0.1 (2021-06-26)
Corrected resistor values on p. 10 (the p. 24 values and schematic were correct).

1.0.0 (2021-06-13)
Initial release.