



DB-1 DI-Boost Pedal Kit

(V1.0-2020)

INSTRUCTIONS

This DB-1 DI-Boost Pedal Kit by Next Gen Musical Ltd. is a boost pedal at its core that can also be made into a 70's style distortion pedal. It contains instructions for both configurations, as well as some advanced distortion modding discussion. It was originally designed by Tom Freeman of Tom Freeman Audio Effects, a Canadian pedal maker.

BOOST CONFIGURATION

As a boost pedal, the level control is a clean control that can reduce volume or add a slight clean boost. The gain control increases the volume significantly, and introduces a little grit as it's turned up past 12 o'clock. We suggest running it with the level maxed, and the gain to taste for the amount of boost you want.

Using an op-amp as the core of the circuit, the pedal can be powered by up to 18V. The higher the voltage used to power the pedal, the more clean volume there is available before it gets gritty. Note that when built in the "boost" configuration, this is NOT a high gain pedal. Even with the gain maxed out, it adds very little grit to the signal on its own. Boost pedals are used to overdrive your amp's tubes, or to increase your level a bit for things like solos.

DISTORTION CONFIGURATION

As a distortion pedal, it's very raw sounding with a lot of attack, similar in design to the classic MXR Distortion+ and Ross Distortions. We have added an advanced modification and experimentation section that describes how you can experiment to find the perfect distortion. Depending on your choice of components, it can be anything from a subtle distortion to a high gain monster. See the distortion mod section for details, if you're brave enough.

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KIT CONTENTS

MAIN CONTENTS

PCB's:

- 1x - Next Gen DIY Kits DB-1 PCB

Resistors:

- 1x - 100Ω 1/4W Metal Film Resistor
- 2x - 1KΩ 1/4W Metal Film Resistor
- 2x - 4.7KΩ 1/4W Metal Film Resistor
- 3x - 100KΩ 1/4W Metal Film Resistor
- 3x - 2.2MΩ 1/4W Metal Film Resistor

Capacitors:

- 2x - 0.1uF Polyester Film Box Capacitor (25V minimum)
- 4x - 4.7uF Electrolytic Capacitor (radial lead; 25V minimum)
- 1x - 47uF Electrolytic Capacitor (radial lead; 25V minimum)
- 1x - 100uF Electrolytic Capacitor (radial lead; 25V minimum)

Diodes:

- 1x - 1N5817
- 1x - 5mm LED (red)

ICs:

- 1x - TL072
- 1x - IC Socket

Potentiometers:

- 2x - A100K Alpha Mini Solid Shaft Pot (Right Angle PCB)

Jacks & Switches:

- 1x - Switchcraft #11 Mono Jack
- 1x - Switchcraft #12B Stereo Jack
- 1x - Premium 3PDT Footswitch
- 1x - Premium External DC Jack (2.1mm)

Hardware & Wire:

- 1x - Hammond 1590N1 Enclosure
- 1x - 9V Battery Clip (holder)
- 1x - 9V Battery Snap
- 1x - 5mm LED Bezel
- 2x - Knobs for Pots
- 1x - Bundle of hookup wire (2' black; 2' red, 2' green, and 2' blue)
- 1x - Set of Adhesive Rubber Feet

***ADDITIONS FOR DISTORTION CONFIGURATION*:**

- 1x - Capacitor - 47pF Ceramic Disk Capacitor (25V minimum)
- 1x - Capacitor - 470pF Ceramic Disk Capacitor (25V minimum)
- 1x - Capacitor - 4.7nF Polyester Film Box Capacitor (25V minimum)
- 1x - Capacitor - 47nF Polyester Film Box Capacitor (25V minimum)
- 1x - Capacitor - 1uF Electrolytic Capacitor (25V minimum)
- 2x - Capacitor - 2.2uF Electrolytic Capacitor (25V minimum)
- 4x - Diodes - 1N914
- 1x - Potentiometer - A250K Alpha Mini Solid Shaft Pot (Right Angle PCB)
- 2x - Resistor - 10K Ω 1/4W Metal Film
- 1x - Resistor - 2.2K Ω 1/4W Metal Film
- 1x - Resistor - 220 Ω 1/4W Metal Film

RECOMMENDED TOOLS

- Soldering iron
 - Preferably one that can reach and maintain 350°C (digitally controlled is ideal)
 - Small flat tip is preferred, but a pencil tip will also work
- Solder station (with a damp sponge and steel wool)
- Solder (flux/rosin core; 22 gauge or thinner)
 - 63/37 "eutectic" solder is easiest to work with and provides excellent long term reliability. 60/40 will also work. Lead-free is the most difficult to work with, but is the safest for the environment and your health.
- Solder braid (or a de-soldering pump)
- Wire strippers
- Needle nose pliers
- Wire cutters
- Adjustable wrench
- Electrical tape, or heat-shrink tubing and heat gun
- Phillips head screwdriver
- A digital multimeter that can measure continuity, resistance, capacitance, and DC voltage.
- A clean, well organized work surface with plenty of ventilation
 - Solder fumes are very hazardous to your health. Avoid breathing in the fumes.

PCB SOLDERING TIPS

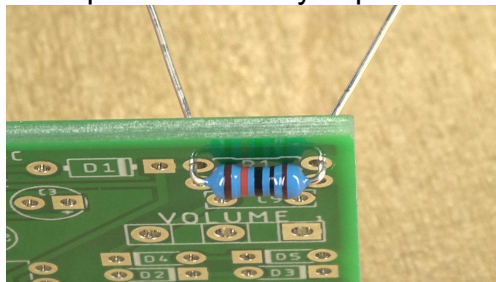
These instructions assume that you are already familiar with basic soldering technique and maintenance. Wiring electronics can be tedious work. It's important to take your time and follow good soldering procedures to ensure a solid joint at each connection. This not only ensures long term reliability for you to enjoy the fruits of your labour, but it helps avoid many hours of potential frustration while trying to figure out why your pedal isn't working.

Assuming your soldering iron is clean, well maintained, and that it's up to temperature and pre-tinned; Follow these steps to make a good solder joint mounting a component onto a PCB:

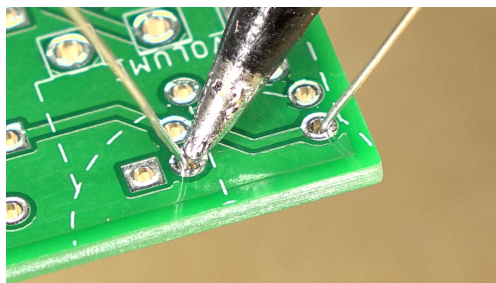
1. Bend the leads of the component you're installing just outside the body of the part, not at the body. This helps avoid potentially damaging the casing of the part you're installing (this is especially important with diodes.)



2. Push the leads through the holes so they come out the other side, and then bend them outwards slightly so the component can stay in place on its own.

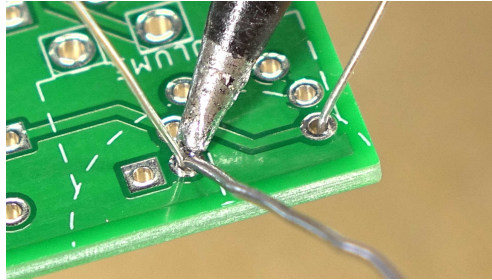


3. Make the solder joint:
 - a) Touch the soldering iron to the pad on the PCB and the lead of the part you're installing (at the same time) and hold for 2-4 seconds. This will heat up the pad and the lead for the solder to flow easier.



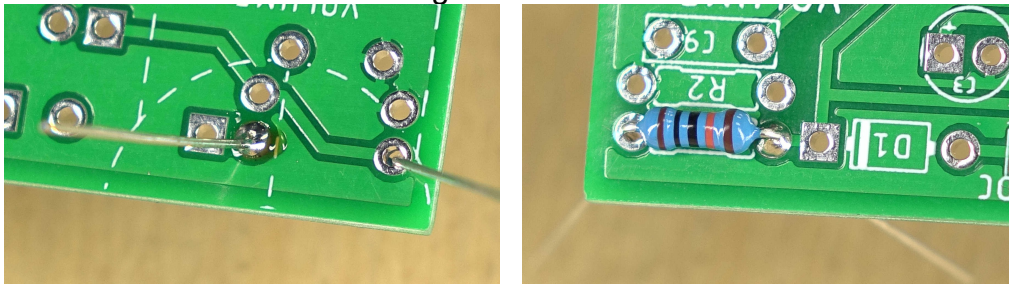
****Always take care to avoid making contact with any solder joints already soldered to the board. Doing so will cause a solder bridge between the two pads, which will prevent the pedal from functioning correctly.****

- b) Flow some solder onto the lead and pad (not directly to the soldering iron) and continue holding the soldering iron in place for another 1-2 seconds. This allows any remaining flux/rosin to burn off, and for the solder to flow through to the other side of the pad.

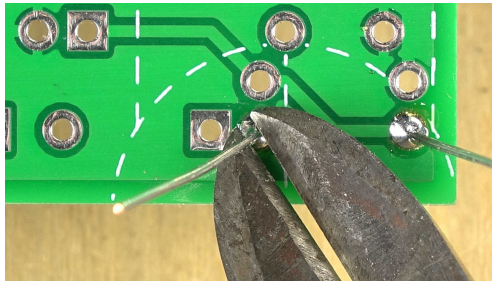


****Do not hold the soldering iron in place for too long, as this may damage the component or the PCB.****

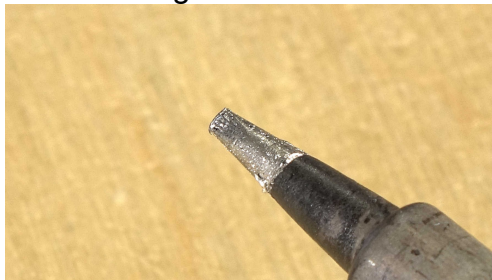
- c) Remove the soldering iron. The result should be a small bead of solder with a mirror-like sheen that flows through to the other side of the PCB pad. The picture shows a little more flow-through than needed. You just want it flowing through to the other side to ensure a strong and stable connection.



4. Clip off the remaining component leads or excess wire. Keep it aside for PCB jumper wire material.



5. Clean and re-tin the iron as needed. Some do this between every joint, which may be needed for a beginner who is taking a lot of time between joints.



PCB COMPONENT LAYOUT		
Location	Boost	Distortion
C1	100uF Electrolytic	100uF Electrolytic
C2	0.1uF Polyester	0.1uF Polyester
C3	47 uF Electrolytic	47uF Electrolytic
C4	OMIT	470pF Ceramic
C5	0.1uF Polyester	47nF Polyester
C6	4.7uF Electrolytic	1uF Electrolytic
C7	OMIT	47pF Ceramic
C8	4.7uF Electrolytic	2.2uF Electrolytic
C9	OMIT	4.7nF Polyester
C10	4.7uF Electrolytic	4.7uF Electrolytic
C11	4.7uF Electrolytic	2.2uF Electrolytic
D1	1N5817	1N5817
D2	OMIT	1N914
D3	OMIT	1N914
D4	OMIT	1N914
D5	OMIT	1N914
GAIN	A100KΩ Pot	A250KΩ Pot
VOLUME	A100KΩ Pot	A100KΩ Pot
R1	100KΩ	100KΩ
R2	100KΩ	100KΩ
R3	4.7KΩ	4.7KΩ
R4	2.2MΩ	2.2MΩ
R5	1KΩ	10KΩ
R6	2.2MΩ	2.2MΩ
R7	1KΩ	2.2KΩ
R8	4.7KΩ	220Ω
R9	JUMPER WIRE	10KΩ
R10	2.2MΩ	2.2MΩ
R11	100Ω	100Ω
R12	100KΩ	100KΩ
IC1	IC SOCKET	IC SOCKET

ASSEMBLY INSTRUCTIONS

The PCB:

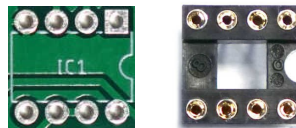
1. Open the kit package and confirm all contents are present as listed in the KIT CONTENTS.
2. Be sure to start with a clean and well organized workstation that is static-free.
3. Assembly of the PCB usually starts with the shortest components and ends with the tallest. This is for ease of assembly. We recommend this order:
 - a) Resistors & Jumper Wires (jumper wires can be actual wire, a very low value resistor, or the clipped off lead from another component used in place of a wire)



- b) Diodes (be sure to place them in the proper orientation; the line on the component should be on the side of the line on the PCB)



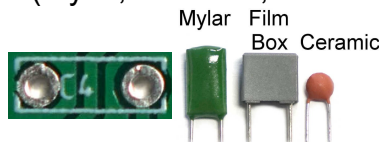
- c) IC Sockets (be sure to place them in the proper orientation; the gap and/or dot on the socket should line up with the gap and/or dot on the PCB)



- IC's themselves are not generally soldered directly to the board as they are highly susceptible to heat damage. Instead, an IC socket should be used. To install the IC, carefully position the legs into the sockets with the correct orientation, then apply flat even pressure to the top of the IC until it's all the way down. You may need to bend the legs inward slightly to get them to slide into the socket initially.

- d) Trim Pots (not in this kit/build)

- e) Non-polarized Capacitors (Mylar, Film Box, Ceramic, etc.)

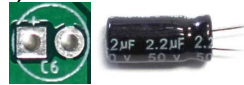


- f) Transistors (not in this kit/build)

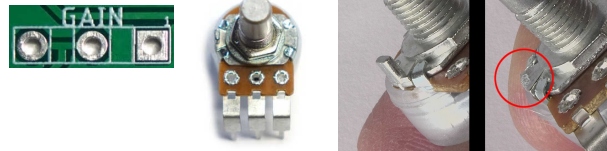
- g) Press-fit IC's into their respective sockets (be sure to place them in the proper orientation; the gap/dot on the IC should be on the same side as the gap on the socket)



- h) Electrolytic Capacitors (be sure to place them in the proper orientation; the longer leg is typically the positive lead)



- i) Potentiometers (you can break off and discard the extra little tab on the side of the pot's body using a pair of pliers before installing)



4. Using the PCB COMPONENT LAYOUT as a guide, position and solder the proper components into place one at a time, following the SOLDERING TIPS provided. You can follow along with the photo examples provided in the next section.
5. Once the PCB is fully populated, set it aside and proceed to the next stage.

The Enclosure:

1. In this order, mount the LED holder (metal part only), DC jack, footswitch, and audio jacks into the enclosure.
2. Wire up the footswitch and audio jacks for true bypass by cutting the appropriate length of each colour wire, stripping the wire ends back by approximately 1/4", and hooking the wire around each intended lug. DO NOT solder yet.
 - a) Test signal flow with your multimeter. There should be continuity between the hot/signal lugs of each jack. There should be continuity between the ground lugs of each jack. There should be NO continuity between a hot/signal lug and a ground lug. Upon a successful test of the bypass wiring, solder each of the prepared connections.
3. Place the LED through the small plastic support piece of the LED bezel. Bend both legs and attach hookup wire to each lead. Red goes to the longer lead, black to the shorter lead. Solder the wires into place on the LED and clip off the excess leads. You may choose to add electrical tape or heat-shrink to these joints.
4. Push the LED into place within the LED holder and solder the negative/black lead to the designated lug on the PCB based on the picture provided. Solder all remaining wires to the jacks and footswitch as per the pictures provided. Make sure each piece of hookup wire is at least 2 inches long. Do not solder anything to the PCB yet.
 - a) Battery Snap = Black wire to Input Jack (sleeve lug). Red wire to DC Jack (middle lug).

You can ignore the battery snap and battery clip if you don't plan to add battery capability. Battery is not included.

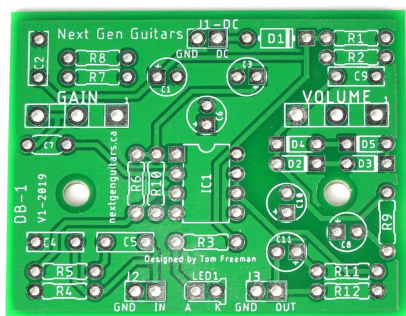
5. Grab the PCB and begin connecting the hookup wires from the mounted hardware to the appropriate pads on the board. Start with the DC jack and LED, then move on to the remaining wires on the footswitch.
 - a) DC Jack = Red wire to PCB(J1-DC). Black wire to PCB(J1-GND).
 - b) LED = Red wire to PCB(LED1-A).
 - c) 3PDT Footswitch Wires = Follow the diagram provided.

6. Once everything is connected, you can then mount the PCB by sliding the pot shafts through the holes in the enclosure and attaching the washers/nuts on the other side. Just be careful to keep the loose wires out of the way of the pots.
7. You're done (hopefully)! Connect the appropriate power supply or 9V battery, then plug in and test your pedal. If everything is connected correctly, it should function as expected. The LED should go on when the pedal is on, and off when the pedal is off. LEVEL should increase and decrease the volume. GAIN will also impact volume, but should also increase and decrease the amount of "grit" introduced (especially in the distortion configuration).

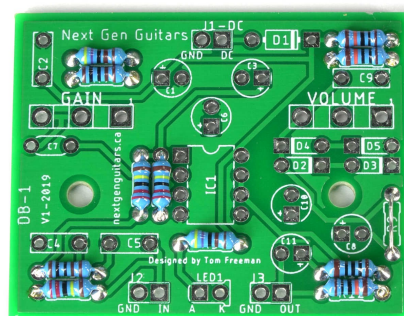
If you bought this kit with an unfinished enclosure, now would be a good time to remove the jacks, switch, and PCB to do any painting/finishing of the enclosure. Then re-assemble, add the adhesive rubber feet to the bottom plate, congratulate yourself on a job well done, and
ROCK OUT!

If something is not functioning correctly, proceed to the BASIC TROUBLESHOOTING section.

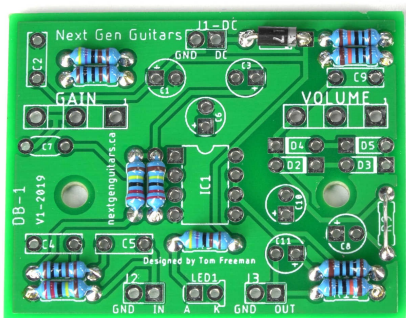
PCB - BOOST CONFIGURATION *(photo guide)*



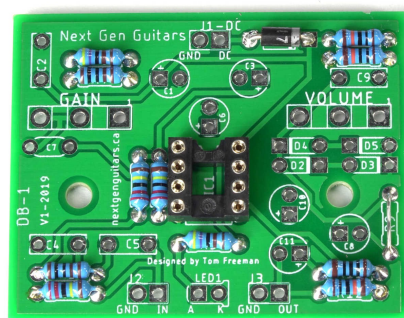
Empty PCB - 1



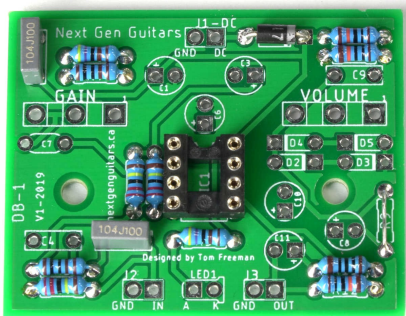
Resistors Added - 2



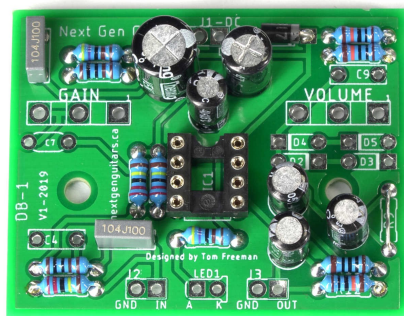
Diodes Added - 3



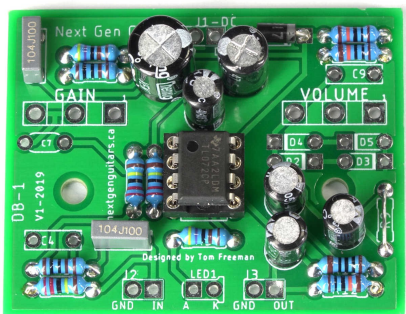
IC Socket Added - 4



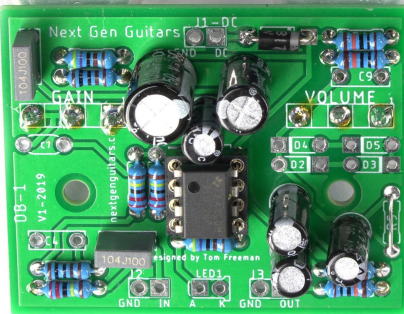
Film Box Caps Added - 5



Electrolytic Caps Added - 6

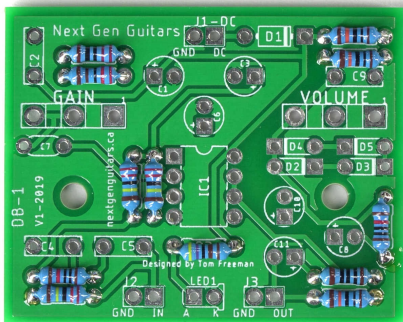


IC Pressed Into Place - 7

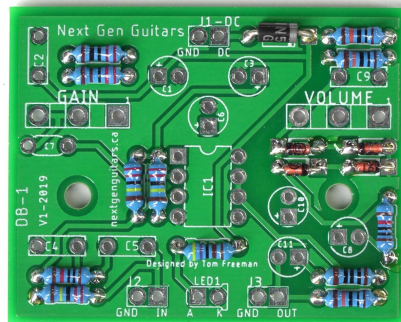


Potentiometers Added - 8

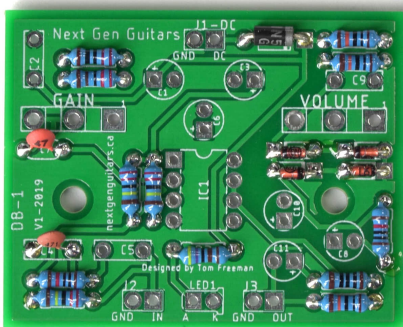
PCB - DISTORTION CONFIGURATION *(photo guide)*



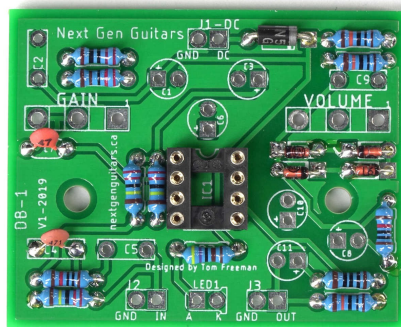
Resistors Added - 1



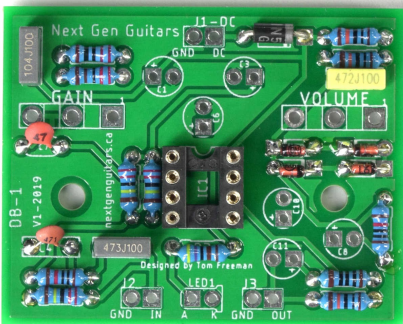
Diodes Added - 2



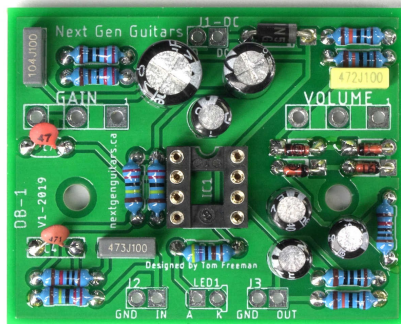
Ceramic Caps Added - 3



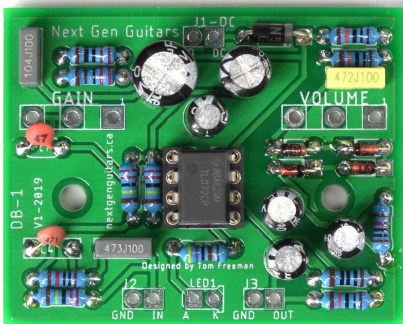
IC Socket Added - 4



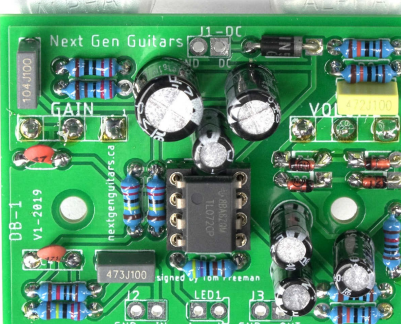
Film Box Caps Added - 5



Electrolytic Caps Added - 6



IC Pressed Into Place - 7

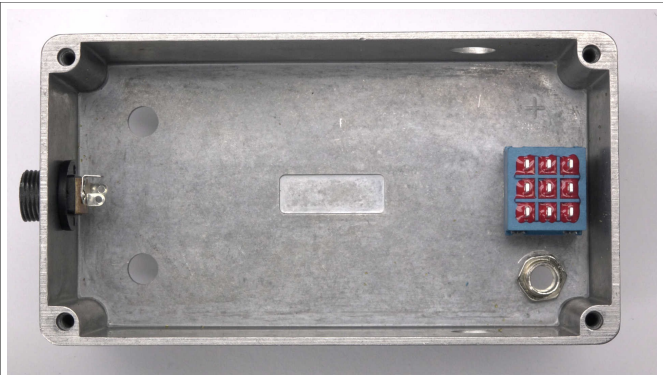


Potentiometers Added - 8

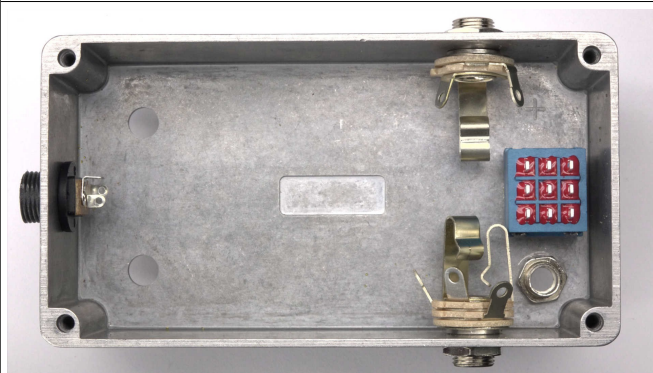
ENCLOSURE ASSEMBLY *(photo guide)*



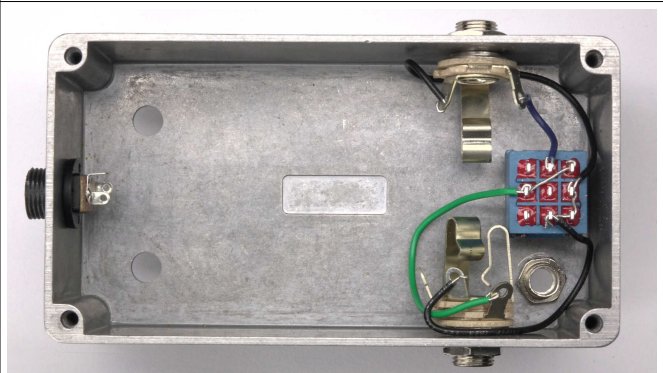
LED Bezel Added - 1



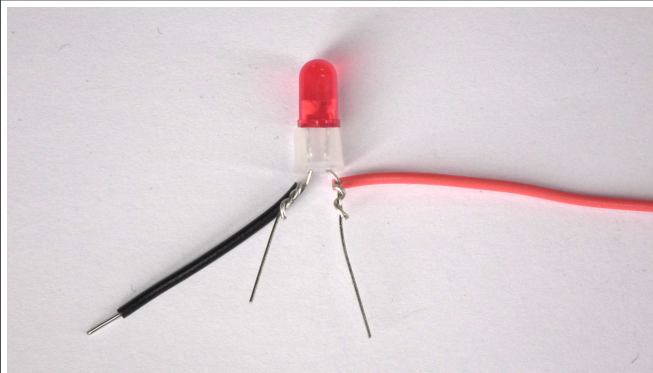
DC Jack and Footswitch Added - 2



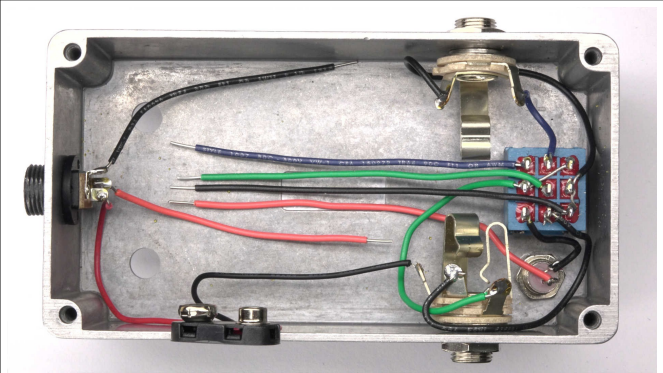
1/4" Jacks Added - 3



True Bypass Wiring Done - 4

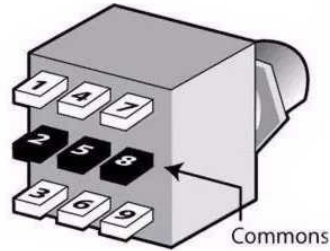


LED Preparation - 5

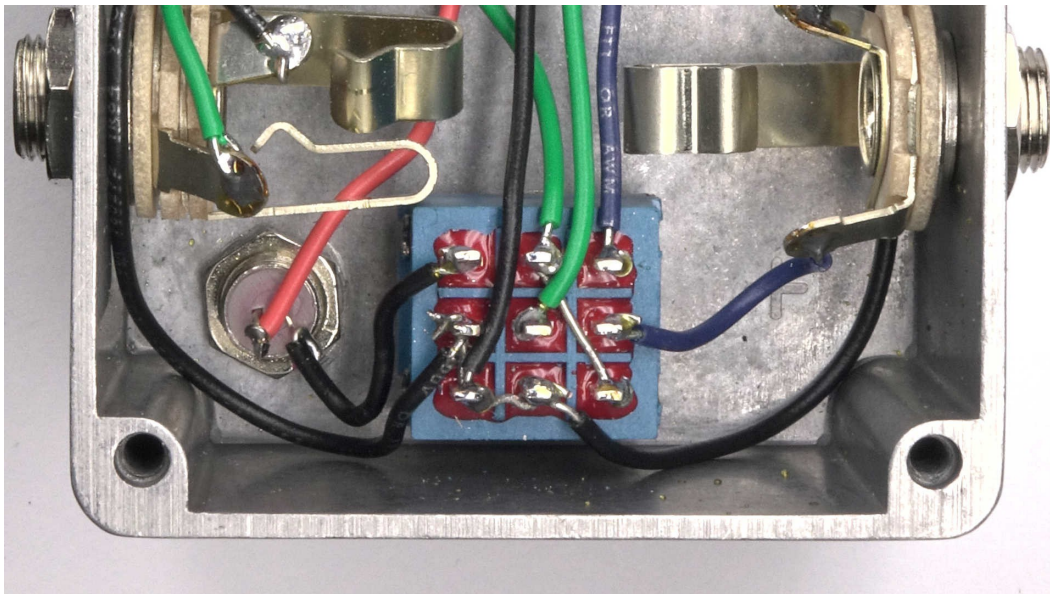


Completed Enclosure Wiring - 6

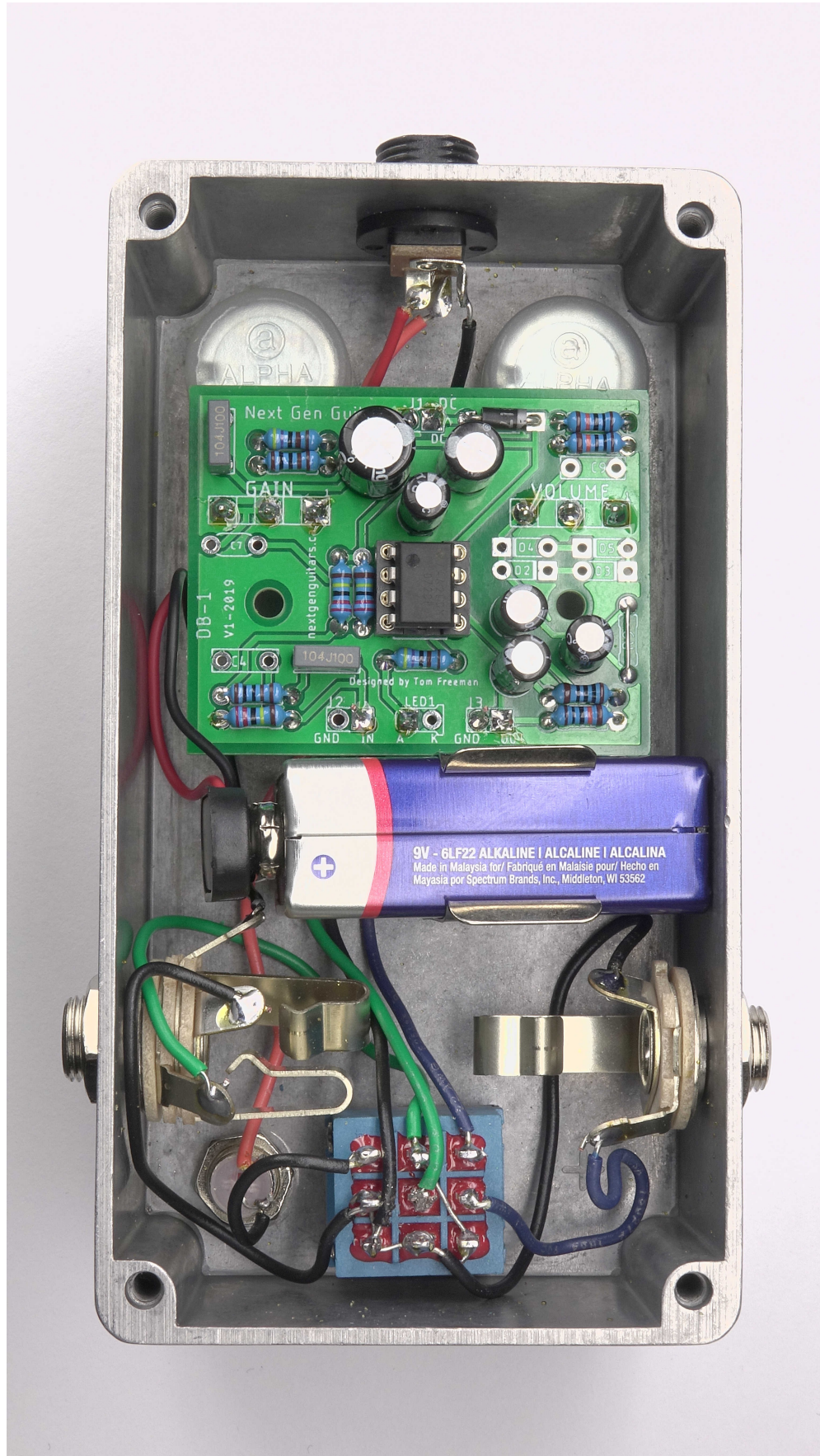
3PDT FOOTSWITCH WIRING



(1) Black to LED	(4) Green to Input HOT	(7) Blue to PCB 13-OUT
(2) Black to Input GND	(5) Green to PCB 12-IN	(8) Blue to Output HOT
(3) Black to PCB 13-GND & Jumper to Lug 2	(6) Black to Output GND & Jumper to Lug 3	(9) Jumper to Lug 4



FINISHED PRODUCT



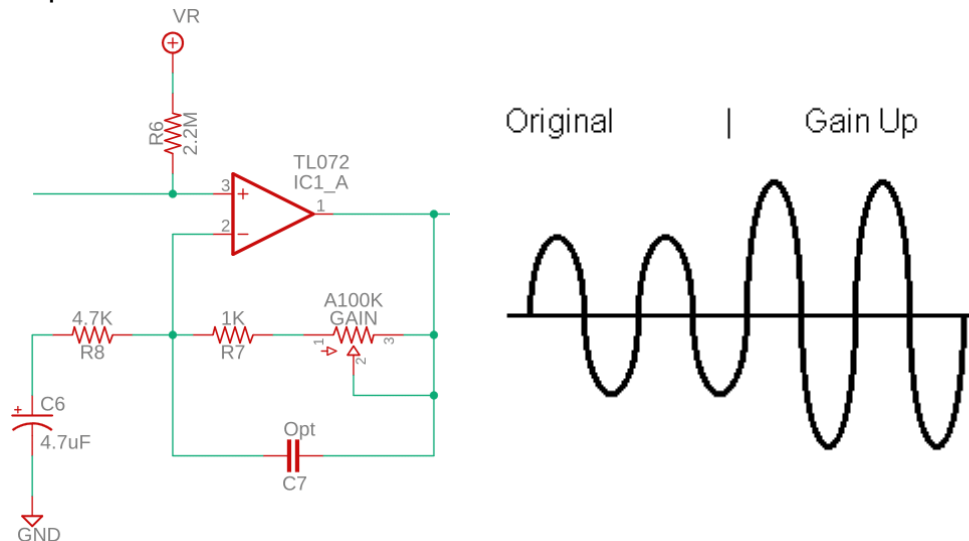
ADVANCED DISTORTION MODDING & EXPERIMENTATION

****Parts and components mentioned in this section are not provided in the kit.****

The default values in the PCB COMPONENT LAYOUT table are a good starting point for a fine distortion pedal. However, you can do a lot to further modify the sound to your liking if you go beyond the basics. Many of the concepts discussed in this section can be applied to other similar distortion circuits, though the actual part locations may vary.

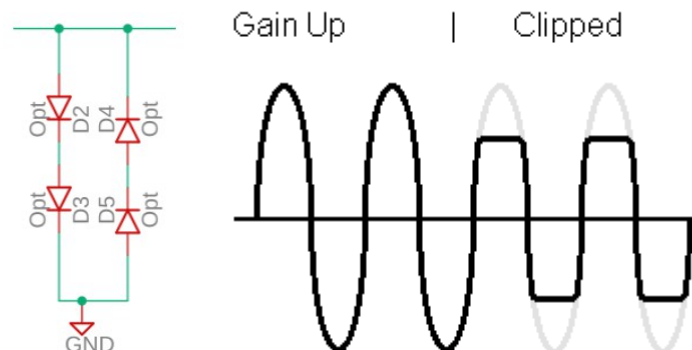
How Distortion Pedals Work (in layman's terms):

The two stages in a distortion circuit that interact most to determine the amount and character of your distortion are the gain stage and the clipping stage. The gain stage comes before the clipping stage, and is essentially a volume boost. It increases the level of the signal it receives. It increases everything it's fed, including loud playing, soft playing, background noise, etc. Here's what it looks like in the schematic, and what its affect is via a waveform example:



Most people associate "gain" with the gritty/fizzy/crackly sound that is introduced as you turn up the "gain" knob on most amps and pedals. However, that gritty sound is actually the result of the clipping.

The clipping stage, which comes after the gain stage, is where that newly louder signal is then "clipped", reducing the peak level of the signal. To our ears, those clipped peaks sound like little crackles and pops, and they happen so fast that it turns into that gritty/fizzy sound we call distortion. Here's what it looks like in the schematic, and what its affect is via a waveform example:



The more the signal is clipped, the less clarity each note has and the more grit you'll hear. The signal can be clipped at many levels and in many ways, all impacting how it sounds to our ears. This distortion circuit uses diodes to clip the signal. The point at which they begin to clip is rated by their forward voltage. Diodes with a lower forward voltage will begin to clip sooner than diodes with a higher forward voltage.

Finally, the "level" control in most distortion pedals typically comes after the gain stage to control the volume of the fully clipped signal. Think of it like a master volume control for the pedal.

Understanding these parts of the circuit, you can understand just how interactive the gain and clipping stages can be. The hidden dance going on underneath your foot. Moderate gain with less clipping will leave you with a more dynamic result, where quieter playing won't get clipped as much as louder playing (quiet parts sound cleaner, louder parts sound grittier). Increase the gain or the amount of clipping, and you'll lose those dynamics, leaving a more consistent distortion like that of a rock/metal sound. Different levels of gain and clipping will sound different, and this is where pedal tinkering can quickly turn from a hobby into an obsession.

****Please note: Even the best PCBs aren't meant to be soldered/de-soldered/re-soldered over and over again and can become damaged when overused. If you plan on experimenting a lot by adding and removing components multiple times in the same location, just be aware that you do run the risk of irreparably damaging the PCB. So, please take caution.****

Modifying the gain and clipping stages:

By default, the distortion configuration of this circuit gives you a moderate amount of gain and clipping, similar to some of the classic distortion pedals. You can do an awful lot to the character of this distortion by using different combinations of gain pot values, diode types, and the diode arrangement in the clipping section. The options are nearly limitless, but here are the broad strokes:

1. GAIN = A250K (experiment with A100K up to A500K)

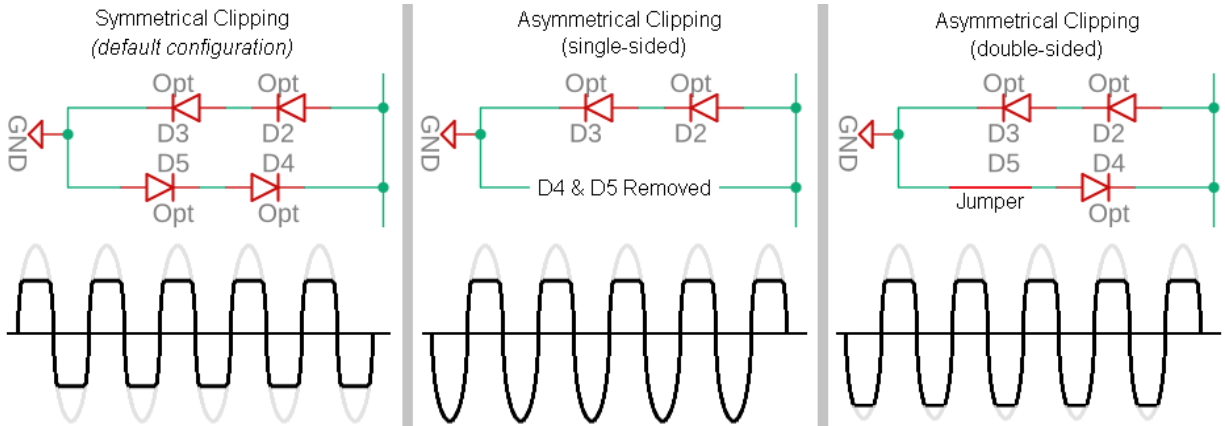
The potentiometer's resistance is primarily what impacts the amount of gain in this circuit. A100K won't add too much gain, where as, A500K will make it a high gain monster.

2. D2-D5 = 1N914 (experiment with other diodes)

The stock 1N914 diodes in this kit are the "middle ground" of clipping diodes, with a forward voltage of ~630mV. You can try BAT41 or 1N34A diodes for a little more clipping (~350mV). Or, go the opposite way and replace the clipping diodes with LEDs (~1400-1600mV, depending on the colour.) Combine those changes with changing the pot values to taste. You may want more gain (A500K pot) if you use LEDs in the clipping section, or less gain (A100K pot) if you use diodes with a lower forward voltage. The shape that the signal is clipped also varies between the different types of diodes. Silicon is sharp/harsh. Germanium is softer. LEDs have a nice crunch, but require more gain. Experimenting with these factors alone can keep a builder/modder busy for years finding the sweet spot that hits their ears just right.

3. D2-D5 (experiment with diode arrangement)

By default, the distortion configuration of this circuit uses 2 diodes per side. This arrangement is called "symmetrical clipping", because it clips both sides of the waveform equally. However, you can try different clipping arrangements. Combine changing the arrangement with using different diodes in different positions, and you'll be busy for a while. Here are some examples of different arrangements in a schematic, and what the happens in each example via a waveform:



Tone Shaping By Changing Capacitor Values:

1. C9 = 4.7nF (experiment with 0.001uF up to 0.01uF)

This is the final post-clipping high frequency roll-off in the circuit, which means it's the first place to go to modify the treble response. This reduces the unwanted high end fizz/hair from the final output of the distortion circuit, like a fixed tone knob. Increasing the value of this capacitor will bleed more high end to ground, leaving you with a darker tone.

2. C4 = 470pF (experiment with 470pF up to 0.01uF)

This cap's primary function is to reduce unwanted RF (radio frequencies) from the signal. It also helps to reduce ESD (electrostatic discharge.) When solely used for those purposes, the value is generally quite small. It can be as low as 22pF, or even omitted completely in lower gain circuits. However, in higher gain circuits like distortion pedals, pedal builders often use this as a place to shape the high end before it hits the gain and clipping stages. Increasing the value of this capacitor will bleed more high end to ground, leaving you with a darker tone.

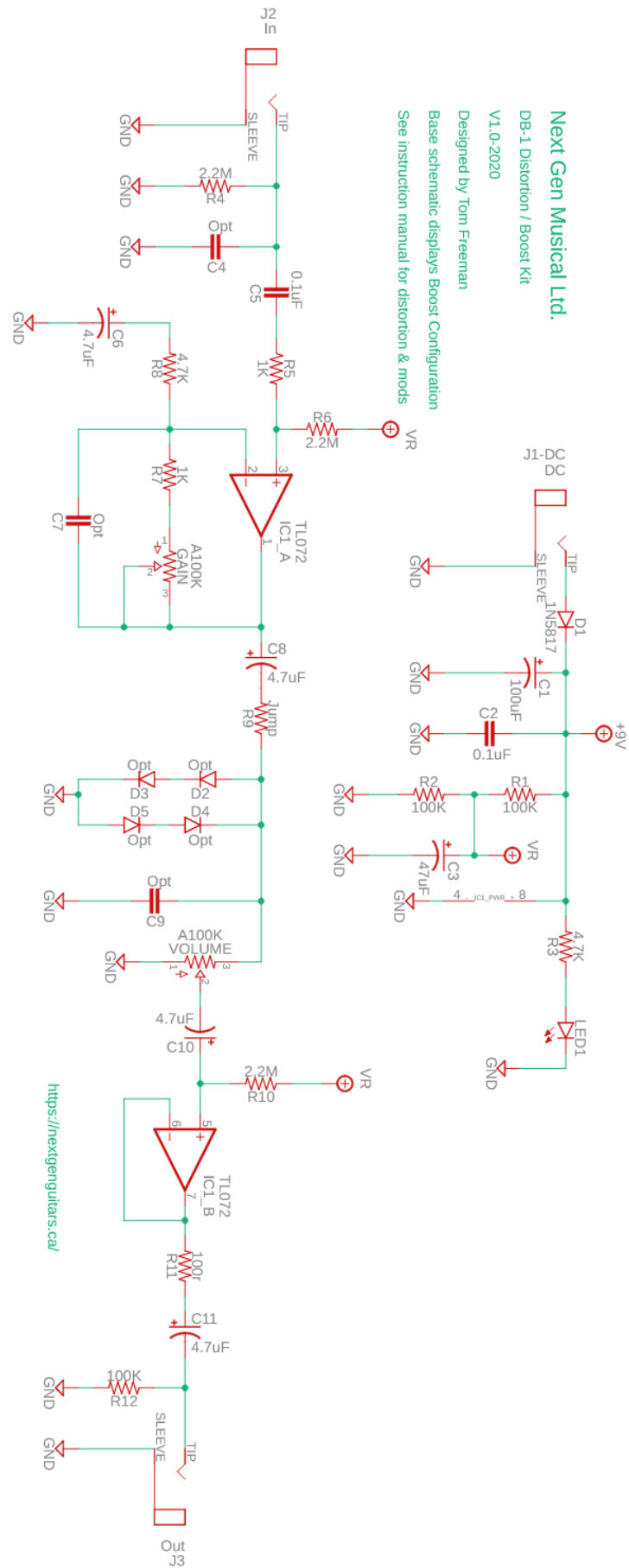
3. C5 = 47nF (experiment with 0.01uF up to 0.1uF)

This is the coupling capacitor. It blocks potentially dangerous DC voltage from the signal and reduces pops and clicks when turning the pedal on and off. However, it can also impact the low frequencies that reach the gain stage of the circuit. Having too much low-end prior to the gain stage can produce undesirable results (very muddy/muffled tone.) Try lower values for tighter bass and higher values for thicker bass.

4. C7 = 47pF (experiment with 22pF up to 100pF)

This cap provides stability in the feedback loop of the IC. It bleeds extremely high frequencies to ground so they aren't amplified when you turn the gain knob up. Increase the value to bleed more high frequency to ground. However, going too high here can really kill the clarity, so don't go crazy.

SCHEMATIC



BASIC TROUBLESHOOTING

If you've built your pedal and something isn't working, you now get to experience the true joy of making/modding things that all of us have experienced: Troubleshooting to figure out what went wrong. Get your multimeter handy, you may need it.

****Please note: If you contact us for troubleshooting assistance, we can only take you through the troubleshooting steps we've already provided in this document. If you've completed these steps and still can't get your pedal working, try posting about it on our Facebook group, [DIY Musicians Canada](#). If the group is unable to assist, in-person assistance from a local tech may be required at your own expense.****

Pedal doesn't turn on:

1. The most common reason for this is a bad power supply. First thing to do is check that the correct type of power supply is connected to the pedal. It's designed for the standard 9V pedal power supply with a center negative (though up to 18V can be used). This pedal draws <10mA and most power supplies do 300mA or more, so that shouldn't be an issue.
 - a) If running on a battery, make sure your battery has juice. Set your multimeter to read DC voltage, and put one lead on each battery terminal. You should be reading ~9V (+/-10%). If you're reading significantly less than 8V, your battery is either dying or defective and it should be replaced.
2. If neither of those are the issue... The issue is likely with the soldering or assembly of the pedal.
 - a) Using the photos provided, double check that all of your parts/components are connected in the right places, in the right orientation, and that the proper coloured wires are soldered in the right locations. Check all of them, but pay particular attention to the DC JACK, LED, BATTERY SNAP, and the PCB terminals associated with each of those.
 - b) Check that each of your solder joints have that nice mirror-like finish, and that the PCB solder joints flow through to both sides of the PCB pad.
 - c) Ensure that any parts of exposed wire are not touching anything but what they're supposed to touch and that none of the PCB pads have solder flowing to an adjacent pad by mistake.

Pedal turns on, but there's no sound: (or there's intermittent failure, or something sounds very wrong)

1. First, you need to ensure that everything else in your signal chain is working correctly. Take the pedal out of the chain and test your guitar into your amp using both of the cables that were connected to the pedal. Wiggle the cable a little at the guitar and at the amp to see if there are any intermittent issues. If the guitar, amp, and both cables are all working, only then can we take a look at the pedal.

2. Do you have clear sound in bypass mode? If no, double check that the jacks and switch are wired correctly according to the photos provided. If they are, the most likely cause of the issue is the "hot" signal is shorting to ground somewhere. Make sure the "tip" terminals on the jacks and any wires connected to them aren't touching an exposed ground wire, the enclosure, or anything else they aren't supposed to touch. Also, make sure the lugs on the PCB pots aren't tilted up in the direction of the enclosure, potentially causing them to touch the enclosure when they are mounted. If it's working in bypass mode but loses signal when the pedal is turned on (while the knobs are turned up) proceed to the next step.
3. This is the not so fun part of troubleshooting. You now have to closely inspect each solder joint for the following:
 - a) Poor solder joints: Look for that nice mirror-like finish, that not too much solder was used, and that the solder has flowed through to both sides each pad, as in the photo examples from the SOLDERING TIPS. If you find some poor joints, they need to be de-soldered and redone. Upon removing the component, you may want to test it with a multimeter to ensure it hasn't been damaged.
 - b) Solder bridges: A solder bridge occurs when two separate PCB pads become connected by mistake. This most often happens by having the iron at a poor angle, and it accidentally touches another solder joint while you're trying to make a different one. It can also happen by flowing too much solder onto one pad and it ends up flowing over to the next pad either on top or underneath.

COMPONENT TESTING

At this point the only possibility remaining is a damaged component. However, we encourage you to go through the previous troubleshooting steps again. Faulty or damaged components are extremely rare and time consuming to diagnose, so you'll want to be absolutely certain the issue isn't coming from somewhere else. Any of the parts and components in this kit can become damaged due to excessive heat and/or poor installation, including the 3PDT switch, LED, resistors, capacitors, diodes, and even the PCB board itself.

Most components can be tested by placing your multimeter test leads on each side of the component leads. Resistors should measure within 1% of their published values. Non-polarized capacitors should measure within 5%. Polarized capacitors should measure within 20%, but they will need to be removed from the circuit to be accurately tested. The 1N914 diodes should measure ~630mV (DC voltage). The outer lugs of each pot should measure within 20% of their published resistance. With the knob turned half way, lugs 1 and 2 of each pot should measure ~15% of the total resistance measured.

If a potentiometer is not measuring correctly or is giving no readings, you may have received a defective potentiometer. Contact us within the 1 year warranty period for a free replacement. If any of the other components do not measure correctly or are giving you no reading at all, they could have been damaged due to installation error. These would have to be replaced at your expense.

Test the IC using your multimeter set to read DC voltage. Make sure the power is connected to the pedal when testing. Connect the black testing lead to ground (this can be the box case, a ground lug on a jack, etc) then connect the red testing lead to each of the pins of the IC. Assuming you have a good power supply, your readings should come within 5% of the examples provided here.

IC1 (on PCB): Pin 1 = ~4.5V
Pin 2 = ~4.5V
Pin 3 = ~3.7V
Pin 4 = ~0.0V



Pin 8 = ~9.0V
Pin 7 = ~4.5V
Pin 6 = ~4.5V
Pin 5 = ~4.5V (*max; slowly reduces*)

Pin 5 will measure the example voltage immediately, but the voltage will drop off slowly the longer you hold the testing lead in place. This is normal behaviour.

With any luck, you haven't even had to read this far... If you're reading this, we feel for you. We've been here many times ourselves. If these instructions or consulting the Facebook group hasn't helped you diagnose and solve the problem, in-person assistance from a local tech may be required at your own expense. Hope you get it working!