



# **Solo SG 3-Pickups Style DIY Electric Guitar Kit**

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## **Assembly Manual**

**V 2.0**

## Wiring Diagram for your DIY Guitar Kit

All our wiring diagrams are posted on our website at <https://www.solomusicgear.com/wiring-diagrams/>

Please search your corresponding Kits SKU number on that page for the correct diagram. For some Guitar Kits, we also included an interactive version with how to videos within the diagram.

Our diagrams do not include pre-wired connections, we designed them to only show the connections that need to be made, and the focus of certain areas.

## Support

At Solo Music Gear, its important that we not only provide quality products, but also the best service in the industry. From email support to after sales support we are here to assist our customers at any stage possible.



### Email Support

[sales@solomusicgear.com](mailto:sales@solomusicgear.com)



### Phone Support

1-800-632-SOLO (7656)



### After Sales Support

Available after creating account

## Show Off Your Custom Built Guitar!

When you have your guitar finished, please take a few pictures and send them to us for potential posting into the picture gallery on our website.



Post your photos to our Facebook page <http://Facebook.com/SoloMusicGear>

Remember, you can always find us online at [SoloMusicGear.com](http://SoloMusicGear.com) to upgrade your parts, try a new kit, or ask us a question. Alternatively you can call us at 1-800-632-SOLO (7656) for any questions that you might have.

Hi! Welcome to Solo DIY Instrument kits, and congratulations on either starting or continuing a terrific new hobby!

Thank you for purchasing a Solo DIY guitar kit.

We hope that you will find everything either equal to or exceeding your expectations with this Solo DIY Instrument kit.

Remember, all the major manufacturing has been professionally completed on this instrument. All the cutting, rounding, routing, binding and sealing has been completed by our factory. Only some basic skills and patience are required in order to complete the work and end up with a beautiful and playable instrument!

We are however human, so if there is something in this kit that you have a question about, please feel free to contact us at [www.solomusicgear.com](http://www.solomusicgear.com) , we will be happy to answer all your questions.

Let's get started!

**Tools and Materials:**

You may or may not require the following tools and materials to complete this instrument kit:

1. Sandpaper with varying grits
2. Selection of files both flat and rounded
3. Chisels and sharp razor knife
4. Fine toothed handsaw (although extremely unlikely)
5. Selection of screwdrivers both large and small
6. Selection of allen keys
7. Selection of flat open ended wrenches
8. Drill (either hand or powered) and selection of drill bits
9. Small hammer and/or dead-blow hammer
10. Soldering iron and flux core solder for electrical components
11. Measuring instruments will include two straight edges at least 12" long
12. Masking or painters tape
13. Glues including wood glue, epoxy and cyano-acrylate (super glue)
14. Various clamping devices (plus you may need to create clamping cauls)
15. Wood veneer for shimming (different thicknesses)
16. Certain kits will require some specialized tools not listed here.

**Safety** : There will always be some woodworking and wiring that is required, whether it be sanding drilling cutting or soldering. We expect that you will use common sense in making sure you are working safely; in a ventilated area, and that you use the proper safety equipment including eye and ear protection. Whether you are doing the wood portion, the electrical or the finishing, always enlist the help of people who are familiar with these skills in order to be safe. It's always better to be safe than to be sorry!

**Checklist** : Now that you have received your new Solo DIY kit, we suggest that you read through all the instructions at least once, so you are familiar with the process of assembling this instrument, and so that you can recognize the parts described. Once you have read through, take a few minutes and check all the parts you have received. Because you are familiar with the manual, you should be able to ensure you have everything required to complete this kit.

Before you begin to assemble any of the Solo kits, setting out a schedule of how you want to go about each instrument is vital. Not all our kits follow the same path when it comes to finishing and assembly. First examine all the parts, especially the bodies and necks. Are there imperfections? Are there dings and bumps you may have to sand out or fill? Are the frets all seated properly and are there any sharp ends that extend past the edge of the neck that may need to be filed smooth. Making sure all of the parts are as close to perfect as you can make them, will aid in a successful assembly. If you have decided to apply a finish or paint to the body and neck of this instrument, you may want to go through the whole assembly to make sure everything fits and all the holes are drilled before you embark on the finish (or paint).

Then, when your finish (or paint) has been applied and cured, you can assemble the instrument with the confidence that comes from knowing everything will fit. Even the electronics can be pre-assembled to some degree (if they aren't already) so that you can check wire length and pickup function. \* in the case of bridges and tailpieces that have posts to be pressure inserted into the body, you may not want to insert these until the finish (paint) has been applied, or you may elect to insert them but cover the opening on the post with tape to protect the threads.

Also on the headstocks, many tuners have grommets that may need to be inserted....these too should wait until after the finish (paint) is applied.

**Disclaimer** : We make sure the materials we include in our kits are safe to use and do not present any significant health risk. However, we cannot take responsibility for any existing health conditions that may affect the person building these kits, nor any responsibility arising from the assembly or work required in order to complete the kit. The kits can be assembled without any finish or coating being applied, so we leave the entire subject of applying a finish or coating to the bodies and necks up to the individual. There are ample websites and videos on the internet that can assist you in putting a beautiful and lasting finish on this instrument, plus there are often classes available in night school and local businesses that will be an aid to this process. We therefore do not take any responsibility in any issues that may arise from or because of the finish application to this instrument. Likewise, we are not here to instruct in the art of soldering or woodworking, so the responsibility lies with the person assembling this kit to obtain the proper instruction or help on any part of the assembly process, and to complete the assembly process in a safe manor. If we could be there with you to help you along, we would.....but we can't.

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## FINISHING THE BODY AND NECK

Before you start finishing the neck, please inspect the frets and the fingerboard. Even though all wood is kiln-dried it may still shrink a little so you may get sharp fret edges.

In this case you need to use a fine needle file (Emory boards for finger nails can be used instead) to remove all sharp edges: first make all fret edges flat with the fretboard edges on both sides, than use masking tape on the top of the fretboard to protect it, and work on each fret's edge to smooth it by slightly rounding it. Before removing the masking tape, consider polishing the frets with fine steel wool.

STEP 1 – The body and neck have been coated with a poly resin sealant. They need to be sanded before finishing. **DO NOT SAND THE FINGERBOARD.**

For sanding both neck and body, use a flat sanding block for all flat surfaces and by hand for edges and rounded/curved surfaces. Start with 180 grit sandpaper, continue with 240 and finish with 320, always moving along the grain only. Before the final sanding, wipe the wood with a damp cloth and let it dry to raise the wood grain.

STEP 2 – There are many different ways to apply finish to your guitar. Do a little research to decide which type of finish you want to use. One good starting point is to review tutorials and videos on YouTube

STEP 3 - For any type of spraying finish (lacquer or paint) you will need to mask three areas with masking tape: neck pocket on the body, neck's fingerboard and truss rod nut. Press the tape tightly to the wood, not allowing any gaps at the edges, to completely prevent the finish leaking to these areas.

STEP 4 - You will also need to make hangers for both the body and neck (if you want to apply any spraying finish). Make them from a strong metal wire (wire dress/coat hanger can be used for it).

STEP 5 – Apply the finish by following the manufacturer instructions. Remember that spraying the finish is not an easy process as it requires certain skill and experience – you might want to practice first on some scrap wood. Always remember your safety – work only in a well ventilated area, away from any open fire and wear a respirator mask and safety glasses.

STEP 6 – Final polishing for high gloss finishes can be done manually or using a power drill with a foam polishing pad. The finishing tools and materials are readily available in many automotive/hardware supplies stores.

TIP: Consider an oil rubbed finish (sometimes called “wipe-on oil finish”) as a good and safe alternative. Tru-Oil® (known as a “Gun Stock Finish”, based on Linseed Oil) or Waterlox® (Processed Tung Oil) is highly recommended. Oil finishing takes longer, but it is very safe and easy to apply and a high quality finish can be achieved, even by a novice.

## 5. ASSEMBLY

**STEP 1 – Gluing the Neck.** This model of guitar has a glued in neck (no screws). This design is known as a set-neck. Assuming your guitar body and neck have been prepared for finishing, and that all surfaces have been cleaned up, you can 'dry-fit' the neck to the body (just hold it in place to see how tight or loose it fits). It is very important to create register marks so the neck can be glued in the correct location with regards to the pickups and bridge. You can use a clamp to lightly hold the neck in place while you take 2 straight edged rulers and hold them against the sides of the neck (remember that the neck should be flat to the bottom of the neck cavity and pushed into the neck cavity as far as possible)...align the neck so that the edges of the neck align equally to the two holes for the bridge pins...this will ensure the strings follow the correct path over the neck and pickups to the bridge. (Tip : use a piece of painters tape or masking tape across the body right behind the bridge post holes to make a couple pencil marks for aligning the neck) When you are comfortable with the neck location, you will want to create gluing cauls for the back of the body and the top of the neck. These are soft-wood scraps that will prevent the clamps from making marks in your guitar. You will need a piece of wood that you can slot to avoid the frets, or have a piece of closed cell foam to sit between the gluing caul and the fret-board (so that you don't damage the frets). Using a good quality carpenters glue, make sure you spread a thin coating of glue on both surfaces, assemble the neck to the body and clamp lightly....ensure the neck registers properly with the alignment marks you made earlier...tighten the clamps and re-check the alignment. When you are satisfied, clean up the excess glue with a damp cloth, making sure you wipe away all traces of exposed glue. You will want to leave the clamps on for 24 hours to ensure proper bonding and curing.

At this point, please refer to the section on finishing your guitar, before proceeding with the rest of the assembly.

**STEP 2 - Install the Machine Heads** and on the neck's headstock. Use the threaded hex bushings with washers - initially tightening them with your fingers only. Align each machine head to match the holes for mounting screws and use the screws to secure the heads. Finally, tighten the hex bushings with a socket wrench (or regular hex wrench).

**STEP 3 - Install the mounting bushings** for the bridges and the tailpiece. Before pressing in the mounting bushings, you must insert the ground wire into the small angled hole on the inside wall of the hole for a tailpiece bushing (the one closer to the controls cavity). Strip the end of the wire (up to an inch long), wrap it around the bottom of the tailpiece bushing and tap the bushing tightly into the hole - don't forget to separate the mounting studs first! For tapping, you can use either a plastic headed hammer, or a regular hammer, by placing a small piece of wood on the top of a bushing to prevent any potential damage. Tap the other tailpiece bushing and then the separated bushings for the bridge. Now screw in the mounting studs.

**STEP 4 – Install the 3-way toggle switch** and the pickups. Neck pickup is mounted on a thinner mounting ring. Bridge pickup is mounted on a taller ring.

First, solder the three longest wires to the switch and push them from the back of the switch cavity through the inner routing which goes through both pickup cavities to the control cavity. Now you can

install the switch into its cavity: take off the nut and the washer, push the shaft of the switch into the hole, put the toggle switch ring over the shaft (with the Rhythm/Treble markers facing up) and mount the switch with the washer and the nut.

Next, insert the neck pickup wires into the hole in the wall of the pickup cavity and push them to the bridge pickup cavity, then all the way through to the control cavity. Now, insert the bridge pickup wires into the same hole leading to the control cavity. Properly align each mounting ring and secure it with 4 screws. Do not over tighten the screws as it can crack the rings (be also careful with other plastic parts to be screwed down).

STEP 5 – Wire all electronics. For wiring instructions, please visit <https://www.solomusicgear.com/wiring-diagrams/>. The pots are marked as A500 and B500 – A500 (Audio Taper) are usually for Volume controls and B500 (Linear Taper) for Tone controls. Some musicians, however, like it better when linear pots are used for volume and audio are used for tone (and some guitar manufacturers use only one Audio type for both controls).

STEP 6 - After you complete the wiring, install all 4 pots with the volume and the tone controls properly placed in the following order: clockwise for the right-handed guitar starting with the hole closest to the tailpiece - Neck PU Volume - Bridge PU Volume – Bridge PU Tone – Neck PU Tone; this order is counterclockwise for the lefthanded guitar. Next, remove jack from the jackplate, push it through the jack hole, put the jackplate back and install it with 4 screws. Before mounting the control cavity cover and switch cover it's good to check out the electronics: plug it in with a cable to the amp and see if all switches and pots are working properly by slightly tapping the magnetic poles of each pickup with a screwdriver.

STEP 7 – Install the pickguards (if your model comes with them), the tailpiece and the bridge – note that the bridge must be installed with the saddle adjustment screws on the side turned towards the pickups.

STEP 8 – Before stringing your guitar, apply some oil to the Rosewood fingerboard to protect it from possible shrinking and cracking. Tung oil or Linseed oil work well, or it's OK to use Walnut or Olive oil. One thin layer is enough. Wipe the fingerboard thoroughly with a clean cloth.

STEP 9 – Install the strings by inserting them through the holes on the back of the tailpiece, over the bridge saddles. There are a few different ways to wrap the strings around the post of a tuning head. When threading the string through the post hole, bring it tight before wrapping it in the opposite direction of the threading, under and then back over the string and around the post, holding it tight as you tighten to pitch. Wrapping each string around two-three times should be enough.

## 6. TUNING AND SETUP

Tuning a 6-string guitar:

The open strings of a guitar, from the thickest to thinnest, in standard tuning are:

- E (2nd octave) – the thickest (or lowest sounding) string - is the 6th string
- A (2nd octave) – is the 5th
- D (3rd octave) – is the 4th
- G (3rd octave) – is the 3rd
- B (3rd octave) – is the 2nd
- E (4th octave) – the thinnest (or highest sounding) is the 1st string.

There are different methods to tune a guitar. Using a digital tuner is the easiest way. However, it is good to learn tuning (and checking the accuracy of tuning) by ear with natural harmonics, unisons, octaves etc.

Guitar playability and intonation depends on its setup, so you may want to spend some time mastering the necessary skills – be persistent in finding the optimal action (string height), neck relief and intonation throughout the entire neck.

### Adjusting Strings Height:

String height is adjusted by the bridge height of tune-o-matic bridge. You may use a flat screwdriver to turn the adjustable studs – turning the stud clockwise sets the bridge lower, turning it counterclockwise sets it higher. The saddles are already pre-notched to match neck radius. Inspect the notches and if they have any sharp edges smooth them down with a fine needle file or fine sandpaper to prevent string breaking. Thicker strings need more room for vibration without “buzzing” (touching frets) so the bridge must be set up a bit higher on bass (wound) strings side. Low action allows easier fretting and faster playing. Recommended measurements for electric guitar with low action:

For the 1st String (the thinnest) – height at the 1st fret: 0.01” – 0.016” (0.25 – 0.4mm); at the 12th fret: .063” – .078” (1.6 - 2mm).

For the 6th String (the thickest) – height at the 1st fret: 0.016” – 0.024” (0.4 – 0.6mm); at the 12th fret: .078” – .01” (2 – 2.5mm).

The height at the first fret can be adjusted by cutting deeper slots for strings at the nut. However, it needs a very precise job not to spoil the nut. If you are not sure that you can do it properly, stay with a factory pre-cut nut.

A higher string action makes the guitar harder to play, yet some musicians may prefer it. Tailpiece height can regulate string pressure over the bridge, changing both tone and sustain.

**Adjusting Neck Relief:**

The truss rod compensates for string tension and allows adjusting the neck relief. You may need such adjustment due to changes of humidity and temperature (or if you switch strings to a different gauge). Lay a straight edge on the frets of a properly tuned guitar and measure the clearance at the 8th fret (alternatively you can put a capo on the first fret and press down 6<sup>th</sup> string at 16th fret – then the height of the string at the 8th fret will show you the clearance). Optimal relief for an electric guitar neck must be very small – around .001" - .002" (0.25 - 0.5mm). Turning the truss rod nut (with the included Allen key) clockwise will reduce neck relief and turning it counterclockwise will increase the relief. Be very careful with truss rod adjustments and never turn the nut more than ¼ of a turn at a time.

**Adjusting Intonation:**

The “speaking length” (or “working length”) of each string can be adjusted by turning the saddle position adjustment screw. The best intonation can be achieved when the string fretted at the 12 fret sounds precisely an octave higher than the open string. If the fretted string sounds sharper you need to increase the working length of the string by moving the saddle away from the neck. If it sounds flat, you need to shorten the working length of the string by moving the saddle towards the neck. The alternative way to intonate your guitar is to compare a natural octave harmonic of the open string (you can get it by touching the string exactly above the 12th and picking it) to the pitch of the string fretted at the 12th fret and adjusting the saddle position so that they sound the same. This method is less accurate because the fretted string sounds a bit sharper due to the height of the string, and the higher the action, the sharper it gets.

**Adjusting Pickup Height:**

Before adjusting the pickup height, make sure that both the volume and tone controls on your guitar are set to the full (“10”) position. Get your amp set to a medium/low volume and all tone controls to the middle. You will get a better picture of the pickup’s tone change during its height adjustment with a clear sound. There is no universal “optimal” pickup height position in a setup – it depends on playing style and personal preferences of a guitarist. Remember: bringing a pickup closer to the strings makes it sound brighter, but bringing it too close will make the magnetic field of the pickup interfere with the vibration of a string which will, not only result in reduced sustain, but may also cause complex harmonics sound rather unpleasant. Moving a pickup too far from the strings will result in loss of its output signal and some higher frequencies. It’s not necessary to maintain an even height of the pickup – you may find it more satisfactory sounding by setting it somewhat angled, depending on what you are looking for in the output sound.

There are a few mm of real usable range where you can find the pickup tone that you’ll like the best.