



MINI-S GUITAR KIT

Have a little fun.
Make a little noise.
Build a REAL guitar in a weekend.

- Easy to build, finish, and setup
- Pre-wired electronics
- All hardware included



Tools and supplies

These are the tools and supplies we recommend for assembling this kit. StewMac item numbers are included where applicable.

Tools

Electric hand drill
Foam sanding block (#3701 or 3699)
Phillips screwdrivers, size #1 & #2 (#3000)
Center punch or awl (#3000)
Drill bits:
 11/16" (#1710)
 5/64" (#1712)
 3/32" (#1714)
10mm nut driver (#5890) or wrench (#3691)
Solomon SL-30 Soldering Station (#0501)
6" StewMac Shop Rule (#4905)
12" Precision Straightedge (#3849)
Razor files, set of 2 (#4170)
Luthier's file set (#0842)
Jig saw or coping saw

Supplies

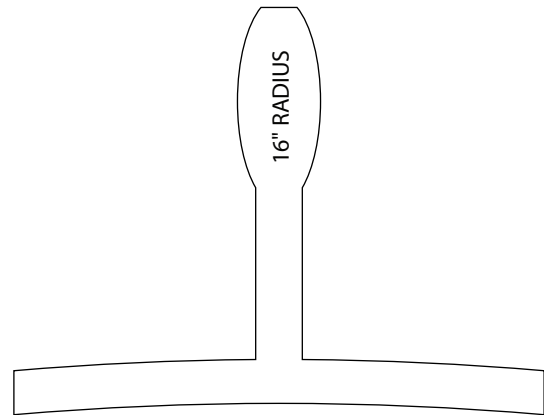
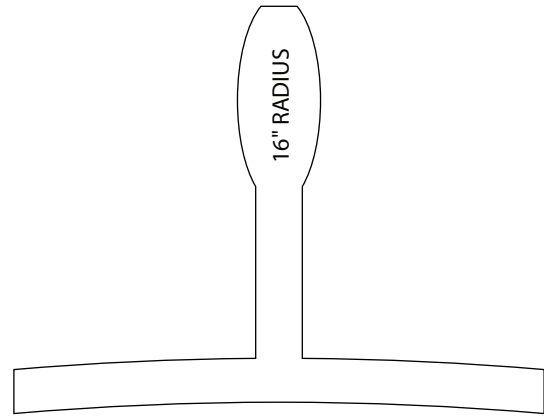
Sandpaper: 150, 220, 320, 400, 800, 1200 grits (#5562)
Light Duty 3M Scotch-Brite Pad (#7445)
 or 0000 steel wool
Colortone Polishing Compound, Medium (#1845)
ColorTone Naphtha (#0766)
Titebond Original Wood Glue (#0622)
Orange multi-purpose tape (#0678)
Rubber gloves

Finishing supplies

ColorTone Powdered Grain Filler, mahogany (#0269-M)
Colortone Wipe-On Poly Finish (#3622)
ColorTone Liquid Stain, Straw (#5109)
ColorTone Liquid Stain, Orange (#5042)

Cut-out radius gauge

Carefully cut out this radius gauge to check your saddle heights as shown on page 10. We've included two, so you have a backup.



Parts List



- ① Neck
- ② Body
- ③ Slotted string nut
- ④ Neck plate with screws (not pictured)
- ⑤ Tuners with bushings, washers, and screws (set of 6)
- ⑥ Bridge with mounting screws
- ⑦ Loaded pickguard with mounting screws
- ⑧ Strap buttons with screws and protective washers (2)
- ⑨ String retainers with screws (2)
- ⑩ Output jack with mounting screws
- ⑪ 1.5mm hex wrench for adjusting bridge saddles
- ⑫ 4mm hex wrench for adjusting truss rod
- ⑬ Strings

Create the peghead shape

Your guitar ships with the neck and bridge mounted to the body, these will need to be removed for wood prep and finishing work. Before getting started use a #2 screwdriver to remove the neck and bridge from the body.

You can trace a favorite peghead or come up with a look all your own. You'll be cutting your design from the blank peghead on the kit's neck.

Make a paper template

Sketch out your peghead design on a piece of heavy paper and cut it to shape with scissors. Using a pencil, trace the shape onto the peghead. Use a light touch that doesn't dent or compress the wood which could make sanding out any unwanted lines difficult. Don't use ink, it leaves permanent stains that bleeds through finishes.

Cut the peghead to shape

It's important that your saw stays square to the face of the peghead while you cut. If it tilts to an angle, you'll get a sloppy result that takes a lot of sanding to correct. Use a bandsaw if you have one; a jigsaw is also good. A hand-held coping saw can also be used, but it's tough to hand-saw smooth clean curves.

Never cut on the line

Always cut just outside the line, so you can sand to the line afterward.

Smooth your saw cuts using rasps, files and sandpaper. Don't rush: rough patches will disappear into a good final shape if you take your time.

When you're happy with your peghead shape, sand it smooth using 150-grit sandpaper followed by 220-grit, then 320-grit.

For info about using a template for peghead shaping, check out our Trade Secrets video #335 "How To Shape A Custom Peghead" at stewmac.com.



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Prep for finishing

Preparing the neck and body for finish is just as important, if not more important, than the finish application. The key to a great looking finish is patience and lots of it.

Inspect the body and neck for any dents, chips, or other imperfections and repair them. Small dents can be steamed out by placing a damp cloth over the dent and applying heat with a soldering iron. Chips, tear out, and knotholes will need to be filled.



Sand the body and neck

Using 150-grit sandpaper on a flat sanding block, sand the entire body working only in the direction of the grain.

After a complete sanding, wipe the body with a damp cloth to raise the grain and reveal fibers that need more sanding. Let the dampness dry, then sand the raised grain with 220-grit sandpaper. After sanding, raise the grain again and sand a third time, using 320-grit sandpaper. Follow the same procedure while prepping the neck, using care not to sand on the fretboard face or fret tops.

Run your fingers lightly along the edge of the fretboard and feel for sharp fret ends. If the frets feel sharp where they meet the edge of the neck, gently sand them back with long strokes down the length of the neck. Use care not to change the bevel of the frets in the process.

While sanding with 320-grit slightly break any sharp edges on the fretboard body, fingerboard, and peghead. Softening hard edges promotes even finish coverage. Later, when you're finish sanding, these edges are less likely to sand through to bare finish.

Degrease with naphtha

When you've finished sanding, wipe the body and neck with a naphtha-dampened lint-free rag to remove any oils or grease. From this point on, wear clean gloves when handling so you won't contaminate the wood.

Tape off the string nut slot and fretboard face, they do not get filled or finished.

Fill the grain

The body and neck of your guitar kit are made of mahogany, which is an open grained wood. The grain will need to be filled before finishing in order to achieve a flat surface. We suggest using our Mahogany ColorTone Powdered Grain Filler following the instructions on the label. 2-3 applications are recommended to get a nice flat surface to build finish coats over.

For more info on grain filling, see our article #i-0269 "Using ColorTone Grain Filler" at stewmac.com.



TIP! Make holding handles for the neck and body. These can be clamped in a vise or to a bench for filling and finishing, a hanging hole can be added for drying. Nothing fancy, scrap wood will do.

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Applying finish

We stock a variety of finish types that can be used on your guitar. For this kit we'll be using our ColorTone Wipe-On Poly. It's nonflammable, simple to use, very forgiving, and can be applied indoors.

Make an application pad out of cotton, an old t-shirt works well. Make a wad about the size of a ping-pong ball to use as the filler and tightly wrap it in the middle of a cover cloth. Tie it up with a rubber band and you're ready to go. You'll use a handful of these during the finishing process, 3-6 should do.



Color coats (optional)

ColorTone Liquid Stains mixed into the Wipe On Poly make an easy to apply and nice looking translucent finish.

For the body, mix 1/4oz of orange (or the color of your choice) ColorTone Liquid Stain into 4oz of the Wipe On Poly finish and mix well. Conduct a test on some scrap wood to ensure the color looks the way you'd like it to. If it's too dark, add a little more finish to weaken the color. If it's too light, add an additional drop or two of stain. Remember, a small amount of stain goes a long way!

As you apply the color watch for streaks and uneven areas, keep working the pad in a circular motion over these areas followed by long strokes running the length of the instrument until you have uniform tinting over the entire surface of the body.

For the neck, mix 1/8oz straw (or the color of your choice) ColorTone Liquid Stain into 2oz of Wipe On Poly finish. Apply the color to the neck in the same fashion as the body. Any residual finish that ends up on the fretboard face will be scraped back once it dries.

Allow the color coats to dry 2-3 hours.

Final top coats

Do not sand your color coats. Apply 4-8 additional coats of clear over the top of the color or until you've reached your desired thickness. Allow to dry for 24 hours.

In most cases final sanding and buffing of the ColorTone Wipe-On Poly finish is not necessary but there are occasions where it may be needed to level out uneven surfaces and imperfections in the finish. If finish sanding is needed, we suggest going over the instrument with 800-grit, followed by 1200-grit sandpaper using care not to sand through the topcoats into the color. Then follow up with ColorTone Medium Polishing Compound on a soft cloth or buffing pad.



Assemble your guitar

During assembly, use a padded surface to protect the finish from scratches and dents.

TIP! Drag the threads of all mounting screws over a bar of soap or wax to help them thread in easier.



Install the neck

The mounting screw holes in the neck and body come pre-drilled for easy installation. Run the neck mounting screws through the neck mounting plate and tighten down with a #2 Phillips head screwdriver.

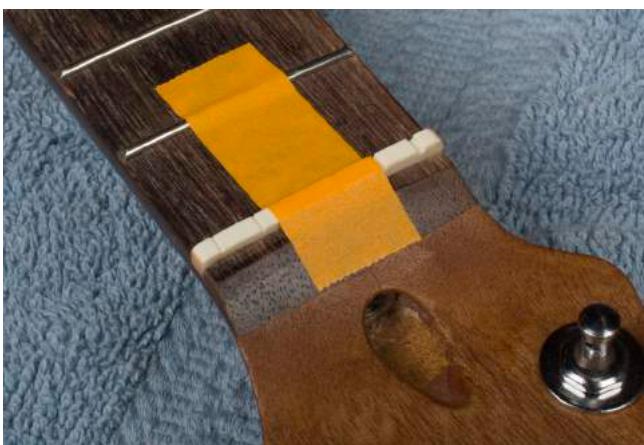


Install the tuners

Lay out the tuners, using a ruler to make sure they're in line with one another and square to the edge of the peghead. Mark out your mounting holes with a scribe or center punch.

Tuner mounting screws are very delicate and will break off if forced. Use a 5/64" bit to drill 3/8" deep pilot holes for the screws; if these holes are any smaller you risk shearing off the screw heads.

With the tuners in place, install the screws in the pilot holes with a #1 Phillips screwdriver. On the tuner string post, add a washer then the threaded bushing. Tighten with a 10mm nut driver or wrench.



Install the nut

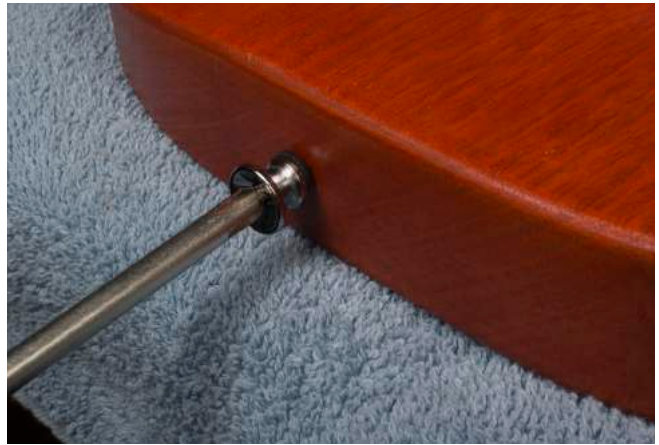
Apply a thin layer of wood glue to the bottom of the nut and install it in the slot. Use care to make sure it is positioned correctly side to side and is seated firmly to the bottom of the slot on both the treble and bass sides. Wipe off any squeeze out and run a piece of tape over the center to keep it in position while the glue dries.

Assemble your guitar

Install the strap buttons

Mark the locations of your strap buttons. At the tail of the guitar, position the button in line with the center of the neck and bridge. The other button is typically located on the tip of the upper horn.

Drill 1/2" deep holes with a 3/32" bit and install the strap buttons with their protective washers using a #1 Phillips screwdriver.



Drill for the jack plate

Mark out the 4 mounting screws with a scribe or punch using care to keep the edge of the jack plate square to the body. Drill the holes using a 1/16" drill bit. Do not install the jack plate yet.



Install the bridge

This is a little bit of a tricky step because you'll need to connect the string ground wire that is soldered to the electronic components to the bridge.

First, expose about 1/4" of the end of one of the two black ground wires (it doesn't matter which one) that are attached to the volume pot and run it through the string ground hole in the control cavity until it comes out under the bridge area.

With end of the wire exposed, install the bridge using a #2 screwdriver and tighten down the screws. The ground wire will then be secured by being pinched between the body and bridge.



Assemble your guitar



Install the pickguard

Lay out the pickguard using the neck and bridge for reference, the leading edge of the bridge should run parallel to the rear cutout of the pickguard. Once positioned, mark out the mounting screw holes with a scribe or punch. Drill 3/8" deep pilot holes for the screws using a 1/16" drill bit.

Before screwing down the pickguard first run the hot and remaining ground wire through the output jack hole on the body. Now install the screws in the pilot holes.



Wire the jack

The black ground wire gets soldered to the square (sleeve) lug, solder the hot wire (usually yellow or white) to the round (tip). Once soldered, install the jack plate.

For more information on soldering check out our Trade Secrets video #i-186 "How to get a good clean solder joint" at stewmac.com

stewmac.com search:



Install the string retainers

Install the strings and mark the locations for the string retainers on the peghead. These retainers maintain the proper string angle over the nut for the D, G, B, and E strings. Use a 5/64" bit to drill 3/8" deep pilot holes.

Using a #1 screwdriver install the D/G string retainer between the E and A string posts (approximately 2-7/8" from the nut).

Install the B/E string retainer under the D string post (approximately 3-3/8" from the nut).

Final setup

Straight neck, or a little relief?

Neck relief refers to adjusting a neck so that it has a very slight upbow, rather than being perfectly straight. This relief allows a little more room for string vibration, reducing the chance of hitting the lower frets and causing fret buzz.

Depending on your playing style, and how perfectly level your fret tops are, a neck should be anywhere from perfectly straight to having 0.012" of relief. This measurement refers to additional string height over the 12th fret, compared to a perfectly straight neck.

A straight neck tends to play and sound better, but very few guitars end up with no relief at all, and several thousandths of an inch or more is perfectly normal.

Set the action at the nut

The string nut is pre-slotted for medium action, which is comfortable for most players. If lower action is desired, you can lower the slots using gauged nut files or needle files.

Set the action at the bridge

Adjust the action at the bridge by raising or lowering the string saddles. Measure string height over the 12th fret, between the bottom of the string and the top of the fret. A good starting point is:

High (unwound) E string: 1/16" at the 12th fret. Low (wound) E string: 5/64" at the 12th fret.

You can always go lower or higher depending on your playing style. After setting the two E strings, dial in the remaining strings to match the curve of the fretboard's 16" radius using the cut-out gauge on page 2.

Adjust the pickup height

Holding down the low E and high E strings at the 22nd fret, adjust the bass side of the pickups to 5/64" from the top of the pickup pole to the bottom of the low E string. Adjust the treble side to 1/16".

Turn the truss rod nut counterclockwise to bring the neck up, adding relief.



Measure string relief at the 12th fret.



Turn clockwise to pull the neck back, reducing relief. Go slow: a little does a lot!



Final setup



Set the intonation

The last step is intonating the guitar by adjusting the string lengths at the bridge saddles so the guitar plays in tune all the way up the neck.

Using a strobe or other accurate tuner, first tune the strings to pitch. Then, press the high E string lightly at the 12th fret using just enough pressure to sound the note. Check it with your tuner.

If the note reads flat, the saddle needs to be adjusted forward towards the nut, shortening the length of the string.

If the note reads sharp, the saddle needs to be adjusted back away from the nut, increasing the string length.



You're done!

Congratulations! Your guitar is ready to play. We hope this is the first of many that you have fun assembling and customizing.



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