



335 SEMIHOLLOW GUITAR KIT

Assembly Instructions

Welcome to guitar building! If you're a first-time builder, this kit is a great way to start. You'll have fun and learn a lot.

This simple kit is an excellent entry into electric guitar assembly. It can be built with basic tools. You'll learn to cut the peghead shape, attach the neck, and set it up. After you build it, we'll show you how to set it up to play tip-top.



Table of contents

Tools and supplies	2
Parts list	3
Create your peghead shape	4
Set the neck	5
Fretwork	7
Finishing	9
Assemble your guitar	11
Wire the electronics	15
Final setup	17

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
Saw for peghead: band saw, jigsaw, or coping saw
Screwdrivers: Phillips, sizes #1 and #2 (#3000)
Flat blade, size 5.0mm (#3000)
Drill bits: 1/16" (#1710)
5/64" (#1712)
Nut slotting files: .013" width (#0823)
.020" width (#0828)
.035" width (#0832)
Fretting hammer (#4895)
Fret crowning file (#1602 or #4491)
Fret end file (#1175)
Fret rocker (#3770)
Radius sanding block, 16" radius (#0413)
Swivel handle clamp, total of 2 (#3704)
Straightedge (#3850)
6" Steel rule (#4905)
Wire stripper, for fine gauge wire (#1606)
Adjustable wrench, 4" size (#1680)
Soldering iron (#0502 or #0515)

Supplies

Wood glue (Titebond original, #0620)
Super glue (#0030)
Brush-on accelerator (#7013)
Sandpaper: 150, 220, 320, 400, 600-grit (#5562)
Stickit Gold sandpaper: 80-grit (#5766)
Solder (#0505 or #0505-LF)
Masking tape (#1683)
Low tack protective tape (#1863)
Glue brush (#4167)
3M Scotch-Brite pad (#7445, light duty), or 0000 steel wool
Blue permanent marker
ColorTone Lemon Oil (#3864)

Finishing supplies

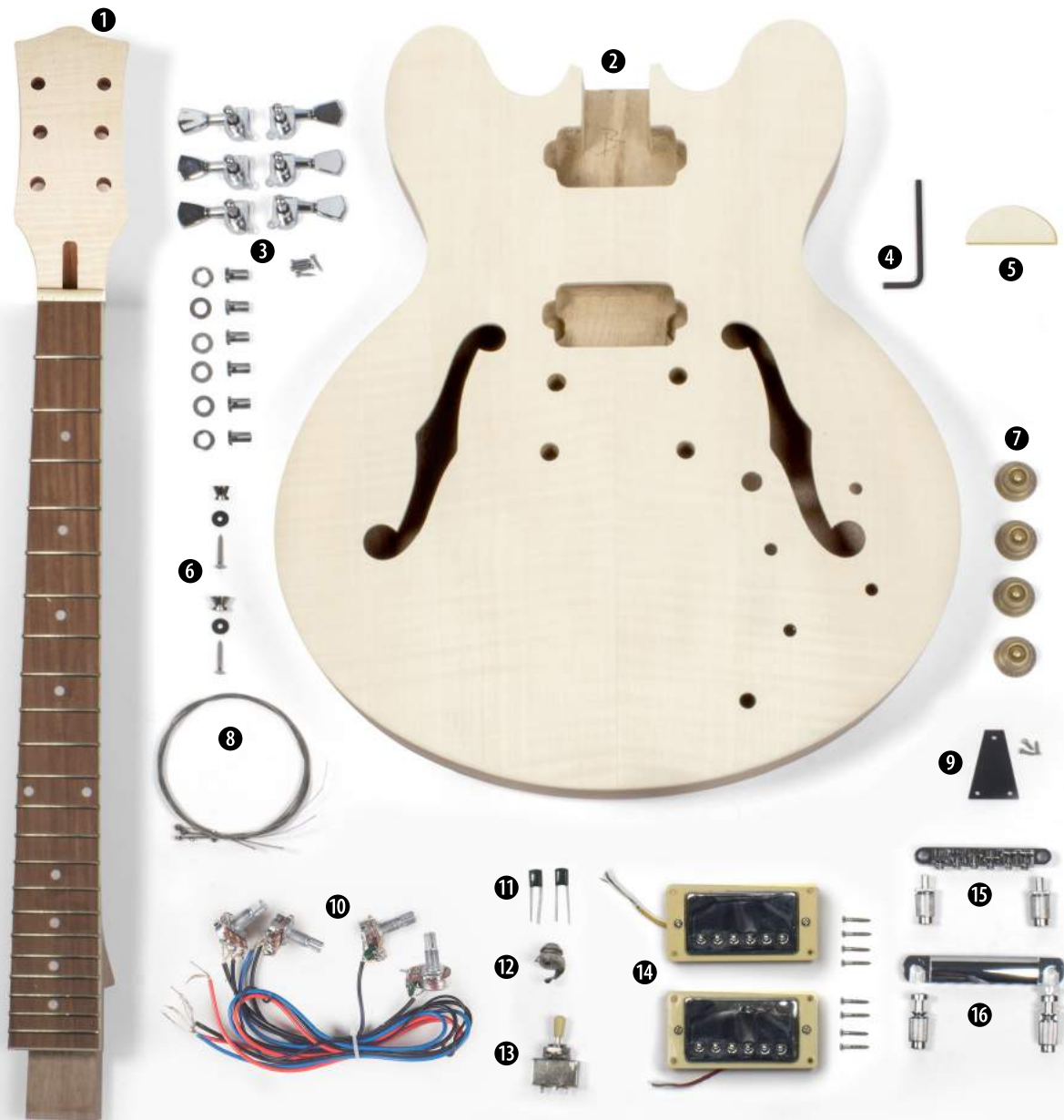
There are many finishes and application methods to choose from. We use ColorTone Aerosol Guitar Lacquers because they're easy to use and you can get a beautiful nitrocellulose finish without investing in spray equipment.

ColorTone Waterbase Grain Filler, Neutral (#0220-N)

ColorTone Aerosol Guitar Lacquers:

- 1 can Vinyl Sealer (#3884)
- 1 can Aged Clear (#5887)
- 2-3 cans of Clear Satin (#3882)

Parts list



- 1 Neck
- 2 Body
- 3 Tuners with bushings, washers, and screws (6)
- 4 4mm hex wrench for adjusting truss rod
- 5 Heel cap
- 6 Strap buttons, with washers and screws (2)
- 7 Control knobs (set of 4)
- 8 Strings
- 9 Truss rod cover with mounting screws
- 10 Wiring harness
- 11 Capacitors (2)
- 12 Output jack
- 13 3-way toggle switch
- 14 Humbucker pickups with mounting rings (2)
- 15 Bridge with posts and bushings
- 16 Tailpiece with posts and bushings

Parts and materials may vary.

Create your peghead shape

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

Make a template

Sketch out your peghead design on a piece of cardboard or 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, because it leaves permanent stains that can even bleed up through an opaque guitar finish.

Cut the 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 to create your peghead shape 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 the cut edges smooth using 150-grit sandpaper followed by 220-grit, then 320-grit.



Neck set

Before gluing up the neck do a dry run first. Using a single clamp with cauls on the fretboard and back of the body to prevent denting the wood, lightly clamp the neck into place. Note that there will be side to side movement of the neck.



There will be some gaps and chips around the joint; this is normal for a production guitar. These will get filled when you prep for finishing.



Take a 12" ruler or straightedge and line it up along the treble edge of the neck, paying attention to where it falls in relation to the treble side bridge stud hole. Then line it up with the bass side of the neck and check it to the bass side stud hole.



Loosen the clamp just slightly and adjust the side to side position of the neck until you have even space between the bridge mounting holes. When achieved tighten the clamp securely. The bottom of the tenon may not contact the bottom of the mortise, and that is perfectly normal. Mark a line in the cavity and on the tenon to use as reference when gluing up the neck.

Make note of your actual gluing surface and spread glue on the bottom of the tenon. Repeat the same process as above using your reference line to get you in the ballpark. When properly aligned tighten up a clamp on the tenon and one over the end of the fretboard again using cauls to prevent damaging the frets and body.

Once the neck is seated remove any excess glue squeeze out with a damp cloth. Watch for further squeeze out over the next 15-30 minutes.

Let dry overnight.



Add the heel cap

There will be some slight gaps and chips around the neck joint, in particular where the mortise and tenon meet at the heel. This is normal for a production guitar and won't cause any structural or playability issues. These gaps and voids will get filled when you prep for finishing. Any gaps around the back of the heel and the body will be hidden by the heel cap.

The heel cap in the Stewmac 335-style kit is slightly thicker than the one shown here, but the process is the same.

Mark the shape of the heel cap and cut just up to your lines, leaving a little overhang which can be filed back after gluing.

Attach the heel cap to the flat bottom of the heel with a thin layer of thick viscosity super glue. Press into position and quickly wipe up as much of the glue squeeze-out as possible. Clamp in place, and let it dry thoroughly.

Carefully and gently file and sand the overhanging material flush to the wood using downstrokes to avoid pulling the cap off of the heel. Use sandpaper and scrapers to remove any remaining glue squeeze-out.



Fretwork

Seat the frets

The frets come installed, but they need a little work to achieve the best playability. Use a fretting hammer to make sure the frets are all seated properly. The more even your fret tops are, the less leveling work there is to do later. Seating the frets at this point will also help you more accurately straighten the neck when using a straightedge.

After seating with the hammer, check for any high spots across the frets—a short straightedge or a Fret Rocker work well for this. Spanning three frets at a time, work down the neck. If the tool rocks, you have a high fret. Knock down the high frets you encounter with a file or Fret Kisser. Taking care of these high spots now will prevent your leveling tool from hanging up on them when sanding and will give you a more even overall leveling job.

With the hammer handle running parallel to the frets, start at one end of a fret and work your way across using light taps that are square to the face of the hammer. Use care not to use the edge of the hammer head as it can cause a bend in the fret, making it difficult to seat properly.

The idea is to use light taps, just enough to seat the frets flush to the fretboard. Hitting too hard can make a slight kink in the fret that can cause the ends to spring and be difficult to reseat. Using a heavy hand can also damage the fretboard by driving the fret down into it. A drop of super glue works well for keeping stubborn frets in place.

Run your fingers lightly along the edge of the fretboard and feel for sharp fret ends. If the fret ends feel sharp where they meet the edge of the neck, gently sand them back with 320-grit sandpaper using long strokes down the length of the neck. Use care not to change the bevel of the frets in the process.

Straighten the neck

Use the 4mm hex wrench to adjust the truss rod. With a straightedge on the frets, adjust the truss rod until the straightedge touches all of the fret tops without rocking.

Turn the truss rod nut counterclockwise (viewed from the peghead end) to loosen the truss rod, allowing the neck to bow upward. Turning it right tightens the rod, pulling the neck back.

For more information, see our Trade Secrets article “Don’t be nervous about adjusting that truss rod!” at stewmac.com.



stewmac.com search: 

Level the frets

Color the fret tops with a blue permanent marker to prepare them for leveling. The blue ink will show your progress: the frets are level when sanding has removed some of the blue across all of the fret tops.

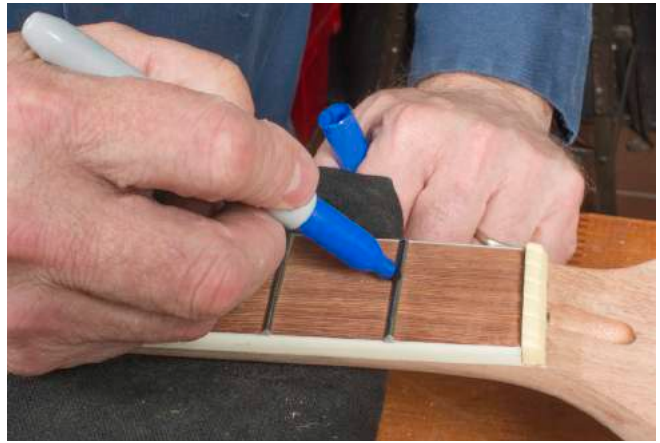
Use adhesive backed sandpaper or double-stick tape to attach 320-grit sandpaper to the 16" radius sanding block. With this, level the frets using full length strokes down the fretboard.

Leveling will leave flat tops on the frets. Use a fret crowning file to restore their rounded shape.

Reapply blue marker to the fret tops. By filing the sides of the frets, bring in the edges of the flats left over from leveling. With a rounding motion, keep bringing in these edges until all that remains of the top is a very thin line. Don't remove this line entirely; filing the fret tops would undo your leveling.

Polishing the frets

Using 400-grit, then 600-grit sandpaper wrapped around a foam block, run up and down the entire length of the fretboard. Polish the frets by going over each one with extra fine Scotch-Brite or 0000 steel wool.



Finishing

If you're coloring a veneered top, don't apply stain directly to the wood. First add your color to a finish such as lacquer, shellac, or poly (NOT water or alcohol), and then apply it to the veneer. Veneer is glued under vacuum pressure, and glue can be pulled into the wood pores. Stain won't absorb in these areas, making stained colors look blotchy. It's best to use a pre-colored finish instead, like our ColorTone aerosol guitar lacquers. Custom colors and shades can also be made by mixing ColorTone tints into clear lacquer, shellac, or poly.

Preparing the neck and body for finish is just as important if not more important than the final spray. The key to a great looking finish is patience and lots of it. Be thorough with your sanding and follow the finishing schedule on page 6 for best results.

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 and knotholes will need to be filled.

Fill the grain

The body of a 335-style guitar is usually made with a laminated tight grained wood such as maple. The necks are often made from an open grained wood like mahogany. Open grained woods need to be filled before finishing in order to achieve a flat surface. Look your kit over closely to determine what types of wood your kit was constructed with. As a general rule, if you can see the pores of the wood with the naked eye, you should use grain filler before finishing. If needed, we suggest using our Neutral ColorTone grain filler following the instructions on the label. Three applications are recommended to get a nice flat surface to build finish coats over. The grain filler can also be used to fill any gaps, chips, or other imperfections in the wood.

For more information on grain filling, see our article "Using ColorTone Grain Filler" at stewmac.com.

stewmac.com search: 

Sand the body

The figured laminated woods on the top, back, and sides are very thin and can easily be sanded. Using 320-grit sandpaper on a foam sanding block, lightly 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, to reveal fibers that need more sanding. Let the dampness dry, then sand the raised grain again using 320-grit sandpaper.

Sand the neck with 220-grit followed by 320-grit. If your

kit has a laminate on the peghead face, sand it lightly with 320-grit using care not to sand through.

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.

Wipe the neck with a damp cloth to raise the grain. After it's dry, sand it again with 320-grit.

Breaking edges

Slightly break any sharp edges on the fretboard, peghead and body. Softening hard edges promotes even finish coverage. Later, when you're lightly sanding out your finish, these edges are less likely to sand through to bare wood.

Degrease with naphtha

When you've finished sanding, wipe the body and neck with a naphtha-dampened 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 and fretboard face before applying finish. Any overspray can be removed after the finish has cured.

Tip! Temporarily install an eye hook where the lower strap button will be, this will serve as a hanger that conveniently holds the guitar for finishing and while the finish cures.



Spray the finish

There are many finishes and application methods to choose from. In creating these instructions, we're using ColorTone aerosol guitar lacquers. These aerosols are a fast way to build a quality finish.

Using a clear satin topcoat is recommended, because satin doesn't require much sanding or buffing the way gloss does. If you choose to spray a glossy finish, it will involve more steps.

A brushed-on finish like tung oil, waterbase lacquer, or shellac works great too. Any of these finishes will seal and protect the wood from dirt and moisture.

The best advice for finishing: practice on scrap!

Test your finish of choice on scrap wood first, so you can see what you'll get before applying it to your guitar.

Use warm lacquer, not cold. Professional finishers spray heated lacquer because cold lacquer spatters, requiring extra sanding. Warm up your aerosols before spraying by placing the cans in a sink of warm tap water.

When spraying, keep the spray parallel to the surface of the guitar for even coverage as shown below.

Spray schedule with ColorTone Aerosol Lacquer

This finishing process can be completed in as little as three days, followed by a week of curing. Remember that patience is the key to a successful finish job. Don't rush it! Spray the lacquer using light passes to prevent runs.

Day 1

Body and neck: Spray 1-2 coats of aerosol Vinyl Sealer on the body, waiting 1-2 hours between coats. Next, spray 1-2 coats of Aged Clear lacquer, waiting 1 hour between coats.

Let dry overnight.

Day 2

Body and Neck: Spray 3-4 additional coats of Clear Satin, 1 hour apart.

Allow to dry overnight.

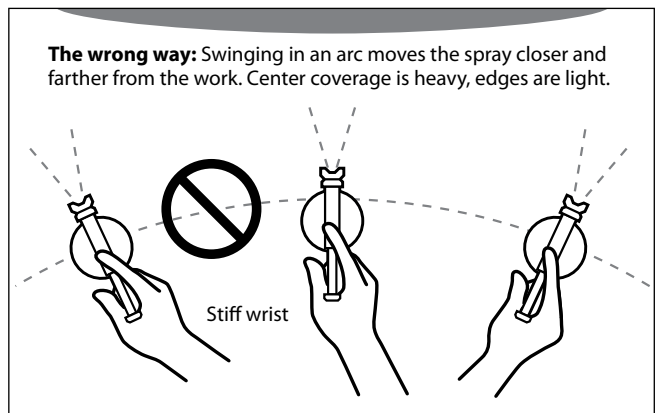
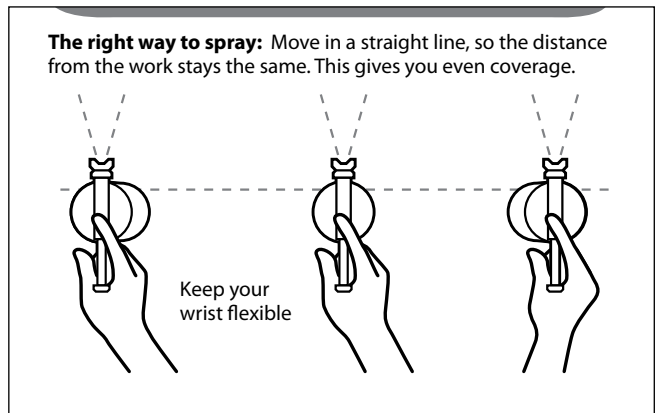
Day 3

Body and Neck: Lightly sand the body and neck with 400-grit paper to remove any finish spatter or dust.

Spray 3-4 additional coats of satin clear, 1 hour apart.

Allow the finish to cure for a week in a cool, dry room. Around 70° at 50% humidity is recommended.

After the finish has dried for 1 week, go over the entire instrument lightly with Light Duty 3M Scotch-Brite Pads or 0000 steel wool for a nice satin appearance.



Assemble your guitar

Assemble your guitar on a soft pad or cardboard to prevent denting or scratching the instrument.

Install the tuners

Starting with the bottom set of pegholes, lay out the tuners with a ruler to make sure they are in line with one another. Mark out the mounting holes with a scribe or transfer punch.

Tuner mounting screws are very delicate. Use a 5/64" drill bit to make pilot holes for the screws; if these holes are any smaller you risk shearing off the screw heads. Lubricate the screw threads by dragging them across soap or wax for smooth installation.

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.

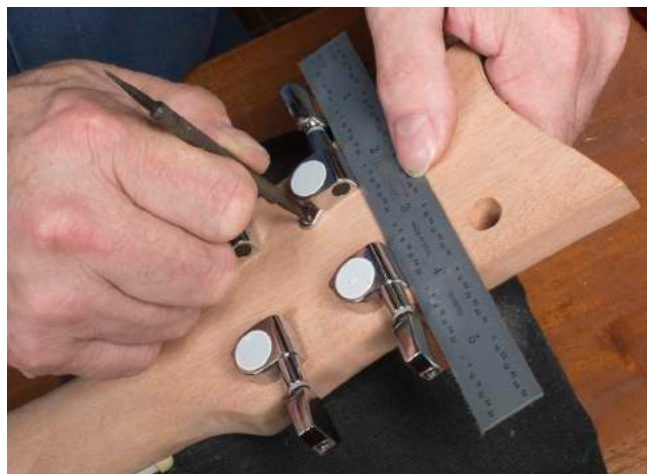
Install the body bushings

Install the tailpiece bushings. It's a good idea to slightly chamfer the holes for the bushings to prevent chipping or lifting the finish. Cut the edge back just larger than the outside diameter of the knurling.

Note that there is a small hole running from the treble side hole running into the control cavity, this is for the string ground. On the pre-wired harness, there is a ground wire attached to the bridge volume pot. This roughly 7" string ground wire needs to be installed before the bushing is pressed in. It's easier done by detaching the wire from the pot, then reattaching it to the back of the pot before installing the harness. Strip 1/2" off of both ends and run the wire through the hole into the cavity leaving the stripped end to come in contact with the bushing once installed.

Install the tailpiece bushings. Pressing them in with a drill press is the preferred method but they can also be installed with gentle hammer taps using a block of wood between the bushing and hammer.

Install the bridge bushings in the same fashion.



Bushing hole before chamfering



Bushing hole with chamfer



Ground wire in bushing hole



GUITAR BENCH PAD

Supple and dense non-slip surface for your guitar.



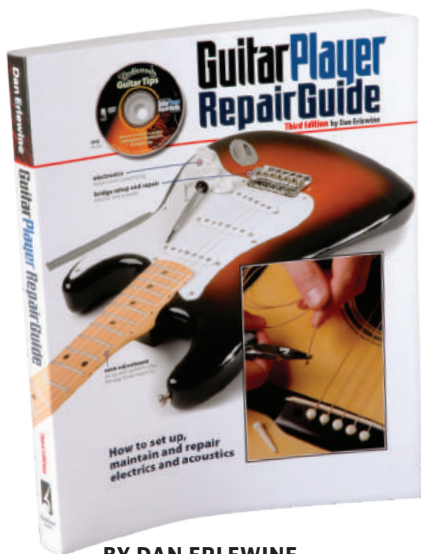
GUITAR TECH SCREWDRIVER SET

36-bit set specifically for guitar hardware, all in a compact no-spill case.



GAUGED NUT SLOTTING FILES

Precisely sized files for round-bottom string slots on the nut and bridge saddles.



BY DAN ERLEWINE

From basic maintenance to advanced repairs, this is the leading step-by-step manual for every guitar owner.



FRET KISSER

Locate and spot level high frets in an instant. What was a several hour job can be done in no time at all, you only file exactly where it's needed.



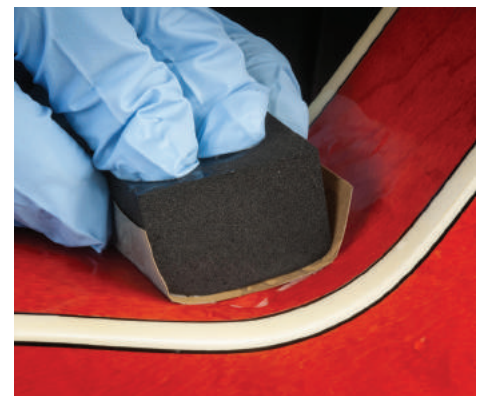
GUITAR TECH WRENCHES

Fit jacks, pots, switches, bridge studs...just about every wrench you need for guitars and amps.



RADIUS SANDING BLOCKS

For fingerboard prep and leveling frets too. Just add sandpaper.



MICRO-MESH FOAM SANDING BLOCK

Dense yet flexible, a great all around backer for sanding, polishing, and fretwork, too.

You really can
get a pro quality
guitar finish
from a can!



COLORTONE AEROSOL GUITAR LACQUER

Whether it's a vintage sunburst you're after, or a faded gold-top, ColorTone's line is filled with tints, solids, and metallics that are formulated to the iconic guitar finishes we love.

Two men are shown against a blue background with white paint splatters. The man on the left is holding a light blue electric guitar. The man on the right is pointing towards the camera. A large graphic on the left reads 'FREE AEROSOL GUITAR FINISHING' in a bold, black, hand-drawn font. Below it, in a smaller font, is 'STEP-BY-STEP COURSE'. At the bottom, a red banner contains the URL 'stewmac.com/aerosol-guitar-finishing' in white text.

Get a pro-quality finish (or refinish) on your next guitar! In this 3-part series we show you exactly what you need to do to get a professional-quality guitar finish at home using aerosol lacquers. The results are pretty amazing!! This series covers every aspect, all using nitro aerosol finishes. It's perfect for anyone—no experience necessary! You really CAN get a pro-quality result (even on your first try) if you follow these steps.

Install the strap buttons

Mount the tail strap button. The top button screws into the back of the body, just beyond the heel. Drill a 3/32" hole, 1/2" deep.

Install the pickups

Your kit has two humbucker pickups. The bridge pickup has a taller pickup ring and wider pole piece spacing. The neck pickup has a shorter pickup ring and tighter pole piece spacing. The bottoms of the pickup rings will need to be sanded to match the contour of the top of the guitar. If your pickups came installed in the mounting rings you will need to remove them temporarily while you perform this task.

Use a pencil cut in half lengthwise to transfer the contour of the top onto the pickup ring. This process is shown on a different guitar, but the operation is the same on your build. Anything that falls below the pencil line on the pickup ring needs to be removed. Place low-tack tape over the top of the guitar to protect it. Using 80-grit Stikit Gold sandpaper, sand front to back (the direction of neck to bridge), not side to side to match the radius of the top. While this will be slower, it will give you the true radius and a better fitting pickup ring. Keep in mind the contour of the bridge pickup area is slightly different than the contour of the neck pickup area. For more tips about modifying pickup rings to fit an arched top guitar, see our Trade Secrets video "Fitting a Les Paul ring".

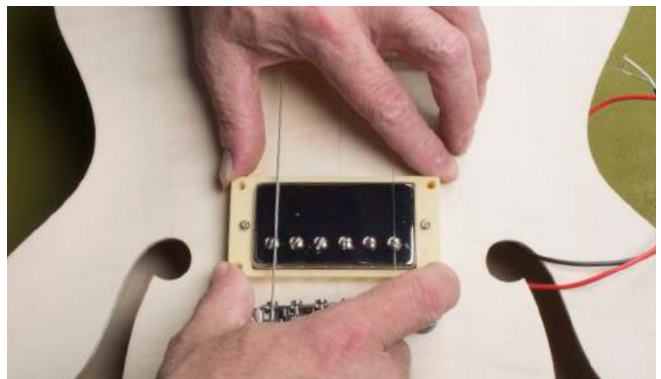
Once the rings are fitted, drop the pickups into their cavities.

stewmac.com search:

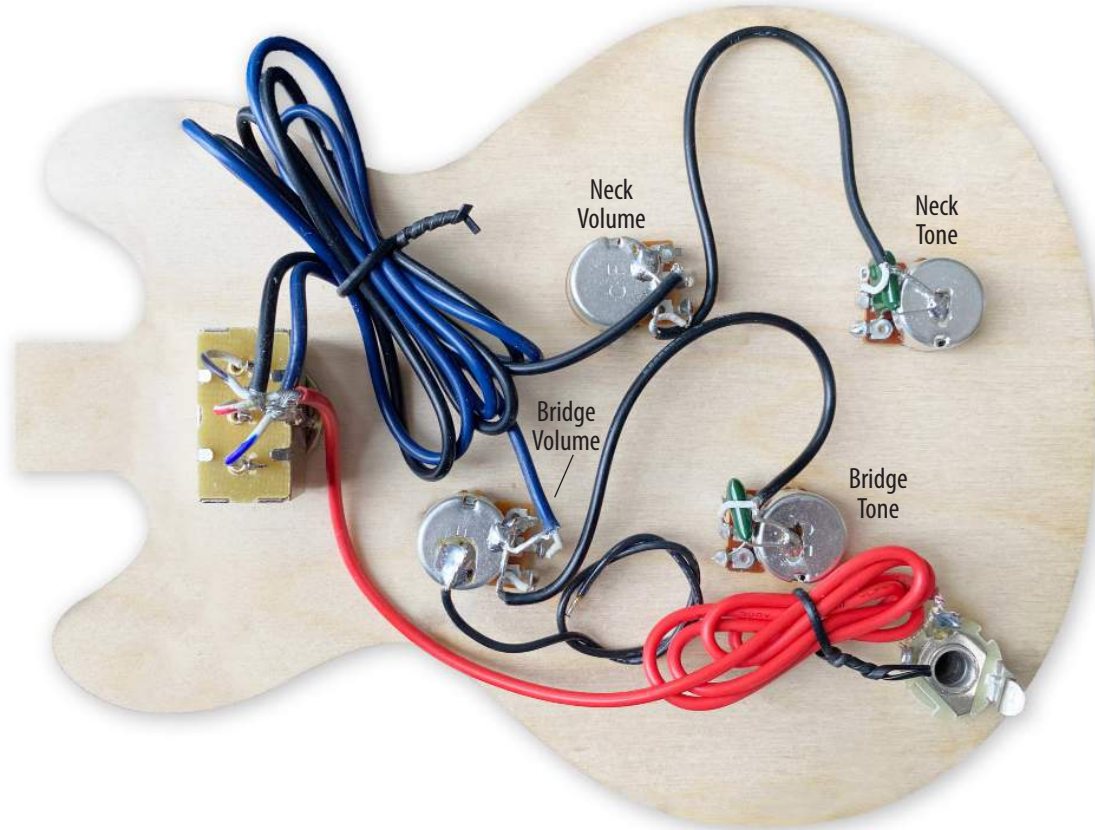
Remember, the pickup with the wider pole spacing is the bridge pickup, the pickup with the tighter pole spacing is the neck pickup.

Install the tune-o-matic bridge and tailpiece. String up the low and high E strings to use as reference. Line up the neck pickup so it is square to the end of the fretboard and the E strings are evenly above the polepieces. Mark the locations of the holes.

Now carefully line up the bridge pickup to make sure it is square to the neck pickup. After you've marked the holes, remove the strings and pickups. Then drill the holes with a 1/16" bit, 3/8" deep. Install the pickups.



Wire the electronics

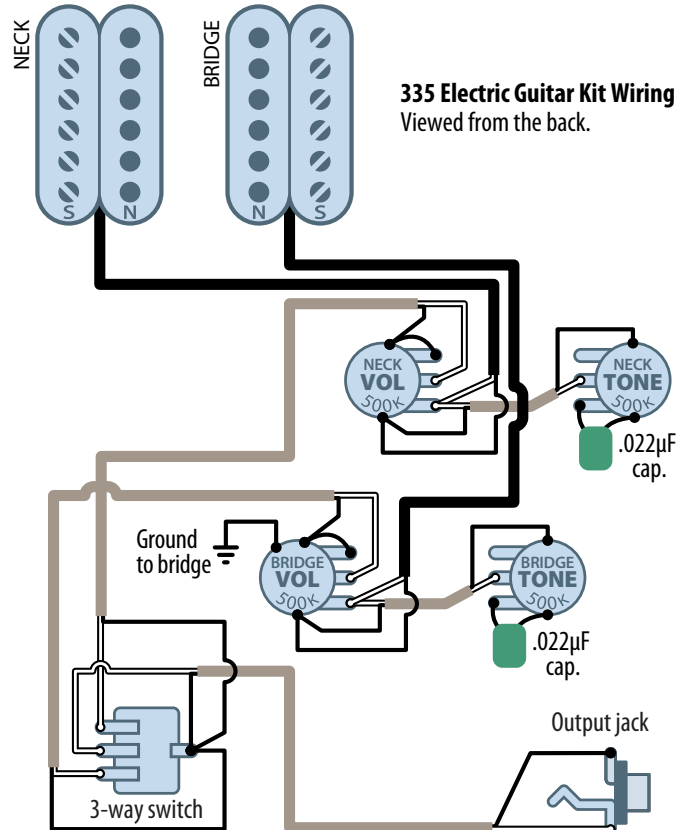


Your kit comes with a prewired harness.

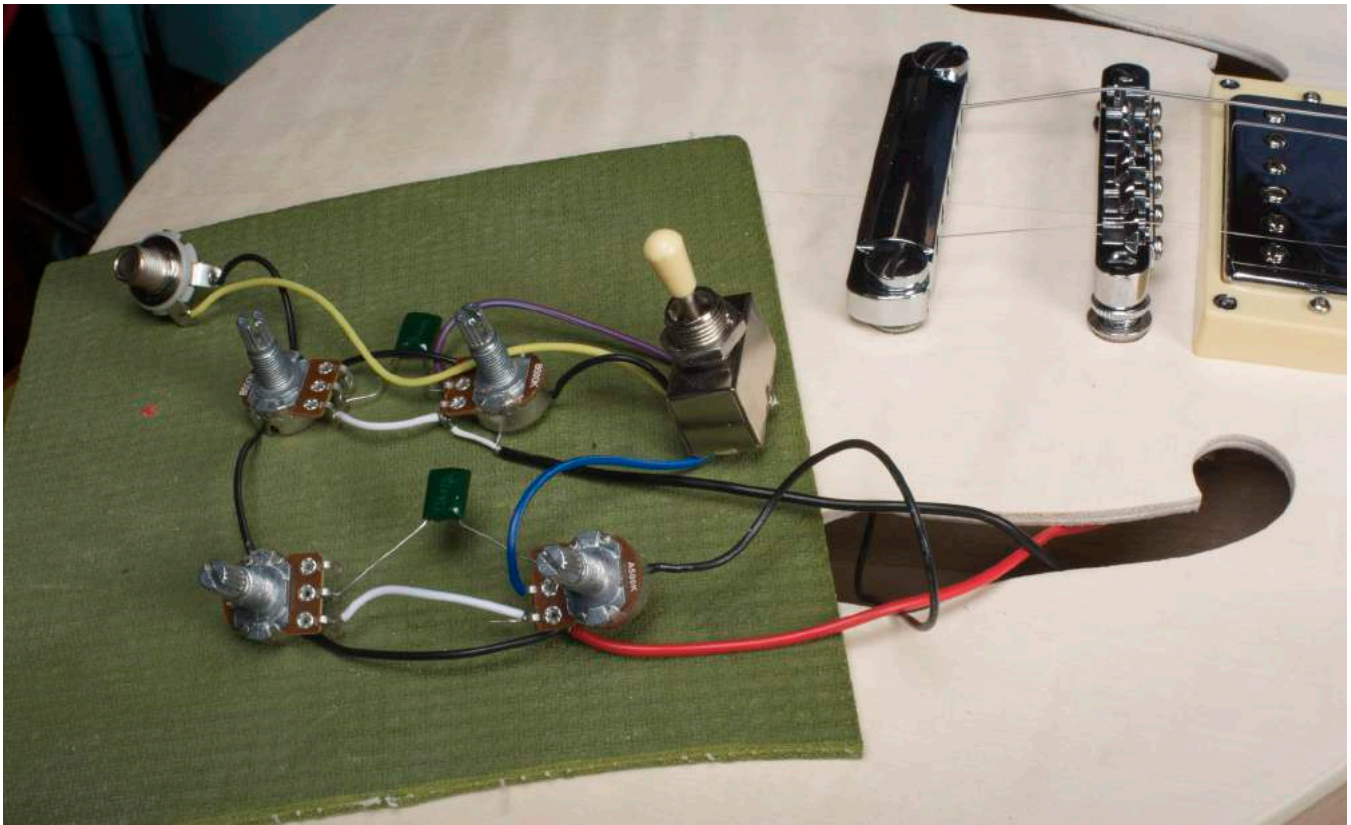
Connect the switch and output jack, then solder the pickups to their volume pots as shown in the wiring diagram to the right.

For soldering tips, see our Trade Secrets video #186 "How to get a good clean solder joint!" at stewmac.com.

stewmac.com search: 



© STEWMAC 2021



Install the harness

There is not cavity access on this guitar, which means you will need to feed the components in through the treble side F-hole. Fish the neck and bridge leads and string ground out of the body and solder them in place following the diagram.

Once soldered it's time drop the controls into the guitar and then up through the mounting holes. This is a tricky job, but our #0255 Archtop Helping Hand and #0107 Jack Installation tool make easy work of it. Another method is to first tie strings or rubber bands to the shafts of the pots and switch and pull them up through the mounting holes. For help with this technique, see our Trade Secrets article "Fishing a volume control out of a semi-hollowbody for soldering."

Once the switch, jack and pots are secured install the knobs.

stewmac.com search:



Final setup



Adjust the neck

Install the remaining strings and tune to pitch.

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.

You can use a straightedge or the low E string to get you in the ballpark. Using your index finger, hold down the E string at the first fret. With the other hand, hold down the string at the 17th fret with your thumb and use your index finger to check for relief. The smaller the gap between the bottom of the string and the top of the frets, the straighter the neck.

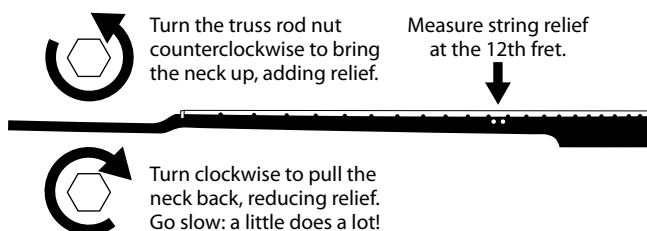


Lower the nut slots

Once the neck is adjusted to the desired straightness, the nut slots will need to be lowered for the best playability. Measure the gap between the bottom of the string and the top of the 1st fret.

A comfortable medium action over the first fret is .012" for the plain strings (G,B,E), and .020" for the wound strings (E,A,D).

Use feeler gauges to measure the gap or use guitar string scraps whose gauges match the measurement you are shooting for. Using just a few file strokes at a time, stop filing when the string sits on the top of your feeler gauge, whatever it may be. Take your time and check your work frequently. It is easy to go too far lowering the slots thus ruining the nut.



Set the string height

Adjust the bridge action using the thumbwheels on bass and treble sides. Measure the gaps between the bottom of the low and high E strings and the top of the 12th fret.

Factory action for the high at the 12th fret is $1/16''$ for the high E string, and $5/64''$ for the low E.



Adjust the pickup height

One at a time, hold the low and high E strings down at the 22nd fret.

Adjust the neck pickup to $1/16''$ between the bottoms of the low and high E strings and the top of the pole pieces. Adjust the bridge pickup to $3/32''$.



Set the intonation

The last step is intonating the guitar by adjusting the string lengths at the bridge saddles. This will help ensure that the guitar plays in tune all the way up the neck.

Verify the strings are tuned to pitch using a strobe or other accurate tuner. Then, press the high E string lightly at the 12th fret with just enough pressure on the fret 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 guitar will be the first of many that you have fun assembling and customizing.

Be sure to get a gig bag or case, so it doesn't get banged around!



WHAT'S NEXT? YOU CAN'T STOP NOW



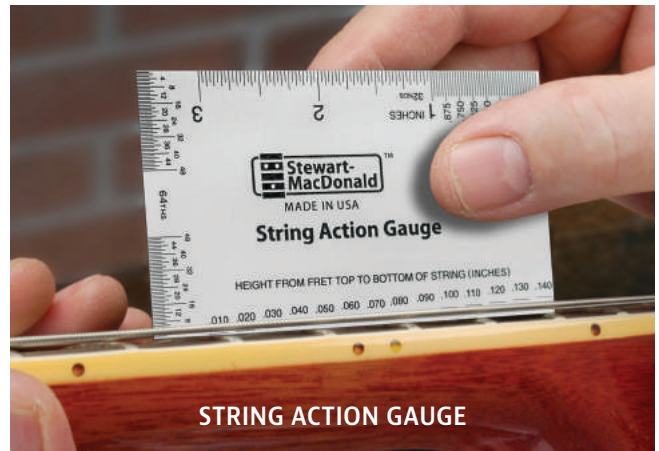
 **stewmac**
WE MAKE GUITARS BETTER

PERFECT YOUR SETUP

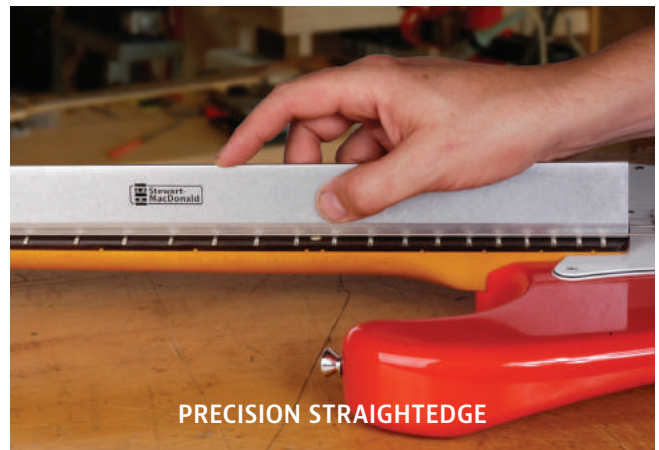
Every great playing guitar begins here. Buy these tools once and they'll last you a lifetime.



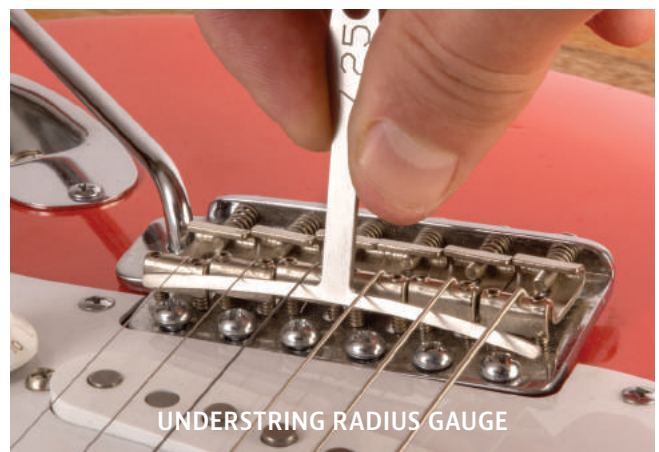
stewmac.com [Basic Setup Kit](#) 



STRING ACTION GAUGE



PRECISION STRAIGHTEDGE



UNDERSTRING RADIUS GAUGE

BUILD YOUR SIGNAL CHAIN



Looking for your next weekend project? "The kit is superb and produces one of the best sounding amps I have ever heard. Tommy at StewMac was looking out for me and replaced my parts that I ruined at no charge. Superb documentation, fantastic experience, and a LOT of fun to assemble. I'm thrilled!"—HB from Michigan

BUILD SOMETHING NEW



335-Style • Offset • LP-Style
S-Style • T-Style • Modern • Vintage



Dreadnought • OM • Triple-O
Pre-war • Jumbo-45 • Limited Edition



For 10 or 12-inch Speaker
Solid Mahogany

What will you build next?



Our promise to you is simple and uncomplicated: If any of our products ever break, wear out, or fail to exceed your every expectation simply return it for a replacement. **That's quality you can trust. For life.**



21 N. Shafer St • Athens, Ohio 45701 • USA
USA & Canada call toll-free: 800-848-2273
9am-6pm weekdays Eastern time

How can we help?
stewmac.com/contactus