

Before you begin

Familiarize yourself with the parts in your dulcimer kit



One fingerboard



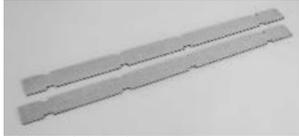
Fret wire
(already installed on some kits)



Three machine heads,
with screws
(already installed on some kits)



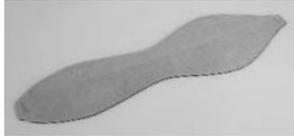
Anchor pins
(already installed on some kits)



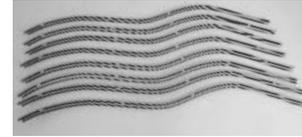
Two side pieces



One soundboard
(sometimes called a top)



One back
(sometimes called a bottom)



Eight side guides



One string set



Two nut/bridge pieces



Four interior braces
(2 large, 2 small)



Two end caps



Pick

Gather the tools and supplies you'll need



Glue (any glue appropriate for
paper or wood - Elmer's or TiteBond)



Wire cutters (for trimming strings
after they're installed, optional)

The following tools are necessary **ONLY** for dulcimers with unfinished fingerboards:

Flat metalworking file Phillips head screw driver, small
Drill with #49 bit Ruler
Hammer Pencil
Wire cutters

Step 1 – Assemble your fingerboard

During this step, you will install the frets, machine heads and anchor pins onto your fingerboard. If your fingerboard already has frets, machine heads and anchor pins installed, please skip ahead to step 2.

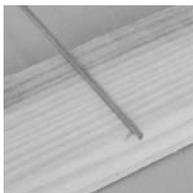


Photo A



Photo B

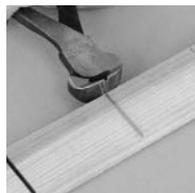


Photo C

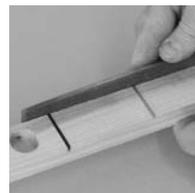


Photo D

Install the frets

Position the fret wire with the rounded side up over one of the precut slots in your fingerboard leaving at least 1/16" on both sides of the fingerboard (Photo A).

Use your hammer to gently tap the fret wire into the slot until the bottom of the rounded part of the fret wire is flush with the top of the fingerboard. Use several light taps with the hammer rather than fewer heavier blows, since you can easily bend or dent the fret wire (Photo B).

Use your wire cutters to trim the fret wire as close to the fingerboard as possible (Photo C).

Repeat these steps until you have fret wire installed in all of the precut slots.

Use your metal file to file the ends of the fret wire flush to the sides of the fingerboard (Photo D) . Be careful not to file the wood.

Use your metal file to add a 45 degree bevel to the ends of the fret wire by holding your file at an angle and running it along the length of your fingerboard. The actual angle used does not matter, since this angle is only necessary to help smooth the edges of the frets.

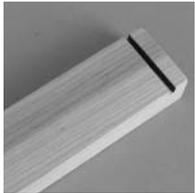


Photo E

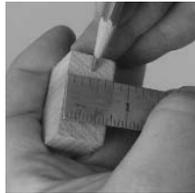


Photo F

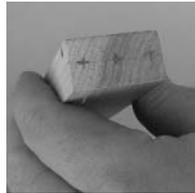


Photo G



Photo H



Photo I



Photo J

Install the anchor pins

Identify the tail end of the fingerboard as the end without the holes for the machine heads (Photo E).

Mark positions for three holes on the tail end of the fingerboard (Photo F). All three holes should be 1/4" from the bottom of the fingerboard (the side without the frets). One hole should be 3/16" from the left, one should be centered, and one should be 3/16" from the right (Photo G).

Hold the drill at a 30 degree angle going from the marked positions towards the top of the fingerboard (Photo H). Drill all three holes approximately 1/2" deep using a #49 (a 5/64" drill bit can be substituted) drill bit. Your holes should not come out the top of the fingerboard.

Using your hammer, tap the anchor pins (Photo I) into the holes you just drilled, leaving between 1/8" and 1/4" sticking out (Photo J).



Photo K



Photo L

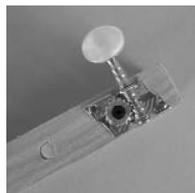


Photo M

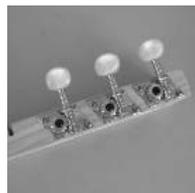


Photo N

Install the machine heads

Insert the post of one of the machine heads into one of the holes in the side of the fingerboard. Align the machine head with the knob upright (Photo K).

Holding the machine head in place, drill a 1/16" deep pilot hole into the fingerboard through one of the two holes in the mounting plate of the machine head (Photo L). Use the same drill bit that was used to install the anchor pins.

Install the screw into the pilot hole you just drilled using a Phillips head screwdriver.

Drill a 1/16" deep hole into the fingerboard through the remaining hole in the mounting plate of the machine head, and install a second screw to complete the installation of the machine head (Photo M).

Repeat these steps for the remaining two machine heads (Photo N).

Step 2 - Attach the fingerboard to the dulcimer soundboard

During this step, you will glue the fingerboard to the dulcimer soundboard.

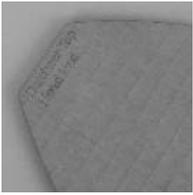


Photo O

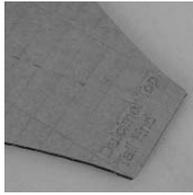


Photo P



Photo Q



Photo R



Photo S

Place the dulcimer soundboard face up (the side with the text up) on a flat surface. The text "Fingerboard Here" appears on the dulcimer soundboard between two lines. These lines represent the location of the edges of the fingerboard. One end of the dulcimer soundboard is labeled head end (Photo O) and the other is labeled tail end (Photo P). Remember which end is the head end and which is the tail end as you will be covering these labels with glue and may not be able to read them later.

Apply glue to the dulcimer soundboard between the two lines (Photo Q). Use a fair amount of glue, but don't use so much as to cause squeeze out.

Apply the fingerboard to the dulcimer soundboard. The tail end of the fingerboard (the end with the anchor pins) should be even with the tail end of the dulcimer soundboard. The head end of the fingerboard will stick out several inches past the head end of the dulcimer soundboard (Photo R).

Set some weights (anything heavy will do - we used a stack of dulcimer books) to hold it in place while the glue dries (Photo S).

Step 3 - Prepare your interior bracing

During this step, you will assemble the two braces that will be used later inside your dulcimer.



Photo T



Photo U

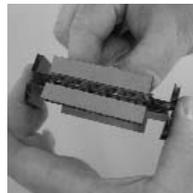


Photo V

Take the 4 brace pieces (two labeled "Large Brace" and two labeled "Small Brace") and bend the tabs to 90 degrees. You will bend the tabs back away from the face with writing (Photo T).

Take one of the large braces and apply glue to the face with the writing being careful not to get glue on the tabs (Photo U).

Press the face of the other large brace to the glue you just applied holding the braces aligned with each other (Photo V).

Repeat these steps with the small braces.

Step 4 - Attach the side guides to the dulcimer soundboard and dulcimer back

Your kit includes 8 identical side guides. During this step, you will attach 4 of them to the dulcimer soundboard and 4 of them to the dulcimer back.

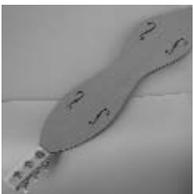


Photo W

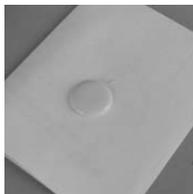


Photo X



Photo Y

After the glue holding your fingerboard to the dulcimer soundboard is dry, place the dulcimer soundboard on a flat surface upside down (the fingerboard is down) with the head end to your left (Photo W).

Apply glue to one of the side guides on the face without writing. To apply the glue, we have found it easiest to make a puddle of

glue on a piece of scrap paper (Photo X) and spread the glue on the cardboard with our fingers (Photo Y).

Press the glued surface of the side guide to the far edge of the soundboard with the end labeled "Head End Of Side Guide" to your left. This should be the end of your soundboard with the machine heads on the fingerboard. Line up the side guide with the outside edge of the soundboard.

Apply glue to another of the side guides on the face without the writing.

Press the glued surface of this side guide directly on top of the side guide you just applied to the soundboard. Carefully align the side guides so they match the edge of the dulcimer soundboard. If you have problems with the side guides sliding, you may temporarily tape them in place until the glue dries.

Apply glue to one of the side guides on the face with the writing.

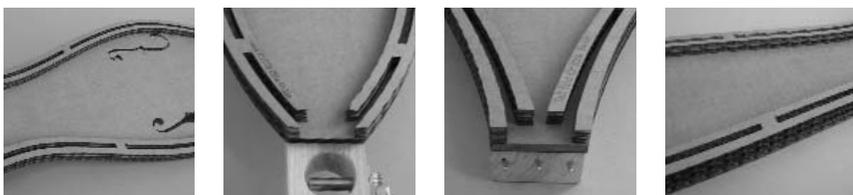
Press the glued surface of the side guide to the near edge of the soundboard with the end labeled "Head End Of Side Guide" to your left. Again, the side guide should line up with the outside edge of the soundboard.

Apply glue to another of the side guides on the face with the writing.

Press the glued surface of this side guide directly on top of the side guide you just applied.

Place your dulcimer back (or bottom) face up (the side with writing on it) on a flat surface with the end labeled "Head End" to your left.

Attach the 4 remaining side guides to the dulcimer back just as you did the dulcimer soundboard. The two side guides on the far side will have their labels up and the two side guides on the near side will have their labels down.



Step 5 - Assemble the body

During this step you will install the sides and braces and attach them to the dulcimer soundboard and bottom.



Photo Z

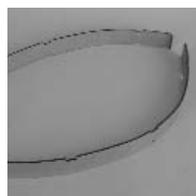


Photo AA



Photo BB

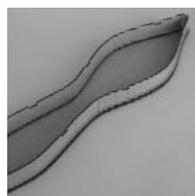


Photo CC

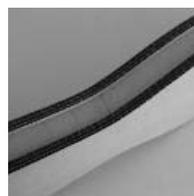


Photo DD

Soften the sides by pulling them over the edge of a table (Photo Z). This will make the sides easier to bend (Photo AA), and easier to insert into the side guides.

Wait for the glue on the side guides to be completely dry before continuing.

Dry fit the sides into the side guides on the dulcimer back (Photo BB). One end of each side is labeled "head end" and the other is labeled "tail end". The writing on the sides will face towards the outside edges of the dulcimer.

There are 4 notches along both the top and bottom of the sides just as there are 4 cross pieces in the side guides. Center the notch closest to the tail end of the side over the cross piece closest to the tail end of the dulcimer back and carefully press the side into the channel of the side guide. Slowly work your way towards the head end of the dulcimer pressing the side into the side guide channel. Repeat for the other side (Photo CC).

Dry fit (do not use glue!) the sides to the side guides on the dulcimer soundboard. Align the channels of the side guides attached to the dulcimer soundboard over the sides. Starting at one end of the dulcimer, slowly fit the sides into the side guide channels.

Carefully push in or pull out on the sides as necessary to get them to line up with the channels on the dulcimer soundboard. When the dulcimer is assembled correctly, the notches on the sides should be hidden in the side guides (Photo DD).

Remove the dulcimer sides from the dulcimer soundboard and from the dulcimer back.



Photo EE

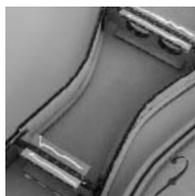


Photo FF



Photo GG

Apply a bead of glue in the channels of the side guides on the dulcimer back (Photo EE).

Insert the sides into the channels on the dulcimer back just as you did when you did the dry fit (it should go together easier this time).

Apply glue to all 8 tabs of your large brace.

Press the large brace into position. The large brace goes on the tail end of the narrow part of the body.

Apply glue to all 8 tabs of your small brace.

Press the small brace into position. The small brace goes on the head end of the narrow part of the body. Refer to Photo FF for positioning.

Apply a bead of glue into the channels of the side guides on the dulcimer soundboard (Photo GG).

Insert the sides into the channels on the dulcimer soundboard just as you did when you did the dry fit.

Step 6 - Attach the end caps

During this step you will attach the end caps to give your dulcimer a finished look.



Photo HH



Photo II

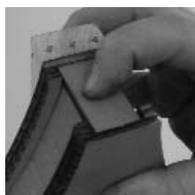


Photo JJ

Fold the tabs at the ends of the sides on the head end of the dulcimer in towards each other (Photo HH).

Apply glue to one of the end caps on the side with the writing (Photo II).

Press the end cap to the tabs (Photo JJ).

Repeat on the tail end of the dulcimer

Step 7 - Install the nut and bridge

During this step, you will install the nut and bridge pieces into the fingerboard of your dulcimer.

You'll use the same techniques to install the nut as you do to install the bridge. The only difference after installation is that the nut slot is deeper than the bridge slot, but this does not affect how you install either piece. The nut goes in the fingerboard at the machine-head end (Photo KK), and the bridge goes in the fingerboard at the tail end (Photo LL).

The nut should fit snugly, but should not require much force to install. You can try to fit the nut without any adjustment, but it will



Photo KK

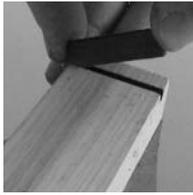


Photo LL

probably be too tight to easily insert into its slot. You can use a piece of sandpaper, a file, or a small knife to make the nut thin enough to install easily. The best technique is to place a piece of sandpaper flat on a table, and then move the nut back and forth on the sandpaper until it is the right thickness to fit easily. Remember, you want a snug fit, but not a tight fit.

The orientation of your nut and bridge pieces is important. There are six slots molded into the top of each nut and bridge. One end has a pair of slots, and the other end has a single slot. When you install the nut and bridge pieces, put the pair of slots closest to you, and the single slot farthest from you when the dulcimer head is to your left.

Now use the same method to fit and install the bridge piece.

Step 8 - Install the strings

Now you'll attach the strings, and tune your new dulcimer!



Photo MM

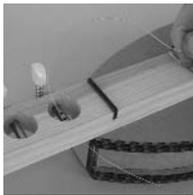


Photo NN

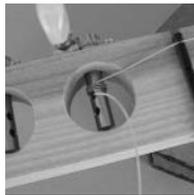


Photo OO



Photo PP

You have two sizes of strings in your kit. The two thinner strings are 13/1000 of an inch in diameter, or .013. The larger string is 24/1000 of an inch in diameter, or .024. All three strings are “ball end” strings. The ball ends of the strings will fit over the anchor pins (at the tail end of the fingerboard) (Photo MM). Each string will then cross over the bridge, cross over the nut, and then get wound around one of the machine heads.

Position your dulcimer with the machine heads to your left, and the tail to your right.

Start with the largest (.024) string. Place the ball end of the string over the anchor pin that is the farthest away from you (Photo MM). Take the string across the bridge, then across the nut. Put the end of the string (the end without the ball!) through one of the holes in the winding post of the machine head that is closest to the nut (Photo NN).

Pull all of the string snug through the hole in the winding post, and then pull it back about three inches. Now turn the button (handle) on the machine head so that the 3 inches of slack is wound around the winding post. Ideally, you'll have 3 or 4 full turns of string around the winding post (Photo OO).

You should have enough tension on the string to make the string snug, but not at all tight.

Make sure that the string is seated in the slots on the nut and bridge that are the farthest from you.

Now install one of the small (.013) strings. This string will be installed the same way as the .024 string, but this time you'll use the anchor pin closest to you, the nut and bridge slots closest to you, and the machine head that is all the way to the end of the fingerboard (skipping the middle machine head for now).

The final string should be installed using the middle anchor pin, the middle slot on the nut, the middle slot on the bridge, and the center machine head.

Step 9 - Tune your dulcimer

There are lots and lots of tuning choices for dulcimer, but DAD tuning is the most common, and is recommended for beginners.

To tune your dulcimer, start with the .024 string. This string should be tuned to D (the D below middle C on the piano, or the D which is the 4th string of a guitar). The middle string should be tuned to A (four notes higher than the bass string), and the melody string (closest to you) should be tuned to D (one octave higher than the bass string).

Once your strings are tuned, you may (optionally) use a pair of wire cutters to trim the excess wire from around the machine heads (Photo PP). This will keep your dulcimer neater, and make it easier to keep the instrument in tune.

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INSTRUMENTS

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