SAGA
AM-10 A-MODEL MANDOLIN KIT
ASSEMBLY INSTRUCTIONS

Saga Musical Instruments

P.O. Box 2841 • So. San Francisco • CA 94080

Assembly Instructions

AM-10 SAGA A-MODEL MANDOLIN KIT

Please read these instructions carefully before beginning in order to have a complete overview of the project. There are six basic operations necessary to complete your Saga A-Model Mandolin Kit.

1. Check and identify parts
2. Body assembly
3. Neck preparation & assembly
4. Back attachment
5. Finishing
6. Final assembly & set up

Check and Identify Parts

Following is the list of parts that are included with your kit. If parts are lost or run through the stump shredder during assembly you may order replacements from your local music shop or directly from Saga.

	Quantity	Description
❑ A	1	Rim/Top Unit
❑ B	1	Back
❑ C	1	Kerfing
❑ D	1	Binding
❑ E	2	Tone Bars
❑ F	1	String Nut
❑ G	Set of 2 Plates	Geared Tuners
❑ H	1	Truss Rod Cover
❑ I	1	Bridge
❑ J	Set of 8	Strings
❑ K	Set of 2	End Pin
❑ L	Set of 2	Tailpiece and Cover
❑ M	Set of 2	Wooden Dowels

Body Assembly

Gluing the Top Binding

Prepare the binding by coiling it tightly and rubbing the bottom of the coil on the sheet of #120 sandpaper that has been taped to a dead level surface (See Figure 1.) This process will give you a perfect 90° angle at the edge of the binding.

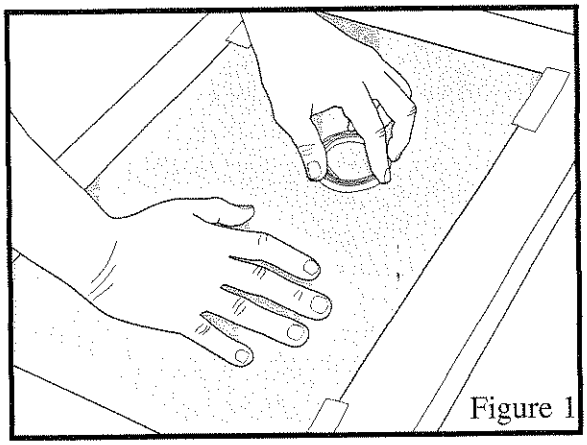
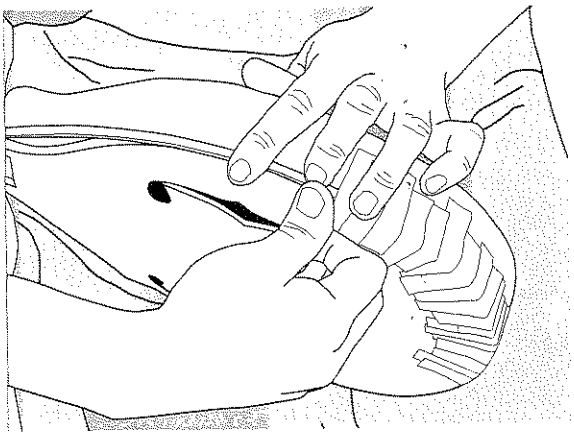


Figure 1

With an ordinary smooth-cut file, clean the channel that has been routed to accept the top binding. Special care must be taken to keep the bottom of the slot square and to avoid chipping the end grain of the spruce top. Always file in the direction that follows the wood grain. Do not file against the grain.

Brush a layer of Duco Cement in the channel and push the binding firmly into the channel. Work your way around the top securing the binding with multiple strips of masking tape (See Figure 2.) Wipe away any excess glue and allow the glue to dry at least three hours.



Remove the masking tape and using a sharp knife as a scraper, carefully bring the binding flush with the top and sides of the body (See Figure 3.)

Figure 3

Continue on page 3.

Tone Bars

Sand the inside surface of the top smooth using #120 sandpaper. During sanding be sure to place firm material behind the sandpaper. A large rubber eraser works fine. The eraser is flexible enough to sand the gradual curves but stiff enough to prevent the sharp edges of the F-holes from being rounded off. Be sure to sand with the grain of the wood and be very careful when sanding near the end grain of the F-holes.

Note: The top of your Saga Mandolin Kit has been hand-carved but not graduated. Top graduation is as much an art as it is a science and if you would like to attempt it you should review the reference material at the end of this instruction guide.

When the underside of the top has been sanded smooth to the thickness that you desire, make a pencil mark in the center line one inch down from the neck block. Make another mark one inch to the right of the center line mark. Then make another small mark ¼ inch to the left of the center line.

Draw a line connecting the inside points of the two F-holes. As the inside of the top faces you, mark a point on the line that you have just drawn ¾ of an inch from the edge of the right F-hole. Now make another mark on that line 1½ inches from the edge of the left F-hole.

You should now have four location points. Connect the two points on the right side with a pencil line and then connect the two points on the left side with another line. Extend the lines toward the lower portion of the mandolin stopping about 1 inch from the edge. The two lines that you have drawn mark the center line for each of the two tone bars. The two small marks near the neck block mark the point where the top end of the tone bar will be fixed.

Cut two 8 x ¾ inch strips of #120 sandpaper and tape them directly above the positioning line that you have drawn grit side up. Put the curved edge of the tone bars in place on the sandpaper and use very short gentle strokes to match the curve of the bar exactly to the contour of the top. (Hint: For greater precision rub a pencil over the entire contact area of the tone bar then use short strokes on the sandpaper. When all of the pencil markings are removed you should have a perfect fit.) It is very important that there are no gaps in this joint so work carefully. When you are satisfied with the fit, clamp and glue the tone bars in position with Titebond glue, carefully wipe away any excess glue (See Figure 4.)

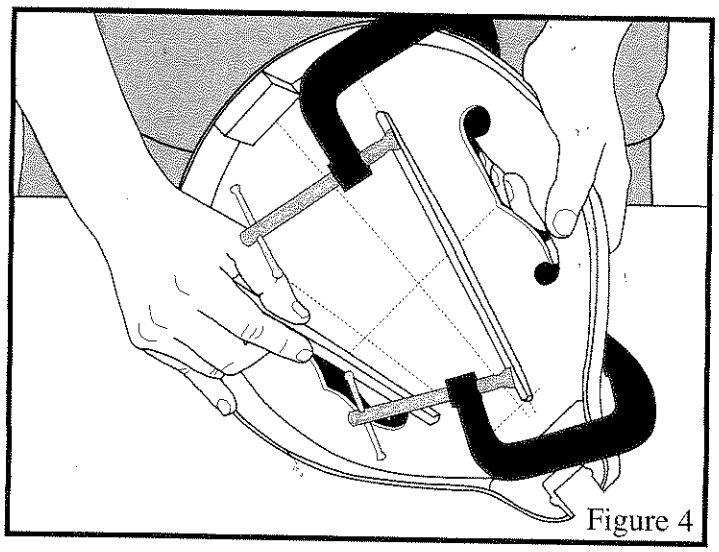


Figure 4

The kerfing will now be glued in position. The function of the kerfing is to give a bit more surface area for gluing the back to the ribs. Place the kerfing in position between the end block and heel block, make a pencil mark and cut it to the correct length. Take a trip down to the laundry room and collect as many spring loaded clothespins as you can find (you will need at least 15.) Spring type paper clips will work in a pinch.

Spread glue smoothly along the gluing surface of the kerfing strip and clamp it firmly to the inside of the rim leaving about 1/16" standing proud all along. Repeat the process on the other side.

Neck Preparation and Attachment

The peghead of the AM-10 has been left extra long and here is a chance to express your individuality and make a mandolin that is truly your own.

First decide the shape of headstock that you would like and draw the outline on the top of the peghead.

Using a brand saw or simple coping saw, cutout the shape of your headstock (See Figure 5.) A half round file can be used to level your cut. Finally the edge should be sanded smooth with #400 sandpaper.

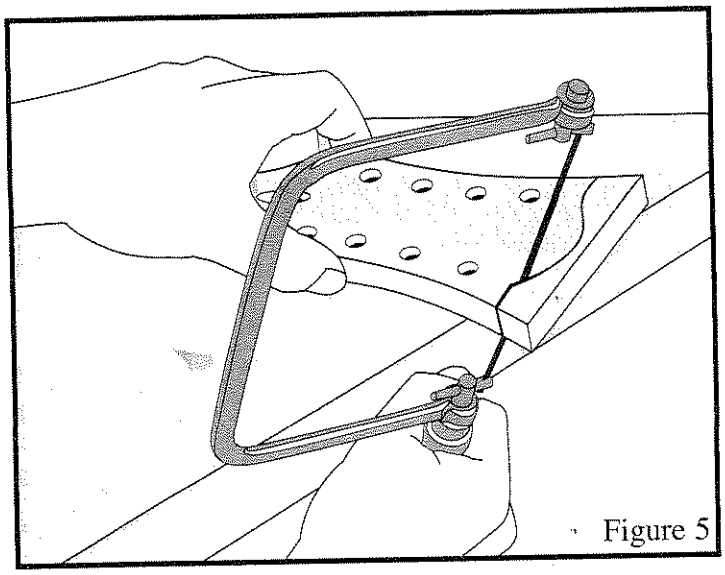


Figure 5

Neck Attachment

Push the heel of the neck gently but firmly into the mortise joint in the body. There should be no gaps. With a sharp pencil gently draw a line on the heel where the edges of the body contact the neck as a guide for glue application. Remove the neck and spread Titebond glue in the neck pocket and on the heel area that will be inside the pocket. Push the neck firmly into position. This time place a piece of scrap wood on the top surface of the frets and tap it with a hammer to completely set the neck. The bottom of the heel should be at almost the same level as the bottom of the heel block. Cover the two small wooden dowels (Part M) with Titebond and tap them into the holes to lock the neck in place.

While the glue is drying lets go to work on the back!

BACK ATTACHMENT

Using #120 sandpaper back with a large eraser, sand the inside curved area of the back smooth always sanding with the grain. For the time being do not sand the flat areas or the perimeter of the back. When the back thickness and smoothness are satisfactory tape a full sheet of #120 sandpaper to a table or other dead level surface. With the concave surface of the back down rub the top over the sandpaper to level all the flat edge surfaces. Again you can rub a pencil over the flat surfaces and sand until all pencil marks have been removed. Be sure to sand with the grain (See Figure 6.)

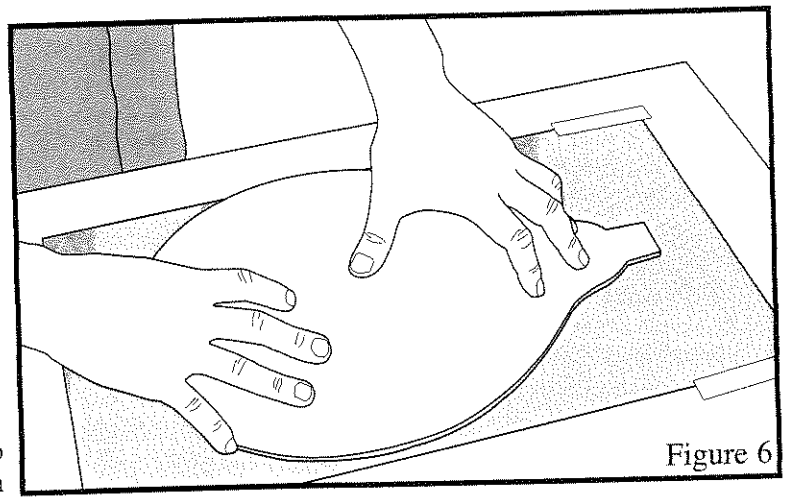


Figure 6

When neck/body joint is dry it will be necessary to level all back gluing surfaces of the rim. First trim the dowels flush to the heel block. Using the same flat sandpaper that you taped to the bench, rub the entire rim assembly over the sheet until all surfaces are level. The heel should be flush with the heel block and the kerfing should be flush with the edges of the sides.

Collect as many C-clamps as you can and clamp the back to the rim without glue. Apply pressure to side to assure there are no gaps visible. If there are gaps you should repeat the leveling process or get more clamps. When you are confident that you have a good fit, remove the clamps and run a fine bead of glue over the rim and spread glue evenly on the end block, heel block and heel base. Position the back, paying special attention to the center line which should line up with the side joint at the end of the mandolin and bisect the base of the heel. Attach clamps carefully. Wipe away excess glue and allow it to dry thoroughly.

Trim excess material away with a small plane, chisel or rasp and finally trim flush to the sides with sandpaper backed with the eraser to give you a clean edge.

FINISHING

The entire mandolin should be sanded well starting with #120 then #220 and finally #320. Always back the sandpaper with your large eraser and sand with the grain. Be especially careful not to round off the edges of the peghead. Do not sand the fingerboard.

Any minor imperfections can be filled with a mixture of sawdust and Franklin glue and then sanded smooth when dry. Remember that finish will not cover up scratches or imperfections in your sanding.

When sanding is complete you can choose between two finishes:

1. Oil
2. Lacquer

Oil is the simplest alternative. Bottled raw linseed oil or Danish Oil is available at all paint supply houses and most hardware stores. This type of finish is absorbed by and becomes a part of the wood itself. If you choose oil follow the instructions provided with the can.

Most high quality mandolins are finished with lacquer. With patience and a bit of work, an excellent finish can be attained using either a spray can or brushing lacquer. Lacquer does not become a part of the wood like oil. It acts rather as a skin, protecting the wood against the hostile environment of nature and mandolin players. The procedure for applying a lacquer finish is as follows:

The rosewood fingerboard will not be finished so tape it off with masking tape. In order to prevent finish from being sprayed inside the body stick a few paper towels inside each F-hole.

After every two or three coats, it will be necessary to sand lightly with #320 sandpaper backed with an eraser. At first, the finish will follow the small contours of the wood. Sanding between coats eliminates these irregularities and makes possible a smooth, glass-like finish. Each coat of finish fills the small valleys further. Your goal is a thin, smooth surface. As you sand between coats, you will notice that certain areas become dull (the high spots) while others remain shiny (low spots). It is necessary to bring all surfaces to the same level.

Particular attention should be paid to the very porous surface of the end grain on the headstock and heel. The end grain should be filled completely.

Continue on page 7.

Hang the mandolin as shown in Figure 7. Begin each spray stroke in the air on one side of the section to be sprayed and continue until you reach the air on the other side. Overlap each stroke by one half and every other stroke crosswise, then lengthwise.

Although lacquer dries quickly, and successive coats may be sprayed in a short period of time, attempts to spray too much in one coat can result in runs or bubbles in the finish, Spraying should not be attempted on excessively humid or rainy days.

For best results the finish should be allowed to harden and cure for one week before the final rub out and polish.

Note: To avoid runs and drips, hold the can 6-10 inches from the surface.

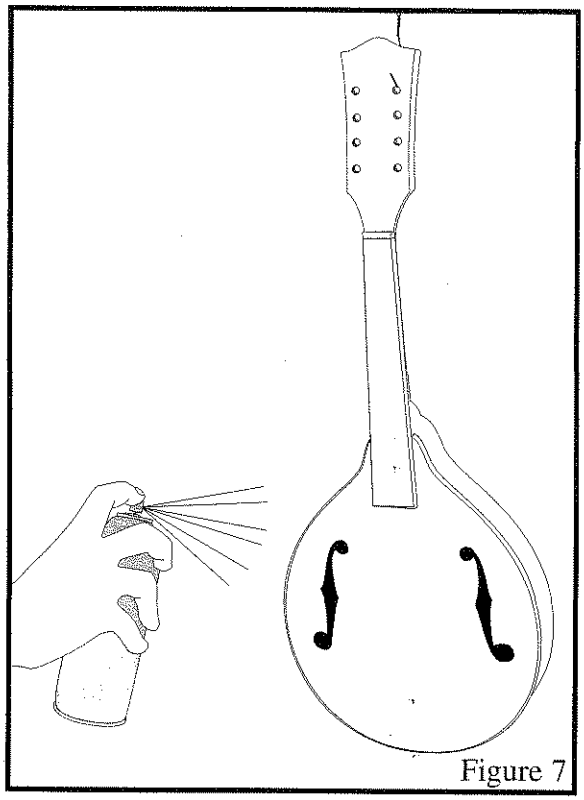


Figure 7

Final Rubbing and Polishing

Sand lightly with non-loading #400 sandpaper using your eraser backing. Be sure to sand with the grain.

All sanded surfaces should now be a bit dull, indicating that the finish is flat and level. Now repeat the sanding process with very fine #600 sandpaper using water and a small amount of dishwashing detergent as a lubricant. This will remove any sanding marks left by the previous step and leave all surfaces a dull gloss.

The finish may now be rubbed out using a medium grade automotive rubbing compound. (Dupont White Polishing Compound is a fine choice). The compound should be used sparingly with fairly good pressure at first. As a high gloss develops, pressure should be diminished. An extra fine grade of polishing compound (such as Mirror Glaze H-7) may be used to get that extra bit of gloss. You can protect your work with a bright wax—Martin guitar polish is a good choice.

Final Assembly and Set Up

Attaching the Tailpiece

Center the tailpiece carefully sighting the tailpiece in relation to the fingerboard. The bottom surface of the tailpiece should clear the top edge of the binding by about 1/16 inch. Mark and drill three pilot holes and attach the tailpiece. Center the strap button in the large hole in the tailpiece attachment plate, drill a pilot hole and screw in the strap button.

Installing the Tuners

Push the brushings into the holes on top of the peghead. The machines heads are not interchangeable. There is a distinct right and left side. When installed correctly the brass gear will be located beneath the worm gear.

Put the gears in place, pushing the plates firm against the rear surface of the headstock. Mark the holes and drill small pilot holes and screw the tuners in place.

Note: When drilling holes it is always a good idea to mark the screw length on the drill bit with a piece of masking tape to avoid drilling too deep.

Installing the String Nut

A small drop of Duco cement will be enough to hold the string nut in place at the end of the fingerboard. The highest area of the nut must fit firmly to the end of the fingerboard for good string intonation.

The Truss Rod Cover

The truss rod cover is attached directly above the string nut to cover the cavity for the adjustable truss rod. There should be no need to adjust the rod. Drill pilot holes and attach the truss rod cover.

Fitting the Bridge

The adjustable bridge will be placed on top of the mandolin between the inside points of the F-holes. Set the bridge on the mandolin top to check the fit of the bridge feet on the top. If you see gaps you can fit the bridge perfectly by taping a strap of #120 sandpaper between the points of the F-holes and rubbing the foot of the bridge on the sandpaper. This process is similar to fitting the tone bars.

The bridge is not glued to the top but is held in place by the downward force of the string tension.

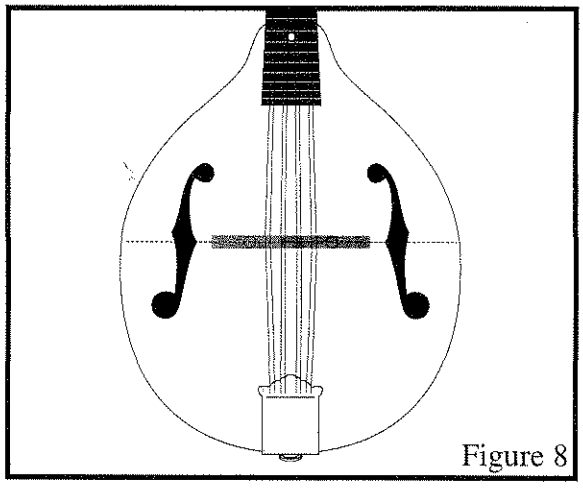


Figure 8

Set Up

With the bridge placed between the points of the F-holes put on the strings and tune to pitch (See Figure 8.)

Continue on page 9.

String Action

The string "action" refers to the height of the strings above the frets. If the action is too low, the strings will buzz on the frets. If it is too high the instrument will be difficult to play.

Setting the string action that is right for you starts at the string nut. The slots in the nut should already be close to perfection but some adjustment might be necessary. Here is how to do it!

Push the eighth string down between the second and third fret. The space between the top of the first fret and the bottom of the string should be about .006" or just about the thickness of the paper that these instructions are written on. If the gap is wider than .006" then you should deepen the slot with a small needle file until it is correct. Do not file too deep! If the slot is too deep you can fill the slot with a mixture of white plastic sanding dust and Crazy Glue and then re-shape the slot.

Repeat the same procedure for the other seven strings. The action at the nut is either right or wrong; it is not a matter of personal reference.

Now let's adjust the height of the strings over the 12th fret. This adjustment is made by raising or lowering the bridge saddle using the thumbscrews on the bridge. Unless you're Spartacus you will need to loosen the tension on the strings to do this. Following is a chart to assist you. The action adjustment is a matter of personal reference. There should be a gradual increase in height from the first to the eighth strings.

String Height at the 12th Fret

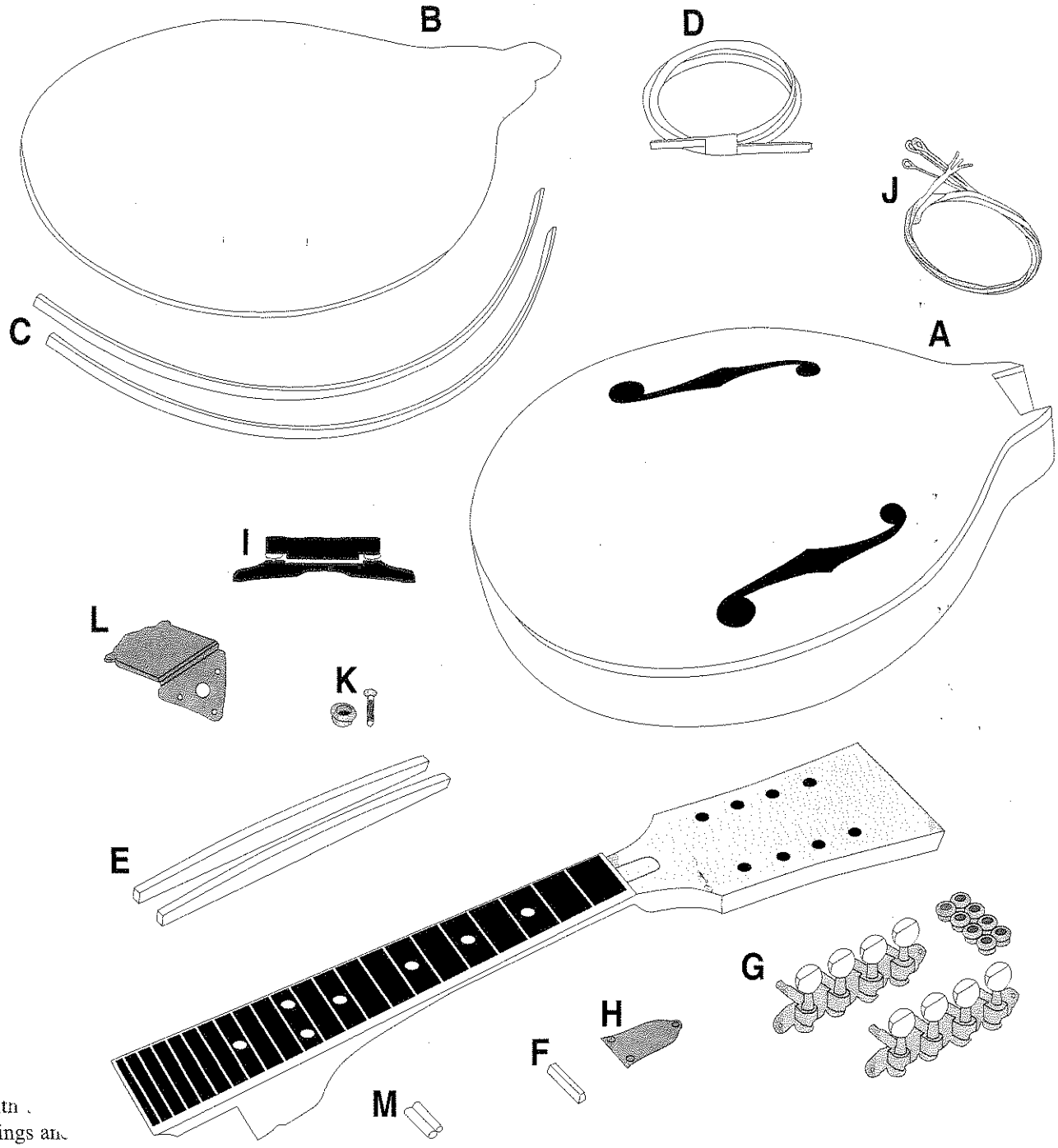
	First String	Eighth String
Low Action	1/32"	1/16"
Medium Action	1/16"	3/32"
High Action	3/32"	1/8"

Intonation

Start by tuning your mandolin and sounding a harmonic chime directly above the twelfth fret on the eight string. Now fret the eighth string and compare that note to the harmonic. If the fretted note is higher than the harmonic then the entire bridge must be moved back slightly toward the tailpiece to lengthen the vibrating string. If the fretted note is lower than the harmonic, move the bridge forward toward the string nut. When the harmonic and the fretted note are the same, the bridge is in the correct position. *Note: Be sure to loosen the strings before moving the bridge to avoid scratching or damaging the mandolin top.*

For a detailed review of mandolin construction, Saga recommends *The Ultimate Bluegrass Mandolin Construction Manual* by Roger Siminoff.

Good Pickin'!



With
strings an