

Guitar Making Patterns

“The Secrets of Guitar Making...”

By Mark Bailey

Summary

This manual starts by outlining all the basic patterns used the Bailey Build Your First Electric Guitar courses - including what they are made from and why. There is a list of patterns recommended for your first build and a list of pattern making tools you will need to make them.

The following pages will guide you step by step through the process of making your very own set - including some optional extras if you intend to make more than one guitar.

Use the plans provided or create custom shapes to suit your own hardware.

Who is it for?

- Anyone trying to build at home
- All levels - from complete novice to the advanced woodworker
- Always wanted to make your own guitar but don't know where to start
- Already made one but wasn't happy with it
- Those who have tried and got stuck
- Anyone interested in guitarmaking even if you only want to make one guitar
- Anyone wanting to make a living from guitar making
- Schools and colleges

What's in it?

- Patterns, Cauls and Jigs
- Pattern stock
- Tools for Pattern Making
- Step by Step instructions
- Masters and Copies
- More Optional Patterns

You will learn:

- Which ones to use for each job
- Why you need them
- What to make them from
- How to make them

By the end of the manual you will

- Have a full set of patterns, jigs and Cauls for your first guitar
- Be ready to build your guitar!

Note on Measurements

Wherever possible both imperial (") and metric (mm) are used. Sometimes it makes more sense to favour one in which case only that will be shown.

Contents

Guitar Making Patterns

Summary	2
Introduction	4
List of Patterns	5
Pattern Stock	6
Pattern Making Tools	7

Making the Patterns **8**

How to Make the Patterns for	
Pocket Routing	9
Humbucker	10
Control Cavity	11
Neck Slot	12

More Patterns (Optional) **14**

Coverplate Recess	15
Coverplate	16

Introduction

If there really are any '*secrets of guitar making*' then **Patterns** must surely be one of them - they speed up the whole process and make it easy enough for **anyone** to do it.

One set of patterns can be used many times to make as many guitars as you like!

Making the them is *not as difficult as you might think* and it is *great practice* as you will use the same methods and tools on the '*real thing*' - if you are considering building a guitar then starting with a set of simple patterns is well worth it.

As I always say '*Most guitars are made in factories and these are not populated by genius luthiers but normal folks like you and me who turn up at nine and leave at five just like any other job.*'

Patterns are one of the things that make this possible and **every maker will have a unique set for creating their own instruments.**

I **love** making patterns and have racks of them in my workshop for all kinds of jobs - here I have selected a handful of the most useful to get you started and help you to begin your own collection.

Note: I use the word Patterns as a general cover-all term, but there are several different types...

Patterns

Patterns are used as guides for the router to quickly and accurately copy shapes. They can also be used to draw around to speed up the design process.

Cauls

A Caul is any shaped piece of wood used for clamping awkward pieces. You will need to make a 'Fretboard Caul' for gluing the fretboard.

Jigs

Jigs are building aids which are used to hold a work piece or pattern (or both) for a specific job.

Make them as you need them

You can make these all at once before you even start on the guitar but it makes more sense and is probably more fun to make them as you need them - at least the first time.

Which ones you make is up to you - a lot of the jobs can be done by hand but without them it will be a lot harder and way more time consuming.

In a Nutshell...

Most entail tracing from the plan and then cutting out before refining the shape with sanding blocks, file or rasp until it is the right shape or the part fits. For some you will have to screw some bits of wood together - one has a hinge...how hard can it be...

List of Patterns

Most Useful:

These will really save you a lot of time and are highly recommended:

Patterns

- Humbucker
- Control Cavity
- Neck slot
- Body profile

More Patterns - Optional

You don't need these unless you are making more than one identical guitar:

- Headstock
- Neck Taper
- Neck Profile
- Cover plate recess
- Cover plate

Pattern Stock

'Pattern Stock' - the material we make patterns from.

- **Use scrap or offcuts** from other projects to make your patterns.
- **Never throw anything away** if you can make a pattern out of it - you never know when you will need to replace one.
- **Make friends with a builder** - they are always throwing away perfectly good pattern stock
- **Raid a skip** - you don't need a massive amount

Failing all that if you are forced to buy some... **a quarter of a sheet 18mm MDF - 606x1220mm (2' x 4')** should be all you need.

To make some of the Jigs you will also need some blocks of wood for the guide rails - details and dimensions for each one are on the relevant page.

18mm MDF

Most of the patterns and the baseboards for the jigs can be made from 18mm MDF - it is cheap and readily available. If you make a mistake you can throw it away and start again without too much lost.

18mm Plywood

Marine Ply Is harder wearing and more stable but also harder to work than MDF. Useful for heavy duty work. Standard plywood tends to contain gaps where the veneers are joined so it is less preferred.

Hardwood

You can save your fancy pieces for actual instruments - on the other hand if you have high quality patterns you are likely to make better guitars - it's up to you how much you are prepared to spend on pattern stock. Maple is great for smaller hardwood patterns but it is a shame not to use it for building instruments instead.

Softwood

Any standard pine you have kicking about will do for the guide rails - but hardwood is better.

Acrylic

Transparant properties help with the lining up process - great for marking out but not recommended for routing with - too expensive to risk damage.

Metal

Do Not use metal for making any kind of pattern - it is **too dangerous**. If a spinning cutter hits the metal by accident then it *will* break and pieces may fly around the room.

Pattern Making Tools

You will need some tools for making the patterns - you might have some already. These are all appear on the List of Essential Tools - they will get plenty of use during the building of your actual instrument so try and get the best you can afford and make sure you have them all before you start.

See my ebook on Tools for more pictures and info....

Marking Out

- Tracing Paper
- Sharp Pencil
- 1m (39") Ruler
- 300mm (12") Ruler

Pattern Making Tools

- Set Square
- Bandsaw with 9mm (3/8") Blade
- Router and cutters (for testing and copying patterns)
- Centerpunch
- Drill
- Drill bits: 10mm, 4mm, 3mm and Countersink
- Screwdriver
- Sanding Blocks, Rasp or File

Sundries

- Sandpaper
- Glue

Health and Safety Equipment

- Overalls or old clothes
- Dust masks
- Safety goggles
- Ear protectors

Making the Patterns

How to Make the Patterns for Pocket Routing

1. Trace the shape

Fix some tracing paper to the printed out pattern or your drawing using masking tape to stop it from moving.

Trace the shape - Use a ruler for any straight lines and free-hand any curves.

Remove the Tracing - if you are careful you can re-use the masking tape in the next step.

2. Transfer the shape

Turn the tracing paper over and fix it with masking tape to the pattern material.

Draw over the line in pencil - this will print the traced image through onto the pattern material.

Remove the tracing paper and go over the faint outline again to make it clearer for cutting out.

3. Cut out the shape

Drill out the internal corners with a 10mm bit to allow a little space for the 3/8" bandsaw blade to turn

Bandsaw the shape as accurately as possible - make sure to leave the line on!

You will have to cut in from somewhere on the side to get to the bit you want to remove - don't worry about this as when it is in use the router will glance over the gap it and not copy it into the finished shape.

Make sure you exit the piece by the same path or your pattern will fall in half!

Note: You don't need to cut rounded internal corners - the router will do that for you when you copy the pattern.

4. Clean up to the line

Use a small sanding block, file or Rasp to clean up the excess until you reach the line, taking off any lumps and bumps as you go. Make sure to keep the edges as square as possible.

5. Test the pattern

When you are happy with your pattern it is a good idea to test it to make sure the part it is intended for fits OK. If not repeat step 5 until it does.

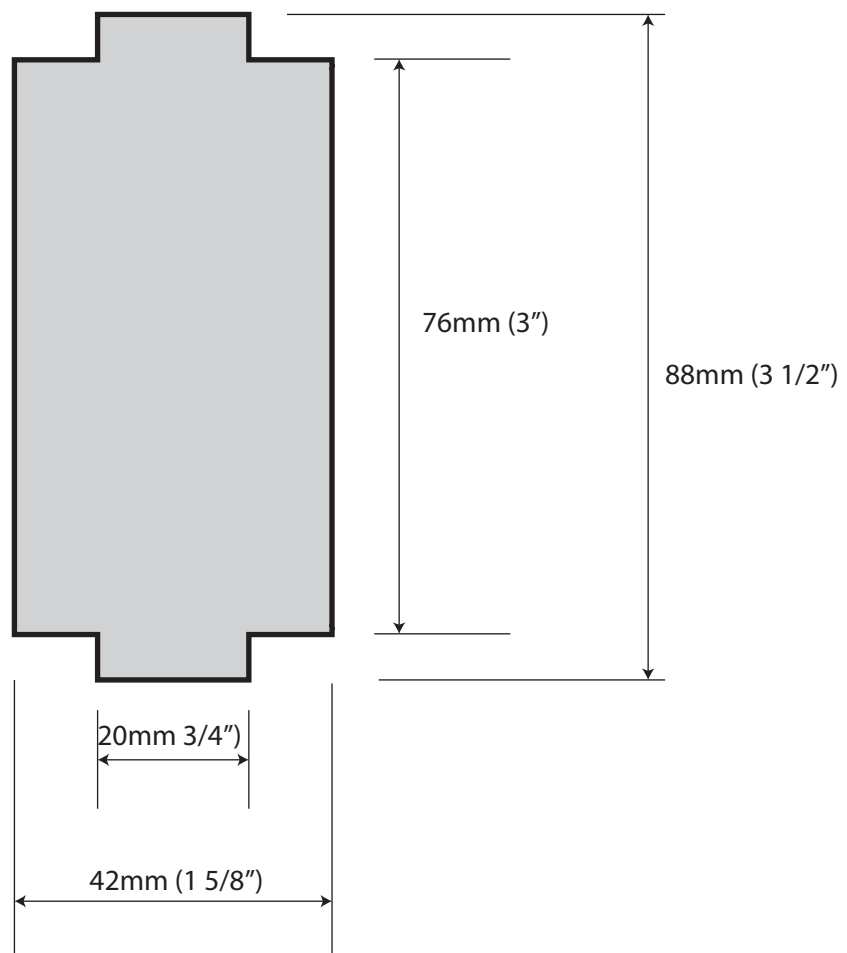
6. Copy the pattern

Put some scrap underneath to protect your bench as you will need to route right through the pattern material.

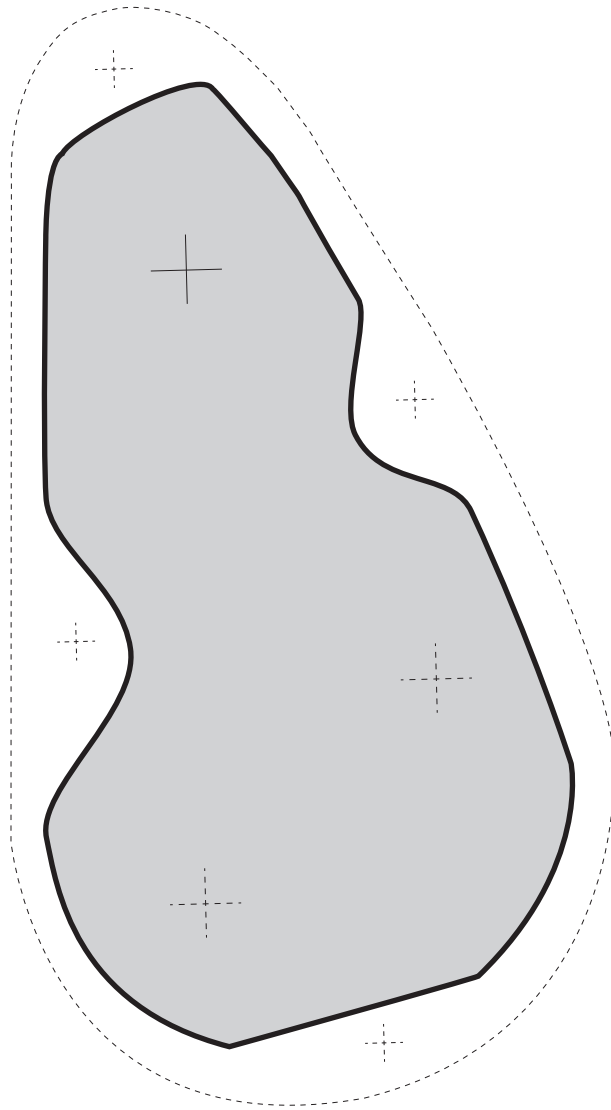
Fix your pattern to a new piece using two strong clamps making sure that they will not interfere with the router. Then copy the shape using the pocket routing method.

Write 'master' on the original and store it in a safe place - that way you will never have to make it again - just take copies of it as the old ones wear out.

Humbucker



Control Cavity



Neck Slot

1. Mark Out the neck Slot Pattern

The easiest way to do this is to draw round the end of a neck that is finished and ready to be joined to the body.

2. Cut out the neck slot pattern

3. Draw a centreline on the neck slot pattern

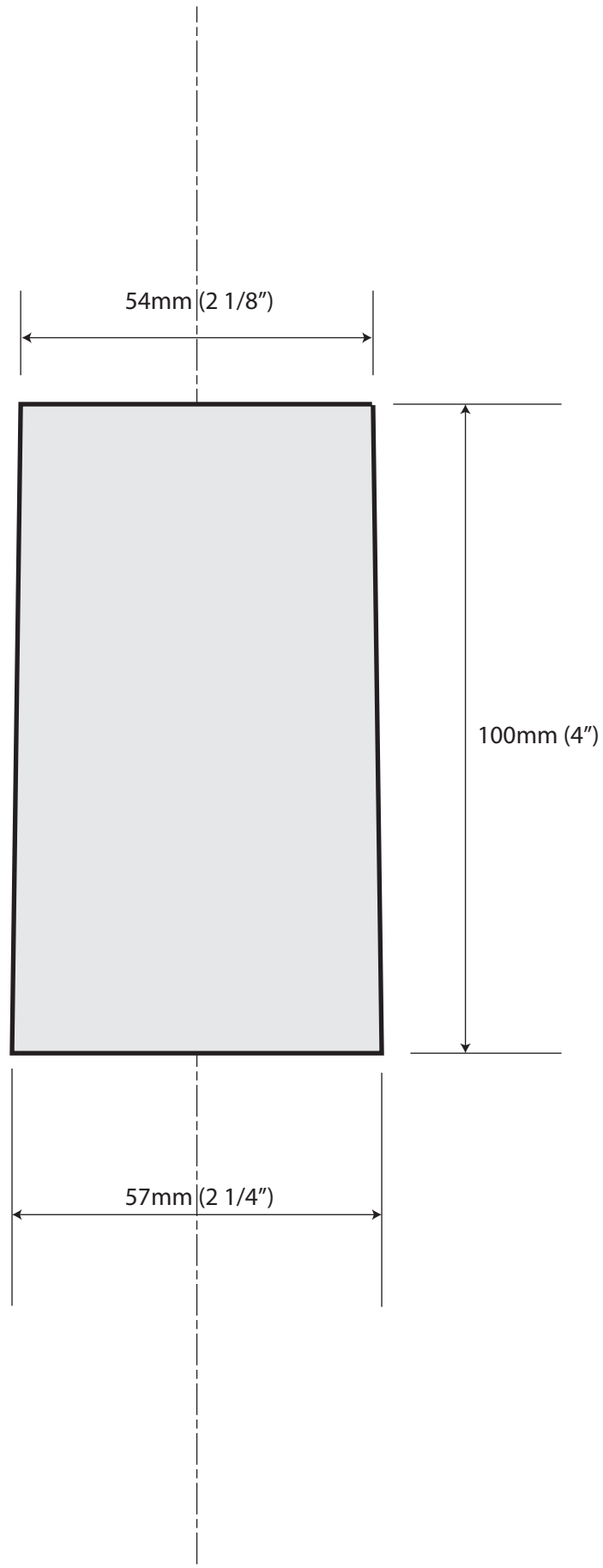
You need to draw an accurate centreline to align with the centreline on the body when using this pattern.

1. **Lay** a ruler along one edge of the slot and make a mark where the ruler crosses the end of the pattern.
2. **Repeat** on the other side.
3. **Use** the ruler to find a centre between these two points and make another mark here.
4. **Now** use the ruler to mark the centre at the other end
5. **Join** up the two marks to make the centreline.
6. **Extend** the lines square down the edge of the pattern.

4. Check the Fit

The neck (or neck template if you have one) should be a tight fit in the neck slot pattern. If it is slightly too tight that is great - it is easy to take a little off the sides of the neck to fit it and wise to leave some leeway for sanding.

Neck Slot



More Patterns (Optional)

If you are intending to do most of the work by hand you can skip making these but they are very useful if you intend to make more than one guitar as they save time and improve accuracy.

Coverplate Recess

To make a cover plate that fits precisely into its recess takes a bit of time and patience. If you are just making one guitar that is fine, but if you want to make more it can be a pain doing this every time. You can make a pattern with not a lot more energy than it takes to make a coverplate then copy it quickly and accurately as many times as you want.

How to make a coverplate recess pattern

1. Trace the coverplate recess pattern

Remember to mark the positions of the mounting holes as well as the outline.

2. Transfer the coverplate recess pattern

Draw over the outline to make it easier to see when cutting it out.

3. Cut out the shape

Bandsaw to shape as accurately as possible leaving about 0.5-1mm outside the line. As the piece is so small take extra care to keep your hands as far away from the blade as possible.

4. Clean up to the line

Use a rough sanding block to remove excess material down to the line. Try not to leave and lumps and bumps and keep the edges square.

Coverplate

To make a cover plate that fits precisely into its recess takes a bit of time and patience. If you are just making one guitar that is fine, but if you want to make more it can be a pain doing this every time.

You can make a pattern with not a lot more energy than it takes to make a coverplate, then copy it quickly and accurately as many times as you want.

How to make a coverplate pattern

1. Trace the coverplate pattern

Remember to mark the positions of the mounting holes as well as the outline.

2. Transfer the coverplate pattern

Draw over the outline to make it easier to see when cutting it out.

Don't forget to mark the holes.

3. Cut out the shape

Bandsaw to shape as accurately as possible leaving about 0.5-1mm outside the line.

As the piece is so small take extra care to keep your hands as far away from the blade as possible.

4. Clean up to the line

Use a rough sanding block to remove excess material down to the line. Try not to leave and lumps and bumps and keep the edges square.

5. Drill the mounting holes

Use a centrepunch to mark the location of the coverplate mounting holes and drill them all the way through with a 3mm bit.

Try to drill as square as possible so they come out in the same place on the back (a pedestal drill is best for this)

6. Test the fit

Try to fit your coverplate pattern into the coverplate recess pattern.

Look for where it is touching - these are the high spots which must be removed by further sanding with the rough block.

Continue working like this until it fits.

You can test it properly by making a coverplate with it when it is finished - If it is too tight adjust the pattern to suit.