Installing a Router on a Festool Multi-Function Table - The Easy Way!

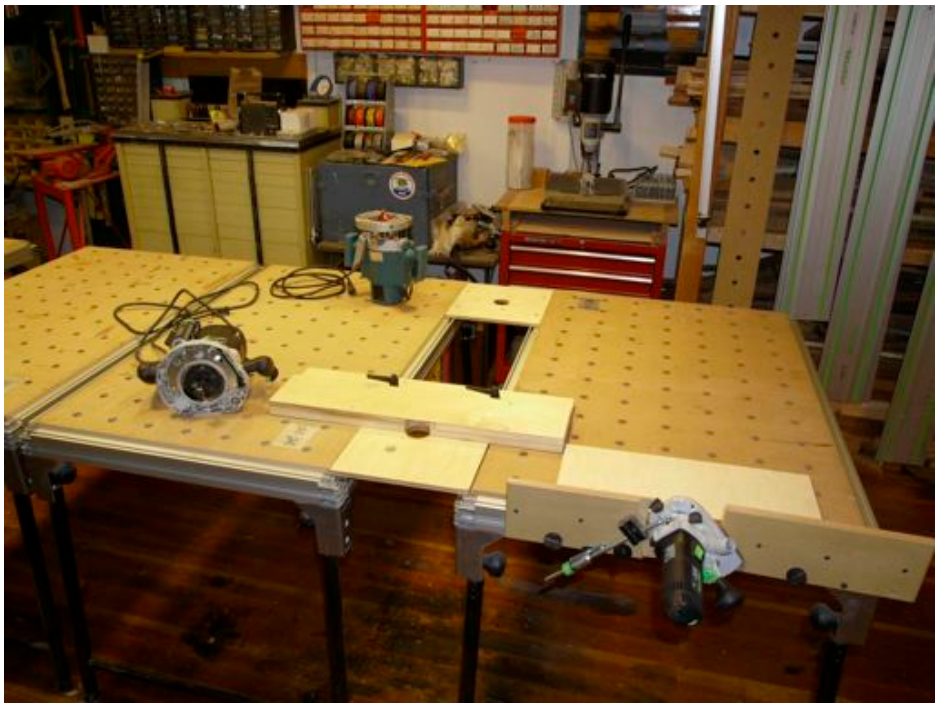
Text and photos by Jerry Work

The Festool multi-function table (MFT) has certainly earned its place in many different woodworking environments. When used in conjunction with the various Festool clamps, it is an indispensable way to hold workpieces while performing power cutting, routing or sanding operations.

Once you use one MFT, you will quickly learn just how much more efficient you become when you add a second. Two can be reconfigured side to side, end to end, or end to side, either held tightly against one another or spaced apart to form whatever shape of working surface your project requires.

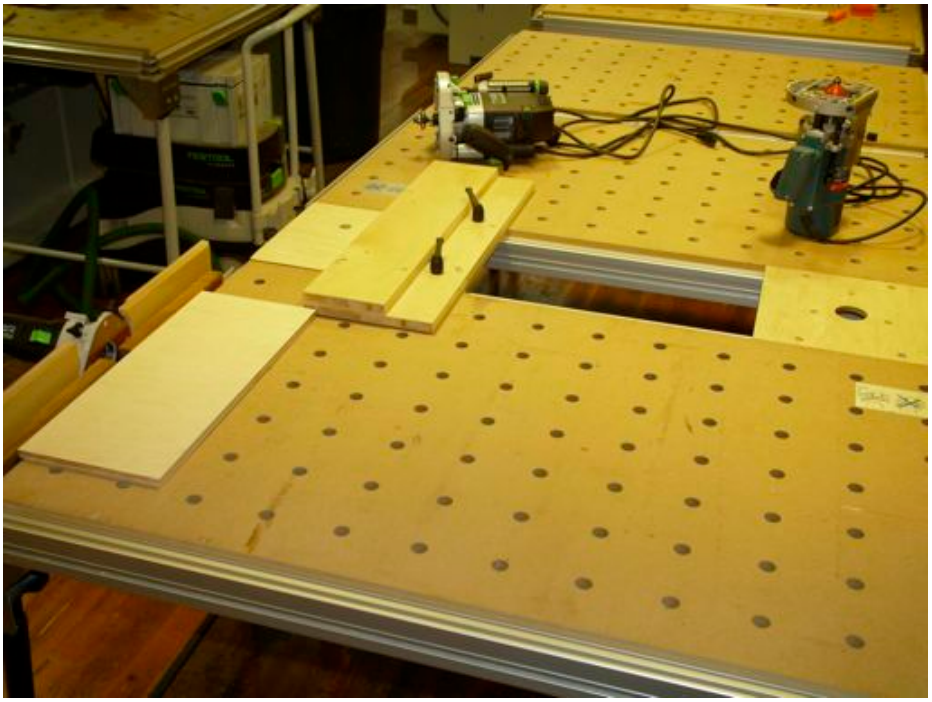
Many users have expressed an interest in finding ways to insert an inverted router to make the MFT into a form of router table. Most commonly the means suggested involve cutting a recess into the top to receive a router mounting plate. While that works, it alters the use of the table by removing a number of the very useful holes, plus it adds a giant recess, and it may weaken the top. There also is concern about the top sagging over time under the weight of the router hanging below. And, trying to reach under the table out to the inverted router mounted this way is a bit trying to say the least.

In this short paper we will explore much simpler, faster, stronger, and more satisfying ways to add routers to one or more MFT's. We will cover both (1) routers mounted inverted like a conventional router table and (2) routers mounted horizontally to safely



cut things such as the male portion of sliding dovetail joints. The key is to utilize the strong aluminum side rails of the MFT to support the weight and thrust of the router instead of the mdf top material.

The most flexible method is to place two MFT's about a foot apart and take advantage of the space between them. A simple plate cut from Baltic birch plywood can slide right on top of the two facing aluminum side rails to bridge the gap. Mount your router to the bottom of that piece of Baltic birch and you have an instant router table. Add a few 8mm flat head machine screws with nuts running in the top "T" slot on the original MFT and the plate can be secured - or removed - in less than a minute. It just doesn't get any better than that. To make the router "table" even more versatile, add a fence.



All three types of router mounts are shown in the photo above and the photo on the first page.

Let's see just how quickly this can be done.

We will show examples of mounting two different brands of routers, in this case an older Bosch plunge router and the Festool 2200 production router.

Then we will look at how easy it is to mount the Festool 700 router in a horizontal position utilizing the side "T" track on the MFT for support.

Let's see just how painless this is to do beginning with mounting the Bosch router to a router mounting plate made from scrap plywood which fastens to the top "T" track on the original style MFT. With a simple bracket to reach the bottom "T" track and a spacer to keep the plate flush, you can mount it just as easily to the MFT-2 as well.

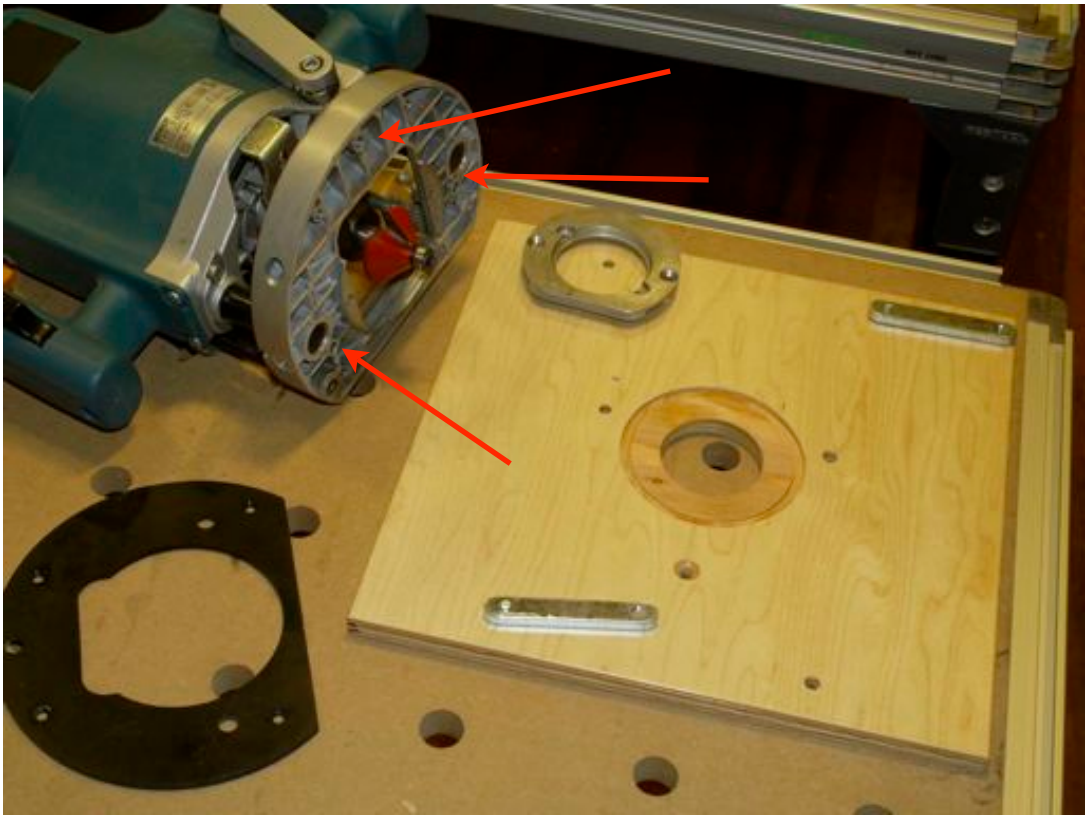
The original MFT and the newer MFT-2 differ in size, height and in how the side profiles are formed. On the original MFT the distance between the top of the aluminum "T" track and the top of the table surface averages a bit over 1/2" on the six original style MFT's that are in every day use in my studio. That makes 1/2" Baltic birch the ideal plate material as it takes only a shim to bring the top of the router mounting plate flush with the top of the adjoining MFT table surfaces.

This photo shows all you need - a piece of 1/2" Baltic birch plywood and a couple of 8mm flat head machine screws and nuts to ride in the "T" track on the top edge of the MFT aluminum side profiles.

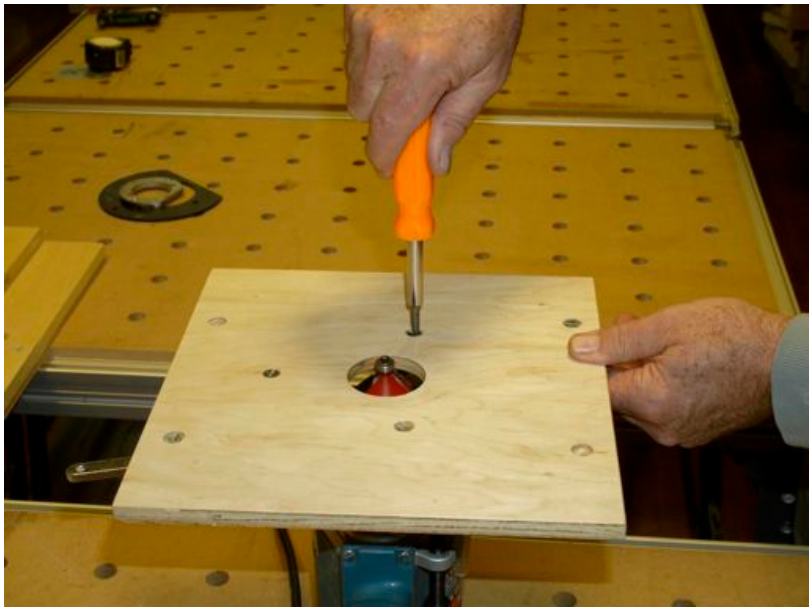
I am setting up this router for chamfering, that is, cutting a 45 degree angle on the edges of workpieces. I do that a lot and it is much faster to always have the chamfering work station at hand instead of having to set up my stationary router table for this task each time.

The first step is to remove and set aside the black router base plate and, in this case, also the cast metal guide bushing mounting plate shown below.

Note from the photo how the machined metal part of the router base has four small holes for mounting the black plastic base material and three 8mm threaded holes for mounting the router to a router plate (red arrows).



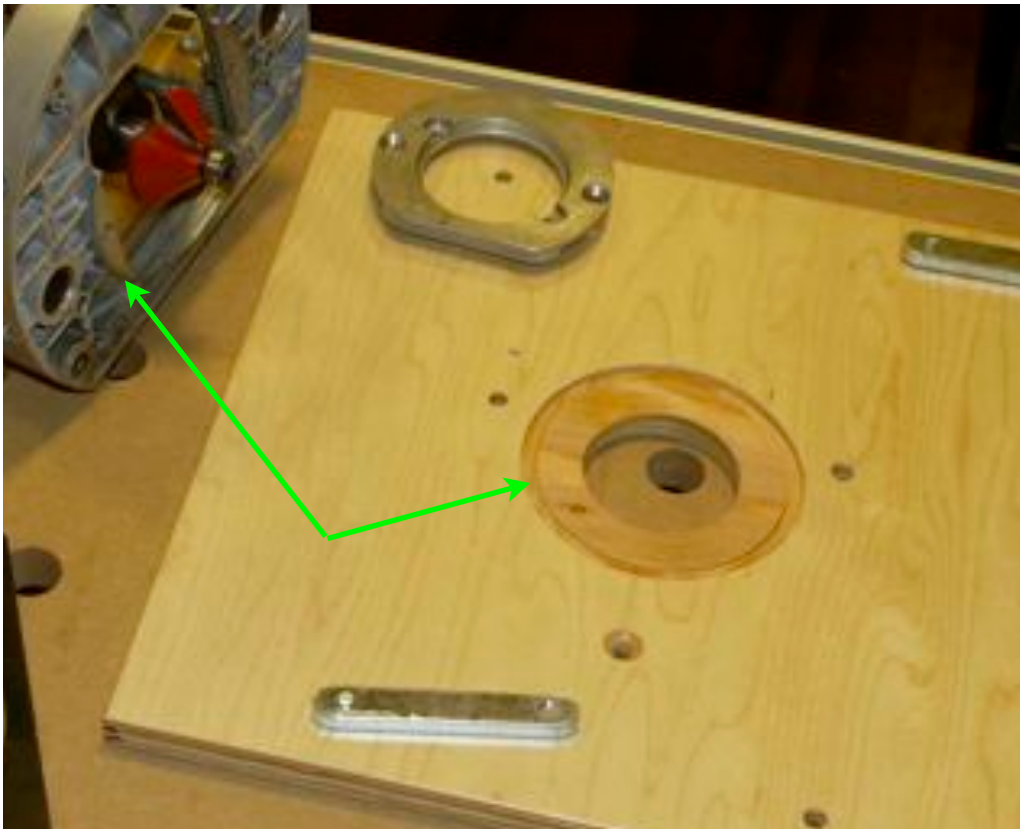
Cut a piece of 1/2" Baltic birch to size. I make all mine 290mm wide by however long to leave the exact amount of room I want between the center of the router bit and the front edge of the plate. Use the black plastic base as a template to drill three holes to receive flat head 8mm machine screws to fasten the Baltic birch mounting plate to the top of the router. A spring loaded centering bit like a "Vix bit" works well to make sure the holes are drilled in the correct place.



Now mount the plywood plate onto the router. Install a centering bit (just a steel shaft with a cone on one end) and plunge that into the plywood to establish the exact center point.

Take the plate off and use either a lathe or "Forstner" style bits in a drill press to machine a through hole for the intended router bit and to clear any protrusions on the underside of the router itself. In the case of this Bosch router, there is a protrusion cast into the bottom to hold the guide bushing adapter plate (green arrows).

Since that sticks below the surface of the cast router base, cut a recess on the underside of the Baltic birch mounting plate so the router will sit flat on the underside of the plate when you tighten the mounting flat head screws.



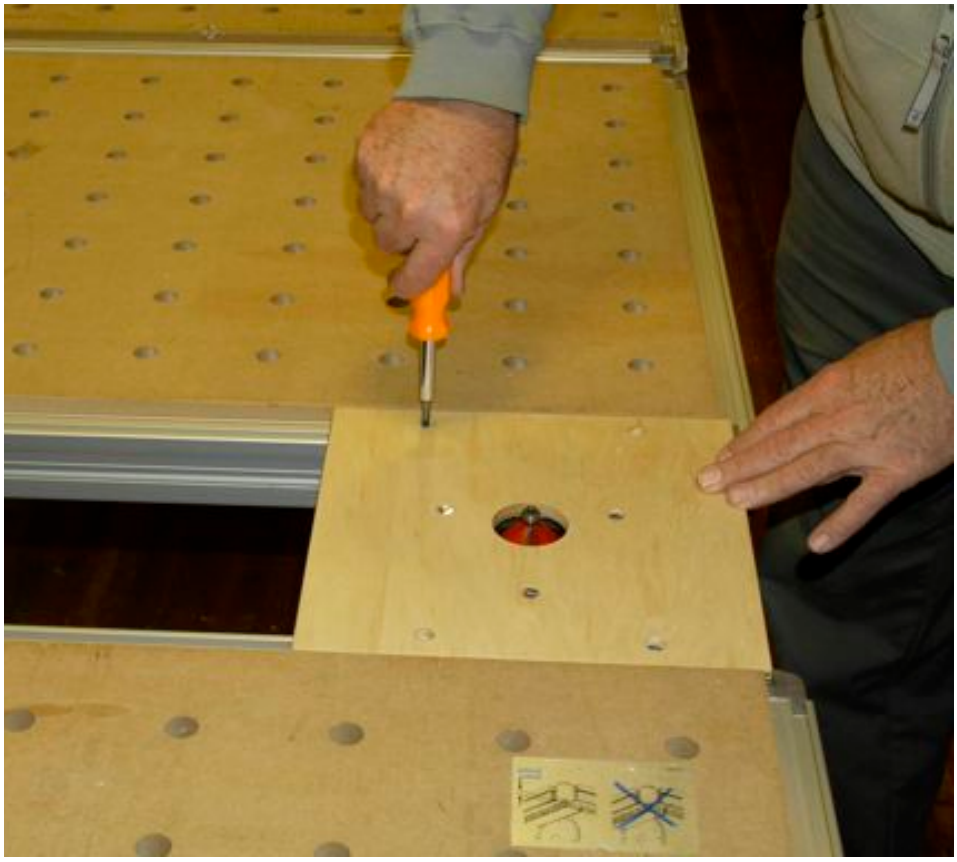
The last step is to place the mounting plate on top of the side profiles on two MFT's and mark the

center lines of the respective top “T” tracks. Drill one or more holes along those center lines to receive 8mm flat head machine screws and nuts. I prefer longer metal plates with 8mm tapped holes to simple nuts as I think they hold in the “T” track more securely. I “borrowed” a pair from the guide rail table mounts to use on this router plate.

All that is left is to slide the plate with the router and bit mounted engaging the nuts in the “T” track on each MFT.

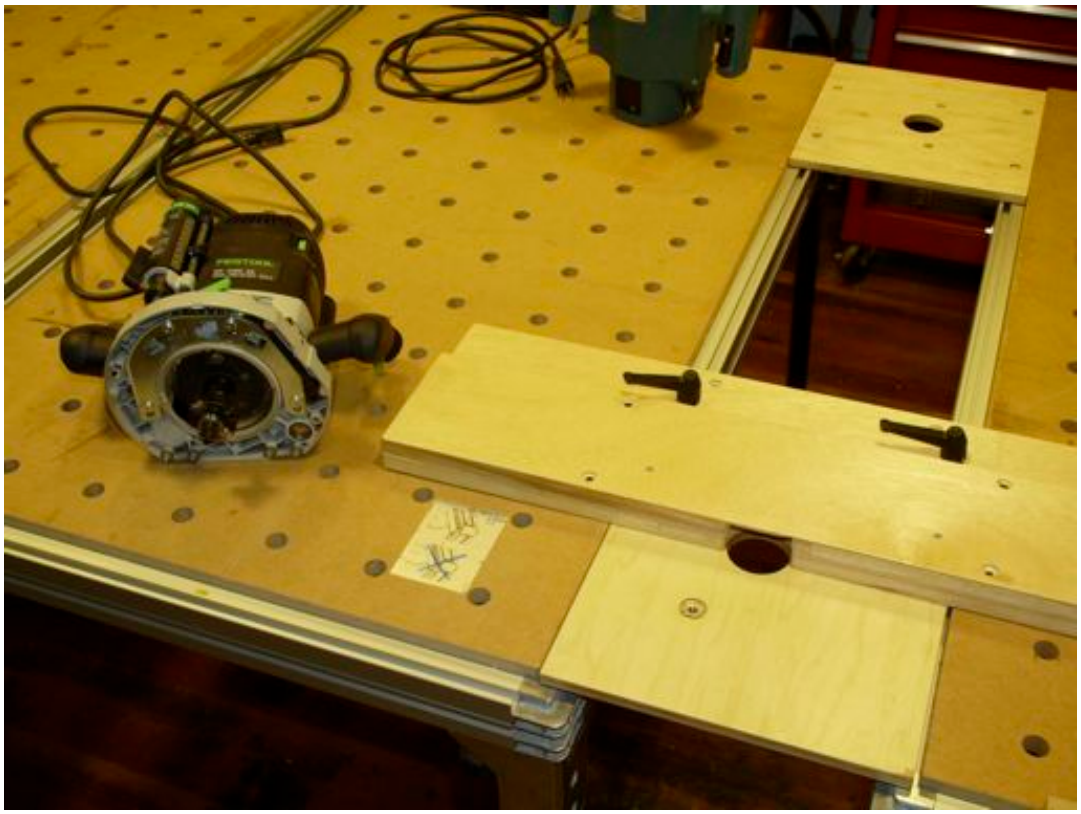
Slide it to where you want it and tighten the screws.

You are done!



This flat router mounting plate is good for bearing guided bits like the chamfer bit shown, but what if you want a fence, or you want to keep the top surface of the plate exactly in line with the tops of the two MFT’s, even if they are sitting on an uneven surface?

That is where the next style router mounting plate comes in - what I call a plate with “wings”. Let’s take a look at how it is constructed.



We will mount a Festool 2200 production router on this plate which features “wings” that function both as a fence and as the means to insure that the top of the router plate remains exactly aligned with the tops of the flanking MFT’s to which it mounts.

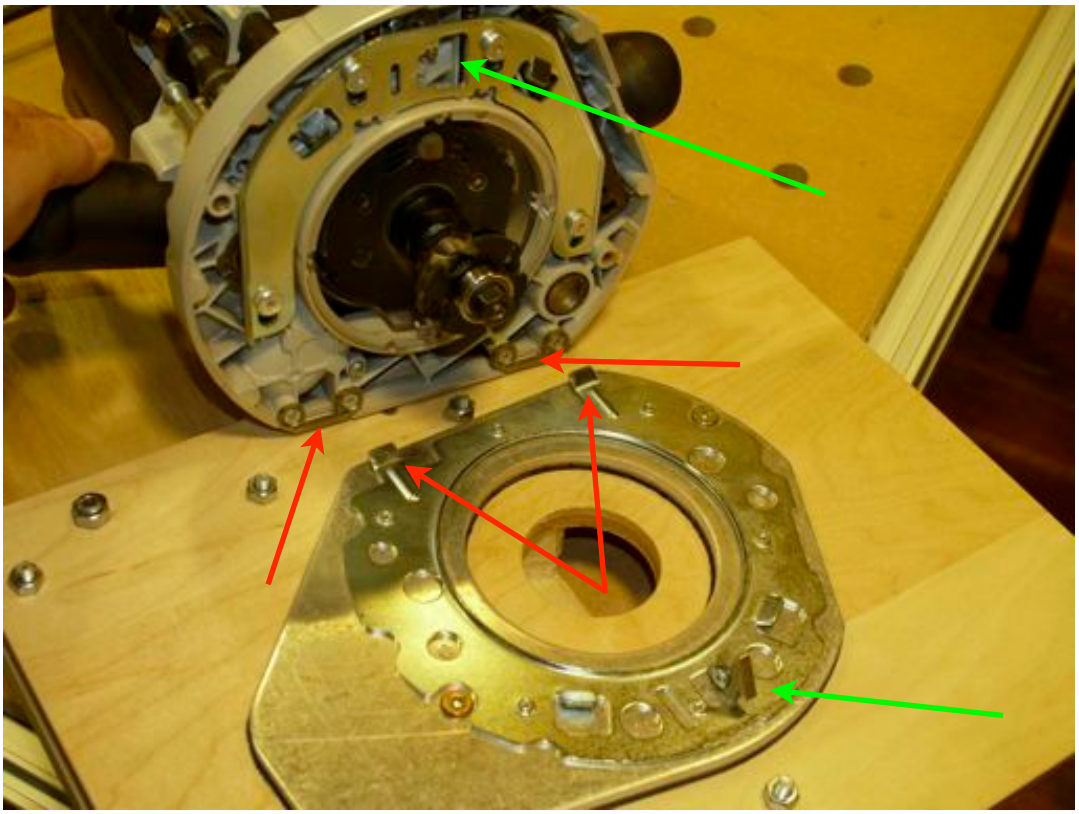
Just by screwing a scrap piece of solid wood or plywood to the top surface of the router mounting plate (again made from 1/2” Baltic birch plywood), two good things happen. First, since the fence or “wing” piece rides on the top of the adjacent MFT table tops and since the fence or “wing” piece is mounted firmly to the top of the router mounting plate, when you tighten the securing screws, the top of the router mounting plate is drawn down to be perfectly parallel with the tops of the two MFT’s. That removes any need for shims to bring these into alignment.

The second good thing is that you can easily set the “wing” piece to be a fence to hold the workpiece at the proper alignment with the router bit itself. No need for a bearing guided bit. As in this example, a second layer can be added to the fence wing to cover all but the cutting tips of the router bit making it safer to use and creating a closed space to capture chips and guide them into the router’s own dust collection port.

The Festool 2200 production router is ideal for inverted use with one of these shop built router plates. At a full 15 amps and with soft start-constant speed electronics it has plenty of power to spin even the largest bits with ease. Dust collection is built in and works really well in this application.

It also features a unique system for snapping different base plates into place. Unlike other routers, such as the Bosch that we saw first which requires screws to hold the router base in place, the 2200 bases are locked by two tabs and a spring loaded latch that is very positive and holds the base securely even when inverted as it will be for this application.

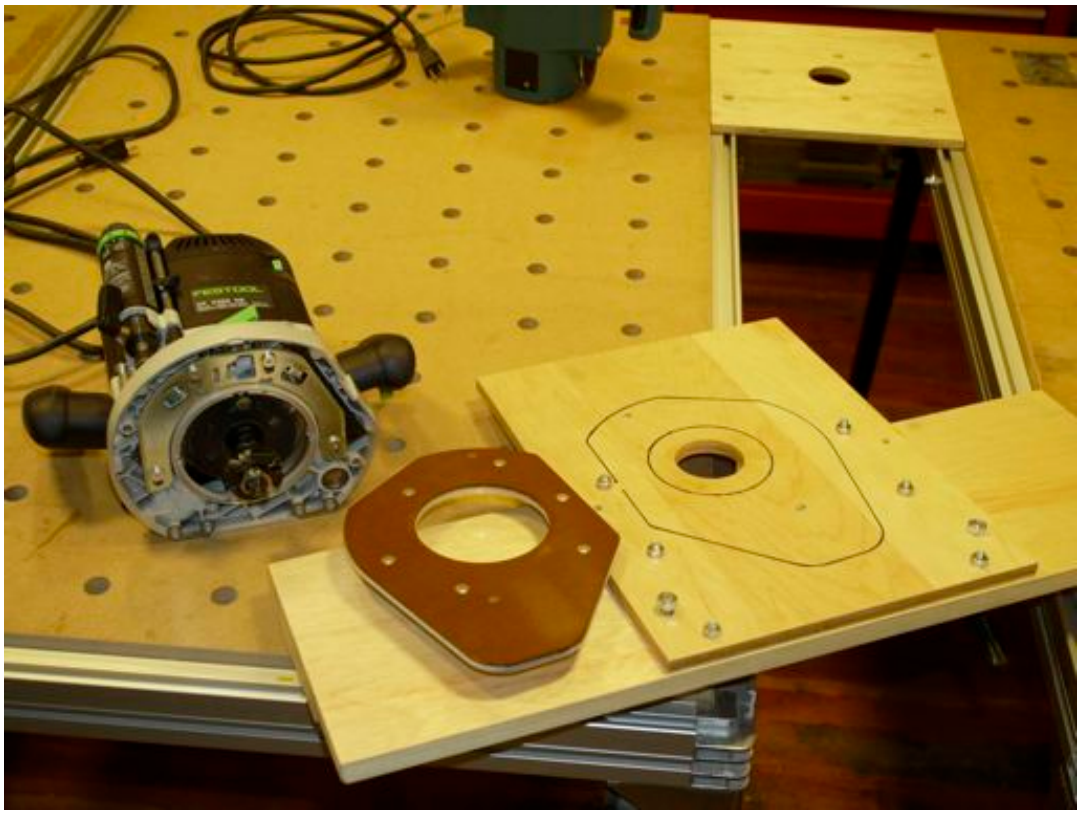
The photo at the top of the next page shows this in detail.

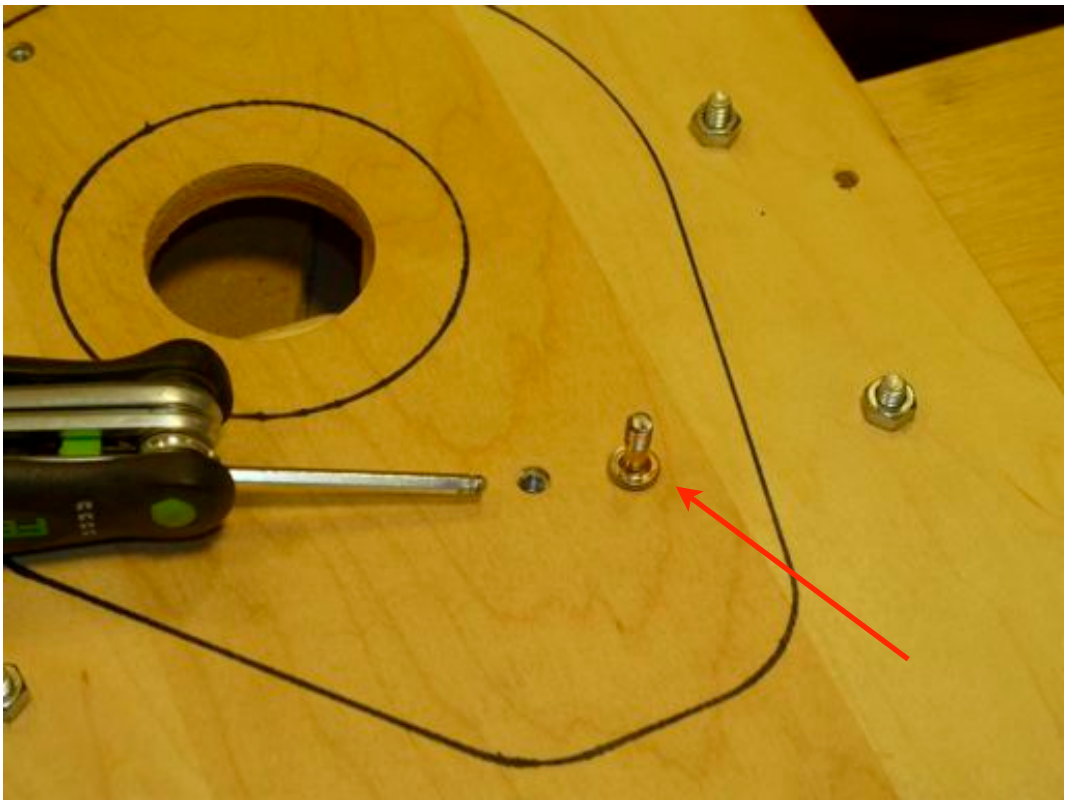


The tabs on the base plate engage in hard slots machined into the router base (red arrows). Once engaged, the base plate's spring loaded lock paw snaps into a slot at the other side of the base plate (green arrow) holding the base plate securely to the router without any need for screws.

This neat arrangement makes it really fast to attach or remove the router from the base plate with no tools required. The whole bottom side of the router is then accessible for bit changes and your router is not tied up. If you need to use the router hand held, just snap on another base and away you go. To remount it, remove the other base and snap it back onto this one.

Here is everything you will need. Cut another base plate the same width as the first one from 1/2" Baltic birch. As before, use the 2200 base plate as the template to locate two holes for 8mm screws that will secure the base plate to the router mounting plate you are constructing.

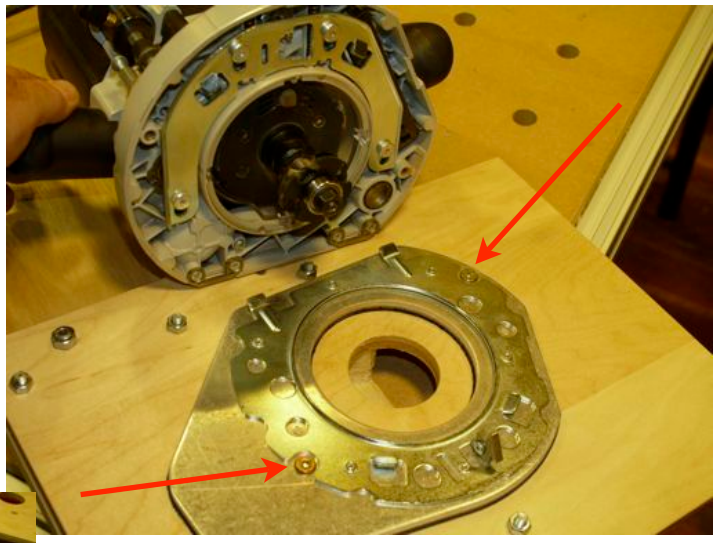




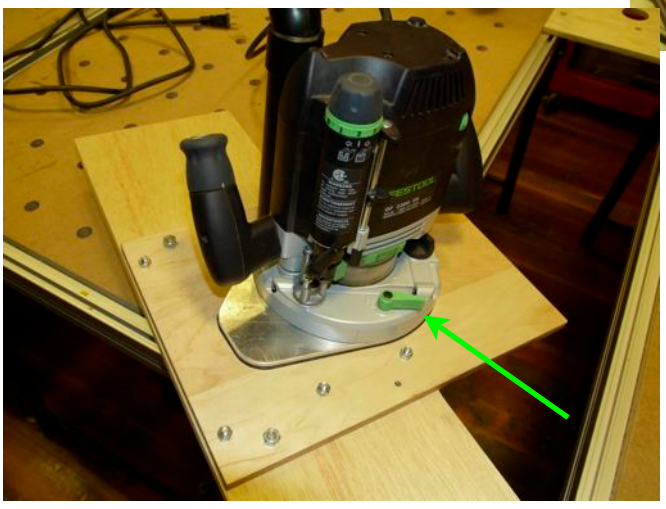
In this photo I outlined the base plate on the bottom of the router mounting plate so you can see the orientation.

The hex key on the Festool “toolie” is pointing at one of the mounting holes. I placed 8mm threaded inserts in from the opposite side to insure a really secure attachment.

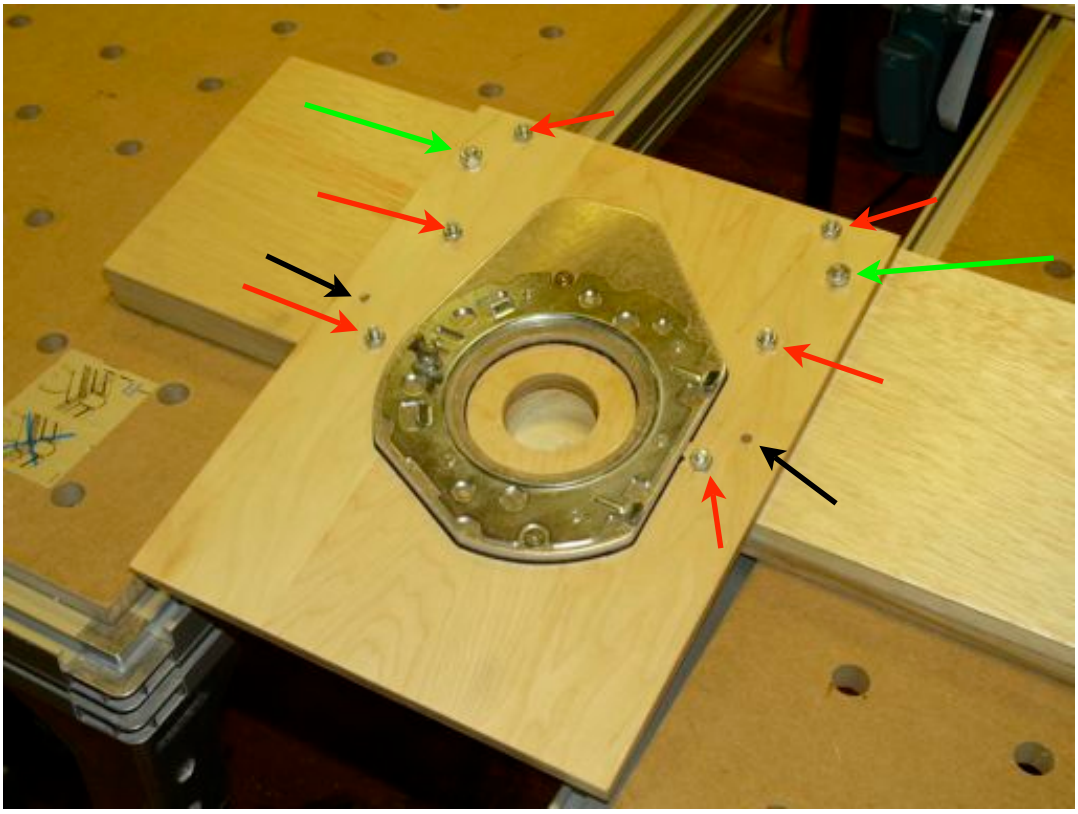
Here is the base plate screwed in place by two 8mm short hex head bolts (red arrows) and the router ready to snap into place as shown in the photo to the right.



The green lever built into the 2200 cast metal base is used to unlock the router from the base plate.



Now you want to build the wings which may or may not also serve as a fence to guide the workpiece. In this case they will, so cut a piece for the wing, mount the router and base plate onto the tops of the "T" tracks in the two adjoining MFT's and secure the fence/wings in the proper location relative to the bit, first with just with clamps. Make a test cut to make sure the fence is exactly where you want it. Then you can drill your holes and know the fence will remain in the correct place relative to the bit.



I like to use six through bolts to make sure the fence/wing assembly does not shift relative to the router mounting plate.

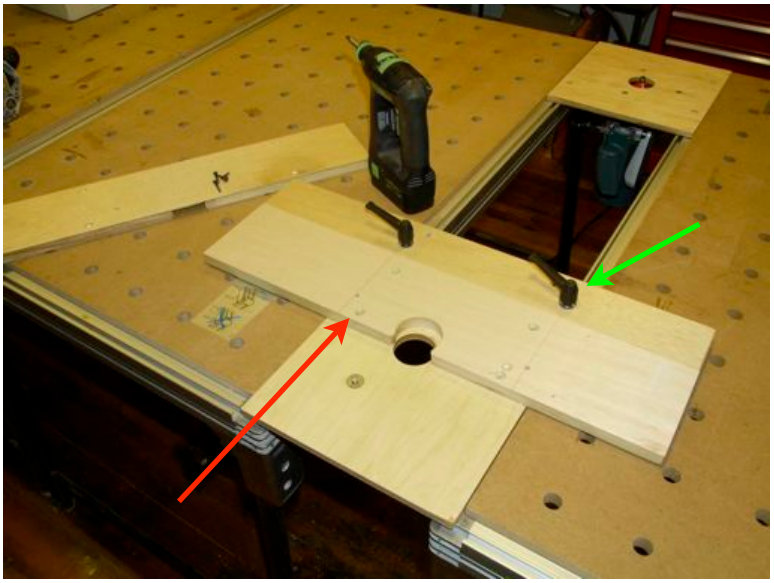
Those are shown here by the red arrows.

The nuts on the bottom of the securing levers that engage in the top "T" track are shown with green arrows.

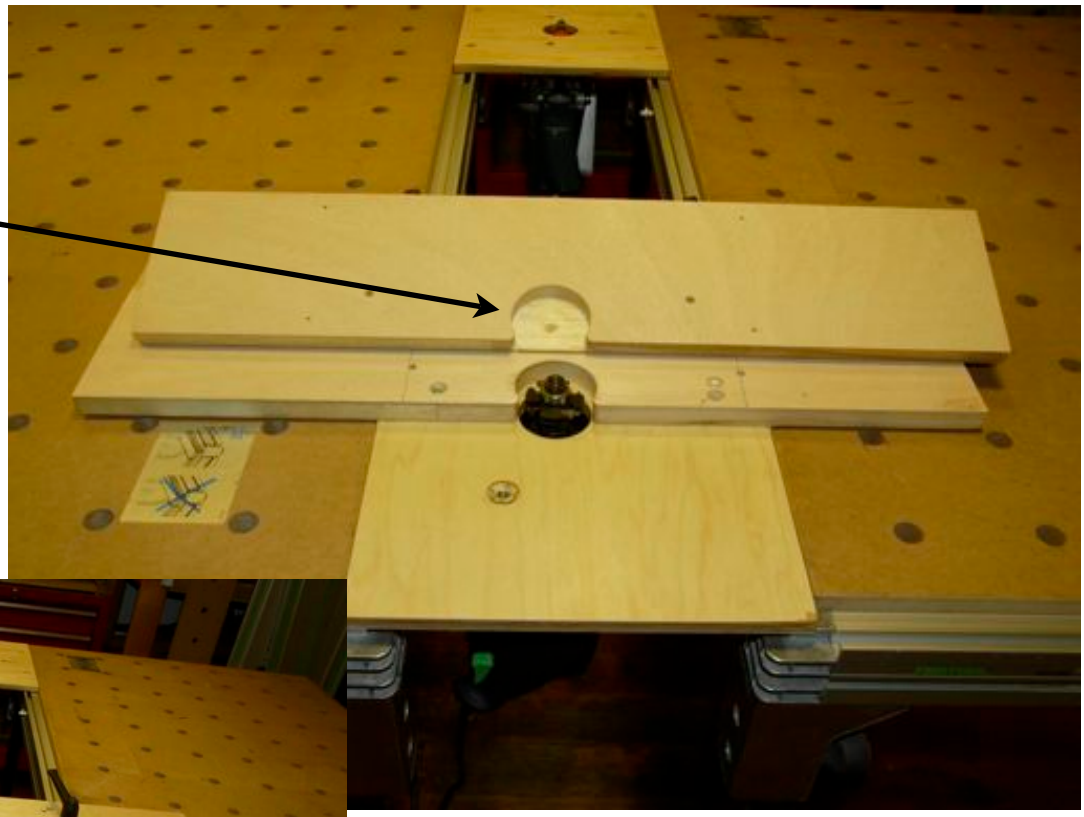
The two additional holes (black arrows) are to allow another set of securing knobs should they become necessary - for this application they are not.

This photo is taken from the top with the top fence cover removed. You can see the through bolts holding the fence to the router mounting plate (aligned with the red arrow) and the securing levers (green arrow).

The top cover screws on to cover the top of the bit for safety and to improve dust/chip collection. To allow clearance for the bit, cut a hole in the fence/wing aligned with the bit through hole in the router mounting plate.

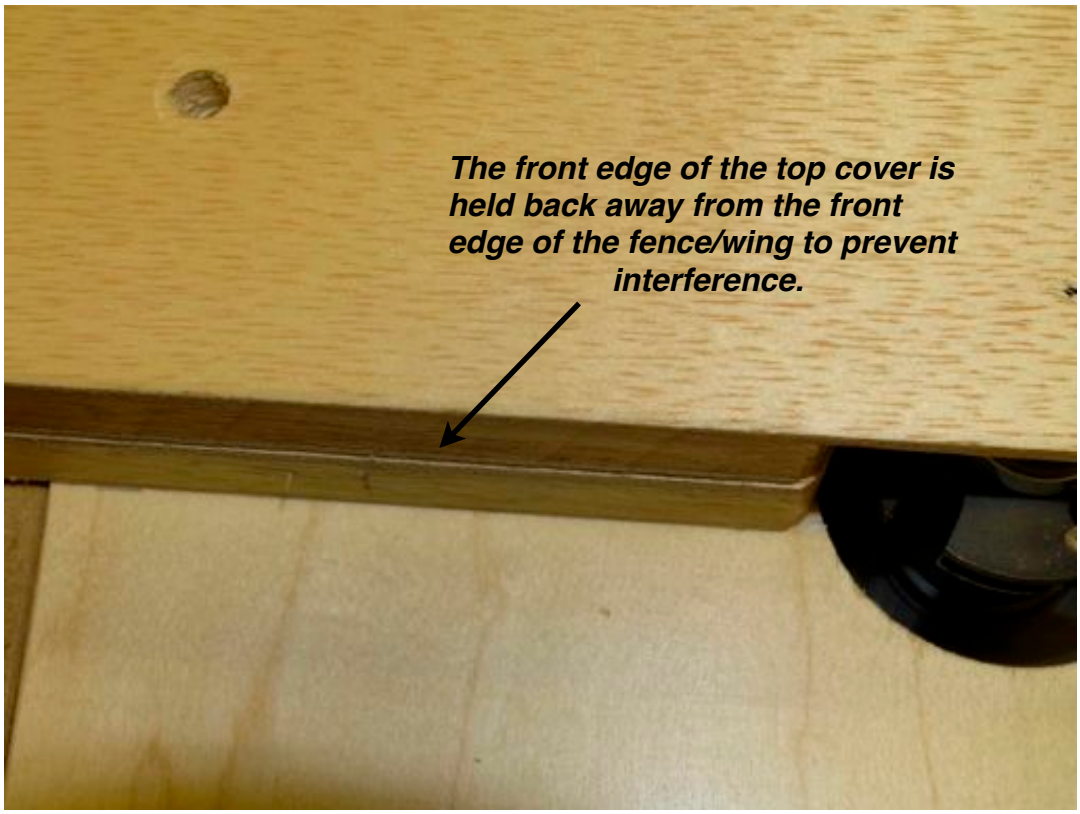


Cut a matching blind hole in the bottom of the top cover.



Now screw the top cover into place as shown below.

This detailed shot highlights an important point. Note that the front edge of the top cover does not align with the front edge of the fence/ wing. It is held back just enough so that the fence/ wing does all the work of guiding the workpiece past the bit. That way the top cover won't get in the way.



Now the whole assembly with the router and bit mounted can slide in on the top edges of the MFT side extrusions with the securing nuts inside the top “T” track as shown here.

Tighten the securing levers and “voila,” you have a super-sturdy instant router table ready for use!

Everything is right at hand and easy to reach because the router is hanging in the space ***between*** the two tables, not under one.

Attach the vac hose to the dust port on the 2200, plug it in to the Festool dust collector and rout away. Couldn’t be faster or easier. Since I made this plate/fence set up to do grooving for rail, stile and panel construction, bit alignment is set by the location of the fence. All I need do is set the bit height so set up for this critical cut is even faster than on my dedicated router table. And, I know that the grooves will always be spot on.

So far we have shown construction of a flat router mounting plate for bearing guided bits and a more robust router mounting plate with a fence/wings to keep the workpiece perfectly aligned with the cutting bit and which keeps the top of the router mounting plate in perfect alignment with the tops of the two adjacent MFT's.

Now, let's take a look at the third means of mounting a router to the MFT, the horizontal mount.

Horizontal routers are ideal for many edging tasks but they really shine for cutting the male portion of a sliding dovetail joint.

The “conventional” means of cutting male sliding dovetails is to stand the workpiece up on edge against a fence on a standard router table with the router inverted below as is shown here.

This is the hard way to cut a male sliding dovetail. If the workpiece tips at all, the DT will be too tight.

The problem is consistency. It is very hard to keep the workpiece exactly perpendicular to the surface of the router table. If it tips even a little bit, the resulting male DT will be too tight to slide properly in the female DT slot.

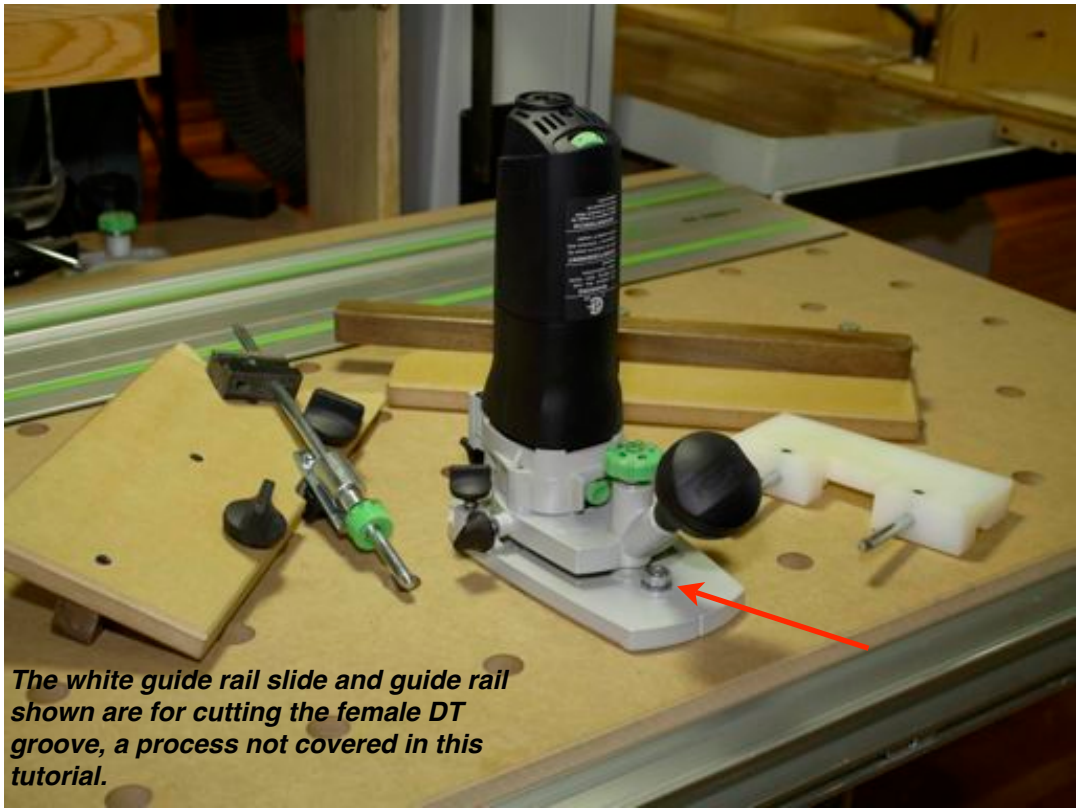
The larger the workpiece the harder it is to cut correctly.

A far better, easier, and safer way is to mount the router horizontally on the side of a MFT with the bit tip below the workpiece and the workpiece placed face down on a flat table surface such as shown below.

Let’s turn our attention to see just how easy it is to do this using either the MFT-2 or the original MFT by mounting the very versatile Festool 700 router this way.

You can mount other routers this way as well, but the heavier they are, the harder it is to hold them securely.

Here is a better way, a router mounted horizontally on the side of a MFT.



The white guide rail slide and guide rail shown are for cutting the female DT groove, a process not covered in this tutorial.

Here is everything you need to cut the male (and the female) portions of a perfectly fitting sliding dovetail joint using the 700 router, some easy to make shop built fences, and a Festool MFT.

It all starts with the 8mm through hole that is in the base of the 700 router. By placing an 8mm bolt through that hole from below with the nut affixed above (red arrow), you can slide the bolt into the side "T" track on either the original MFT or the MFT-2. That will hold the 700 securely to the side of the MFT.

On the MFT-2 the top of the side profiles is far enough below the top of the table surface that the bit can easily fit below the workpiece as simulated in the picture to the left. By rotating the 700 around the mounting bolt you raise or lower the bit tip for exact height adjustment.

On the original MFT the distance between the top of the profile and the top of the table is less than on the MFT-2 so you may need to cut a recess in the top of the extrusion for bit clearance. That does not harm the table nor alter its function.

These two photos show the difference is just about 1/2”. That will come in handy later.

If you have both types of tables, build the fences to fit the MFT-2 as shown here. To use those fences on the original MFT, just place a piece of 1/2” Baltic birch on top of the table to hold the workpiece at the same height relative to the bit.

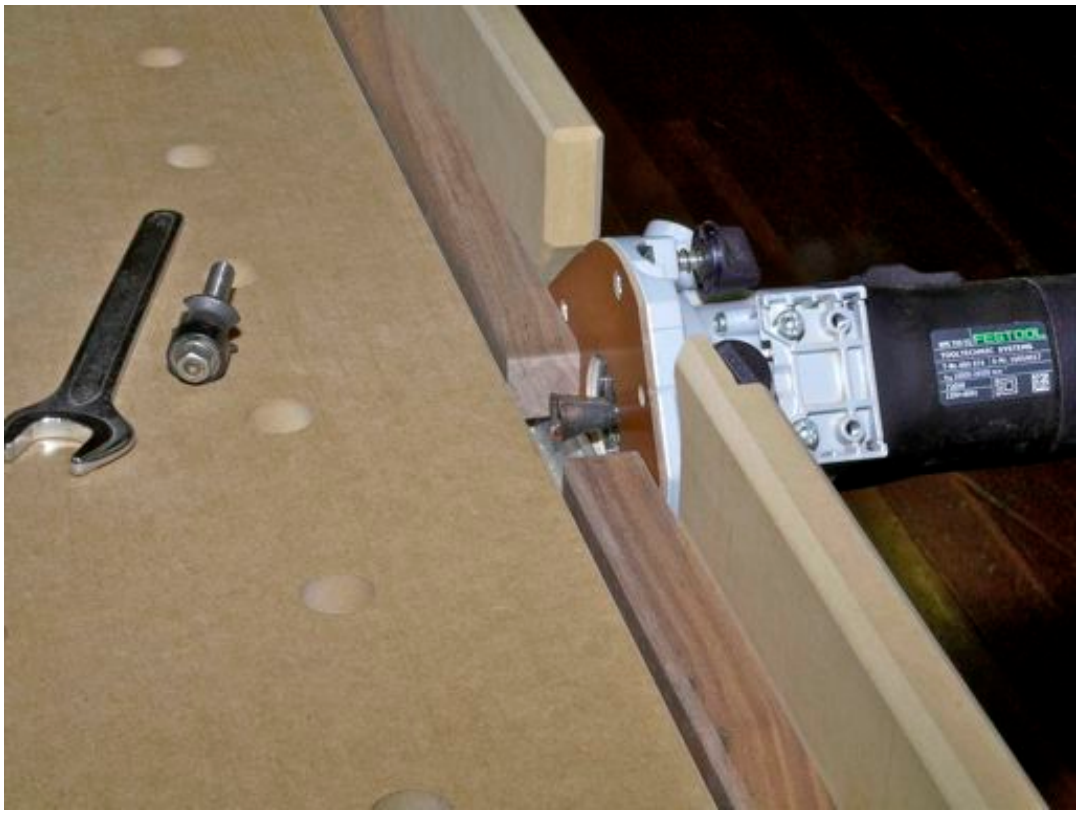
All we need now are a couple of shop built fences to help guide the workpiece on either side of the router base. Since the router is held to the side of the MFT aluminum extrusions, we can mount the fences to the same extrusion in the same “T” track to make sure the fences align perfectly with the base of the router. Slick!

I made my fences from mdf but you can use most any material. The walnut pieces shown fill the gap between the top of the “V” track on the MFT-2 and the top of the table so the top of the walnut runner is properly aligned with the table top surface.

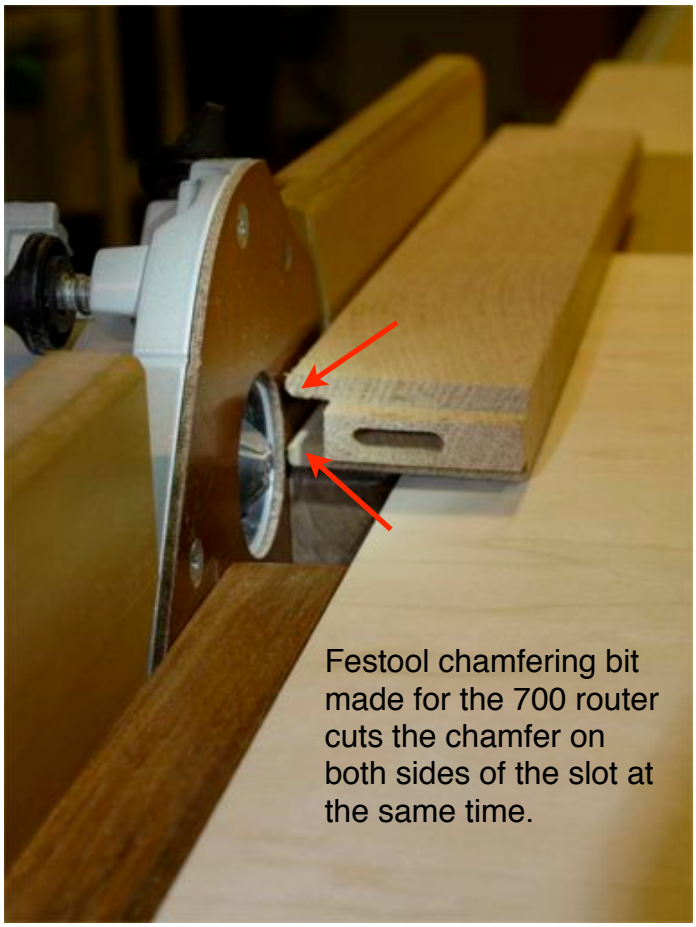
The fences mount into the side “T” track using 8mm machine screws and nuts. The ones shown here have 8mm nuts on one fence, while on the other I used a steel runner with threaded 8mm holes which I “borrowed” from another Festool component.

If you want to get a little fancier, add the micro adjust mechanism from the Festool 1000/1010 routers and you can really dial in the bit height with great precision as shown in this photo.

The photo below shows everything set up from the cutting side. As you move the workpiece over the bit, the bit is fully covered so the pocket made up of the ends of the walnut runners and the workpiece on top force most all the chips into the 700's dust collection port. The opening around the bit is small so, if you cut wood that tends to splinter, the larger chips may block dust collection to some extent but it is still very effective.



This set up works well for several different kinds of bits, not just for dovetails. For example, I do a lot of rail, stile and panel construction featuring beautifully book matched solid wood panels. I don't like any side profiles on my rails and stiles as I



Festool chamfering bit made for the 700 router cuts the chamfer on both sides of the slot at the same time.

want a simple frame to highlight the book matching.

To cut perfect rails and stiles there are four profiles required.

The first is the chamfer so all the edges have a nice soft hand or feel. That is done with the Bosch router mounted on the flat router mounting plate we discussed earlier.

The second is an interior chamfer on both sides of what will become the panel groove that also serves as the mortise for the M&T joints everywhere a rail and stile meet. For that I use the horizontal router set up with a neat Festool chamfering bit made for the 700 router. You can see that bit and the interior chamfer it forms in this photo.

I actually cut this chamfer before cutting the groove. That helps prevent chip out along the edge of the groove in some chip prone woods.

The third profile cut required is the tongue or tenon on all rails and center stile pieces that will engage in the panel slot cut in the stiles themselves. I use my conventional router table for that cut as it has a fancy linear bearing 90 degree push fixture already on it that makes fast work of this critical cut. You will also note that I add a loose tenon joint cut inside the tongue and groove to reinforce the joint and hold the rails, stiles and center stiles in place during glue up. You can see that in this photo as well.

The forth profile required is the groove the panels fit into. Since that groove also acts as the mortise, it has to be perfectly centered on the rails and stile edges and it must be the exact width and depth of the tongue/tenon on the rails and center stiles. That is the cut made by the 2200 router mounted under the router mounting plate with fence/wings we discussed earlier. Since the fence is fixed relative to the bit center, the only adjustment required is bit height and that is simple to set exactly time after time.

So, here is the whole enchilada.....three of the four required cuts all nicely set up at one work station composed of two MFT's and three routers.

The photo to the left shows cutting the chamfers on a flat router mounting plate with no fence to allow good working room all around the bearing guided chamfer bit.

The photo to the right shows using the horizontally mounted 700 router to cut the interior chamfers on both sides of where the slot will be cut. The real advantage of this interior chamfer cut is it prevents tear out when machining the slots.

The photo below shows cutting the slots.

You can imagine how efficient this set up is. Once you have your stock prepared, you can turn out large numbers of perfectly machined rail and stile pieces in no time at all.

Best of all, with all three of these types of router mounts, not one single compromise was made to the MFT's or to the routers themselves.

Everything is in easy reach and can be set up or taken down in less than a minute.

Even if you elect to leave the routers mounted, they take up very little room and don't impact the use of the MFT's much at all. This shot shows the four MFT's I normally use for lumber selection and staging. Between table 1 and table 2 are the flat router mounting plate and the mounting plate with wings/fence.

You can build additional router mounting plates for either special applications like these or you can alter the design of the plate with fence/wings to make the fence easily adjustable. I prefer to make a special plate for each unique use as I already have a very nice and adjustable conventional router table for general use.

Oh, one more thing: remember the parts you took off of the Bosch router? Be sure to put them into a properly labeled bag so you can find them again later when you need to!

Enjoy!

Jerry

Jerry Work designs and hand crafts fine furniture in the 1907 Masonic Temple building which he restored in historic Kerby, OR. It is located 26 miles SW of Grants Pass, OR, on US-199 (the "Redwood Highway") that connects the US-101 at Crescent City, CA, with the I-5 at Grants Pass.

Visitors are always welcome!

His work can be seen at

http://jerrywork.com

and many of his books and manuals are available for free download from a number of popular woodworking equipment and material manufacturers' web sites.

Contact him by email at glwork@mac.com, or by phone at 541-592-5360.

Above, small chest under construction in Oregon black oak and Australian silky oak.

Right, wine service center under construction done in purple heart and Oregon big leaf maple burl.

Both pieces completed can be viewed on the web site.