Garage Workbencf Plans


Every home woodworker knows the importance of making efficient use of the available space in his or her shop. This workbench is designed to provide the maximum functionality using the minimum amount of space possible. It provides a work surface of about six feet by two feet and is about 35 " in height. Just the right size to provide ample work space for most projects.

The features that make this workbench ideal for the home shop are the built in clamping system, the built in router table, the nine drawers, the center cabinet space, and the mobility. The four inch casters enable you to easily roll it into position when needed and roll it aside when it is not in use.

The top surface is made of two layers of $3 / 4$ " MDF. This provides an extremely flat work surface and since it is also a router table, a flat work surface is a must. The T-track inlaid in the top and around the edges makes the entire work surface a versatile clamping system that easily clamps very small or very large work pieces.

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## Tools and Accessories You'll Need

Note: Images and underlined text are active web links.


Low Cost Lift for Plunge Routers


Low Cost Router Fence

Mast-R-Lift is precision-engineered to within .002 " tolerance and CNC-machined from 1" solid aluminum to eliminate bending and sagging.

Built-in insert adjusters allow for snugging the lift in your table for a perfect fit, while the built-in leveling system will not wear into the table's recessed opening

Plate measures $9-1 / 4$ " x $11-3 / 4$ " x $3 / 8^{\prime \prime}$. Adjustments are made with a drop-in speed handle that's elevated from the table.

$\underline{\text { Rockler/JessEm Lift }}$


4 Piece Router Accessory kit


Large Router Plate


Kreg Master System


Materials List - 1

| Qty | Size | Material | Item name |
| :---: | :---: | :---: | :---: |
| 2 | $291 / 4 "$ by 19" | 3/4" Oak Plywood | End Panels |
| 2 | $281 / 4^{\prime \prime}$ by $181 / 4^{\prime \prime}$ | 3/4" Plywood | Middle Panels |
| 1 | $661 / 2^{\prime \prime}$ by 19" | 3/4" Plywood | Base |
| 1 | $661 / 2^{\prime \prime}$ by $281 / 4^{\prime \prime}$ | 3/4" Plywood | Back |
| 1 | 72 " by 24 " | 3/4" MDF Board | Top |
| 1 | 68 " by $193 / 4$ " | 3/4" MDF Board | Sub Top |
| 2 | $691 / 2^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" Wood or Plywood | 1st Front \& Back Sub Top Trim |
| 2 | $211 / 4$ " " by $11 / 2^{\prime \prime}$ | 3/4" Wood or Plywood | 1st End Sub Top Trim |
| 2 | 71 " by $11 / 2^{\prime \prime}$ | 3/4" Wood or Plywood | 2nd Front \& Back Sub Top Trim |
| 2 | $223 / 4 "$ by $11 / 2^{\prime \prime}$ | 3/4" Wood or Plywood | 2nd End Sub Top Trim |
| 2 | 36 " | 1/2" by 3/4" T-Track | Front T-Track |
| 5 | 24 " | 1/2" by 3/4" T-Track | End \& Top T-Track |
| 1 | $72^{\prime \prime}$ by $3 / 4$ " by $1 / 2^{\prime \prime}$ | 1/2" Thick MDF or Wood | Front Lower T-Track Trim |
| 2 | $24^{\prime \prime}$ by $3 / 4$ " by $1 / 2^{\prime \prime}$ | 1/2" Thick MDF or Wood | End Lower T-Track Trim |
| 17 | $181 / 4^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" Wood | Drawer Supports |
| 5 | 6 " by $11 / 2^{\prime \prime}$ | 3/4" Wood | Small Drawer Supports |
| 10 | $181 / 4^{\prime \prime}$ by $21 / 2^{\prime \prime}$ | 3/4" Wood | Drawer Side Guides |
| 2 | 6 " by $21 / 2^{\prime \prime}$ | 3/4" Wood | Small Drawer Side Guides |
| 4 | $181 / 4 "$ by $3^{\prime \prime}$ | 3/4" Wood | Lower Drawer Side Guides |
| 6 | 18 1/4" by 2" | 3/4" Wood | Lower Drawer Supports |
| 2 | $141 / 2^{\prime \prime}$ by 2 " | 3/4" Wood | Lower Back Supports |
| 1 | $271 / 2^{\prime \prime}$ by $2^{\prime \prime}$ | 3/4" Wood | Center Lower Back Support |
| 4 | $171 / 2^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" Wood | 17 1/2" Leveling Block |
| 3 | $163 / 4^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" Wood | 16 3/4" Leveling Block |
| 2 | $30^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" Wood | 30" Leveling Block |
| 1 | $101 / 4$ " by $11 / 2^{\prime \prime}$ | 3/4" Wood | 10 1/4" Leveling Block |
| 1 | $661 / 2^{\prime \prime}$ | 2 by 4 (31/2" by $11 / 2^{\prime \prime}$ ) | Stiffener |
| 6 | $16^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Drawer Trim |
| 2 | $291 / 4 "$ by $11 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Vertical End Trim |
| 1 | $30^{\prime \prime}$ by $11 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Middel Trim |

Materials List - 2

| Qty | Size | Material | Item name |
| :---: | :---: | :---: | :---: |
| 2 | $231 / 4$ " by $11 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Vertical Divider Trim |
| 2 | $65 "$ by 3 " | 3/4" thick wood or plywood | Upper \& Lower Trim |
| 1 | $31 / 2$ " by $301 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Center Drawer Front |
| 2 | $31 / 2$ " by $161 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | Top Drawer Front |
| 2 | $41 / 2^{\prime \prime}$ by $161 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | 4 1/2" Drawer Front |
| 2 | $51 / 4$ " by $161 / 2^{\prime \prime}$ | 3/4" thick wood or plywood | 5 1/4" Drawer Front |
| 2 | 7 " by 16 1/2" | 3/4" thick wood or plywood | 7" Drawer Front |
| 2 | 19 " by $143 / 4$ " | 3/4" thick wood or plywood | Cabinet Doors |
| 1 |  | 3/4" thick wood or plywood | Door Lip |
| 1 | 17 1/2" by 11 1/2" | 3/4" thick wood or plywood | Router Box Front |
| 6 | 19" by $27 / 8$ " | 3/4" thick wood or plywood | Top Drawer Sides |
| 4 | 19" by 3 7/8" | 3/4" thick wood or plywood | 3 7/8" Drawer Sides |
| 4 | 19 " by $47 / 8$ " | 3/4" thick wood or plywood | $47 / 8$ " Drawer Sides |
| 4 | 19" by 6 5/8" | 3/4" thick wood or plywood | 6 5/8" Drawer Sides |
| 2 | $283 / 8 "$ by $27 / 8^{\prime \prime}$ | 3/4" thick wood or plywood | Center Drawer Ends |
| 4 | 14 3/8" by $27 / 8^{\prime \prime}$ | 3/4" thick wood or plywood | Top Drawer Ends |
| 4 | $143 / 8$ " by $37 / 8^{\prime \prime}$ | 3/4" thick wood or plywood | 3 7/8" Drawer Ends |
| 4 | $143 / 8$ " by $478{ }^{\prime \prime}$ | 3/4" thick wood or plywood | 4 7/8" Drawer Ends |
| 4 | $143 / 8$ " by $65 / 8$ " | 3/4" thick wood or plywood | 6 5/8" Drawer Ends |
| 1 | $291 / 8 "$ by 18 1/4" | 1/4" Hardboard | Center Drawer Bottom |
| 6 | $151 / 8{ }^{\prime \prime \prime}$ by 18 1/4" | 1/4" Hardboard | Drawer Bottom |
| 2 | $6 "$ by $27 / 8$ " | 3/4" thick wood or plywood | Top Router Tray Sides |
| 2 | $6 "$ by $37 / 8$ " | 3/4" thick wood or plywood | 2nd Router Bit Trays |
| 2 | 14 7/8" by 6" | 1/2" thick material | Router Bit Trays |
| 2 | 14 7/8" by 6" | 1/4" thick material | Router Bit Bottoms |
| 1 | $181 / 4$ " by 30 " | 3/4" plywood | Middle Shelf |

## End and Center Panels

Page 1


The two end panels are 1" taller than the center panels. This is because the center panels sit on the top surface of the base and the end panels extend $1 / 4$ " below the bottom surface of the base..

The end panels are also $3 / 4$ " wider than the center panels. This is so they will be flush with the ends of the back section.

Back Dimensions \& Layout

This drawing is based on a 9 1/4" by $113 / 4$ " router plate. If you
are using a different size plate, you will need to adjust the size of
the opening accordingly. The router plate opening is a two step
process. You must cut an inner opening that leaves room for a
3/4" wide lip around all four edges. This lip is what the router
plate rests upon.

| First, cut the inner opening completely through the top. If you're |
| :--- |
| using a $1 / 4 "$ by 11 3/4" router plate, this inner opening should |
| be $73 / 4 "$ by 10 1/4". The next step is to use your router to create |
| the lip around the sides of the opening. See the detailed |
| instructions on the following page for this step. |



## Page 5



Copyright (C) 2006 by Robert E. Reedy, Vandalia, Ohio
Top Trim \&T-Track
The Sub Top trim is made of $3 / 4^{\prime \prime}$ thick by $11 / 2^{\prime \prime}$ high ma

$\stackrel{\text { Front T-Track (2 Required) }}{\text { P }}$
End T-Track (2 Required)


The T-Track trim is made of $1 / 2^{\prime \prime}$ thick by $3 / 4^{\prime \prime}$ high material. This because the T-Track is $1 / 2^{\prime \prime}$ by $3 / 4$.
$.9 \square$

..ZL
$\stackrel{+}{\stackrel{+}{\mathrm{N}}}$

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## Drawer Slides / Stiffener / Misc Small Parts

## Page 7



## Drawer Fronts, Front Trim, and Doors

Page 8


## Drawer Fronts Dimensions

Router Box Dimensions


## Drawer Boxes Dimensions

## Page 9



## Router Bit Trays

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Top Router Tray Sides (2)


2nd Router Tray Sides (2)


The tray sides are made from $3 / 4$ " material. The heights of the sides are $27 / 8^{\prime \prime}$ and $37 / 8^{\prime \prime}$ respectively. This provides $1 / 8^{\prime \prime}$ of top clearance in the drawer openings.


Cut $1 / 2^{\prime \prime}$ wide by $1 / 4$ " deep slots for the router trays in the sides as shown. Then cut a $1 / 4$ " rabbit on the bottom of each side as shown. The $1 / 4$ " rabbits are for the bottoms. The bottoms are necessary so the router bits cannot protude past the bottom of the drawer opening.


Cut two 6" by 14 7/8" router bits trays from $1 / 2^{\prime \prime}$ thick material and two bottoms from 1/4" thick material as shown above.

Drill several $1 / 4^{\prime \prime}$ and $1 / 2^{\prime \prime}$ holes for your router bits in the $1 / 2^{\prime \prime}$ thick sections. The exact location of the holes is strictly a matter
 of preference. I put the holes about $11 / 2^{\prime \prime}$ apart in the prototype.

## Middle Shelves Dimensions

Page 11


(Lower Track Support is made of 1 1/2" thick material.)

(Lower Track Trim is made of $1 / 2$ " thick material.)

## Attach Drawer Slides Left Section - Left Panel

Page 12


# Attach Drawer Slides Left Section - Right Panel 

Page 13


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## Attach Drawer Slides Center Section - Left Panel

Page 14


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## Attach Drawer Slides Center Section - Right Panel

Page 15


Attach Drawer Slides - Right Section - Left Panel
Page 16


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## Attach the Panels to the Base <br> Page 18



# Attach theStiffener \& Casters to the Base 

Page 19

Attach the casters to the base as shown. Then position the stiffener as close to the front as possible while still allowing clearance for the swival casters to rotate. Mark the position of the stiffener, then drill about six holes for \#8 wood screws through the base. Apply some glue and secure the stiffener to the base with 2" \#8 screws.

The screw heads will be inside cabinet below the drawers so it doesn't


## Attach The Back

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## Attach the Router Box Bottom \& Middle Shelf

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## Attach the Router Box Front

Page 22


# Assemble the Face Frame 

Page 23


Assemble the front trim pieces (face frame) as shown. Be sure the horizontal drawer separator pieces are properly spaced so they line up with the drawer slides.

The top of each piece of horizontal drawer separator trim should be flush with the top of a drawer slide.

Pocket holes are the easiest way to join trim or face frames as they are often called. if you don't have a pocket hole jig, you can use dowel joints.

## Attach the FaceFrame to the Cabinet <br> Page 24



## Attach the Leveling Blocks to the End and Center Panels

Page 25

Now, you are ready to attach the leveling blocks. This is the way you ensure that the top is perfectly flat when the workbench is completed. First, drill three $1 / 4$ " diameter holes completely through each leveling block, (the two shortest ones only need two holes). The exact location of the holes is not critical. Drill a hole about 2" from each end and one in the middle of each leveling block. To keep the glue from setting before you're finished, it's best to attach the end and center panel leveling blocks first and ensure they are level with each other before attaching the front and rear ones.

Apply some glue to the mating faces and attach the end and center panel leveling blocks using $11 / 2^{" ~ \# 8 ~ p a n ~ h e a d ~ s c r e w s ~ w i t h ~ f l a t ~ w a s h e r s ~ a s ~}$ shown. Do not tighten the screws yet as the blocks must be leveled first.

After all the blocks are in place, use a straight edge to ensure the top surfaces of all the leveling blocks are level with each other.


## Attach the Front \& Rear Leveling Blocks

Page 26

Apply glue to the mating surfaces and attach the front and rear leveling blocks as shown in the diagram. Use your straight edge to ensure the tops are even with the tops of the end and center leveling blocks. Then tighten the screws.


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## Attach the Sub Top to the Cabinet

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## Attach the Inner Sub Top Trim

Page 28

Attach the Inner Sub Top Trim to the Sub Top with $11 / 2^{\prime \prime} \# 8$ flathead screws. Be sure the top


## Attach the Middle Trim to the Inner Sub Top Trim

Page 29

Attach the Middle Sub Top Trim to the Inner Sub Top Trim with 1 1/2" \#8 flathead screws. Be sure to space these screws so they don't interfere with the screws in the inner trim or the T-Track which will be attched to the Middle Sub Top trim. The pocket holes will be used to


# Attach the Top to the Sub Top 

Page 30

Attach the Top to the Sub Top with 1" \#8 flathead screws through the cutouts for the T-Track and Miter guage track. Secure the edges of the top with pocket hole screws through the holes you drilled through the Inner Sub Top Trim. If you don't have a pocket hole jig, you can glue the Top to the Sub Top. However, gluing it will make it much more difficult to replace the top in the future if you need to.

Note: The dimensions given in these plans are based using T-Track that is $3 / 4$ " wide and $1 / 2^{\prime \prime}$ thick. If your T-Track is a different size, you will need to modify the thickness of the inner trim


# Attach the T-Track \& Miter track to the Top 

Page 31

Attach the T-Track to the top as shown with 1" \#6 screws. Some manufacturers countersink the holes for mounting the track and others do not. From my experience, I prefer flathead screws with countersunk holes. This keeps the screw heads from interfering with the bolts sliding through the track. The track I used for the prototype was designed for pan head screws, so I countersunk them on my drill press.

The miter guage track is not subject to much stress so you can glue it in the slot. If you use screws, be sure the screw heads are below the surface so the miter guage does not hang up on them. I would not reccommend polyurethane glues because they expand as they set up. The expanding glue would lift the miter track up above the surface of the workbench top. A construction adhesive like liquid nails works


## Attach the T-Track to the Edges of the Front and Ends

Page 32

Attach the edge T-Track on each end and along the front to the middle Sub Top Trim with 1" \#6 screws. Position this T-Track under the bottom surface of the Top as shown in the detail drawing.


## Attach the Lower Front Trim to the Front and Ends

Page 33

Attach the Lower Top Trim on each end and along the front to the middle Sub Top Trim with 1 1/2" finishing nails.

If you cut the top a little larger than the dimensions called for, you can trim it with your router and a flush trimming bit. Use the Lower Top Trim for the bit bearing to follow.

The Lower Top Trim joins at


Apply a little glue to the mating surfaces and assemble the drawer boxes.


Assemble the front, back, and right side with finishing nails as shown in Step 1. Insert the bottom as shown in Step 2. Attach the left side as shown in Step 3.


Step 4


Step 5

Support the drawer boxes with $1 / 4^{\prime \prime}$ thick strips of wood and attach the drawer fronts with $11 / 8$ " screws as shown. This is necessary because the bottom of the front must be $1 / 4$ " below the bottom of the box so it will overlap the rear cabinet trim when installed.


Assemble the Router trays with finishing nails as shown above.


Attach the drawer fronts to the router tray fronts with pocket hole screws on each side as shown. Don't forget to support the trays with $1 / 4$ " thick strips of wood while you attach the fronts. As with the drawers, the bottom of the fronts must be $1 / 4$ " below the bottom of the trays so the fronts will overlap the cabinet trim when installed.

# Attach the Cabinet Doors 

Page 36


## Attach the Middle Door trim

Page 37


Now, you're ready to attach the Drawer and Door handles and your work bench is finished.

## Clamping System Parts

Page 38



Clamp Jaw Layout (Side 1)


Clamp Jaw Layout (Side 2)


Drill two pocket holes in each Post as shown below. Next, drill two $1 / 4$ " diameter holes in the end of each Post as shown. (The $1 / 4$ " holes should only be $1 / 2^{\prime \prime}$ deep.)



Posts
Drill a 5/16" bolt through each jaw as shown. Next, drill two $5 / 16$ " holes for the dowel pins in each Jaw as shown. (The dowel pin holes are $5 / 16$ " diameter so the Jaws can pivot over the pins. These holes should be $1 / 2^{\prime \prime}$ deep.)

$$
\xrightarrow{2}
$$



## Assemble the EZ Mount Stop

Attach the Posts to the ends of the Stop Bar with pocket hole screws as shown below. Next, cut four 7/8" long dowel pins from $1 / 4$ " dowel rod. Apply some glue and insert a $1 / 4^{\prime \prime}$ dowel pin into each hole in the ends of the Posts. (The dowel pins should protude about $3 / 8^{\prime \prime}$ from the ends of the Posts.)
 glue the dowel pins to the Jaws as the Jaws must be allowed to pivot in order to work as clamps.) Insert a $5 / 16$ carriage bolt through the holes as shown. (The carriage bolt should be 5 " long. Secure the pieces with a flat washer and knob.

# Clamping System Usage 

Page 40

The T-Track clamping system provides a flexible way of clamping both large and small work pieces. Most work pieces can be clamped using the two Clamp Jaws and the Rear Stop. The Clamp Jaws are used with the T-Track that runs along the front edge of the workbench. The Rear Stop is used with the T-Track that is embedded in the top surface of the workbench.

For longer workpieces, you can use the the Clamp Jaws with the T-Track on the ends of the workbench. The EZ Mount Stop may be secured anywhere along the workbench top. The simple clamps on each end of the EZ Mount Stop grip the edge of the workbench top as well as C-Clamps. This feature enables you to use the workbench as a large bar clamp for gluing up boards.

You can make the clamping system grip the work piece even tighter by gluing strips of 100 grit sandpaper along the edges that contact the workpiece. The sandpaper requires much less force than the surface of bare wood.

The button arrangement on the Clamp Jaws allows you to filp the Clamp Jaws over for thicker work pieces. The drawings on the next two pages illustrates how the clamps work.

To clamp a work piece, position the workpiece so the edge protudes slightly over the edge of the workbench top as shown. Then, position the Rear Stop against the workpiece and tighten it to T-Track using the knobs. Next, tighten the Clamp Jaws against the workpiece with the knobs and your work piece will be clamped just like with a vice.

For thinner workpieces, position the Clamp Jaws and Rear Stop as shown. If your workpiece is thinner than $3 / 4$ ", you can place strips of wood under the work piece so it is slightly higher than the top edges of the Clamp Jaws.

For thicker workpieces, flip the Clamp Jaws so the second button is against the Lower T-Track Trim and reverse the Rear Stop so the thicker edge is against the workpiece.

## Using the Clamps

Page 41

For thinner workpieces, position the Clamp Jaws and Rear Stop as shown.


For thicker workpieces, flip the Clamp Jaw so the second button is against the Lower T-Track Trim and reverse the Rear Stop so the thicker edge is against the workpiece.


## Clamping Long Workpieces

Page 41

To clamp long work pieces, use the Clamping Jaws and EZ Mount Stop as shown.


## Snapshots



Clamping a small work piece


Clamp a large work piece
Hold down clamps.


Clamping a work light.


Clamping a large work piece


Clamping a thick work piece


Close up view of the Woodpeckers Quick-Lift.


Arranging the jaws for use with the EZ Mount Stop. The purple edge is the 100 grit sandpaper used to make the stop grip the work piece tighter.

