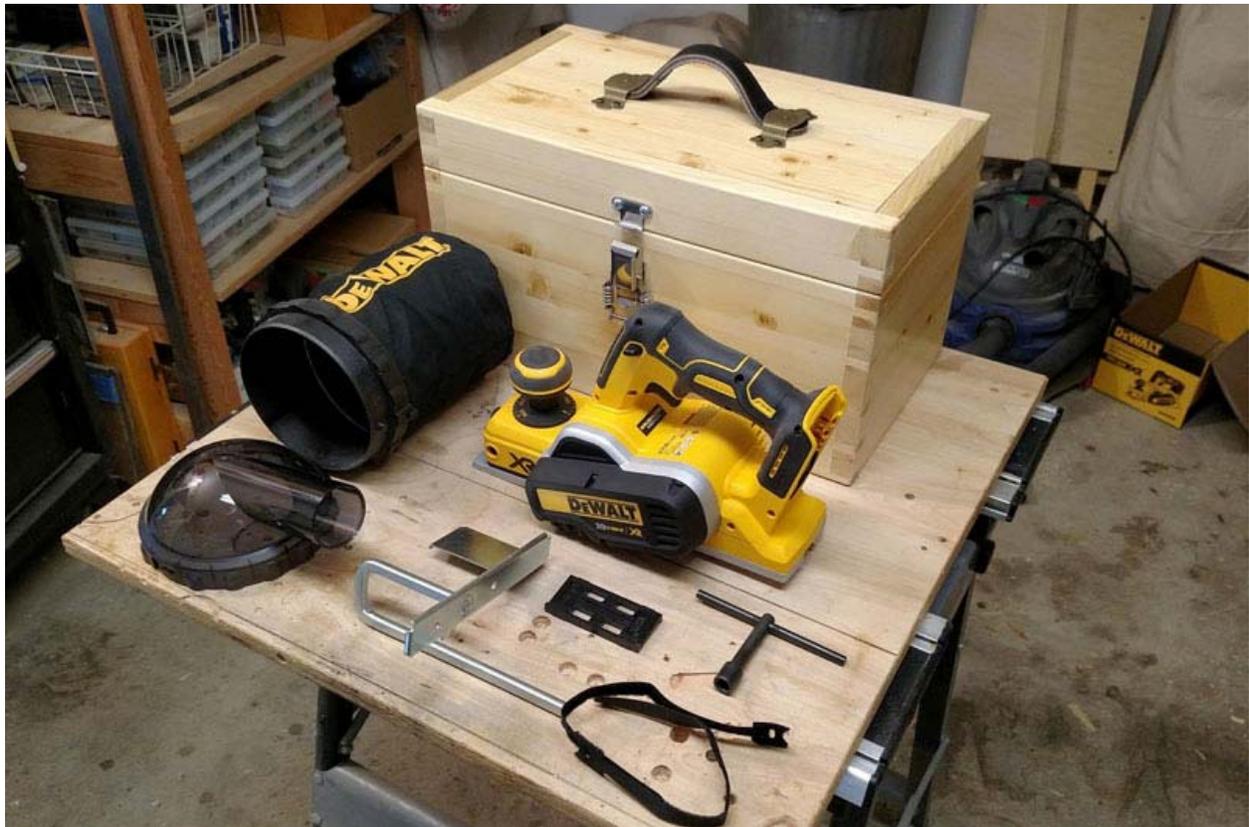


INSTRUCTIONS

for Building

The DeWalt DCP580

Planer Storage Box



A Few Remarks about the DeWalt Planer Storage Box

Robert Penoyer
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A WARNING - PLEASE READ

Woodworking can be dangerous! It's up to you to determine if you can safely use the tools and perform the tasks needed to complete this and any other woodworking project. If you are unsure, STOP! Get advice from someone knowledgeable or do some careful studying on your own. Be safe!

Always wear at least an appropriate N95 dust mask or respirator when sanding or spraying paint. For advice about dust masks and respirators, visit this link:

<https://woodworkingtoolkit.com/best-dust-masks-respirators/>

**READ, UNDERSTAND, AND FOLLOW ALL OF THE
INSTRUCTIONS AND WARNINGS THAT CAME
WITH YOUR TOOLS. BE CAREFUL!**

The DeWalt Planer Storage Box

This design is specifically for the DeWalt DCP580 Brushless Planer. Perhaps it can be adapted to other, similar handheld power planers.

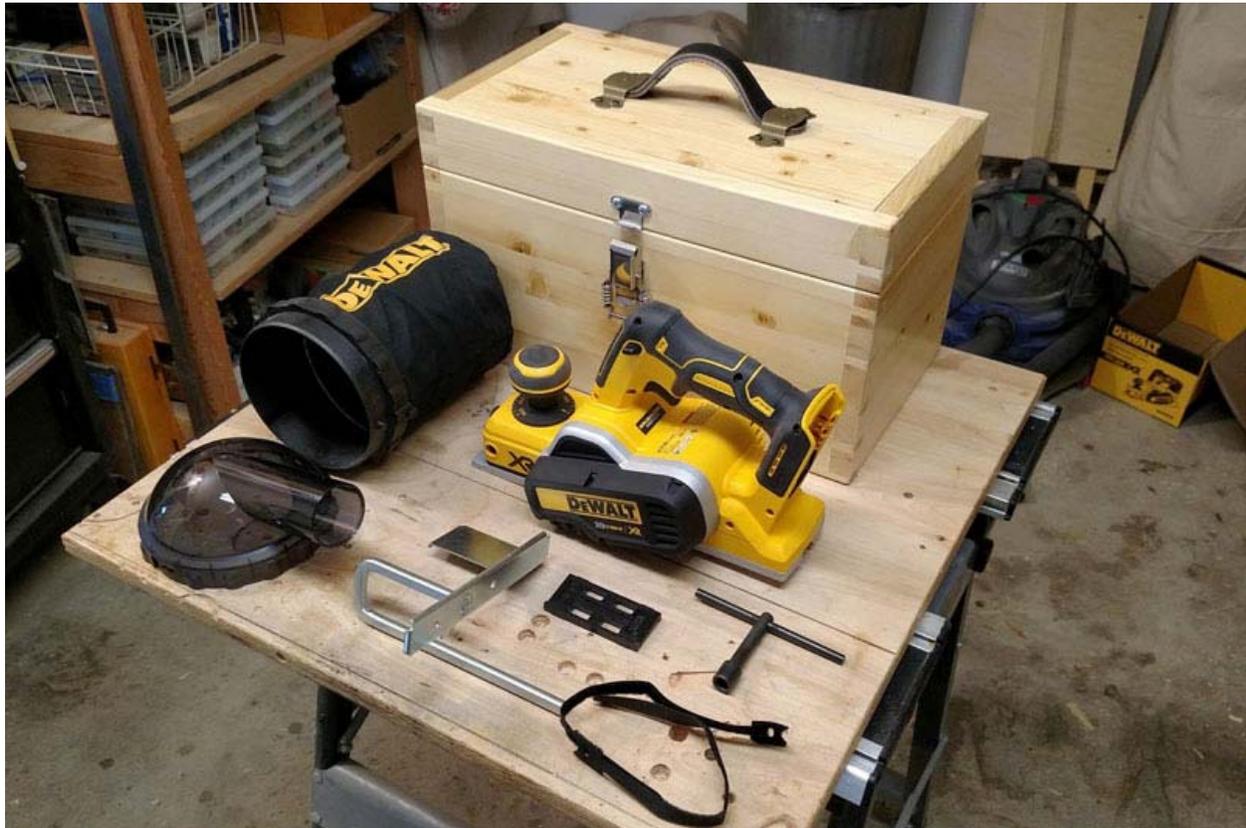


Figure 1. The Planer Storage Box with All of Its Contents

The DeWalt Planer Storage Box was made as a practical means of storing and transporting the Planer and its accessories. The box securely stores not only the Planer but all of the items shown in Figure 1: DeWalt DCP580 Brushless Planer, Dust Bag and Dust Bag Deflector (DeWalt DWV9390, Part Number N455893 + N455892), Rabbit Guide, Blade Guide, T-wrench. The Velcro strap was added to compress the spring-loaded Dust Bag in the box.

The design is simple and utilitarian but dovetail joinery gives the box an attractive appearance.

Some of the Planer Storage Box's features:

- Footprint: 9 1/4" x 16 3/4"
- Height: 9 9/16"

- Materials: 3/4" pine (Front, Back, Sides, Top, Bottom); 1/2" plywood (assorted pieces); 1/4" plywood (assorted pieces); 2x4 (Rabbit Guide Mount)
- Glue: Tite Bond II or equivalent
- Finish: Zinsser Clear, spray shellac

The Planer Storage Box begins life as a closed, 6-sided box as shown in Figure 2. Then the top is separated from the main part of the box as shown in Figure 3.



Figure 2. BEFORE the Top Has Been Sawn Off of the Box



Figure 3. AFTER the Top Has Been Sawn Off of the Box

Introductory Details

The Planer Storage Box design ensures that the Planer will be secured in the box so that it won't move and isn't susceptible to damage. The other components are also secured to prevent damage.

Figure 4 shows the type of pine panels that I used to make the box. Panels like this one were purchased at Lowe's. These panels are attractive for a utilitarian project like this one because they are wide and tend to be straight and flat. But you can build the box from pine boards if you choose.



Figure 4. 3/4" Pine Hobby Panel Purchased at Lowe's

Figure 5 shows how individual pieces of 1/2" and 1/4" plywood form the floor of the box where the Planer rests. The wide trough is an empty area where the Planer's knives are prevented from touching anything. The narrow trough is an empty area where the "Lift Off" (the tang at the back of the Planer) can be accommodated whether the Lift Off is in the up or down position.

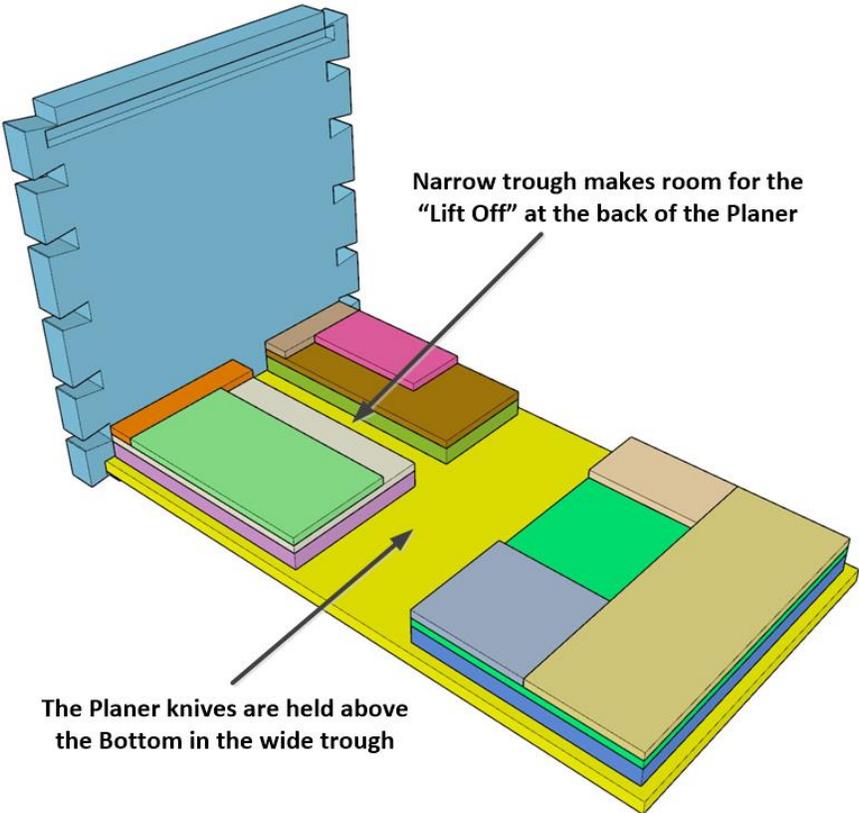


Figure 5. Individual Pieces of 1/4" and 1/2" Plywood Form the Floor of the Box

A grey or white rectangle has been added to Figure 6 to show where the shoe of the Planer rests. The back of the Planer (where the Lift Off tab is located) is located along the narrow trough. The front of the Planer is pointed toward the viewer's right.

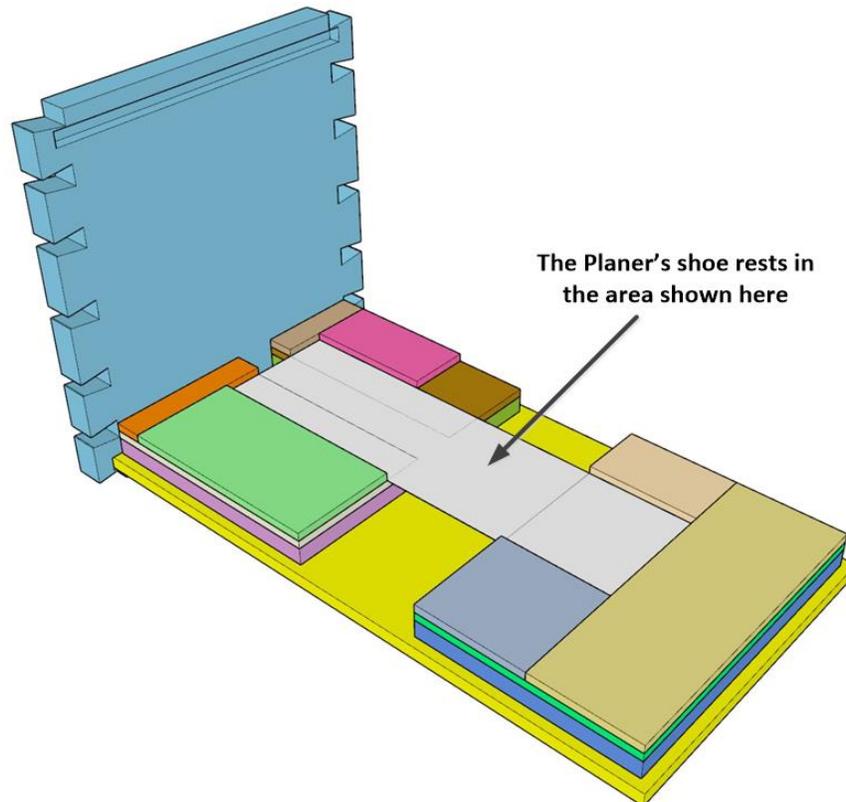


Figure 6. The White or Grey Area Shows Where the Shoe of the Planer Rests

When the shoe of the Planer is placed in the location indicated in Figure 6, the shoe is bounded on four edges by 1/4" plywood. This ensures that the Planer is "locked" in place horizontally. The top of the Planer Storage Box limits the vertical travel of the Planer so it can't fall out of the area formed by the 1/4" plywood pieces.

Details of the SketchUp File and Equivalent PDF File

File *Planer_Box_14.skp* is the SketchUp design for the DeWalt Planer Storage Box. This file is useful since I think all of the necessary details are incorporated here. But if you find a dimension or other detail missing, it can be determined by examining this file. And, you can orbit and move the model around for a better look at everything.

File *Planer_Box_14.pdf* contains all of the images and dimensions from the SketchUp file. Use this if you're not familiar with SketchUp.

The information that follows will help to make clear the details of some of the components and construction so that possible misunderstandings might be avoided.

Use the Included SketchUp or PDF File to Follow Along with These Descriptions

The heading of each section corresponds to the name of a particular SketchUp/PDF page.

Closed Box

Look at the Closed Box page to see the view of the outside of the Planer Storage Box.

Notice that the tails and pins of the dovetail joinery are designed to extend 1/32" beyond the surfaces of the box. This facilitates sanding and trimming.

Sanding only the ends of the tails and pins to make them flush with the sides is a lot easier than sanding the sides to make them flush with the tails and pins.

Figure 7 shows the pins and tails extending past the outer surfaces of the box. Figure 8 shows the appearance of the tails and pins after trimming and sanding.

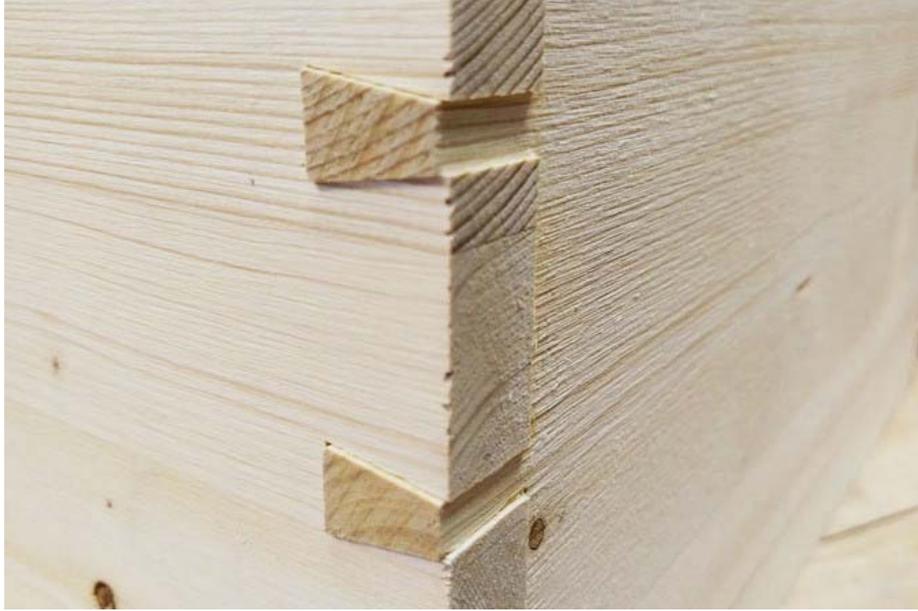


Figure 7. Example of Pins and Tails Cut a Little "Too" Long



Figure 8. Example of Pins and Tails after Trimming and Sanding

Open Box

This view shows ALL of the internal components of the Planer Storage Box.

The Wrench Stop at the left is attached to the inside of the top or lid of the box. The Wrench Shelf, immediately below the Wrench Stop, is attached to the inside of the main part of the box. The T-wrench is captured in the hole of the Wrench Shelf while the T-wrench is prevented from coming out of the hole by the Wrench Stop immediately above it.

The Blade Guide Assembly at the right in the image is attached to the inside of the main part of the box. The Blade Guide Stop, immediately above the Blade Guide Assembly, is attached to the inside of the top or lid of the box. The Blade Guide Stop prevents the blade guide from coming out of the Blade Guide Assembly.

The large Rabbet Guide Mount near the center of the image is attached to the inside of the Top of the box. It has an embedded rare earth magnet that, together with the dado cut into one side, holds the Rabbet Guide.

All of the 1/2" and 1/4" pieces of on the Bottom of the box are also identified. They form three Guide Groups that are attached to the Bottom of the box.

Front Back

The box's Front and Back pieces are identical. The image shows the locations of the dovetail pins that are cut into each piece. Both pieces also have grooves cut into them to capture the Top and Bottom.

Notice the note that indicates that the pins are each cut 1/32" too long, as shown in Figure 7.

Placements Front & Back

The views show where key pieces are glued to the Front and Back. The view is from the inside of the Front and the inside of the Back. The photograph in Figure 9 might clarify the Placements Front & Back view.



Figure 9. Locations of the Components Attached to the Front and Back

The single horizontal line in each view in the SketchUp/PDF file is the location of the top of the kerf cut that separates the top portion from the main portion of the box.

The bottom of the Wrench Stop aligns with the bottom edge of the box's top. So does the bottom of the Blade Guide Stop. *To be clear, though, the inside edges of the box have been rounded over with a 1/8" radius round-over router bit, so the Wrench Stop and Blade Guide Stop were attached at the edge of the round-over.* This is best understood by examining Figure 10.

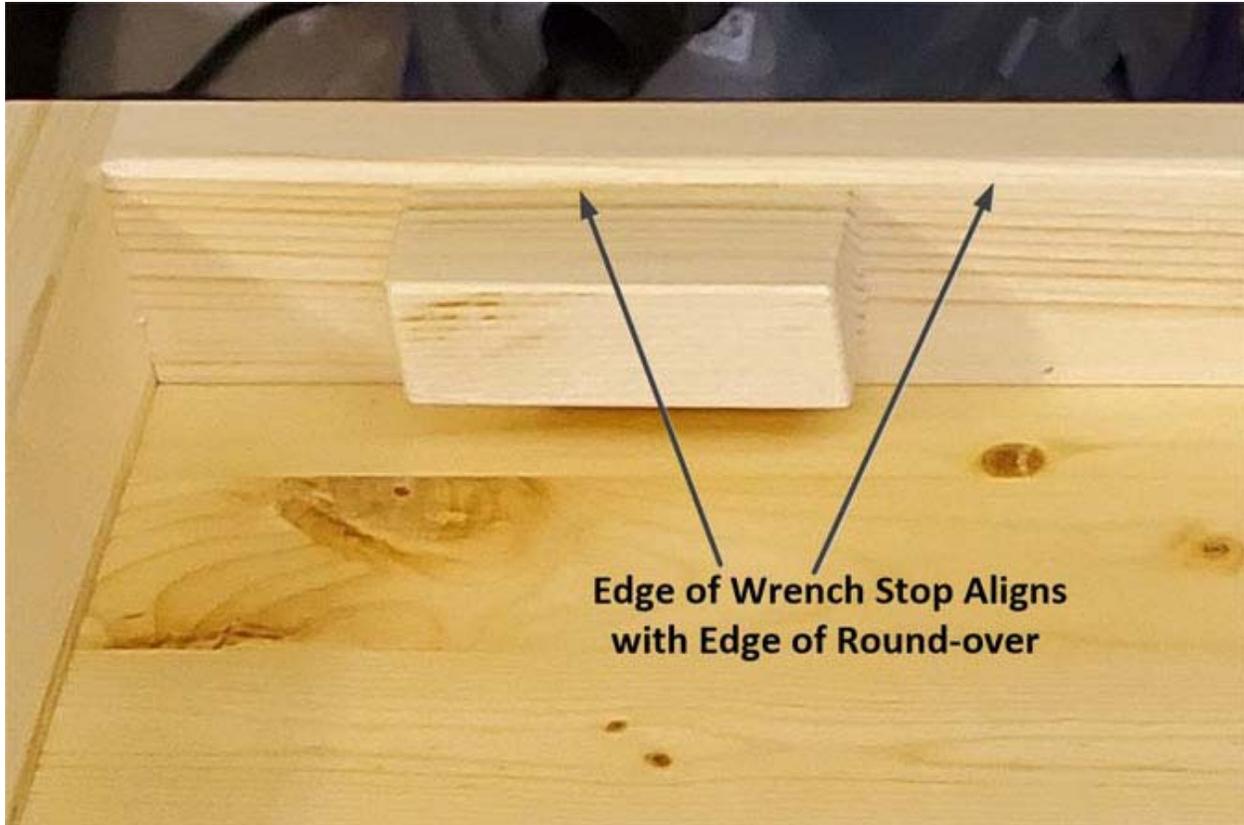


Figure 10. Details of Wrench Stop Placement

ALL OF THE PIECES DETAILED IN THIS VIEW OF THE SKETCHUP/PDF IMAGE ARE ATTACHED TO THE INSIDE OF THE BOX AFTER THE BOX IS ASSEMBLED.

Placements Top

The placements of the parts in this image are best understood by comparing it with Figure 9 and Figure 10.

Sides

The box's Sides are identical. The image shows the locations of the tails that are cut into each piece. Both pieces also have stop-grooves cut into them to contain the Top and Bottom. Stop-grooves are necessary so that the cuts aren't visible from the outside when the box is assembled.

Notice the note that indicates that the pins are each cut 1/32" too long, as shown in Figure 7.

Wrench Shelf

The details of the Wrench Shelf and Wrench Stop are shown in this view.

Blade Guide Assy

The Blade Guide Assembly is glued and assembled first. Then it's glued to the inside of the Back.

Top Bottom

The Top and Bottom pieces are identical. They are dimensioned so they will fit in the grooves of the Front, Back, and Sides with about 1/16" of room to spare so that they can float.

The Top and Bottom are not glued into place. That is, they are allowed to "float." They should float in the grooves of the Front, Back, and Sides so that any stresses that might occur because of cross-grain gluing will not occur.

Ideally, no glue used in the assembly of the Front, Back, and Sides should contact the Top or Bottom. This need can be accommodated by cutting the corners off of the Top and Bottom. That is, cut the corners off of the tenon portion of the Top and Bottom (i.e., the corners that fit into the grooves) so that the wood of the Top and Bottom is held back from the areas being glued.

Rabbet Guide Mount

I fashioned the Rabbet Guide Mount from a piece of 2x4. I cut off 1/4" from each edge to remove the rounded corners and planed the surfaces.

Notice the note in the image: "EMBED RARE EARTH MAGNETS IN THIS AREA FLUSH WITH SURFACE". I used a magnet harvested from an old computer hard drive but other rare earth magnets can be used.

Look at Figure 11 to see how a mortise was cut for the magnet and the magnet was held in place by epoxy. The location for the magnet was cut freehand using a router and a straight bit. The Rabbet Guide Mount had already been sanded in this picture. Sanding explains the softened edges.



Figure 11. Rabbet Guide Mount with Embedded Rare Earth Magnet, after Sanding

Any rare earth magnet (or several) can be used but it (they) must be strong enough to ensure that the Rabbet Guide is held securely in place when the box top is closed and the Rabbet Guide is being held upside down.

Guide Group 1

This image shows the assembly comprising three pieces of 1/4" plywood (assumed to be 7/32" thick) and one piece of 1/2" plywood (assumed to be 15/32" thick.) This group is glued together first and then applied to the Bottom of the box after the box has been assembled.

Guide Group 2

This image shows the assembly comprising three pieces of 1/4" plywood (assumed to be 7/32" thick) and one piece of 1/2" plywood (assumed to be 15/32" thick.) This group is glued together first and then applied to the Bottom of the box after the box has been assembled.

Guide Group 3

This image shows the assembly comprising four pieces of 1/4" plywood (assumed to be 7/32" thick) and one piece of 1/2" plywood (assumed to be 15/32" thick.) This group is glued together first and then applied to the Bottom of the box after the box has been assembled.

Assembling the Box

The box is assembled with its six sides: Front, Back, both Sides, Top, and Bottom. Be sure the dovetail pins and tails fit together properly: not too loose and not too tight.

Dry fit the entire assembly before applying any glue. Be confident that you can apply glue to the tails and pins. Then disassemble, glue, reassemble, and clamp the parts before the glue begins to cure.

Be sure that you have all needed clamps ready for use before any glue is applied.

Allowance must be made for the extra-long pins and tails when clamping. *The clamps must press against the box's surfaces, not the pins and tails.*

Here's an assembly method that you can use on this project as well as other projects. It makes the gluing process a little less nerve racking:

- Instead of gluing the entire box all at once, glue both the Front and Back to only one Side. "Complete" the assembly with the other Side free of glue. Be careful to ensure that no glue gets on the Top or Bottom so that they remain floating
- Apply clamps

- Wait at least an hour for the glue on the glued Side to cure
- Carefully remove the unglued side, apply glue, reassemble, and clamp. Once again, be careful to ensure that no glue gets on the Top or Bottom so that they remain floating.

This method permits you to do only half of the gluing at one time while ensuring that all of the pieces are correctly aligned.

Sanding the Box

It will be necessary to remove the extra 1/32" of material on the tails and pins that extends from the outer surfaces of the box. You can do this by sanding them down, planing them down with a hand plane, or milling them off with a router. Be careful so that you don't cut into the outer surfaces of the box.

With the excess portions of the tails and pins removed, it's time to thoroughly sand all of the outer surfaces of the box.

Rounding Over the Edges

I used a 1/8" radius router bit to round-over all of the edges of the box. This can be done using a router table or a handheld router. The corners might need some careful sanding by hand to give them a rounded appearance.

Cutting the Top Off

Be Sure the Excess Material Has Been Removed

Do not attempt to cut the top off of the box before removing the excess material from the tails and pins as described under *Sanding the Box*, above. You risk getting an uneven cut if you don't remove the excess material first.

Use a Table Saw

Use a table saw with a rip fence to make the cut. You'll want this cut to be as clean as possible, so use a sharp, clean blade. Set the distance between the inside edge of the blade and the fence to 7 3/8" as shown in the *Closed Box* page of the SketchUp/PDF file. Set the height of the blade so that the center of the gullet (the "dip" between the teeth) is set to the thickness of the material.

Prepare Shims and Painter's Tape

Have four shims and some painter's tape handy. You'll understand the reason why momentarily.

Cut the Sides (Short Ends of the Box) First

Place the box on one of its Sides with the box's Bottom firmly against the fence. Start the saw and run the box across the blade.

Flip the box over so that the box is resting on the other Side. With the box's Bottom firmly against the fence, start the saw and run the box past the blade. You have now made a cut through each Side.

Cut the First Long Side

Flip the box over so that it's resting on the Front or Back. With the box's Bottom firmly against the fence, start the saw and run the box past the blade. You have now cut through three of the box's surfaces.

Add a Witness Mark

Now use a pencil and draw a line on the uncut surface so that the line passes across the location where the saw will cut next. Be careful to make the lines easily visible but not too dark; you will want to remove this line before applying a finish. The line will identify the correct orientation of the top to the main part of the box after the top has been separated.

Add Shims

The top of the box will be freed from the main part of the box when you cut the last side. You can cause damage to the cut or other parts of the box when the top comes loose if you're not careful.

Insert one shim through the cut in each Side. Each shim should contact each edge of the cut but not be inserted so forcefully as to damage the workpiece. Secure each shim in place with some painter's tape.

Insert two shims through the long cut, one near each end of the cut. Secure those into place with painter's tape.

Apply several strips of painter's tape so they span across the cuts that you've already made. This will help to ensure that the top won't move significantly when it's separated.

Make the Final Cut

You're ready to make the final cut once the shims and tape have been applied. Lay the uncut side on the table saw with the box's Bottom placed firmly against the fence. Start the saw and carefully run the box smoothly and steadily across the blade.

Remove the tape and shims. Remember to keep track of the witness mark that you made earlier.

Clean Up the New Edges

You should apply 1/8" round-overs now that the top has been separated from the main part of the box.

- Add a 1/8" radius round-over to all of the *inside edges* of the top and the main part of the box
- Select the surfaces on the top and main part of the box that will be the back of the box. A good choice might be the surfaces that contain the witness mark that you made on Page 18.

- Add a 1/8" radius round-over to three outside edges of the top and main part of the box. Do not round over the outside edges on the backs of the box; this will give the box a subtly better appearance.

Installing Hinges

Select a suitable pair of hinges. You should cut mortises for the hinges. Figure 12 shows one of the hinges secured in a mortise.

I deliberately used a hinge with *three* screws in each leaf to ensure strength. Remember that the hinges will be under stress when you pick up the fully-loaded box by the handle on the top.



Figure 12. Hinge in Mortise

The hinges I used are 2 1/2" wide. I located each hinge with its outermost edges 3 inches from the nearest outer edge of the box.

I used #6 x 1-inch Phillips head screws instead of the screws that came with the hinges. This was done for added strength.

Installing the Subassemblies

Guide Groups

You should have glued and assembled Guide Group 1 (Page 15), Guide Group 2 (Page 16), and Guide Group 3 (Page 16). Place each of those into the box on the Bottom without glue. Be sure that they're in their correct locations and orientation.

Now place the shoe of the DeWalt DCP580 Brushless Planer into the area indicated in Figure 6 and check the fit. There should be a small amount of "wiggle" room. Make any necessary adjustments to the Guide Groups so the fit isn't too tight.

You're ready to glue each Guide Group into place if you're satisfied that the fit of the planer is satisfactory. *But wait! Read the following section before gluing.*

How to Do the Gluing

The box is made of solid wood but the Guide Groups are made of plywood. Solid wood tends to "move" as the temperature and humidity change, but plywood doesn't. This can lead to cracking of the solid wood over time if they're glued together improperly.

To help ensure that there won't be any cracking, glue the Guide Groups into place by applying a small amount of glue at the center of the bottom of each group rather than the entire bottom surface of each.

Place each Guide Group into place on the Bottom and let the glue cure.

Other Internal Attachments

Glue the other internal attachments (Wrench Shelf, Wrench Stop, Blade Guide Assembly, Blade Guide Stop, Rabbet Guide Mount) into place and let the glue cure. Locate each item in accordance with the SketchUp/PDF drawings and the information in these Instructions.

The grain of the Top runs perpendicular to the grain of the Rabbet Guide Mount. So it's particularly important to observe the gluing recommendations, above, when gluing the Rabbet Guide Mount into place in order to reduce the probability of cracking.

Applying the Finish

Remove the witness mark that was applied on Page 18 and any other pencil marks.

Of course, you can apply any finish any way you choose.

I used clear Zinsser spray shellac (Figure 13.) Three coats were applied to the inside of the box. Four coats were applied to the lips of the opening. Five coats were applied on the outside bottom. Six coats were applied to all other surfaces.



Figure 13. Zinsser Clear Spray Shellac

Attaching the Handle

I used an 8 1/2"x1 1/8" leather handle (<https://www.rockler.com/leather-handles-select-color-3>) and pinned loops (<https://www.rockler.com/pinned-loops>) purchased from Rockler. The results are shown on the box in Figure 14 and Figure 15.



Figure 14. Handle Extended



Figure 15. Handle Flat

Consideration for the Center of Gravity

The handle might look like it's centered on the top, but it isn't. Instead, it's located directly over what I believe is the center of gravity. If the handle isn't placed over the center of gravity, the box will hang at a skewed angle when you carry it by the handle.

I tried to allow for the handle to be centered over the center of gravity of the box when all of its contents are inside. Of course, the heaviest item in the box is the Planer, so it has the greatest influence on the location of the center of gravity.

Establishing the Handle's Location

Look at the screw highlighted in Figure 15. The center of that screw is 3 1/4" from the back of the box and 5" from the left edge of the box. This is the positioning I used with the handle sited on Page 23. The location of your handle will depend on the dimensions of the particular handle that you use.

Attaching the Latch

The spring-loaded draw latch was purchased from Amazon: *Stainless Steel 304 Spring Loaded Draw Latch, Polished Finish, Non Locking, 3 21/64" Length*, https://www.amazon.com/gp/product/B006IHW06Q/ref=ppx_yo_dt_b_search_asin_title?ie=UTF8&psc=1. I've used this latch on several projects and I've been very happy with it.

Attaching the Hook

The latch is centered horizontally along the front of the box. Attach the hook of the latch on the top of the box so that the lower edge of the hook is even with the lower edge of the front of the top. I used machine screws with T-nuts on the inside of the top to secure the hook. This method of attachment ensures that wood screws won't be pulled out of the wood.

Attaching the Lever

I used the following procedure and trick to attach the other, levered part of the latch. *You might want to try the following process on a piece of scrap to ensure that it works for you, and to make any changes to the listed steps that will enhance your build.*

- Lay the box on its back so that the knuckles of the hinges are on a flat surface
- Put some painter's tape on the front of the box where the levered part of the latch will be attached
- Engage the bar of the levered part of the latch in the hook
- Using your fingers, pull the assembly so that the bar is seated snugly in the hook *with the lever closed*
- Use a pencil to mark the location of the bottom edge of the levered part on the tape
- Disengage the bar from the hook and lay the levered part of the latch so that its bottom edge is at the mark that you made
- Open the lever of the latch without moving the part that is laying against the mark on the tape
- Use a pencil to mark circles at the locations of the three holes on the tape
- **Here's the trick:** using an awl or other pointed tool, place an indentation into the wood at each of the bottom edges (not the centers) of the three circles that you drew in the previous step

The trick of marking the bottom edges of the circles ensures that the spring of the latch will be under suitable tension when the latch is engaged.

Attach the Lever Part of the Latch to the Box

As with the hook of the latch, I attached the levered part of the latch to the bottom of the box using machine screws screwed into T-nuts located on the inside of the box.

There is room for a T-nut on the top screw and bottom screw but not the middle screw. Use a wood screw at the center position.

The Final Fit of Everything in the Box

Checking the Fit of the Planer

The first thing you should do after the hinges, latch, and *Guide Groups* are installed is test the fit of the Planer. It should fit into the *Guide Groups* since those should have been tested for fit before the *Guide Groups* were glued into place.

The top of the box should close completely without pressing on the handle of the Planer. If there is contact between the top and the handle, you should remove some material from the top in the area where the handle touches it.

The T-wrench and Blade Guide

Put the T-wrench and Blade Guide in the places intended for them. The top of the box should close without touching either one. If there is interference, you will have to remove material from the appropriate location.

Rabbit Guide

Place the Rabbit Guide on the Rabbit Guide Mount as shown in Figure 16. With the Planer set into the *Guide Groups*, close the top of the box. There should be no interference as the top closes. The magnet(s) in the Rabbit Guide Mount should be strong enough to hold the plate of the Rabbit Guide against the Mount when the top is closed and the Rabbit Guide is upside down.



Figure 16. Rabet Guide on Rabet Guide Mount

Dust Bag

Compress the Dust Bag spring and wrap a Velcro strap around the Bag to keep it compressed as shown in Figure 17. Place the compressed Bag into the box as shown in Figure 9. The Dust Bag fits loosely in the box.



Figure 17. Dust Bag Compressed with Velcro Strap

Dust Bag Deflector

The Dust Bag Deflector fits loosely in the box. Use Figure 9 as a reference. The dome fits over the Planer's dust ejection port.

Final Fit

Close the top and latch the draw latch with everything inside the box. Everything should fit.

Pick up the box by the handle. The box should hang evenly, without any unwanted tilt.