PROJECT INTERMEDIATE DIFFICULTY

PROJECT TUTORIAL

Butterfly Box
Designed for CarveWright™ by Michael Tyler - www.carvebuddy.com

This project features a detailed Monarch Butterfly carving for the top of this unusual decorative box. The wings overhang the graceful classic shape of the base for a truly unique appearance. Makes a great gift!

The overall size of the Butterfly Box (including wing overhang) is about 12½" wide x 8" deep x 4¾" tall.

The project is carved and cut out with the two bits that came with your machine. The dado grooves for the box bottom and the miter cuts for the sides are performed on a table saw. Anyone with basic woodworking skills can make this project.

NOTE: Use the included box base design along with any other lid design you make yourself to create your own unique customized boxes!

Main items you will need:

1) The 2 Project Files (included):
 • Butterfly_Box_Lid.mpc
 • Butterfly_Box_Sides.mpc

2) Boards with the following dimensions:
 Butterfly_Box_Lid: .75" x 9.25" x 20"
 Butterfly_Box_Sides: .75" x 11" x 25"
 Box Bottom: 1/8" or 1/4" plywood sheet
 (or ½" stock for "no-dado" construction)

   NOTE: Do not use boards that are shorter in length than specified above.

3) Hinge for lid (¾" x 4" piano-style)
 (I used Brainerd hinge # 1264XC)

4) Wood chisel for creating hinge mortise, if desired

5) Sandpaper, box clamp (strap), wood glue, Super Glue (optional), wood stain and/or paint and clear finish

6) Optional: Table Saw (highly recommended) (you'll need a miter box if no table saw is used)

7) A Dremel-type rotary tool with assorted sanding wheels and bits to sand small details and speed up preparation for finishing
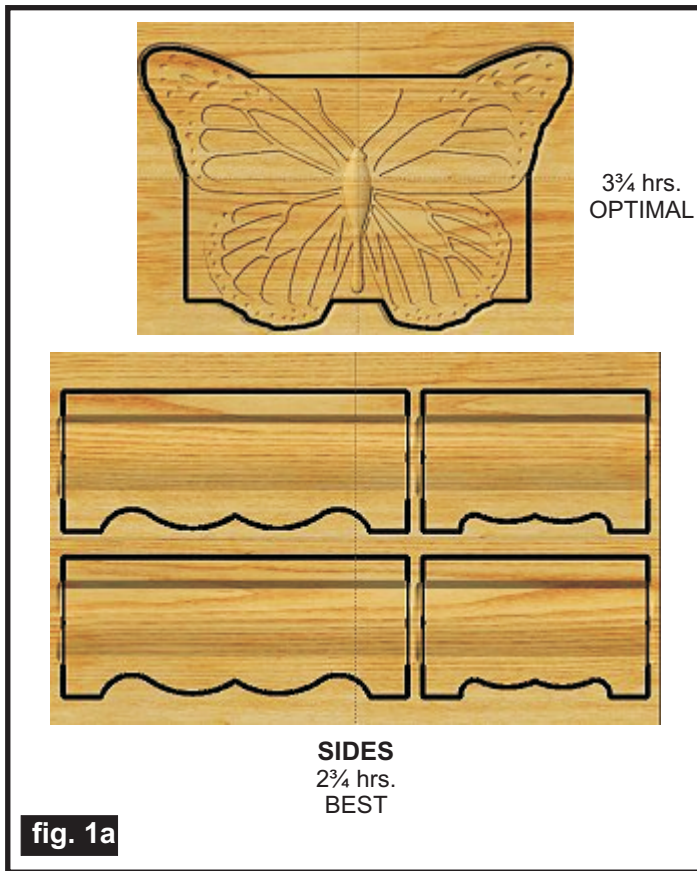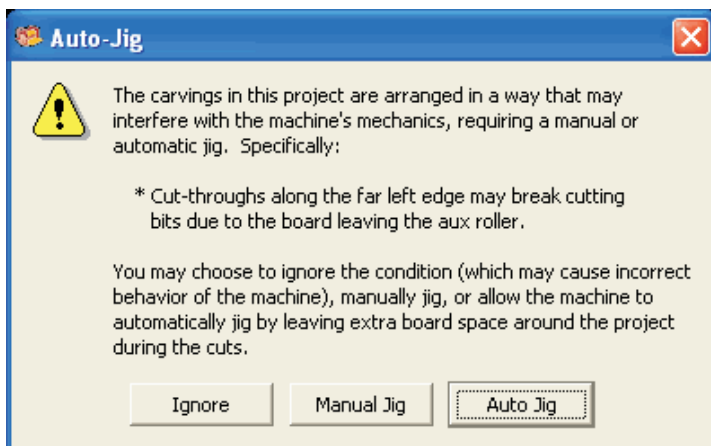
STEP 1
Start your Designer software and open the .mpc files. (fig. 1a)

3¾ hrs.
OPTIMAL

SIDES
2¾ hrs.
BEST

fig. 1a

All you need to do at this point is upload the project files to your memory card. (File/Upload). When you upload, you may or may not get a pop-up window with an "Auto-Jig" warning message (fig. 1b)

🐞 Auto-Jig

⚠ The carvings in this project are arranged in a way that may interfere with the machine's mechanics, requiring a manual or automatic jig. Specifically:

* Cut-throughs along the far left edge may break cutting bits due to the board leaving the aux roller.

You may choose to ignore the condition (which may cause incorrect behavior of the machine), manually jig, or allow the machine to automatically jig by leaving extra board space around the project during the cuts.

[Ignore] [Manual Jig] [Auto Jig]

fig. 1b

If you do see the message, you may safely click on "Ignore" because our actual boards will be large enough that it won't cause any problems at all. After each project is compiled, select "Best" or "Optimal" for the File Quality setting. **I highly recommend the "Optimal" setting for the Butterfly_Box_Lid.mpc!**

Click "OK" and upload each mpc project file to your memory card. Insert the card into your machine and load a board that measures the appropriate dimension specified for each particular mpc (see page 1 for board dimensions). Turn on your machine and proceed with the standard project setup in Step 2...

STEP 2
You will see "Project Menu" on your LCD display. Press "1" then scroll to the **Butterfly_Box_Lid.mpc** project, and press the green ENTER button to select it. Then follow the additional prompts....

• **Stay Under Rollers** - press 1) YES

• **DO NOT RESIZE or SCALE the projects!** If prompted, always keep the original size. No scaling!

• **How to Place** - press 1) Center

• **Cut Board to Size?** - press 2) NO

• **Select Cutting Bit: 1/8" Cutting** - Press ENTER. The machine will move the bit holder to the center of the machine in preparation for the bit installation.

• **Load Bit:1/8" Cutting** -Insert your 1/8" cutting bit, then press the green ENTER button.

• **Select Carving Bit: 1/16" Carving** - Press the green ENTER button. (Moves to center of machine.)

• **Load Bit: 1/16" Carving** - Remove the 1/8" cutting bit, and insert your 1/16" carving bit, then press the green ENTER button. After homing and finding surface, the machine will begin the carving process.

• **After it is done carving, you will be prompted to load your 1/8" cutting bit.** Take out the 1/16" carving bit, clean the chuck, insert your 1/8" cutting bit, Vacuum out excess sawdust debris, then press the green ENTER button. Cutouts are always performed last, after all raster carving is completed.

STEP 2 (cont.)

• The machine will now proceed to perform the cutout as it moves around the component outline. It leaves little tabs to hold the part in the board. When the machine is finished, remove your board and clean your machine of excess sawdust.

• Repeat the procedure for the **Butterfly_Box_Sides.mpc**

Your boards will look like this (fig. 2)

fig. 2

STEP 3

Separate all the pieces from the boards with a utility knife or hobby saw. (fig. 3a)

fig. 3a

fig. 3b

Sand all the components to remove any fuzzies and undesirable tool marks. Use a Dremel-type tool with various abrasive wheels and tips to make the job go faster. (fig. 3b)

STEP 4

Mark the back of the side pieces with a line about ¾" from the bottom of the base for the box bottom. (fig. 4a)

At this point, you have a choice. You can cut a dado groove with your tablesaw on all four sides for your box bottom to slide into (using either 1/8" or 1/4" ply) or you can use a solid sheet of ½" stock and just glue the bottom into the box. In any case, the bottom of the box will be located at the lines you just marked. I chose to cut 3/16" deep dados just a hair wider than 1/8" for a bottom made of 1/8" aircraft ply (available from any craft or hobby store). (fig. 4b, 4c)

fig. 4b

fig. 4c *(cont.)*

Page 3   **Designed** by Michael Tyler
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STEP 4 (cont.)

Cut 45° miters on all four corners of the box sides. Proceed <u>very</u> <u>carefully</u> so that the miter edge matches exactly with the edge of each side. There is no room for error, so take your time with this step. (fig. 4d, 4e)

fig. 4d

fig. 4e

STEP 5

Cut a ply bottom slightly undersize to fit into the grooves. (Dimensions will be approx. 8¾" x 5³/₈".

You want the bottom to "float" freely with no glue in the dado grooves. (fig. 5a)

fig. 5a

Glue the box together by first gluing two mitered ends to one another, slide the ply bottom in the grooves, then glue the remaining sides together. (fig. 5b)

If you are **not** using a dado construction technique, cut a box bottom from ½" stock and just glue it in place using your marked lines as a guide for placement.

fig. 5b

Use blue masking tape to hold the box together while the glue dries, or use a box clamp if you wish. (fig. 5c)

fig. 5c

STEP 6

Install the 4" piano hinge by chiseling out a mortise on the back top edge of the box (or you can simply install the hinge on the back, without making a mortise). (fig. 6a, 6b) Pre-drill all the screw holes to avoid splitting the wood. Remove the hinge before finishing.

fig. 6a

fig. 6b

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STEP 7 - Finishing and Assembly

Apply stain/paint and clearcoat of your choice. Here's what I used on my Butterfly Box. (see photos)

- One very light coat of thinned Bullseye Sealcoat
  (2 parts sealer/3 parts Denatured alcohol)
- Sanded again with very fine sandpaper & Dremel
- Applied Orange Shellac in wing recesses and some wing dots
- Applied clear Minwax water-based Satin polycrylic in the dots of the wings I wanted to remain light
- Used a brown paint marker to paint the dark wing vein areas and antennas. Painted body with a brush.
- Applied Minwax Ipswich Pine #221 stain over all
- Three coats Minwax water-based Satin polycrylic

Shellac Application

Painting with Brown Paint Marker

Painting Body

Applying Stain

After finishing, re-install the hinge and apply a couple round felt pads for the lid to rest on when it's closed if you wish.

IN CONCLUSION

I included a handy "Color Guide" for you if you want to detail the butterfly like I did. However, the box will look great *without* adding any painted on details - you can just apply a stain overall and finish up with your clearcoats. (That's the easier way for sure!)
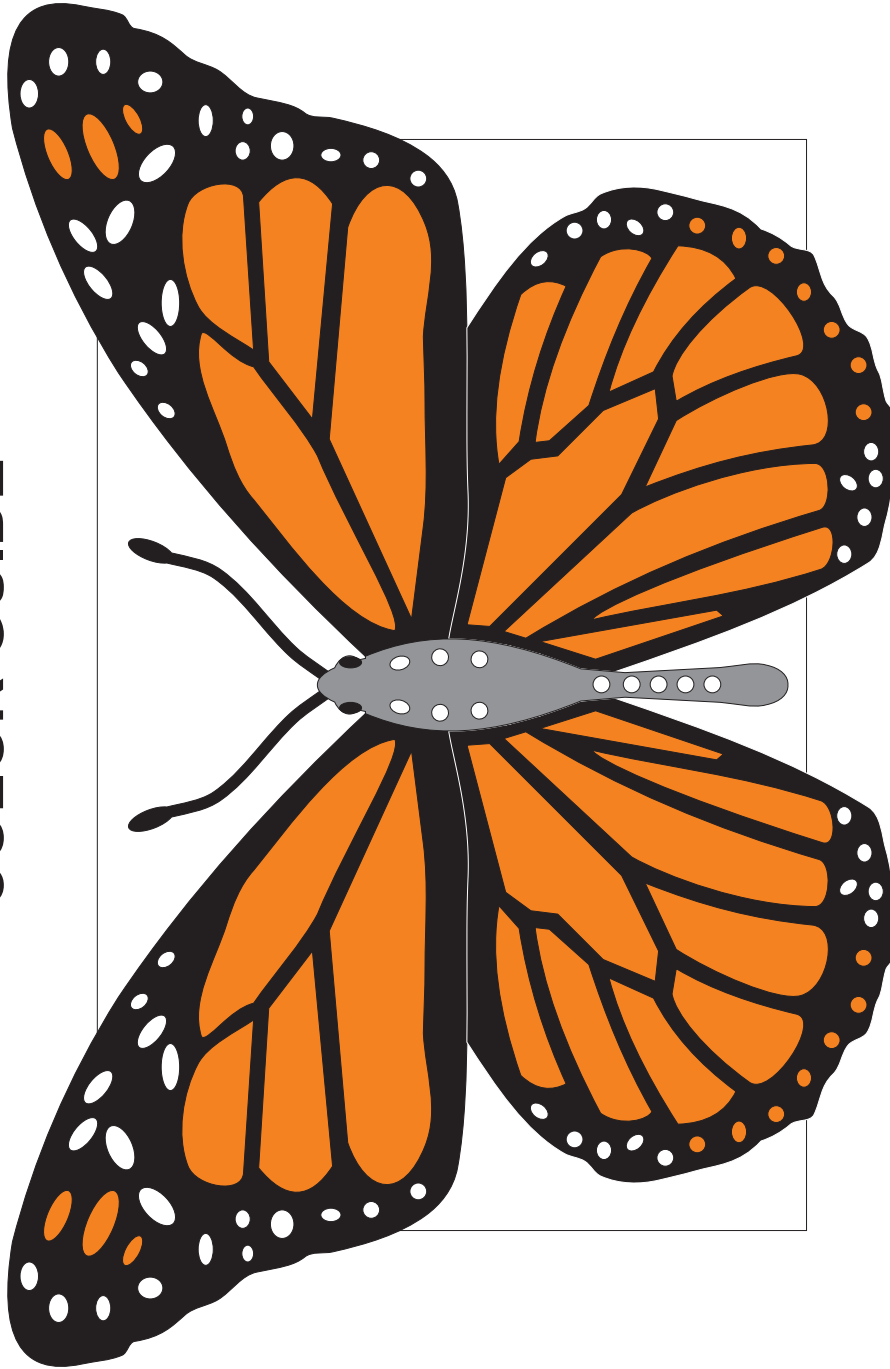
You can have some fun using just the box base as a component for any custom box lids you want to make yourself! You can also experiment by adding patterns to the box sides using Merge Additive in the Designer software to blend in with the curved sides. (If you do add designs to the sides, just be sure you add patterns to all of the four sides and that they are all the same depth, otherwise the curves won't match up when you cut your miters.)

I hope you enjoyed making your Butterfly Box!

Michael

Happy Carving!

COLOR GUIDE

Dark Areas (Wing Veins and Antenna)
Dark Brown or Black Paint Marker

Light Areas (Wing and Body Dots, Background)
On Light Wood - Leave Natural, or use White Paint

Body of Butterfly
Medium Brown or Gray Paint

Orange Areas (Wing Recesses and Wing Dots)
Orange Shellac or Orange Paint

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Additional Resources

RESOURCES...

There are numerous resources for the CarveWright/CompuCarve owner to make their experience with these machines much more enjoyable.

Every owner should join the CarveWright User Forum (http://forum.carvewright.com/index.php) where fellow users share their experiences and knowledge with these machines on a daily basis. It is a FREE service that you will surely appreciate. A handy Search Feature helps you find answers to any questions you may have.

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picture of June's Project