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Vectric Project Tutorial
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The Big Buck Bank!
Designed for Vectric™ by Michael Tyler

The Big Buck Bank project features a v-carve method to create an engraved appearance of the front and back of an enlarged dollar bill. I got the inspiration to try this technique from a discussion on the Vectric Forum. The procedure used was to create thin component models in Aspire of the front and back of a dollar bill image, import STL versions of each component model into separate instances of VCarve Pro 8, then create a finish toolpath with a large stepover setting to yield a line engraving effect. Sealing the material, then applying a dark paint or stain and wiping it off accentuates the carve details.

The coin access panel is a decorative v-carved inlaid part sized appropriately using the convenient Inlay Toolpath feature with automatic compensation for the tool radius in VCarve Pro (and Aspire). The access panel is secured with two round head brass machine screws and T-nuts hidden inside the coin compartment.

The dimensions of the Big Buck Bank are about:
10.5 " W x 4 " D x 5 " T

Main items you will need:

1) The Project Files (included):
• Top_Insert.crv
• Base-and_Top.crv
• Exterior_Sides.crv
• Interior_Sides.crv
• Dollar_Bill_Front.crv
• Dollar_Bill_Back.crv

2) Boards with these dimensions:

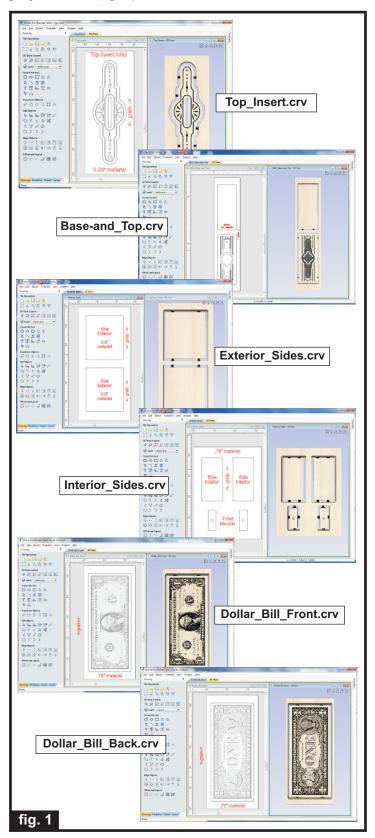|		
Top Insert:	0.25 " x 4 " x 10 "
Base and Top:	0.5 " x 5.5 " x 24 "
Exterior Sides:	0.5 " x 5.5 " x 12 "
Interior Sides:	0.75 " x 6.5 " x 8.75 "
Dollar Front:	0.75 " x 5 " x 11 "
Dollar Back:	0.75 " x 5 " x 11 "

3) Two #8-32 T-nuts, two 1 " x #8-32 round head brass machine screws, two #6 brass finish washers

4) Zinsser Bulls Eye SealCoat and denatured alcohol, disposable brushes and paint rags, wood glue, epoxy, sandpaper, stain, paint, clearcoat spray

5) A Dremel-type rotary tool with assorted sanding wheels and bits to sand small details.

CNC Bits used for the Sample:

0.25 "	Down-Cut End Mill (EM)
60°	V-Bit

STEP 1 - Open and Review the Project Files
Start your VCarve Pro or Aspire software and open the project files. (fig. 1)

Top_Insert.crv

Base-and_Top.crv

Exterior_Sides.crv

Interior_Sides.crv

Dollar_Bill_Front.crv

Dollar_Bill_Back.crv

fig. 1

Carefully review all the toolpaths and make any necessary changes to suit your particular bits and machine. The toolpaths are currently set with feeds, speeds and pass depths that were used in creating the original sample. Please don't use them directly until you review them for your own setup.

You can edit the tools and change the settings to your own preferences and requirements. **It is very important to recalculate all toolpaths after making any edits/changes.** Once you have recalculated for your own machine and bits, reset the preview, then preview all toolpaths again to visually verify the project outcome on-screen.

STEP 2 - Run the Project
When you are satisfied with your settings, save the toolpaths to the appropriate Post Processor for your machine, place your material on your machine bed and proceed to run the files. Be mindful of the specified material thicknesses for different files. (fig. 2a, 2b)

fig. 2a

fig. 2b

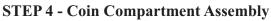*(cont.)*

STEP 3 - Separate Parts from Material and Sand

Separate the parts from the boards with a utility knife or hobby saw. Sand the components to remove the tabs and undesirable toolmarks. Brush grooves with a stiff nylon brush and blow off debris with compressed air. (fig. 3a, 3b, 3c)

Separate all parts from boards

fig. 3a

Sand off tabs

fig. 3b

Brush grooves along carve angle. Blow off debris with compressed air.

fig. 3c
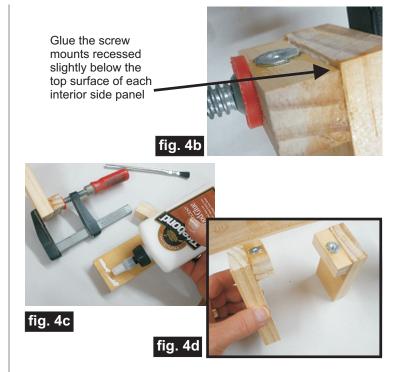
STEP 4 - Coin Compartment Assembly

Apply a drop or two of quick-set epoxy, then drive in the #8-32 T-nuts into the screw mounts. (fig. 4a)

Apply a drop of epoxy to the underside of the T-nut before driving into the hole.

fig. 4a

Glue the screw mounts to the interior side panels. Glue them just below the top surface of the sides so the T-nuts won't interfere with flush glue-up of the top panel later. Clamp until dry. (fig. 4b, 4c, 4d)

Glue the screw mounts recessed slightly below the top surface of each interior side panel

fig. 4b

fig. 4c

fig. 4d

Glue the dollar bill panels to the interior panels. Make sure the T-nuts are facing towards the top of the bills. Clamp or weigh down until dry. (fig. 4e, 4f)
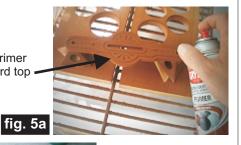
fig. 4e

Weigh down or clamp until dry.

fig. 4f

(cont.)

The Big Buck Bank!

STEP 5 - Pre-finish Top Insert and Dollar Bills
Paint the top coin slot insert with gold paint. I used 0.25 "-thick hardboard for this part, so I primed and sanded it prior to spraying with the gold paint. Apply finish to both sides to avoid warping. (fig. 5a,5b)

Applying red primer to the hardboard top insert

fig. 5a

Sprayed with Gold paint

fig. 5b

Apply Zinnser Bulls Eye SealCoat (thinned 50/50 with denatured alcohol), both inside and bill surfaces of the coin compartment assembly. Allow to dry, then use a brass brush to remove stray fuzzies. Blow off with compressed air. Sand the dollar face surfaces along the carve angle VERY LIGHTLY with 320-grit sandpaper. Blow off debris. Apply several light coats of clear onto the bill surfaces only. (I used Krylon acrylic spray gloss), sanding very,very lightly between coats. (fig. 5c, 5d, 5e)

Apply thinned SealCoat to interior and the bill surfaces only

fig. 5c

Brush with brass brush

fig. 5d

Apply clear coats to bill surfaces only

fig. 5e

Brush on slightly thinned black acrylic craft paint on the front bill surface, then wipe off immediately with a lint-free rag, leaving the paint in the v-carve recesses. (5f, 5g)

Brush black paint onto the entire surface, working into the v-carves

fig. 5f

Wipe off all the black paint right away, leaving some in the v-carve recesses

fig. 5g

Same procedure for the back of the bill surface. Brush on slightly thinned green acrylic craft paint on the back bill surface, then wipe off immediately with a lint-free rag, leaving the paint in the v-carve recesses. (5h, 5i)

fig. 5h

fig. 5i

Dab a tiny bit of green paint around the Treasury Seal area on the front of the dollar bill to somewhat resemble a real one's color scheme. (fig. 5j)

Dab a tiny amount of green paint around the Treasury Seal on the front (don't wipe off)

fig. 5j

(cont.)

STEP 5 - Pre-finish Top Insert and Dollar Bills (cont.)

Allow the acrylic paint to dry overnight. When dry, apply two coats of full-strength SealCoat (SealCoat is 100% wax-free clear shellac) to the bill surfaces only. Allow the SealCoat to dry, then apply several light coats of spray acrylic clear spray on the bill faces. (I used Krylon clear acrylic spray). (fig. 5k, 5l, 5m, 5n)

fig. 5k Apply SealCoat to front

fig. 5l Apply SealCoat to back

fig. 5m Apply Krylon

fig. 5n Apply Krylon

STEP 6 - Final Assembly

Apply glue to the top edge surfaces of the coin compartment. Place the top panel and top insert onto the compartment. Insert the machine screws and washers but don't tighten fully yet. Place the base and the two exterior panels in position and align all the parts. After alignment, tighten the screws to secure the top. Glue the base and side panels in place. Clamp and/or weigh down until dry. (fig. 6a, 6b, 6c, 6d, 6e)

fig. 6a

Place top onto coin compartment and insert the screws (don't fully tighten yet)

fig. 6b

Align the base and side panels, then tighten down the screws

fig. 6c

Glue the base, side panels and top together

fig. 6d

fig. 6e

Clamp and/or weigh down the assembly until dry

(cont.)

STEP 7 - Final Finish Application

Remove the top gold insert. Apply the finish of your choice. Here's what I used on my Big Buck Bank made from Select Pine: (fig. 7a, 7b, 7c, 7d)

• Applied Rust-Oleum Carrington Ultimate Stain to the top, sides and bottom. I used a lint-free rag to wipe on the stain and a small paintbrush
• Several coats Krylon clear Acrylic spray overall

Apply stain with a rag

fig. 7a

Use a small brush to work stain into v-carve areas

fig. 7b

Stain application completed

fig. 7c

Final clearcoats applied

fig. 7d

IN CONCLUSION

Place the coin slot insert back into the top panel recess and tighten the machine screws. Apply cork, felt or silicon pads underneath to protect surfaces it is placed upon. I hope you enjoyed making your Big Buck Bank!

Happy Carving!

Michael

Michael Tyler

(cont.)

Materials Source Page

• **3M Radial Bristle Discs from** www.mcmaster.com
(stack 3 discs at a time on your rotary tool mandrel)
    80-grit: part # 4494A19
    220-grit: part # 4494A18

Miscellaneous Items Purchased at Home Depot™ or Lowes™

• **Zinsser Bulls Eye SealCoat and Denatured Alcohol**
• **Disposable Brushes and Paint Rags**
• **#8-32 x 1 " Round Head Brass Machine Screws**
• **#8-32 T-nuts**
• **#6 Brass Finish Washers**

Acrylic Craft Paint
from Michael's Arts & Crafts™
(Apple Barrel Christmas Green #20529 and Black #20504)

Krylon Clear Acrylic Spray
and
Krylon Brilliant Gold
from WalMart™

Additional Resources

RESOURCES...
There are numerous resources for Vectric software owners to make their experience with their products more enjoyable. The Vectric website includes video tutorials and more, to provide a good overview of the software products and how to use them. Please visit the Support page for a complete listing of available resources for you.

Vectric Support: http://support.vectric.com/

Vectric User Forum
Every owner should join the Vectric User Forum (http://www.vectric.com/forum/) where fellow users share their experience and knowledge 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. There are Gallery sections as well, where you can post and view photos of projects created with Vectric software.

IMPORTANT: Before outputting any toolpaths you should carefully check all part sizes and the material setup to make sure they are appropriate for your actual setup.You should also check and re-calculate all toolpaths with safe and appropriate settings for your material, CNC machine and tooling.

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