Project Tutorial

Featuring compatibility with nearly all CNC Machines

It is our pleasure to provide our customers with fun and useful projects to enjoy!

Compatible with:
VCarve Pro 7
(or greater)
and
Aspire 4
(or greater)

Sample Carved with:
ShopBot Buddy
PRSalpha BT48
ShopBot®
www.shopbottools.com

The "Crazy" Heart!

Designed for Vectric™ by Michael Tyler

Show how crazy you are about your significant other with this free "Crazy" Heart project!

The slightest swing of the pendulum will get the heart to tremble, jitter and jog just like yours does when you think of your loved one!

The secret is the hidden neodymium magnets embedded in the inlay heart base and the small heart pendulum tip. All the magnets are positioned with the repelling poles directed towards each other.

When the pendulum is moved, the magnets cause the heart to behave as if it has a mind of its own.

It's a simple idea, but for those who see it in action for the first time, it can be a bit puzzling!

The overall finished dimensions are about 6.5"d x 4"w x 9.5"t

Main items you will need:

1) The Project Files (included):
- Crazy_Heart_DARK-parts.crv
- Crazy_Heart_LIGHT-parts.crv

2) Boards with these dimensions:
DARK Parts: 0.75"x 7"x 10"
LIGHT Parts: 0.5"x 5.5"x 17.5"

3) Two small screw eyes, 0.25" dia. dowel, seven 6mm x3mm neodymium magnets (approx .25" dia. x .125" thick)

4) One #6 x 1" screw, quick-set epoxy, wood glue, drill, clamps, sandpaper, stain and/or paint and clear finish

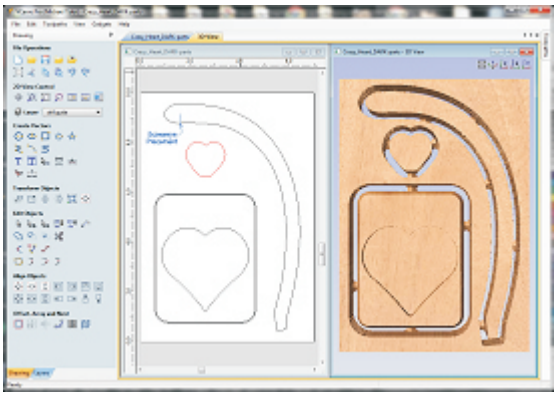
5) A Dremel-type rotary tool with assorted sanding wheels and bits to sand small details and speed up preparation for finishing.

CNC Bits used for the Sample:

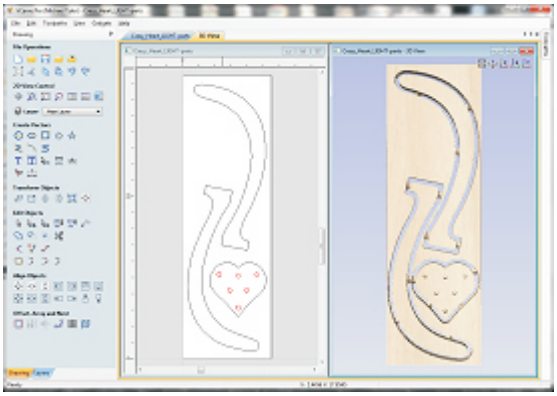
0.25"Up-Cut EM
0.25"Down-Cut EM
60° V-Bit

The "Crazy" Heart! (cont.)

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



Crazy_Heart_DARK-parts.crv



Crazy_Heart_LIGHT-parts.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.

The project is designed with tabs to hold parts in place during the final part cut outs. You may delete the tabs if you use some other reliable hold-down method.

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 project files. (fig. 2a, 2b, 2c)

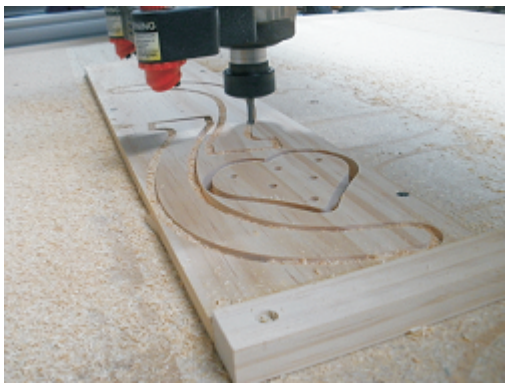


fig. 2a

fig. 2b

fig. 2c

(cont.)

The "Crazy" Heart! (cont.)

STEP 2 - Run the Project (cont.)
Your boards will look something like this: (fig. 2d, 2e)

fig. 2d

Crazy_Heart_DARK-parts.crv

fig. 2e

Crazy_Heart_LIGHT-parts.crv

STEP 3 - Release and Sand Parts
Separate all the parts from the boards with a utility knife or small saw and sand off the tab remnants. (fig. 3a, 3b)

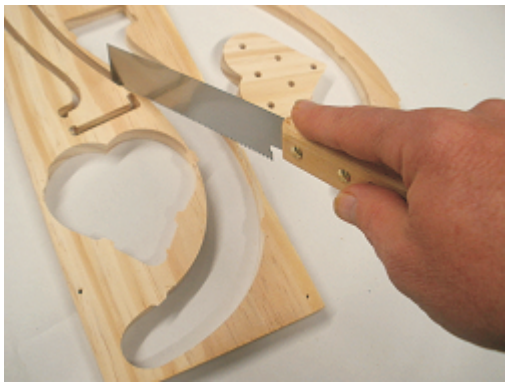


fig. 3a

fig. 3b

STEP 4 - Pendulum Arm Assembly
Glue the pendulum arm parts together (with the inside edges flush) and clamp until dry. (fig. 3c, 3d)

fig. 3c

fig. 3d

When dry, remove the clamps. Sand the edges to blend, then sand overall to remove any undesirable tool marks and prepare for finishing. Sand by hand or use a power sander to make the job go faster. (fig. 3e, 3f)

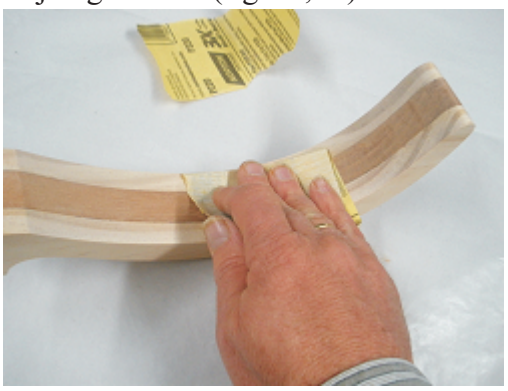


fig. 3e

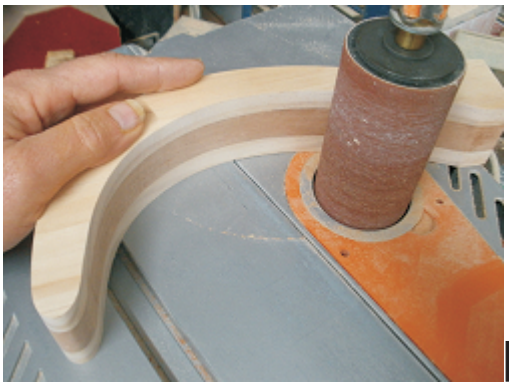


fig. 3f

(cont.)

STEP 5 - Heart Pendulum Assembly
Mark the center point on the top and bottom of the small heart. (fig. 5a)

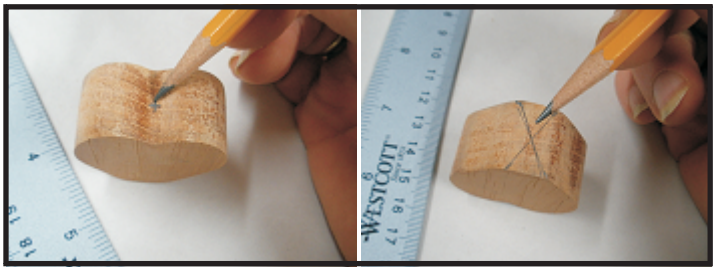


fig. 5a

Drill a .25 " dia. hole about .0625 " deeper than the magnet is thick in the bottom of the heart. Drill a .25 " dia. hole about .5 " deep on the top of the heart (this hole is for the wooden dowel shaft). A drill press with a brad-point bit will help perfectly align the bit on your center marks (fig. 5b, 5c)

fig. 5b

fig. 5c

Lightly coat the hole on the tip of the heart with epoxy. Insert a magnet into the hole. It should rest about .0625 " below the heart tip surface. Fill the hole with more epoxy. While the epoxy is still tacky, coat it with matching sawdust to help hide the magnet. (fig. 5d, 5e)

fig. 5d

fig. 5e

Cut a .25 " dia. dowel to a length of 6.125 ". Glue it into the top of the small heart. (fig. 5f)

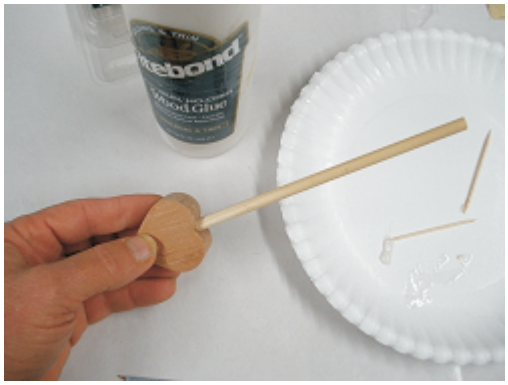
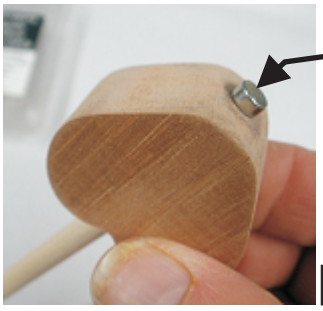


fig. 5f

STEP 6 - Base Assembly
Place 6 magnets into the large heart holes with the REPELLING SIDE facing DOWN into the hole. This means they will be facing UP in relation to the magnet hidden in the end of the small heart, after assembly. Drip a generous amount of epoxy into the holes to make sure the magnets cannot work loose. (fig. 6a)

fig. 6a

TIP: To easily determine the REPELLING SIDE, place a magnet to the tip of the small heart, one at a time. The end that does NOT stick to the tip is the repelling end. That will be the side that faces DOWN into the hole of the large heart. Be very careful...once the magnets are placed into the holes, they may be difficult (if not impossible) to remove and reverse their direction if you goof! (fig. 6b)



This side is the "repelling" side. Put this side DOWN into the holes of the large heart!

fig. 6b

STEP 6 - Base Assembly (cont.)
Glue the large heart into the inlay pocket with the smooth side facing up. Weigh down until dry. (fig. 6c)

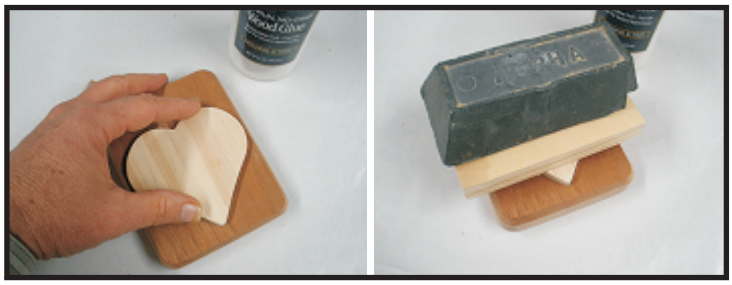


fig. 6c

STEP 7 - Final Assembly
Mark and pierce the center of the end of the dowel with an awl to create a pilot hole. Screw in a small screw eye. (fig. 7a)

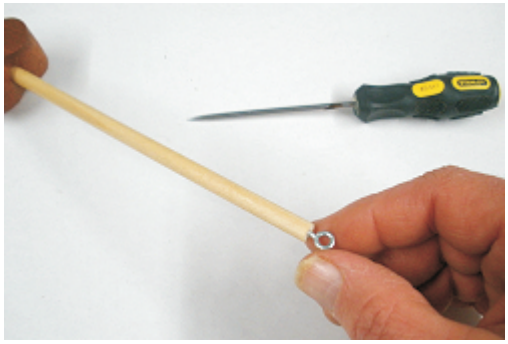


fig. 7a

Mark and pierce a pilot hole .75" from the tip end of the pendulum support arm (on the underside and centered in the middle section). Bend open a small screw eye slightly to form a hook. Screw in the screw eye "hook". (fig. 7b, 7c)

fig. 7b

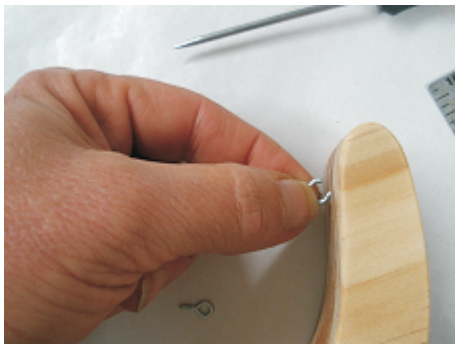


fig. 7c

Glue the pendulum support arm to the back of the base (centered in the middle). After the glue sets awhile, drill a pilot hole for the #6 x 1" wood screw and drive in the screw. Allow the assembly to dry. (fig. 7d, 7e, 7f)

fig. 7d

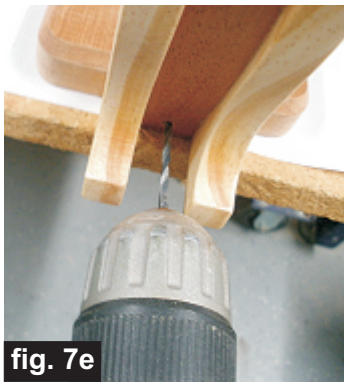


fig. 7e

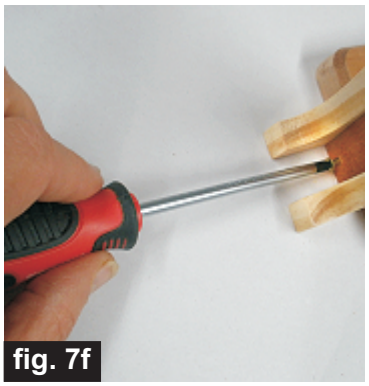


fig. 7f

Hang the pendulum from the open screw eye hook. Trim the length of the dowel, if necessary, to allow the pendulum to swing freely without touching the base. You want the gap between the heart tip and base heart to be between .125" and .25". (fig. 7g, 7h)

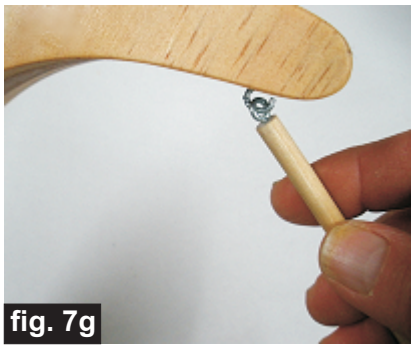
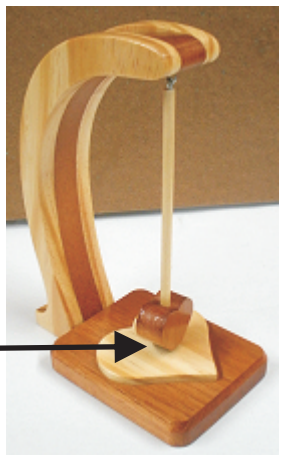


fig. 7g



The gap between the small heart and the flat heart base should be around .125" to .25"

fig. 7h

The "Crazy" Heart! (cont.)

STEP 8 - Apply Finish
Apply the finish of your choice. Here's what I used on the sample Crazy Heart project made from Select Pine and Spanish Cedar:

• Two coats of thinned Zinsser Bulls Eye Seal Coat *(50% denatured alcohol and 50% Seal Coat)*, sanding after each coat

• Two light coats Zinsser Bulls Eye spray Shellac

• Two light coats of Krylon Clear Acrylic spray for final topcoat

IN CONCLUSION
I left a bit of room at the top and two corners of the flat base, in case you want to V-Carve a name, some initials or perhaps even a short phrase such as "I'm Crazy About You!" You could also opt to apply a self-stick sheet of felt or cork under the base, as a final touch.

I hope you and your loved one have fun with your "Crazy" Heart Project!

Happy Carving!

Michael

View a short video of the Crazy Heart in action! Visit:

https://www.youtube.com/watch?v=w6bkKnSx4OQ

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

Krylon Clear Gloss Acrylic
from WalMart™

Items Purchased at Home Depot™

- **Zinsser Bulls Eye SealCoat (100% wax-free)**
- **Denatured Alcohol**
- **Zinsser Bulls Eye Spray Shellac (100% wax-free)**
- **Small Screw Eyes**

Miscellaneous Items Purchased at WoodCraft.com®

• **6mm x 3mm neodymium magnets (approx .25 " dia. x .125 " thick)**
http://www.woodcraft.com/Product/2081312/30044/Rare-Earth-Magnet-14-x-110-(65mm-x-25mm)-10pcs.aspx

Other Magnet Sources:

• **Arts and Craft stores and some "big box" stores**

• **KJMagnetics.com ← HUGE Variety and Selection of any kind of magnet you can imagine!**
http://www.kjmagnetics.com/proddetail.asp?prod=D42&cat=203

• **A good source for magnets in Europe is http://www.first4magnets.com**

NOTE: Direct weblinks were valid at time of this writing, but can change at any time. If links don't work, then visit the manufacturer's home page and do a Search for the item to get directed to a current/valid page.

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.