Introduction to Micromotor Powercarving Handout
Kristin LeVier
www.kristinlevier.com

General Woodworking Safety

- No dangling hair/jewelry/neckties, etc.
- Use safety goggles/glasses/faceshield/hearing protection when wise
- Always have a good light source
- Use lung protection around sawdust always: good dust mask or respirator
- Work toward good shop dust control: desktop or lap dust collector, ambient dust collector in shop for fine particles
- Always work with focused attention (not tired, impaired, emotional wreck, etc.)
- Listen to your body. Take breaks, stretch, get a good chair, do your physical therapy exercises

Powercarving Wood

- Start with most aggressive wood removal (use what is most efficient: saw, belt sander, angle grinder, drill, micromotor) → gradual refinement → sanding
- Carve with the grain/downhill for smoothest cut
- Always take light cuts (Listen for machine stress, watch for burning)
- Practice carving near the edge. Carve off of an edge, not onto an edge. Use a bit of extra speed/momentum when carving off edges to counteract the burr from racing down the end of the board in an uncontrolled manner
- Never close the collet when it is empty. Can cause damage to the micromotor
- Turn the speed down before turning micromotor off (this will prevent surprises)
- Never switch burr spin direction while carver is on! Turn it off. Filp switch. Turn it back on. Put tape over the direction switch if you fear you might accidentally flip it.
- Remember to heed max speed limits on burrs and sanding gadgets
- Wood grain direction is very important to consider when designing your project and making wood cut choices

Some Common Micromotor Powercarver Units

- NSK EVO	>$1,000	max speed 40,000 RPM
- Foredom	~$500-$1000	max speed 38,000 RPM
- Mystisa (battery power)	~$300	max speed 30,000 RPM
- RAM ICube	~$200	max speed 45,000 RPM
- Mastercarver MicroPro	~$200	max speed 46,000 RPM
- Marathon	~$200	max speed 45,000 RPM

- Standard collet size for micromotors is 1/8”

- Adapter (slip-in collet sleeve) is available for 3/32” shaft bits (Treeline, MDI Woodcarvers Supply, etc.)
- Must always have something in collet when closed

Burrs

I have a separate Powerpoint handout with a grid that features a photo of each of the major burr types (Saburr, stump cutter, carbide, diamond, blue stone, etc) and shapes (ball, flame, etc.), maximum recommended speed, common usage, etc. The handout also includes my favorite sanding/finishing bits (3M bristle disks, flexible sanding arbors, sanding cones, etc). Prices and suppliers may be outdated due to our rapidly changing economy. Email me at kristin@kristinlevier.com with questions.

Wood Choices for Powercarving

- Use dry wood, hardwoods are best (maple, cherry, boxwood, tupelo)
- Closed-grain woods like maple and cherry make for the smoothest surfaces.
- Might want open grain wood like oak or sycamore if want to sandblast your finish for a more organic look

Types of Woodcarving

- **Texturing –** carving patterns or texture onto the surface of wood
- **Inlay –** carving down into the surface of the wood and filling the resulting void with a different material (powdered or crushed minerals, colored epoxy, etc), which is then smoothed flush with the surface of the wood
- **Piercing –** Areas of the carved wood are pierced entirely through to create visual interest and negative space
- **Carving in the round –** sculptural or 3-D carving
- **Relief carving** gives the impression that the sculpted material has been raised above the background plane. What is actually performed when a relief is cut from a flat surface of stone or wood is a lowering of the field, leaving the unsculpted parts seemingly raised
    - **Undercutting** the “cliff” edge of a high surface in relief carving gives an impression of depth because to the eye one area floats above another and the high area can now cast a shadow on the surface below

Carving on Turned Objects

- What should the thickness of the turned object be?

It depends…

Fairly flat texture: 1/8” – 1/4”
3-D relief carving: 3/8”

- If carving on curved surface – wood grain will be different in different places, which will carve differently. Practice on a scrap of the wood you made the turned object from or anticipate grain effects
- How do you hold/immobilize the object to be carved?
    - Set on a pillow filled with rice, sand
    - Set on foam in a box
    - Temporary plywood base
        - hot glue vessel to plywood square
        - make wedges to support sides of bowl on plywood, protecting outside of bowl with acid free drafting tape (art supply stores) where wood blocks are holding bowl steady
        - clamp plywood to bench
        - place bowl on a pillow/bag filled with rice or sand

Product sources

Masks/respirators:
3M 7500 Series Half Facepiece Dust/Sanding Respirator Assembly
~$27.00 Want P95 or P100 filters www.envirosafetyproducts.com

Dust Bee Gone Mask ~$40.00 www.dustbeegone.com, Rockler, Woodcraft

Desktop dust collectors:

Penn State Industries	~$225
Razaire	~$500

Ambient shop dust collectors:

JET	~$370
WEN	~$200-300

My most commonly used sources for micromotor burrs:

Treeline	www.treelineUSA.com
MDIwoodcarvers	www.MDIwoodcarvers.com
Rio Grande (jewelry)	www.riogrande.com

Micromotor collet reducer (reduces from 1/8 to 3/32" burr shaft size):
- Treeline, MDI Woodcarvers Supply, etc.

Cleaning burrs:
Magnasonic ultrasonic jewelry cleaner ~$20 Amazon.com

Sanding sticks: (little plastic sticks that small bands of sandpaper wrap around. Good for getting into tight corners) MDI Woodcarver Supply