Woodturners Guild of Ontario
Interactive Online Newsletter

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Woodturner **n. A person who enjoys the art and process of shaping wood into various forms**

"ask not what your guild can do for you; ask what you can do for your guild— you get back what you put in"

LOCAL AAW CHAPTER

November 2005 VOLUME 1 ISSUE 2

Message from Richard Pikul, President

I think the hardest newsletter to publish must be the second issue, especially when it coincides with a busy time of the year for turning. Much of the initial enthusiasm of the first issue dissipates when the publisher comes calling contributors for another article The publisher may become discouraged when faced with this challenge. We are fortunate to have members that are actively participating in bringing their woodturning knowledge to the broader woodturning community through this newsletter. Michael has retained his enthusiasm and has enough authors lined up to continue many more issues. I think there are many readers of this newsletter that have just the right technique, process, equipment review or turning project for future issues. Let Michael know about your ideas. Even if you think you can't write, send in your idea as it may be just the key to stimulate another turner to contribute. Send your comments, ideas, questions, suggestions and articles now to **michaelfinkelsteinwoodturner@gmail.com**. and you may be reading it in the January issue !

The Virtues of Turning Green Wood
by Doug Newlove

"Green" wood – wood that hasn't lost any or all of its natural moisture – has some real advantages over kiln or air-dried wood for turners. For starters. it usually turns beautifully. I love the gentle hissing sound my gouge makes as long, ribbon-like shavings sail through the air, and green wood is easier to turn, so the tools stay sharper longer. Turning dried wood is harder, dusty, and large pieces often aren't available therefore glue-ups are usually required.

Since you harvest the "green" wood yourself you can select for surprising figure and colour that is not always found in kiln-dried wood. Further, cutting a blank down to size with your chainsaw or band saw is sometimes much easier that gluing multiple pieces together. But the best part about "green" wood is that it is usually free for the asking. You can practice your techniques, or try out new designs, without worrying about the cost. If the vessel doesn't turn out well, so what? Throw it in the fire and start again. The experience gained makes the time well spent.

There are some drawbacks to turning "green" wood. Besides finding a suitable wood source, you'll need appropriate tools like a chainsaw, related safety gear, some way to transport your finds (wet wood is HEAVY! – a good buddy can help), and a place to store your blanks. Sweat equity is definitely required!!!!!! Also, expect that you and your lathe will get wet and dirty.

Finding "green" wood can be as much fun as turning it. I enjoy going into the woods, through a neighbour's firewood pile, or even the town dump to search for hidden treasure. You just never know what you might discover!

Once you have found a promising log or stump, what do you do with it?

First examine it for embedded rocks, nails and other debris, which can wreak havoc with your saw and turning tools. Access to a metal detector, garden hose, wire brush etc. pays dividends here. Once your find is deemed "safe", you can begin sectioning it into turning blanks.

More experienced turners look for choice cuts such as burls, crotch sections and spalted areas that can result in stunning turnings. Unfortunately these parts of the tree are often the most difficult to turn and dry successfully. I have found that the best practice stock comes from the trunk – and the larger the tree, the better (see diagram 1 on page 5.

Look for straight, consistent grain. If you are a beginner, avoid wood that contains the PITH – the center of the tree. It is almost guaranteed to crack.

Continued on page 5

Inside This Issue

Tool Review
POWERED RESPIRATORS FOR WOODTURNERS
by Michael Finkelstein

Wood dust* , chemical gases and vapors can be hazardous to your health:
Be Prepared & Turn Safely with a Powered Respirator

Up to now, I've been using disposable surgical masks along with a thin face shield to "protect" myself. Prior to that, I used a NIOSH approved chemical face mask — but found it way too hot around my face, and I would look like Homer Simpson after a few hours of use. My average turning sessions are up to 5 to 6 hours. In my workshop, I have a portable air filtration system with __ per minute rating and an industrial kitchen fan (exit) going all the time. I have used an industrial vacuum with a wide heating vent pipe next to my lathe—and nearly lost my hearing from the noise. I have minimized some dust during the finishing process by using **Claphams** Sanding Compound (available at Woodchucker's Supplies). None the less, after 3 years of this routine, I have developed minor sensitivity on my skin, runny nose, coughing, etc., when turning and sanding certain woods. A recent poll on the **WOW** website indicated that only 32% of woodturners use a "full face shield with powered respirator". Do yourself and your health a favor; remember that you are not invinsible to respiratory problems caused by inhalation or minor, continuous, exposure to toxic woods. Please go to the the Botanical Dermatology Database (**BODD**) on the internet and do a keyword search on each type of wood you turn with. You may run the risk of developing certain cancers—unless you are sufficiently protected when exposed to wood dust.

* The (U.S.) Federal Report on Carcinogens states that unprotected workers exposed to wood dust have a higher risk of cancers of the nasal cavities and sinuses. The more I read, the more I became convinced that I will have to get a personal Powered Respirator — but which one ? So, this article will show you what I have learned along the way—and help you decide which unit is best suited for your particular needs. *Please see my technical summary documents (attached) titled "Michael's Review of Woodturner's Air Respirators" and a "Check-List Summary".* I have tested 4 units in my workshop, during numerous 5 to 6 hour woodturning sessions: 3 are powered respirators for wood working applications (**3M ClearVisor with AdFlow, Trend Airshield, Triton Powered Respirator**); the 4th unit is a non-powered, half-face piece unit, used for "organic vapors" applications (**3M Half-Facepiece 7500 Series**).

My review will address; 1) face shields 2) visors & impact ratings 3) battery types 4) fan info' 5) respiratory filters 6) respiratory safety standards 7) helmet weight 8) helmet inside temperature 9) air-flow rate inside helmet 10) noise level inside helmet.

All technical specifications are provided by the manufacturers. I tested & took my own readings for #3,4,7,8

Hands-On Test Summary

1. Face shields; I prefer full head, neck coverage with a flexible & adjustable shroud. The Triton shroud felt more comfortable than the 3M shroud. If you have a beard, there's more chin room with the Triton.
2. Visor; the Triton is the only unit that allows you to lift-up the visor so you don't have to take the unit off in order to talk to someone. Both the 3M and the Triton are rated "high impact resistance". Trend is EU rated Low Energy Impact.
3. The best battery charger is the one which recharges the quickest and then places the battery on a "trickle charge" to keep the battery topped-up and running at normal operating levels. Look for about 5hrs hours of **strong filtration** with the 3M (trickle-charge type), 5 to 6 hrs with the Triton. The Trend units operated for about 4 hours with 1 battery installed—on my working sessions. (I produce a lot of dust when I work). Battery re-charge times; 3 hrs for the 3M Clear Visor with AdFlow, "1 ½ hrs per hour of use" for the Trend, and 8 hrs for the Triton unit.
4. 3M and Triton have their fans on the belt pack so the dust is drawn to your waist. The heaviest unit is the 3M, followed by the Triton+Trend.
5. 3M & Triton employ 3 filters in their units. Trend's has 2 filters.
6. 3M's unit meets the NIOSH 42 CFR 84 standard & an APF:25. Triton's conforms to AS/NZ 1716—Performance Class PAPR P1 or P2. (APF - please see note ²) According to Triton, the unit is "fine for filtering the particles from sanding lacquer and polyurethane—as long as you are not actually burning the polyurethane". Trend states that their unit is EN146 THP2, and an APF:10 ²
7. Helmet weight; The lightest unit is the Trend, followed by the 3M and the Triton.
8. Helmet inside temperature; I took temperature readings inside the helmet and outside (ambient room temp). The temperature reading inside the helmets ranged from 2°C to 3°C above the ambient room temperature. The Trend unit is the coolest, followed by the Triton and the 3M.
9. Air-flow rate inside helmet; Best airflow rate from the 3M, followed by the Trend and the Triton.
10. Noise level inside helmet; lowest noise level with the Triton. (Trend & 3M are the same dB noise level)

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We reserve the right to edit, revise, or reject any articles tendered.

WARNING !

Woodturning is an inherently dangerous active activity. Readers should not attempt any process or procedures without seeking proper training and detailed information on the safe use of tools and machines.

I also created a poll on WOW and asked members "what do you consider the most important factor in deciding to purchase an air respirator? The highest % of the votes went to "comfort to wear" and "NIOSH approved respiratory standard for the filters".
A poll was taken at the WGO member's meeting on Oct.13th,2005. Here's a summary of the high votes;
90% of members voted for full face shield type respirator,
100% of current owners of respirators want a faster battery charge of less than 4 hours,
70% wanted the battery to last for an 8 hour session & 30% voted for 4 hours,
80% say that comfort to wear for 8 hours is important & 20% would accept 4 hours of comfort,
50% split on belt pack VS "all in the helmet",
65% voted for "adequate air flow" i.e. the unit does not have to stay cool inside the helmet,
65% voted for low noise level inside the helmet,
90% voted for a high impact rated visor.

Penny McCahill will review the 3M AirStream 400 LBC (PAPR) Respirator— In the January 2006 Newsletter

A hot issue for our members is filtering performance; most of us felt that better filtering performance should not influence price much above a mid-range price unit. Most agreed that good performance should be 'included' with a well designed product rather than an expensive add on to a reasonable performance design. If you need a battery which will last for an entire 8-hour work session, the only choice at present is to purchase a second battery and always keep one connected to the charger. You should also consider that if you have a battery with double the battery life, it will also be twice as heavy (unless you also change battery technologies. i.e. 4-hour lead/acid battery will be heavier than an 8-hour lithium ion battery.

All three respirators provide various levels of protection and comfort:
For safety & dust protection, I am quite satisfied with the visor impact rating & respiratory protection for the Triton & 3M units.
For comfort during my 5 to 6 hour woodturning sessions, I liked the Triton the most, followed by the 3M and the Trend.
On pricing, the 3M unit is priced & marketed as a commercial unit. The Triton and Trend units are priced for consumer use.
I have also noted some "suggested improvements" for each unit; The 3M unit could stabilize its shroud with a face-shield guard (along the sides & bottom) to minimize chin contact with the fabric at the bottom part of the shroud. I would like to see Triton introduce a higher capacity battery with a faster charger, overlays for the face shield and removable ear-muffs. A stronger, cooler fan would also be a great extra feature. I felt that the Trend could reduce its motor's noise and it could have a better fitting face shroud / visor to eliminate dust residues inside the helmet.
The **3M 7500 Series Half Facepiece (chemical vapors) Respirator** with #6001 filter cartridge is NIOSH approved for "certain organic vapors". I am now using it when working with finishes, sprays, etc. The unit is very light, comfortable to wear and minimizes moisture build-up in the facepiece.
All three respirators offer varying levels of comfort and protection. You have to decide what your safety & comfort priorities are when making your "air respirator" purchasing decision — and I hope that I have provided you with the information you need.

My overall rating (12 = 100%) on the 3 respirators: 3M Clear Visor w/AdFlow = 9, Trend = 6 , Triton = 11

Where to buy: **Triton** dealers; http://www.tritonwoodworking.com/. **Busy Bee Tools** ($299.99); http://www.busybeetools.com/ **Trend**; http://www.trend-usa.com/ (a similar unit made by **Purelite,** available at **Woodchuckers Supplies**)
3M ClearVisor with AdFlow, available through Jacques Coulombe Ltd., ($1211.63); http://www.jacquescoulombe.com/3M-HORNELL.HTM
3M 7500 series kit comprising; organic cartridge, pre-filter, etc. — available through Jacques Coulombe Ltd.,($71.00); http://www.jacquescoulombe.com/3MHalfFacepiece.htm

Article Resources for further reading

-Product manuals: **Triton**; http://www.triton.net.au/images/manuals/PRA001Inst.pdf, **Trend**; http://www.trend-usa.com/manuairv2.0.pdf, **3M ClearVisor with AdFlow;** http://www.speedglas.com
-Link to NIOSH: www.cdc.gov/niosh/homepage.html
-Noise at work—A guide for Safety Representatives: http://www.tuc.org.uk/h_and_s/tuc-10724-f0.cfm
-HSE Information Sheet — Selection of respiratory protective equipment suitable for use with wood dust: http://www.hse.gov.uk/pubns/wis14.pdf
-U.S. Dept.of Labor (OSHA) - Safety + Health, Wood Dust: (resources that provide safety & health information relevant to wood dust in the workplace); http://www.osha.gov/SLTC/wooddust/.
-Central Ohio Woodturners Newsletter , April 2001 "Cutaneous Hazards of Woodturning"; http://www.centralohiowoodturners.org/newsletters/2001-04.pdf
-Triton Respirator review– OnlineTool Review: http://www.onlinetoolreviews.com/reviews/tritonrespirator.htm
- 3M ClearVisor with AdFlow; http://www.hornell.com/hsi/clearvis.html

[1] particulate filters which allow 1% of the particles below 1 micron to pass and will remove 95% particulates down to 0.3 micron
[2] Assigned Protection Factor: The Minimum anticipated protection provided by a properly functioning respirator or class of respirators to a given percentage of properly fitted and trained users.

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Michael's Review of Woodturner's Air Respirators

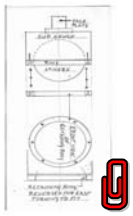
	3M ClearVisor with Adflo and HE PF System	Trend Powered Airshield	Triton Powered Respirator PRC001
Face Shield/Head Unit type & Weight, visor composition & impact rating,	Face shield with brow guard and fabric head cover. Weight: 1LB 5.5Oz / 611 grams. Visor: polycarbonate, ANSI Z87.1 – high impact resistance. Headband size: 55 - 63 cm	Front face shield, 1LB 13Oz / 816grams Visor:polycarbonate, AS/NZS Z87.1 (EU rated low energy impact . Headband size: 52 – 62cm	Industrial hard hat approved to AS/NZS 1801, with adjustable visor, shroud & ear muffs (full head protection). Weight: 1038 grams/ 2Lb 4Oz Visor: polycarbonate, AS/NZS 1337- high impact resistance. Headband size: 53 – 60 cm
Battery: maximum usage per charge (hours of use), battery type & life, re-charge time	Up to 6 hours using HE + CL filters. Type: NiMH "Automatic Flow Control ensures constant airflow". Life: Approx. 520 charges Recharge time: 3 hours	4 hours with 1 battery or 8 hours with 2 batteries installed. Type: 3.6v DC NiCad. Life: nominal 900 cycles Recharge time; 1 ½hrs per hr of use	strong filtration for 5 to 6 hours. Type: 6v DC NiCad. Life: nominal 1000 cycles Recharge time; 8 hours
Motor, Air Intake & filters location, air-flow rate, unit weight	On a belt, the intake either at your side or back. Filtered air flow rate: approx 170 litres per minute Unit weight 4LB 3Oz / 1903 grams	In the top-front of the unit; it draws the dust to your face. Motor noise is apparent. Filtered air flow rate: approx. 140 litres per minute.	On a belt; the intake either at your side or back. Filtered air flow rate: approx. 120 litres per minute. Unit weight 2LB 10Oz / 1192grams
Comfort to wear	Very light head unit – easy to use.	Very easy to put on. Neck stress after several hours use	Takes time to connect hose for a proper seal and adjust the shroud. Comfortable for longer sessions of use (6 hours average)
Respiratory Safety Standards	NIOSH 42 CFR 84 (USA) Assigned Protection Factor (APF): 25	EN146 THP2 APF: 10	Conforms to AS/NZA 1716 to performance Class PAPR P1 or P2 APF: not available
average inside temperature & noise level inside helmet	3°C above ambient room temp. Noise level: <70 db at maximum airflow	2°C above ambient room temp. Noise level: >70dB	3°C above ambient room temp. Noise level; under 65 dB
Type of Filters & Standard, replacement costs	High Efficiency (HE) Particulate Filter, Adflo Cartridge (2 filters) for OV/SD/CL/HC vapors. Price: C$257.12 Approx.	2 filters: Pre-filter & Main filter (no rating) C$59.00 approx.	3 filters rated USA N95 class [1] *(see notes at end of article)* C$23.00 approx.
Conclusion	Use for wood and vapors protection with appropriate filters, up to 6 hrs of continuous use. Wood & Chemical use with dual filters	Good for short sessions of use up-to 4 hours, unless you operate with 2 battery packs. Wood use only.	Can use comfortably for up to 6 hours continuously. Wood use only. Can also use while sanding-off or turning wood with PU coating - with proper filters (see note in article)
Suggested Improvements	-Stabilize shroud with a guard on the bottom – to minimize chin contact with fabric at the bottom part of the shroud.	--reduce motor noise -better fitting face-shroud to reduce dust residues inside helmet	-Overlays for the face shield -Trickle charge battery -removable ear muffs w/fabric-velcro covers for shroud (reduce weight of unit) -stronger, cooler motor -battery strength meter

Michael's Review of Woodturner's Air Respirators

	3M ClearVisor with Adflo and HE PF System	Trend Powered Airshield	Triton Powered Respirator PRC001
Full Face Shield/Head/ Coverage	√		√
Visor: high impact resistant	√		√
Battery: maximum usage per charge (5 to 6 hours of use)	√	√ *only with 2 batteries	√
Battery: trickle charge with battery strength meter	√		
Motor , Air Intake & filters location on belt-pack	√		√
Face Shield / Head Unit weight	**1 Lb 5.5 Oz**	**1Lb 13 Oz**	**2 Lb 4 Oz**
Comfortable to use & wear during turning sessions of more than 4 hours			√
Meets Certain Respiratory Safety Standards, With appropriate filter	√	√	√
Average inside temperature in helmet is comfortable	√	√	√
Air-flow rate inside helmet (litres per minute)	**170 LPM** √	**140 LPM** √	**120 LPM** √
Price of Unit		√	√
Filters Replacement Costs (Low cost Maintenance)		√	√
Acceptable noise level inside helmet	√	**FAN NOISE APPARANT**	√
OVERALL RATING (12 = 100%)	**9**	**6**	**11**

The Project Corner —
Sphere Creations with a Cup Chuck
by Bob Rollings

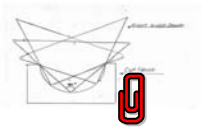
As a follow-up to my previous article titled "To Turn A Sphere", I would like to suggest some of the many projects you may want to create with your sphere. For some of these projects you will need to make a cup chuck. (see diagram—click on image to enlarge)



For example, if we have a 6" sphere we would use a piece of wood 8" x 8" x 4" to create the cup chuck.
Obviously, if the sphere were a different size, we would find the appropriately-sized piece of wood; it should be a minimum 1 ½" larger than the diameter of the sphere.

First, band saw the piece to roughly 8" diameter and mount it on a face plate. I prefer using a face plate rather than a scroll chuck so that I can be sure it will never lose its center— as I may take it off and on the lathe many times.

Having mounted it on the lathe and trued-up the outside and the face, I then scribe a line on the face equal to the diameter of the sphere that is going to hold i.e. 6 diameter.
I then start hollowing-out the center of the cup chuck; what I need to achieve is a perfect concave hemisphere ! As a guide in helping you to achieve this, it is important that the points on a right-angle square (90°) will touch on all 3 points— or it will show you where you have to remove more wood to achieve that result. (see diagram—click on image to enlarge)



Next, you should make a retaining ring for the cup chuck. It is best to use a piece of strong plywood for this. Bearing in mind that you need the ring to fit tightly over the sphere and almost but not quite up to center line of the sphere— you should screw it onto the cup chuck so that the concave side of the ring is facing you.

I then turn out the inside of the piece of plywood and cove it until it fits almost up to the center line of the sphere.
Having checked that the sphere fits in the cup chuck and that the retaining ring holds it firmly in place, you can now rotate the sphere to any position within the cup chuck. You can now start turning a star within the sphere, or a basket-form, or any other project which starts off as a sphere ! (see photos—click on image to enlarge)

I hope that I have inspired you to use your imagination and become a Wood Wizard !

continued from page 1—

DIAGRAM 1

You need to have some idea in your mind as to what the wood will be used for before you start. Is it bowls, vase forms, hollow turnings etc. that you want? There are several ways to actually cut out your vessel blanks, but more on this in a future newsletter.

Green logs and turning blanks can start to crack and check very quickly, so unless you are going to use your finds immediately, you will need to seal and store them for future use. I usually cut my logs pieces in half to remove the pith, and then I have 2 methods I use from there.

Method 1 is to cut the half log about 4 – 6" longer than its width (this is to allow for the inevitable end grain checking that will occur and still leave you a usable piece in the center) and then seal the ends with white PVA glue, oil-based paint or a proprietary sealer (Anchorseal etc.) For smaller pieces you can melt paraffin in a double boiler and dip the ends into the melted wax. Remember, when you want to use the wood you will still need to cut it to its final size etc.

Method 2 is to take the stock to the point where it is ready to turn. With a few cardboard circle templates, or a large compass and some chalk or crayons I can mark out the wanted vessel on the half log section and chainsaw or band saw it to shape and size (see picture 1). For short-term storage - up to a week or two I will place the cut blank in a plastic or paper bag without sealing it. I don't leave it unattended because molds and fungi will start to attack the wood very quickly beginning the spalting process. Although spalting can produce spectacular figure and colour, special care (air helmet etc.) is required when turning it. I have heard that breathing problems can result from the spores that are released. I regularly open up the bags and air out the piece until I get to turn it.

Picture 1

If I am not going to turn the cut to size blank for several weeks then I will seal the whole piece with end seal and put it my unheated storage shed out of direct sunlight, wind and rain. (See picture 2) The blanks will last quite awhile this way. Please remember that no matter how you seal the wood and store it, it will not stay sound forever. My preferred method however (time permitting) is to rough turn my blanks as soon as possible after cutting them to size. As a rule of thumb I turn the walls of the bowl or vessel to about one-tenth of the diameter (a 10" bowl would be left about 1" thick) and then coat the whole piece with end sealer. A consistent wall thickness is very important here so that no undue stresses are initiated. The piece is then stored in my cool garage and left to season. From this point the piece will slowly lose moisture to the air until it reaches equilibrium moisture content (EMC). You can weigh your pieces on a regular basis, (or check it with a moisture meter) – when it does not lose any more weight for two weeks or so then it is dry and ready to re-turn to final form. The time will vary depending upon your locale. For me, it takes about 6-8 months for a large bowl to air dry. Once dried it can then be remounted on the lathe and final-turned. (See picture 3) . Other options exist such as drying your blanks in a kiln, boiling, using a microwave, using the soap or alcohol soak routine, and so on. Each method has advantages and disadvantages. I stick to what works for me.

Picture 2

Picture 3

Of course you can avoid all of this fuss by just turning the blank to final form at the outset and leave it at that. Some people do this, especially with bark edge bowls. I don't like this method because the piece will ripple and deform as it dries, and it is more difficult to sand and finish.

I like a nice smooth and uniform surface on my turnings so I always rough turn my work, let it dry (picture 4) and then return it to final form, but each to their own.

Picture 4

Temporary Adhesives For Woodturning
by Richard Pikul

TEMPORARY ADHESIVES FOR WOODTURNING

A temporary adhesive makes a bond between two or more pieces of wood which can be taken apart without a great deal of effort. This article assumes that the purpose of the temporary glue joint is to hold a workpiece to a waste block or to join two or more pieces which must be turned together.

The bonding method must have sufficient strength to survive the turning process, yet be easily separated.

A "TEMPORARY" GLUE JOINT IS NOT AS RESILIENT OR STRONG AS A 'PERMANENT' GLUE JOINT. EXERCISE CAUTION; USE THE TAILSTOCK FOR ADDITIONAL SUPPORT AND TAKE LIGHT CUTS.

A temporary glue joint should not be more than twice its diameter away from the drive centre or chuck and the workpiece should not extend more than the same amount beyond the temporary glue joint without solid tailstock support. Yes you are correct, forget about deep hollowing using temporary glue joints. Before using any of the methods described in this article, make a few trials. It may take some experimentation to find a procedure that will work in your application and with the wood you choose.

PVA (Polyvinyl acetate) (white) glue / Kraft paper

This glue joint is made of Kraft paper sandwiched between two pieces of wood coated with PVA glue. Use Kraft paper that is 4 mil (0.004" / 0.1 mm) thick (standard Kraft paper envelope thickness). Thicker Kraft paper (such as 'heavy duty' Kraft paper envelopes) can be used, resulting in a weaker, easier to separate glue joint. This method doesn't seem to work as well with aliphatic resin (yellow) glue. I have found that the bond is too difficult to separate (I must experiment to find out why – when I have some free time).

To make the joint, place a minimal amount of glue, spread evenly, on each piece of wood to be joined. Place the Kraft paper on one piece and put the next piece (with glue applied) against the Kraft paper. VERY LIGHTLY clamp the pieces together for about 45 minutes, then allow the glue to cure an additional 8 hours before turning. After the joint is separated, some paper and glue will remain on the workpiece and will need to be removed, either by turning or by sanding off the lathe. Kraft paper can be purchased in rolls at any office supply retailer. If you only require small amounts, just purchase a few standard Kraft paper envelopes and cut them up. Do not use PVA glues if the workpiece is end grain the glue will penetrate the end grain.

Double-Backed Tape

Double-backed tape is the easiest choice. It's inexpensive, quick to apply, requires no special equipment and the pieces can be separated easily (usually) with a thin knife or by twisting the pieces to break the bond. After the joint is separated, and the tape removed, there are usually only a few dots of glue residue remaining, a plastic pencil eraser makes short work of removing them. There are a few pitfalls, of course!

Breaking a joint made with foam or rubber cored double backed tape is easily done with a thin knife, but cleaning up the joint can be a chore. Since a foam or rubber tape joint is somewhat flexible, your workpiece may wobble while spinning. This can result in cone shaped cylinders or a broken bond due to the vibration set up while turning. Using the tailstock for support can minimize this problem. Rubber or thin foam tapes (less than 1mm (1/32") thick) are adaptable for turnings that have mating surfaces with minor mismatches.

I have not found any suitable thin plastic film tape. Even with nearly perfect, flat, matching surfaces, plastic film tapes are too thin and inflexible for the glue to make good contact with more than one side at a time.

Fabric carpet tapes perform very well. Carpet retailers / installers use tape with more suitable adhesive than the 'carpet' tapes sold at retail stores. Approach your carpet retailer, most will sell a roll to turners. The hardware / big box store tapes do work well, but the residue is harder to clean off.

The adhesive on all double backed tape creeps, use a tailstock while turning and leave the tailstock in place if the work stays on the lathe for long periods. A small, unsupported carpet tape glue joint can come apart if left on the lathe overnight, you may come back in the morning to find that the workpiece has fallen off. I wonder if this would be the best way to separate a double-backed tape glue joint (Gravity and Patience).

A small joint can creep while you turn – use a mechanical 'key' or clamp to stabilize such joints.

I have found that cotton core tapes have the best combination of characteristics to make a firm joint that is not too difficult to separate and left over adhesive is easily removed with a plastic or gum rubber eraser. 1" & 2" (25 & 50mm) cotton fabric 'turners' tape are available from Lee Valley Tools www.leevalley.com

Fabric tape holds well as long as both wood surfaces are clean, dry and matching. Cover the entire contact area with tape, leaving small gaps (if using more than one piece of tape) to prevent any lumps developing. Hold the joint together with firm pressure applied by the tailstock for 15 – 30 seconds, this will force the adhesive to 'creep' into position and make the joint more secure.

This method is most useful for shallow items such as plates, platters and segmented rings. If the workpiece is fairly light, or the glue joint covers a large area, final cuts can be made without tailstock support. Applying the tape directly to a faceplate also works well, but restricts turning at the base of your workpiece.

Hot Melt Glue

Before attempting any hot melt glue joint, make some trial joints first! There are many different kinds of hot melt glue with varying characteristics. Ethylene vinyl acetate (EVA) based hot melt glues intended for craft purposes are still quite soft at room temperature and may shear when turning. Hot melt glue is NOT suitable for wet or green wood. The latest type of hot melt available is a polyurethane reactive (PUR) adhesive. This type of hot melt glue will make a permanent bond after reacting with trace amounts of water so would not be suitable for a temporary joint in wood. Do not use hot melt glue containing fillers or fibers, the joint made is not as resilient and can crack when subjected to the shock and vibration of turning.

For a light strength temporary joint, a few dots of hot melt glue placed on the outside edge of the waste block surface, followed by quickly placing the workpiece against it can hold a small turning, or slightly larger turnings if the tailstock is used. Twist off the workpiece to separate the glue joint. Use a thin knife to partially cut through the outside edges of the dots if the joint does not separate easily.

To make a stronger joint, hot melt can still be used. Hold the pieces temporarily together with a just a few small dots of glue on the outside edge that can be easily removed later. Lay a continuous bead of hot melt glue (slowly so that it heats both pieces) in the corner of the 'shoulder' made by the different diameters of the mated pieces. Wait for the glue to cool thoroughly before turning. Turn away the hot melt glue bead when turning is completed. !!*Make very light cuts and use the tailstock to hold the workpiece when turning away the glue*!! Once the 'ring' of glue is turned away, the pieces can be easily separated as they are held together by only a few small dots of glue. A sharp knife and sandpaper will remove residual glue.

Product sources: just about everywhere a selection of hot melt glues are sold. I have found that you don't use the sticks included with an inexpensive glue gun purchase. Use glues rated for higher temperatures or strong adhesion.

Joints made with hot melt glue covering the entire surface of the joint is too strong to be easily separated. Also, the only way to successfully make this type of joint is to use a pot (electric frying pan is best) in which the glue sticks are melted. Dip the smaller of the pieces to be glued in the pan, hold for a few seconds to heat the wood, then immediately fit against the mating surface. This can be difficult to line up accurately, and will make a 'permanent' joint that must be turned away. Ken Bullock (New Brunswick) perfected this technique of using hot melt to glue rough turned bowls to a waste block / face plate. His web site was a font of information. Unfortunately, due to ill health, Ken no longer turns and he has also closed his web site.

'Two Coat' Rubber Cement

Two coat rubber cement is an old standby in the office to glue all kinds of materials together. It's becoming hard to find as the glue stick is replacing its function. This type of glue comes in liquid form (bottle with applicator) and in a spray can (much easier to use but almost impossible to find). *Caution: all rubber cements contain as much as 85% highly volatile solvents (hexane), flash point can be as low as –7°F (-21.7°C)! Use only in well-ventilated areas away from any heat or flame sources.* I used this stuff for years without knowing this fact!

Always try rubber cement on a piece of scrap of the same wood species as your workpiece. Some woods will be stained by the rubber cement. Brush or spray a layer of glue on each surface, immediately put the surfaces together. If the glue is still 'liquid', the pieces can be repositioned. If the solvent has mostly evaporated, the glue behaves much like contact cement and the pieces cannot be moved away from the initial contact point. It takes about 15 minutes for the glue to dry and the pieces must be held to together to prevent movement. Apply only enough glue to lightly coat the surfaces. If too much glue is applied, the pieces will 'float', making it difficult to position the pieces.

Turn with light cuts and use your tailstock for support. To break the joint, twist the two pieces apart. Note that the longer the joint is left intact, the harder it will be to separate, after a week the joint may be 'permanent'. Use rubber cement solvent to keep the glue viscosity constant and to clean up glue spills, residue and to 'soften' joints. A plastic or crepe rubber eraser will remove small pieces of glue residue.

Sources: Artists supply stores are a reliable source, sources listed below retail the Union Rubber Company "Best-Test" brand (http://www.best-testproducts.com/index1.html). "Elmers" and "Ross Rubber" are other manufacturers whose products are sold at some office supply retailers.

Curry's Artist's Materials (store locator on web site): http://www.currys.com/drafting/prodviewer.asp?catID=9

As I noted at the beginning, before using any of the methods described, experiment to see what will work in your application. In all cases, work safely – use your tailstock for support.

Next article: Adhesives for Cracks and Voids

Richard Pikul rpikul@sympatico.ca

Design 101 for Woodturners
by Fred Klap

DESIGN ELEMENTS: A TURNERS' VOICE

Every child starts out with a clean slate, and the ability to tackle any challenge. A mobile over a crib can generate screams of frustration from an infant. A stack of wooden blocks that will not get into the right alignment will frustrate a toddler no end. The Mickey mouse puppet that wont get into a toy fire engine can stress a little boy to the limit.
We turners, had the childish optimism knocked out of us on the anvil of life, However, happenstance placed us close to a wood lathe, and our exploratory instincts revived.

Once you are comfortable with this powerful machine, and have harnessed the various tools, gouges, scrapers and all the related accoutrements of turning, you can start your designer exercises. Dormant parts of your brain will start to function with childish enthusiasm.

Your goals are to combine texture, color, delicacy, and accuracy. Choice of finish, Natural edges, asymmetric designs, complimentary curves, the golden rule, deep hollowing , big vessels, miniatures, and pens, will be worthy of consideration.
When I start a project, I examine the intended blank. Perhaps sand a corner of the wood, apply some finish to see how it looks. Next I will make a series of sketches that are appropriate for the vessel. If I want to get a feeling for this new design, a cardboard silhouette will subject this design to the eyeball test.

We turners are fortunate, to work in a three dimensional format. We can lift our bowl or vase on a foot to cast a shadow, and add a floating feeling. The photo below shows the bowl raised ¼" above the table. This position elevates the view and creates a negative space around the piece which I personally find very pleasing.

Woodturning critics commonly define a negative space as an area within or around a turned object which enhances the lines and curves of the art piece.
These elements allow us more design options than single dimensional painters, and line artists.

Back to design, At this juncture, It is time to mount up the wood. After a few cuts reveal the figure, and the texture, It is time to refine your design. It may be appropriate to "bulk up" or "thin down" reduce the foot size, make a *serpentine curve* [1], or go to a perforated or textured presentation. Now that I have mentally visualized the turning, I re-work my templates and begin to turn. As I move from step to step I periodically place the piece at or above eye level to gage the feeling. If the figure is consistently good, plain, one sided, or ugly, now is the time to make up your mind. If the exercise is worth while proceed to refine each of the surfaces with freshly sharpened tools. Dull tools will tear out your precious figure , and destroy your intended design.
Distressed wood requires hardeners , small patches with sawdust , wood fillers, or epoxy will enhance the surface of your piece.
Wood finishes are a subjective decision, Wipe on oil finishes are very effective in most cases , however varnishes, sprays, paint, and burning all have their places. The turners feelings dictate the finish .
Before you start the finishing process There are a series of checks that I find very helpful.. Run your fingers over the surface , are there any ripples, bumps, tear outs or imperfections that can be attended to? Fill and sand these areas, and apply the finger test again. A bright light shining at an angle will reveal more blemishes to be sanded out. If it looks good, put your first coat of finish on your piece. After the appropriate waiting time, sand and repeat the light and finger test. When completed bring the finish up to the point where it feels good to you. Now you should critically look at your piece and give it your personal evaluation. Give it a grading percentage Is it 75% , 50% or 20%? Your efforts should give you satisfaction, you will always be competing with your original visualization, and expectations

Happy Turning .

Fred Klap
You can reach me at my studio 416 398 5640 or E-Mail me at: fred.klap@gmail.com

[1] *Serpentine curve: a S-type curve often displayed on a vase or the lip of a bowl*

The Importance of Proper Finishing

by Martin Groneng

What makes a woodturning beautiful in the "eyes of the holder" depends on two things; the design of the piece and the smooth flawless finish of its surface.

All too often, woodturners spend many hours or days designing and turning a "winner" and spend only minutes in "finishing" the piece. In this case, the end result shows just how little attention has been paid to the finishing aspect. Turnings that are entered into competitions which have poor finishes on them, stand little to no chance of winning a prize. Pieces are normally firstly viewed for design, secondly for workmanship and thirdly for the finish. Really, I think this is not much different than if one was looking at a new car, with the intent of buying it. If you like the design of the automobile and the vehicle is well put together, would you still buy it if the paint job is blotchy, full of runs, pitted, uneven, scuffed or scratched up? I would think not! The same applies to woodturnings. If the design of the car is imperfect and the assembly has some very minor details, yet the finish is "just superb", one would still be interested in buying the vehicle because it "looks good". In other words, the "finish is very important".

When it comes to competition judging of turnings, often the design and workmanship can be slightly overlooked, if the finish is superb. If the design is perfect and the workmanship is flawless, but the finish is poor, the piece will surely not get a high ranking or win a prize. That is reason why a good finish should be strived for at all times.

The important "base" ingredient for a good finish is sanding. The turning must be smooth. How smooth, is up to the individual, but I think a turning should be sanded to a 400 grit minimum. In most cases, that is sufficient to remove all "sanding marks" so that when the finish is applied, it is blemish free. If tool marks or sanding marks exist, the applied finish will not make them "go away", but will only further enhance those defects. One should go through the grits step by step from the coarser grit to the finer grit and not skip any of the grits. Each grit makes the piece smoother, as one proceeds. It is advisable to either force air blow or vacuum the turning between grits. This removes the dust and in particular, any of the "grit" that may have come off the paper and become lodged into the surface. This need is very prevalent when sanding ring porous woods, such as oak, ash or elm, as the dust and grit lodges in the porous rings. If the rings are full of dust and grit from the 220 step and some of this material dislodges during the final 400 sanding, it will surely create blemishes that will readily be visible in the end product. When sanding takes place, many minute concentric "rings**"** are created, whether it is spindle, faceplate or chuck turning. Thus, before moving to the next grit, when spindle sanding, it is advisable to lightly sand with the grain. If you are faceplate or chuck bowl turning, it is best to power sand; this creates a swirling effect from the sandpaper and thus eliminates the concentric circles. If a final rub down is done with 0000 steel wool, the final step should be to air blow or vacuum and wipe the piece with a clean lint free cotton rag to ensure there are no steel fibers left in the porous areas, voids, edges and bark inclusions. In other words, ensure the turning is dust free and clean.

Once a turning is sanded to the desired smoothness, it is ready for "the finish". There are many different commonly used finishes that are either oil based or lacquer, which are used on woodturnings. My preference is **MinWax tung oil** for final finishing. I usually give the piece two coats of tung oil sealer first. I use **Lee Valley sealer**. Sand with 400 grit between coats. I do my sanding anytime during the day and apply my finishes only first thing in the morning, when the shop area is "quiet" and there is no dust floating in the air. Of course, I clean up and vacuum at the end of each "shop" day, to minimize dust at all times. A clean shop is a safe shop. I finish all my turnings "on" the lathe. I usually use a chuck and if I desire to remove the piece from the chuck, I always mark my piece between #1 & #4 jaws for readily "same place" repositioning for each step in the process. I only finish the bottoms "off" the lathe. I always allow a day between coats of sealer and air blow or vacuum and wipe the piece between coats. Sealer dries quite fast, usually overnight. When it comes to the final tung oil applications, I fairly liberally brush the piece, not flood it. If the turning has many voids or bark inclusions where the oil may "pool", then I turn on the lathe (with a cardboard box resting on the lathe bed, slipped over the turning to eliminate an oil line from ceiling to floor) to spin off the excess finish. This only takes 5 seconds or so. I then go back and feather brush the turning and turn on the lathe again for about 3 seconds. This last step allows the centrifugal force to blend any brush lines. Let it sit a minimum of overnight, sand with 400 and repeat as many times as desirable, so there is no longer any "orange peel" effect, make sure that all tiny voids are filled and all dust marks are eliminated. *Lastly, run your index finger and thumb all along and in-between the walls of the piece to make sure the piece is uniformly smooth*. This "finishing" process may take a week, depending how many coats are required to build up the desired finish. I apply up to 6 coats on most of my turnings — or more, depending how the finish is building up. This results in a glossy finish. If you wish to "dampen" the gloss, a light rub down with 0000 steel wool should do the job. You will note that I do not wax my turnings. My pieces are finished for art gallery viewing; if I applied wax finishes the displayed pieces would become dull over time (when exposed to sunlight). Thus, if a wax is not used, the pieces do not become dull and cloudy looking in 6 months ; **David Ellsworth** does not wax his woodturnings for this very reason and I have followed his expertise. Of course, if one sees fit, the Beale buffing system can be used or the piece can be hand rubbed/buffed using a micro-crystalline wax, such as **Renaissance Wax**. If one hand buffs, ladies nylon stockings or panty hose (a hand
in each one) works the best.

Ah, a smooth finish and a beautiful turning! It's the finish that "makes" the turning and it takes time. A quick finish usually is just that, quick and not the smoothest. Do take your time and end up with a "winner", a beautiful smooth finish to be proud of!

Martin Groneng
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WGO MENTORS—HELP DESK

You asked us for technical help… Mentors Respond !

Penny McCahill wrote us and asked for help on how to unpack and set-up her new Oneway 2436 lathe; "I am not an engineer and I am not a linebacker! Have you any suggestions about handling this situation?".

Kevin Clay, from **Oneway Manufacturing** responds;

Putting a 2436 lathe into the basement is fairly straight forward. I have done it with only one other person than myself but that was on an easy set of stairs, three is a better number. You will also need a fridge dolly and a pizza to eat afterwards.

Remove the tailstock and tool rest and the end cover plate on the tailstock end.

Remove the headstock, it is held with 6 bolts and is keyed so that it can be removed and put back on. Make sure that you take the belt off the motor. While you are in the motor area you might as well disconnect the door switch wires. The wire are held together with connector that have little orange levers. Pull hard on the lever, it will pop out 90 degrees and you can remove the wires. Take note of where the wires came from so that you can put them back.

At the back of the machine the pendant is held in place with a collar and two set screws, remove the setscrews and drop the pendant onto the floor. The wire runs through a piece of pipe that is bolted to the machine. Remove the two bolts that hold the pipe in place and put it on the floor.

Now comes the tricky part. Open up the electrical box and remove the front cover from the drive. The drive is the biggest thing in the box. Follow the motor wire in from the motor mount area and you will see that the black cable will have the casing removed when it is near the drive exposing the 3 motor wires and the ground wire. The 3 motor wires are white, red and black and are attached to terminals T1, T2 and T3 in that order. If you have a digital camera take a picture. Remove the wire from the drive and the ground wire from the backer board. Loosen the strain relief and pull the motor wire from the box.

Take out the bolts that hold the tailstock leg in place and drop the tailstock end on the ground. Loosen the bolts that hold the headstock leg in place and remove 4 of them. At this point you should have two people lift the lathe so that it is standing on the tailstock end. Have two people hold the leg and have the third person remove the last two bolts. Set the leg on the floor.

The body of the lathe should now be all by itself. Put it on the fridge dolly and away you go. Be aware that with the motor end up it will be a little top heavy. Two guys on the handles and one person to help bump the lathe down the stairs. The guy on the bottom should be a fast runner so that he can get out of the way if the two guys up on top decide to let go.

After you get the lathe in place basically reverse the above procedure. I would put in all the headstock leg bolts finger tight before I set the headstock end down.

About the only tip I can give you is that for lifting the lathe up on end, stick a 2 x 4 under the bed bars and lift.

Once it is reassembled, eat the pizza

Regards, Kevin Clay , Web Site: http://www.oneway.ca Phone:1800-565-7288 Fax:(519) 271-8892

MEMBERS' GALLERY

Show & Tell— November 10th, 2005

Joe Houpt
Walnut Platter, Crotch Figure 19"D x 4"H. The entire piece was hand-sanded off the lathe, using a random orbit sander.

Martin Groneng
Cherry Burl hollow with a Ceylon ebony collar. It is 4 ½"D x 3"H, with a MinWax tung oil finish

TOOL TIP

To get the shine back onto your plastic or polycarbonate visor or protective glasses, spray on some anti-static
PLEXUS PLASTIC CLEANER PROTECTANT & POLISH
Available at Canadian Tire:
SKU#027-9268-8
http://www.plexusplasticcleaner.com

Woodturners Guild of Ontario—Guild Executive & General Contacts
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IT's YOUR GUILD - BE INVOLVED !

Share your talent and learn from others at the same time.

Do you have ideas for us ?

Please tell us how you can help - e-mail me at:

michaelfinkelsteinwoodturner@gmail.com