



Free State Chapter 141

MD, PA, VA, WV

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the chapter, you may contact the
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pertaining to the Newsletter
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agbush172@verizon.net

or (410)531-5307.

December / January – No.2011-01

President's Message

Merry Christmas and Happy Holidays to all! The holidays are rapidly approaching, and I don't think I'm ready yet! So much to do and so little time - if I could just figure out the magic to make my clocks run in reverse, I could probably get stuff done on time. The holidays are so great because they are a time of giving and goodwill, which I can only hope we can all maintain throughout the rest of the year. It can also be a time of great stress, so make a concerted effort to relax and enjoy your holidays while recharging your batteries. And with the recent cold snap, and snow already where some of you live, let me remind you of our bad weather policy regarding meetings. If the Frederick schools are closed on the date of our meeting, we will cancel - otherwise the meeting is on! If you have any doubt, call Neil Amrine and ask. Our program this time, as it is every January, is our annual "Show & Tell". Bring something rare, odd, unusual, sentimental, beautiful, ugly or mysterious - anything with a story you can tell and/or a horological item that will generate questions and comments. Tell your story and invite others to comment. If you cannot figure out what your treasure does or how it works, then bring it along and ask others to apply their knowledge and experience to solve the mystery. This meeting is always loads of fun because of your participation! It takes several people to make a good program, and it doesn't require any special talent; just bring a clock or watch (or anything related to clocks and watches) and provide a short explanation

or story. The audience takes over from there - it's that easy. **I will have three prizes to give out** for the best three presentations as determined by your show of appreciation. Whatever you do, don't miss this meeting; it is sure to be a great one, just as long as you participate. It will be fun!

I really hope you enjoyed our November program despite some technology challenges; as Bob Rothen loves to say, always wear your belt and suspenders; having a back-up plan saved the day. Everyone seemed to really enjoy **Ern Grover's** presentation on the clock with great legs and the related history lesson; I certainly learned a lot.

Finally, as always, please **remember our brave men and women serving in Iraq and Afghanistan**, as well as other dangerous places throughout the world. Many are serving on their fourth or fifth or even sixth deployment, and each time they face grave danger in defense of our great nation. These soldiers, sailors, airmen and marines are your sons and daughters, neighbors, friends and family, and our heroes. Please keep them and their families in your thoughts and prayers, every day, until they return home, and look for opportunities to say thank you to our folks in the military whenever you can.

Lou Orsini, president

Our next meeting will be Wednesday, January 12, 2011 at The Cozy Inn

Chapter 141 Minutes for the 10 November 2010 Meeting

Freestate 141 held their 11 November 2009 meeting at the Cozy Inn in Thurmont MD with approximately 35 members attending. The Mart was started at 5:30 pm with many interesting items. Lou Orsini, President, called the meeting to order at 7:15 pm by asking each person to stand and introduce themselves and tell something about their interests. Visitors, too, were asked to tell a little about themselves and their hobbies and interests. New member Denise Perme was introduced.



Clocksmiths electronic group, which you can find at <http://tech.groups.yahoo.com/group/Clocksmiths/>.

Ern talked about "The Clock With Great Legs" (a restoration project of the first tower clock to strike ships bells). It was an interesting story about the trials and tribulations of restoring this historic tower clock.

Great presentation.

The evening was enjoyed by all. Next Meeting 13 January 2011.

Patsy Rothen (Secretary) 8 December 2010

Treasurer's Tidbits

FREE STATE CHAPTER 141
MEMBERSHIP-RENEWAL APPLICATION
*NATIONAL ASSOCIATION
OF WATCH AND CLOCK COLLECTORS*

Date _____ NAWCC No. _____

Name _____

Spouse's Name _____

Address _____

City/State _____ Zip Code _____

Email _____ Phone _____

Your Primary Area of Interest _____

Hi folks!

I would remind all members to send in their dues, if they are not fully paid...

Contact me at Neil54@aol.com, or call me at 301-229-2587 if you have questions. I look forward to seeing everyone at the Cozy's in March. Please be prompt with your RSVPs for the meeting reservations. We need to know the head count for the meal so reservations can be made.



Thank you!!

Neil Amrine

Attention: It is important also to keep Joe Joyce (josephjoyce@comcast.net or 301-865-8464) advised of any change in your membership information, address changes, etc.

We cannot keep you informed if you don't keep us informed.

As of January 2007 Annual dues are only \$8.00 payable to **Free State Chapter 141**. Please send your check with this completed application to: Neil Amrine, 5621 Ogden Road, Bethesda, Maryland 20816. Phone:301-229-2587; email: neil54@aol.com

If you have an interest in clocks or watches you are invited to Our Next Meeting
Jan. 12, 2011 at the Cozy Inn

CHAPTER 141 PROGRAM FOR JAN 12, 2011

Annual Show & Tell: A chance to share your knowledge, experience and/or good fortune with the rest of us. Rules are simple; all you need to do is bring any item related to horology to the meeting and tell the other members what you know about it. There are no restrictions on what you bring or how you present it. Tell us about something in which you have expertise, or you can bring something you don't really know much about, and use this as an opportunity to challenge the rest of us to figure out what you have. Where else do you have an opportunity to ask questions of a roomful of horological experts. Surprise us with your special "find", your special project, your horological object of curiosity or a horological treasure you wish to share with us. This program is always enjoyable, and it's even more fun when you get personally involved. Don't miss the chance to share with and learn from others. These are always interesting meetings. We're looking forward to seeing you at the meeting. Come out and join us for a pleasant evening.

Bob Rothen

Meeting time is ~

Dinner: about 6:15 PM

Mart: Come early for the mart

Business/Program: follows dinner

MEETING RESERVATIONS: You may use the Meeting Reservation form below to mail in your reservations for the Free State Chapter 141 meetings. Please indicate the meeting date as you complete the form. You may also make reservations via e-mail to neil54@aol.com and providing Neil Amrine with the information requested on the meeting reservation form or by Calling Neil at 301-229-2587 and informing Neil directly. (Please RSVP at least 48 hours before the meeting date)



Cancellation Policy: Our policy on meeting cancellations is simple. If the Frederick schools are closed due to inclement weather on the day of our meeting, we will cancel. Otherwise, you can expect the meeting is on. In the event of a cancellation, Neil will try to contact everyone who has made reservations (especially those who don't live locally), but it's all based on the school decision. (Several Radio & TV stations in the region carry closure information including WMAR 2, WTTG 5, WJLA 7, WUSA 9, WBAL 11, WJZ 13, x 45, & WETA 26.)

Free State Chapter 141 Meeting Reservation Form

Reservation for Free State 141 Meeting on _____

Name _____

Guest Names _____

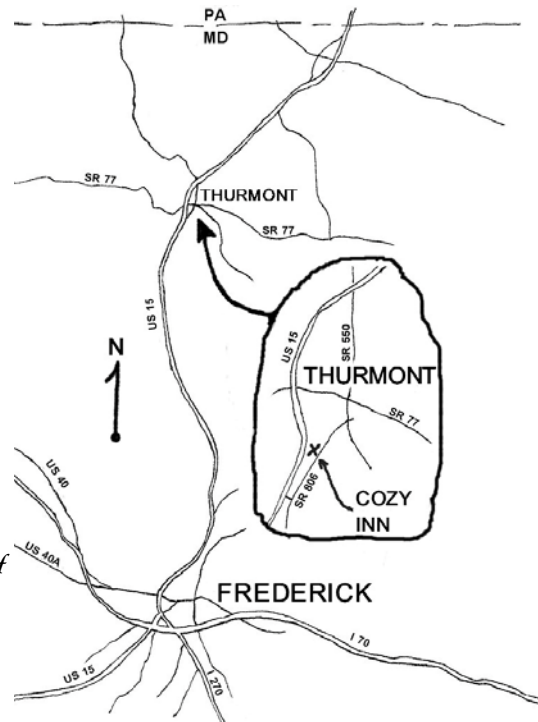
Number coming _____ x \$16.00 = Total \$ _____

Number of Mart Tables _____ (Mart Tables are Free)

Please make checks payable to Free State Chapter 141 and mail to Neil Amrine, 5621 Ogden Road, Bethesda, Maryland 20816

Phone: 301-229-2587; email: neil54@aol.com.

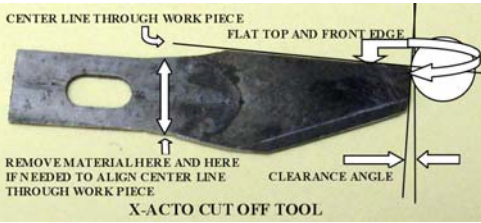
Directions: Cozy Inn is in Thurmont, about 16 miles north of Frederick. Take Route 15N if coming from Frederick or 15 South if coming from PA. Take the Thurmont ramp to MD806 and go east on Thurmont Blvd (right if traveling north, left if traveling south) for about a quarter mile, then take a left on Route 806 (Frederick Road) heading north. The restaurant is about 0.4 mile on the left. If you need additional directions please call the Cozy Inn at 301-271-7373.



Tic Toc Tech Tips

Bench tips with the Lathe

Recently I was reading an article relating to using tools with a small lathe. It mentioned using an X-acto tool as a cutoff tool. Turns out that I had done this several times in the past. It is tempered, narrow and can be shaped to serve well as a cutoff tool, especially for softer metals such as brass. The photo shows one of the cutoff tools I was able to make

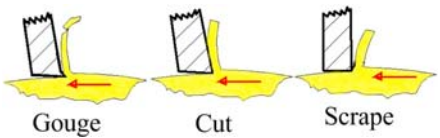


from an X-acto blade. After shaping, use a stone to hone its surfaces flat, sharp and allow for clearance. The second photo shows the tool in a tool holder being use on the lathe.



This would probably be a good time to elaborate on some other factors relating to lathe work. Several years ago I was studying electrical engineering and one of my engineering classes included instruction in using a lathe. To verify we had paid attention to the instructor, we were required to produce certain products using the lathe. One of the things that stuck out in my mind was how the metal meets the tool. See illustration. If it meets at too sharp of an angle, it may tend to dig in or gouge the metal. This can lock up the lathe, or bend the work piece or even jerk it out of the rotating chuck. If it has too shallow an angle, it will wind up scraping the metal off and will probably tend to dull the bit. Thus the angle of the bit contacting the work surface is critical for good craftsmanship. Other things affecting how smoothly the metal is removed from the work piece is the speed of rotation of the work piece, how deep a cut you are making and how sharp your bit is. The rigidity of the tool bit mounting is also important. It should be

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It should be tightly secured (or held if you are hand holding a graver tool) and the tool rest or holder should be rigid. There is a resonance point associated with the rotation, rigidity and other cutting parameters that can cause a vibration or chatter. This can result in a rough cut surface. A rough surface can be obtained also if a dull tool is scrapping or tearing the metal off of the work piece. The obvious remedy for the latter of these is to sharpen the bit. Chatter can also be controlled by changing the cutting speed, the amount of metal being removed or beeping up the tool holder or all of the above. A chip coming off the work piece similar to peeling an apple with one continuous peel indicates conditions are positive for good results. Usually a finish cut is made by taking a small amount of metal from the work piece at a higher speed. The tool bit shape can also affect the final surface as well. A sharp pointed bit, such as the center bit in the tool bit photo, will tend to leave marks on the work surface resembling screw threads. The smaller the cut and the slower the horizontal cutting speed the finer the surface will be. The bits on the right and left in the photo are for cuts moving horizontally across to the left or right and cutting sharp corners. A bit with a small radius on the tip will tend to clean up and smooth the surface. It also leaves a small fillet where abrupt diameter changes need to be made. On mechanical drawings, these fillets may be called out since a sharp right angle cut will be a stress point and in use and could lead to cracking or breakage at this point. The fillet gives some relief.

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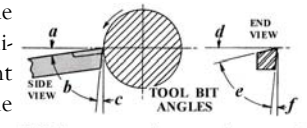


Often times you will see a liquid being used on the tool and work

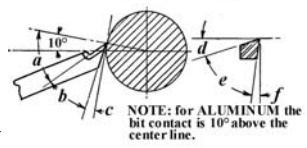
piece at the point of contact. This is a requirement for working with steel materials and serves as a coolant to prevent the work piece and tool bit from becoming over heated and loosing its temper. It also serves as a lubricant to reduce the friction of the tool moving in contact with the work piece. This helps with softer metals as well. Aluminum is somewhat tricky in that it is soft, "smears" easily and can build up on the tool bit cutting edge with disastrous results. Kerosene can provide lubrication to help relieve this problem on aluminum and provide a better cut. For the other metals a water oil solution is used for this purpose. It prolongs tool life and produces a smoother cut. Keep in mind that there are various alloys of aluminum and brass that give them different properties such as hardness. This means that some brass or aluminum will respond more readily to machining than a similar piece of different composition. Some brass can be machined dry (without lubricant). As many of you may know, brass wheels (gears) are sometimes if not often made of a different grade of brass than the plates for wear purposes. Brass is basically an alloy of copper and zinc and bronze is basically an alloy of copper and tin. Both are known to have variations including other metals and mixtures of different percentages as do various grades of steel. These factors affect ability to machine it. I have gleaned some numbers on machining speed for different metals in terms of feet per minute out of some of my reference books. Since the alloys of each material can vary greatly, these are ball park numbers.

Material	Hi Speed	Steel Bit	Carbide	Bit
	<u>Rough</u>	<u>Finish</u>	<u>Rough</u>	<u>Finish</u>
Cast Iron	55fpm	95fpm	160fpm	375fpm
Steel	45	78	150	275
Brass	250	250	800	800
Aluminum	400	700	800	1000

Carbide tips are, in my mind, excellent for cutting. The three bits in the photo are carbide. The carbide is attached on the tip of the bit and ground to shape. The following sketch shows the critical angles. The numbers are listed in the chart. These numbers are for high speed steel bits but I use the same numbers for the carbide. When working with tricky aluminum the configuration is slightly different as shown in the second sketch. After one gains experience, you will probably be able to look at the results on the work piece and determine what adjustments to make. Much of my data here was derived from referring back to my old text books, but since multiple variables come into play, the numbers are only approximate and can be modulated to meet the specific results you are attempting to achieve. Some of the references are: "Manufacturing Processes, Third Edition, Myron L. Begeman, John Wiley & Sons, Inc, New York"



ANGLE	a	b	c	d	e	f
Mild Steel	8°	76°	6°	22°	62°	6°
Cast Iron & Hard Steel	8°	76°	6°	14°	70°	6°
Brass & Bakelite	0°	84°	6°	0°	84°	6°
Aluminum*	45°*	37°	8°	18°	64°	8°



"The Complete Metalsmith, Revised Edition, Tim McCreight, Davis Publications, Inc., Worcester, Massachusetts" "Metal working, A Book of Tools, Materials, and Processes for the Handyman, Paul N. Hasluck, Originally published by David McKay in 1907, Reprinted By Lindsay Publications Inc., Bradley IL 60915"

"Properties of Engineering Materials, Glenn Murphy, CE, Ph. D., International Textbook Co., Scranton, PA"

"Machine Shop Methods, Lorus J. Maline, Prentice-Hall Inc., Reprinted by Lindsay Publications, Bradley, IL".

Al Bush 2011-01